Larimer County CSFR Cost-Benefit Analysis

An Analysis of County and Partner Investments and Community Benefits for the Climate Smart Future Ready (CSFR) Program

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December 19, 2025

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Executive Summary

The Climate Smart Future Ready (CSFR) program in Larimer County represents one of the most comprehensive and forward-looking investments in long-term community well-being, sustainability, and resilience. CSFR functions as a coordinated partnership among the County, municipalities, regional organizations, and community stakeholders, enabling collective action that would not be achievable by any single entity. This analysis evaluates the financial, social, and environmental returns generated by CSFR projects undertaken between 2023 and 2025, capturing both measurable outcomes and the enabling conditions created for future impact.

Across the full portfolio, the County and its partners collectively invested just over $4 million, plus $13.4 million in grants and $28.4 million from the voter-approved open space land preservation tax, for a total of $45.7 million. Importantly, County investments were often foundational, supporting the planning, matching funds, staffing capacity, and credibility needed to secure significant external grant funding, allowing local dollars to go substantially further than they could have on their own.

In return, CSFR produced an estimated $68 million to $321 million in community benefits. This translates to a conservative program-level **social return on investment (SROI) between 2.5:1 and 7:1**, meaning every $1 invested today is generating at least $2.50 to $7.00 in value for residents and businesses. These returns reflect immediate benefits, such as avoided pollution, reduced emissions, and savings from building efficiency, as well as substantial longer-term value that will continue to grow, especially as planned projects move into implementation.

At the project level, ROI varied widely depending on the type of work, from direct implementation (e.g., mattress recycling, building codes, EV charging) to enabling efforts such as planning and analysis. Projects with quantifiable outcomes showed SROI values ranging from 0.5:1 to 8.6:1, with the highest returns found in open lands preservation, wildfire mitigation, and air-quality benefits. Yet the report shows that many of CSFR's impacts lie in laying the groundwork for future returns. Planning tools like the Master Water Plan, transportation planning, emissions inventories, and the Woody Biomass Utilization Study collectively shape opportunities where the County and its partners may invest next and how cost-effective those investments will be.

The portfolio also delivers significant indirect benefits that do not show up in traditional ROI calculations but are essential to Larimer County's long-term resilience as a region. CSFR strengthens the County and partners' capacity to secure external funding by preparing required plans and increasing local alignment and readiness to implement large-scale

projects. It reduces future costs through studies and assessments that prevent waste, accelerate timelines, and help avoid multimillion-dollar losses tied to wildfire, drought, and other climate impacts. The program is also influencing market behavior: solar permitting improvements, SolSmart designation, workforce upskilling, and new regional EV charging infrastructure are helping shift community adoption patterns and expand local sustainability industries.

Social and economic resilience are strengthened as well. EV chargers bring people and spending into local business districts. Workforce development initiatives support emerging careers in green industry and expand the local contractor base. The Environmental Justice Assessment, Soil Health Days, wildfire home assessments, NOCOBiz Connect, and other community-engagement efforts build trust and support fairness and a variety of backgrounds, and together these welcome and deepen public participation in the region's sustainability transition. These actions collectively improve governance quality among all local governments in the region, reduce environmental and economic risk, and ensure that policies, including those at the County, are increasingly aligned with data and community needs.

Like all early-stage sustainability ROI studies, this analysis is shaped by data limitations and the short time frame of the evaluation. Many projects are still in the planning stages, while benefits will be seen later as implementation begins. Some benefits, especially those in workforce development, agriculture, solar adoption, and food security, are real but not yet fully measurable due to gaps in research studies or incomplete outcome tracking thus far. As national valuation tools improve and local data collection becomes more systematic, benefits that are currently qualitative in nature will be easier to quantify.

Even so, the findings are clear: CSFR is a financially sound, strategically aligned, community-based, and forward-thinking investment that is already delivering strong value and is poised to deliver significantly more. The program is not simply managing environmental impacts; it is proactively reducing risk, strengthening local economies, building resilience, and positioning Larimer County as a region to thrive in the face of future climate pressures. CSFR's portfolio reflects national best practices, aligns with USDN high-impact pathways, and helps shift the narrative from the "cost" of sustainability to the long-term financial and community value of resilience.

By reducing future risk, guiding smart investments, and catalyzing community-wide action, CSFR advances a more resilient, equitable, and prosperous future—one where residents, ecosystems, and the local economy can continue to thrive for decades to come.

Overview

Purpose

The purpose of this analysis is to evaluate the return on investment (ROI) and social return on investment (SROI) of Larimer County's Climate Smart Future Ready (CSFR) program — a coordinated set of sustainability and resilience initiatives undertaken primarily from 2023-2025 by Larimer County and its partner agencies and organizations.

The project seeks to understand what value the County and community are realizing from these actions, both in tangible financial terms and through broader social, environmental, and resilience benefits that are not always captured in conventional accounting.

This work is intended to:

- Quantify and describe the direct benefits of County-coordinated sustainability projects where data allow.
- Identify influence-based and enabling benefits where County and partner actions have helped catalyze or accelerate community-wide progress (e.g., private EV charger installations, adoption of best practices).
- Develop a consistent, defensible framework for tracking and communicating impact across all CSFR focus areas in future years.
- Support community leaders in making data-informed funding and policy decisions that balance cost-effectiveness with long-term environmental and social value.

Audience

This document is intended for use by the following audiences.

- Larimer County leadership and commissioners may find this information helpful in understanding how public investments in sustainability are delivering measurable value and aligning with County strategic goals.
- CSFR Staff and Action Teams may use this to discover which programs are producing measurable outcomes and where data gaps exist, so that they can improve project design, establish metrics tracking, and strengthen reporting for grants and future ROI evaluations.

Scope

This analysis covers sustainability actions initiated or supported under the CSFR program between 2023 and 2025, organized across seven focus areas:

1. **Unifying Solutions** (e.g., Environmental Justice Assessment, Climate Smart Future Ready Plan development)
2. **Built Environment** (e.g., adoption of 2024 building codes, energy assistance guides, solar readiness)
3. **Mobility of People, Goods, and Services** (e.g., EV infrastructure, transportation planning)
4. **Natural Environment and Water** (e.g., wildfire mitigation, open lands conservation, water planning)
5. **Circular Economy** (e.g., mattress recycling, landfill methane capture, waste diversion planning)
6. **Agriculture and Local Food** (e.g., soil health education, producer surveys, local food systems)
7. **Businesses and Jobs** (e.g., EWD training, NocoBiz Connect expansion)

Projects explicitly out of scope include Larimer's internal activities, such as ICARE, and any CSFR projects or grants that are underway but do not have components nearing completion. Projects prior to the most recent emissions inventory in 2022 are also not included.

