



## STUDY SESSION MEMORANDUM

**TO:** Mayor and Members of City Council

**FROM:** Nuria Rivera-Vandermyde, City Manager  
Jonathan Koehn, Director of Climate Initiatives  
Carolyn Elam, Sustainability Senior Manager  
Brett KenCairn, Natural Climate Solutions Senior Policy Advisor  
Rella Abernathy, Senior Ecologist  
Kara Mertz, Senior Project Manager  
Emily Sandoval, Community Engagement Senior Project Manager

**DATE:** April 27, 2023

**SUBJECT:** Study Session for April 27, 2023  
Policy Discussion Related to Gas-Powered Landscaping Equipment

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### EXECUTIVE SUMMARY

Commercial landscaping companies provide a variety of lawn and plant care services to residents and commercial businesses. While these services are an important part of the local economy, they are also a source of routine concern among some community members. Two-stroke engines, such as those commonly found in leaf blowers, are the most cited area of concern due largely to their noise. While this concern has been longstanding, recent years have seen a heightened level of interest, due to an increased number of people working from home during and following the pandemic. In addition to noise pollution, there is also a growing understanding of gas-powered landscaping equipment's contribution to air pollution, particularly ground-level ozone.

In 2022, staff launched the Addressing the Impacts of Landscaping Equipment Project to better understand the local impacts and opportunities presented by gas-powered landscaping equipment use in Boulder. The purpose of this Study Session is to provide council with an update on that project and to get input on which strategies should be prioritized for further analysis and potential implementation.

The key issues to be discussed include:

- Equity considerations and potential disparate impacts of regulatory strategies;
- Technology readiness, cost and risks associated with electric equipment alternatives;
- Overall contribution to local pollution; and
- Best practices and lessons learned from other jurisdictions.

This memo is organized as follows:

|  |    |
|--|----|
| QUESTIONS FOR COUNCIL .....  | 2  |
| BACKGROUND .....   | 3  |
| Overview .....   | 3  |
| Ecological Impacts of Landscaping and Landscaping Maintenance .....    | 4  |
| Landscaping Service Industry and the Reliance on the Leaf Blower ..... | 4  |
| Addressing the Impacts of Landscaping Equipment Project .....          | 5  |
| ANALYSIS.....  | 5  |
| Smog and Ozone .....   | 6  |
| Greenhouse Gas Emissions .....   | 7  |
| Highlights of Municipal and State Efforts .....                        | 8  |
| Lessons Learned and Risks .....  | 9  |
| RACIAL EQUITY .....  | 11 |
| COMMUNITY AND BUSINESS ENGAGEMENT .....                                | 12 |
| Environmental Advisory Board (EAB) .....                               | 12 |
| Be Heard Boulder Questionnaires .....                                  | 13 |
| Business Engagement .....  | 13 |
| PILOT VOUCHER PROGRAM .....  | 14 |
| MATRIX OF OPTIONS AND STAFF RECOMMENDATIONS .....                      | 14 |
| NEXT STEPS .....   | 19 |
| ATTACHMENTS.....   | 19 |

## **QUESTIONS FOR COUNCIL**

1. Does council wish to pursue any policy actions to address community members' concerns over the use of gas-powered landscaping equipment? If so, should that be focused on all equipment or just leaf blowers?
2. What strategy or strategies should staff prioritize for further analysis and for resource needs estimates?

## BACKGROUND

### Overview

For much of the year, commercial landscaping companies provide a variety of lawn and plant care services to residents and commercial businesses. While these services are an important part of the local economy, they are also a source of routine concern among some community members as illustrated by emails and direct communication to council members and city staff. Certain types of landscaping equipment present a variety of environmental and health concerns. These include noise, air pollution and greenhouse gas (GHG) emissions. Two-stroke engines, such as those commonly found in leaf blowers, are the most cited area of concern, though other types of equipment such as lawnmowers are also identified by community member complaints.

In addition to the noise impacts, landscaping equipment presents an air-emission concern for both the operator and for the surrounding community. EPA studies<sup>1</sup> have shown that this class of small engines result in disproportionately higher amounts of volatile organic chemical (VOC) and particulate matter (PM) emissions as compared to other types of gasoline engines, with two-cycle motors among the worst due to entrainment of lubricating oils within the exhaust. Both VOC and PM emissions are known sources of severe respiratory and other health-related issues. They also contribute to front-range ground-level ozone pollution. Landscaping equipment is also a source of GHG emissions that must be addressed to achieve the community's climate goals, particularly net zero carbon by 2035.

While Boulder, like most municipalities, does not have the authority to regulate air emissions – that authority vests at the state and federal level only – Boulder can regulate noise pollution. [Title 5, Chapter 9, of the Boulder Revised Code](#) governs noise and is the source of existing local regulation addressing landscaping equipment. Under this code, normally operating landscaping equipment is generally allowed throughout the city limits during daytime hours. Because the concerns associated with landscape equipment is not unique to Boulder, states and communities throughout the U.S. have modified their respective noise ordinances to address leaf blower and gas-powered equipment use. Tactics range from creation of quiet zones where leaf blower use is prohibited completely to seasonal and full-time city-wide bans on gas-powered blowers (with or without allowance for electric alternatives) to all electric requirements. Strategies to successfully implement these restrictions include incentive programs to offset the cost to transition, gradual implementation to align with equipment replacement cycles, and extensive outreach. (See Highlights of Municipal and State Efforts in the Analysis section for further discussion.)

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<sup>1</sup> <https://www.epa.gov/sites/production/files/2015-09/documents/banks.pdf>

## Ecological Impacts of Landscaping and Landscaping Maintenance

Historically, a greener and bigger lawn demonstrated wealth, prestige and privilege. However, this status symbol is a significant contributor to our rapidly declining ecosystems. Lawn pesticides have been detected in groundwater, have the ability to leach into drinking water sources, and are toxic to fish and other aquatic organisms vital to our ecosystem, including bees, mammals and birds.<sup>2</sup> Studies also show that hazardous lawn chemicals are drifting into our homes where they contaminate indoor air and surfaces, exposing children to levels ten times higher than pre-application levels. Lawn pesticide use is linked with human cancer or carcinogenicity, birth defects, reproductive effects, liver or kidney damage, neurotoxicity and disruption of the endocrine (hormonal) system.

Maintaining the green lawn requires regular irrigation and maintenance. Maintaining a green lawn during the hot summer months can require up to 2.5 inches of water per week. Overall, landscape irrigation accounts for more than half of Colorado residential water use. In addition to straining water resources, yard maintenance also leads to significant waste. During peak growing season, the service interval is usually weekly, and many yard trimmings end up in the landfill. A 2018 EPA study found that, nationally, yard trimmings comprise 7.2 % of all waste going to the landfill.<sup>3</sup> Once in landfills, yard waste decomposes in an oxygen-starved environment, producing methane, which has 80 times the global warming potential of carbon dioxide (CO<sub>2</sub>). Finally, a pristine lawn aesthetic typically includes a lawn free of leaves and other debris. In addition to disrupting natural nutrient cycles, reducing carbon sequestration, water infiltration and cycling, and important wildlife/insect life habitat, it also leads to increasingly mechanized approaches to removal of these organic materials (leaves, grass clippings).

