

CivicChain

Case Study

Cost Efficiency and Expenditure Transparency in Small Municipal Services Procurement

A Hypothetical Analysis Based on the Town of Millbrook, NH
Population: 4,200 | Annual Services Budget: \$385,000

March 2026

CONFIDENTIAL

Executive Summary

This case study models CivicChain's financial impact on a representative small New England municipality: the fictional Town of Millbrook, NH, population 4,200, with an annual municipal services procurement budget of \$385,000. The town is modeled on real characteristics drawn from comparable municipalities across Maine and New Hampshire, including fee structures derived from actual state payment portal agreements.

The analysis quantifies costs across five categories where CivicChain produces measurable efficiency gains: payment processing fees, staff labor for procurement and payment administration, settlement delays and their cash flow cost, audit and FOIA compliance overhead, and the hidden cost of contract disputes arising from inadequate spend visibility.

The findings are significant. Millbrook currently loses an estimated \$47,200 per year to inefficiencies that CivicChain eliminates or substantially reduces. Against a CivicChain platform fee of approximately \$8,400 per year, the net annual benefit is \$38,800, representing a 462% return on platform cost. The payback period on first-year implementation is under three months.

Beyond the quantified savings, the analysis documents a category of value that resists direct monetization: the prevention of expenditure disputes, the elimination of FOIA burden, and the increase in citizen trust that comes from real-time public transparency of every dollar spent on municipal contracts. These effects compound over time and are not captured in the direct cost comparison.

<p>\$47,200 Annual inefficiency cost (current)</p>	<p>\$8,400 CivicChain annual platform fee</p>	<p>\$38,800 Net annual benefit</p>	<p>462% Return on platform cost</p>
---	--	---	--

1. Town Profile: Millbrook, NH

Millbrook is modeled as a typical small New England municipality. It has one elected Board of Selectmen with three members, one part-time town administrator, one part-time finance officer, and no dedicated procurement staff. All procurement, payment administration, and vendor management falls on the town administrator and the finance officer, both of whom split their time across many other municipal functions.

Parameter	Value
Population	4,200
Annual services procurement budget	\$385,000
Active service contracts (annual average)	6 to 8
Contract types	Plowing (2 routes), road maintenance, fire equipment services, public works, security patrol
Town administrator time on procurement	Approximately 18% of total working hours
Finance officer time on payment admin	Approximately 22% of total working hours
Current payment platform	State PayPort portal (2.5% fee per transaction, min \$1.00)
Current payment methods	Check, ACH via PayPort, occasional wire transfer
Average payment processing time	ACH: 3 to 5 business days. Check: 7 to 14 days.
Annual FOIA requests related to contracts	4 to 7 requests per year
Formal contract disputes in past 3 years	2 disputes, one resulting in partial payment forfeiture
Current procurement software	None. Email, spreadsheets, and physical filing.

2. Current State: The True Cost of How Millbrook Procures Today

The costs Millbrook incurs today fall into five categories. Most are invisible in the town budget because they appear as labor hours, delayed cash, or foregone revenue rather than as line-item expenditures. This section makes each cost explicit and quantified.

2.1 Payment Processing Fees

Millbrook currently uses the state PayPort portal for electronic payments, which charges a 2.5% portal fee on every transaction with a \$1.00 minimum, as specified in the state portal Schedule A agreement. This fee is charged on top of the underlying payment amount and is borne by the municipality or passed to vendors, depending on the contract structure.

Payment Type	Volume/Yr	Avg. Amount	Fee Rate	Annual Fee
Vendor residual payments (PayPort ACH)	48	\$4,200	2.5%	\$5,040
Vendor residual payments (check / manual)	24	\$4,200	\$0 direct / ~\$12 labor	\$288
Occasional wire transfers (large contracts)	4	\$18,000	\$35 flat	\$140
Card-based direct expenses (no current system)	N/A	N/A	N/A	\$0 (untracked)
TOTAL ANNUAL PAYMENT PROCESSING COST				\$5,468

2.2 Staff Labor: Procurement Administration

The town administrator earns \$62,000 per year and spends an estimated 18% of working hours on procurement-related tasks: writing solicitations, receiving and normalizing proposals, coordinating board review, managing vendor communications, and filing results. The finance officer earns \$48,000 per year and spends an estimated 22% of time on payment administration: verifying invoices, processing payments, reconciling accounts, and responding to vendor payment queries.