Method

Because the CSFR portfolio includes a wide range of initiatives, from planning and education to infrastructure and implementation, each project required its own tailored approach to assessing benefits and costs. At a high level, this study identified each project's intended outcomes, gathered the best available data on participation, outputs, or measurable change, and supplemented these with research from comparable programs or established studies wherever direct data was limited. Valuation methods were selected based on credible external sources, and conservative assumptions were used to ensure the estimates remained defensible, with the understanding that externally validated methods and assumptions will likely continue to improve and provide more precise estimates over time, even for the same data. Costs were compiled from grants, staff time,

overhead, consultants, and volunteer contributions, and ROI/SROI calculations were completed only for projects with sufficiently clear links between activities and outcomes.

Methodologies for specific projects have been included in the detailed sections on each project below.

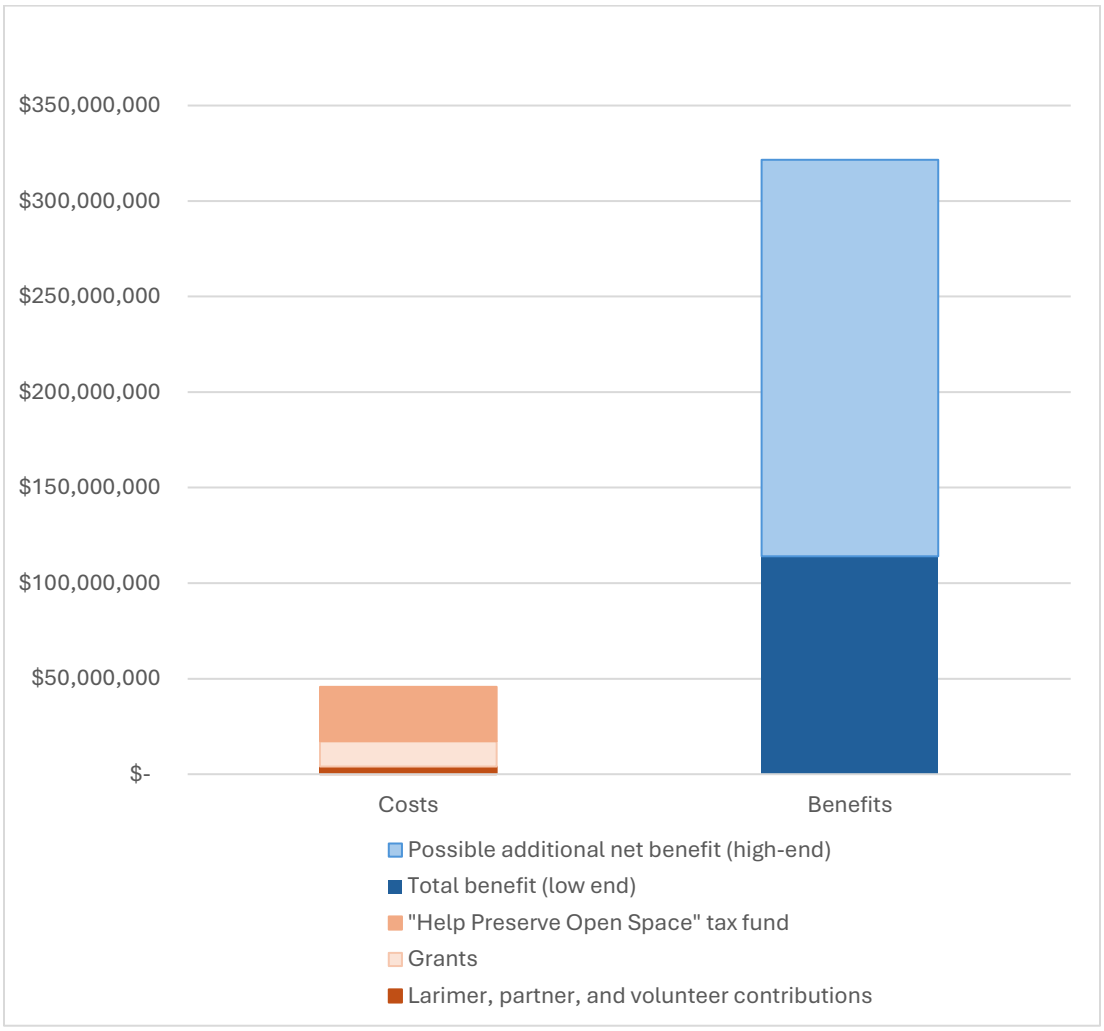
Results: CSFR's Community Return on Investment

Program-Level ROI and SROI: Measured and Indirect Benefits

The SROI analysis shows that Larimer County's Climate Smart Future Ready (CSFR) program is generating substantial value for the community. Across all projects, the County invested approximately $3.8 million, supported by an additional $13 million in grant funding, $28.4 million from the "Help Preserve Open Space" tax, and $209,000 in partner and volunteer contributions. In return, the program produced an estimated total community benefit of $114 million on the low end, with the potential for up to $207 million in additional long-term social, environmental, and economic value or avoided costs and damages under higher-end assumptions. Taken together, costs were $46 million and benefits potentially reached $321 million.

At the project level, social return on investment (SROI) varied widely, ranging from 0.5:1 to 8.6:1 for those projects where reasonable calculations were possible. When aggregated, the program as a whole delivered an overall SROI in the range of 2.5:1 to 7:1, meaning that every $1 invested in CSFR activities is associated with $2.50 to $7.00 in community benefit.

These returns reflect a mix of immediate and longer-term value, including avoided environmental and public-health costs, energy and resource savings, and regional resilience improvements, with many large, long-term benefits from planning and capacity-building efforts and food and water security yet to be captured. While some projects contribute measurable impact already and others establish the conditions for future gains, the portfolio as a whole demonstrates a clear positive and improving trajectory. The CSFR program is currently delivering strong value for the community and is positioned to generate even greater returns as more projects begin to measure concrete outcomes and planning efforts on newer projects transition to the implementation stages.



