Exploring Policy Options for Expanding Landscape & Irrigation Professional Certification in Colorado
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Acknowledgements
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Executive Summary

Colorado faces significant water supply and demand challenges due to population growth and the negative impacts of climate change. Climate change continues to strain existing water supplies by increasing variability in precipitation, causing snowpack to melt earlier in the year, and increasing the evapotranspiration demands of plants and crops. As a result, Colorado faces significant water supply and demand gaps in the coming years and in order to help close these gaps, we must identify additional ways to conserve water and make sure water is used as efficiently as possible. This is especially true in the municipal and industrial sector (M&I) as the state population continues to grow.

Recognizing this need, the 2015 Colorado Water Plan set a measurable objective to conserve 400,000 acre-feet of M&I water by 2050, requiring all users within this sector to identify inefficiencies and new opportunities to conserve. Currently, approximately half of residential water in Colorado is used for landscape irrigation. This high usage presents a critical opportunity for water conservation which can be encouraged or required through new regulations, policies, or programs. One potential water conservation opportunity is to expand the number of landscape and irrigation professionals who are certified or licensed in industry best practices for water wise landscaping. There are a variety of water efficient landscape and irrigator trainings currently offered in Colorado including – but not limited to - the Qualified Water Efficient Landscaper program, Irrigation Association trainings, GreenCO, Sustainable Landscape Management, and National Association of Landscape Professionals. However, in the state of Colorado, those who design, install, maintain, or repair landscapes and irrigation systems are not required to obtain a license or certification to conduct their services. This can have significant implications for the efficiency of the design, installation and maintenance of landscapes and irrigation systems. A well-designed landscape and state-of-the-art irrigation system may be water efficient on paper, but if those who install and maintain the system lack the proper expertise, those efficiencies may be diminished or lost entirely. Increasing the number of licensed or certified landscape and irrigation professionals in the industry would significantly improve water efficiency in Colorado’s landscapes.

This position paper presents potential policies to improve water conservation in outdoor landscaping and irrigation through landscape and irrigation professional certification. The report first outlines the existing landscape and irrigation certification trainings offered in Colorado and then summarizes research into licensing and certification programs for landscape and irrigation professionals in other states. Ten states have some version of licensing or certification: California, Connecticut, Florida, Louisiana, Nevada, New Jersey, North Carolina, Oregon, Rhode Island, and Texas. Texas provides the most comprehensive example of a state-mandated licensing program for landscape irrigation professionals. California, Connecticut, Louisiana, Nevada, New Jersey, North Carolina, Oregon, and Rhode Island all have requirements to receive a state license with varying standards for landscape and irrigation professionals. Florida has a state-run voluntary landscape irrigation licensing program. Each state approaches certification and licensing in a different manner, each with important lessons for Colorado as it considers whether to pursue similar requirements or incentives for certification.

The position paper also explores four potential policy pathways to increase the number of licensed or certified landscape and irrigation professionals in Colorado. These recommendations were developed through research into irrigation licensing and certification policies and programs across the country, and informational interviews with those who train and educate landscape and irrigation professionals, as well as those who currently work in the landscape and irrigation industry.

The four pathways reviewed in this report are:

1. **Maintain the status quo**—where cities and municipalities continue creating their own incentives and requirements around landscape and irrigation professional certification. This pathway would likely lead to the lowest additional water conservation, as it is already what is occurring.

2. **Develop a statewide public education campaign to educate both consumers and landscape and irrigation professionals on the economic and water conservation benefits of certification.** This pathway would likely lead to more water conservation than the status quo, but it may be difficult to quantify the results.

3. **Create a statewide voluntary licensing or certification program for landscape and irrigation professionals including subsidized classes and exams, and/or other program incentives.** A voluntary program would likely increase the number of professionals certified, but would be costlier per person, and would not increase the number of certified professionals as much as a requirement would.

4. **Develop legislation to require landscape and irrigation professionals to be licensed by the state.** This pathway would likely lead to the highest number of professionals certified and the greatest water savings, however, it could exacerbate equity challenges in the industry if not implemented with adequate funding and awareness.

Implementation of one or more of these pathways would reduce outdoor water demand, helping Colorado to improve our resiliency in the face of unprecedented water supply challenges.

## Introduction

The 2015 Colorado Water Plan³ projects that there will be up to a 560,000 acre foot supply-demand gap by 2050 in the state if water conservation measures are not expanded. The plan’s goal is to close this gap over the coming decades, in part by proposing to conserve 400,000 acre-feet of water in the municipal and industrial sector (M&I) in that same time period. The 2023 Water Plan Update⁴ identifies that improved outdoor landscape water efficiency is an important water conservation tool. The landscape and irrigation industry presents a critical opportunity to help Colorado meet the goals set by the Water Plan, as approximately 50% of municipal water is used for outdoor landscape irrigation. This position paper will present potential policies to improve water conservation in outdoor landscaping and irrigation through landscape and irrigation professional certification.

As water supplies shrink due to climate change and communities continue to grow, more communities have implemented water conservation measures and ordinances to ensure the efficient use of landscape irrigation water. Turf replacement programs are especially gaining

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ground in Colorado, incentivizing homeowners to switch out their water-intensive lawns to drought-tolerant, water wise landscapes. In 2022, HB22-1151 passed at the state legislature, allocating $2 million to create a statewide turf-replacement program through the Colorado Water Conservation Board. More cities are also adopting landscaping standards that require water wise landscaping, instead of high water use turfgrass, to be installed in new developments. In 2022, both Aurora and Castle Rock passed landscape ordinances that ban cool season turf grass from the front yards of new homes, and limit it to 500 square feet of a backyard. The ordinances also restrict areas of non-functional turf grass around the cities. These new conservation-oriented programs and policies necessitate a transformation in the landscape and irrigation industry when it comes to plant materials and irrigation equipment availability, client education, and—most applicable to this paper—the way in which we design, install and maintain our landscapes. The water savings intended by these regulations and programs is contingent upon the landscape and irrigation professional community having the training and resources needed to properly design, install, and maintain water efficient landscapes and irrigation systems.

A study\(^2\) by the EPA WaterSense\(^3\) program provides a strong indication that certification of landscape and irrigation professionals can lead to significant water savings. An HOA in Loveland saved 4.4 million gallons of water in the year following an irrigation audit by a certified landscape irrigation professional. This saved the community $22,500 on water bills in the first year of the project, and produced a much healthier landscape without changing any landscape materials. The 2015 South Platte Basin Implementation Plan estimated that a reduction in excess landscape irrigation by 20\% for single family homes and 10\% for multi-family homes would free 86,558 acre feet of water in the basin\(^4\).

Landscape and irrigation professionals must have adequate training to ensure that they are maximizing the efficiency of the landscape and irrigation system they are working with. Without a training or educational requirement for landscape and irrigation professionals, water savings may be reduced or eliminated.

This paper will outline certifications that are currently offered in Colorado, before examining policies and regulations related to landscape and irrigation professional certification and licensing in California, Connecticut, Florida, Louisiana, New Jersey, Nevada, North Carolina, Oregon, Rhode Island, and Texas. The state summaries will identify the strengths and weaknesses of these policies and regulations and evaluate how they might be applied in Colorado.

This paper will also examine four pathways that the state of Colorado could follow to potentially increase the number of landscape and irrigation professionals who are certified: the status quo, a public education campaign, voluntary and incentivized licensing, and mandatory training and licensing. The paper will analyze each option and examine the rationale behind them, potential barriers they might face, recommendations for implementation, and water conservation potential.

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\(^3\) WaterSense, Environmental Protection Agency, [https://www.epa.gov/watersense](https://www.epa.gov/watersense)

Existing Exam and Certification Summaries

There are a number of organizations that offer training and certification programs in Colorado. These include the Qualified Water Efficient Landscaper (QWEL), the Irrigation Association (IA), GreenCO, Associated Landscape Contractors of Colorado (ALCC), and the National Association of Landscape Professionals. While their curriculum focus areas are slightly different, each organization aims to increase landscape and irrigation efficiency.

The Qualified Water Efficient Landscaper (QWEL) is a national program that works with communities to increase water savings in landscapes and irrigation systems. QWEL offers training and certification on the installation and maintenance of water efficient landscape and irrigation systems. Water providers typically shoulder the cost of the training in their communities and trainings are free or low cost to participants. QWEL tailors their programs to specific local needs; in Colorado, trainings are offered in Castle Rock, Aspen, Summit County, and Eagle County.

