Cash Flow Forecasting Made Easy

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"I REMEMBER WHEN TEA LEAVES WERE THE
STATE-OF-THE-ART METHOD OF FORECASTING."
CartoonStock.com

WHY DO CASH FLOW FORECASTING?

- It's your job (or someone in Finance)
- Ensure sufficient liquidity
- Inform investment decisions
- It's all about knowing when you will need your cash/liquidity

WHAT IS CASH FLOW FORECASTING?

- What’s coming in - what’s going out
  - Today
  - Tomorrow
  - Yesterday

- Cash flow forecasting is an art - it is NOT a science!
  - Estimates don’t need to be exact

- Cash flow forecasting is not the same as your cash balance
  - (Cash balance should be checked every day!)

- It’s all about knowing when you will need your cash/liquidity

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THE BASICS

- No need to think in budget years
  - WHEN DEVELOPING ONE IT SHOULD BE YEARLY
- Don't conflate a cash flow forecast with fund balance
- Expenditures and revenues can be unpredictable, but that can be addressed!
- Use tools already available and team members
  - EXCEL!

TYPES OF CASH FLOW FORECASTS

- Yearly Forecast
- Monthly Forecast
- Weekly Forecast
- Daily Forecast
- Project-Based Forecast

YEARLY FORECAST

- Estimates annual cash position
- Determines cash available for investments of more than 30 days
- Provides a useful monthly overview for investment decision-making
- Prepared for this fiscal year and next one to three fiscal years
- Rolling year

YEARLY EXAMPLE

	2023	2024	2025	2026	2027
Beg. Balance:	$ 500	$ 1,060	$ 1,702	$ 2,431	$ 3,254
Receipts:					
Property Tax	$ 7,820	$ 8,055	$ 8,296	$ 8,545	$ 8,801
Sales Tax	$ 3,050	$ 3,126	$ 3,204	$ 3,285	$ 3,367
Utility Billing	$ 4,400	$ 4,620	$ 4,851	$ 5,094	$ 5,348
Other	$ 120	$ 124	$ 128	$ 132	$ 136
Total	$15,390	$15,925	$16,479	$17,055	$17,652
Disbursements:					
Payroll	$13,454	$13,858	$14,273	$14,702	$15,143
Payables	$ 780	$ 811	$ 844	$ 877	$ 912
Capital projects	$ 458	$ 476	$ 495	$ 515	$ 536
Debt Service	$ 138	$ 138	$ 138	$ 138	$ 138
Total	$14,830	$15,283	$15,750	$16,232	$16,729
End Balance:	$ 1,060	$ 1,702	$ 2,431	$ 3,254	$ 4,177

MONTHLY FORECAST

- Estimates monthly cash position
- Determines cash available for investments of less than 30 days
- Monitors accuracy of annual forecast

MONTHLY EXAMPLE

	Jan	Feb	Mar	Apr	May	Jun	Total
Beg. Balance:	$500	$2,585	$3,044	$2,401	$1,669	$1,226	$500
Receipts:							
Property tax	$2,775	$975	$50	$10	$50	$50	$3,910
Sales tax	$250	$375	$200	$200	$250	$250	$1,525
Utility billing	$300	$300	$300	$300	$500	$500	$2,200
Other	$10	$10	$10	$10	$10	$10	$60
Total	$3,335	$1,660	$560	$520	$810	$810	$7,695
Disbursements:							
Payroll	$1,130	$1,103	$1,103	$1,103	$1,144	$1,144	$6,727
Payables	$65	$65	$65	$65	$65	$65	$390
Capital projects	$32	$33	$35	$38	$44	$47	$229
Debt Service	$23	$0	$0	$46	$0	$0	$69
Total	$1,250	$1,201	$1,203	$1,252	$1,253	$1,256	$7,415
End Balance:	$2,585	$3,044	$2,401	$1,669	$1,226	$780	$780

WEEKLY FORECAST

- Estimates weekly cash position
- Determines cash available for investments of less than 7 days
- Monitors accuracy of monthly forecast