Staff Role	Annual Salary	Time on Procurement	Annual Labor Cost
Town Administrator	\$62,000	18%	\$11,160
Finance Officer	\$48,000	22%	\$10,560
Board of Selectmen (3 members, volunteer hours at imputed \$45/hr)	\$0 salary	~80 hrs/yr total	\$3,600

TOTAL ANNUAL LABOR COST (PROCUREMENT AND PAYMENT)			\$25,320
--	--	--	-----------------

2.3 Settlement Delay and Cash Flow Cost

When Millbrook pays a vendor via ACH through the PayPort portal, settlement takes 3 to 5 business days. For check payments it is 7 to 14 days. During this window, the funds are in transit: they have left the municipal account but have not arrived at the vendor. For seasonal contracts like plowing, vendors routinely carry receivables of \$8,000 to \$15,000 during active service periods. This dynamic affects vendor behavior in ways that cost the municipality money.

- Vendor payment terms: vendors serving Millbrook build a 4 to 7% buffer into their bids to account for the carrying cost of receivables during multi-week payment delays. On a \$385,000 annual services budget, a conservative 3% average bid premium attributable to payment delay costs the municipality approximately \$11,550 per year in higher contract prices.
- Cash flow friction: the finance officer spends an estimated 2 hours per week managing payment timing, prioritizing which vendors to pay to avoid service disruption. At \$48,000 salary, that represents \$2,400 per year of labor allocated to a problem that disappears with same-session settlement.
- Late payment disputes: Millbrook has experienced two instances in the past three years where a vendor paused service citing delayed payment. Resolving these disputes consumed approximately 6 combined hours of town administrator and board time, valued at approximately \$420.

Total Estimated Cash Flow Cost: \$14,370 per year

Bid premium from payment delay: \$11,550. Cash flow management labor: \$2,400. Late payment dispute resolution: \$420. Note: the bid premium estimate is conservative. Research on small government contractor behavior consistently finds that payment certainty and speed are priced into bids at rates of 3 to 8% for contractors serving clients with 30-plus day payment cycles.

2.4 Audit and FOIA Compliance Overhead

Millbrook receives an average of 5 FOIA requests per year related to municipal service contracts. Typical requests ask for vendor selection records, payment history, and proof that contract terms were honored. Under the current system, responding requires the finance officer to manually compile payment records from multiple sources: the PayPort portal, the town accounting system, paper invoices, and email correspondence. Average response time per FOIA request is 4 hours.

- Annual FOIA labor cost: 5 requests x 4 hours x \$23.08/hour (finance officer rate) = \$462 per year directly. With overhead and interruption cost, actual cost is closer to \$800 per year.
- Annual financial audit preparation: the town's annual audit requires reconciling contract payments across three systems (PayPort records, bank statements, and internal ledger).

The finance officer estimates this reconciliation consumes 12 hours annually. At \$23.08/hour, that is \$277. With overhead, approximately \$450 per year.

- Risk cost of audit failure: Millbrook was flagged in its most recent audit for incomplete documentation on one contract payment. The remediation required two board meetings and external accounting support, estimated at \$1,800 in total cost.

Total Estimated Annual Audit and FOIA Cost: \$3,050

FOIA response labor: \$800. Audit reconciliation labor: \$450. Amortized audit remediation risk (one event per 3 years at \$1,800): \$600. Opportunity cost of finance officer time diverted from other work: \$1,200 (estimated).

2.5 The Hidden Cost: Untracked Vendor Direct Expenses

This is the cost category Millbrook cannot currently measure because it has no mechanism to see it. When a plowing contractor buys diesel, or a road maintenance crew purchases cold patch from a hardware store, or a public works contractor rents equipment, these expenses are vendor-internal. Millbrook sees only the final invoice. There is no way to verify that direct expenses claimed on an invoice are accurate, no way to see if a contractor is substituting cheaper materials than specified, and no way to detect expense inflation on time-and-materials contracts.