The Irrigation Association (IA) provides different levels of training and examinations for landscape and irrigation professionals, such as the Certified Irrigation Technician and Certified Landscape Irrigation Auditor certifications. IA is a national organization, and the license it provides is recognized across the country. This license is less tailored to local climate conditions, and is focused more on the technical aspects of landscaping and irrigation.

GreenCO provides water efficient landscape recommendations for Colorado’s climate and environmental conditions. In 2008, GreenCO released a Best Management Practices (BMPs) Guide to support Colorado landscape professionals in creating beautiful landscapes while reducing water consumption. Landscape professionals can register to be tested on the principles in the guide. Upon successful completion of the test, professionals’ names are added to the BMP Seal of Knowledge list. The curriculum for this program is currently being maintained, although the training has not been active since 2019.

ALCC provides training and certification for landscape professionals who want to learn sustainable landscaping techniques. ALCC launched their Sustainable Landscape Management Initiative in 2019. The program provides a manual detailing sustainable landscaping practices, and a training class. Once training is complete, a passing score of 70% on the exam earns

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QWEL: [https://www.qwel.net/](https://www.qwel.net/)
Irrigation Association: [https://www.irrigation.org/IA](https://www.irrigation.org/IA)
Associated Landscape Contractors of Colorado: [https://alcc.memberclicks.net/](https://alcc.memberclicks.net/)
National Association of Landscape Professionals: [https://www.landscapeprofessionals.org/](https://www.landscapeprofessionals.org/)
QWEL: [https://www.qwel.net/](https://www.qwel.net/)
Irrigation Association: [https://www.irrigation.org/IA](https://www.irrigation.org/IA)
Certified Irrigation Technician: [https://www.irrigation.org/IA/Certification/landscape-Certifications/CIT/IAA/Certification/CIT.aspx?key=57f7e775d4-48e0-3540-4d7e7e3b](https://www.irrigation.org/IA/Certification/landscape-Certifications/CIT/IAA/Certification/CIT.aspx?key=57f7e775d4-48e0-3540-4d7e7e3b)
Certified Landscape Irrigation Auditor: [https://www.irrigation.org/IA/Certification/landscape-Certifications/CLA/IAA/Certification/CLA.aspx?key=3d2f0c2c-6854-43ac-8501e5310e64c3](https://www.irrigation.org/IA/Certification/landscape-Certifications/CLA/IAA/Certification/CLA.aspx?key=3d2f0c2c-6854-43ac-8501e5310e64c3)
Personal correspondence with Melissa Emdin, Programs & Education Director of Associated Landscape Contractors of Colorado.
Associated Landscape Contractors of Colorado: [https://alcc.memberclicks.net/](https://alcc.memberclicks.net/)
Sustainable Landscape Management Initiative: Associated Landscape Contractors of Colorado: [https://alcc.memberclicks.net/slm-colorado](https://alcc.memberclicks.net/slm-colorado)
participants an SLM certificate. They are then added to a list of trained professionals that is publicly available on ALCC’s website.

The National Association of Landscape Professionals\(^2\) offers three levels of training through its Landscape Industry Certified Exterior Technician\(^3\) certification. Landscapers can be certified as a Maintenance Technician, an Installation Technician, or an Irrigation Technician. The training covers basic concepts in landscape and irrigation installation and maintenance.

### 1. State Summaries

The following section summarizes the ten states that have licensing or certification requirements for landscape and/or irrigation professionals and reviews which elements – if any – Colorado could consider emulating if a state-level program were adopted. To our knowledge, this is a comprehensive list of the state-level irrigation and certification programs in place across the country.

\(^2\)National Association of Landscape Professionals, [https://www.landscapeprofessionals.org/](https://www.landscapeprofessionals.org/)
\(^3\)Certified Landscape Technician, National Association of Landscape Professionals, [https://www.landscapeprofessionals.org/ lp/Certification/ lp/Certification/ exterior.aspx](https://www.landscapeprofessionals.org/ lp/Certification/ lp/Certification/ exterior.aspx)
<table>
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<th>State</th>
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<th>Exam Framework Used</th>
<th>Prerequisites</th>
<th>Enforcement</th>
<th>Notable Elements</th>
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| Texas      | Irrigation                                    | State exam          | • Complete training                                | Local enforcement, reporting system              | • Irrigators were strong proponents for licensing  
|            |                                               |                     | • Pay fee                                          |                                                  | • Three different levels of licenses                                                 |
| North Carolina | Landscaping and Irrigation                    | Irrigation          | • 3 years’ work experience                        | Fines, license suspension                        | • CEU credits required every 2 years                                                 |
|            |                                               | Association         | • Or one year of education and 2 years work experience | Reporting system, license revocation             | • Water conservation education is required                                            |
| New Jersey | Landscaping and Irrigation                    | Irrigation          | • 3 years’ work experience                        |                                                  |                                                                                   |
|            |                                               | Association         | • Or one year of education and 2 years work experience |                                                  |                                                                                   |
| Nevada     | Landscaping and Irrigation                    | State exam          | • 4 years’ work experience                        | License revocation                               | • Exam contains a section on xeriscaping principles                                |
|            |                                               |                     | • 3 years education can substitute                 |                                                  |                                                                                   |
| California | Landscaping; Irrigation is a sub-category     | State exam          | • 4 years’ work experience                        | Reporting system, license revocation             |                                                                                   |
|            |                                               |                     | • A college degree can substitute 3 years of work experience |                                                  |                                                                                   |
| Oregon     | Landscaping, includes irrigation              | State exam          | • 2 years work experience                        | If not in compliance, work is stopped, and workers investigated | • Those with existing certifications can qualify for a license without taking the state exam  
|            |                                               |                     | • Or higher education degree                      |                                                  | • Landscape businesses must also be licensed                                       |
|            |                                               |                     | • Or pass certification programs                  |                                                  |                                                                                   |
| Louisiana  | Landscaping and Irrigation                    | State exam          | • Pass the exam                                   | No details found                                 | • CEU credits required every 3 years                                                 |
|            |                                               |                     | • Pay the fee                                     |                                                  |                                                                                   |
| Connecticut| Limited lawn sprinkler contractor             | State exam          | • Work experience                                 | No details found                                 | • Landscaping and irrigation are two separate licenses                             |
|            |                                               |                     | • Complete training                               |                                                  |                                                                                   |
|            |                                               |                     | • Pass exam                                       |                                                  |                                                                                   |
| Rhode Island | Irrigation only                             | State exam          | • 4 years work experience or education            | No details found                                 | • CEU credits required every 2 years                                                 |
|            |                                               |                     | • Pass exam                                       |                                                  | • Three levels of licenses                                                          |
1.1 Texas
Texas has the most robust requirements to become a licensed irrigation of the states included in this analysis. All irrigators in the state must be licensed and are regulated by the Texas Commission on Environmental Quality (TCEQ). The Texas Irrigation Association spearheaded this regulation to ensure that all irrigators have the same liability for their work and to ensure quality work. Many irrigators pushed for these stricter regulations. According to a former Texas Irrigation Advisory council member, irrigators take pride in their work and want the same level of respect given to other skilled trades such as plumbers and electricians.

Policy Summary
The Texas regulation separates licensing into three levels: Irrigation Technician, Landscape Irrigator, and Irrigation Inspector. Each level has different education and training requirements. This system has a lower initial barrier to entry since an irrigator can initially train to become an Irrigation Technician and subsequently receive Landscape Irrigator and Irrigation Inspector certifications.

An Irrigation Technician may maintain, alter, repair, service, or direct the installation of an irrigation system under the supervision of a licensed Landscape Irrigator. Landscape Irrigators are licensed to sell, design, consult, install, maintain, alter, repair, or service an irrigation system, and have the ability to connect an irrigation system to a water supply. Irrigation Inspectors are responsible for ensuring that all permits have been obtained. They inspect irrigation systems to determine if they meet the requirements of the regulation, and investigate any complaints filed.

To become licensed at any of the three levels, an applicant must:

1. Complete the required training
2. Complete the TCEQ application
3. Submit a criminal history attestation
4. Pay the testing fee ($111)
5. Pass the applicable exam (minimum score of 70 percent for each section)

The regulation requires a mandatory training course of 16 hours for the Irrigation Technician license, 40 hours for Landscape Irrigators, and 88 hours for Irrigation Inspectors. These courses cover the principles of water conservation, irrigation installation and maintenance, as well as

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26 Personal correspondence with Karen Guz, Conservation Director of the San Antonio Water System.
technical irrigation system components. Once training is complete, irrigators are eligible to take the exam. The cost of these trainings varies by license. The Irrigation Technician training program is $350, the Landscape Irrigator training is $550, and the Irrigation Inspector training is $1,300.