WEEKLY EXAMPLE

Date:	Jan 2-8	Jan 9-15	Jan 16-22	Jan 23-29	Total	Jan 30-Feb 5	Feb 6-13	Feb 14-21	Feb 22-28	Total
Week:	1	2	3	4		5	6	7	8	
Beg. Balance:	$ 500	$ 520	$ 240	$ 1,800	$ 500	$ 2,585	$ 3,495	$ 3,245	$ 3,292	$2,585
Receipts:										
Property Tax	$ 10	$ 40	$ 1,570	$ 1,155	$2,775	$ 900	$ 50	$ 20	$ 5	$ 975
Sales Tax	$ 10	$ 10	$ 30	$ 200	$ 250	$ 15	$ 15	$ 45	$ 300	$ 375
Utility Billing	$ 10	$ 250	$ 30	$ 10	$ 300	$ 10	$ 250	$ 30	$ 10	$ 300
Other	$ 5	$ -	$ -	$ 5	$ 10	$ -	$ -	$ -	$ 10	$ 10
Total	$ 35	$ 300	$ 1,630	$ 1,370	$3,335	$ 925	$ 315	$ 95	$ 325	$1,660
Disbursements:										
Payroll	$ -	$ 565	$ -	$ 565	$1,130	$ -	$ 550	$ -	$ 553	$1,103
Payables	$ 15	$ 15	$ 15	$ 20	$ 65	$ 15	$ 15	$ 15	$ 20	$ 65
Capital projects	$ -	$ -	$ 32	$ -	$ 32	$ -	$ -	$ 33	$ -	$ 33
Debt Service	$ -	$ -	$ 23	$ -	$ 23	$ -	$ -	$ -	$ -	$ -
Total	$ 15	$ 580	$ 70	$ 585	$1,250	$ 15	$ 565	$ 48	$ 573	$1,201
End Balance:	$ 520	$ 240	$ 1,800	$ 2,585	$2,585	$ 3,495	$ 3,245	$ 3,292	$ 3,044	$3,044

DAILY FORECAST

- Predicts daily available fund balances
- Based on actual bank balances
- Operational in nature

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DAILY EXAMPLE

	2-Jan	3-Jan	4-Jan	5-Jan	6-Jan	Total	9-Jan	10-Jan	11-Jan	12-Jan	13-Jan	Total
Beg. Balance:	$500	$501	$506	$511	$515	$500	$520	$ 530	$ 542	$ 564	$ 773	$ 520
Receipts:												
Property Tax	$ -	$ -	$ -	$ 10	$ -	$ 10	$ -	$ -	$ -	$ 40	$ -	$ 40
Sales Tax	$ -	$ 2	$ 2	$ 4	$ 2	$ 10	$ -	$ 2	$ 2	$ 4	$ 2	$ 10
Utility Billing	$ -	$ 2	$ 2	$ 4	$ 2	$ 10	$ 10	$ 10	$ 20	$ 180	$ 30	$ 250
Other	$ 1	$ 1	$ 1	$ 1	$ 1	$ 5	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ 1	$ 5	$ 5	$ 19	$ 5	$ 35	$ 10	$ 12	$ 22	$ 224	$ 32	$ 300
Disbursements:												
Payroll	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 565	$ 565
Payables	$ -	$ -	$ -	$ 15	$ -	$ 15	$ -	$ -	$ -	$ 15	$ -	$ 15
Capital projects	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Debt Service	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total	$ -	$ -	$ -	$ 15	$ -	$ 15	$ -	$ -	$ -	$ 15	$ 565	$ 580
End Balance:	$501	$506	$511	$515	$520	$520	$530	$ 542	$ 564	$ 773	$ 240	$ 240

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PROJECT-BASED FORECAST

- Provides monthly data on status of capital projects
- May require input from contractors or in-house project managers
- Can be stand alone or be combined into consolidated cash forecast

PROJECT-BASED EXAMPLE

PROJECTED REQUISITIONS

Program	Allocation within Borrowing	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Fiscal Year Total
Sources								
Tax-Exempt Proceeds	**$11,400,000**	**$11,400,000**	**$9,150,000**	**$6,900,000**	**$5,200,000**	**$4,000,000**	**$2,800,000**	**$1,600,000**
Uses								
Basic Systems Repair Program	$9,500,000	$2,000,000	$2,000,000	$1,500,000	$1,000,000	$1,000,000	$1,000,000	$8,500,000
Adaptive Modification	$1,900,000	$250,000	$250,000	$200,000	$200,000	$200,000	$200,000	$1,300,000
Total Proceeds Expended	--	**$2,250,000**	**$2,250,000**	**$1,700,000**	**$1,200,000**	**$1,200,000**	**$1,200,000**	**$9,800,000**
Remaining Tax-Exempt Proceeds	--	**$9,150,000**	**$6,900,000**	**$5,200,000**	**$4,000,000**	**$2,800,000**	**$1,600,000**	**$1,600,000**
% Tax-Exempt Proceeds Expended	--	**20%**	**39%**	**54%**	**65%**	**75%**	**86%**	**86%**

