

# **WaterSMART Grants: Water Marketing Strategy Grants for Fiscal Year 2021**

Bureau of Reclamation Funding Opportunity Number R21AS00278

## **City of Thornton, Colorado Thornton Northern Properties Stewardship Plan: Water Optimization Market Feasibility Study**

**April 7, 2021**

**Applicant:**

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#### D.2.2.4. Technical Proposal

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##### D.2.2.4. (1) Executive Summary

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*Applicant Name:* City of Thornton

*Date:* April 7, 2021

*City, County, and State:* Thornton, Adams County, Colorado

*Type of Applicant:* Category A

*Executive Summary:*

The City of Thornton (Thornton) seeks USBR funds to develop a Water Optimization Market Feasibility Study. The purpose of the study is to explore market transactions that could be used to optimize application of limited water supplies in the Water Supply and Storage Company (WSSC) system. The goal of the water optimization market will be to retain more prime farmland in production, in strategic locations, as cities draw on WSSC shares they own to serve growing municipal needs. The Colorado Water Conservation Board, local governments in Larimer and Weld counties, and various agricultural, environmental, economic, and municipal groups are partners in the effort. Work will be managed by a consulting team and guided by a steering committee comprised of Larimer and Weld county stakeholders. USBR funds will support (1) outreach and partnership building; (2) scoping and planning activities (including legal assessment, land use assessment, farmland conservation priority assessment, market analysis, economic modeling, and testing); and (3) development of a water marketing strategy document.

*Funding Group:* 2

*Grant Funding Request:* \$275,000

*Project Duration:* 24 months

*Non-Federal Matching Funds:* \$275,000

*Located on Federal Facility:* No

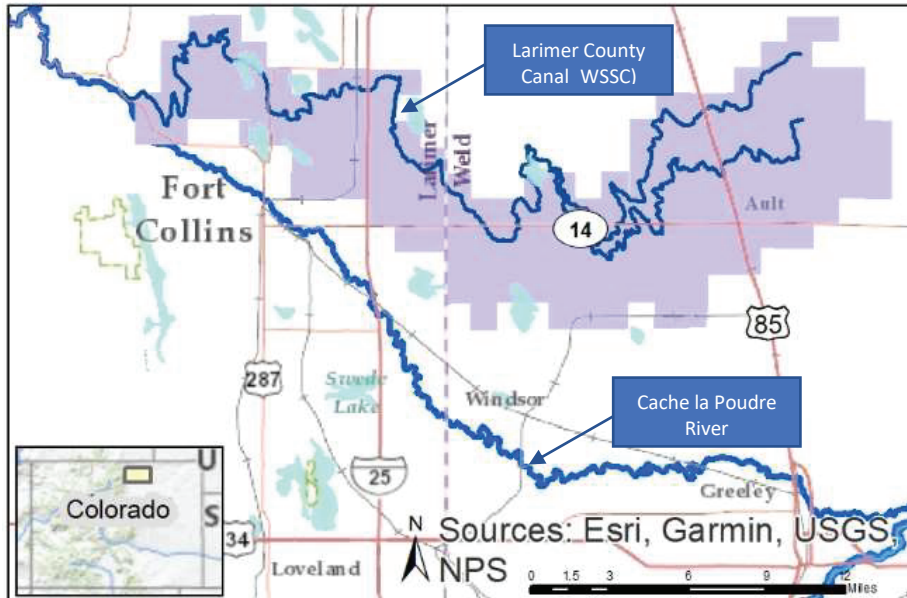
*Total Project Cost:* \$550,000

*Estimated Project Completion Date:* December 2023

##### D.2.2.4 (2) Project Location

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The project is located in Larimer and Weld Counties in northern Colorado, where Thornton owns 18,751 acres of farmland and associated water rights. Thornton-owned farm properties are served by WSSC's Larimer County Canal (LCC) and associated lateral ditches. The LCC headgate diverts water out of the Cache la Poudre River north of the city of Fort Collins and west of the town of LaPorte in Larimer County. The LCC continues eastward to U.S. Highway 85 between the Town of Pierce and the Town of Ault in Weld County. Three major laterals (Collins, Lone Tree, and Pierce) extend several miles east of Ault and Pierce that serve Thornton farms. The general location of the majority of the Thornton farms is near Ault, Colorado, located at the intersection of U.S. Highway 85 and Colorado Highway 14, at 40° 34' 56" N and 104° 43' 53" W. A general vicinity map follows.



#### D.2.2.4. (3) Project Description

The City of Thornton seeks \$275,000 in USBR WaterSMART Water Marketing Strategy Grant funds to develop a Water Optimization Market Feasibility Study. The purpose of the study is to explore market transaction structures that could be used to optimize application of limited water supplies on farms irrigated by the Water Supply and Storage Company (WSSC). Thornton is applying under Funding Group 2, as a municipality with water delivery authority (Category A).

#### Background

In 2019, the City of Thornton commissioned development of a Northern Properties Stewardship Plan (NPSP). The purpose of the NPSP is to identify the best long-term uses (as well as interim management and disposition strategies) for 18,751 acres of farmland the city owns in Larimer and Weld counties. The city acquired the farms and associated water rights in the 1980s to meet future demand for municipal water; it secured its Water Court decree changing the agricultural water rights to municipal use in 1998. Thornton intends to develop its water supplies for municipal use over an approximate forty-year period, between 2025 and 2065. It does not anticipate retaining land ownership after that time, with the exception of minimal acreage required to operate the decree.

Since 2019, NPSP efforts have included: (1) internal planning with City of Thornton representatives, (2) external planning with Larimer and Weld county stakeholders, (3) landscape analyses, and (4) preliminary water optimization market planning efforts. Internal planning at the City of Thornton established project parameters. Engagement with Larimer and Weld County stakeholders informed possible NPSP approaches and undertakings. Landscape analyses provided GIS data to guide future research, community discussions, and decision-making. Follow-up meetings with municipal and county governments, state agencies (including the Colorado Water Conservation Board, Division of Natural Resources, and Department of Agriculture), and non-governmental organizations (NGOs) helped establish NPSP next steps,

which include assessing the potential to develop a water optimization market that can support better land use and water outcomes for cities, agriculture, and the environment.

### Project Overview

WSSC is a mutual ditch company that irrigates 37,000 acres of farmland. The 23-mile long, 10-mile wide ditch system spans two Colorado Front Range counties (Larimer and Weld) and encompasses or borders seven communities: Ault, Pierce, Windsor, Severance, Eaton, Fort Collins, and Timnath. WSSC is significantly affected by urbanization. 62% of the farmland it serves falls within a designated growth management area (GMA). Municipal interests, including the cities of Thornton, Fort Collins, and Greeley, and the East Larimer County and North Weld County water districts, now own 65% of WSSC shares. At the same time, approximately 80% of WSSC shares (including a majority of municipally owned shares that are not yet delivering water to municipal customers) continue to irrigate farms, and these farms contribute to one of the most productive agricultural economies in the country. Weld County ranks 8th in the nation for overall market value of agricultural products sold and is responsible for 27% of all Colorado agricultural sales. WSSC, as one of the region's largest ditches, serves a significant percentage of Weld County farms.

Municipal ownership of WSSC shares has accrued over time based upon the principle of “willing buyer, willing seller.” From an agricultural, land-use, environmental, hydraulic, or water quality perspective, there is nothing strategic about dry-up resulting from willing-buyer, willing-seller transactions. Farmland grows increasingly fragmented. Water may be removed from high-value production ground with Class 1 soils while being retained on poor soils with marginal production outputs. Irrigation may continue in areas where it contributes to nonpoint-source impairments. Hydraulic issues may challenge ditch companies that are obligated to move lower volumes of water across vast geographies. The goal of a water optimization market is to provide opportunities—for farmers, conservation groups, and others—to exchange land and water interests in order to optimize the application of limited water supplies, improve and enhance the value of agricultural operations, and create better overall outcomes for cities, agriculture, and nature. Based on the NPSP work to date, Thornton's hypothesis is that a water optimization market in the WSSC geography can be established. Thornton aspires to advance water optimization market transactions on properties it owns in a subsequent phase of effort, guided by findings from this feasibility study.

