

**Texas Association Of State Senior College & University Business  
Officers**

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July 13, 2015

**Mechanics of Cash Flow  
Forecasting**



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# Questions:

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- Would you try to build a house without a plan?
- Would you try to drive to an address across the country without a map?
- Would you try to bake a cake without a recipe?
- *Then why would you try to build an effective portfolio without a cash flow plan??*

# Cash Flow Information is Important

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- *In most cases where portfolios imploded or caused financial duress, it was due to a failure to consider the cash flow needs of the organization.*
- Cash flow models can set the portfolio on a firm foundation and should be the cornerstone for building the portfolio structure.

# Cash Flow Information is Important

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- How do Cash Flow Models Assist the Portfolio Manager?
  - Provide a Historical Perspective to Cash Needs
  - Identify Trends
  - Forecast Problems
    - Revenues Are Not Being Collected
    - Expenditures Are Exceeding Budget
  - Provide a Tool for Enhancing Investment Income

# Cash Flow Information is Important

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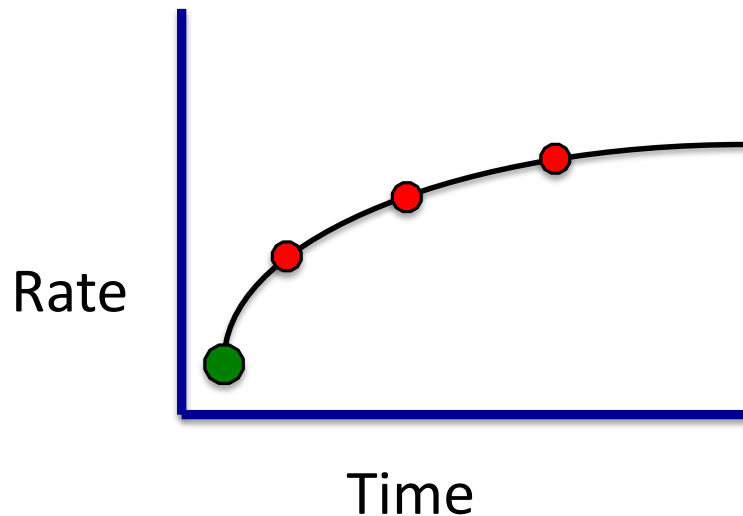
## Use Cash Flow to Ladder the Portfolio

- Importance of Laddering
  - Minimizes Impact of Changing Interest Rates
  - Diversifies Risk
  - Results in a More Dependable Return



# Yield Curve Opportunities

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- ✓ Normal Yield Curve Offers Higher Rates for Longer Term Maturities
- ✓ Cash Flow Model Identifies Potential Maturities Along the Yield Curve

# Where Do I Start?

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- Data is All Around You
  - Bank Statements
  - Portfolio Reports
  - Accounting Summary Reports
- How Much Time Will It Take?
  - Set Up and First Entries might take a day
  - Subsequent Maintenance should only take a few minutes/hours depending on the number of portfolios/accounts

# Analysis One

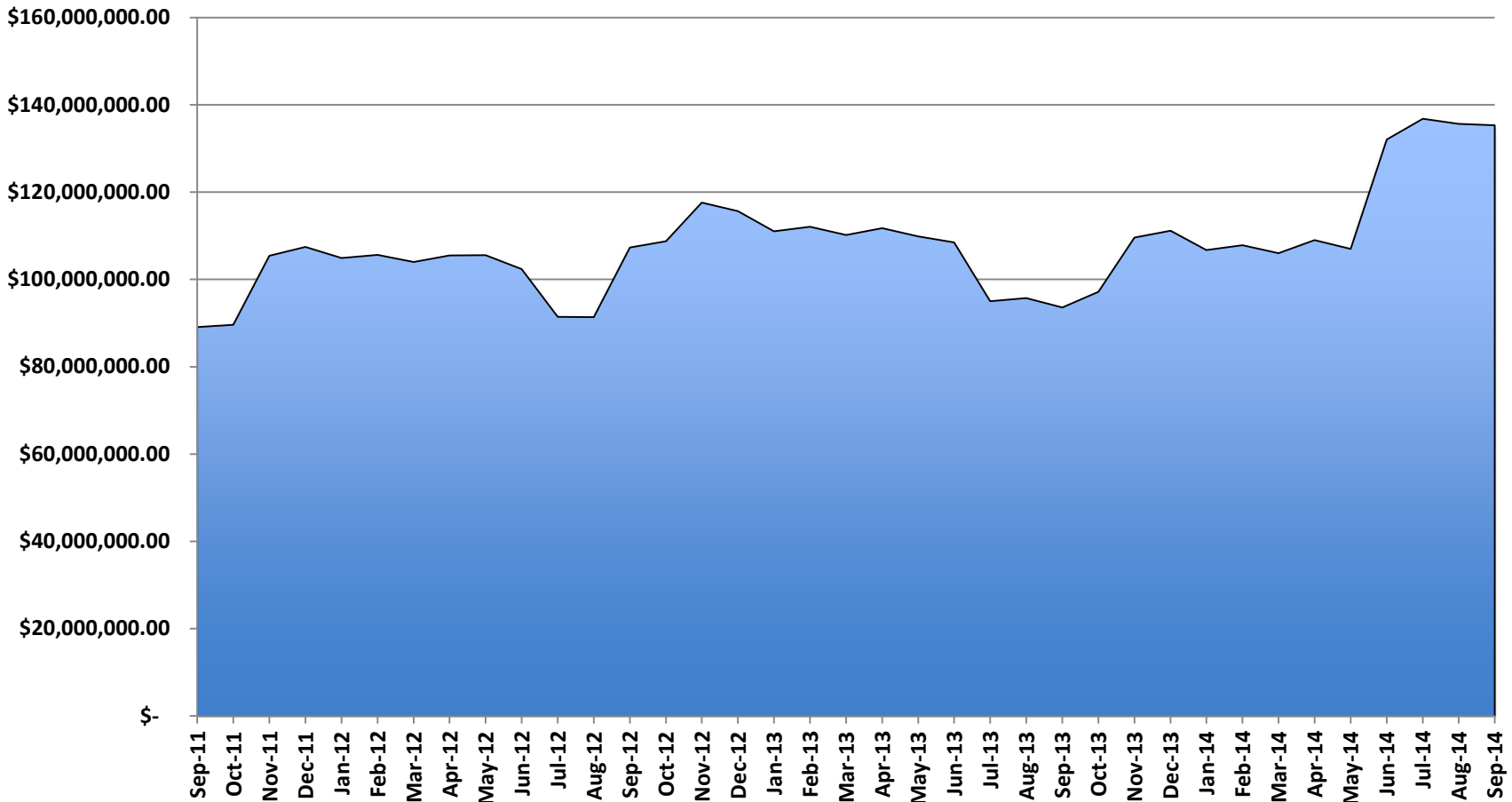
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- Cash Flow from Cash/Investment Perspective
  - Bank Statements
  - Monthly Portfolio Reports
- Collect Statements/Reports for Last Three Years
- On a spreadsheet, record the month-end balances for each bank account and the portfolio ending book values