## Landscaping Service Industry and the Reliance on the Leaf Blower

Most landscaping businesses are small, individually/family owned with less than 10 employees. Many are minority-owned, and a high percentage of workers are Hispanic. According to the U.S. Bureau of Labor Statistics, there are more than 1.7 million building grounds maintenance workers nationwide; the average worker earns just above minimum wage.<sup>4</sup>

Landscaping service is synonymous with entrepreneurship. Since there has been the suburban lawn, there has been the kid from the neighborhood who starts by earning extra money mowing their neighbors' lawns and ends up with a career in the landscaping industry. Other than acquiring the landscaping equipment, there are little to no other overhead costs, allowing business owners to enter the industry with a small capital investment, usually starting with used equipment, and then grow their business and adding more workforce over time.

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<sup>2</sup> <https://www.beyondpesticides.org/resources/lawns-and-landscapes/overview/hazards-and-alternatives>

<sup>3</sup> <https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/yard-trimmings-material-specific-data>

<sup>4</sup> <https://www.bls.gov/oes/current/oes370000.htm>

While landscaping service is a successful entrepreneurial industry, the margins are thin, particularly for smaller businesses. Earnings are limited to the months during which they operate, late spring to early fall. Because of the small business nature of the industry, there are many businesses competing for work, keeping the price of service relatively low. Margins are based on productivity and reliability. This push for increasing efficiency led naturally to increasingly mechanized approaches including the evolution of the leaf blower. The powerful leaf blower reduced wear and tear on workforce in an industry that requires crews to service 100 to 200 yards per week to break even, much less be profitable.

### Addressing the Impacts of Landscaping Equipment Project

To advance the community's climate, environmental, racial and health equity goals and to address the growing concern within the community, staff launched the Addressing Impacts of Landscaping Equipment Project in early 2022 to explore options that might be suitable for the city to pursue to mitigate the impacts of landscaping equipment. This includes better understanding of the actual impacts of landscaping services within Boulder, where other communities have been successful or run into challenges, and assessing the potential local and regional impacts adopting a more restrictive code might present to Boulder residents, businesses, and to service providers and their workforce in the event such a strategy were to be pursued.

To support the project, the city hired American Green Zone Alliance (AGZA). Based out of Los Angeles, AGZA specializes in training, education, strategic planning and implementation of low-impact solutions for municipalities, land care operators and property managers to transition from gas-powered land care to low-impact, zero-emissions operations.

AGZA has been in operation since 2014. Its founder, Dan Mabe, operated his own sustainable landscaping business for many years before forming AGZA. A key aspect of AGZA's work is the AGZA Green Zone® Certification program that has a number of municipalities, academic institutions, school districts and private industry throughout the country strengthen their environmental leadership and set examples for clean, quiet and sustainable landscape maintenance practices in their regions and beyond.

AGZA is currently leading engagement efforts for California's Clean Off-Road Equipment Voucher Incentive Project (CORE). The goal of that particular effort is to connect with professional landscapers by organizing in-person and online events where landscapers can test out zero-emission professional landscaping equipment, connect with industry professionals and learn more about CORE voucher incentives.

### **ANALYSIS**

The following summarizes the analysis completed to date by staff and the consulting team.

## Smog and Ozone

EPA estimates that, nationally, gas-powered landscaping equipment is responsible for nearly 4% of volatile organic chemical (VOC) and 12% of carbon monoxide (CO) emissions.<sup>5</sup> Landscaping equipment also produces particulate matter (PM) and nitrogen oxide (NOx) emissions. Operating a commercial gas-powered lawn mower for one hour emits as much smog-forming pollution as driving a new light-duty passenger car about 300 miles – about the distance from Los Angeles to Las Vegas, more than four hours of drive time. For a commercial leaf blower, one hour of operation emits smog-forming pollution comparable to driving a new light-duty passenger car about 1,100 miles – about the distance from Los Angeles to Denver, over 15 hours of driving.<sup>6</sup>



Ground-level ozone forms when NOx and VOC compounds react with each other in sunlight and hot temperatures. Given that landscaping equipment use occurs during the sunniest and hottest months of the year, the emissions from gas-powered landscaping equipment are a leading contributor to Denver Metropolitan/Northern Front Range (DM/NFR) ozone. The EPA acceptable standard for ozone is 70 parts per billion (ppb), a value the DM/NFR has exceeded based on recent 3-year averages.<sup>7</sup> Table 1 provides a summary of the general contributors to summertime ozone in the DM/NFR. Landscaping equipment represents approximately 3% of all ozone sources and approximately 8% of sources targeted for pollution control (sources other than background and naturally occurring).

<sup>5</sup> <https://www.epa.gov/sites/default/files/2015-09/documents/banks.pdf>

<sup>6</sup> <https://ww2.arb.ca.gov/resources/fact-sheets/sore-small-engine-fact-sheet>

<sup>7</sup> The EPA 8-hour ozone standard is written such that attainment is met if the 3-year average of the 4th max. value from each of the 3 years is less than or equal to 70 ppb.

**Table 1 - Regional Air Quality Council: General Contribution to Front Range Summertime Ozone Concentrations<sup>8</sup> reported as parts per billion (ppb)**

| Ozone Source           | Contribution | Includes   |
|------------------------|--------------|--|
| Oil & Gas              | 8.6 ppb      | Area and point sources (operation, storage facilities, drilling, trucking and engine exhaust)              |
| On-Road Vehicles       | 6.8 ppb      | Light/Medium/Heavy Duty vehicles (SUVs, cars, pickup trucks)   |
| Non-Road Sources       | 5.4 ppb      | Construction operations, rail/train operations, agriculture  |
| Point Sources          | 5.3 ppb      | Industrial sources and electricity generation  |
| Lawn & Garden          | 2.5 ppb      | Commercial lawn equipment and residential lawn and garden equipment (mowers, leaf blowers, trimmers, etc.) |
| Area                   | 1.2 ppb      | Personal care products, cleaning products, paints and solvents   |
| Background and Natural | 48.6 ppb     | Background ozone, transport, local fires, plant-based emissions  |

Landscaping equipment is a broad term that includes mowers (40%), trimmers (18%), tractors (14%), leaf blowers (9%), chainsaws (7%), snow blowers (6%) and other types of equipment (7%).<sup>9</sup> While mowers have a lower emissions impact on a per hour basis, their annual run hours are two or more times that of other equipment. Trimmers have comparable fuel combustion emissions as leaf blowers and have comparatively higher run hours during summer months.

### Greenhouse Gas Emissions

Compared to its contribution to smog and ozone formation, gas-powered landscaping equipment plays a much smaller role when it comes to GHG emissions. According to the EPA, gas-powered landscaping equipment is responsible for just 0.3% of total CO<sub>2</sub> emission nationally. A leaf blower burns approximately 0.43 gallons of fuel, producing 11 pounds of carbon dioxide (CO<sub>2</sub>), per hour of use. Staff and the consulting team are

<sup>8</sup> Source: Screenshot of Regional Air Quality Council (RAQC) presentation dated 8/18/22 and labeled AQCC Presentation SIP Planning Process published by the Colorado Sun (<https://coloradosun.com/wp-content/uploads/2022/08/Screen-Shot-2022-08-23-at-1.21.25-PM.png?w=710>)

<sup>9</sup> National estimates (<https://www.epa.gov/sites/default/files/2015-09/documents/banks.pdf>)

currently developing a Boulder-specific estimate of GHG emissions and expect to be able to share this during the study session.

### Highlights of Municipal and State Efforts

The following are highlights of tactics that have been implemented or are being considered by states and municipalities related to the environmental and climate impacts of landscaping services, and that have been considered as part of staff's analysis and recommendations.