### The Water Optimization Market Concept

A water optimization market represents a replicable water market concept that could be used to facilitate better integrated land use and water management outcomes in multiple contexts: agricultural-to-municipal water transfers; targeted forbearance and fallowing; voluntary, compensated demand management. Key to use in any context is identifying the optimization mechanism. For the City of Thornton, optimization is enabled by a provision in its decree that allows irrigation of Thornton farms by other water subsequent to conversion to municipal use of Thornton's shares, as well as by more broadly applicable, statutory water-sharing and water-efficiency programs in the State of Colorado. This alternative irrigation provision allows Thornton farms to stay in irrigated agriculture if non-Thornton water sources can be procured

to irrigate those lands. Sources may include non-Thornton WSSC or Jackson Ditch Company (JDC) shares, non-WSSC/non-JDC surface water, nontributary groundwater, or tributary groundwater supported by an augmentation plan. A simple example to illustrate how a water optimization market transaction might work under Thornton’s decree provision is as follows: Farmer X owns both land and water rights on 1,000 acres of farmland under the WSSC system. One of Farmer X’s 160-acre field units, which is served by two WSSC shares (one WSSC share irrigates approximately 80 acres), is designated as “not prime” by the Natural Resources Conservation Service (NRCS). It has shallow, Class 5 soils with poor water retention characteristics. It produces low yields, has steep slopes, and contributes to nonpoint-source impairments in an adjacent tributary drainage corridor. In a water optimization transaction, the City of Thornton sells Farmer X a 160-acre farm it owns—a unit with Class 1 soils and demonstrable yields, and which is proximate to Farmer X’s operation. The fee-title sale transfers the land only. Thornton does not include the two WSSC shares it owns that have, up until now, irrigated this ground, and which are mandated (by the decree) to be developed for municipal use. Concurrent with the sale, the City of Thornton works with Farmer X to “move” the two WSSC shares from his/her 160-acre field unit to the new farm s/he has just purchased, employing the alternative irrigation provision to do so. Following the sale, Thornton develops the two WSSC shares it owns for municipal use and helps the farmer reclaim the ground he moved his shares from. Through the transaction, Thornton and Farmer X have: (1) restored water to an exceptional piece of Prime Farmland that would otherwise be dried; (2) increased the financial value of that ground by restoring permanent water to it; (3) enabled higher annual yields by Farmer X; and (4) improved water quality by ceasing irrigation in an area that was contributing to nonpoint source impairments.

#### Outreach and Partnership Building

While the City of Thornton and the Colorado Water Conservation Board (CWCB) will be the lead funding partners for the Water Optimization Market Concept effort, a steering committee comprised of members representing affected jurisdictions will lead the overall concept effort. All of the members of the steering committee have participated in preliminary planning and have helped form the scope of work outlined in this application. The committee will meet on a regular basis throughout the project to continue to provide guidance as the project progresses.

Outside of the jurisdictional entities, other project partners may include WSSC and its shareholders, The Nature Conservancy, Colorado Open Lands, Poudre Runs Through It, Colorado Water Center, Great Outdoors Colorado, Department of Local Affairs, Colorado Corn Growers Association, and several others. Some of these partners may provide additional funding to this project as well implementation projects identified through the planning process.

Additionally, issue -specific working groups will be formed to address specific project areas such as conservation, agriculture, recreation, etc. These working groups will be comprised of subject matter experts, state and local representatives, and other non-government agencies. These groups will meet periodically or on an as-needed basis to address their respective specific issues.

Lastly, the project will also include public workshops that will allow local residents and business owners to provide input and feedback on proposed water optimization project alternatives.

### Scoping and Planning Activities

Scoping and planning activities are designed to determine the most feasible approaches to water optimization market development. Six activities will be undertaken through this grant: (1) legal assessment; (2) land use assessment; (3) farmland conservation assessment; (4) market analysis; (5) economic modeling (of transaction structures); and; (6) testing (through development of hypothetical case study scenarios).

The **legal assessment** focuses on three investigations: (i) parameters and limitations of the alternative irrigation decree provision in Thornton's Water Court Decree; (ii) water sources available to serve this provision; and (iii) statutory structures that could be employed to serve this provision. Thornton's decree is 23-years old. Processes (such as approvals through retained jurisdiction) are not as defined in a 1998 decree as they may be today. Exploring the parameters and limitations of the alternative irrigation provision will enable Thornton to understand legal processes, engineering requirements, and costs associated with implementing this provision. Simultaneously, Thornton will catalogue potential water sources available to farmers for transactions that utilize this alternative irrigation provision. Finally, additional methods to continue irrigation will be explored through statutorily enabled mechanisms, including but not limited to: adjudicated augmentation plans, interruptible water supply agreements (IWSA), substitute water supply plans (SWSP); and rotational crop management contracts (RCMC). The **land use assessment** will help to contextualize optimal land use outcomes for communities in and around the WSSC system. What constitutes the best future uses for Thornton farms? What lands would ideally be retained in agriculture? What lands should accommodate future growth? Where can ecological corridors and drainage networks be preserved and protected? Larimer and Weld county communities and stakeholders will help answer these questions. The **farmland conservation assessment** will inform the land use assessment. It will establish conservation priorities for irrigated farmland through: (i) a review of scientific data; (ii) spatial analysis; (iii) engagement with farmers; and (iv) engagement with key agricultural industry sectors. This will be followed up by a **market analysis** that undertakes a detailed examination of land and water values across different parts of the WSSC system. Values vary across the system depending upon where growth is occurring, the presence of oil/gas resources, the quality of farmland, etc. The analysis will also examine conservation finance and ecosystem service payments that can factor into water optimization transactions (e.g., conservation easement sales, nonpoint-source mitigation funds, NRCS Environmental Quality Incentives Program, etc.). This, in turn, will support **economic modeling**. The first step in economic modeling is to identify opportunities for land-value arbitrage or land/water-value capture inherent in optimization frameworks based on market analysis data. The next step is to see what value can be added by conservation finance frameworks. (Note: the City of Thornton may pursue opportunities to expand upon this work through the development of a detailed water quality analysis and nutrient trading opportunity assessment; but those elements of the project are not included in or budgeted for in this grant request.) Finally, once values have been identified, models can be developed to analyze water optimization market transactions under



different transaction structures and across various Thornton properties—showcasing economic results for both the City of Thornton and prospective market participants. The models will undergo **testing** by being applied to hypothetical case study scenarios with WSSC farmers and local conservation groups. The scenarios will help examine what value propositions exist, whether assumptions are accurate, and to what extent water optimization transactions can improve the business position of individual farmers.

#### Development of a Water Marketing Strategy Document

The results of (and deliverable for) this work will be a water optimization market feasibility study. This document will describe: (1) stakeholder involvement and support; (2) findings from the six activities supported by the USBR WaterSMART grant (legal assessment, land use assessment, farmland conservation assessment, market analysis, economic modeling, and testing); (3) a description of alternative irrigation processes and quality control measures (monitoring); (4) an implementation plan; and (5) next steps, which might include identified pilot projects, water quality analyses, and/or additional cost-benefit analyses (for example, the savings municipal WSSC shareholders might realize through WSSC system efficiencies gained from water optimization markets).

#### D.2.2.4.(4) Evaluation Criteria

**E.1.1 Evaluation Criterion A—Water Marketing Benefits (40 points)** *Will the water marketing strategy project address a specific water supply shortfall? What is the nature and severity of the shortfall, and which sectors are affected? Please provide support for your response.*

Colorado’s Water Plan addresses the possibility of a significant water supply shortfall within the next few decades. These shortfalls will be felt across all sectors, and are exacerbated by population increases, drought, and regional aridification. In the agricultural sector, the CWCB estimates that while the agricultural sector currently uses approximately 4.7 million acre-feet of water a year, current crops would use an additional 2 million acre-feet of water each year if the supply existed. These shortages are intensified by agricultural to municipal transfers, such as Thornton’s, which remove water from productive agricultural lands. Identifying alternative irrigation sources or approaches could allow high producing irrigated agricultural lands slated for dry-up to remain in irrigated agriculture. This will ensure that the limited water available for irrigated agriculture is put to maximum benefit. This maximum utilization of limited water resources could reduce the water supply shortages to the agricultural sector. More specifically, WSSC has historically been a water short system. With 65% of WSSC’s ownership being municipal ownership, the remaining 35% agricultural ownership is scattered throughout WSSC’s 37,000-acre service area. Consequently, as Thornton and other municipalities remove water from the WSSC system for municipal use, WSSC’s water delivery system will become less efficient. This will exacerbate the shortages already faced by the WSSC shareholders. If prime agricultural lands can be clustered, water delivery to those farms will be more efficient and ditch losses will be reduced. In addition, prime agricultural lands with healthier soils may not require as much water to produce a crop.