<>	A	B	C	D	E
1	<b>Cash Flow Analysis</b>				
2					
3		<b>Sep-11</b>	<b>Oct-11</b>	<b>Nov-11</b>	<b>Dec-11</b>
4	<b>Bank Balance - Account A Ending</b>	\$ 1,058,758.15	\$ 1,228,203.94	\$ 1,078,340.55	\$ 715,132.18
5	<b>Bank Balance - Account B Ending</b>	\$ 1,281.72	\$ 1,582.12	\$ 2,955.13	\$ 2,222.00
6	<b>TexPool Balance - ending</b>	\$ 20,876,580.54	\$ 20,010,331.29	\$ 27,437,251.67	\$ 15,512,864.58
7	<b>TexStar Balance - Ending</b>	\$ 54,188,664.88	\$ 51,023,125.00	\$ 50,081,313.47	\$ 60,932,602.49
8	<b>TXClass Balance Ending</b>	\$ 7,952,017.12	\$ 10,325,559.48	\$ 16,858,574.14	\$ 16,266,746.76
9	<b>Bank Money Market Account Balance - ending</b>	\$ 14.00	\$ 14.00	\$ 14.00	\$ 14.00
10	<b>Securities &amp; CD Book Value - Ending</b>	\$ 5,000,000.00	\$ 7,000,000.00	\$ 10,000,000.00	\$ 14,000,000.00
11					
12					
13	<b>Total Portfolio Assets</b>	<b>\$89,077,316.41</b>	<b>\$ 89,588,815.83</b>	<b>\$105,458,448.96</b>	<b>\$ 107,429,582.01</b>
14					
15					