Program costs produced benefits to the community of 2.5x to 7x the total investment, or 3.5 to 10x for Larimer's spending before leveraging external funding and volunteer work.

Project-Specific Explanations and Insights

Each of the following more complex calculations, with the exception of the hazard and wildfire mitigation projects, has an associated spreadsheet with calculations for more information and defensibility of final values.

Land Preservation

Land acquisitions in 2024 and 2025 cost a total of $28.42M and added 7191 acres to Larimer's pool of open lands. These were predominantly grassland acres with some shrubland and a limited amount of agricultural land.

Using the 2023 CODEX report which lists low and high values for the ecosystem services provided annually by each land type, this study updated the values for 2025 using the BLS inflation calculator. The low and high values for services provided per acre were multiplied by the number of acres, for each type of land, to identify total annual value provided.

And finally, unlike in the CODEX report, the total lifetime value was calculated as a perpetuity (i.e. services value provided every year going forward, assuming the land is kept forever), using 5% as the discount rate to align with the Lotus cost report from 2023 and 2.5% as a mid-level inflation or growth rate of the services provided. This resulted in a lifetime value of ecosystem services provided by the purchased land of between $26.8M and $145M (benefit-cost ratio between 0.94 and 5.1:1).

Another possibility is using 2% as the discount rate, which is typically set to 1% below the social discount rate for ecological values, and 1% as the growth rate of the services provided. This would give a range between $67M and $364M (benefit-cost ratio between 2.36 and 12.83:1).

Growth and discount rates are estimates; alternative scenarios include the following less-conservative possibilities:

Discount Rate (r)	Growth Rate (g)	$r - g$	PV of Low Benefit ($M)	PV of High Benefit ($M)	Low BCR	High BCR	Comment
3.0 %	2.0 %	1.0 %	67.1	364.6	**2.36 : 1**	**12.8 : 1**	Modest real growth assumption
3.0 %	2.5 %	0.5 %	134.2	729.2	**4.72 : 1**	**25.6 : 1**	Inflation-level nominal growth
3.5 %	2.5 %	1.0 %	67.1	364.6	**2.36 : 1**	**12.8 : 1**	Slightly higher discount rate
4.0 %	2.5 %	1.5 %	44.7	243.1	**1.57 : 1**	**8.55 : 1**	More conservative scenario

In addition, the purchase of the land for the future Canyon's Edge natural area cost $9M for 1547 acres and, using the same calculations and an assumption of the land type as on the higher-value side of shrubland, gives a return of between $24.7M and $58.5M (between 2.7 and 6.5:1). As with the other open lands, a 2% discount rate and 1% growth would result in much higher ROI, giving a lifetime value between $61M and $146M, or ROI of 6.88 to 16.26:1.

A middle range of numbers is used in the final spreadsheet representing a difference in discount and growth rates of 1.5%.

If there are maintenance or stewardship costs associated with the land, or leases that provide revenue, that should be factored into future calculations.

Also, due to a significant change in how the CODEX tool values certain types of land between 2024 and 2025, the calculations for this report did not use the latest 2025 CODEX report. Doing so would have included the ROI of not only the lifetime value of the land added over the last two years, but also of the lifetime "value" of the difference caused by using the latest CODEX calculation algorithm (showing a lifetime value of more than $1 billion), which would significantly distort the ROI numbers. In future years, say 2027, it would be beneficial to determine what the 2025 land would have been valued at using the 2027 CODEX tool, and then include the newly added land to show the actual difference in value the new land brought to the county.

Hazard Management and Wildfire Mitigation

The nature of hazard mitigation, including wildfire prevention, is inherently probabilistic; individual activities may or may not "pay off" in a given year, and the degree of risk reduction from any single action is difficult to quantify. For example, chainsaw training is essential for forest crews, yet it is not possible to isolate and measure the specific outcomes resulting from those particular individuals' training. As a result, this study relies on broader, evidence-based estimates—such as average ROI values derived from FEMA's analyses of hazard mitigation grants over time—to represent the typical long-term return on investments in preparedness and risk reduction.

According to the National Institute of Building Sciences, federal grants are shown to have an overall cost-benefit ratio of 6:1, with flood mitigation higher at 7:1 and wildfire mitigation lower at 3:1. These broad ratios have been applied to CSFR's hazard mitigation grants based on the type of activity being funded, rather than try to identify all associated activities and then analyze the impact of each.

Planning and preparatory work such as the Woody Biomass Study is critical in achieving the maximum ROI of subsequent grant activities by focusing efforts on locations with the greatest impact and need.

See Appendix 2 for sources for cost-benefit ratios for work related to hazard management.

Electric Vehicle Charging Stations

The installation of 5 chargers on County property supports Larimer's regional goal of having 1447 level 2 public chargers and 309 level 3 public chargers by 2030.

Charger Installation Costs

Charger	Cost
Oak Street DC Fast Charger, plus L2 chargers at Carter Lake and Horsetooth Reservoir	$199,923
Fleet Chargers 3 & 4 *(two stations, so 2/4 of the total 4-station fleet charger installation cost of $116,694)*	$58,347
TOTAL	**$258,270**

$81,000 of the installation costs were covered by grants, for a net installation cost of $177,270.

Direct Benefit

As far as revenue from this usage, new public chargers earned $8750 in total, but required the cost of the electricity (29,024 kWh, billed at the same rate as the county buildings, assuming half the cost to consumers at $4353) and the fee to ChargePoint (10% of the charges to the customer, or $875). So, Larimer may have received roughly $3500 from the chargers since installation at County facilities.

Use Patterns Affecting Assumptions

Based on ChargePoint data as of October 29, 2025 for the five new stations installed by Larimer County on County property in 2024 and 2025, the following patterns are apparent. (For context, an EV battery holds 40-60 kWh for a compact vehicle and 60-70 for a midsize, with trucks holding 80-100. Gas equivalents are given by comparing a medium-sized battery (65 kWh) with a medium-sized tank (14 gallons) for easier understanding of the size of the refueling, and in this section, gallons do not represent avoided emissions.)

- Drivers filled up an average of 12.8 kWh, similar to 2.5-3 gallons, at the level 2 charging stations and stayed 1.5 hours (at recreational sites) to 2.5 hours (at fleet charging sites). This means they are "topping off" rather than relying on the charge.
- Drivers filled up an average of 34.8 kWh, similar to 7-8 gallons, at the DC fast charger at the administrative buildings and stayed around 75 minutes within Fort Collins's Old Town district near numerous shopping and restaurant options. Thus this charger is serving a refueling purpose for many people and may be assisting people coming to the region for entertainment purposes.
- The majority of users- averaging 88%- at any station do not appear to be repeat customers.

