

Multi-Fund Invoice and Fund Accounting

One \$30,000 invoice, charged to three funds

City of Springfield · Government ERP product exercise · Brian Ference

What I built

1 A working prototype

It runs the suggested 8-step demo flow on fictional Springfield data, after a short "Why separate funds" primer. Three starting points: as keyed with three exceptions, coded correctly, or not yet coded.

- 1 Invoice entered

2 Fund split (entered or suggested)

3 Budget check by fund

4 Legal or restriction check
- 5 GL distribution preview

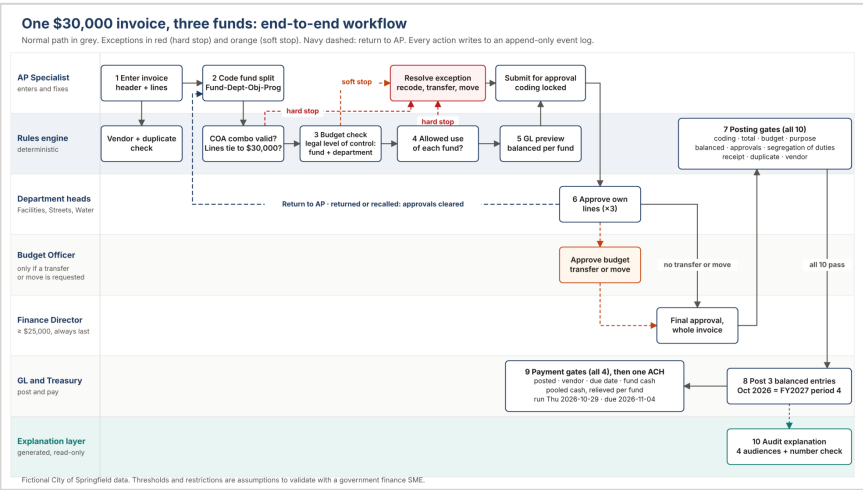
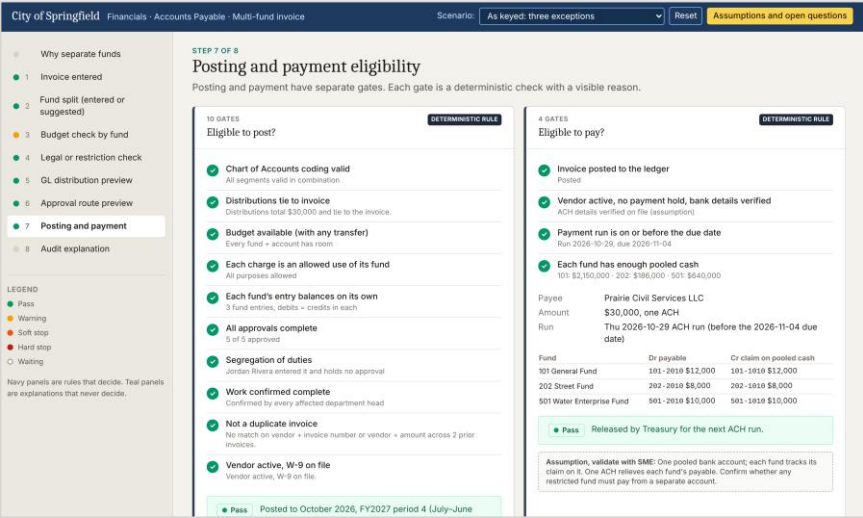
6 Approval route preview

7 Posting and payment

8 Audit explanation

2 Two diagrams. A swimlane workflow with the exception paths (right), and the data model behind the rules.

3 This deck. Assumptions, decisions, and what a finance SME needs to confirm.



The business problem

1

AP specialist
Codes one bill across funds, departments, objects and programs, and has to get it right the first time.

2

Department heads
Approve charges to their budget, but rarely know the fund rules or why a line was blocked.

3

Finance and auditors
Must prove restricted money paid only for allowed purposes, with evidence for every step.

\$30,000

one vendor invoice

3

funds, each a separate, self-balancing set of books

5

approvals: 3 department heads, Budget Officer, Finance Director

1

payment from pooled cash

Commercial AP sees one payable. The city sees three fund entries, each with its own legal limits. The job: let a clerk split, check and route one invoice so every approver and auditor can see why each dollar was allowed.