ACTUAL REQUISITONS

Program	Allocation within Borrowing	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Fiscal Year Total
Tax-Exempt Proceeds Available	**$11,400,000**	**$11,400,000**	**$7,329,967**	**$6,041,036**	**$3,253,897**	**$3,253,897**	**$2,598,088**	**$2,010,796**
Basic Systems Repair Program	$9,500,000	$3,590,839	$1,117,668	$2,455,719	$0	$236,184	$540,396	$7,940,806
Adaptive Modification	$1,900,000	$479,194	$171,263	$331,420	$0	$419,625	$46,896	$1,448,398
Total Proceeds Expended	--	**$4,070,033**	**$1,288,931**	**$2,787,139**	**$0**	**$655,809**	**$587,292**	**$9,389,204**
Remaining Tax-Exempt Proceeds	--	**$7,329,967**	**$6,041,036**	**$3,253,897**	**$3,253,897**	**$2,598,088**	**$2,010,796**	**$2,010,796**
% Tax-Exempt Proceeds Expended	--	**36%**	**47%**	**71%**	**71%**	**77%**	**82%**	**82%**

HOW TO GET STARTED

- Collect the Information
  - Annual budget
  - General ledger
  - Capital plan
  - Investment reports
- Beginning Cash Balance
- Establish Cushion
  - How to determine amount

WHO IS INVOLVED?

- Finance/treasury office
- Budgeting office
- Capital planning office
- Other large departments where there are large payables and/or receivables
- Investment adviser

OUTSOURCING AND TOOLS

- Investment Adviser
- Other outside professionals
- ERP system
- Cash flow programs
- EXCEL

IDENTIFYING REVENUES AND EXPENDITURES

Major Revenue Types

- Property tax
- Sales tax
- Other taxes
- User fees
- Bond proceeds
- Non-recurring/Other:
  - Grants
  - Sale of assets

Major Expenditure Types

- Payroll and benefits
- Operating expenses
- Utilities/treatment charges
- Debt service
- Capital projects
- Non-recurring/Other:
  - Land acquisitions
  - Legal settlements

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DEGREE OF CERTAINTY

- **Fixed**
  - Payroll
  - Debt Service
  - Rent
- **Predictable**
  - Regular Accounts Payable
  - Utilities
  - Insurance
  - Capital Projects
  - Tax Receipts
- **Less Predictable**
  - Lawsuits/Settlements
  - Acquisitions/Sale

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KNOW WHAT'S COMING UP SOON

- **Assumptions Regarding How Historical Patterns Will Change Due to Current Conditions**
  - Labor negotiations
  - Changing benefit costs
  - Tax receipts

- **Non-recurrent Cash Flows**
  - Large purchases
  - Debt—new issuance and principal payments
  - Legal settlements

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FORECASTING RECEIPTS

- Identify 3-5 Categories For Major Sources of Revenue
  - Property tax daily receipts
  - Sales tax monthly receipts
  - Credit card daily receipts
  - Franchise fee quarterly receipts
- Compile Historical Data of Actual Monthly Receipts
- Identify Significant Changes
- Identify Non-recurring Items From Prior Years and For Coming Year
- Develop Analysis of Monthly Receipts As A Percent of Annual
- Adjust Historical Distribution For Known Differences

FORECASTING DISBURSEMENTS

- Establish Reasonable Number of Categories
  - Payroll - biweekly
  - Recurring Expenditures (e.g. utility, water, rent, etc)
  - Non-Payroll Costs
  - Capital Projects - variable
- Compile Historical Data of Actual Monthly Disbursements
- Identify Significant Changes
- Identify Non-recurring Items From Prior Years and For Coming Year
- Develop Analysis of Monthly Disbursements As A Percent of Annual
- Adjust Historical Distribution For Known Differences (e.g. seasonal/parks)