**State of Colorado:** During the 2022 Colorado legislative session, Senator Chris Hansen proposed a plan to ban the sale of gas-powered lawn equipment in areas with poor air quality in 2030. While that bill did not move forward, Senator Hansen has now introduced Senate Bill 23-016, which includes provisions for tax credits for electric landscaping equipment.<sup>10</sup> For many years, the state has, through the Regional Air Quality Council (RAQC), offered a buyback/voucher programs for residents.<sup>11</sup>

**State of California:** In December 2021, the California Air Resources Board approved a measure that will require most newly manufactured small off-road engines (SORE) such as those found in leaf blowers, lawn mowers and other equipment, be zero emission starting in 2024. Portable generators, including those in recreational vehicles, would be required to meet more stringent standards in 2024 and meet zero-emission standards starting in 2028.<sup>12</sup> The state currently has \$15 million allocated to its Clean Off-Road Equipment (CORE) incentives voucher program for professional landscaping equipment.<sup>13</sup>

**Aspen, Colorado:** In 2003, Aspen banned the use of gas-powered leaf blowers.<sup>14</sup> Violators can receive a \$100 ticket. Aspen allows the use of electric leaf blowers without limitation.

**Washington, DC:** In 2018, the Council of the District of Columbia adopted the Leaf Blower Regulation Amendment Act of 2018, which banned both the sale and use of gas-powered leaf blowers with an effective date of January 1, 2022.

**City of South Pasadena, California:** In 2015, South Pasadena embarked on a lead-by-example approach prior to enacting an ordinance on gas leaf blowers. In 2016, South Pasadena became the first certified AGZA Green Zone city in the nation. In September 2021 the City Council passed a ban on gas leaf blowers with exemptions for emergencies and a one-year grace period. Property owners face escalating fines up to \$500 for violations.

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<sup>10</sup> <https://leg.colorado.gov/bills/sb23-016>

<sup>11</sup> The City of Boulder helped fund the RACQ program for several years.

<sup>12</sup> [https://ww2.arb.ca.gov/sites/default/files/offroadzone/pdfs/offroad\\_booklet.pdf](https://ww2.arb.ca.gov/sites/default/files/offroadzone/pdfs/offroad_booklet.pdf)

<sup>13</sup> <https://californiacore.org/>

<sup>14</sup> <https://www.aspen.gov/329/Noise>



**Lincoln, Massachusetts:** In 2013, the Town of Lincoln voted to form the Lincoln Leaf Blower Study Committee. Lincoln presented its first proposed ordinance in 2015 but withdrew it following public feedback that more education and engagement was needed. In 2019, Lincoln adopted an ordinance restricting the use of gas leaf blowers to within defined time windows in Spring and Fall and allowing the use of electric blowers year-round.

**Ojai, California:** Ojai banned the use of gas-powered leaf blowers in 1998. The city stopped enforcing the ban in 2014 but resumed enforcement in 2017. In December 2017, Ojai implemented a temporary ban on electric leaf blowers, as well, due to air quality concerns associated with the Thomas Fire. Electric leaf blowers were again allowed starting in January 2018. In April 2020, Ojai began banning other gas-powered handhelds (trimmers, edgers, pole saws) and walk-behind mowers. Ojai prohibits the use of landscaping equipment on Sundays and holidays.

**Southern Nevada:** In May 2021, the Nevada Legislature passed Assembly Bill No. 356 for the purpose of making various changes relating to the conservation of water. The bill prohibits waters of the Colorado River that are distributed by the Southern Nevada Water Authority or one of the member agencies of the Southern Nevada Water Authority from being used to irrigate nonfunctional turf on any property that is not zoned exclusively for a single-family residence beginning January 1, 2027.<sup>15</sup> The Southern Nevada Water Authority has since defined nonfunctional turf to be areas of nonfunctional turf include, but are not limited to grass located along public or private streets, streetscape sidewalks, driveways and parking lots, including turf within a community, park and business streetscape frontage areas, medians and roundabouts.<sup>16</sup>

### Lessons Learned and Risks

Based on survey of the experiences from other communities, direct interviews, and the experiences of our expert consultants, the following are key considerations to inform any future regulatory action in Boulder:

- **Proof of Violation - Noise complaints are challenging to enforce.** In the case of landscaping services, the offending piece of equipment is often used for a fairly short period of time. Rarely can an enforcement officer arrive within the timespan that the offense is occurring. For this reason, noise issues are typically treated as a code violation requiring the complainant to identify themselves and be party to the enforcement process. This can pit neighbor against neighbor.
- **Enforcement on Landscaping Businesses –** In addition to the aforementioned challenges of enforcement overall, issuing penalties against businesses may not result in the desired changes. In the case of smaller businesses, the impact of penalty may simply be to force out businesses or shift their customer base to

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<sup>15</sup> <https://www.leg.state.nv.us/App/NELIS/REL/81st2021/Bill/7910/Text>

<sup>16</sup> <https://www.snwa.com/importance-of-conservation/understand-laws-ordinances/index.html#:~:text=Areas%20of%20nonfunctional%20turf%20include,areas%2C%20medians%2C%20and%20roundabouts.>

outside of the city. In contrast, the larger business may just simply consider the risk of being caught as the cost of doing business.

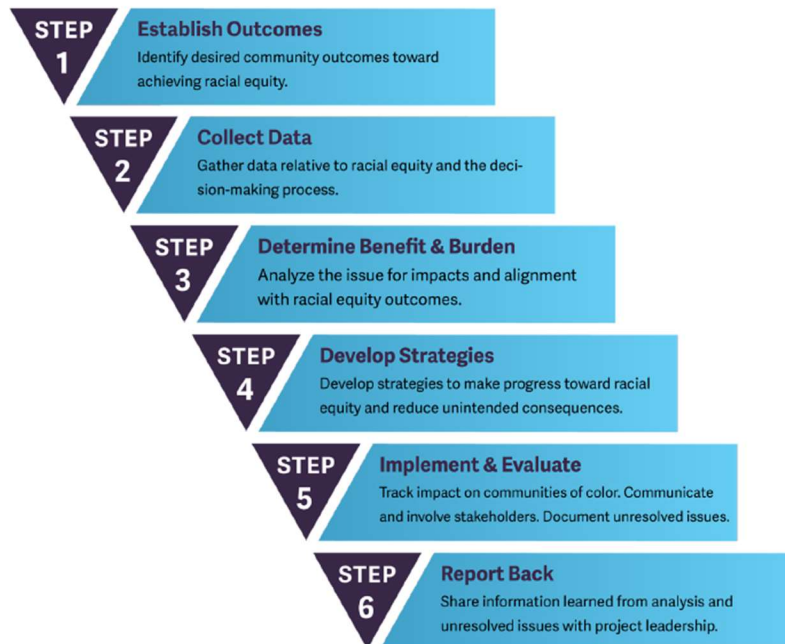
- Socioeconomic and Racial Conflict – While those that contract for service are accountable for the services that are provided to them, service providers can often find themselves to be the target of conflict. Because of the nature of the industry – number of businesses, worker turnover, language barriers, limitations of municipal outreach – workers may be unaware of local ordinance. These workers may then find themselves being confronted by community members while they are just trying to do their job.
- Equivalent Electric Alternatives – While there are electric alternatives that provide equivalent or even superior performance for light-duty applications, there are not electric alternatives that provide the same level of performance as gas in commercial applications. For example, the leading commercial-grade electric leaf blowers deliver roughly half the force (21 newtons) of the most common gas blowers (41 newtons).
- Cost of Electric – Table 2 provides a cost comparison for the typical equipment needed for a landscaping service. In addition to the higher upfront cost of the base equipment, the cost of electric equipment includes the need for redundant battery purchases. Battery performance also degrades over time, requiring routine replacement.
- Electric Makes Noise – Most electric equipment is substantially quieter than gas equipment. In the case of electric leaf blowers, however, the velocity of the air through the nozzle will generate noise. While quieter than gas, the electric leaf blower will still be considered a nuisance noise, particularly if it has to be run longer or if more units need to be run concurrently to achieve the same performance as what would have been achieved with gas.
- Safety and Fire Hazard, Cost of Charging – Most small landscaping businesses store their equipment at their home or the homes of workers. For electric equipment, this also means that most battery charging occurs inside worker homes. In addition to bearing the cost of increased electricity consumption, this also presents a significant hazard if charging is not done properly. Instances of both overloaded circuits and battery ignition have led to house fires.
- Modal Safety and Infrastructure Reliability – While leaving some leaf debris in yards is beneficial for microorganism development, in areas with a lot of tree canopy, such as western Boulder, leaf debris can migrate into roadways and stormwater drainage.
- Customer Satisfaction – Without education and acceptance, customers will expect that service providers deliver the same level of performance and at rates that are competitive. Service providers and workforce will bear the brunt and consequences of customer complaints.
- Staffing Resources – Roughly 70% of all residents and the majority of commercial businesses use some form of landscaping service. Hundreds to even a thousand or more landscaping businesses serve customers in Boulder. Managing education, outreach and enforcement with this large base of both customers and businesses requires dedicated staffing and financial resources to be successful.