In the municipal and industrial sector, Colorado's Water Plan estimates shortages could reach 560,000 acre-feet by 2050. Thornton's acquisition of WSSC shares in the 1980s was completed in order for Thornton to address its own municipal water shortage. While Thornton could proceed with its agricultural to municipal transfer and meet its own water shortage without the marketing strategy or other efforts related to the NPSP, Thornton is motivated to help define a different approach for future agriculture to municipal transfers. In addition, as mentioned above, as the municipal water is removed from the WSSC system, deliveries to the remaining agriculture shareholders will become less efficient. Thornton has contractual and decree obligations to mitigate water rights injury, including shortages to the agricultural deliveries. In practice, this means Thornton needs to keep a portion of its municipal water in the ditch to help ensure the remaining shareholders receive their water allocation. Any shortfall in those deliveries due to system losses or inefficiencies would come out of Thornton's municipal deliveries. Therefore, Thornton is motivated to minimize WSSC system losses and to ensure that the WSSC system can operate as efficiently as possible.

*How and to what extent will the water market/water marketing strategy activities, once implemented, address the shortfall? Please describe the expected benefits (e.g., how water users will benefit) and provide support for your response.*

The activities associated with this grant will address municipal and agricultural water shortfalls by optimizing the application of the limited water supplies in WSSC. The work will develop strategies and mechanisms to keep more productive farms in irrigation and increase the efficiencies in the WSSC delivery systems. Higher producing and more efficient farms benefit the WSSC agricultural shareholders, the agricultural industry, and the region as a whole. A more efficient water delivery system benefits WSSC agricultural users, as well as the municipal shareholders who, pursuant to their decree and other obligations, are required to mitigate certain impacts to agricultural users.

*Will the water market/water marketing strategy activities benefit multiple sectors (e.g., agricultural, municipal, tribal, and environmental) and/or types of water uses (e.g., hydropower generation, municipal, recreation, and irrigation)? If so, to what extent, and which sectors and water user will benefit? Provide support for your response.*

Both municipal and agricultural sectors will benefit from the activities as previously described. In addition, the agricultural and industrial sector could further benefit from the stabilization and enhancement of agricultural activities in the region. Environmental benefits may result if irrigation-induced water quality and agricultural-induced environmental impacts are identified and are able to be mitigated through the strategies developed. Furthermore, both irrigated and non-irrigated agricultural land may be candidates for conservation easements that serve as buffers to growth pressure, and offer additional environmental benefits.

*Explain how and to what extent the proposed water market/water marketing strategy activities will improve water supply reliability in general in the area upon implementation of the strategy (address all that apply):*

*A) reducing the likelihood of conflicts over water;*

Agricultural to municipal transfers are controversial and often create adversarial conditions within the communities affected. Specifically, the activities associated with this grant will offer a framework for Thornton and the communities impacted by Thornton's transfer to work through some of the contentious issues that exist as a result of the Thornton transfer. More

broadly, Colorado’s Water Plan acknowledges that agricultural transfers will continue to be a potential source for municipal supplies, but the Water Plan encourages water providers explore alternatives to traditional buy and dry. Ideally, these alternatives would provide the municipal sector with water supply, but also ensure that the municipal water supply does not come at the expense of agriculture. Recent acquisitions of agricultural water rights in the Weld and Larimer County region by other municipal interests signal that these agricultural water rights are continuing to be pursued via the willing buyer/willing seller mechanism. As previously stated, that approach does not necessarily optimize the use of water resources nor does it ensure the viability of agriculture. In addition, that approach has historically planted the seeds of conflict between communities and the agricultural and municipal sectors. The activities and strategies that result from Thornton’s efforts may serve to guide future agricultural to municipal transfers in the region, help the state minimize conflict, and ensure that Colorado’s Water Plan objectives are met.

*B) increasing resiliency to drought;*

Both the agricultural and municipal water users in the WSSC system are at risk for decreased water supply due to drought. Increasing the efficiencies in the WSSC delivery system, as well as utilizing non-Thornton water to irrigate farms, will increase overall system resiliency and will help both municipal and agricultural users reduce risks due to drought.

*C) sustaining agricultural communities;*

Agricultural-to-municipal water transfers reduce irrigated acreage in farm communities. If a critical mass of Prime Farmland is lost—transfers may result in: the decline of forward- and backward-linked industries, diminished ag-sector growth potential, unemployment, increasing hardships for farmers who remain in farming, and fiscal and land use challenges for local governments. A water optimization fund can counteract these trends by advancing three objectives: (1) strategically preserving irrigation on Prime Farmland; (2) building contiguous clusters of productive farms (negating the fragmentation that occurs following agricultural-to-municipal water transfers); and (3) supporting products and markets (existing or future) that can be sustained on remaining acreages.

The Soil Composite Classification map (see the link provided in section D.2.2.9. - NPSP 2020 Work Summary Document, Page 32) provides an example of where and how a water optimization market can help advance these objectives. In the map, WSSC-irrigated farm units (fields) are outlined in gray. Soil characteristics on WSSC-irrigated parcels are averaged by parcel ownership. Parcels composed primarily of Prime Farmland according to the USDA Natural Resources Conservation Service (NRCS) are in light green. Parcels that are both Prime and possess a high percentage of Class 1 and 2 soils are in dark green. Parcels composed primarily of fields that are Not Prime or would only be considered Prime if certain conditions are met are in red. (The map background shows Class 1 soils in green, Class 2 soils in yellow, and Class 3-8 soils in red across non-irrigated or non-WSSC-irrigated lands.) Parcels owned by the City of Thornton are outlined in black.

Approximately 57% (+21,000 acres) of WSSC-irrigated lands are designated as Prime Farmland, and more than one-quarter of Prime Farmland possesses a majority of Class 1 and 2 soils. These lands can grow a wide variety of crops and, with good management practices, sustain

production over time. As the Soil Composite Classification map demonstrates, a large concentration of Prime Farmland exists along the Larimer-Weld county line, running approximately 10 miles northwest and ending due south of the town of Wellington. Another concentration of Prime Farmland runs between the Town of Ault and Owl Creek Reservoir, splitting and spreading north and northwest in a shape that resembles butterfly wings. Strong concentrations of Class 1 and 2 soils exist in this area, along a corridor of farmland that connects the towns of Ault and Pierce on the east side of both towns. Under any agricultural-economic objective, these concentrations of Prime Farmland represent places where farms would ideally be retained in irrigated agriculture. Thornton owns thousand acres of farmland in these two areas. A water optimization market, enabled by the provision in Thornton's decree, can help restore permanent water to these farms, preserve a resilient agricultural base, and, by targeting large concentrations of these lands, maintain landscape contiguity between highly productive farms in order to redress the fragmentation that might otherwise occur. A water optimization market can also help preserve specific regional industry clusters operating in these areas or create opportunities for future products that can be grown on smaller, high-yield acreages.

*D) demonstrating a water marketing approach that is innovative and which may be applied by others; or*

The impacts of a water optimization market could significantly change the agricultural-to-municipal water transfer dynamic. Through this grant, USBR funding will establish models that can be scaled and applied to water-short regions across the West—optimizing water management for urban residents, food producers, and nature. Intermountain West participants in this effort are particularly interested in the model's potential to guide drought contingency planning in the seven Colorado River Basin states and Mexico, where over-appropriation of the Colorado River threatens the water supplies of 40 million residents, and farmers who irrigate 5.5 million acres. Conservation interests are interested in the model's ability to improve water quality and restore soil carbon when lands are dried. Emerging ecosystem service markets—from carbon markets to NPS mitigation funds and nutrient trading markets—could further enhance and influence the model. Regardless of whether the institutional objective is municipal supply, farmland preservation, or ecological restoration, optimizing the application of limited water supplies through a water optimization fund can produce better-integrated land use and water management outcomes. Furthermore, the voluntary, market-based approach has applicability beyond the ability to simply move water from a less productive farm to a more productive farm. The total remaining amount of irrigated farmland retained in irrigated agriculture on WSSC, for example, could be expanded beyond that under currently forecasted dry-up scenarios. Farms could operate using augmentation water under an adjudicated augmentation plan, or they could share water with other agricultural or municipal users under statutorily enabled dry-up alternatives, such as IWSAs, RCMCs, or SWSPs. Environmental objectives could, likewise, be achieved, not only through more strategic dry-up and restoration, but through application of the model in continuing irrigation contexts where the methods of irrigation and production are improved.

*E) providing instream flows for species, recreation or water quality objectives.*

While basic water quality objectives can be assessed through the existing scope, Thornton is exploring opportunities to develop a more detailed analysis of irrigation-induced water quality

impacts and the potential nutrient-trading markets have to enhance the value proposition inherent in water optimization markets. If, for example, more strategic dry-up aimed at supporting greater agricultural productivity also produced a net water quality gain (as it does in the project description example with Farmer X), it may be that nutrient-trading can add value to the water optimization market. Such analyses will further inform the model developed through this feasibility study.