- Number of charges per month averaged 3.6 - 6.3 for the level 2 charging sites and 130 for the downtown DC fast charger. Recreation sites together saw a total of 88 charges, starting in January and February.
- For comparison, the Peridot (Loveland) level 2 charger which is not part of this study saw around 30 charges per month, averaging a charge of 1-2 gallons' worth.

Note that because nearly all usage, with the exception of that at 200 Oak Street fast charger, is relatively small compared to the capacity ("full tank") of an EV, the data does not indicate that those level 2 stations have impacted transportation patterns other than by generally continuing to increase trust in the availability of chargers across the region, which although valuable, is not quantifiable.

Interestingly, the average charge at county level 2 chargers is roughly half of the statewide average charge, indicating that either usage and trust in the infrastructure are still developing in our region, or the chargers are placed in locations that are less convenient for spending the time required for a larger charge.

Local spending due to DC fast charging station on Oak Street:

Over 7 months, there were 781 fast charger uses by 726 distinct users, and therefore at most 55 repeat users. This indicates at least 726-55 = 671 new drivers came into the area and stayed over an hour in the Fort Collins Old Town district near restaurants and shopping. Even if only 75% of these drivers spent money while waiting, averaging only $20 each, then this brought 671 * .75 * $20 = $10,065 in economic value to the area, plus another $518 in city and county taxes, and with local spending retained, the value to the community is 1.3 times that, or $13,757 in almost 7 months.

On an annual basis, the value to the community is about $23,584 per year. Using a wider range of spending numbers, from $15-$30 per driver or car, this gives a community value per year between $16,800 and $33,600 plus up to $1700 in local sales tax.

If a DC fast charger lasts at least 7 years (L2 chargers last at least 10), then depending on the discount rate (from 7% down to 3%), the 7-year community value stream of $23,580 per year is worth roughly $127k to $147k in today's dollars, not counting direct revenue to the County as station owner which adds a small fraction to that number, and ignoring charging rate increases, which are not directly tied to energy costs. This calculation also conservatively assumes that the usage rate will not increase as EV adoption increases locally and regionally over those 7 years, although that is likely.

Impact of Community-Wide Installations

According to EValuateCO, across the county, 63 new chargers were installed, bringing the county as a region to 288 level 2 chargers and 63 fast chargers, although the goal for this year was 420 and 105, respectively. This supports Larimer's 13,116 EVs on the road.

Installations	**Level 2**	**Level 3**	**Cumulative Total**
2024	20	6	255 L2 + 59 L3 = **314**
2025	33	4	288 L2 + 63 L3 = **351**
Total Added	**53**	**10**	

Overall EV Charger ROI

Due to the likely growth in EV adoption and charging, which is not accounted for here, the more likely range of benefits is $130,000 to $237,000, with other possibilities shown in the table below.

Source	**Annual benefit**	**7-year value at 7% discount rate**	**7-year value at 3% discount rate**
Revenue minus operating costs	$3,500	$18,861	$22,382
Business boost, low end	$16,800	$90,535	$107,436
Business boost, high end	$33,600	$181,070	$214,872
Total Range	**$20k-$37k**	**$109k-$200k**	**$130k-$237k**

With total costs of $258,000 and 7-year total benefits of up to $237,000, the financial ROI for the newest EV charging stations is negative, although Larimer may break even on their expenses after grant funding. The benefits of the chargers are almost exclusively due to the advantages and location of the new DC fast charger in downtown Fort Collins, unless charger usage significantly increases revenue.

The main takeaway for this project may be that level 2 chargers do not currently see enough use to break even, and their value lies in encouraging EV traffic to locations where they might not otherwise go. However, the data, at least so far, shows that drivers are still not trusting this use model, so the actual behavioral impact is low. DC fast chargers, although much more expensive to install, can be cost-effective when placed near locations where there are opportunities for drivers to spend money while waiting for their charging to finish and thus benefits to local businesses. Also, keeping the chargers well-maintained and working a year or more after the average lifespan will increase the return significantly.

Updated Building Codes

Larimer County's success in encouraging most local jurisdictions to adopt the 2024 building codes by January 2026 means the region will benefit from improved building energy efficiency, lower long-term energy costs for property owners, and reduced electricity and fossil fuel use, along with lower greenhouse gas emissions.

This section estimates the benefits of avoiding a delay in code adoption. Using the Lotus cost model spreadsheet, it quantifies the impact of missing one three-year code cycle and the corresponding loss of benefits. The 2025–2027 three-year period assigned by Lotus to the latest 2024 codes was used for simplicity even though there's already been a 1-year delay, since recalculating for the precise affected years would not meaningfully change the results.

Cost

According to the Lotus cost model, program administration (including salaries and benefits) would total $1,621,000 in 2023 dollars, or approximately $1.7 million in 2025 dollars.

Benefit

- Construction Costs: Adoption of the updated building codes would result in increased residential costs but decreased commercial costs, producing a net savings of $19.9 million in 2025 dollars.
- Energy Savings: Improved efficiency would further reduce energy consumption for both residential and commercial buildings, adding $3.3 million in savings.

Together, these yield a direct benefit of $23.2 million (2025 dollars).

The updated codes would also avoid approximately 4,309 metric tons of CO_2e emissions over the first three years. Community savings from avoided emissions would total $4.6 million.

These give a benefit-cost ratio of over 16:1 for a single 3-year cycle of building code updates, primarily due to the advantages to businesses of code adoption. As building efficiency improves over time, the benefits of later code updates will lean toward energy efficiency savings over the cost of code adoption, offering significantly more benefit to residential properties as well.

Assumptions

- Analysis assumes one skipped code cycle (2025–2027) using the Lotus model for both cost and GHG impact estimates. The 2025 start year was selected to align with the model's existing 3-year cycle and simplify comparisons.
- No additional inflation or discount rate adjustments were applied, with the exception of updating all 2023 values to current dollars using the Bureau of Labor Statistics (BLS) inflation calculator.

Mattress Recycling

The mattress recycling program generates significant environmental and community benefits that substantially exceed the program's total resource costs. From a social return on investment perspective, the program's total annual cost of $340,042 reflects the real resources used to collect, transport, and process 10,547 mattresses. These costs include the County's payments to Spring Back Colorado ($237,307) for recycling, staff and equipment expenditures ($50,000), and transportation costs ($52,735).