# College Investment Assets

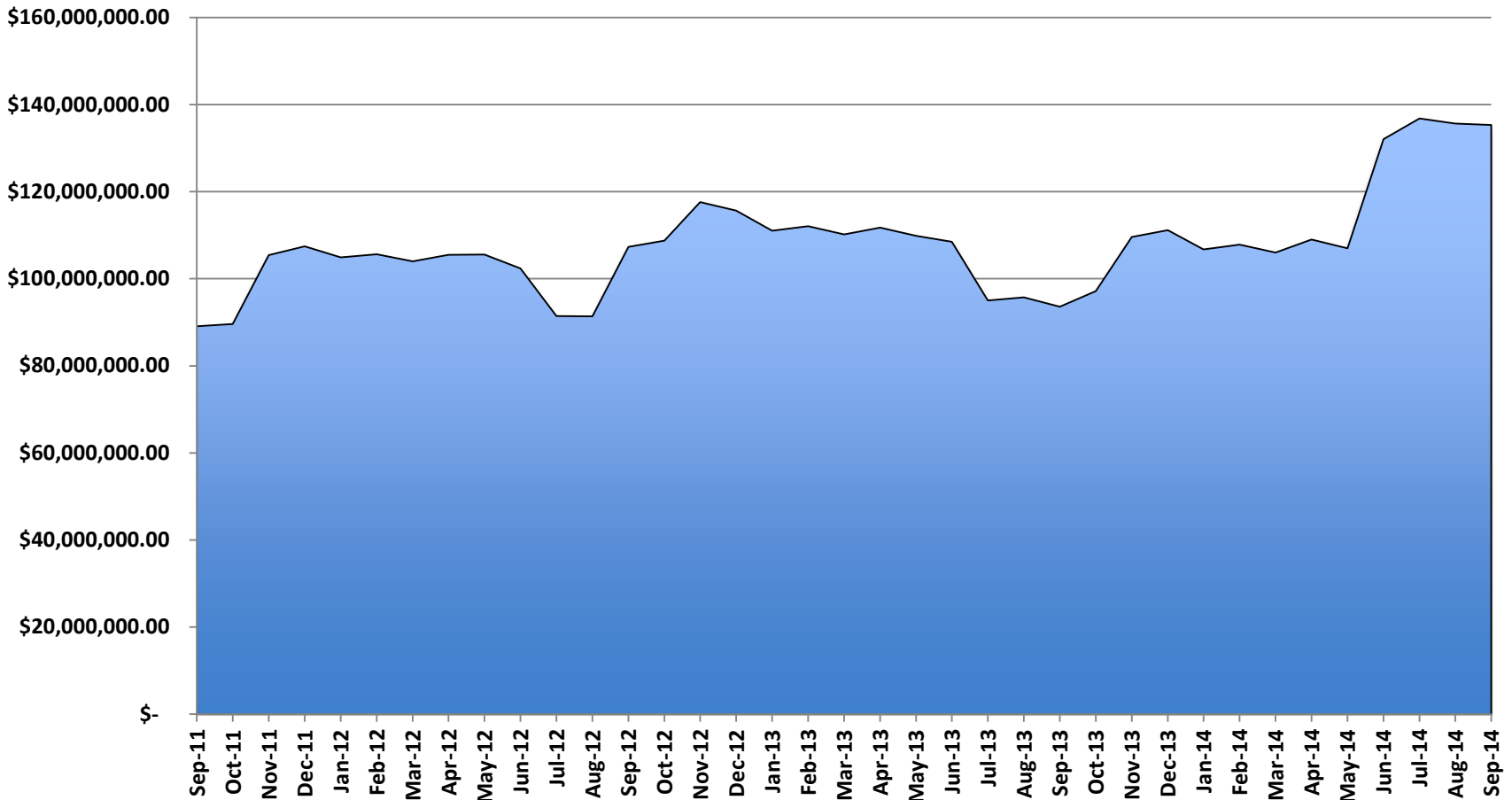


# Analysis Two

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- Portfolio Allocations
  - How much to keep liquid?
  - How much to take longer?
  - How to invest the rest?