The regulation requires municipalities with a population over 20,000 to enforce irrigator licensing at the local level, rather than relying on TCEQ enforcement. Enforcement in smaller communities is left to the state unless those communities voluntarily enforce it. Since the TCEQ is reportedly slow to respond to enforcement complaints, municipal enforcement mechanisms have been most effective in ensuring compliance with the regulation.29

Chapter 344 Subchapter A, at page 230 allows municipalities to require permits before the installation of an irrigation system. Permit fees create an economic incentive for communities to enforce the regulation, beyond the water saved by proper system installation. The permitting process makes enforcement more streamlined, because communities can check an irrigator’s license status when a permit is requested and catch those who install systems without a permit.31

The TCEQ created a system to report32 unlicensed irrigators and non-compliant work. This system allows people to track complaints33 against irrigators, and compiles complaints in a central database. If an irrigator receives multiple violations, their license may be revoked. This system has increased compliance.34

Legislative Background
Texas began to regulate irrigators in 1995 with House Bill 251035. HB 2510 requires training course teachers to meet certain standards and established a list of approved trainers36. Amendments passed in 2001 and 2007 led to the current irrigation licensing requirements. The 2007 amendment, added by House Bill 165637, requires municipalities with a population over 20,000 to enforce irrigator licensing independently. This requirement has increased compliance.

The Texas Administrative Code, chapter 34438, (TAC) subchapter F39, details strict requirements for Landscape Irrigators and Irrigation Technicians. A licensed irrigator or irrigation technician must install all irrigation systems. TAC 344.6040 requires that all irrigation systems be designed, installed, maintained, altered, repaired, serviced, and operated, in a manner that promotes water conservation. The Code defines “water conservation” as: “The design, installation, service, and operation of an irrigation system in a manner that prevents the

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29 Personal correspondence with Karen Guz, Conservation Director of the San Antonio Water System
31 Personal correspondence with Karen Guz, Conservation Director of the San Antonio Water System
34 Personal correspondence with Karen Guz, Conservation Director of the San Antonio Water System
waste of water, promotes the most efficient use of water, and applies the least amount of water that is required to maintain healthy individual plant material or turf, reduce dust, and control erosion.” (TAC 344.1 (44)\textsuperscript{41}, emphasis added). TAC 344.1 (21)\textsuperscript{41} defines irrigation systems to include all types of landscape vegetation in any location, excluding agricultural operations. This expansive definition includes almost all municipal irrigation systems.

Section 344.62 TAC\textsuperscript{42} outlines the minimum design and installation requirements for an irrigation system. These requirements include the following water conservation techniques:

- A ban on the use of above ground spray emission devices in areas less than 48 inches in length or width, not including any impervious surfaces, when those spaces are bordered by impervious pedestrian or vehicle traffic surfaces on two or more sides.
  - There is an exemption for narrow pathways, jogging paths, golf cart paths and cemetery paths as long as the water drains into a landscaped area.
- Emission devices must be installed to operate at the minimum pressure, and never above the maximum pressure for sprinkler heads, as designated by the manufacturer.
- Irrigation systems must have separate zones based on plant type, soil conditions, hydrological requirements, microclimate factors, and topographic features.
- Irrigation systems must not spray water over any impervious surfaces.
- All new irrigation systems must have sensors on the irrigation system to stop watering during rainfall or moisture events; any repair that requires the replacement of the existing controller must include sensors as well.

These regulations are amended through a rule-making process that includes outreach to stakeholders and the public for comment. Most changes are promoted by the Irrigation Advisory Council and are then adopted by the TCEQ.\textsuperscript{43}

\textit{Potential Aspects for Colorado to Model}

One of the most important aspects of mandatory state licensing is enforcement.\textsuperscript{43} An effective aspect of the Texas regulation that Colorado could emulate is to allow for local enforcement by cities and counties. This would likely result in increased enforcement compared to state-level oversight, especially in more remote areas of the state. Another important component is to establish standards for training providers. The Texas program issues a list\textsuperscript{44} of certified training providers around the state that offer standardized courses to prepare applicants for certification at each level offered, which would be simple to replicate in Colorado. Providing training locations around the state would improve accessibility to certification, and help tailor the trainings to local environmental conditions.

Another component that could be incorporated in Colorado is the creation of different certification levels. This would lower the barrier to entry for many, improve the quality of irrigation work at every level, maximize water conservation benefits, and help irrigators gain experience in the field before later attaining higher levels of certification if desired.

\textsuperscript{43} Personal correspondence with Karen Guz, Conservation Director of the San Antonio Water System.
\textsuperscript{44} Training Courses for Occupational Licensing, Texas Commission on Environmental Quality, https://www.tceq.texas.gov/licensing/training.
1.2 North Carolina
North Carolina requires landscape irrigators to receive a Landscape Irrigation Contractor license. In order to be eligible for this license, applicants must have three years of work experience in the irrigation field. This requirement means that many irrigators are practicing for years before they are able to qualify for state training or licensing. North Carolina statute 89-G allows experience to be gained through independent work on small projects (those with a total cost under $2,500), or by working under a licensed landscape irrigation contractor.

Policy Summary
In North Carolina, only a licensed Irrigation Contractor, or those working under the supervision of one, are allowed to install, maintain, repair, or design an irrigation system (with a project cost over $2,500). In order to be licensed as an Irrigation Contractor, irrigators must first accumulate three years of experience in the irrigation field. Irrigators then must pass the North Carolina Irrigation Contractors’ Licensing Exam, which is an adaptation of the Irrigation Association’s (IA) Certified Irrigation Contractor (CIC) exam with a section on North Carolina laws and regulations. It is not required that license applicants attend any course prior to the exam. 64% is a passing score in North Carolina whereas the IA requires a CIC score of 68-72% for national certification, thus North Carolina’s licensing requirements are lower than IA standards.

Legislative Background
House Bill 2353 added Chapter 89G to the North Carolina General Statutes in 2008. This bill established the licensure of irrigation contractors and detailed requirements to become licensed. The chapter defines Irrigation Contractors as any party who constructs, installs, services, or repairs an irrigation system for compensation. Anyone involved in the above must either be a licensed Irrigation Contractor or under the direct supervision of one. The North Carolina Irrigation Contractors Licensing Board, established by Chapter 89G, was created to determine further licensing requirements. The chapter also defines disciplinary actions and civil penalties for anyone found in violation of these requirements. The Irrigation Contractors Licensing Board can issue a civil penalty of $2,000 if landscape irrigators are found in violation of the licensing requirements. The Board can also deny, restrict, suspend, revoke and refuse to renew or issue a license if an applicant commits fraud in any part of the application process, or after issuance of the license.

The North Carolina Administrative Code Chapter 23 details that all irrigation systems must be designed to conserve water. Sections 23.0600 through 23.0603 outline water efficiency
standards for irrigation contractors hired to maintain an existing irrigation system. Specific maintenance practices required in section 23.0602 emphasize that maintenance and repair regulations are extremely important in order to achieve and maintain the potential water savings of an irrigation system. Unless repairs are performed by a knowledgeable irrigator, the system may function far less efficiently than designed. Section 23.0602 outlines basic maintenance requirements:

- Irrigators must establish a systematic maintenance schedule to inspect and test the irrigation system
- Irrigation contractors must:
  - Verify sprinklers work and are not spraying water on impervious surfaces
  - Verify sensors are working properly
  - Verify proper operation of the system controller, confirm correct date and time input and functional back-up battery at least once a year
  - Check for leaks and complete repairs to minimize waste of water
- Provide irrigation systems owners with recommendations on updates and retrofits to reduce overall water use.\(^5\)

Potential Aspects for Colorado to Model
Colorado could consider using the Irrigation Association (IA) framework for its licensing. The North Carolina model avoided the cost of new program development and administration through use of the IA framework. However, this approach is less tailored to the specific state and may be less effective at the promotion of water conservation. The North Carolina legislation requires yearly verification that the irrigation system controller and backup battery are working properly. Colorado could adopt and extend this type of requirement to include yearly whole-system checks, which would maximize water savings by ensuring that systems are continuing to run efficiently.