The benefits of Larimer County's mattress recycling partnership include diverting approximately 250 tons of steel, foam, and wood from landfilling and returning them into productive material markets. Using Larimer's landfill fee, the avoided waste alone is worth nearly $75,000. In addition, using per-ton, avoided-impact factors benchmarked against the Mattress Recycling Council's Life-Cycle Assessment (2024), this diversion is estimated to reduce around 235 metric tons of CO_2e annually, conserve more than a million kWh of energy, and save over 5 million gallons of water, primarily due to replacing emissions-intensive virgin material production.

When monetized using the Social Cost of Carbon (SCC), these avoided emissions represent an estimated annual climate benefit of between $30,500 and $102,000, depending on whether a low SCC value ($130/ton) or high SCC value ($434/ton) is applied.

The program also reduces local air pollutants, including fine particulate matter (PM2.5) and ozone precursors, both of which are particularly harmful to human health and of special concern in the Front Range. Conservatively, this pollution avoidance is worth $410,445 using 2025 EPA rates (EPA, 2025).

Overall, this gives a cost-benefit ratio of 1.5 to 1.7, primarily due to the health benefits of higher air quality.

Beyond the above outcomes, the program generates economic value through recovered materials, extends landfill lifespan, and supports a circular economy by creating downstream markets for recycled steel, foam, and textile byproducts.

Assumptions:

Per-ton avoided impacts were taken from the Mattress Recycling Council's critically reviewed 2024 LCA based on California as a reasonable estimate. While Larimer County's materials recovery rate through Spring Back is higher, other local considerations such as a cleaner grid or smaller markets may offset that advantage and bring our numbers closer to alignment, such that using their per-ton avoided emission factors provides a defensible approximation suitable for this high-level ROI analysis.

CSFR's Indirect Impact

ROI of Planning and Analysis Efforts: Enabling and Future Impact

Planning, baseline assessments, and analytical studies, including Larimer County's Transportation and Water Master Plans, Estes Park's emissions inventory, or the Woody Biomass Utilization Study, enable value that will emerge during implementation. While these efforts may not generate immediate savings or emissions reductions and thus have limited immediate ROI, they lay the analytical and strategic groundwork that determines where and how future investments will achieve the greatest impact. In this way, planning acts as a force multiplier, helping the County direct limited resources toward the most effective, highest-return projects and avoid waste or duplicated efforts.

In addition, various types of plans or analysis are often prerequisites for additional rounds of state or federal funding. For example, Estes Park's emissions inventory may open the doors to Climate Pollution Reduction Grants. Hazard management grant funding based on a pre-existing plan also enabled much of the wildfire defense work Larimer accomplished in the last few years. The new plans developed

Why Water Planning ROI Is Undervalued

Water planning success is often invisible, measured not by what happens but by what doesn't. When residents don't have to face restrictions or the impacts of drought, ecosystems stay healthy, and life carries on as usual, we don't always recognize that as the success it is. These outcomes represent millions in avoided losses in addition to immeasurable social and environmental value, and yet they are hard to predict and quantify.

So while the Water Master Plan itself will not show an immediate ROI, even the implementation projects going forward may not show their true value until national research on the various impacts catches up. Nevertheless, Larimer County's forward-thinking stewardship of critical resources embodies wise and cost-effective governance, preventing problems before they become even more costly.

through CSFR will unlock even more funding possibilities and further expand the scope of CSFR's impact.

Supportive legislation and policy alignment function in a similar way. Although they too do not generate direct ROI, they create the regulatory environment that allows these types of projects projects to succeed by removing barriers, creating incentives, and generally ensuring that hazard management and sustainability efforts are reinforced rather than hindered.

Together, planning, analysis, and legislative work form the backbone of the County's strategy in this area, enabling subsequent implementation projects to address the highest priority outcomes and thus to produce the return they have shown so far. As CSFR moves from planning into implementation, these foundational investments will continue to shape and amplify Larimer County's long-term impact.

Broader Community and Strategic Impacts

Beyond the measurable financial and environmental returns, the CSFR portfolio reveals a set of cross-cutting benefits and patterns that only become apparent when the program is viewed as a whole. These system-level impacts show how CSFR is shaping Larimer County's long-term resilience, as an organization and as a region, as well as operational capacity in ways that no single project could accomplish.

First and most obviously, CSFR is deliberately addressing climate impacts that are not yet fully visible but that will be the most impactful on Larimer's quality of life and hazard management, protecting the systems the community depends on before they reach a point of failure. Efforts to keep agriculture local, for example, safeguard the community from rising transportation costs, supply-chain instability, and soil degradation that could take decades to reverse. By investing in soil health, water efficiency, and regenerative practices now, CSFR is helping to maintain a resilient local food system rather than having to rebuild one later at far greater cost. The same is true for open lands and the ecosystem services they quietly provide. These landscapes buffer floods, filter water, store carbon, and moderate extreme heat long before those functions show up as budget line-items. Preserving them today ensures that the County retains natural defenses that will only grow more valuable as climate impacts intensify. Planning efforts, such as the Master Water Plan, also fit squarely into this pre-impact strategy. They identify emerging vulnerabilities, such as declining snowpack, shifting runoff timing, increased competition for water, and map out solutions before scarcity becomes a crisis.

A second major benefit is the way CSFR lowers the future cost of action across multiple sectors. Many initiatives shorten timelines and reduce expenses long before implementation begins. Emissions inventories, for example, eliminate mandatory prerequisite work for federal climate funding applications, making it faster and more cost-effective for the County and its partners to compete for external dollars. Updated building codes, streamlined solar permitting, and technical guidance reduce administrative burdens on future permitting, inspections, and applications. Similarly, forest health studies, wildfire mitigation data, and ignition-zone assessments reduce the eventual cost of wildfire response and recovery by helping prevent or significantly reduce the severity of wildfire losses and may impact the availability and cost of insurance for residents. Even without producing direct, immediate ROI, these foundational activities function as a cost-avoidance engine, lowering the price of future implementation, risk management, and compliance.