Across Millbrook's six to eight annual contracts, an estimated \$95,000 in contract value represents direct expenses (fuel, materials, parts, equipment) that are currently invisible until invoiced. Industry benchmarks for municipal contract expense inflation in the absence of spend controls run at 4 to 9%. At 5%, that is \$4,750 per year in expenses Millbrook is paying that it cannot verify and cannot contest.

Total Estimated Annual Untracked Expense Cost: \$4,750

This figure is inherently uncertain because Millbrook currently has no data on its vendors' actual direct expense patterns. The 5% inflation estimate is conservative relative to academic literature on principal-agent problems in government contracting. CivicChain's RLUSD phone tap system eliminates this category entirely: every direct expense is an authorized, MCC-locked, real-time transaction against the contract pool. There is nothing to inflate because there is no invoice.

3. Consolidated Current State Cost

Cost Category	Annual Cost	% of Services Budget
Payment processing fees (PayPort 2.5%, wire, check)	\$5,468	1.4%
Staff labor: procurement and payment administration	\$25,320	6.6%
Cash flow cost: bid premium and settlement delay friction	\$14,370	3.7%
Audit and FOIA compliance overhead	\$3,050	0.8%
Untracked vendor direct expense inflation (estimated)	\$4,750	1.2%
TOTAL ANNUAL INEFFICIENCY COST	\$52,958	13.8%

Millbrook is effectively spending 13.8 cents of every services procurement dollar on the overhead of procurement itself, rather than on the services its residents need. This is not unusual for a municipality of its size. It is simply what happens when paper-era processes handle 21st century contract volumes.

4. CivicChain State: The Cost Structure After Implementation

The following models Millbrook's cost structure after full CivicChain implementation, including the platform fee and the residual costs that CivicChain does not fully eliminate.

4.1 Payment Processing Under CivicChain

CivicChain's RLUSD payment rail via Ripple Payments eliminates the PayPort 2.5% portal fee entirely for residual vendor payments. XRPL transaction fees are approximately \$0.0003 per transaction regardless of amount. For Millbrook's 48 annual residual payments averaging \$4,200, the total annual XRPL transaction cost is approximately \$0.01. The practical cost rounds to zero.

For vendor direct expenses (fuel, materials, parts), the RLUSD phone tap system replaces untracked cash-equivalent spending with MCC-locked virtual card transactions. The card network charges interchange, which CivicChain retains as revenue. The municipality incurs no payment fee on card transactions. Interchange is a cost to the merchant, not the municipality.

Payment Processing Cost Under CivicChain: approximately \$15 per year

48 residual payments x \$0.0003 XRPL fee = \$0.01. 4 wire transfers eliminated entirely (Ripple Payments handles cross-border disbursement in minutes at near-zero cost). Check processing eliminated. Total: negligible. Rounded to \$15 to account for any edge-case fees or currency conversion costs.

4.2 Staff Labor Under CivicChain

CivicChain does not eliminate staff roles. It eliminates the low-value administrative tasks that consume those roles. The town administrator no longer manually collects, normalizes, and files proposals: the platform does it. The finance officer no longer manually reconciles payments across three systems: the XRPL ledger is the single source of truth. The board no longer spends meeting time reviewing payment records: they review the live dashboard.

- Town administrator: procurement time reduced from 18% to an estimated 7% of working hours. The administrator still defines solicitations, reviews the proposal comparison view, and manages vendor relationships. The eliminated tasks are clerical. Savings: \$6,820 per year. Time freed for higher-value municipal work.
- Finance officer: payment administration time reduced from 22% to an estimated 8% of working hours. The officer still authorizes WCR approvals and reviews the financial dashboard. The eliminated tasks are reconciliation, check processing, and PayPort navigation. Savings: \$6,720 per year.
- Board of Selectmen: meeting time on procurement reduced from 80 hours per year to approximately 20 hours per year, as the proposal comparison view and live voting dashboard replace most in-person review sessions. Savings: \$2,700 per year (imputed).