*Explain the extent to which the water market/water marketing strategy activities will be ready to proceed upon completion of the strategy, addressing each of the following:*

*Describe your plans and timeline for implementing the strategy upon its completion.*

With Thornton's decree in place, implementation could conceivably begin following the completion of the feasibility study and the NPSP. Because Thornton will not develop 100% of its water supplies for 40 years, the timeline for implementation is quite long. However, changing land and water values will affect the ability to implement. As the price of farmland in this region—both irrigated and non-irrigated—rises in accordance with non-agricultural development and/or oil and gas market pressure, implementation could become more challenging. Therefore, the window of opportunity to capitalize on water optimization markets is likely greatest over the next decade. In implementing this project expediently, the City of Thornton will seek to develop a market that meets its fiduciary responsibility to Thornton taxpayers while advancing the land use objectives of communities in Larimer and Weld counties.

*Are there complex issues, including issues of law or policy, that would need to be resolved before the strategy could be implemented?*

Because irrigation subsequent to Thornton's use is contemplated in the existing decree, many complex legal and policy issues have already been addressed. Nevertheless, the legal assessment will further examine the parameters and limitations of the decreed alternative irrigation provision, identify water sources available to serve this provision, and consider how well other statutory structures (i.e., adjudicated augmentation plans, IWSAs, SWSPs, etc.) are positioned to advance a water optimization market in light of this provision. The assessment will be undertaken in consultation with the Colorado Division 1 Engineer. Appropriate irrigation reductions and dry-up covenants need to be in place prior to the transfer of any shares, and the Division Engineer oversees these matters. Also, in a transaction utilizing the decreed alternative irrigation provision, the Division Engineer can seek input from other opposers in the change case, so a water optimization market will need to factor in time and cost for these activities.

*Explain whether previous planning, outreach and/or water marketing activities have been completed, including work on any of the three required project components. Note that links to existing work that will contribute to the strategy are requested in Section D.2.2.9. Existing Analysis Contributing to the Water Marketing Strategy (if applicable). While previous planning/water marketing is not required, these efforts may support the resolution of complex issues within the timeframe for the grant, so that implementation may follow quickly upon completion of the strategy.*

Between August 2019 and October 2020, the City of Thornton commissioned the **Northern Properties Stewardship Plan (NPSP)**, a consultant-led effort that included: (1) internal planning with City of Thornton representatives, (2) interviews with Larimer and Weld County subject matter experts (SMEs), (3) preliminary landscape analyses, and (4) meetings with local and

impacted individuals and small groups. Internal planning at the City of Thornton established project parameters. Subject matter expert interviews with Larimer and Weld County stakeholders informed possible NPSP approaches and undertakings. Landscape analyses provided GIS data to guide future research, community discussions, and decision-making. Follow-up meetings with municipal and county government representatives, state agency personnel, non-governmental organizations (NGOs), and others helped establish NPSP next steps.

The Water Optimization Market Feasibility Study—and specifically the land use assessment component of it—are two key next steps identified in the NPSP process. While the NPSP will advance overarching stewardship strategies for 18,751 acres of property owned by the City of Thornton, the Land Use Assessment and Water Optimization Market Feasibility Study will execute detailed analyses of potential future (optimal) uses for each property with specific water optimization alternatives as appropriate.

#### **E.1.2 Evaluation Criterion B—Level of Stakeholder Support and Involvement (30 points)**

*Identify stakeholders in the planning area who have committed to be involved in the planning process. Describe their commitment, e.g., will they contribute funding or in-kind services or otherwise engage in the planning process?*

The Land Use Assessment Working Groups will be comprised of stakeholders who govern, reside in, work in, and shape the growth of Weld and Larimer counties. The Working Groups will contribute in-kind services to the planning process. The project anticipates these in-kind services will include the compilation of data; technical expertise on subjects including agriculture, green energy, conservation, land management, development, and water quality; and communication outreach via their local networks to engage with the broader public.

The exception to in-kind commitments is the Colorado Water Conservation Board, which has provided grant funding to the proposed project approach totaling \$200,000. These funds are match-dependent.

*Please explain whether the proposed project is supported by a diverse set of stakeholders (appropriate given the types of interested stakeholders within the watershed and the scale, type, and complexity of the proposed strategy). For example, is the project strategy supported by entities representing environmental, agricultural, municipal, Tribal, or recreation uses?*

The proposed project is supported by a diverse set of stakeholders who have already been engaged on the proposed project, many of whom have written letters of support (see D.2.2.10 Letters of Support). The range of committed stakeholders includes state agencies, regional water managers, local municipalities, environmental NGOs, agricultural organizations, community organizations, and Thornton’s farm tenants. Additionally, the project team will sub-contract with a Spanish-speaking engagement firm to ensure diversity within the range of stakeholders.

The project area includes the traditional lands of the Ute, Arapaho, Cheyenne, Lakota, Apache, and Comanche. However, in 1878, tribes were forcibly relocated by the US Government and there is no longer formal tribal representation in the region.



*Describe stakeholders in the planning area who have expressed their support for the planning process, whether or not they have committed to participate. Support can include letters of support from stakeholders or a description of feedback from interested stakeholders—such letters should identify the stakeholder’s specific interest.*

The following list of stakeholders illustrates groups who have already been interviewed and/or engaged in the conception of this planning effort. All of these stakeholders expressed interest in being engaged further. The stakeholders who have committed in a more formal way (i.e. statement, letter of support, request to be on the Working Groups) are bolded.

<ul style="list-style-type: none"> <li>• <b>Colorado Department of Agriculture</b></li> <li>• <b>Colorado Water Conservation Board</b></li> <li>• The municipalities of <b>Ault</b>, Pierce, Windsor, Timnath, Severance, Eaton, <b>Greeley</b>, and Ft. Collins</li> <li>• Other municipal water rights holders on regional ditches and laterals</li> <li>• Thornton’s farm tenants and neighboring landowners</li> <li>• Pawnee National Grasslands</li> <li>• <b>Poudre Runs Through It</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Northern Colorado Water Conservancy District</b></li> <li>• Weld County Board of County Commissioners</li> <li>• Larimer County Agricultural Advisory Board</li> <li>• <b>The Nature Conservancy</b></li> <li>• Colorado Corn Growers Association</li> <li>• <b>Colorado Open Lands</b></li> <li>• Colorado Water Center, Colorado State University</li> </ul>
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*Is there opposition to the proposed strategy? If so, describe the opposition and explain how it will be addressed. Opposition will not necessarily result in fewer points.*

There is not opposition to the proposed strategy, as a water optimization market would create new opportunities for regional stakeholders that don’t currently exist. There is opposition to the transfer of water out of Larimer and Weld Counties, generally, and out of agriculture, specifically. Early NPSP outreach suggests two areas of concern: first, agricultural communities have concerns about the impacts growth and development will have on local ways of life, which Thornton’s acquisition of farms has come to symbolize; and second, that, while a regional NPSP planning approach is important, the local jurisdictions value autonomy and local control.

Thornton adapted its proposed strategy to address both areas of concern. First, the optimization study will be undertaken in partnership with local agricultural stakeholders using a data-driven approach to optimize water in the region. Second, Thornton has communicated with and engaged local decision-makers, including local mayors and county commissioners, to ensure that they feel included and comfortable with the project purpose and regional planning approach.

*Do any separate planning efforts express support for the proposed water market/water marketing activities? Or will the proposed water marketing strategy complement other ongoing or recent planning efforts within the area? Other relevant planning efforts can include: Water Management Plans, Water Conservation Plans, Drought Contingency Plans, State Water Plans, Other planning efforts.*

*Please describe any relevant planning efforts, including who is undertaking these efforts and whether they support or are complemented by the proposed water marketing strategy. Explain how the proposed water marketing strategy will avoid duplication or complication of other ongoing planning efforts.*

The Water Optimization Market Feasibility Study will complement other planning efforts, including **Colorado's Water Plan**, which specifically identifies integrating water and land use planning and developing ATMs as priorities. In particular, the Plan calls for: using local development tools; incorporating land-use practices into water plans, developing buy-and-dry alternatives, and strengthening partnerships around these efforts.