A third strategic benefit is the increased capacity to attract and absorb external funding. Access to federal climate and resilience funding requires plans, baseline inventories, or coordination across departments and municipalities. CSFR creates the conditions required for competitive applications, producing the documentation necessary for strong scoring, preparing staff and partners for implementation once funds arrive, and engaging volunteer and partner organizations to assist or take the lead. As a result Larimer County, as both a government entity and as a community, is in a significantly stronger position to capture and utilize external dollars than peer counties that have not invested in this foundational work.

CSFR is also demonstrating an ability to shift behavior and market conditions in ways that extend well beyond individual projects. SolSmart designation and solar installation guides reduce perceived risk for residents and businesses, accelerating adoption. NOCOBiz Connect encourages sustainable practices to save businesses money. Workforce upskilling in areas such as irrigation, HVAC, solar, and biomass expands local service capacity, making sustainable choices easier, cheaper, and more accessible. New EV charging stations not only reduce emissions but allow Larimer to lead the way in publicly accessible charger installations, contributing to social acceptance of EVs, encouraging adoption by those who do not have access to a charger at home, and increasing confidence in charger availability, as well as increasing local spending near charger sites. Tools like Energy Navigator and EV installation guides translate general interest into concrete action, improving the conversion rate for decisions made by households and businesses. In these ways, CSFR is not merely enabling adoption; it is nudging local market dynamics, creating positive feedback loops that will compound over time.

In addition, many CSFR projects strengthen social and economic resilience, not just environmental. EV chargers attract visitors and associated economic activity to the county. Workforce development efforts strengthen both sustainability programs and the local businesses and workers who deliver them, helping to grow a robust regional sustainability industry. Community-focused efforts such as the Environmental Justice Assessment, Soil Health Days, and home ignition zone assessments build trust and deepen civic engagement. Projects that reduce disaster risk also contribute to long-term property value stability. In this sense, CSFR is building the interconnected foundations of economic and community resilience.

These system-level benefits do not show up in ROI calculations but they represent some of the most strategic value produced by the CSFR program, creating the conditions that enable future implementation to be faster, less expensive, more equitable across the region, better aligned, more competitive for funding, and ultimately more impactful. They position Larimer County to remain resilient, self-reliant, and economically stable even as climate conditions continue to shift. These advantages are themselves a major community benefit, and they represent some of the most durable value created by the CSFR program.

Study Limitations

Project Scope and Size

The scope of this study was necessarily shaped by the short timeline and limited duration of the funded project, which provided approximately 7.5 weeks to gather data, conduct analysis, and prepare findings. As a result, the project focused on high-level patterns, readily available data, and initiatives with clear pathways to measurable outcomes. Longer-term or more detailed evaluation, particularly involving deeper quantitative validation, expanded stakeholder interviews, or comprehensive financial auditing, was beyond the scope of this engagement.

As the CSFR program matures, so will its ROI calculations. The early constraints do not diminish the value of the initial insights gathered; rather, they highlight opportunities for more detailed follow-up analysis as the County continues to develop its sustainability metrics and processes.

Data Availability

The study was limited by the availability of outcome metrics, a few of which may become available in the months after the study ends, and by an inability to locate defensible, industry-standard or research-based conversions from some metrics to community value within the project time available.

Outcome Metrics Not Yet Collected

To meaningfully assess impact, projects need to track not only what was done, but what changed because of it. Activity metrics help document effort, but outcome metrics are essential for demonstrating results and establishing a credible link between CSFR initiatives and community impact.

Programs with too little outcome data to evaluate included the following:

- **SolSmart Silver certification**: while the number of permits for new solar installations each month is known, capacity information is not collected. Furthermore, with rebates and tax incentives ending shortly, it is not possible to say how much of the observed increase is attributable to the certification or if it matches or exceeds non-SolSmart communities. However, some research indicates that SolSmart Silver designation can increase new capacity by 18%. If tracking community progress towards renewable-energy goals is needed, it may be preferable to use an approach that captures overall trends, rather than attempting to directly link those outcomes to CSFR activities.

- **Solar website and the PDF guides related to energy and EVs**: the county's web analytics currently show minimal download events for these PDF files. More detailed analytics may be possible via various web tracking tools, but in addition the county will need some form of feedback, such as from surveys with a high response rate, to determine what concrete impact providing this information had on community behavior.

- **EWD training for irrigation technicians**: training was provided on two occasions in an effort to address water efficiency issues due to evaporation from sprinklers and to provide more year-round work for skilled technicians. In the first, there were few trainees and no jobs appeared impacted. In the second, only 3 trainees responded to surveys about the impact of the training on their jobs and income, so overall outcomes could not be determined. EWD is very aware of both the value of calculating ROI and the value of returned surveys in determining the actual outcomes achieved, and will be an excellent partner in this effort going forward.

- **Home Ignition Zone Assessments**: 38 property assessments were conducted to help homeowners understand where they have opportunities to reduce wildfire risk, but the effectiveness of the assessments will depend on the homeowner activities resulting from the information provided to each one, which has not yet been determined, along with improved insurability. Given that each assessment is short and conducted by volunteers, plus the fact that much of Larimer consists of high wildfire risk locations, and the high value of a home saved during a fire, these assessments have the potential for a very high return on investment. As an example, if a single assessment encouraged a homeowner to expand their defensible space sufficiently, then the value to the community- on top of insurance rates and other indirect benefits- may be above $16,500, and even a 3% success rate of homeowners hardening their properties, or roughly 1 homeowner, out of the 38 assessments done would mean an SROI of 4.25:1.

  Calculation for each home hardened: 0.006 odds of burning each year * 10 year impact * 50% reduction in risk of burning * cost of burning ($550600) = $16,518. A 3% success rate out of 38 means the return is: $16,518 * .03 * 38. The volunteer cost of 38 assessments is roughly $4400. For sources, see Appendix 3.

- **Soil Health Days**: This annual hands-on workshop consistently draws strong participation, and follow-up surveys are returned at a healthy rate. However, the specific on-farm outcomes influenced by these efforts haven't been directly assessed yet. As soil health practices begin to be tracked more systematically in future years, Larimer County may be able to partner with NRCS to assess the resulting carbon and productivity impacts on farms that received technical assistance or grant support. NRCS also provides several public tools, listed below, that can help estimate these metrics. The upcoming 2026 USDA Agricultural Census may offer additional insight into soil health practices adopted in the last five years, although the degree to which any observed changes reflect Larimer County's initiatives will be difficult to determine.