Staff Labor Savings Under CivicChain: \$16,240 per year

These are conservative estimates. They assume the town administrator and finance officer still spend meaningful time on procurement and payment oversight, which is appropriate. CivicChain is not designed to eliminate human judgment from municipal procurement. It is designed to eliminate the clerical overhead that consumes human judgment capacity.

4.3 Settlement Speed and Cash Flow Under CivicChain

Ripple Payments disburses vendor residual payments in minutes, not business days. RLUSD phone tap card settlements post to the card network the following business day, same as any commercial card transaction. The 3 to 5 business day ACH delay is eliminated entirely.

When Millbrook runs its next plowing contract solicitation, vendors bidding into the system know they will be paid within hours of an authorized WCR, not within weeks. The bid premium built in for payment delay risk is eliminated. At a conservative 3% bid premium elimination on \$385,000 in annual contracts, Millbrook saves approximately \$11,550 per year in lower contract prices. This is not a CivicChain fee reduction. It is a market response to the credibility of instant settlement.

4.4 Audit and FOIA Overhead Under CivicChain

Every payment event in CivicChain is written immutably to the XRPL and available on the public citizen portal in near real time. FOIA requests asking for contract payment records can be answered in under 5 minutes by directing the requester to the public XRPL transaction ledger for that contract, with a XRPL block explorer link for independent verification. The 4-hour manual response process is replaced by a 5-minute link provision.

Annual financial audit preparation time for contract payment reconciliation drops from 12 hours to approximately 1 hour: the auditor accesses the XRPL transaction record directly, verifies it against the municipal treasury account statements, and the reconciliation is complete. The SHA-256 cryptographic linking between the XRPL record, the Ripple Payments ledger, and the application database makes the audit trail self-proving.

Audit and FOIA Savings Under CivicChain: \$2,700 per year

FOIA response time: 5 requests x 15 minutes x \$23.08/hr = \$29. Saved vs. current \$800: \$771. Audit reconciliation: 1 hour vs. 12 hours. Savings: \$254. Audit remediation risk eliminated (amortized \$600 per year saved). Opportunity cost recovered: \$1,200. Total: approximately \$2,700 per year.

4.5 Vendor Direct Expense Visibility Under CivicChain

The RLUSD phone tap system with MCC locks eliminates the untracked vendor direct expense category entirely. Every fuel purchase, materials buy, and equipment rental by a contract vendor is an authorized, MCC-validated, real-time transaction against the contract RLUSD pool. There is no invoice for direct expenses. The transaction is the record. The \$4,750 annual untracked expense inflation estimate is eliminated.

Beyond the direct cost elimination, municipalities gain a new capability they have never had: per-asset expense tracking. Each truck has its own Equipment card. The finance officer can see

that Truck 3 used 180 gallons of diesel in the first six weeks of plowing season and Truck 7 used 240 gallons for the same routes. That is operational intelligence that no invoice-based system can provide and that contractors cannot manipulate.

5. Head-to-Head Comparison: Current State vs. CivicChain

Cost Category	Current Annual Cost	CivicChain Annual Cost	Annual Saving
Payment processing fees	\$5,468	\$15	\$5,453
Staff labor: procurement admin	\$25,320	\$9,080	\$16,240
Cash flow: bid premium and friction	\$14,370	\$2,820	\$11,550
Audit and FOIA overhead	\$3,050	\$350	\$2,700
Untracked direct expense inflation	\$4,750	\$0	\$4,750
CivicChain platform fee	\$0	\$8,400	(\$8,400)
NET ANNUAL POSITION	\$52,958	\$20,665	\$32,293 saved

Note: CivicChain platform fee is estimated at \$8,400 per year for a municipality of Millbrook's size and contract volume. This assumes a 1.5% fee on \$385,000 in managed contract spend (\$5,775) plus a base SaaS fee of \$2,625. Actual pricing will vary. Even at a doubled platform fee of \$16,800, the net annual saving to Millbrook would be \$23,893, still a 142% return.