## College Investment Assets

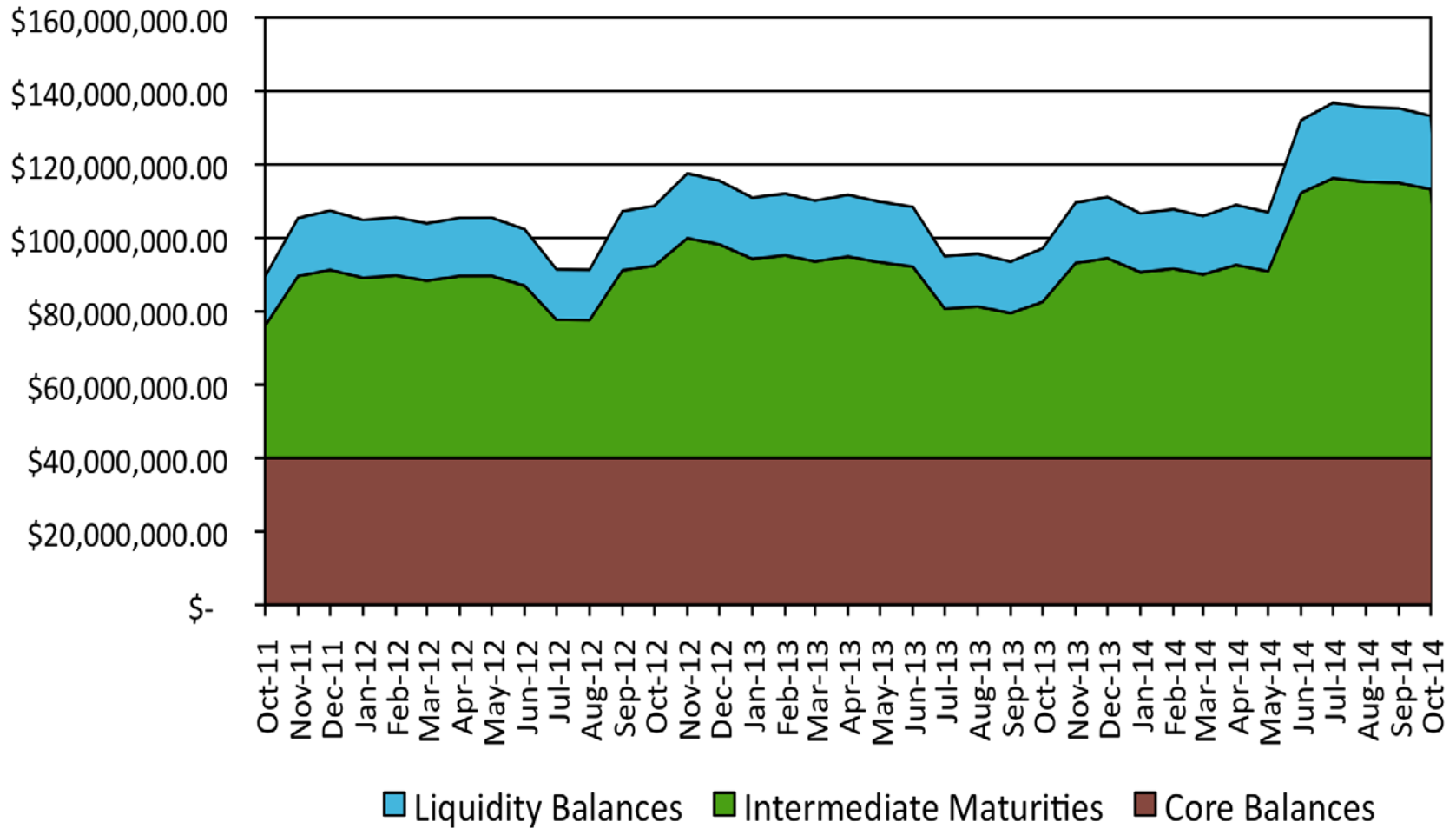


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13	<b>Total Portfolio Assets</b>	<b>\$89,077,316.41</b>	<b>\$ 89,588,815.83</b>	<b>\$105,458,448.96</b>	<b>\$ 107,429,582.01</b>	
14	<b>Input Investable Core</b>				<b>=B16</b>	
15	<b>Historical Balaces Graph Table</b>	<b>Sep-11</b>	<b>Oct-11</b>	<b>Nov-11</b>	<b>Dec-11</b>	
16	Core Base	\$ 40,000,000.00	\$ 40,000,000.00	\$ 40,000,000.00	\$ 40,000,000.00	
17	<b>=B13-B16-B18</b>	Portfolio Balance	\$ 35,715,707.01	\$ 36,150,481.55	\$ 49,639,669.72	\$ 51,315,132.81
18	<b>=B13*0.15</b>	Liquidity Base @ 15%	\$ 13,361,595.36	\$ 13,438,320.27	\$ 15,838,765.24	\$ 16,114,435.20