1.3 New Jersey
New Jersey’s requirements are similar to North Carolina. New Jersey requires irrigators to obtain a Landscape Irrigation Contractor\(^6\) license. The New Jersey Administrative Code 5:62-2.\(^7\) also requires three years of experience prior to licensing. This experience, as defined in NJAC 5:62-1.4,\(^8\) can be gained through the construction, repair, maintenance, improvement, or alteration of a landscape irrigation system while under the supervision of a certified Landscape Irrigation Contractor. Education can replace one of the three years of experience required.

Policy Summary
A landscape professional must be a licensed Landscape Irrigation Contractor or under the direct supervision of one in order to work on an irrigation system.\(^9\) NJAC 5:62-1.4 requires an irrigator to accumulate three years of experience working under a licensed contractor before they can

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\(^7\) Landscape Irrigation Contractor Certification NJ Department of Community Affairs, https://www.nj.gov/ocd/divisions/codes/advisory/Landscp_Irr_Conthtml

take the exam and become licensed. New Jersey uses the Irrigation Association’s Certified
Irrigation Contractor exam with the addition of a section on state regulations. A passing score
in New Jersey is at least 70%, with a requirement to score over 50% in each individual section.
This is a higher standard than the North Carolina exam and more in line with Irrigation
Association requirements.

Legislative Background
Landscape irrigation regulations began with the New Jersey Landscape Irrigation Contractor
Certification Act of 1991. The Act created the Landscape Irrigation Contractors Examining
Board and requires landscape irrigation contractors to obtain a certificate from the state. The
legislation required the board to develop an examination for certification. This framework has
remained unchanged.

In 2009, the act was amended to require water conservation training. Section 45:5AA-7.1 requires
the board to approve conservation-oriented education programs to fulfill these
continuing education credits. The last notable change came with the passage of Senate Bill
2234 in 2015. This bill moved the Landscape Irrigation Contractors Examining Board and all of
its functions from the Department of Environmental Protection to the Department of Community
Affairs under the Board of Landscape Irrigation Contractors.

Current regulation mandates continuing education requirements every two years. NJAC
section 5:62-2.6 (b) requires license renewal applicants to complete 16 hours of continuing
education and eight hours must be related to water conservation. This ensures that landscape
irrigators are current on conservation techniques. While there is no legal requirement to
implement water conservation techniques, these training requirements help weave water
conservation into landscape irrigation contractor education. The Landscape Irrigation
Contractors Examining Board has the right to enforce licensing through revocation or refusal of
a license for misconduct, or through civil penalties. Non-licensed work can also be reported to
the Board by the public.

Potential Aspects for Colorado to Model
A notable component of the New Jersey legislation is the continuing education requirements.
While most programs have some requirement for these credits, New Jersey specifically requires
that half of those hours focus on water conservation. Additionally, similar to North Carolina, New
Jersey uses the Irrigation Association exam for licensing; this reduces the administrative burden
on the state, but is less tailored to the state. Both states attempt to address this through the
addition of a state specific section, but this comprises a small portion of the exam and is likely not
as effective as a program tailored to Colorado would be in terms of water conservation.

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63 New Jersey Certified Landscape/Irrigation Contractor Examination: NJ Department of Community Affairs,
https://www.nj.gov/dca/divisions/codes/advisory/ll_board/html
64 45:5AA-1 (Landscape Irrigation Contractors’ Licensing Board in DEP), NJ State Law Library,
https://repositallib.nj.gov/digital/handle/10622/10712/1196k-27.pdf?sequence=1&isAllowed=y
65 New Jersey Revised Statutes: Title 45 - Section 45:5AA-7.1 - Standards for Continuing Education, Justia Law,
67 Board of Landscape Irrigation Contractors, NJ Department of Community Affairs,
https://www.nj.gov/dca/divisions/codes/advisory/ll_board.html
68 Landscape Irrigation Contractor Certification: Definition, Continuing Education and FAQs NJ Department of Community Affairs,
https://www.nj.gov/dca/divisions/codes/advisory/landscp_irr.cert.html
69 New Jersey Administrative Code: Title 5, Chapter 62, Subchapter NJ Department of Community Affairs,
70 Landscape Irrigation Contractor Certification: Definition, Continuing Education and FAQs NJ Department of Community Affairs,
https://www.nj.gov/dca/divisions/codes/advisory/landscp_irr_cert.html
1.4 Nevada

Nevada administers a licensing program through the State Contractor Board. A license is required for any job over $1,000 or that requires a building permit. A contractor must have a C-10 Classification for Landscape Contracting in order to complete landscaping work. A license is required for any type of landscaping work including: installing rocks, sand, or gravel; constructing or installing irrigation or drainage systems; planting trees, shrubs, or other vegetation; laying sod or hydroseeding.

Policy Summary

A C-10 classification requires four years of experience within the last ten years as a landscaping journeyman, supervising employee, or contractor. Up to three of these four years of experience can be replaced with formal education at a trade school or approved college or university. Similar to New Jersey and North Carolina, this means that many landscape irrigators work under the supervision of a licensed contractor for several years before going through any formal training, licensing, or examination. Once an applicant has gained the requisite experience, they may apply for the licensing exam.

The Nevada Contractors’ Board has contracted with PSI Licensing to administer their examination. PSI is a national organization that administers exams for various states and certifications, including many of Nevada’s Contractor exams such as the C-10. A passing score for the exam is 70%, in line with most other examination requirements. About 10% of this exam focuses on xeriscaping principles. Xeriscaping is a landscaping practice designed for arid climates to decrease the amount of water needed for irrigation. It typically consists of drought resistant, low water use plants and other water efficient best practices.

Legislative Background

The Nevada Revised Statutes Chapter 624 applies broadly to all contractors. It established the State Contractor’s Board which is in charge of defining the requirements for each contractor license, including the C-10 Landscape Contractor classification under the Nevada Administrative Code. The board establishes disciplinary actions for those who operate without proper licensing. The legislation covers all contractors instead of each individual classification. The only Landscape Irrigator specific section is in the Nevada Administrative Code with a small paragraph explaining what a C-10 classification allows a contractor to do.

Potential Aspects for Colorado to Model

One aspect of note for Nevada is that their licensing examination includes a section on xeriscaping principles. Colorado could also include education on xeriscaping, since it is an important tool for water conservation.

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71 Overview of Contractor License Requirements for Nevada, Nevada State Contractors Board, http://www.nvcontractorsboard.com/licensing_requirements.html
72 NAC Chapter 624 - Section 280 Contractors, https://www.leg.state.nv.us/NAC/NAC624.html
73 License Application Form, Nevada State Contractors Board, http://www.nvcontractorsboard.com/pdfs/Forms/License%20Application%20Form.pdf
76 What is Xeriscape? Colorado Waterwise, https://coloradowaterwise.org/page-645743
77 NRS Chapter 624 - Contractors Section 215, https://www.leg.state.nv.us/NRS/NRS-624.html
78 NAC Chapter 624 - Section 280 Contractors, https://www.leg.state.nv.us/NAC/NAC624.html
1.5 California
California requires landscape contractors to hold a state license in order to work. Contractors need to obtain a ‘C-27’ Landscaping Contractor license classification, issued by the Department of Consumer Affairs, Contractors State License Board. This will cover maintenance of landscape systems for public and private gardens. You must show four years of experience or substitute three years of experience for a four-year related degree from a college or university. Irrigation is a subcategory under the landscape contractor license.

Policy Summary
The California Code of Regulation lays out the licensing process. California Code of Regulations Title 16, Division 8, Article 3 defines a landscape contractor – “A landscape contractor constructs, maintains, repairs, installs, or subcontracts the development of landscape systems and facilities for public and private gardens and other areas which are designed to aesthetically, architecturally, horticulturally, or functionally improve the grounds within or surrounding a structure or a tract or plot of land.” Title 16, Division 8, Article 4 states that applicants must pass the written examination prescribed by the Registrar. In the case of landscaping contractors, they need to pass a trade exam, as well as a business and law exam.

Legislative Background
In California, regulatory code controls the certification of all contracting licenses, including landscaping licenses, in the California Contractors State License Board. The California Contractors State License Board was created in 1929 and has been in control of contracting regulations since.

Potential Aspects for Colorado Model
Similar to other states, one aspect that Colorado could borrow from the California model is the required exam. The state does more to ensure that potential landscaping professionals know the best and most efficient landscaping techniques by administering examinations.