Fund accounting primer

GENERAL · GOVERNMENTAL 101 General Fund Money from: Taxes and fees, unrestricted Can pay for: Facilities and street maintenance Basis: Modified accrual	SPECIAL REVENUE · GOVERNMENTAL 202 Street Fund Money from: State motor fuel tax Can pay for: Streets only Basis: Modified accrual	ENTERPRISE · PROPRIETARY 501 Water Enterprise Fund Money from: Water rates Can pay for: The water system only Basis: Full accrual	
Why separate funds Much city money arrives with legal limits. Each fund is a self-balancing set of books that proves its money paid only for its purpose.	Fund vs department A fund is whose money and for what. A department is who spent it. They cross: Street Maintenance spends from 101 and 202.	No borrowing by recoding One fund cannot pay for another fund's purpose. Money moves between funds only by a formal transfer (assumed here to need council approval).	Modified vs full accrual Governmental: revenue when measurable and available, expenditures when the liability is incurred. Enterprise: full accrual, expenses, capitalize and depreciate.

Sources: GASB Codification Sec. 1300 via NY OSC guide ch. XVI.3.B and XVI.3.D; GASB 54 fund definitions via NC Treasurer memo. Fund revenue sources are scenario assumptions.

Key assumptions

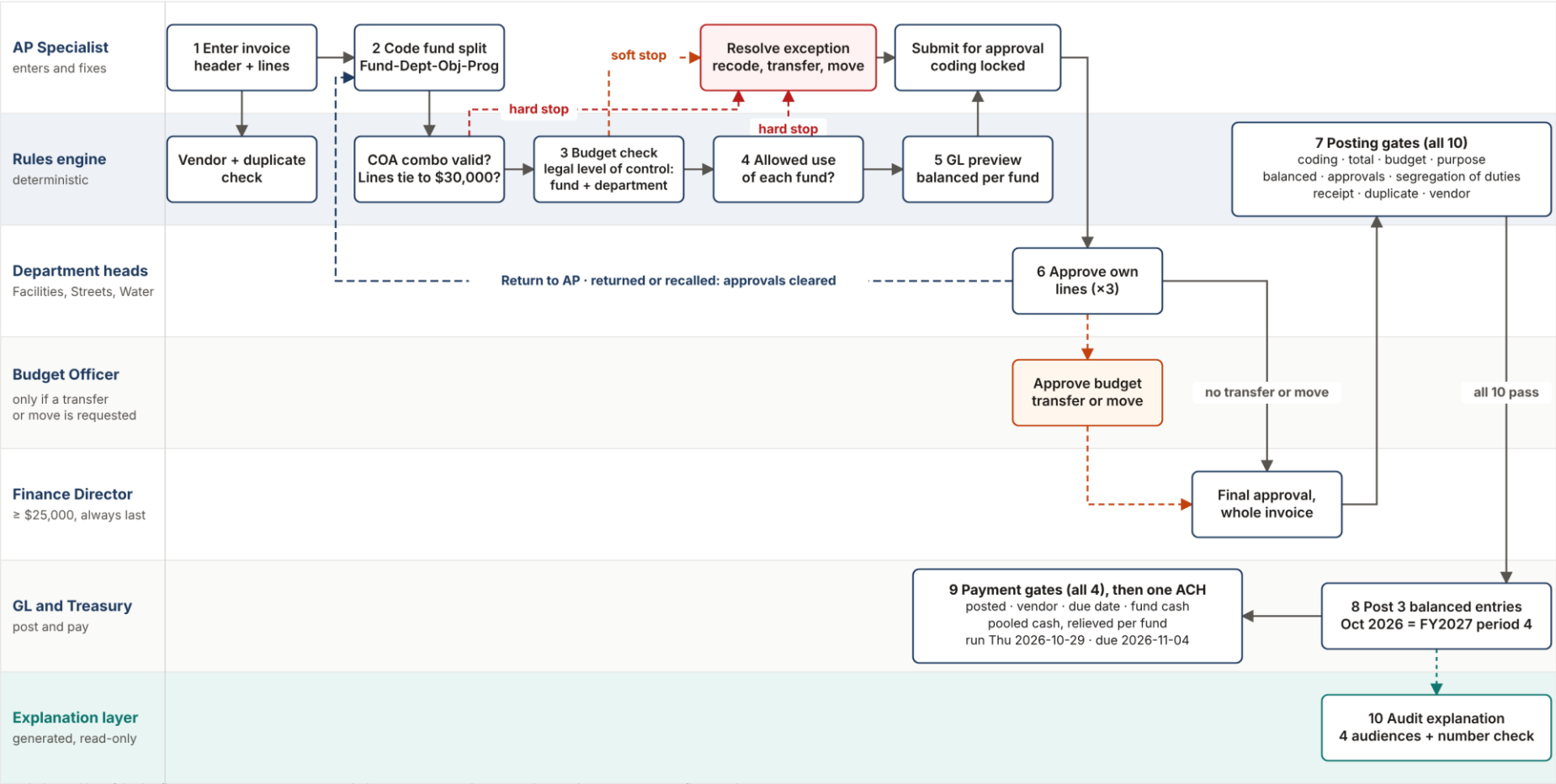
Data	All names, codes, budgets and people are fictional.	Invoice type	Non-PO invoice under a master services contract, so there is no encumbrance to liquidate.
Budget control	The legal level of budgetary control is fund plus department. Object is administrative.	Fiscal year	FY2027 runs July to June. Oct 2026 is period 4.
Street Fund	Funded by state motor fuel tax, restricted to street purposes.	Water Fund	Revenue restricted to the water system by rate ordinance and bond covenants.
Cash	Pooled cash. Each fund tracks its own equity in the pool.	Thresholds	Capitalization at \$25,000. Finance Director approval at \$25,000 and up.