  NRCS tools include:
  - COMET Farm: NRCS tool for estimating a farm's carbon sequestration and GHG emissions, at https://comet-farm.com/home.
  - COMET Planner: Estimate carbon sequestration and GHG emissions based on specific practices, at https://comet-planner.com/.

    - NRCS Conservation Effects Assessment Project (CEAP): Offers reports that quantify the effects of practices on different lands to help producers make optimal choices, at https://www.nrcs.usda.gov/ceap.

- **Ag Producer Survey**: like planning, this outcome was highly informative and will guide future efforts, leading to an indirect ROI as it enables those projects going forward.

Metrics and ROI Values Available After End of Study

Some projects already have plans to provide ROI numbers, which may be available towards the end of this year (2025) or early next year (2026), and duplication of the same effort here is not valuable. These include:

- Updated data from CODEX on **preserved lands**. At the tail end of this study, a new ROI report was released but due to the significant change in calculation methodologies since the prior report, the data could not be utilized fully to make a fair evaluation without additional time. Note that the CODEX reports present aggregated data (e.g. the value of total acres preserved, not by year), so future ROI work will need to extract data for only the timeframe of interest. However, the ROI factors per acre for various land types are already researched.

- **NOCOBiz Connect** has been asked by EWD to provide a report that includes ROI calculations for their efforts so far. This project is losing funding and is not expected to continue in the Berthoud and Wellington areas, so this one-time ROI figure should be taken as-is and no future calculations are likely to be needed.

- A report for the **Community Food Assessment and Food Van** is expected in December and will at a minimum provide metrics for pounds of food sold and pounds distributed.

Attribution Limitations

Some CSFR-supported projects had positive engagement or educational value but lacked clear, measurable links to specific community outcomes. To maintain the integrity of the ROI/SROI analysis, only initiatives with reasonably traceable pathways to quantifiable results were included. Projects without a demonstrable connection to outcomes, either

direct or indirect, are acknowledged for their contributions but were not factored into the numerical ROI/SROI calculations.

Examples of projects with challenging attribution include:

- **The Larimer Transportation Master Plan**, which provides mainly enabling benefits, and which also followed other transportation initiatives already underway in Fort Collins.
- **Community-installed EV charging stations**, where neither the financial return nor the driving factors behind installation are known.
- **Shifts in local ozone levels**, which may reflect contributions from recycling, renewable energy adoption, and other County- and CSFR-supported efforts, but cannot be directly linked to any single initiative.

Going forward, the ability to attribute outcomes will depend heavily on establishing clear metrics at the outset of each project. Without baseline data, it becomes difficult to demonstrate what has changed as a result of CSFR efforts or to quantify the value created. Consistent before-and-after measurements will greatly support future efforts to document progress, assess impact, and communicate defensible results.

Cost Estimates

The cost estimates used in this analysis include grant funding, salaries and wages for Sustainability Office staff, associated overhead, consultant expenses, and the value of volunteer time. Costs for other County personnel were generally not included.

Project-specific costs were gathered through discussions with program managers and other responsible staff rather than through formal budgeting or accounting records. As a result, some estimates may be incomplete or may differ from actual expenditures recorded for individual projects.

Any refinements to cost estimates will directly influence individual ROI figures but are unlikely to materially change the overall patterns or conclusions of the analysis.

Recommendations for Future ROI Studies

This study was the first to explore the ROI of Larimer's efforts in this area as a whole and as such, it provides a valuable starting point while also highlighting opportunities to

strengthen future evaluations, which can become progressively more comprehensive and precise.

The recommendations below can help future ROI studies become more consistent, comprehensive, and defensible as the CSFR program continues to mature.

1. Establish baseline metrics at the start of each project. Clear "before" data is essential for demonstrating what changed as a result of County efforts. Establishing baseline indicators will greatly improve the value of future outcome assessments.
2. Strengthen the ability to demonstrate causal links between CSFR activities and resulting outcomes. For financial ROI in particular, it is important to be able to show a reasonable connection between an initiative and the benefits attributed to it. This does not require perfect certainty, but future projects will benefit from documenting the steps between activities, outputs, and intended outcomes so those links are clear and defensible.
3. Develop simple, user-friendly data collection tools for project managers. Light-weight templates or tracking sheets sustained throughout the project lifecycle would ensure that key data—participation, outputs, and measurable changes—is captured consistently and accurately.
4. Strengthen partnerships for shared data collection. Coordinated data-sharing with CSU, NRCS, PRPA, municipalities, utilities, and regional partners can expand the availability and quality of data needed to evaluate outcomes, especially around soil health, energy efficiency, solar installations, etc.
5. Continue using conservative, well-cited valuation methods, while keeping in mind that new research comes out frequently and most factors need to be updated regularly. Relying on peer-reviewed studies, established benefit-cost frameworks, and conservative assumptions will help ensure that ROI and SROI estimates remain credible and defensible as the program expands. A consulting company may be the best option for keeping up with this.
6. Conduct more detailed ROI assessments on a periodic basis. As metrics and data practices mature, a deeper-dive ROI analysis every 2–3 years can capture cumulative impact, validate assumptions, and support long-term planning for the CSFR program. These should be scheduled and communicated well in advance so that program managers can prepare and provide the appropriate data.

Conclusion

Part of the goal of any ROI study is to determine whether the work is worth the cost, and whether we are spending money wisely. With an extremely conservative lower bound of 2.5x return on investment but likely closer to 7x- numbers which are moreover poised to grow significantly- the answer is conclusively yes, these projects are worth the expense even before considering intangible impacts.

The broad range of potential returns stems from the reality that many of the program's social and environmental benefits are real but not yet fully quantifiable, simply because current research has not caught up with the scope of these projects' impacts. As better data and methods become available for measuring public health, ecosystem services, resilience, and avoided losses, additional benefits will be discovered and quantified, and the associated ROI will increase accordingly. A perfect example is the latest valuation for Larimer's conserved land, where new research caused significant updates to the value of ecosystem services provided annually, indicating Larimer's expenditures are even more beneficial than has been shown up to today.