**Table 2 – Cost comparison between gas-powered and all-electric landscaping equipment typically used by landscapers (excludes riding mowers)**

|  | <b>Quantity</b> | <b>Gas</b>    | <b>Electric<sup>17</sup></b> |
|--|-----------------|---------------|------------------------------|
| Blower (backpack)                      | 2               | \$840         | \$840                        |
| Blower (handheld)                      | 1               | \$280         | \$280                        |
| String Trimmer                         | 2               | \$820         | \$1000                       |
| Hedge Trimmer                          | 1               | \$550         | \$550                        |
| Hedge Trimmer (extended)               | 1               | \$480         | \$450                        |
| Pole Saw                               | 1               | \$690         | \$620                        |
| Chainsaw                               | 1               | \$370         | \$370                        |
| Self-propelled Mower                   | 1               | \$850         | \$850                        |
| Backpack Batteries                     | 4               | n/a           | \$6000                       |
| Standard Batteries                     | 12              | n/a           | \$3000                       |
| Fast Charger                           | 6               | n/a           | \$990                        |
| Standard Charger                       | 10              | n/a           | \$1000                       |
| <b>Total (sales tax not included):</b> |                 | <b>\$4880</b> | <b>\$15,950</b>              |

## RACIAL EQUITY

Staff and our consulting team (Team) are utilizing the city’s Racial Equity Instrument throughout the course of this project. The instrument is made up of the following six steps:



<sup>17</sup> Battery cost is excluded from the equipment cost and shown as a separate line item.

Currently, the Team is focused on Steps 1 through 4. In utilizing the tool, the Team started by defining the desired outcome as:

*All Boulder residents will benefit from reduced air and noise pollution; the community and service workers will experience improved health and wellbeing; landscaping businesses will retain or even grow their profitability; and the workforce will realize benefits through higher earning potential as part of a “green collar” workforce.*

In considering all data and influencing factors, substantial risk exists associated with trying to achieve this ideal. Racial disparity already exists within the current baseline of landscaping services. Demographically, the majority of customers in Boulder receiving landscaping services are Caucasian and many would also be considered affluent. In contrast, 80% or more of the landscaping workforce are Hispanic and most business owners and workers earn well below the area median income. In addition to the high potential for negative impacts on Hispanic-owned businesses and workforce, there are customer segments that could also realize disparate impact. For example, fixed-income seniors routinely rely on landscaping services and may lack the financial capacity to bear an increased cost of service. Similarly, landscaping service costs already represent a significant portion of Homeowner Association (HOA) dues for multifamily properties. Dues increases can further impact housing affordability for renters and owners. Finally, the majority of landscaping service providers and equipment retailers and distributors are based in surrounding communities, such as Longmont. These communities could benefit from increased sales revenue associated with electric equipment purchases but could also realize harm due to economic impacts on businesses and workers.

See Attachment A for a summary of the Racial Equity Instrument working sessions.

## **COMMUNITY AND BUSINESS ENGAGEMENT**

### **Environmental Advisory Board (EAB)**

Staff presented an update to EAB at their March 1, 2023, meeting. During the discussion, board members raised several concerns and suggestions, including:

- Cost and Equity Concerns:
  - High cost of transitioning to electric equipment.
  - Potential equity concerns and racial disparities, including the consequences of enforcement.
  - Lack of an electric version of gas-powered blowers with the same weight-to-power ratio, durability and efficacy.
  - High cost of purchasing multiple electric blowers and/or batteries.
- Environmental Impacts:
  - Need to educate property owners and service providers on negative impacts of traditional landscaping.
  - Potential for banning leaf blowers for all but two months of the year or requiring raking before blowing, at least for smaller properties.
  - Significant environmental impact of commercial leaf blowers on ozone levels.

- Need for further study of environmental impacts associated with electric equipment.
- Noise Concerns:
  - Possibility of removing noise ordinance exception for landscaping equipment or allowing it only for electric equipment.
  - Concerns about neighboring yards being left with leaf litter.
  - Issue of landscaping equipment primarily a noise concern disguised as environmental one.
  - Practicality of using leaf blowers on certain surfaces or large areas.
  - The possibility of local investment in pilots for emerging technology solutions or implementing a new incentive program for electric equipment adoption.
- Customer Cost:
  - Suggestion that customers bear some of the costs of providers switching to electric.

### Be Heard Boulder Questionnaires

The City of Boulder launched three questionnaires on its online engagement platform, Be Heard Boulder, to evaluate community concerns regarding the use of landscaping equipment. The city sought feedback from three groups: those who live and work in Boulder, rental property owners, and owners/workers of landscaping businesses that operate in Boulder. The questionnaires will be open through April 17.

Full results from the Be Heard Boulder questionnaires will be available for the council discussion on April 27.

### Business Engagement

There is no single means for identifying or connecting with landscaping businesses serving customers in Boulder. To learn from businesses and workers, as well as gather data for the impacts analysis, the project team has utilized several tactics. This includes an on-site visit to Western Disposal and interviews with businesses during yard waste and debris disposal, company shadowing (including shadowing all-electric business), interviews with equipment distributors and retailers, outreach through the Latino Chamber and referrals. The city is also hosting a series of workshops that will include equipment demonstrations and educational seminars. The first workshop took place April 13, 2023. Dates are being finalized for two more workshops for the May/June timeframe.

Highlights of some of the feedback obtained to date include:

- Productivity is critical to their bottom line.
  - Less powerful equipment slows them down.
  - They cannot afford to waste time in the field.
- There is a lack of trust that electric equipment will be reliable.
  - No way to charge batteries in the field and/or recharging takes too long and slows them down.