**Weld County's Comprehensive Plan** contains a section specific to water rights and land use. Relevant goals and policies include: *Develop land use policies that increase the productivity of the lands dried up as a result of water transfers; encourage alternatives to the "dry-up" (or fallowing) of agricultural land, a practice that otherwise takes agricultural land out of production, often permanently; encourage "dry-up agreements" that allow the use of alternate water sources to keep the land in production; maintain a solid understanding of the long-term water supplies available for County residents, farmers and industry; monitor any plans for significant transfers of water out of the County, and describe the amount of land that is planned to be taken out of agricultural production due to water transfers.*

**Larimer County's Comprehensive Plan** is less detailed than Weld County's, simply stating *the role of local governments in contributing to solutions that protect agricultural water use is limited, and other agencies including the Colorado Water Conservation Board and local water districts have more clearly defined roles. Nevertheless, Larimer County has a role to play. In particular, a fundamental role of the county is to assist in the protection of important farmlands.*

*Describe what efforts that you will undertake to ensure participation by a diverse array of stakeholders in developing the water marketing strategy. If specific stakeholders have not yet been identified, or if some sectors are not yet represented, explain how you will accomplish this in the first few months after an award. Support can include a description of key stakeholder interests in the planning area and what efforts that you will undertake to engage them in the planning process, including outreach to stakeholders or collaborating with other groups or partners.*

Thornton's approach to diverse engagement focuses on (but is also not limited to) three constituencies: agriculture, Spanish-speakers, and youth. The first recognizes that farmers and producers are often overlooked in discussions around landscape changes and especially recognizes that farm tenants (versus landowners) are important voices in this planning process. Specific groups to engage with include Thornton's current farm tenants; landowners with farms neighboring Thornton's properties; and agricultural / producer representative organizations like Colorado Corn Growers Association and the Larimer County Agricultural Advisory Board (both of whom have already been engaged).

Spanish-speakers will be engaged through the project team partner Cultivando. Cultivando is a leadership, advocacy, and capacity building organization that works in collaboration with



community leaders and organizational partners to connect Latino voices to planning processes. Strategies include tapping into Latino and Spanish-speaking communities via churches, neighborhood groups, and local businesses.

Youth engagement focuses on three local Future Farmers of America (FFA) chapters within the project area and on Colorado State University’s campuses in and around Ft. Collins. Because the planning project looks to define land use objectives over the next few decades, it’s critical to include the voices of the next generation in that vision. These students are the next generation of farmers, residents, commuters, and water users.

**E.1.3. Evaluation Criterion C—Ability to Meet Program Requirements (20 points)**

*Describe how the three required project components (outreach and partnership building, scoping and planning activities, and development of a water marketing strategy) of a water marketing strategy grant will be addressed within the required timeframe. Please include an estimated project schedule that shows the stages and duration of the proposed work including major tasks, milestones, and dates. If prior planning work will be relied on to meet any of the required project components, please explain this and describe the work that will be relied on. Your response should demonstrate your understanding of the tasks required to address the required project components of a water marketing strategy grant. **Note:** the budget proposal will also be considered under this sub-criterion (e.g., whether the budget is reasonably detailed and appropriate for the work proposed).*

**Project Schedule**

	2022												2023											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Task 1: Regional Land Use Assessment</b>																								
1.1 Establish and Manage a Regional Planning Partnership																								
1.2 Review Existing Plans and Assemble Data																								
1.3 Conduct Land-Use Market Analysis																								
1.4 Engage Issue-Specific Working Groups																								
1.5 Associate Market Information with Issue-Specific Information																								
1.6 Develop Regional Land Use Vision Alternatives																								
1.7 Refine Land Use Alternatives																								
1.8 Develop and Issue Final Report																								
<b>Task 2: Water Optimization Market Study</b>																								
2.1 Establish and Manage Outreach & Engagement Structure																								
2.2 Assemble Baseline Datasets																								
2.3 Assess Optimization Alternatives																								
2.4 Develop Financial Models and Case Studies for Preferred Alternatives																								
2.5 Develop and Issue Final Report																								

*Describe the availability and quality of existing data and models applicable to the proposed water marketing strategy.*

Extensive models for a similar Colorado project in the Arkansas River Basin were developed by the City of Thornton’s NPSF consulting team. This work, funded by Harvard University, the Colorado Water Conservation Board, the Gates Family Foundation, the David and Lucille Packard Foundation, and other public and private supporters, created sophisticated, spatially-explicit optimization transaction models (focused on the microeconomics of optimization transactions), as well as macroeconomic impact studies that examined county-level economic trajectories under different trajectories of change. In the Arkansas River Basin project (a project examining how to reduce the impacts of 5,000 acres of dry-up in a 15,000-acre production area using water optimization market mechanisms), it was determined that just optimizing water delivery alone (applying limited supplies to the best soils and drying lands more strategically),

would reduce the total economic impacts of dry-up on production by 22% (\$2 million dollars annually)—with no additional changes in cropping, irrigation practices, or amount of dry-up. Analyses were conducted using Colorado Decision Support System (CDSS) water data, crop data from the USDA Farm Service Agency’s National Agriculture Imagery Program (NAIP), USDA National Agricultural Statistics Service (NASS) data, Colorado State University (CSU) Crop Enterprise Budgets, robust NRCS soils datasets, and water quality and ecological data available from CSU and other sources. This data is available for the South Platte River Basin, where the NPSP is focused; and a robust set of privately maintained land and water market data, focused on 13-years of market activity in and around the WSSC system, will also be acquired for the project—something that did not exist in the Arkansas River Basin project.

*Identify staff with appropriate technical expertise and describe their qualifications. Describe any plans to request additional technical assistance from Reclamation, or by contract.*

**Emily Hunt - Deputy Infrastructure Director, City of Thornton**

Emily is the Deputy Infrastructure Director at the City of Thornton. She has over twenty years of experience in all functions of the water utility enterprise, focusing on Colorado water rights, and municipal water supply planning and management. Emily has a BA in Geology from the University of Colorado at Boulder, and an MA in in Geography from the University of Denver.

**Edward Lanyon - Senior Water Resources Administrator, City of Thornton**

Edward is a Senior Water Resources Administrator at the City of Thornton. He has over 36 years of experience in municipal water supply planning, development, and management. He is currently responsible activities associated with Thornton’s future water supply, and oversees the city’s Agricultural Stewardship Office that manages Thornton’s farm properties.

**Scott Campbell Conservation Planner, ICS Consulting**

Scott is a conservation planner and consultant and the Principal of Innovative Conservation Solutions, LLC. Scott’s expertise includes conservation planning, land and water protection frameworks, conservation finance, ecosystem service payment modeling, land use and water management integration, farm and ranch sustainability, fundraising, and collective impact process management. Scott was the 2014-2015 Lincoln Loeb Fellow at Harvard University’s Graduate School of Design and a joint fellow at the Lincoln Institute of Land Policy. Prior to his Harvard post, he directed one of the country’s largest land trusts, the Palmer Land Trust, which under his leadership protected 50,000 acres of important natural, agricultural, and recreational lands—contributing to a 100,000-acre conservation portfolio. Before his time at Palmer, Scott served in the Colorado Office of Economic Development under Governor Bill Owens.

**Kevin Shanks - Land Planner/Landscape Architect, THK Associates**

Kevin is a Senior Landscape Architect and Project Manager for THK Associates, Inc. with over 38 years of experience. He has a BS in Landscape Architecture and is professionally licensed in Colorado and Iowa. He is experienced in land use planning, land use management, natural resource restoration, project master planning, preliminary and detailed site design, graphic presentation, community facilitation, construction documentation, specification writing, irrigation design and construction administration.

**Taber Ward - Natural Resource Facilitator**

Taber Ward is a results-oriented attorney and facilitator with a broad range of experience in collaborative problem solving; stakeholder process design; conservation real estate and land trust transactions; and agricultural land use. She possesses substantive expertise in the areas of

natural resource management; public input processes; agriculture; natural resource conservation; and project management. Taber is adept at working across and between sectors with government, non-profits, community members, farmers, and business leaders.

**Kevin McCarty - Certified General Appraiser**

Kevin is a certified general appraiser in Colorado and Wyoming and the owner of McCarty Land & Water Valuation. He has a Bachelor’s Degree from Kansas State University and a Master’s Degree in Resource Geography from Oregon State University. In his 30-year appraisal career, Kevin has worked with the Kansas Department of Revenue, served as the Sherman County Assessor, and has conducted appraisal work in more than 80 counties throughout the Rocky Mountains and High Plains. Kevin worked with ICS and Palmer Land Trust to examine land and water values following an agricultural-to-municipal water transfer on the Bessemer Ditch.

**Olga González - Latino/x Community Engagement Leader**

Olga Gonzalez is the executive director of Cultivando, a leadership and advocacy organization that works in collaboration with community leaders. She is a long-time diversity, equity, and inclusion consultant, seasoned nonprofit professional, and community activist and organizer. Olga earned a bachelor’s degrees in Psychology and Chicano Studies from Scripps College and a master’s degree in Nonprofit Management from Regis University as a Colorado Trust Fellow.