6. Return on Investment Analysis

Metric	Value
Annual gross inefficiency cost (current state)	\$52,958
Annual total cost under CivicChain (platform fee + residual costs)	\$20,665
Net annual saving	\$32,293
CivicChain platform fee	\$8,400
Return on platform cost (net saving / platform fee)	385%
Payback period on Year 1 implementation	2.8 months
3-year cumulative net saving (accounting for implementation effort)	\$88,879
5-year cumulative net saving	\$161,465
Saving as percentage of annual services budget	8.4% per year

7. The Value of Transparency: Beyond Direct Cost

The quantified savings in Sections 2 through 6 represent the mechanical efficiency gains. There is a second category of value that resists direct monetization but is real and compounds over time: the value of public trust built through genuine expenditure transparency.

7.1 Comparison to Incumbent Platform Transparency

The leading municipal procurement and payment platforms serving towns of Millbrook's size, Tyler Technologies, OpenGov, and Civic Plus, offer transaction logging, reporting dashboards, and audit exports. None provide real-time public blockchain verification. The distinction matters:

Transparency Feature	Incumbent Platforms (Tyler, OpenGov, Civic Plus)	CivicChain
Payment record storage	Database controlled by vendor or municipality. Alterable by admin.	XRPL blockchain. Immutable by cryptographic design. No administrator can alter.
Public access	Report export on request or scheduled publication.	Real-time public citizen portal. No request required.
Independent verification	Not available. Citizen must trust the platform's report.	Any citizen can verify any transaction on a public XRPL block explorer without requesting anything from anyone.
Direct expense visibility	Invoice-level only. Vendor internal expenses invisible.	Every phone tap visible in real time: merchant, MCC category, amount, vehicle. No invoice layer.
Vendor selection transparency	Board minutes. Published after the fact, if at all.	Live voting dashboard. Confidence scores per ballot. Blockchain-anchored results certificate.
Settlement time	ACH: 3 to 5 business days. Vendor carries receivable.	Ripple Payments: minutes. Vendor receives same session.

7.2 The Compounding Value of Trust

The incumbent platforms provide transparency as a reporting feature. CivicChain provides transparency as an architectural property. The difference is not cosmetic. When a citizen opens the CivicChain portal and sees that the plowing contractor spent \$94.18 on diesel at 3:14am on Route 7, they do not need to trust CivicChain, the municipality, or the contractor to believe it. They can independently verify the transaction on the XRPL block explorer. That is a categorically different relationship between a municipality and its residents than any database-backed reporting dashboard can provide.

The quantified savings documented in this case study are real and significant on their own. But the deeper value is in what happens when residents watch their municipality's contracts execute in public, in real time, over months and years. Contested results decline. FOIA requests decline. Bid protests decline. Vendor selection disputes decline. The municipality spends less

management time on conflict and more on service delivery. None of that is captured in the cost comparison table. All of it is real.

8. Conclusion

The Town of Millbrook, like the approximately 19,500 small municipalities across the United States with populations under 25,000, is losing a material percentage of its services budget to the overhead of managing those services through paper-era procurement and payment processes. The \$52,958 in annual inefficiency costs documented in this case study is not exceptional. It is the predictable outcome of applying 1980s administrative processes to 21st-century contract volumes without appropriate infrastructure.

CivicChain reduces that overhead to \$20,665 per year, net of platform fees, by eliminating payment processing friction through RLUSD rails, eliminating direct expense opacity through MCC-locked phone tap cards, recovering labor hours consumed by clerical reconciliation, and making the public accountability infrastructure so strong that FOIA requests and audit complications become rare events rather than routine costs.

The 385% return on platform cost and 2.8-month payback period make the financial case straightforward. The deeper case is that Millbrook's residents deserve to know where their contract dollars go in real time, without filing requests, without waiting for board meetings, and without trusting that an administrator has published an accurate report. CivicChain is the first platform that makes that possible for a town of Millbrook's size at a cost that Millbrook can actually afford.



CivicChain, Proprietary and Confidential

All figures are modeled estimates based on publicly available fee schedules, municipal salary benchmarks, and industry research on government procurement overhead. Actual results will vary by municipality.