- Less knowledge of how to troubleshoot equipment when it isn't working.
- There is a high degree of concern over cost impacts.
  - High first cost of equipment.
  - Need to charge more for service due to higher-cost equipment and lower productivity.
- Their customers care about the bottom line and quality of service, not the equipment they use.
  - Customers unwilling to pay premium for electric service.<sup>18</sup>
  - Customers complain if there is debris left on the lawn or walk.
- There is concern about how the operational model will work.
  - Workers must charge batteries in their homes.

### **PILOT VOUCHER PROGRAM**

Staff were successful in obtaining a \$211,774 grant through Boulder County's Sustainability Grants Program to implement a pilot rebate programs for landscaping equipment. The pilot is being administered through Partners for a Clean Environment (PACE).<sup>19</sup> The PACE team worked with AGZA, the Latino Chamber and Boulder County distributors and retailers in developing the program. Under the pilot, small landscaping businesses would receive a voucher for up to 70% of cost for electric landscaping tools. Participating businesses will also receive, at no cost, a smart charging box to provide for safe managed charging, two fire extinguishers and a fire blanket. The goal of the pilot is to test the program design, increase experience with electric equipment and to drive additional participation by landscaping service providers in the city's engagement efforts. The program will launch in April 2023 and will continue through the end of the year.

### **MATRIX OF OPTIONS AND STAFF RECOMMENDATIONS**

Table 3 provides a summary of the different strategies staff have evaluated and are now seeking council feedback on. For each strategy, the following parameters can be considered:

- Zones: Programs and restrictions can be targeted at specific zoning areas, subcommunities, and/or neighborhoods. For example, some municipalities have established quiet zones, usually single-family residential areas, that have different restrictions than higher-density and mixed-use areas.
- Phasing: Multiple strategies could be employed in parallel or sequentially. For example, an education and outreach campaign could be combined with an incentive program. After a period of voluntary adoption, a regulatory approach could then be employed.

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<sup>18</sup> One business reported that they started as an all-electric company but converted to gas because they were losing jobs.

<sup>19</sup> <https://pacepartners.com/>

**Table 3 – Potential strategies that could be considered either independently or in combination.**

| <b>Strategy</b>  | <b>Pros</b>   | <b>Cons</b>  | <b>Recommendations</b>   |
|--|---|--|--|
| <b><u>Business As Usual</u></b><br><br><b>Wait until all-electric technology can meet all existing needs.</b>                          | <p>Enables staff resources to be focused on other council priorities.</p> <p>Least impactful on landscaping industry.</p> | <p>Fails to address air quality issues.</p> <p>Fails to address community noise concerns.</p>                          | <p>Not recommended.</p>  |
| <b><u>Policy Focus</u></b><br><br><b>Advocate for state-level action – sales bans, tax credits, all-electric.</b>                      | <p>Market transformation is more likely to occur when action is taken at the state level.</p>                             | <p>State action might not fully consider local impacts, particularly related to affected workforce and businesses.</p> | <p>Recommended.</p> <p>Regional and state-level efforts will better drive systemic change and could reduce the need for local resources.</p> |
| <b><u>Education and Outreach - Equipment</u></b><br><br><b>Encourage voluntary electric equipment adoption and business education.</b> | <p>Supports industry in making the transition to cleaner solutions.</p>   | <p>Requires investment through city tax dollars.</p> <p>Adoption takes time.</p>                                       | <p>Recommended.</p> <p>Encouraging the transition will both reduce pollution and create conditions for systemic change.</p>                  |

| Strategy  | Pros  | Cons  | Recommendations   |
|---|---|---|---|
| <p><b><u>Education and Outreach - Landscapes</u></b></p> <p>Through Cool Boulder and future initiatives, grow community understanding of sustainable landscaping practices.</p> | <p>Reduces barriers to all-electric transition.</p> <p>Addresses other climate and water resource priorities.</p> | <p>Reducing landscaping service needs without workforce training and transition will impact small businesses and workers.</p> | <p>Recommended.</p> <p>Encouraging the transition will both reduce pollution and create conditions for systemic change.</p> |
| <p><b><u>Advising and Incentives</u></b></p> <p>Drive market transformation through education and financial assistance.</p>   | <p>Supports future regulation.</p> <p>Encourages market transformation.</p>                                       | <p>Likely not to result in material change</p>  | <p>Recommended.</p> <p>Adoption will remain slow if financial and knowledge barriers are not addressed.</p>                 |
| <p><b><u>Sales Ban</u></b></p> <p>Ban the sale of gas-powered equipment from retailers and distributors within the city.</p>  | <p>Provides a market signal</p>   | <p>Easy to buy elsewhere</p>  | <p>Not recommended.</p> <p>Gas equipment is easily obtained in adjacent communities.</p>                                    |



| Strategy   | Pros  | Cons   | Recommendations  |
|--|---|--|--|
| <p><b><u>Electric Only</u></b></p> <p>Require all handhelds and walk-behind mowers be converted to electric.</p> | <p>Reduces pollution.</p> <p>Provides a market signal.</p>  | <p>Cost impacts to both industry and customers.</p> <p>Cost to city operations</p>   | <p>Recommended for future consideration.</p> <p>Focusing on building education and experience with electric alternatives first will reduce barriers to successful implementation.</p> <p>Technology will continue to evolve.</p> |
| <p><b><u>Gas-Leaf Blower Ban</u></b></p> <p>Ban gas powered leaf blowers (no restriction on electric).</p>       | <p>Addresses main issue of concern.</p> <p>Reduces Boulder's contribution to front-range ozone.</p> | <p>Cost impacts for both industry and customers.</p> <p>Cost to city operations.</p> <p>Does not fully address noise issues.</p> | <p>Recommended for future consideration.</p> <p>Focusing on building education and experience with electric alternatives first will reduce barriers to successful implementation. Technology will continue to evolve.</p>        |