All are in the prototype's Assumptions and open questions panel, for a government finance SME to confirm (slide 14).

End-to-end workflow

One \$30,000 invoice, three funds: end-to-end workflow

Normal path in grey. Exceptions in red (hard stop) and orange (soft stop). Navy dashed: return to AP. Every action writes to an append-only event log.



Fictional City of Springfield data. Thresholds and restrictions are assumptions to validate with a government finance SME.

Data model and rules

COA string. Every line carries Fund-Dept-Object-Program.

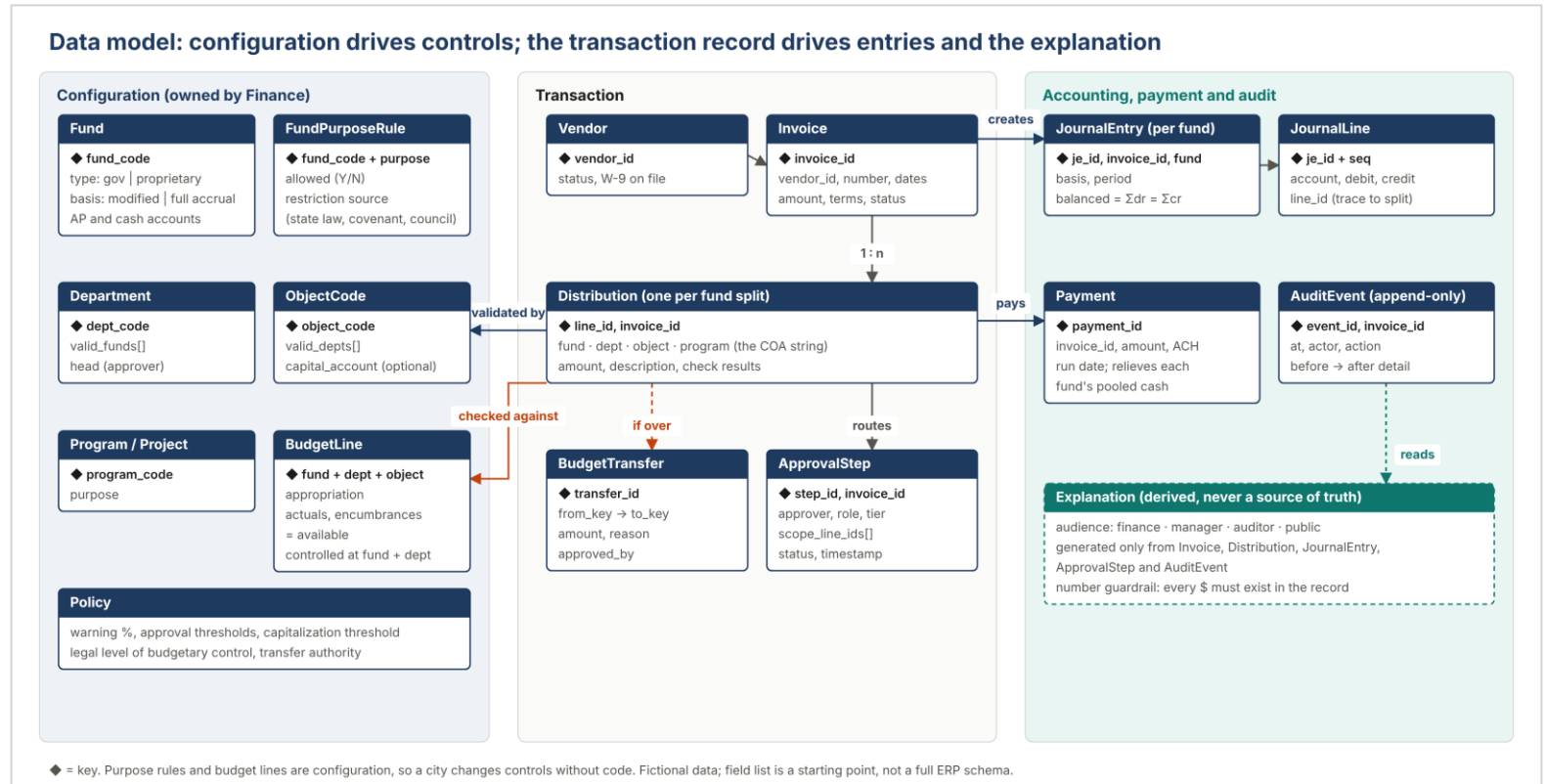
Dept to fund. Each department lists the funds it may spend from.