1.6 Oregon
To be certified as a landscaper in Oregon, you must obtain the state landscape construction professional license. This license allows you to design and install lawns, shrubs, vines, trees, or nursery stock, including preparing the property for the planting, as well as install, maintain or repair ornamental water features and landscape irrigation systems. Landscapers need to pass a business and law exam, as well as a general trade exam.

Policy Summary
Oregon requires landscape professionals to obtain a license in order to work. There are two licensing mechanisms in Oregon, one for individuals and the other for businesses. To become licensed as a landscape construction professional, which is a general classification that includes

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81 History and Background State of California Contractors State License Board, https://www.cslb.ca.gov/About_Us/History_and_Background.aspx
82 Apply for a License Oregon Landscape Contractors Board, https://www.oregon.gov/lcb/Pages/ApplyLLicense.aspx
85 Apply for a License Oregon Landscape Contractors Board, https://www.oregon.gov/lcb/Pages/ApplyLLicense.aspx
irrigation work as a subsection, an individual must complete two years of on-the-job training, and/or receive a degree in horticulture from an accredited institution of higher learning, and/or pass one of several nationally recognized certifications. The accepted certifications can include the Landscape Industry Certified Exterior Technician\textsuperscript{66} certification from the National Association of Landscape Professionals\textsuperscript{67}. These prerequisites entitle the individual to sit for the state’s landscape construction professional exam. Upon passage, the individual must pay a fee to the state. To register a landscaping business, a business needs to register with the state, set up tax accounts, obtain the proper insurance requested, and display their business license number on any company advertisements.

**Legislative Background**

In Oregon, contracting mechanisms have been codified into state law since 1971, including landscaping contractor licensing. Since 1971, there have been numerous amendments made to the statute involving landscape construction professionals. The most recent and one of the most notable amendments came in 2015. In 2015, Senate Bill 580\textsuperscript{68} amended the definition of landscape construction professional in order to include that a landscape construction professional “may prepare plans and drawings for a landscape irrigation system, including, but not limited to, plans and drawings that identify the positioning, number, type and model of pumps, piping, valves, sprinklers, nozzles, emitters, filters, controllers and other components for the system.”

**Potential Aspects for Colorado Model**

One aspect that Colorado could borrow from the Oregon model is the double certification requirement. Not only should individual landscaping professionals be certified, but to ensure that the best and most efficient practices are followed, so should the businesses the landscaping professionals are working for. Another interesting aspect is the education prerequisites that Oregon requires—contractors can complete two years of on-the-job training, receive a degree in horticulture, or receive a national certification before passing the Oregon licensing exam. Colorado could consider adopting a variety of prerequisite options since there are currently so many certification and education options to choose from; this would help create more equity in the licensing standards, as contractors who have already gained experience or certification could more easily earn a state license.

**1.7 Louisiana**

Louisiana requires that landscaping professionals receive a landscaping license from the Louisiana Horticulture Commission\textsuperscript{69} in order to work legally. The purpose of the Horticulture Commission is to license and regulate horticultural businesses. The commission licenses individuals through the necessary examinations and fees.

**Policy Summary**

Louisiana Landscapers must apply for and receive a state license to work in the state legally. The Landscape Irrigation Contractor License\textsuperscript{70} authorizes the landscaper to construct, install,
connect, repair, maintain, improve or alter any portion of a landscape irrigation system. Licensees are required to obtain a water supply protection specialist endorsement from the State Plumbing Board before connecting to a public or private water supply system. The requirements for this license include setting up an exam by appointment, a $114 exam fee, attendance of continuing education seminar every three years for renewal of license, and a $100 license fee.

**Legislative Background**

Louisiana created the Horticulture Commission in 1950. Since then, the committee has regulated professions including arborists, retail florists, wholesale florists, landscape horticulturists, landscape architects, utility arborists, and landscape irrigation contractors. Despite numerous amendments over the years, not much has changed in terms of the layout and function of the Horticulture Committee and its purposes.

**Potential Aspects for Colorado Model**

One beneficial aspect of the Louisiana license that Colorado could model is the continuing education requirement. Louisiana requires one continuing education seminar every three years to renew a license. Colorado could implement a similar or more frequent requirement, and specify that it focus on water conservation.

**1.8 Connecticut**

The state of Connecticut requires home improvement contractors to register with the Connecticut Department of Consumer Protection in order to work legally. Under CT law, a “contractor” is someone who owns or operates a home improvement business or who makes or offers to make home improvements. Additionally, a contractor can become a limited lawn sprinkler contractor under the plumbing license category upon passage of the state test and payment of a fee to the state.

**Policy Summary**

The CT Legislature defined home improvements as the repair, replacement, remodeling, alteration, conversion, improvement, or addition to, a building or land used or designed to be used as a residence with six or fewer units costing more than $200. Landscaping is also included within the definition. The application fee for a certificate of registration as a home improvement contractor is $120.

Title 20 of the Connecticut General statutes covers Professional and Occupational Licensing and Certification. Chapter 393 of title 20 covers a variety of professions, including lawn sprinkler contractors, which falls under “plumbing and piping” work. To obtain a license for lawn sprinkler contractors, an applicant needs to be at least eighteen years old, and should provide evidence of competency as the appropriate board or the Commissioner of Consumer Protection shall require. Additionally, the applicant should possess a diploma or other evidence of

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91 [Regulation of Professions and Occupations, Louisiana State Legislature](https://www.legis.la.gov/legis/Law.aspx?id=86356)
93 [Plumbing License Application Path—Journeyperson Connecticut State Department of Consumer Protection, https://portalct.gov/DCP/License-Services-Division/All-License-Applications/Plumbing-Licenses-Application-Path---Journeyperson](https://portalct.gov/DCP/License-Services-Division/All-License-Applications/Plumbing-Licenses-Application-Path---Journeyperson)
graduation from the eighth grade of grammar school or possess an equivalent education\textsuperscript{97} to be determined on examination.

\textit{Potential Aspects for Colorado Model}

The aspects that Colorado could learn from the Connecticut model is the fact that Connecticut has laid out landscaping and irrigation under two totally separate, and perhaps not as closely related areas of certification. Colorado should refrain from including landscaping as home improvement, and irrigation as plumbing. The closer in relation the certifications for landscaping and irrigation are, the better.

1.9 Rhode Island

The state of Rhode Island requires irrigators and water system installers to receive certification from the state\textsuperscript{98} for “the adoption of minimum requirements for the licensure of plumbers, irrigators, and water-filtration/treatment-system installers in this state.” The state does not, however, require landscaping professionals to receive a licensing certificate.

\textit{Policy Summary}

Rhode Island’s irrigator and water system installer certification policy is regulated by the Rhode Island Code of Regulations (RICR). There are three levels to the irrigation profession set by the RICR: apprentice irrigator, journeyperson irrigator, and lastly, master irrigator. To be considered an apprentice irrigator, the individual must have been hired to perform all phases of an irrigation project under the supervision of a Master Irrigator or a licensed journeyperson for a period of at least one calendar year. To be considered a journeyperson irrigator, the individual must have performed all phases of an irrigation project under the supervision of a master irrigator for a period of not less than one calendar year. It is important to note that a journeyperson is not permitted to own or operate a business - or apply for any permits. Lastly, to be considered a master irrigator, the individual must have performed in the capacity of a journeyperson irrigator for at least 2 years’ time.

To qualify as a master irrigator, Rhode Island law\textsuperscript{99} states that one must pay a $75 application fee, have proof of citizenship or legal residency, and hold a journey person certificate of license for the required amount of time.

After qualification, applicants are required by law\textsuperscript{100} to pass examination(s) that the certification Board may deem necessary to test the applicant’s knowledge and skills to engage in this state as a master irrigator or a journeyperson irrigator. The Board also determines the passing grade.

\textit{Legislative Background}

The state of Rhode Island has regulated the certification of irrigation professionals since 2002\textsuperscript{101}.

\textit{Potential Aspects for Colorado Model}

The aspects that Colorado could refrain from using from the Rhode Island model do not require a landscaping certification. Rhode Island’s irrigation certification would be more effective if it


required a landscaping component. Colorado would benefit from having both of these certifications, or to integrate them into one certification that covers the integration of water efficient irrigation systems in a water wise landscape.

1.10 Florida
Florida offers a voluntary state license for landscape irrigation contractors. If a contractor obtains the state license, they are exempt from any local licensing requirements.