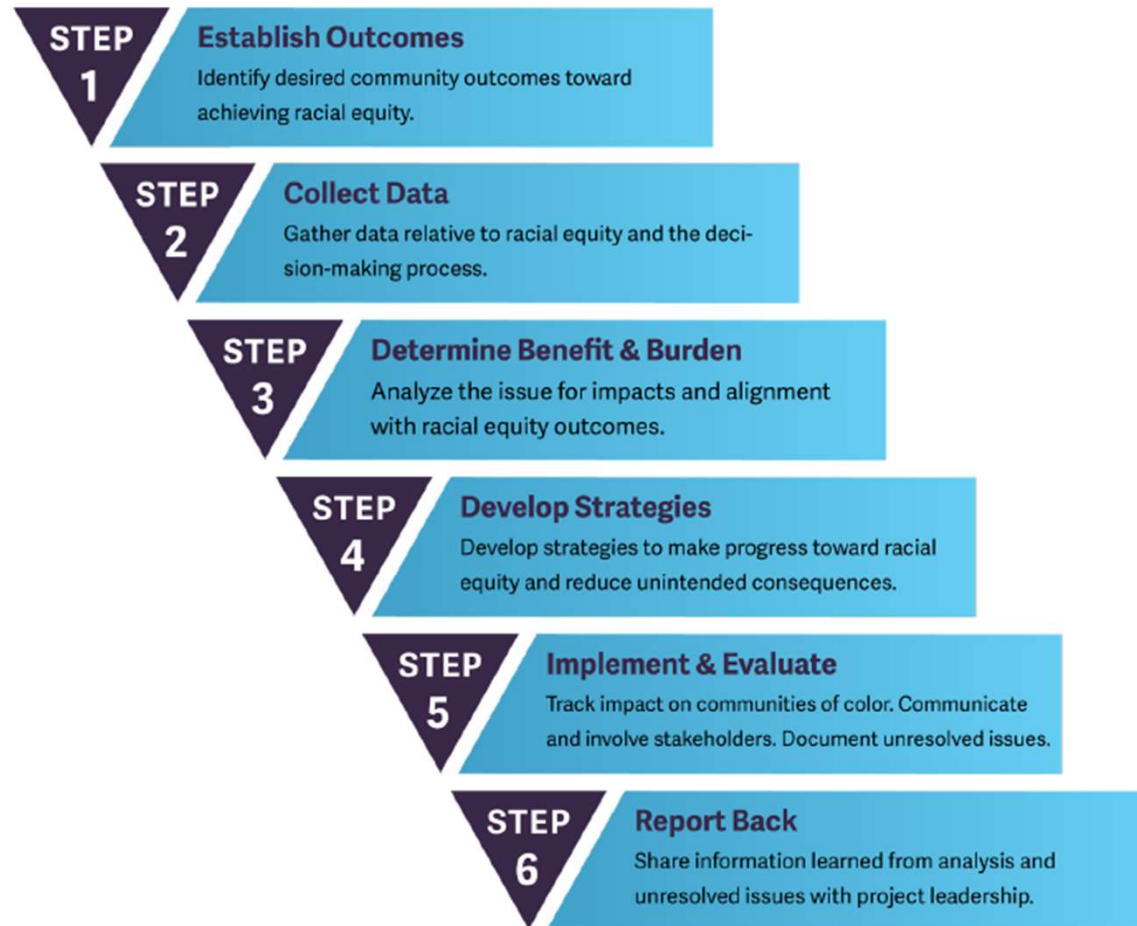
| Strategy  | Pros   | Cons   | Recommendations   |
|---|--|--|---|
| <b><u>Leaf Blower Ban</u></b><br><br>Ban all leaf blower use.   | Maximizes noise reduction.   | Increase likelihood of debris migration across property boundaries and into roadways and stormwater drainage.<br><br>Increases worker fatigue and potential for repetitive injury. | Not recommended.  |
| <b><u>Seasonal Equipment Allowance</u></b><br><br>Restrict which types of equipment can be used when. | Reduces impact while still allowing equipment to be used when it is most critical for productivity.<br><br>Mitigates cost impact on businesses and customers.<br>Provides a market signal. | Potential to increase noise during the allowance period.<br><br>Requires allocation of additional city staffing resources for enforcement.   | Recommended in combination with voluntary strategies should council wish to pursue a regulatory strategy. |

**NEXT STEPS**

If council directs staff to take further steps to address landscaping equipment, staff will conduct additional analysis and engagement on the strategies council wishes to prioritize. Staff will also report back on the pilot voucher program. Staff will also continue education and outreach efforts on sustainable landscaping practices.

**ATTACHMENT**

Attachment A – Racial Equity Instrument



**STEP  
1**

**Establish Outcomes**

Identify desired community outcomes toward achieving racial equity.

- All Boulder residents will benefit from:
  - Reduced pollution and greenhouse gas emissions
  - 40-70% reduction in noise levels
  - Improved community health and well being
  - Improved health and well being of service workers
  - Reduced operational costs for landscapers
  - Increased potential for wages, social image and public perceptions
  - Transition to emerging “green collar” workforce

**STEP  
1****Establish Outcomes**

Identify desired community outcomes toward achieving racial equity.

All Boulder residents will benefit from

## Service Providers

- **Sole proprietors**
- **Workers**
- Mid-sized organizations
- Large enterprises
- Suppliers and vendors

*Predominantly Hispanic*

## Service Receivers

- **Homeowners**
- **Tenants and renters**
- **Multi-unit investors**
- **HOAs and property managers**
- City departments
- Local businesses
- Schools and universities

*Predominantly Caucasian*

**STEP  
1****Establish Outcomes**

Identify desired community outcomes toward achieving racial equity.

**Service Providers**

- **Sole proprietors**
- **Workers**
- Mid-sized organizations
- Large enterprises
- Suppliers and vendors

**Service Receivers**

- **Homeowners**
- **Tenants and renters**
- **Multi-unit investors**
- **HOAs and property managers**
- City departments
- Local businesses
- Schools and universities

**1a Desired Community Results****During Policy Development****Equal Access To:**

- Information
- Training and Certification
- Laws, Rules and Regulation
- Planning and Enforcement
- Decision Makers

**STEP  
1****Establish Outcomes**

Identify desired community outcomes toward achieving racial equity.

**Service Providers**

- **Sole proprietors**
- **Workers**
- Mid-sized organizations
- Large enterprises
- Suppliers and vendors

**Service Receivers**

- **Homeowners**
- **Tenants and renters**
- **Multi-unit investors**
- **HOAs and property managers**
- City departments
- Local businesses
- Schools and universities

**1a Desired Community Results****During Deployment and Executions****Equal Access To:**

- Grants and Incentives
- Training and Certification
- Transition Support
- Information
- Laws, Rules and Regulation



**STEP  
1**

**Establish Outcomes**

Identify desired community outcomes toward achieving racial equity.

**1b Desired Organizational Outcomes**

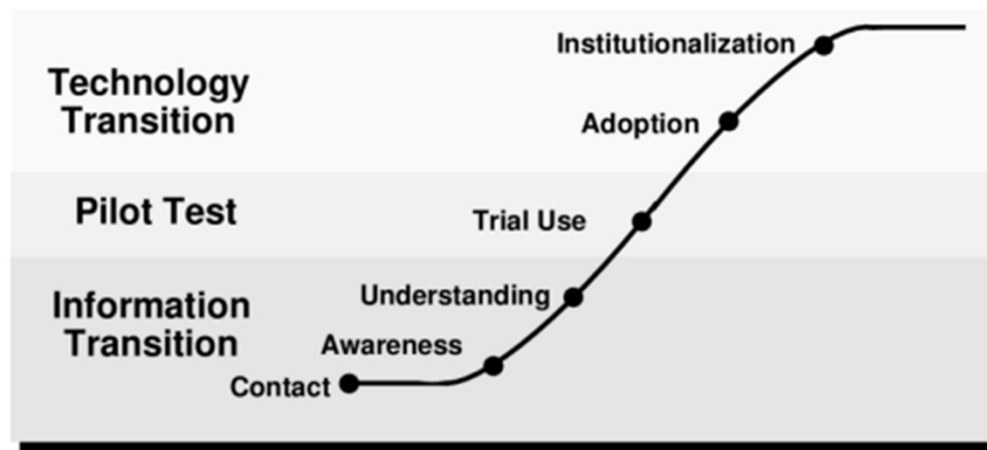
- Achieves desired community results (1a)
- Is all-inclusive with equally shared benefits among all racial and socio-economic groups, including outside service providers
- Is efficiently and effectively adopted by residents, commercial property owners, service providers and equipment distributors/dealers
- Directly contributes to improvements in community health outcomes
- Improves collaboration among various city, county and state government departments and agencies under the common set of sustainable living objectives