*If pilot activities are to be a part of the project, please include the following: Describe any permits or approvals that will be required, along with the process for obtaining such permits or approvals. Pilot activities are not planned with this phase of this project grant.*

*Identify and describe any engineering or design work performed specifically, in support of the proposed pilot activities. Not applicable.*

*Describe how the environmental compliance estimate was developed. Has the compliance cost been discussed with the local Reclamation office? Not applicable.*

**D.2.2.5. Project Budget**

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**D.2.2.5. (1) Funding Plan and Letters of Commitment**

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The non-federal cost share for the Water Optimization Market Concept will be provided by the City of Thornton and the Colorado Water Conservation Board (CWCB). The City of Thornton has allocated \$75,000 from its General Funds in Fiscal Year 2021. \$200,000 in grants have been awarded for this project from the CWCB. Final contracting for the grants is underway, and funds will be available by June 2021. The current budget proposal does not include any costs that will be incurred prior to award.

**D.2.2.5. (2) Budget Proposal**

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The total project cost is the sum of all allowable items of costs, including all required cost sharing and voluntary committed cost sharing, including third-party contributions, that are necessary to complete the project (Table 2)

**Table 2 – Total Project Cost Table**

Source	Amount
Costs to be reimbursed with the requested Federal funding	\$274,632
Costs to be paid by the applicant	\$75,000
Value of third-party contributions	\$200,000
<b>TOTAL PROJECT COST</b>	<b>\$549,632</b>

**Table 3 – Project Budget**

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
<b>Salaries and Wages</b>				
N/A				
<b>Fringe Benefits</b>				
N/A				
<b>Equipment</b>				
N/A				
<b>Supplies and Materials</b>				
N/A				
<b>Contractual</b>				
THK Associates	\$114/hr	1467	Consulting	<b>\$167,238</b>
ICS Consulting	\$240/hr	642	Consulting	<b>\$154,080</b>
CDR Associates	\$179/hr	612	Consulting	<b>\$109,548</b>
Cultivando	\$68/hr	182	Consulting	<b>\$12,376</b>
Boyd Spatial Analytics	\$125/hr	262	Consulting	<b>\$32,750</b>
McCarty Land and Water Valuation	\$200/hr	181	Consulting	<b>\$36,200</b>
Lyons Gaddis Attorneys	\$240/hr	138	Consulting	<b>\$37,440</b>
<b>Third-Party In-Kind Contributions</b>				
N/A				
<b>Other</b>				
N/A				
<b>TOTAL DIRECT COSTS</b>				<b>\$549,632</b>
<b>Indirect Costs</b>				
N/A				
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$549,632</b>

**D.2.2.5. (3) Budget Narrative**

Salaries and Wages: N/A

Fringe Benefits: N/A

Travel: N/A

Equipment: N/A

Materials and Supplies: N/A

**Contractual:** The City of Thornton completed a competitive bid process and selected a team of consultants to complete the Water Optimization Market Concept. All budgeted task items were included in the competitive bid process.

The following chart provides a detailed hourly breakdown of each consultant’s time for each of the project’s proposed task. Hourly rates depicted on the chart represent an average of each firms’ rates. A more detailed breakdown can be provided upon award of grant funds.



Consultant	THK	CDR	ICS	Cultivando	Boyd	MLWV	Lyons	Total Per Task
Average Hourly Rate	\$114	\$179	\$240	\$68	\$125	\$200	\$240	
<b>Task 1: Regional Land Use Assessment</b>								
1.1 Establish and Manage a Regional Planning Partnership	22	35	12	10				\$12,305
1.2 Review Existing Plans and Assemble Data	96	4	14					\$14,920
1.3 Conduct Land-Use Market Analysis	187	5	8					\$24,225
1.4 Engage Issue Specific Working Groups	83	109		33				\$31,235
1.5 Assimilate Market Information with Issue Specific Information	197	65	16	40				\$40,665
1.6 Develop Regional Land Use Vision Alternatives	220	101	12					\$46,045
1.7 Refine Land Use	180	30	8	40				\$30,550
1.8 Develop and Issue Final Report	125	67	8	40				\$30,940
<b>Task 2: Water Optimization Market Study</b>								
2.1 Establish and Manage Outreach and Engagement Structure	11	29	16	9			5	\$12,030
2.2 Assemble Baseline Data Sets	42	55	108		232	162	20	\$106,710
2.3 Assess Optimization Alternatives	39	48	84			4	103	\$58,740
2.4 Develop Financial Models and Case Studies for Preferred Alternatives	41	37	140					\$44,915
2.5 Develop and Issue Final Report	47	27	96	10	16	4	10	\$39,215
<b>Task 3: Project Management</b>								
3.1 Project Coordination	177		120		14	11	18	\$57,505
<b>Total Per Consultant</b>	<b>\$167,238</b>	<b>\$109,548</b>	<b>\$154,080</b>	<b>\$12,376</b>	<b>\$32,750</b>	<b>\$36,200</b>	<b>\$37,440</b>	<b>\$549,632</b>

Responsibilities for each consultant are as follows:

**THK Associates (THK)** will lead the overall project and be involved in every aspect of the Land Use Assessment and Water Optimization Market Study. THK will also lead the economic models and land use alternatives development.

**ICS Consulting (ICS)** will lead the Water Optimization Market Study including developing financial models and case studies for water optimization alternatives.

**CDR Associates (CDR)** will facilitate stakeholder and project partner meetings, and will also compile information provided by issue specific work groups to be used for alternatives development.

**Boyd Spatial Analysis (Boyd)** will oversee spatial analyses and data analytics work for the water optimization market feasibility study. Boyd will integrate and interpret market, agricultural/soil, water/irrigation, and other data and develop the maps, visualizations, and tabular data.

**McCarty Land and Water Valuation (MLWV)** will provide a custom land and water sales database to inform optimization approaches and economic modeling. The database will include land and water rights transactions data from 2007 to present in and around the WSSC system; sale write-ups within the geographic area of interest; geo-referenced shape files for identified sales; and a report on real estate market conditions and trends for Larimer and Weld counties.

**Lyons Gaddis Attorneys (Lyons)**, in consultation with the City of Thornton legal team, will examine the legal parameters, reserved rights, limitations, and due diligence processes required for continued irrigation of Thornton-owned lands with non-Thornton water sources per the City of Thornton's decree. Kahn will identify the range of non-Thornton water sources available to continue irrigation on these properties by subsequent owners.

**Cultivando** will provide Spanish-translation and -outreach services.

Third-Party In-Kind Contributions: N/A

Environmental and Regulatory Compliance Costs: N/A

Other Expenses: N/A

Indirect Costs: N/A

#### **D.2.2.6. Prohibition on Certain Telecommunication and Video Surveillance Services or Equipment**

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Federal award recipients are prohibited from using government funds to enter contracts (or extend or renew contracts) with entities that use covered telecommunications equipment or services as described in §889 of the 2019 National Defense Authorization Act. This prohibition applies even if the contract is not intended to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services.

#### **D.2.2.7. Environmental and Cultural Resources Compliance (if applicable)**

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*Please answer the questions from Section H.1. Environmental and Cultural Resource Considerations in this section. Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts. No*

*Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project? No*

*Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the proposed project may have. No*

When was the water delivery system constructed? **Construction of the Larimer County Canal began in 1881.**

*Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously. No*

*Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question. No*

*Are there any known archeological sites in the proposed project area? No*

*Will the proposed project have a disproportionately high and adverse effect on low income or minority populations? No. The project will not have any adverse effect on low income or minority populations. To ensure this, the project team includes Latino/x outreach specialists, and will work directly with community members to identify secondary impacts of land use planning.*

*Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands? No*

*Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area? No*

#### **D.2.2.8. Required Permits or Approvals**

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No permits are anticipated to complete this project.

#### **D.2.2.9. Existing Analysis Contributing to the Water Marketing Strategy**

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If the applicant intends to rely on planning work relevant to one or more of the three required components of a water marketing strategy in developing the strategy, please include a link to any existing plans or work (or attach relevant sections). Note: this will not count against the application page limit.

Existing plans and work are available here:

<https://drive.google.com/drive/u/0/folders/1vrT77lnX3GxVzXY4mTYyD0Nt-7klrwJ2>

#### **D.2.2.10. Letters of Support and Letters of Partnership**

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Letters of support from the following entities are included in Attachment A:

Northern Water	South Platte Basin Roundtable	Metro Roundtable
Greeley	George Wallace	Colorado Open Lands
WSSC	Poudre Runs Through It	

#### **D.2.2.11. Official Resolution**

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Include an official resolution adopted by the applicant's board of directors or governing body, or, for State government entities, an official authorized to commit the applicant to the financial and legal obligations associated with receipt of a financial assistance award under this NOFO, verifying:

The official resolution from the city of Thornton is scheduled for consideration by the Thornton City Council at their regularly scheduled meeting on April 27, 2021. Once the resolution is approved, it will be submitted to the Bureau of Reclamation within 30 days of the application deadline.