Policy Summary
There is no legislation that requires that landscape irrigation contractors become licensed. The Florida Building Code Appendix F\textsuperscript{101} suggests that the use of a licensed contractor would be beneficial in landscape irrigation project construction. This voluntary program was written in as a model for jurisdictions to use in developing their own landscape irrigation licensing requirements. In order to qualify for the license, applicants must obtain a college degree in a related field and gain one year of work experience, or four years of work experience if the candidate does not have a related college degree. Once the criteria are met, candidates take an irrigation course, and a business and financial management course. Upon passage of the licensing test, a fee is required and the license is issued. The state license can override any local licensing requirements\textsuperscript{102}.

Legislative Background
In 2017, Appendix F\textsuperscript{103} of the Florida Building Codes, Plumbing edition, was updated with language that laid the foundation for a voluntary Irrigation Contractor License offered by the state. That language remains unchanged in the building code. The license remains voluntary, and is issued by the state\textsuperscript{104} through the Department of Business and Professional Regulation\textsuperscript{105}.

Potential Aspects for Colorado Model
If Colorado chooses to pursue voluntary licensing, Florida would be a good model to emulate. The licensing is controlled by the state and the requirements are clear and well organized. The state’s program provides a model for local jurisdictions to emulate if they choose to pursue a local licensing program. Colorado could establish a licensing program under the Department of Regulatory Affairs (DORA). However, given Colorado’s local control approach to governance, the state would likely want to refrain from a voluntary state license superseding any local licensing requirements and instead allow for exemptions when local licensing is more stringent than the state regulation.

\textsuperscript{101} Appendix F, Florida Irrigation Society, \url{https://fisstate.org/Appendix-F}.
\textsuperscript{102} Landscape Irrigation Contractor State Licensing Guide-Florida, Irrigation Association, \url{https://www.igation.org/IA/Advocacy/Contractor-State-Licensing/Florida/IA/Advocacy/Florida.aspx?k=54e05e8c-729b-4fe5-b33f-24e577d84c3f}.
\textsuperscript{104} Licensure Information Florida Irrigation Society, \url{https://fisstate.org/page-1583165}.
\textsuperscript{105} Florida Department of Business, Professional Regulation, \url{http://www.myfloridalicense.com/dbpr/}.
2. Pathways to Increase Water Conservation in M&I Outdoor Irrigation

The following section describes and analyzes four different pathways to increase water conservation through landscape and irrigation professional licensing. These recommendations were developed through analysis of Colorado’s existing landscape and irrigation professional certification landscape, other state programs, and with consideration of potential water savings.

2.1 Maintain the status quo
This pathway would continue to allow individual local governments to design and implement their own landscape and irrigation regulations, incentives or programming, in concert with allowing individual landscape companies to require or incentivize their employees to get certified. This is currently the case in Colorado. Local governments are left to make individual decisions about how strictly they will regulate landscape and irrigation systems. Some communities have standards in place to require landscape and irrigation professional certifications (such as Castle Rock\(^{106}\) while many do not.

Opportunities and Challenges
Allowing local governments to continue developing their own landscape irrigation regulation programs may generate the most local buy in and support for any programs created. Any programs created would be tailored to local community needs. As Colorado’s population continues to grow and water supplies continue to shrink, local governments will likely look for more ways to conserve water out of necessity. This could lead to more communities implementing some version of landscape and irrigation certification or regulation.

A significant challenge with this approach is that local governments will have different requirements, potentially making it more difficult for landscape and irrigation professionals to comply across jurisdictional boundaries. Landscape and irrigation professionals may have to complete different trainings or licensing programs to work in different jurisdictions. This would cost landscape and irrigation professionals more time and money than a more unified system and these extra costs could present a barrier to entry to the landscape and irrigation profession for many.

State Barriers Addressed
The local government approach would allow for local development of these programs and would not include administrative costs for the state associated with a statewide licensing program. Colorado has a diverse climate and geography; as a result, local landscape regulations and local government needs vary widely throughout the state. This approach could better allow for programs that are properly tailored to local environments.

Examples
Maintaining the status quo would leave local governments to decide whether to regulate landscape and irrigation professionals. The following local policies have already been implemented:

The Town of Castle Rock has implemented the most stringent landscape certification requirements in Colorado. The town requires landscape professionals who design or install landscapes or irrigation systems within city limits to complete a QWEL training through Castle Rock Water with curriculum adapted for local climate conditions and landscaping regulations. Upon completion of the training and the payment of a registration and course fee, landscape professionals are added to a publicly available list of registered landscapers. Castle Rock has reduced its water consumption by 30% over the past decade by implementing a number of water conservation techniques; landscape and irrigation professional certification included. Castle Rock also requires landscape companies to register with the town in order to conduct non-residential/commercial projects. The company must designate one or more individuals responsible for the landscaping projects, and these individuals must be QWEL certified and have completed the Castle Rock Water Training.

The City of Fort Collins created the Certified Landscape Professionals program to incentivize landscape professionals to pursue certification. To qualify, landscape professionals need to be certified in one of three levels of training by the Irrigation Association or by the National Association of Landscape Professionals. Upon completion of the certification, professionals are added to the Fort Collins website as a Certified Landscape Professional. This advertisement incentivizes landscapers to participate.

The City of Aspen requires that newly installed landscapes undergo an irrigation audit by a Certified Landscape Irrigation Auditor. Their Water Efficiency Landscaping Standards specify that the audit can be conducted in the manner of the Irrigation Association’s Irrigation Auditor Certification Program or another EPA “WaterSense” labelled auditing program. The city lists qualifying certification resources, including the programs from QWEL, the Irrigation Association, the ALCC, and GreenCo, all of which were mentioned earlier in this paper. The city provides free annual QWEL trainings for local landscape professional and Continuing Education Unit (CEU) opportunities, as well as a list of certified landscape irrigation auditors on their website who can be hired to conduct the required irrigation audits.

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109 Irrigation Association, https://www.irrigation.org/IA.
113 Irrigation Association, https://www.irrigation.org/IA.
Currently, many local governments in Colorado do not have requirements or programs in place to encourage the education and licensing of landscape and irrigation professionals. In a 2021 WRA survey of 28 respondents of water providers in Colorado (See Figure 1), the majority stated that they do encourage or require some staff to certify or offer/sponsor water wise certifications trainings in some way. Only one responded that they require certifications for those offering landscaping services in their area.

**Implementation**

Currently, there is no overarching legal pathway for landscape and irrigation professional licensure in Colorado, and it is left to counties and cities to decide whether to regulate landscape and irrigation professionals. If the status quo continues, there should be an effort to encourage local officials to implement regulations at the local level. This would require outreach to water conservation staff, landscape and irrigation professionals, water conservation groups, and concerned citizens that could urge local governments to act.

Landscape and irrigation professional licensing can be implemented through local landscape ordinances. The City of Aspen’s landscape ordinance could be used as a model, and could be expanded to require the use of a trained landscape irrigator to design and install landscape irrigation systems. Landscape and irrigation professionals could be provided with a list of certification options that would qualify them for licensing and cities or counties could offer free or affordable training opportunities. If cities adopt similar ordinances, that would help requirements stay uniform across the state, allowing landscape and irrigation professionals to work across jurisdictions.

**Figure 1: Survey responses from a 2021 WRA survey of 28 water providers in Colorado.**
### Status Quo Pros and Cons

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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</thead>
<tbody>
<tr>
<td>• No cost to the state to administer or create a program</td>
<td>• A patchwork system of regulations can make it difficult for landscape and irrigation professionals to work in multiple areas or lead to increased cost and inconvenience</td>
</tr>
<tr>
<td>• Easily tailored to specific local climates and water conservation needs</td>
<td>• Potentially less water conservation achieved</td>
</tr>
<tr>
<td></td>
<td>• Increased cost to cities to develop their own requirements and licensing</td>
</tr>
<tr>
<td></td>
<td>• Potential that projects will be underbid because not every landscape and irrigation professional is certified</td>
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</tbody>
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### 2.2 Public Education on the Benefits of Using Licensed Landscape Professionals

This pathway would focus on educating the public and landscape and irrigation professionals on the benefits of training and licensing.

**Opportunities and Challenges**

A statewide public education campaign that highlights the benefits of licensing and/or training programs for landscape and irrigation professionals may generate more community buy-in than other options. If consumers understand the benefits of hiring a licensed professional, market demand could incentivize professionals to pursue licensing. Texas created the “Make it a Priority”[^1] campaign to educate Texans on the benefits of hiring a licensed irrigation professional after the creation of their irrigator licensing program. A similar education campaign could help shift consumer priorities before the pursuit of state-level regulations to require licensing, and encourage landscape professionals to pursue licensing on their own. However, a public education campaign would likely result in less water savings overall, and have no guaranteed water savings for the money spent.