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**Note: Only input non-highlighted cells, the rest are calculated**

## College Historical Portfolio Balances



# Using the Historical Balances Graph

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- Completed Graph Shows Three Portfolio Divisions
  - Liquidity Component – the amount to deposit in Pools/MMA/MMMF to pay day-to-day bills
  - Intermediate Component – the amount used to ladder to address projected obligations during the year
  - Core Component – The longer-term foundation of the portfolio



# Analysis Three

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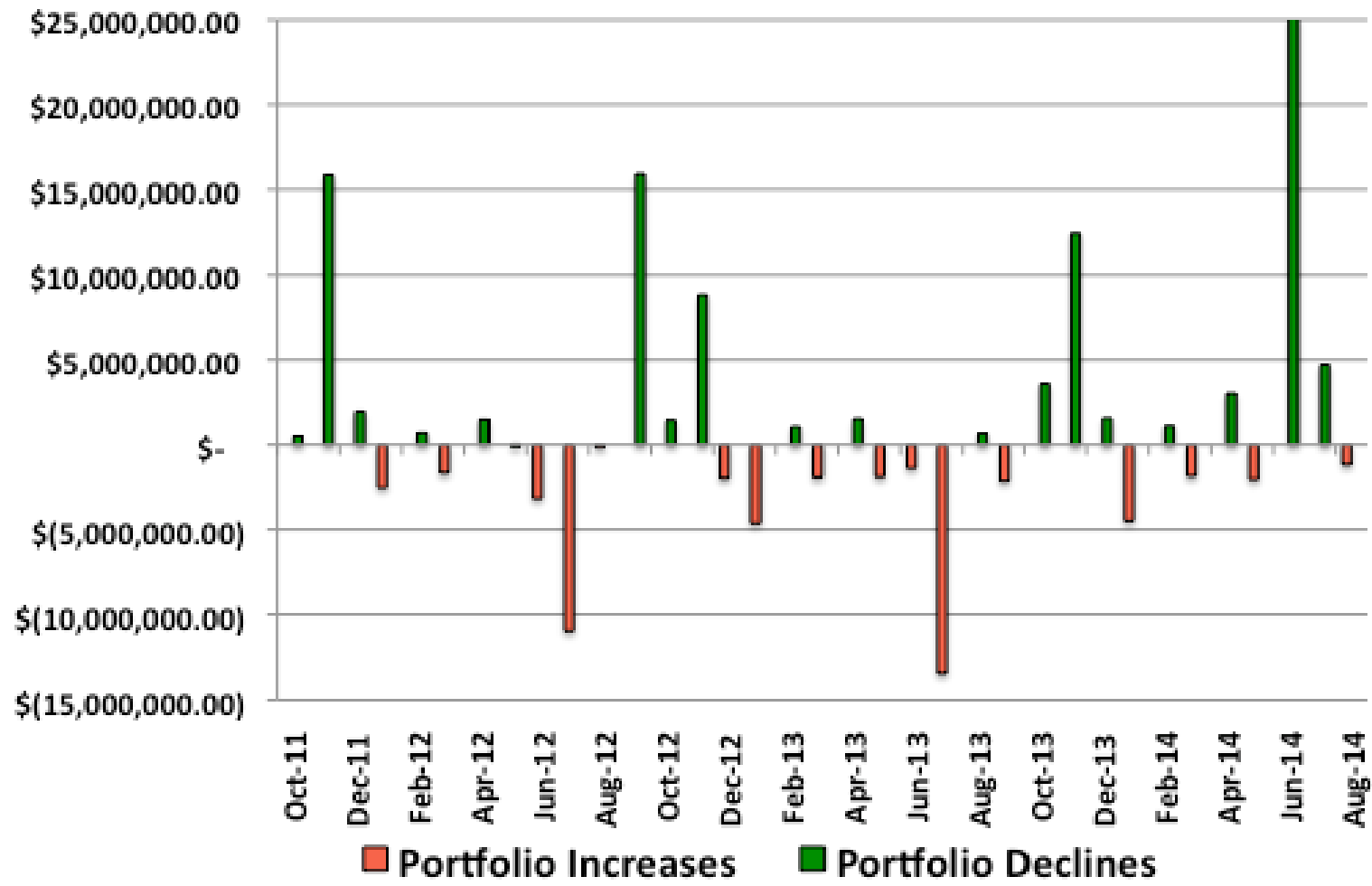
- Targeting Maturity Needs
  - Use a historical perspective
- Which Months Need Maturities and Which Do Not?