## Upload #4

Applicant: City of Thornton  
Application Number: R-DO-2021-000464  
Project Title: City of Thornton Northern Properties Stewardship Plan: Water  
Optimization Market Feasibility Study  
Status: Complete  
Document Title: Form AttachmentForm\_1\_2-V1.2.pdf

GrantSolutions.gov was not able to attach this document Form AttachmentForm\_1\_2-V1.2.pdf due to technical reasons.

## Upload #2

Applicant: City of Thornton  
Application Number: R-DO-2021-000464  
Project Title: City of Thornton Northern Properties Stewardship Plan: Water  
Optimization Market Feasibility Study  
Status: Complete  
Document Title: AttachmentForm\_1\_2-ATT2-1236-Attachment A Thornton  
WaterSMART.pdf

# **WaterSMART Grants: Water Marketing Strategy Grants for Fiscal Year 2021**

Bureau of Reclamation Funding Opportunity Number R21AS00278

## **City of Thornton, Colorado Thornton Northern Properties Stewardship Plan: Water Optimization Market Feasibility Study**

**April 7, 2021**

### **Attachment A:**

The following letters of support are addressed to the Colorado Water Conservation Board (CWCB) and were included with Thornton's grant application to the CWCB in March 2021. These parties have expressed support for Thornton's Northern Properties Stewardship Plan in general, as well as specifically for two project components: the Regional Land Use Assessment and the Water Optimization Study. The Water Optimization Market Feasibility Study is a component of both projects.

November 23, 2020

To the Colorado Water Conservation Board:

We are writing to express our support for the City of Thornton's efforts to conduct a Regional Land Use Assessment and Water Optimization Study related to the agricultural land owned by Thornton in Larimer and Weld Counties.

Northern Water staff actively participates in Basin Implementation Plan and Water Plan development efforts and other projects and processes that seek to address future municipal water supply gaps while maintaining the continued viability of agriculture in Northern Colorado. We know meeting water supply needs are inextricably tied to efficient use of water supplies and wise land use planning. We believe Thornton's Study will be valuable to meet these goals in this region.

The Regional Land Use Assessment will identify potential future land uses on Thornton properties by exploring the local land use context. The Water Optimization Study will explore how Thornton, farmers, conservation groups, and other interested parties could restore irrigation on prime farmlands using non-Thornton owned water. The intent is to examine methods to retain a resilient base of prime irrigated lands, advance a more strategic approach to restoration and reclamation, and thoughtfully transition irrigated lands to non-irrigated agricultural, environmental or other purposes. As Thornton begins to physically convey its water out of the Poudre River Basin to the city for municipal uses in Thornton, this project aims to offer innovative and creative solutions to an on-going challenge being faced around the state of Colorado, while satisfying different and unique interests in the region.

The City of Thornton has already engaged us about its proposed planning efforts and how supporting this grant application will allow them to complete a study that is comprehensive, inclusive and provides optimum outcomes for everyone involved in the planning area.

Thank you for your consideration of Thornton's project.

Sincerely,



Jim Hall, P.E.

Senior Project Engineer



November 24, 2020

Colorado Water Conservation Board:


The City of Greeley is writing to express our support for the City of Thornton’s efforts to conduct a Regional Land Use Assessment and Water Optimization Study related to the agricultural land owned by Thornton in Larimer and Weld Counties.

The City of Greeley is a regional hub for agriculture in northeast Colorado. Agricultural production from irrigated lands fuels Greeley’s economy, and the future sustainability of irrigated agriculture in Weld County is of paramount importance to our community. Greeley also continues to grow. The preservation of open space and agricultural heritage areas is of great interest to Greeley’s residents. Greeley’s Water Sewer Department is also a large owner of farmland and irrigation water, including many of the same areas as Thornton’s farms. For these reasons, it is with great interest that Greeley supports Thornton’s willingness to study land and water use in northern Weld County.

The Regional Land Use Assessment will identify potential future land uses on Thornton properties by exploring the local land use context. The Water Optimization Study will explore how Thornton, farmers, conservation groups, and other interested parties could restore irrigation on prime farmlands using non-Thornton owned water. The intent is to examine methods to retain a resilient base of prime irrigated lands, advance a more strategic approach to restoration and reclamation, and thoughtfully transition irrigated lands to non-irrigated agricultural, environmental or other purposes. As Thornton begins to physically convey its water out of the Poudre River Basin to the city for municipal uses in Thornton, this project aims to offer innovative and creative solutions to an on-going challenge being faced around the state of Colorado, while satisfying different and unique interests in the region.

The City of Thornton has already engaged us about its proposed planning efforts and how supporting this grant application will allow them to complete a study that is comprehensive, inclusive and provides optimum outcomes for everyone involved in the planning area.

Thank you for your consideration of Thornton’s project.

DocuSigned by:  
  
5E2D9EBE926C460...

Sean Chambers  
Director of Water and Sewer Department

Water and Sewer Department • 1001 11th Avenue, 2nd Floor, Greeley, CO 80631 • (970) 350-9811 Fax (970) 350-9805

A City Achieving Community Excellence



**The Water Supply and Storage Company**  
**PO Box 2017**  
**Fort Collins, CO 80522-2017**  
**970 482-3433**

January 24, 2021

To the Colorado Water Conservation Board:

The Water Supply and Storage Company (the “Company”) is a Colorado mutual ditch company delivering water for agricultural and municipal purposes. The City of Thornton owns approximately 47% of the outstanding shares of stock in the Company, and has begun to transition some of its ownership from agricultural use to municipal use. This transition involves the need to manage historically irrigated lands in a sustainable manner. Thornton’s Regional Land Use Assessment and Water Optimization Study is a forward-looking approach which the Company hopes will have positive impacts on the area and the Company’s remaining agricultural shareholders.

With this letter, the Company desires to express its support of the study to the Board. Thornton has engaged the Company as a stakeholder in the planning process and the Company looks forward to continuing to work with Thornton on the transition of its water rights and land away from irrigation in a manner mutually beneficial to Thornton, the Company and the region as a whole.

Keith Amen  
President



Ben Wade  
Colorado Water Conservation Board  
1313 Sherman St., Room 721  
Denver, CO 80203

November 23, 2020

Dear Ben:

At the November 10, 2020 meeting of the South Platte Basin Roundtable (SPBRT), the SPBRT voted to approve a South Platte WSRF Basin Grant of \$25,000 and to support a Statewide WSRF Grant of \$50,000 for the City of Thornton's Regional Land Use Assessment and Water Optimization Study.

This project will identify potential future land uses on Thornton's agricultural properties in Larimer and Weld Counties by exploring the local land use context and community and stakeholder goals. As Thornton begins to physically convey its water out of the Poudre River Basin to the city for municipal uses in Thornton, this project aims to offer innovative and creative solutions to an on-going challenge being faced around the state of Colorado, while satisfying different and unique interests in the region.

Thornton's WSRF application meets the SPBRT WSRF Guidelines and WSRF Grant Program Criteria. The project will help advance the following Measurable Outcomes in the South Platte Basin Implementation Plan: Agricultural MO#1: Support strategies that reduce traditional permanent dry-up of irrigated acreage; Agricultural MO#4: Develop local tools and political/community support for tools to sustain irrigated farmland; IPP Implementation MO#1: Maximize implementation of the updated IPP list. Finally, the project is consistent with Colorado's Water Plan grant criteria the Statewide Long-term Goal of Meet Colorado's Agricultural Needs by ensuring that irrigated agriculture remains a viable statewide economic driver and supports food security, jobs and rural communities and protects private property rights.

Upon review and consideration of Thornton's proposal at the November 10, 2020 Roundtable meeting, the SPBRT unanimously voted to approve the full \$25,000 of SPBRT Basin WSRF grant, and to support Thornton's Statewide \$50,000 WSRF grant application.

Thank you for your consideration.

Sincerely,



Garrett Varra, Chair  
South Platte Basin Roundtable



November 24, 2020

To the Colorado Water Conservation Board:

I am writing to express my support for the City of Thornton's efforts to obtain funding to conduct a Regional Land Use Assessment and Water Optimization Study related to the agricultural land owned by Thornton in Larimer and Weld Counties.