In pursuing these programs Larimer County, as a local government and as a region, is acting early, wisely, and with measurable payoff to get ahead of climate pressures. CSFR's projects are aligned with the Urban Sustainability Directors Network's high-impact practices and pathways (USDN, n.d.), meaning the County is implementing strategies identified nationally as the most effective for long-term community resilience. CSFR is moving the thinking away from the "cost of sustainability" towards strategically building resilience and offering a portfolio of community benefits, investing in the future while remaining fiscally responsible with current dollars. Through the effective stewardship of the CSFR program, Larimer is effectively buying down future risk and reducing multi-million-dollar exposures in areas like wildfire risk, drought and water scarcity, grid instability, air quality impacts, agricultural vulnerability, and energy affordability. It positions Larimer County as a resilient, forward-looking, attractive, and highly livable community where residents, ecosystems, and the local economy can thrive for decades to come.

The CSFR teams already know that sustainability is more than just a transition to an environmentally friendly way of life for the planet's sake; it's is a combination of risk management, value creation, cost savings for residents and businesses, planning for a positive future rather than accepting the default "business as usual" scenario, and maintaining and enhancing quality of life for residents both in ways they can see and, in avoiding negative outcomes, sometimes in ways that we hope they'll never have to see.

This report demonstrates that this is also a financially sound path and that the choice isn't between people and planet, current and future generations… it's "all of the above".

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Squires, A. (2023, June 27). *Building the 2030 National Charging Network: NREL study identifies nationwide charging needs for accelerating EV adoption*. National Renewable Energy Laboratory. https://www.nrel.gov/news/detail/program/2023/building-the-2030-national-charging-network

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U.S. Environmental Protection Agency. (2025). *Sector-based $PM_{2.5}$ and ozone benefit-per-ton estimates*. Benefits Mapping and Analysis Program (BenMAP-CE). Retrieved November 12, 2025, from https://www.epa.gov/benmap/sector-based-pm25-and-ozone-benefit-ton-estimates

Appendices

Appendix 1: Emissions and Other Factors

Tax Rates: https://www.fcgov.com/salestax/tax-rates

BLS Inflation calculator: https://www.bls.gov/data/inflation_calculator.htm

Social cost of carbon: $130 to $434 per metric ton, per the cost model spreadsheet Larimer used for CSFR planning.

Appendix 2: Cost-Benefit Ratios for Hazard Mitigation

Category	ROI	Primary Source(s)
Forest Restoration & Fuel Treatments	**3 – 7:1**	Hjerpe, E. E., Taylor, M. H., & Fisher, J. R. B. (2024). *Return on investments in restoration and fuel treatments in frequent-fire forests of the American West: A meta-analysis*. *Ecological Economics, 223*, 107110. https://doi.org/10.1016/j.ecolecon.2024.107110

Category	ROI	Primary Source(s)
Forest-to-Faucets Program (Front Range, CO)	**≈ 2 – 4:1**	Jones, K. W., MacDonald, L. H., & Stottlemyer, R. (2021). *A cost–benefit analysis of Denver's Forests-to-Faucets Program*. Colorado Forest Restoration Institute. https://cfri.colostate.edu/wp-content/uploads/sites/22/2021/02/Jones-et-al-F2F-ROI-Final.pdf
Natural Hazard Mitigation (grants overall)	**6:1**	National Institute of Building Sciences (NIBS). (2019). *Natural Hazard Mitigation Saves: 2019 Report*. Washington, DC: Author. https://www.nibs.org/projects/natural-hazard-mitigation-saves-2019
Wildfire-specific Mitigation	**3 – 5:1**	National Institute of Building Sciences (NIBS). (2019). *Natural Hazard Mitigation Saves: 2019 Report*. (Section Wildfire Mitigation). https://www.nibs.org/projects/natural-hazard-mitigation-saves-2019 National Institute of Building Sciences. (2019). *Mitigation saves: At the wildland-urban interface (WUI), federal grants for mitigation of fire provide a $3 benefit for each $1 invested* [Fact sheet]. https://nibs.org/wp-content/uploads/2025/04/ms_v3_grants_fire.pdf
Flood mitigation grants	**7:1**	National Institute of Building Sciences. (2019, December 1). *Natural Hazard Mitigation Saves: 2019 Report* (Multi-Hazard Mitigation Council). https://nibs.org/projects/natural-hazard-mitigation-saves-2019-report

Appendix 3: Home Ignition Zone Sources

Factors in the calculation are obtained from the following sources:

- Chances of burning in our region are taken from the statewide burn probability graphic of the Colorado Forest Service's 2022 wildfire risk assessment (Figure 20), where it looks like the parts of Larimer that would be interested in this program fall in the .003 to .03 range of likelihood of burning per year, with 0.006 as a conservative

average. Note that odds may increase in the future as a result of climate change and future droughts, increasing this value of this mitigation activity.

Colorado State Forest Service. (2023, July 24). *2022 Colorado Wildfire Risk Assessment Update – Final Report* (CO-WRA 2022). Colorado Forest Atlas. https://coloradoforestatlas.org/customers/colorado/manuals/CO-WRA_2022_Final_Report_20230724.pdf

- The 10-year impact is implied by the need to repeat treatment every 10 years, as described in https://nrfirescience.org/sites/default/files/Braziunas_etal2020_LandEcol_CanWeManageAFutureWithMoreFire.pdf:

  Braziunas, K. H., Seidl, R., Rammer, W., & Turner, M. G. (2021). Can we manage a future with more fire? Effectiveness of defensible space treatment depends on housing amount and configuration. Landscape Ecology, 36(2), 309-330. https://doi.org/10.1007/s10980-020-01162-x

- The potential 50% reduction in risk of burning is from https://www.nature.com/articles/s41467-025-63386-2:

  Zamanialaei, M., San Martin, D., Theodori, M., Purnomo, D. M. J., Tohidi, A., Lautenberger, C., Qin, Y., Trouvé, A., & Gollner, M. (2025). Fire risk to structures in California's Wildland–Urban Interface. *Nature Communications, 16*(1), 8041. https://doi.org/10.1038/s41467-025-63386-2

  Linked from:

  Choi, K. (2025, September 15). California study: Wildfire defensible space, home hardening double number of homes saved. *CBS News – San Francisco*. https://www.cbsnews.com/sanfrancisco/news/california-wildfire-mitigation-zone-0-home-hardening-defensible-space-uc-berkeley-study/

- Median county home value of $550,600 in 2025 is taken from the Larimer County Assessor, based on https://www.larimer.gov/spotlights/2025/05/1/notice-value-be-mailed-housing-market-levels. Focusing on the value of houses in municipalities closer to the wildland-urban interface such as Estes Park, Red Feather Lakes, Bellevue, Glen Haven, and Livermore, the average is $526k in 2025, excluding contents.