Object to dept. Each object is valid only for listed departments.

Purpose matrix. Each program purpose is allowed or not per fund.

Budget line. Available = appropriation minus actuals minus encumbrances.

Policy. Approval and warning thresholds are configuration, not code.



In production, Finance would change a restriction or a threshold in configuration, without a release. The explanation is derived and never a source of truth.

Controls and exceptions

As keyed	Check	Stop	Why that level	Required resolution
L1 101-610-5410: Dept 610 Water is not valid for the General Fund	COA combination	Hard stop	Invalid structure. Nobody can approve it.	Recode to Dept 140 Facilities, one click.
L2 202-310-5420: \$8,000 against \$6,500 available, \$1,500 over	Budget by fund and account	Soft stop	Budget has an authorized fix.	Transfer from 202-310-5460 with Budget Officer approval, or move \$1,500 to 101-310-5420.
L3 Water Fund charged to pothole program ST0726	Allowed use of fund	Hard stop	Restriction is law. It cannot be approved away.	Recode to water main program WM0311, or move to a fund that allows streets.

DISTRIBUTION LINES
Coding

DETERMINISTIC RULE

FUND	DEPARTMENT	OBJECT	PROGRAM	AMOUNT	CODING CHECK
L1 City Hall HVAC and roof flashing repair					
101 General Fund	610 Water Distribution	5410 Repairs & Maint. - Bu	FAC01 City Hall upkeep	12000	Hard stop
L2 Pothole patching, Oak Ave					
202 Street Fund	310 Street Maintenan	5420 Repairs & Maint. - St	ST0726 Pothole repair - O	8000	Pass
L3 Emergency water main break repair, Elm St					

AVAILABLE = BUDGET - ACTUALS - ENCUMBRANCES; BUDGET = APPROPRIATION + TRANSFERS

DETERMINISTIC RULE

Budget availability

FUND-DEPT-OBJECT	APPROPRIATION	TRANSFERS	ACTUALS	ENCUMBERED	AVAILABLE	THIS INVOICE	REMAINING	RESULT
101-140-5410 General Fund - lines L1	\$60,000	—	\$14,500	\$500	\$45,000	\$12,000	\$33,000	Pass
202-310-5420 Street Fund - lines L2	\$24,000	—	\$14,000	\$3,500	\$6,500	\$8,000	-\$1,500	Soft stop
501-610-5430 Water Enterprise Fund - lines L3	\$150,000	—	\$62,000	\$8,000	\$80,000	\$10,000	\$70,000	Pass

Soft stop

202-310-5420: Over budget by \$1,500. \$8,000 requested, \$6,500 available.
To resolve: Request a budget transfer within the same fund (Budget Officer approves), or move the overage to a fund whose purpose allows it (Budget Officer approves).

Request \$1,500 transfer from 202-310-5460 (street materials, \$12,000 available)

Move \$1,500 to General Fund 101-310-5420

PER LINE

DETERMINISTIC RULE

Is this an allowed use of the fund?