**Statewide Impacts**

Focusing on public and industry education would allow consumers to decide whether the benefits of using a licensed landscape and irrigation professional outweigh potential increased costs of choosing a licensed professional. This could allow consumers with lower socio-economic status to make individual economic decisions instead of being forced into the potential higher cost of hiring licensed landscape and irrigation professionals. It would also allow landscape and irrigation professionals to make a similar economic calculation as to whether they want to spend the time and money to become certified. Public education campaigns have the benefit of helping drive consumer demand for landscape and irrigation professionals to be...

licensed. If the education campaign can lead to a push from consumers, and local officials and legislators hear from their constituents about the issue, it may be more likely that cities and counties adopt certification requirements or that Colorado would be able to pass statewide legislation requiring training and education in the future.

Examples
In order to increase public awareness on the benefits of hiring a licensed landscape or irrigation professional, the state could target both landscape and irrigation professionals and the general public.

One campaign could target large irrigation companies, new landscape and irrigation professionals, and those who work with them or provide landscape and irrigation supplies. This campaign could partner with current industry landscape and irrigation certification providers such as ALCC\(^{17}\) to promote the benefits of certification to members of the industry. In an educational campaign scenario, landscape and irrigation professionals would be able to choose for themselves if the benefits outweigh the cost of certification.

Another education campaign could be directed towards consumers to educate them on the benefits of hiring a certified landscape or irrigation professional. Many Coloradans are aware of the need to conserve water, and an education campaign could influence them in their landscaping decisions, as well as increase public enthusiasm for landscape and irrigation certification in general. A public education campaign could improve public perception of the landscape and irrigation industry, and increase demand for certified professionals. Educating consumers on the economic benefits of water savings would also help landscape and irrigation professionals justify a potential increase in prices post-certification.

Implementation
A public education campaign could be distributed through public utilities and water providers. In 2006, Denver Water launched an education campaign encouraging Denver water users to “Use Only What You Need”\(^{18}\) to reduce water consumption as water supplies began to shrink in Colorado. A similar effort could be launched to encourage landscape and irrigation professional licensing. Water providers would benefit directly from these campaigns because landscape and irrigation certification would further reduce water demand, which is crucial in times of drought and low water availability. Support from water providers could potentially help disperse the costs of the public education campaign, and increase the outreach potential.

The state could also partner with landscape and irrigation certification organizations, such as QWEL\(^{19}\), IA\(^{20}\), or the ALCC\(^{21}\), to promote their trainings and the benefits of certification. The expense of this campaign could be shared with the training organizations. The state could choose specific trainings to recommend, increasing visibility for the programs and providing guidance for consumers and irrigators on which certifications meet potential future Colorado standards. This would help guide landscape and irrigation licensing in Colorado, whether it remains optional or becomes mandated. Currently, the state provides no position on the issue, so communities are left to choose for themselves.

Public Education Pros and Cons

\(^{17}\) Sustainable Landscape Management Initiative, Associated Landscape Contractors of Colorado, [https://alcc.memberclicks.net/slm-colorado](https://alcc.memberclicks.net/slm-colorado).


\(^{19}\) QWEL, [https://www.qwel.net](https://www.qwel.net/).

\(^{20}\) Irrigation Association, [https://www.irrigation.org/IA](https://www.irrigation.org/IA).

\(^{21}\) Associated Landscape Contractors of Colorado, [https://alcc.memberclicks.net/](https://alcc.memberclicks.net/).
2.3 Create a State Sponsored Voluntary Licensing Program

This pathway would create a state-run voluntary licensing program. The state could create their own program, or partner with an existing organization or organizations to provide robust outreach and education, trainings, exams, certifications, and continuing education.

Opportunities and Challenges

A voluntary licensing program would help landscape and irrigation businesses and individual landscape and irrigation professionals that may not be able to afford the costs of licensing. This program would also allow landscape and irrigation professionals to independently decide whether the benefits are worth the time and cost associated with receiving a license. This pathway would help avoid pushback, as there would be no mandated requirements. A state-run voluntary program could also model what a licensing requirement could look like, should local jurisdictions decide to create their own regulation. Alternatively, local jurisdictions could elect to make the state’s licensing program mandatory for landscape and irrigation professionals within their jurisdiction.

For maximum impact, this pathway should be combined with a strong education program, so that landscape and irrigation professionals and the public understand the benefits of licensing. Without an education component, the effectiveness of this option could be reduced, and lead to little additional water conservation.

State Barriers Addressed

While voluntary licensing may avoid the pushback that a mandated program could be more likely to receive, it may not produce the desired results that a mandatory program would be more likely to deliver. This pathway is much like the status quo with some additional state resources. This would increase visibility for certification programs, and provide guidance on which ones the state prefers, but wouldn’t offer guaranteed water savings. Potential participants may decide the programs are too expensive or time consuming and that they’re not worth participating in.

The state could address this potential drawback by subsidizing licensing fees for landscape and irrigation professionals. The state could also develop a mechanism for incentivizing landscape and irrigation certification, such as developing a database of certified professionals. However,
with a voluntary program, attendance would still remain lower than in a mandatory scheme, and as a result, costs per person would be higher. Funding would need to be appropriated for this subsidization, yet it would be difficult to estimate the number of people who would elect to participate in a voluntary program and thus how much money would be needed. States that mandate landscape and irrigation licensing generally charge fees that help fund their programs. Subsidization would create less buy-in from the licensees and place the cost burden on the state.

Examples
A voluntary, state sponsored licensing program would likely provide a stronger incentive for landscape and irrigation professionals to pursue a license than the status quo or education campaign options. The program could be implemented either through a state-run agency or by contracting with an existing organization or organizations such as ALCC\textsuperscript{122} or the Irrigation Association\textsuperscript{123}. The Irrigation Association provides licensing tests that can be adapted to specific state needs, and the ALCC offers a training that is already adapted to Colorado needs. Some water providers in Colorado have partnered with QWEL to bring their trainings and certifications to specific communities (e.g., Castle Rock\textsuperscript{124}), and have created training and testing content specific to those regions. The state’s program could do the same, or simply publish a list of accepted training programs that would qualify for licensing purposes, similar to the city of Aspen which provides certification resources in its Landscape Ordinance\textsuperscript{125}, and work with those providers to subsidize the training cost.

The state could also choose to set up their own voluntary licensing and training program, similar to Florida’s program, outlined in section 1.10 above. There would be a higher upfront cost to create and administer the program, but it could potentially lead to more water conservation since it would be tailored to Colorado needs. This licensing program could be under the Department of Regulatory Agencies\textsuperscript{126} (DORA) as they have the necessary licensing framework in place. DORA also has a framework in place for consumers to verify a license. This would give consumers a quick and easy way to ensure the landscape and irrigation professionals they hire are licensed.

Implementation
Water providers, such as Denver Water, Colorado Springs Utilities or Northern Colorado Water Conservancy District, for example, could be partners for promoting this pathway, no matter the form of a voluntary licensing program. Water providers understand and feel the pressure to conserve water. This pathway would help them achieve significant water savings, so it would be in their interest to help promote it. The importance of landscape and irrigation professionals trained in water conservation is only growing as pressures on Colorado’s water supply increase, and as turf replacement programs take hold. As consumers remove high water use turf-grass and replace it with low-water landscaping, they will need to make sure irrigation systems and water wise plants are retrofitted or installed by those trained in water conservation. Water providers will be able to see this connection, and recognize the benefits of promoting certification.

Voluntary Licensing Pros and Cons

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
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\textsuperscript{122} Associated Landscape Contractors of Colorado\url{https://alcc.memberclicks.net/}
\textsuperscript{123} Irrigation Association\url{https://www.irrigation.org/}
\textsuperscript{124} QWEL Class Castle Rock, CO\url{https://www.qwel.net/pub/class/355}
\textsuperscript{125} Landscape Ordinance, Aspen, CO\url{https://www.aspen.gov/199/Landscape-Ordinance}
\textsuperscript{126} Department of Regulatory Agencies, State of Colorado\url{https://dora.colorado.gov/}
• State subsidized or supported programs would increase professional participation
• Would lead to larger water conservation as more professionals are licensed
• Would help pave the way for a mandatory regulation if desired in the future

• Creating or contracting out a licensing service will be costly for the state
• Would require agency action to administer or track the licensing process
• Unlikely to achieve the desired water conservation with a voluntary program as many may still choose not to participate
• May still require legislative action

2.4 Require Landscape Professional Certification through Legislation

This pathway would create state legislation that requires all landscape and irrigation professionals to be licensed through a training and examination program, either designed and administered by the state, or implemented through an organization with an existing certification process. The licensing could be managed at the state level, through the Department of Regulatory Affairs (DORA), or required through other mechanisms that compel local jurisdictions to administer their own licensing scheme.