	A	B	C	D	E
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18	Liquidity Base @ 15%	\$ 13,361,595.36	\$ 13,438,320.27	\$ 15,838,765.24	\$ 16,114,435.20
19	<b>=C13-B13</b>				
20	<b>Net Change in Portfolio</b>		\$ 511,499.41	\$ 15,869,633.14	\$ 1,971,133.05
21	<b>Months with Net Declines in Portfolio</b>		\$ -	\$ -	\$ -
22	<b>Months with Net Increases in Portfolio</b>		\$ 511,499.41	\$ 15,869,633.14	\$ 1,971,133.05

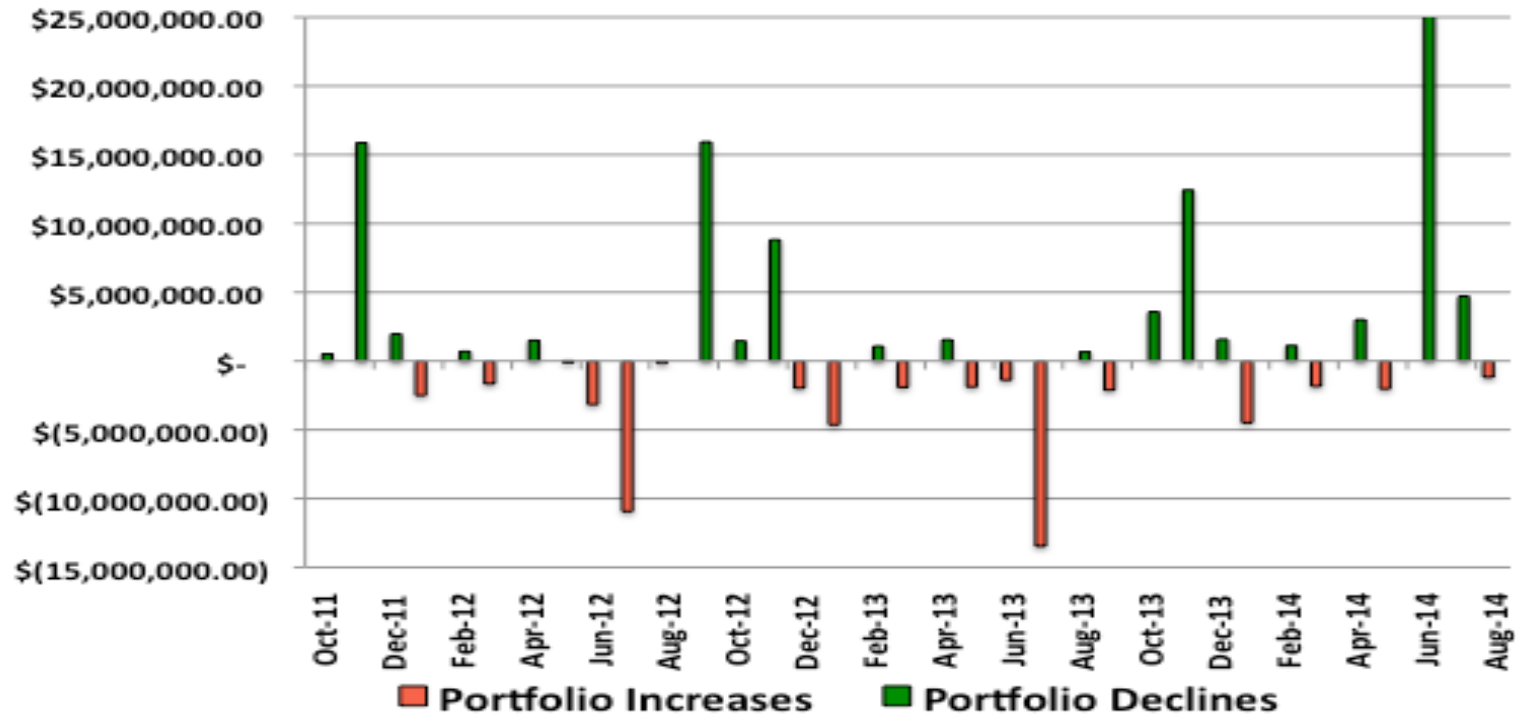
**=IF (C20>0,0, C20)**

**=IF (C20>0,C20,0)**

## College Monthly Portfolio Balance Change



## College Monthly Portfolio Balance Change



Look at the trends and evaluate each month relative to the same month in other years:

1. October, November and December are typically well funded
2. June, July and August are typically cash strapped  
(except when bond proceeds broke the trend)

# Methods of Analysis

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- Based upon the Historical Perspective:
  - Use the worst case scenario for each month
  - Perform an averaging for each month over the 3-year period
  - Use the last year as a benchmark
- Add a section to your spreadsheet to calculate, based on the preferred method

# Sample Analysis and Benefits

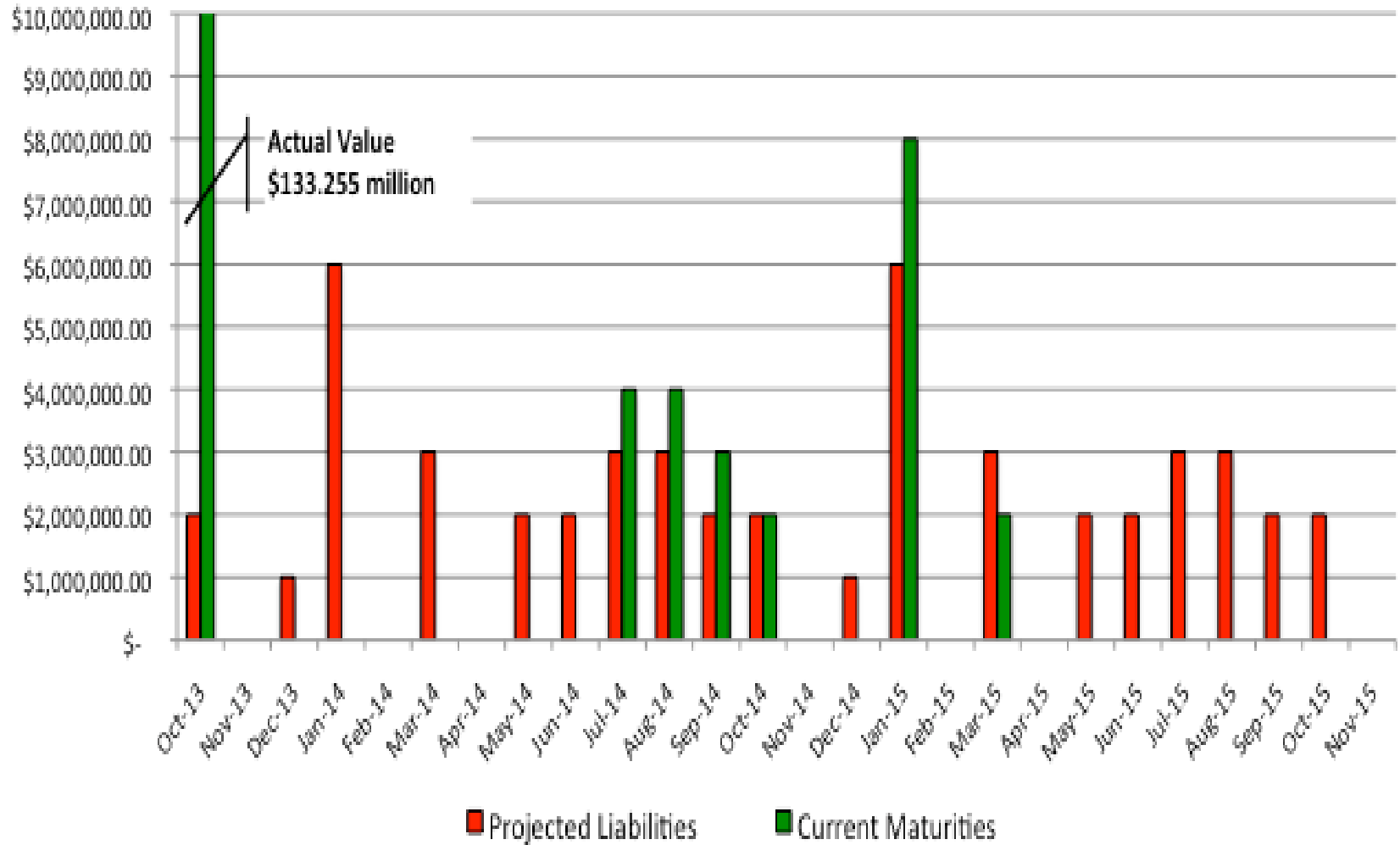
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- New City Client
  - Analysis Performed At Beginning of Fiscal Year When Tax Proceeds Were Received
  - Used Historical “Worst Case” as the Monthly Targets
  - Overlaid Current Portfolio to Graph