**STEP  
1****Establish Outcomes**

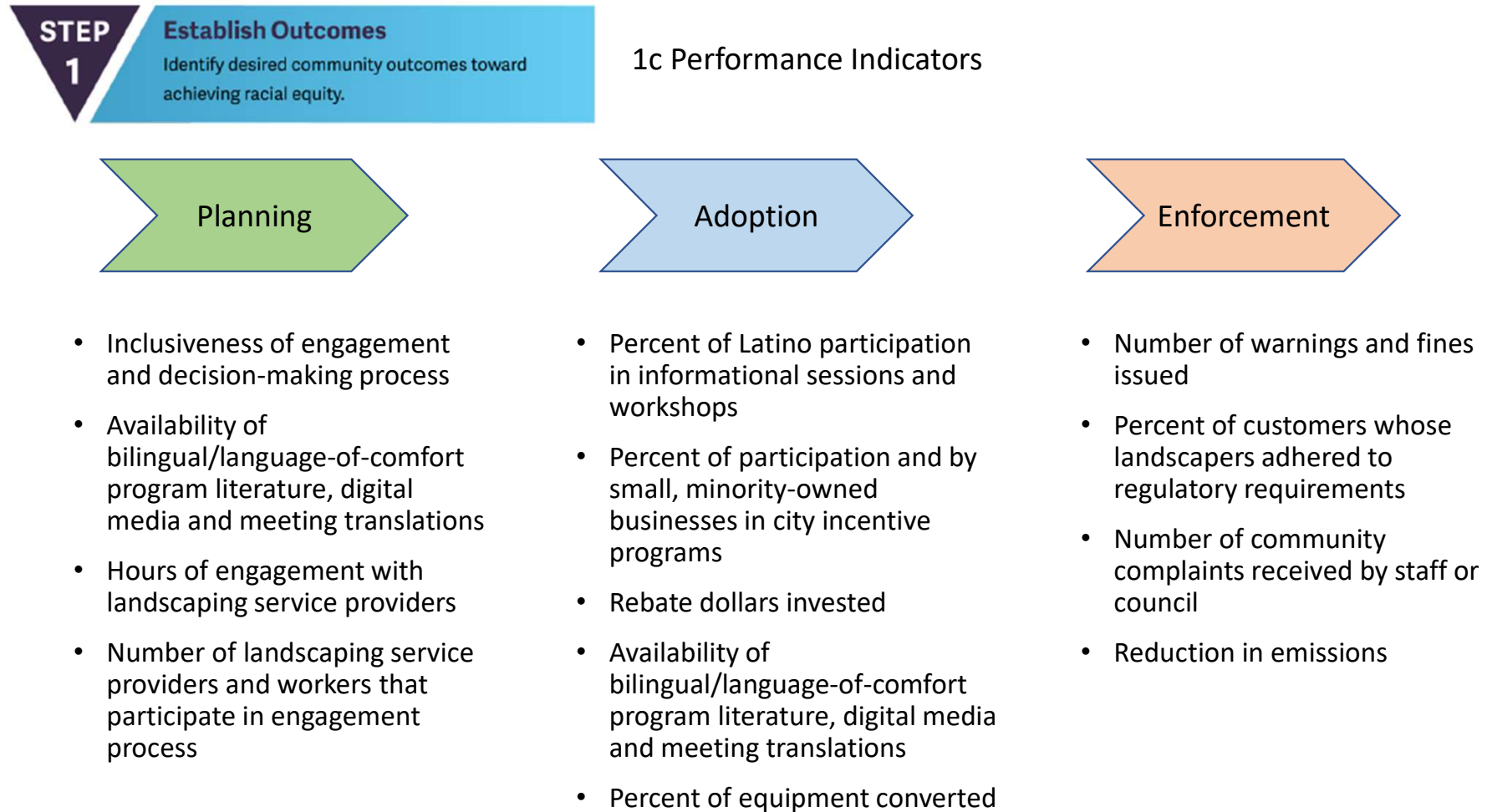
Identify desired community outcomes toward achieving racial equity.

**1b Desired Organizational Outcomes**

Successful racial equity strategy will consider and plan for the key stages of the transition process.



Ensure Racial Equity is addressed at each phase and focus on the user journeys of the Service Providers.



**STEP  
1**
**Establish Outcomes**

Identify desired community outcomes toward achieving racial equity.

## 1d Impacted Populations and 1e Issue Areas

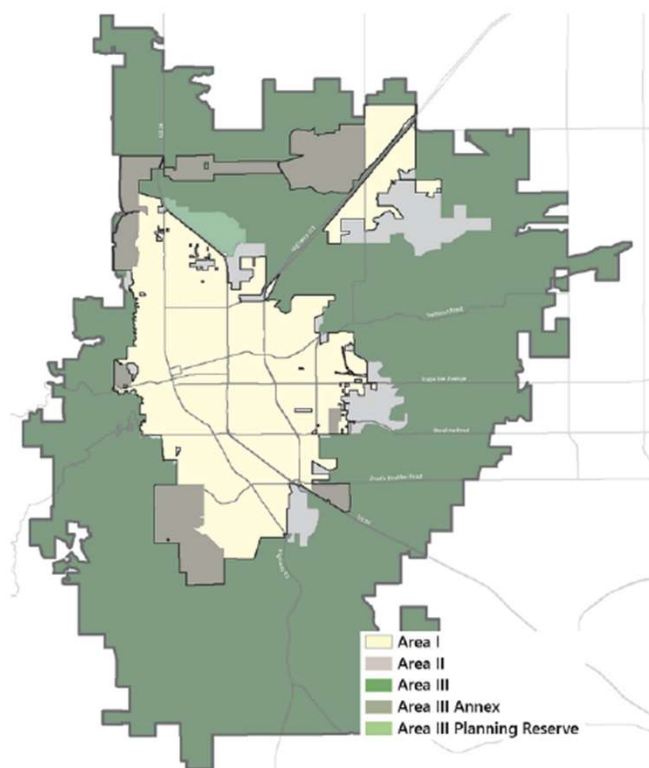
- **Businesses and Workforce**
  - 2000-2500 landscaping microbusinesses and small operator serving Boulder County, including the city (affordability, technology, jobs, health, economic development, government decision making)
  - ~80% of workers are Hispanic (jobs, health, safety, technology, civic engagement)
- **Multi-family and commercial properties**
  - Building occupants (environment, health)
  - Surrounding neighbors (environment, health)
  - Tenants/HOA dues payers (affordability)
  - Business community (economic development)
- **Single-family homes**
  - Residential neighborhoods (environment, health)
  - Fixed income seniors, lower income households, renters (affordability)
  - Workforce (jobs, economic development)
- **Public agencies and universities largely in source maintenance**
  - Building occupants (environment, health)
  - Surrounding neighbors (environment, health)
  - Taxpayers (jobs, economic development)

**STEP  
2**

**Collect Data**

Gather data relative to racial equity and the decision-making process.