We farm north of Fort Collins and have been involved in trying to minimize the loss of ag land and water for a number of years. We have placed a conservation easement on a portion of our farm and helped others with that process. I served on the Larimer County Planning Commission for 9 years and on the Agricultural Advisory Board (AAB) since its inception in 1998. I am currently the Vice Chair of the AAB. My wife Nancy is currently a Planning Commissioner and is on the Open Lands Advisory Board. Through a variety of initiatives taken by these boards and commissions in collaboration with producers themselves, a considerable block of irrigated farmland has been protected over time in the area between Fort Collins and Wellington and in the Waverly Buckeye areas as well as a combination of rangelands and irrigated lands in the Larimie foothills ranching areas. The parcels currently owned by Thornton as a result of their water acquisition strategy, if conserved, could contribute greatly to efforts to protect and avoid the further fragmentation of the remaining, largely contiguous blocks of ag land, particularly north of Fort Collins in the area where Thornton's properties are located.

The specific details of how each parcel could contribute to the goals of Larimer County (and mitigate impacts from the Thornton pipeline and water conveyance) would likely be laid out during their proposed Regional Land Use Assessment. Such a study will not only examine potential future land uses on Thornton properties and how they could be integrated with the local land use planning and ag land conservation but the Water Optimization component will explore how Thornton, farmers, conservation groups, and other interested parties could restore irrigation on prime farmlands using non-Thornton owned water.

The study is described as an examination of methods to retain a resilient base of prime irrigated lands, advance a more strategic approach to restoration and reclamation, and thoughtfully transition irrigated lands to non-irrigated agricultural, environmental or other purposes. As Thornton begins to physically convey its water out of the Poudre River Basin to the city for municipal uses in Thornton, this project aims to offer innovative and creative solutions to an on-going challenge being faced around the state of Colorado, while satisfying different and unique interests in the region. It could help our efforts in Larimer County.

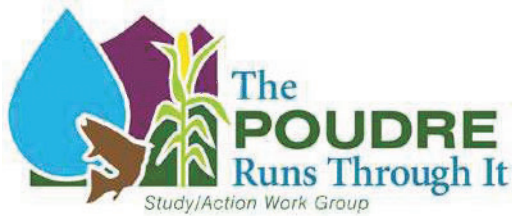
The City of Thornton has already engaged our Agricultural Advisory Board about a variety of matters and while the AAB itself cannot officially comment while the County is in litigation with Thornton, a number

of us , our family included, support this study as individuals. In sum, we hope you will give every consideration to helping Thornton obtain the needed resources for this study.

Thank you for your consideration,

George and Nancy Wallace,

Soldias Farms 1824 West County Road 66, Fort Collins, CO 80524



**Julie Kallenberger**  
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E121 Engineering Building | 1033 Campus Delivery  
Fort Collins, CO 80523-1033  
970.491.5124  
Julie.Kallenberger@colostate.edu  
watercenter.colostate.edu/prti

February 2, 2021

To the Colorado Water Conservation Board:

On behalf of the Poudre Runs Through It (PRTI) Study/Action Work Group, I am writing to express PRTI's support for the City of Thornton's efforts to conduct a Regional Land Use Assessment and Water Optimization Study related to the agricultural land owned by Thornton in Larimer and Weld counties.

PRTI's membership includes about two dozen citizen experts representing a diversity of interests from the agricultural, environmental, municipal, industrial, recreational, business, development sectors throughout the Poudre River Basin. The goal of the PRTI is to build relationships and to put in action the initiatives they have identified, "to make the Poudre River the best example of a working river that's also healthy." With this goal in mind, PRTI supports the proposed grant activities directly related to these two studies. This letter of support does not represent individual members' official position, rather the PRTI Study/Action Work Group as a collective whole.

The Regional Land Use Assessment will identify potential future land uses on Thornton properties by exploring the local land use context. The Water Optimization Study will explore how Thornton, farmers, conservation groups, and other interested parties could restore irrigation on prime farmlands using non-Thornton owned water. The intent is to examine methods to retain a resilient base of prime irrigated lands, advance a more strategic approach to restoration and reclamation, and thoughtfully transition irrigated lands to non-irrigated agricultural, environmental or other purposes. As Thornton begins to physically convey its water out of the Poudre River Basin to the city for municipal uses in Thornton, this project aims to offer innovative and creative solutions to an on-going challenge being faced around the state of Colorado, while satisfying different and unique interests in the region.

The City of Thornton has already engaged PRTI about its proposed planning efforts and how supporting this grant application will allow them to complete a study that is comprehensive, inclusive and provides optimum outcomes for everyone involved in the planning area.

Thank you for your consideration of Thornton's grant application.

Regards,  
*Julie Kallenberger*

Julie Kallenberger  
PRTI Facilitator  
Associate Director  
Colorado Water Center

Kevin Reidy and Ben Wade  
Colorado Water Conservation Board  
1313 Sherman St., Room 721  
Denver, CO 80203  
November 16, 2020

Dear Kevin and Ben:

At the November 12, 2020 meeting of the Metro Roundtable (MRT), the MRT voted to approve a Metro WSRF Basin Grant of \$25,000, to support a Statewide WSRF Grant of \$50,000, and to support a Water Plan Grant for the City of Thornton's Regional Land Use Assessment and Water Optimization Study.

This project will identify potential future land uses on Thornton's agricultural properties in Larimer and Weld Counties by exploring the local land use context and community and stakeholder goals. As Thornton begins to physically convey its water out of the Poudre River Basin to the city for municipal uses in Thornton, this project aims to offer innovative and creative solutions to an on-going challenge being faced around the state of Colorado, while satisfying different and unique interests in the region.

Thornton's WSRF application meets the MRT WSRF Guidelines and WSRF Grant Program Criteria. The project fits with the MRT's Implementation of Identified Projects and Processes. Thornton's Northern Project is an IPP, and the study proposed will allow Thornton to elevate what could be a typical buy and dry / pipeline IPP into a project that aligns with MRT's vision. The project will also help advance the following Measurable Outcomes in the South Platte Basin Implementation Plan: Agricultural MO#1: Support strategies that reduce traditional permanent dry-up of irrigated acreage; Agricultural MO#4: Develop local tools and political/community support for tools to sustain irrigated farmland; IPP Implementation MO#1: Maximize implementation of the updated IPP list. Finally, the project is consistent with Colorado's Water Plan grant criteria the Statewide Long-term Goal of Meet Colorado's Agricultural Needs by ... 1) Ensuring that irrigated agriculture remains a viable statewide economic driver and supports food security, jobs and rural communities and protects private property rights.

Upon review and consideration of Thornton's proposal, the MRT unanimously voted to approve the full \$25,000 of MRT Basin WSRF grant, and to support Thornton's Statewide \$50,000 WSRF grant application and its Water Plan Grant application.

Thank you for your consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read "Barbara Biggs".

Barbara Biggs, Chair  
Metro Roundtable

November 19, 2020

To the Colorado Water Conservation Board:

We are writing to express our support for the City of Thornton's efforts to conduct a Regional Land Use Assessment and Water Optimization Study related to the agricultural land owned by Thornton in Larimer and Weld Counties.

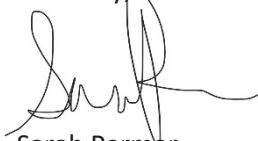
Colorado Open Lands (COL) is a statewide land trust that has protected more than 500,000 acres across Colorado. The Northern Front Range and Lower South Platte region is a priority conservation landscape for COL with its nexus of prime farmland, senior water rights, and unique shortgrass prairie habitat. COL recognizes that the scale of land owned by the City of Thornton is incredibly rare in Larimer and Weld Counties and that the decisions made by the City will have significant socioeconomic and ecological impacts to the region. COL applauds the City for its investments to date in understanding the context and community vision to minimize impacts of its eventual water conversion. We believe that these next steps will be critical for a deeper understanding of that context from which the City and partners can explore opportunities.

The Regional Land Use Assessment will identify potential future land uses on Thornton properties by exploring the local land use context. The Water Optimization Study will explore how Thornton, farmers, conservation groups, local community members/stakeholders and other interested parties could restore irrigation on prime farmlands using non-Thornton owned water. The intent is to examine methods to retain a resilient base of prime irrigated lands, advance a more strategic approach to restoration and reclamation, and thoughtfully transition irrigated lands to non-irrigated agricultural, environmental or other purposes. As Thornton begins to physically convey its water out of the Poudre River Basin to the city for municipal uses in Thornton, this project aims to offer innovative and creative solutions to an ongoing challenge being faced around the state of Colorado, while satisfying different and unique interests in the region.

The City of Thornton has already engaged us about its proposed planning efforts and how supporting this grant application will allow them to complete a study that is comprehensive, inclusive and provides optimum outcomes for everyone involved in the planning area. COL looks forward to continued participation in the City's process. As a committed partner, we believe there are opportunities to increase resiliency of remaining agricultural producers and to create ecological benefits and we hope that the City's work can become an example for municipal providers across the state.

Thank you for your consideration of this important project.

Sincerely,



Sarah Parmar

Director of Conservation, Colorado Open Lands