LINE	FUND	PROGRAM → PURPOSE	AMOUNT	RESULT
L1	101 General Fund	FAC01 City Hall upkeep → General government facilities	\$12,000	Pass
L2	202 Street Fund	ST0726 Pothole repair - Oak Ave → Street maintenance	\$8,000	Pass
L3	501 Water Enterprise Fund	ST0726 Pothole repair - Oak Ave → Street maintenance	\$10,000	Hard stop

Hard stop

L3: Street maintenance (program ST0726) is not an allowed use of the Water Enterprise Fund. Rate revenue and bond covenants limit use to the water system. Using it for street work would be a diversion of utility revenue.
To resolve: Recode the program to one this fund allows (WM0311 Main break repair - Elm St), or move the line to a fund that allows street maintenance (101 General Fund, 202 Street Fund).

Recode program to WM0311 Main break repair - Elm St

Every message says what is wrong, why, and the valid choices.

Approvals, posting, payment, audit

Approval route	10 posting gates	4 payment gates	Audit explanation
• Department heads approve their own lines: Ortiz, Lee, Shah. • Budget Officer Becker joins only when a transfer or move was requested. • Finance Director Grant approves last at \$25,000 and up. • 5 approvals here; 4 when no budget fix is needed. • Rivera (AP) keyed it and can never approve it. • Submit locks coding. Return or recall clears approvals.	1. Coding 2. Total ties to \$30,000 3. Budget 4. Purpose 5. Balanced per fund 6. Approvals 7. Segregation of duties 8. Receipt confirmed 9. Duplicate 10. Vendor <i>In production the posted record is read-only and corrections use a reversing entry.</i>	1. Posted 2. Vendor active 3. Due date: Thu 2026-10-29 run, before the 2026-11-04 due date 4. Fund cash available <i>One ACH for \$30,000. Each fund relieves its own payable.</i>	• For four audiences: finance, department manager, auditor, public. • Generated from the transaction record and event log. • Guardrail withholds text that names an amount, fund or person not in the record.

Department heads see only their own lines, the budget left after, and why they are on the route; the Finance Director sees all lines.

Accounting entries

On posting, one balanced entry per fund

Fund	Basis	Debit	Credit	Amount
101 General	Modified	Expenditure 101-140-5410	Accounts Payable 101-2010	\$12,000
202 Street	Modified	Expenditure 202-310-5420	Accounts Payable 202-2010	\$8,000
501 Water	Full accrual	Expense 501-610-5430	Accounts Payable 501-2010	\$10,000

On payment, each fund pays from its share of pooled cash

Fund	Basis	Debit	Credit	Amount
101 General	Modified	Accounts Payable 101-2010	Equity in Pooled Cash 101-1010	\$12,000
202 Street	Modified	Accounts Payable 202-2010	Equity in Pooled Cash 202-1010	\$8,000
501 Water	Full accrual	Accounts Payable 501-2010	Equity in Pooled Cash 501-1010	\$10,000

Debits equal credits inside each fund, not just in total. Entries shown after the approved L2 budget transfer.

Governmental vs enterprise

Expenditure vs expense. 101 and 202 record expenditures. 501 records an expense, like a business.

Capital. At \$25,000 and up, 501 would capitalize and depreciate. A governmental fund records a capital outlay expenditure.

Appropriation. In production the budget effect would post to the budgetary ledger only, not to these GL entries.

GENERAL - MODIFIED ACCRUAL 101 General Fund ACCOUNT DESCRIPTION DEBIT CREDIT 101-140-5410 Expenditure: Repairs & Maint. - Buildings (L1) \$12,000 101-2010 Accounts Payable \$12,000 Fund total - balanced \$12,000 \$12,000 Expenditure recognized when the liability is incurred (work completed), to be paid from current financial resources. Also charges \$12,000 against the legally adopted appropriation.	SPECIAL REVENUE - MODIFIED ACCRUAL 202 Street Fund ACCOUNT DESCRIPTION DEBIT CREDIT 202-310-5420 Expenditure: Repairs & Maint. - Streets (L2) \$8,000 202-2010 Accounts Payable \$8,000 Fund total - balanced \$8,000 \$8,000 Expenditure recognized when the liability is incurred (work completed), to be paid from current financial resources. Also charges \$8,000 against the legally adopted appropriation.	ENTERPRISE - FULL ACCRUAL 501 Water Enterprise Fund ACCOUNT DESCRIPTION DEBIT CREDIT 501-610-5430 Expense: Repairs & Maint. - Water Lines (L3) \$10,000 501-2010 Accounts Payable \$10,000 Fund total - balanced \$10,000 \$10,000 Recognized when incurred (full accrual) as an operating expense. The utility budget is tracked here too; whether it is legally binding depends on local law.
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Sources: NY OSC ch. XVI.3.D (expenditures vs expenses); Wisconsin Accounting Manual 16-03 (capital outlay vs capitalize).