# Analyze All Graphs to Project Future Liabilities

<b>Graph Area for Projection Graphs:</b>			
		<b>Projected Liabilities</b>	<b>Actual Maturities</b>
Oct-13	\$	2,000,000.00	\$ 110,255,743.13
Nov-13	\$	-	
Dec-13	\$	1,000,000.00	
Jan-14	\$	6,000,000.00	
Feb-14	\$	-	
Mar-14	\$	3,000,000.00	
Apr-14	\$	-	
May-14	\$	2,000,000.00	
Jun-14	\$	2,000,000.00	
Jul-14	\$	3,000,000.00	\$ 4,000,000.00
Aug-14	\$	3,000,000.00	\$ 4,000,000.00
Sep-14	\$	2,000,000.00	\$ 3,000,000.00
Oct-14	\$	2,000,000.00	\$ 2,000,000.00
Nov-14	\$	-	\$ -
Dec-14	\$	1,000,000.00	
Jan-15	\$	6,000,000.00	\$ 8,000,000.00
Feb-15	\$	-	
Mar-15	\$	3,000,000.00	\$ 2,000,000.00
Apr-15	\$	-	
May-15	\$	2,000,000.00	
Jun-15	\$	2,000,000.00	
Jul-15	\$	3,000,000.00	
Aug-15	\$	3,000,000.00	
Sep-15	\$	2,000,000.00	
Oct-15	\$	2,000,000.00	
Nov-15	\$	-	
			\$ 133,255,743.13

City of \_\_\_\_\_  
**Current Maturities vs. Projected Liabilities**





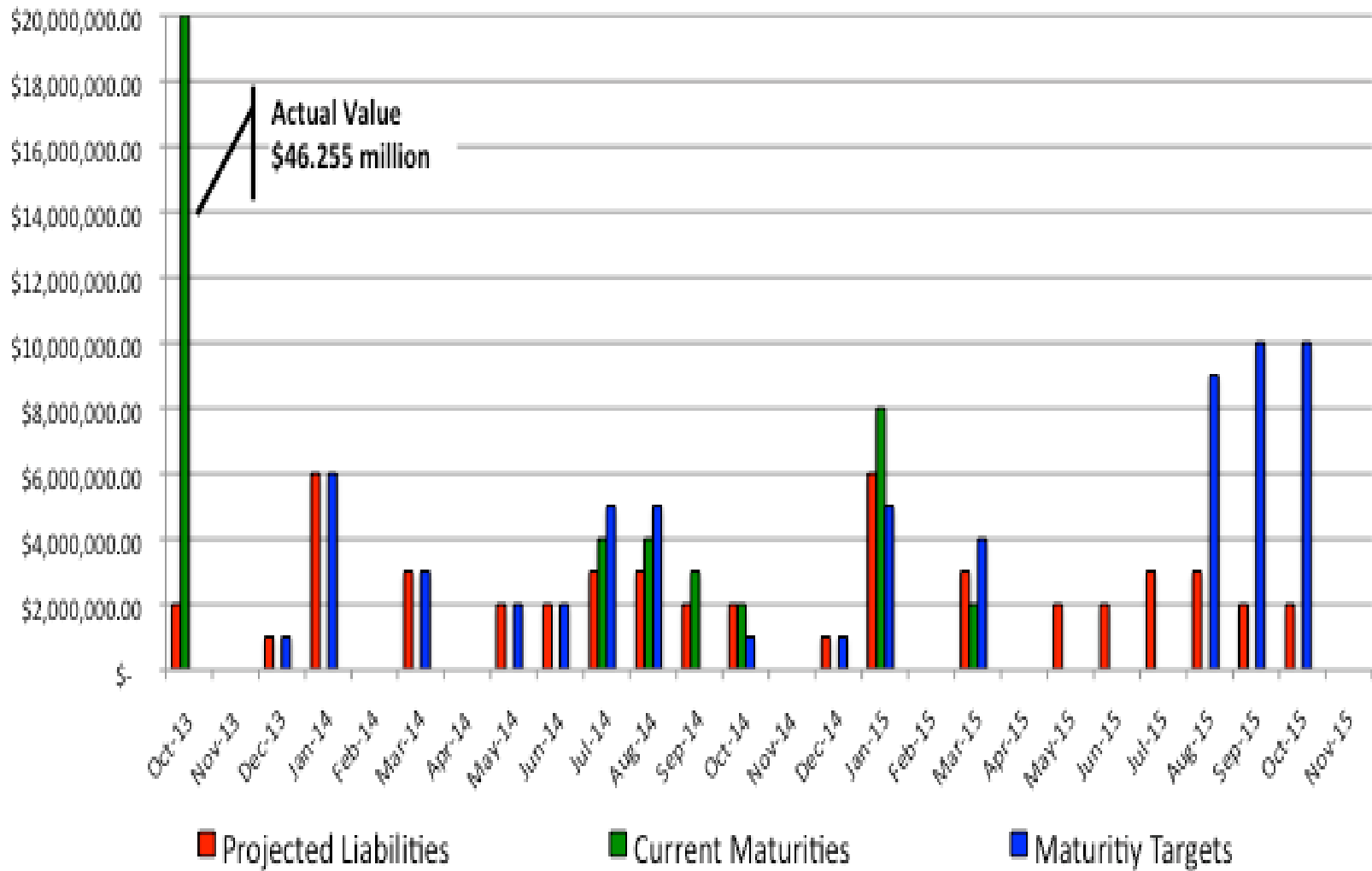
**Graph Area for Proposed Maturity Graphs:**