Opportunities and Challenges
State legislation is likely to be the most effective path for increasing water conservation in the landscape and irrigation industry. Without legislation requiring certification there will likely be many landscape and irrigation professionals who do not become licensed, forego education, and do not have the proper training to maximize water efficiency.

Passing state legislation would likely be the most challenging option for landscape and irrigation professional licensing. The state legislative process can be challenging, especially for new regulations and state appropriations. There may be stakeholder groups who would oppose this type of regulation. Despite the challenges, there are indicators that this pathway could succeed; a handful of water efficiency related bills have passed in recent years with bipartisan support. Colorado citizens and legislators are increasingly aware of the need to conserve water.

The Colorado River Basin has been in the depths of a “mega-drought”\textsuperscript{127} since the beginning of the 2000s. Water levels have dropped to record lows in reservoirs along the Colorado River. State legislators are taking note. In 2022, HB 22-1151\textsuperscript{128} passed allocating $2 million of state funds to bolster local turf replacement programs to incentivize Coloradans to convert their lawns to water wise landscapes. As water conservation becomes more of a priority, Colorado will need a variety of solutions to successfully decrease municipal outdoor water use. Landscape and irrigation professional certification can be an important tool for water conservation.

Certified landscape and irrigation professionals can help save water in a variety of ways. Certified professionals can provide irrigation system audits to reduce water used for irrigation.


\textsuperscript{128} HB22-1151: Turf Replacement Program Colorado General Assembly. https://leg.colorado.gov/bills/hb22-1151
The Slow the Flow water efficiency audit program in Utah estimates that participants saved an average of 25,570 gallons of water\textsuperscript{129}, reducing the amount of water that program participants applied to landscapes by 8%. The 2015 South Platte Basin Implementation Plan estimated that there will be a 414,000 acre foot water gap in the basin over times, and that a reduction in excess irrigation would free 86,558 acre feet or 21% of the water needed\textsuperscript{130} to help prevent the water gap.

Certified landscape and irrigation professionals will be needed as more Colorado residents take advantage of turf replacement programs and convert thirsty Kentucky bluegrass to waterwise landscapes. It is estimated that turf conversion to xeriscape landscaping can save\textsuperscript{131} between 33 gallons per square foot up to 60 gallons per square foot, depending on the amount of water used on turf before the conversion and the type of landscaping the turf is replaced with. Those trained in water efficient landscaping practices will be critical in maintaining the water savings of waterwise landscapes, and in preventing suburban blight, which can happen if grass is removed and not replaced with a viable landscaping alternative.

**State Barriers Addressed**
The most significant barrier is the state legislative process. Legislators and citizens may see a mandatory licensing scheme managed by the state as infeasible or too expensive for the state to administer, when there are other programs that may take funding priority. Additionally, there may be pushback from landscape professionals regarding increased regulation over their business and the potential increased cost to become licensed.

**Examples**
One regulatory option would be for the state to disperse the costs for landscape and irrigation licensing by passing legislation that requires local jurisdictions to develop their own licensing regulations. This could take the form of a requirement that local areas develop and administer their own certification programs, or make state funding opportunities contingent on the development and administration of a certification program. Local jurisdictions would need to develop their own requirements, and submit them to the state in order to receive state funding. This would allow each jurisdiction to develop requirements adapted to local conditions, and decrease the administrative burden on the state. However, it would shift the administrative burden to local jurisdictions, with their own capacity and funding limitations. It would also result in a piece-meal regulatory environment that is difficult for landscape and irrigation professionals to navigate.

The most stringent option under this pathway would be for the state to require a state issued landscape and irrigation license. The state would need to allocate funding for this, and establish it under the Department of Regulatory Affairs. This would create a uniform licensing requirement that could be applied statewide. This program could be adapted to local environmental needs by creating different trainings and exams adapted to different climates around the state. This would likely result in the most water savings and the clearest guidelines for landscape and irrigation professionals on how to become certified.

A state requirement could also give the landscape and irrigation industry time to adapt to new changes. Landscape and irrigation professionals who have already completed a certification


program could qualify to receive a state license without additional requirements. The regulation could take effect in a few years in order to give landscape and irrigation professionals time to meet the new requirements. There could also be a funding mechanism to help subsidize education and exam fees for landscape and irrigation professionals.

A state-run program could combine many of the beneficial aspects noted above in the analysis of other state policies. Elements from existing state certification and licensing programs to consider for a Colorado state licensing program include:

- Texas provides a list of approved trainers with whom professionals can pursue their licensing training. This could be emulated in Colorado to give professionals the choice of training classes across the state as they pursue licensing requirements.
- Require continuing education credits to renew the license after a certain number of years. Require that some credits focus on water conservation to keep landscape professionals up to date on current water saving techniques. New Jersey has a requirement that a certain number of continuing education hours focus on water conservation.
- To address economic equity concerns, licensing requirements could be leveraged on larger businesses first, allowing more time or an exemption from licensing fees for smaller businesses. North Carolina allows smaller projects under a certain dollar amount to be completed without a license.
- Legislation could also require that irrigation systems are checked yearly to ensure that they continue to operate efficiently and maintain their water saving potential. North Carolina requires yearly irrigation controller checks; Colorado could expand this requirement to include yearly whole system checks.
- Enforcement has been an important aspect of the Texas state licensing program. State legislation could require local governments to enforce landscape and irrigation licensing, and allow the public to report any non-compliant work.

A state requirement could take many forms, drawing on the state examples examined above and adapted to Colorado’s specific needs. A successful mandated certification program would need to be coupled with an education campaign to share information on the program with the landscape community and state funding to support program development and implementation.

**Implementation**
The passage of state legislation requires the alignment of many components. First, the right regulatory mechanism would need to be chosen—should the state require local action? Or impose a state licensing requirement administered by the state? Once that decision is made, the bill would need to be written, and stakeholders engaged for feedback. There would likely be opposition to increased state regulation of private industries, and considerations to address those concerns would need to be included. Supportive organizations and stakeholders would need to be engaged to increase enthusiasm for a licensing approach, and to help educate the public and state legislators on the benefits of the chosen legislation.
### 3. Summary of Recommendations and Conclusion

This paper explored viable options to achieve significant reductions in M&I outdoor irrigation water use through landscape and irrigation professional licensing in Colorado. After an exploration of licensing policies and programs in ten states around the country, the following pathways for landscape and irrigation professional licensing in Colorado were evaluated.

The status quo would allow cities to implement landscape and irrigation professional licensing on their own terms, as well as allow them to choose not to do so. This is the system currently in place in Colorado; it has led to a patchwork of regulations that have been implemented slowly over time in a handful of communities. Continuation of the status quo would result in the lowest water savings. The second option, to engage the public and the landscape and irrigation community via a public education campaign, would improve awareness of the benefits of and options for landscape and irrigation professional licensing. This may have limited results, and no guaranteed water conservation for the money spent.

The third option, to create a voluntary state sponsored licensing program, would help provide more state guidance and uniformity in Colorado landscape and irrigation professional licensing. The state could create a licensing program or provide a list of existing programs that would qualify landscape and irrigation professionals for state certification. Local jurisdictions could model their own programs on the state provided model and elect to make the state licensure model mandatory in their jurisdictions. This option would likely increase the number of certified landscape and irrigation professionals, but would not guarantee increased water conservation or a certain number of certified professionals. The final option, a requirement by the state that all landscape and irrigation professionals be licensed, would be the most effective of the four options presented with regard to water savings. Mandatory licensing would ensure that all landscape and irrigation professionals are trained in water conservation techniques, and would...
result in quantifiable water savings. The state legislative process would be the biggest hurdle for mandatory licensing.

Water conservation is important in Colorado. Water conservation measures have garnered bipartisan support in the past few years, as politicians and the people understand the need to conserve water. Turf replacement programs are taking hold, and as residents convert their yards to more water efficient landscapes, it is more important than ever to make sure those who install and maintain landscapes and irrigation systems are properly trained so that no drop of water is wasted.

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