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FORECASTING NON-RECURRING ITEMS

- Look at Non-recurring Receipts
  - Bond proceeds, sale of assets, etc.
- Factor in Non-recurring Disbursements
  - Capital projects, capital purchases
- Work With Engineers or Project Managers to Develop Estimates For Capital Projects
- Work With Department Heads For Timing of Capital Purchases

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YOU WANT SOMETHING LIKE THIS

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FINE TUNING

- Detailed financial information
  - Revenue streams
    - Routine
    - Seasonal
  - Expenses
    - Routine
    - Periodic/seasonal
- Bank history
- Review past budget and financial reports
- Talk with other departments to understand their needs
- Investment snapshot

FORECASTING AND INVESTING

- Basics of Public Investing: **SAFETY – LIQUIDITY – YIELD**
- Key Objective: You Never Want to Have to Sell at a Loss to Meet Liquidity Needs!
- Know Your Liquidity Needs, to Have A Better Sense of the Available Time Horizons For Your Investment Strategies
  - When Do You Need The Funds?
- Know Permissible Investments Under State Laws and Your Entity's Code
  - Types of investments
  - Duration of investments
- Buy And Hold To Maturity (Passive) or Buy and Sell (Actively Managed)

POLICY AND ADVISORS

- Have Written Investment Policy and Strategies That Navigate Your Investment Portfolio
  - Types of permissible investments and investment options
    - Very short term (overnight)
    - Short term
    - Longer term
  - Duration of investments
  - Have and know your risk/diversification strategies
- External Adviser May Assist With Developing and Executing Strategy
- If Entity Does Not Use Investment Adviser, There Should Be Staff Dedicated to the Monitoring And Implementation of the Entity's Investment Program

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DIVERSIFY

- How Does an Entity Approach Knowing How Much Should be Invested in Different Types and Duration of Investments
  - Matching liquidity needs and investment horizons
  - Having a "cushion" in place
  - How far is too far out?
  - Understanding opportunity costs with not utilizing an investment strategy
    - "We just keep everything in the checking account"
    - "Don't have time to track and focus on this"
    - "I don't need, want or especially want to pay for an investment adviser"
    - We are coming out of a zero to negligible interest rate environment

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LIQUIDITY

- Based On
  - Six to twelve months projected net expenditures, or
  - One year's annual budgeted expenditures, or
  - Percent of total portfolio
  - With a "cushion" for the unknown

- These Factors Determine Average Maturity or Duration of Liquidity Component, and Allocation to Different Maturity Points
  - All in local government investment pool
  - **Laddered to match cash needs**
  - Or other short-term investment strategies

SO WHY IS CASH FLOW FORECASTING IMPORTANT?

- Ensure Entity's Liquidity of Funds to Meet Payables Needs
  - Avoid selling of investments to meet cash needs
- Be Aware of Receivables and Payables
  - Early warning system of cash deficits or extra funds
- Avoid Overdrafts!
  - Have all been there, but always important to avoid
- Be Able to Compare Against Historical Data to Identify any Irregularities
  - Fraud prevention
- Be Able to Prepare For One Time Unique Inflows and Outflows

  Know what's coming (e.g. Influx of ARPA funds, paying a legal settlement)
- Be Able to Invest Appropriately For Liquidity Purposes and Investing Reserves

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OVERCOME HURDLES

- Build Off Tools and Data Already In Place
- Acquire Overdraft Protection
- Consult With Bankers to Determine Other Techniques Available and Suitable For Each Individual Government to Fight Opportunity Costs
- Determine How Different Processes Can Help With Cash Flows
  - Cutting checks once a week
  - Frequent conversations with other departments about their needs
  - Keep an eye on outside variables (e.g., inflation, market conditions) that impact project costs and investment earnings

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REVIEW AND MAINTAIN

- Compare Actual Versus Forecast
- Identify Reasons For Variances
- Adjust Assumptions if Warranted
- Follow Up With Department Heads on Capital Project Slippage
- Update Database For Accurate Future Projection
- Retain Documentation For Future Reference
- Addressing Unexpected Issues Such as COVID or Other Non-entity Based Factors

QUESTIONS & ANSWERS