	<b>Projected Liabilities</b>	<b>Current Maturities w/liquidity Adj</b>	<b>Proposed Maturities</b>
Oct-13	\$ 2,000,000.00	\$ 46,255,732.13	
Nov-13	\$ -		
Dec-13	\$ 1,000,000.00		\$ 1,000,000.00
Jan-14	\$ 6,000,000.00		\$ 6,000,000.00
Feb-14	\$ -		
Mar-14	\$ 3,000,000.00		\$ 3,000,000.00
Apr-14	\$ -		
May-14	\$ 2,000,000.00		\$ 2,000,000.00
Jun-14	\$ 2,000,000.00		\$ 2,000,000.00
Jul-14	\$ 3,000,000.00	\$ 4,000,000.00	\$ 5,000,000.00
Aug-14	\$ 3,000,000.00	\$ 4,000,000.00	\$ 5,000,000.00
Sep-14	\$ 2,000,000.00	\$ 3,000,000.00	
Oct-14	\$ 2,000,000.00	\$ 2,000,000.00	\$ 1,000,000.00
Nov-14	\$ -	\$ -	
Dec-14	\$ 1,000,000.00		\$ 1,000,000.00
Jan-15	\$ 6,000,000.00	\$ 8,000,000.00	\$ 5,000,000.00
Feb-15	\$ -		
Mar-15	\$ 3,000,000.00	\$ 2,000,000.00	\$ 4,000,000.00
Apr-15	\$ -		
May-15	\$ 2,000,000.00		
Jun-15	\$ 2,000,000.00		
Jul-15	\$ 3,000,000.00		
Aug-15	\$ 3,000,000.00		\$ 9,000,000.00
Sep-15	\$ 2,000,000.00		\$ 10,000,000.00
Oct-15	\$ 2,000,000.00		\$ 10,000,000.00
Nov-15	\$ -		
		* \$ 69,255,732.13	\$ 64,000,000.00

**Graph Area for Proposed Maturity Graphs:**

	<b>Projected Liabilities</b>	<b>Current Maturities w/liquidity Adj</b>	<b>Proposed Maturities</b>
Oct-13	\$ 2,000,000.00	\$ 20,000,000.00	
Nov-13	\$ -		
Dec-13	\$ 1,000,000.00		\$ 1,000,000.00
Jan-14	\$ 6,000,000.00		\$ 6,000,000.00
Feb-14	\$ -		
Mar-14	\$ 3,000,000.00		\$ 3,000,000.00
Apr-14	\$ -		
May-14	\$ 2,000,000.00		\$ 2,000,000.00
Jun-14	\$ 2,000,000.00		\$ 2,000,000.00
Jul-14	\$ 3,000,000.00	\$ 4,000,000.00	\$ 5,000,000.00
Aug-14	\$ 3,000,000.00	\$ 4,000,000.00	\$ 5,000,000.00
Sep-14	\$ 2,000,000.00	\$ 3,000,000.00	
Oct-14	\$ 2,000,000.00	\$ 2,000,000.00	\$ 1,000,000.00
Nov-14	\$ -	\$ -	
Dec-14	\$ 1,000,000.00		\$ 1,000,000.00
Jan-15	\$ 6,000,000.00	\$ 8,000,000.00	\$ 5,000,000.00
Feb-15	\$ -		
Mar-15	\$ 3,000,000.00	\$ 2,000,000.00	\$ 4,000,000.00
Apr-15	\$ -		
May-15	\$ 2,000,000.00		
Jun-15	\$ 2,000,000.00		
Jul-15	\$ 3,000,000.00		
Aug-15	\$ 3,000,000.00		\$ 9,000,000.00
Sep-15	\$ 2,000,000.00		\$ 10,000,000.00
Oct-15	\$ 2,000,000.00		\$ 10,000,000.00
Nov-15	\$ -		
		* \$ 43,000,000.00	\$ 64,000,000.00
		<b>* Actual liquidity is</b>	
		<b>\$46,255,732.13</b>	

## City of \_\_\_\_\_ Proposed Maturity Targets



# Results of Sample Analysis

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- Initially, Portfolio was excessively liquid and yield was only slightly higher than Investment Pools
- New Portfolio addresses all maturity needs for at least a year and builds in a Core Component
- Portfolio remains significantly liquid to address any bond project needs
- As Portfolio matures, the Ladder will continue to roll

# How Will Cash Flow Analysis Enhance Your Management?

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- You will better understand your organization's cash flows
- You will be able to improve yields by not being too liquid
- You will be more comfortable with the investment strategy knowing that cash flow needs are covered for a longer period of time

# Questions?

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