**Community Profile**



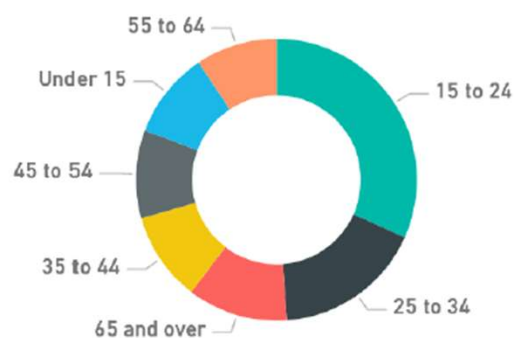
**27.9** City Square Miles      **72** City Open Space Square Miles

**108,250**

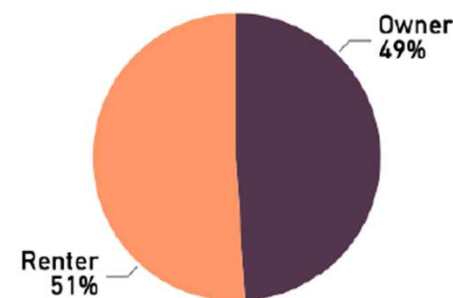
**City Population**

120,156 Service Area Population

**City Population by Age**



**Rental vs. Owner Occupied Housing Units**



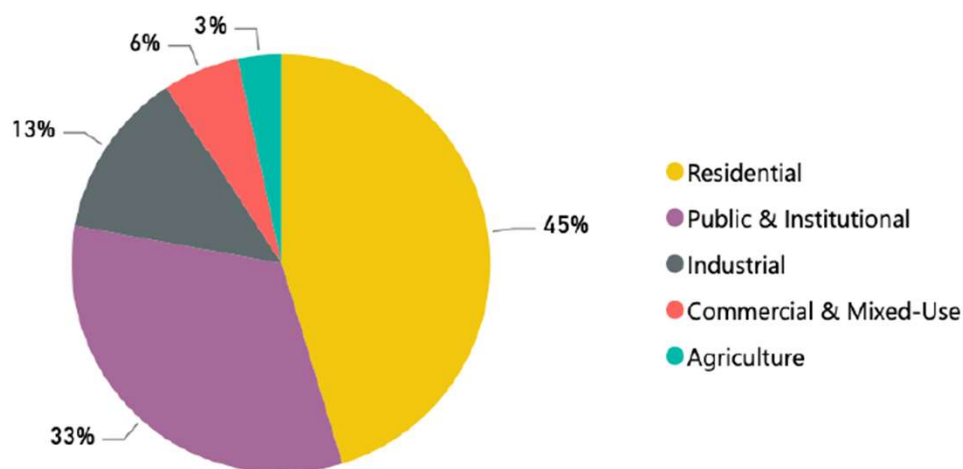
**STEP  
2**

**Collect Data**

Gather data relative to racial equity and the decision-making process.

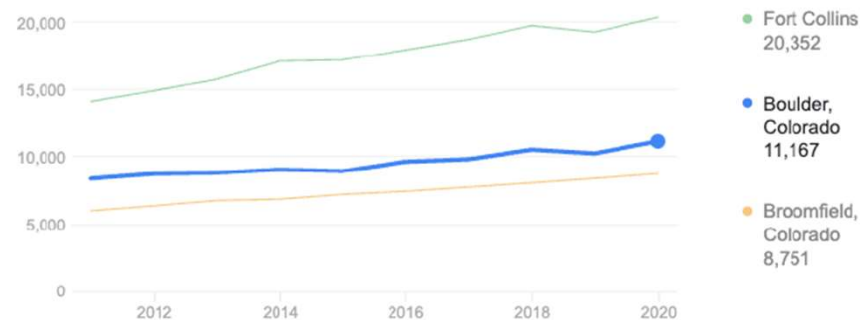
## Community Profile

### Land Area by Zoning



### Boulder / Hispanic / Population

**11,167 (2020)**



United States Census Bureau

## STEP 2

### Collect Data

Gather data relative to racial equity and the decision-making process.

## Community Profile



# 1.02%

**Building & Grounds  
Cleaning &  
Maintenance  
Occupations**

**Building & Grounds Cleaning &  
Maintenance Occupations**

GROUP

|                        |           |
|------------------------|-----------|
| YEAR                   | 2020      |
| PEOPLE IN WORKFORCE    | 610       |
| MARGIN OF ERROR        | ± 179     |
| WORKFORCE GROWTH       | -29.3%    |
| MEDIAN EARNINGS        | \$51,945  |
| MARGIN OF ERROR        | ± \$7,186 |
| MEDIAN EARNINGS GROWTH | 13.2%     |

- Most service providers reside outside of Boulder
- Must account for informal employment, undocumented workers and "under the radar" micro-businesses

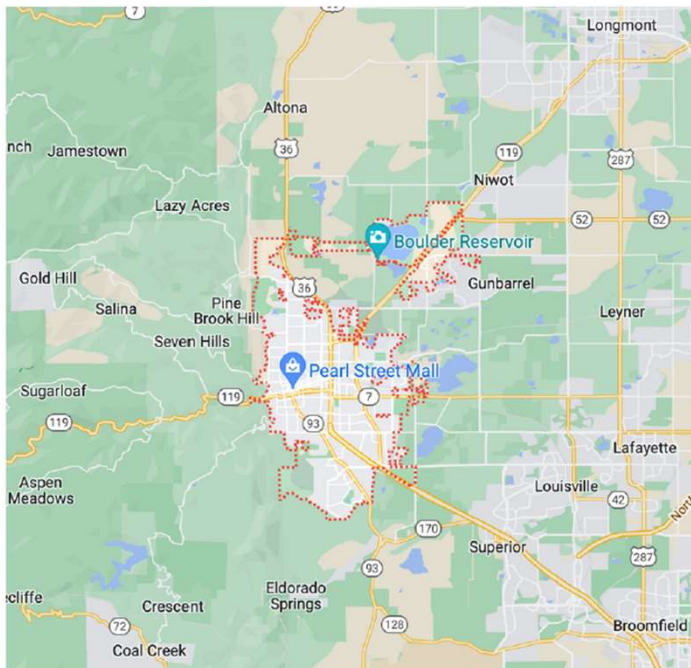


## STEP 2

### Collect Data

Gather data relative to racial equity and the decision-making process.

### Geographic Impacts



- Most businesses serving Boulder are based out of communities other than Boulder
  - Longmont
  - Superior
  - Louisville
  - Lafayette
  - Broomfield
  - Other areas (Arvada, Federal Heights, Loveland)



**STEP**  
**3**

**Determine Benefit & Burden**

Analyze the issue for impacts and alignment with racial equity outcomes.

Influencing factors



undocumented  
workforce



fear and lack  
of trust



not encouraged or  
unwilling to participate  
in public sessions



lower income  
levels



language  
barriers



lower higher  
education rates

# STEP 3 Determine Benefit & Burden

Analyze the issue for impacts and alignment with racial equity outcomes.

## Data Gathering Through Engagement



1 to 3 hr shadowing sessions & conversations w/ 16 different landscapers (micro-businesses, sole ownerships to 30+ employee operations)

12 years engaging directly w/ the Hispanic community in multiple programs such as CORE

Interviews with local shops and retailers in Boulder of different profiles and target clientele

EARL'S  
SAW SHOP

MAC  
EQUIPMENT, INC.

THE  
HOME  
DEPOT

MCGUCKIN  
HARDWARE

LOWE'S

see Trip Report for more information

# STEP 4

## Develop Strategies

Develop strategies to make progress toward racial equity and reduce unintended consequences.

## Best Practices



Education & Training



Financial Incentives



Demographic Focused Marketing



Strategic Partnerships



**STEP  
4**

**Develop Strategies**

Develop strategies to make progress toward racial equity and reduce unintended consequences.

**Best Practices (cont.)**

**Language of Comfort**



**Boots-on-the-Ground  
(Direct Engagement)**



**Consistent Targeted  
Communication**