Rules decide, AI explains

Deterministic rules	Assistive and generative	MEMBER OF THE PUBLIC Plain-English explanation
• COA, total, budget and purpose checks • Stop levels and required resolutions • Approval route, 10 posting and 4 payment gates • Journal entries, balanced per fund • Append-only event log	• Suggests coding from vendor history; the clerk accepts or rejects • Explains the record for four audiences • Never sets amounts, waives a stop, approves or posts • Text is withheld if it names an amount, fund or person not in the record	GENERATED EXPLANATION The City paid Prairie Civil Services LLC \$30,000 for three repair jobs. The bill has been posted and paid. The City keeps its money in separate funds because some money may only be spent on certain things. This bill was charged as follows: \$12,000 to the General Fund, \$8,000 to the Street Fund and \$10,000 to the Water Enterprise Fund. City Hall HVAC and roof flashing repair: allowed, because general government facilities is a permitted use of the General Fund. Pothole patching, Oak Ave: allowed, because street maintenance is a permitted use of the Street Fund. Emergency water main break repair, Elm St: allowed, because water utility operations is a permitted use of the Water Enterprise Fund. Before approval the system checked the coding, the budget and whether each fund may legally pay for the work, and staff corrected 3 problems it found. Approved by Dana Ortiz (Facilities Manager), Marcus Lee (Street Superintendent), Priya Shah (Water Utility Director), Tom Becker (Budget Officer) and Alicia Grant (Finance Director).

Why it matters: finance and audit will trust AI only if it cannot change the books. Keeping explanation downstream of a deterministic record lets an LLM be added later without re-validating the controls. In this prototype the suggestions and explanations are template-based stand-ins.

Trade-offs and MVP

Decision	Why	Cost
Hard stop for restrictions, soft stop for budget	Matches how a city can lawfully fix each	Stop levels must be configured per check
Validate at entry, not at approval	Fixes happen while the clerk has context	Rules setup before go-live
Approval by affected department	Department heads see only what they own	More approvers on multi-fund invoices
Show per-fund entries to users	Teaches the model and matches audit tests	A denser screen for casual users
AI suggests and explains only	Trust from finance and audit	Less automation in release one

In the MVP

- One invoice, multi-fund split
- COA, budget and purpose rules from configuration
- Stop levels with in-place resolution
- Generated approval route
- Per-fund GL and payment preview
- Audience-specific explanation

Not in the MVP

- PO match and encumbrance liquidation
- Grant rules
- Interfund transfers and loans
- Year-end accruals
- Real GL and bank integration
- Bulk and OCR invoice intake

Success measures and tests

Success measures

First-pass validation rate

invoices with no exceptions

Time to resolve an exception

flag to fix

Cycle time

receipt to payment-eligible

Rework after submission

approvals cleared by a return or recall

Fund misclassification findings

per audit

Manager comprehension

can explain a charge in one sentence

Baselines come from the city's current AP data before any target is set.

Usability tests, one per role

1

AP specialists

Can they fix a blocked line without help? Task time and errors.

2

Budget officers

Is the transfer request enough to approve without a call?

3

Department heads

Does their approval view show what they need, and nothing else?

4

Auditors

Are the explanation and event log sufficient evidence?

Validate and build next

Questions for a government finance SME

1. Is the legal level of budgetary control fund plus department, or lower?
2. Does motor fuel tax cover contracted pothole repair?
3. What do bond covenants let water revenue pay for, including shared costs?
4. Do enterprise funds encumber, and should non-PO invoices be checked at entry?
5. Are the \$25,000 capitalization and approval thresholds right?

Build next

Split-invoice detection. Flag invoices split to stay under an approval threshold.

Grant rules. Allowable cost and period checks on grant-funded lines.

Real LLM explanation. Behind the same guardrail that withholds mismatched text.

Delegation. Approver delegation with dates and a full audit trail.

Each answer changes a rule in configuration, so I would confirm these before building more.