

ULUC Sustainability Comments

Next Generation Advisory Committee

Sustainability Subcommittee

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Introduction

We believe at the Next Generation Advisory Committee that it is necessary to have these conversations about sustainability because, as Littleton is planning for the next 40 years of the city, we as the Next Generation of Littleton residents will be the members of the community who will be living with the choices of the current policy decisions. We are committed to see a ULUC code that is proactive in terms of prevention of climate change. We think this is possible through the promotion of such sustainable practices as rainwater preservation, edible landscape, mature tree canopy preservation, diversification of tree canopy, and parking lot swales, just to name a few of the topics we strongly encourage City Council and City Staff to consider. While the creation of a long-term sustainability plan is forthcoming, the land use code is a primary tool for implementing issues of sustainability. At this time the vast majority of climate scientists agree that immediate-term action is crucial to staving off the worst impacts of climate change, and actions taken at the local level will have some of the greatest impact on this eventual outcome.

While we understand the constraints associated with time, resources, and budget which impact the progress of the ULUC project, the Next Generation Advisory Committee feels the issues surrounding sustainability and environmental consciousness are far too important to be pushed to a later date. Littleton has a long history of visionary environmental sustainability within the community, but we need to regain this passion and dedication to the cause. We believe the protection of the environment should be a priority for the City of Littleton and would like to use this opportunity to see topics of sustainability addressed at every stage of the ULUC project. Finally, we recognize that some of our comments will be viewed as related to policy rather than code, but feel all consideration should be taken to plan for Littleton's sustainable future. Thank you for your time and careful consideration of our comments.
-The NGAC Sustainability Subcommittee

Comments on the Consolidated Downtown District

Comments on Sec. 10-2-18 (E) - Parking and Access - Page 63

With regards to 10-2-18 (E), in addition to planning for stormwater run off, parking facilities in the Downtown District of Littleton could be reimaged as a green asset for the benefit of the whole Littleton Community. The parking industry has developed a number of suggestions to support sustainable solutions for parking that don't detract from the community's continued commitment to driving cars. The team behind Tim Haahs multi-disciplined engineering and architectural design firm generated a list of ways to think about sustainability for parking in communities.¹

- Prioritizing parking for carpools, fuel efficient vehicles, or vehicles that are low-emitting
- Pricing for parking that incentivizes alternative, more sustainable modes of transportation

¹ Yoka, R. *Obstacle to Opportunity: The Evolution of Sustainability and Parking*. Timothy Haahs &

- Creating shared-use parking for residential, office, entertainment, etc. to minimize need for lots with distinct parking usages.
- Ensuring recycling facilities on parking premises to reduce waste
- Using native plantings and water-saving fixtures to minimize need for irrigation in green spaces adjacent or within parking facilities
- Using reflective coating on surface lots to reduce the effect of “heat islands”
- Planning for energy efficiency through the use of energy efficient lighting and mechanical systems in parking facilities
- Designating spaces for electric vehicle charging and installation of EV charging stations to incentivize use of emission-reducing vehicles
- Sensors to help patrons understand where available spots are in a parking facility can reduce emissions
- Using permeable paving materials for parking facilities enables more effective stormwater management and improvement of water quality
- On parking structures and even in parking surface lots, incorporating renewable energy technology can or green roofing systems can generate energy and reduce urban heat island effect.

Comments on Sec 10-2-18 (F) - Downtown Building Lighting - PAGE 70

Sustainability should be considered for downtown building lighting. Where possible, solar or other energy efficient options should be pursued. Efficient bulbs should be required for all light fixtures and types of approved bulbs (LED, especially) should be spelled out explicitly. Efforts to reduce artificial lighting at night (known as ALAN) can help protect the surrounding ecosystem and minimize impact on wildlife. Key methods for reduction of ALAN are 1) monitoring light intensity, 2) turning lights off when they are no longer needed, and 3) selecting light colors that minimize obstructive effects.²

Comments on Sec. 10-4-17.5 - Parking Lot (Off-Site) AND Sec. 10-4-17.7 - Office - PAGE 160

Similar to with Sec. 10-2-18 (E) - Parking and Access, sustainability considerations should be made for off-site parking and office. Where possible, efficiency should be incentivized and encouraged among patrons of both parking lots and offices. Considerations should be made for building materials that enhance the sustainability of a facility. Recycling should be made available in all facilities to encourage recycling practices and reduce waste. Stormwater management and minimization of water use should be account for both in materials used for parking surfaces and adjacent green spaces. Where possible, renewable energy and green roof technology should be encouraged both to minimize energy use and combat the urban heat

² Doulos, L., Schroer, S., & Galatanu, CT. *Sustainable Outdoor Lighting for Reducing Energy and Light Waste*. March 2016 Conference: Improving Energy Efficiency in Commercial Buildings & Smart Communities Conference, At Frankfurt, Germany.
https://www.researchgate.net/publication/316860637_Sustainable_outdoor_lighting_for_reducing_energy_and_light_waste

island effect. Where possible, mixed use should be maximized to ensure effective and sustainable use of limited space in our community.

Comments on 10- 4-18 (Q) Urban Design Techniques - PAGE 227 and Comments on 10-4-18 (R) Additional Standards for Building Materials - PAGE 235

Regarding urban design techniques and additional standards for building materials we should consider the implementation of more sustainable materials for walls and other building elements. The code revisions refer to the use of “high quality, natural, and durable materials” to be used in the Downtown Building Types section. The NGAC would like to see sustainable and environmentally friendly materials also be included, highlighted and, most importantly encouraged in any new and redevelopment within the City of Littleton. A sustainable building material is one that generates less waste, uses renewable raw materials, and is more durable than traditional building materials.

For example, the City of Littleton could start LEED (Leadership in Energy and Environmental Design) certification for new buildings from the U.S. Green Building Council. Buildings that use green materials have many positive effects like fewer air pollutants because ecofriendly building materials reduce VOC (volatile organic compound) emissions, there is increased productivity for staff, and green buildings use 25% less energy and 11% less water than traditionally constructed buildings.³ Some ecofriendly building materials that should be considered are products that have an environmental product declaration, which is an independently verified and registered document that communicates transparent and comparable information about the life-cycle environmental impact of products.⁴ By looking at the life cycle for the materials we use for our buildings we can insure they are more sustainable.

Other ecofriendly materials that could be considered for buildings are Forest Stewardship Council Approved Wood, the Forest Stewardship Council focuses on sustainable forest management and other sustainable practices.⁵ Other examples of sustainable building materials are recycled content drywall, recycled glass, grasscloth wallpaper, ferrock, hempcrete, bamboo, AshCrete, Timbercrete, low VOC or zero VOC paint, non-toxic stains and sealers, slate tile, clay tile, fiber cement shingles, FSC wood shakes, recycled metal roofing panels made out of aluminum, steel, copper or alloys that contain different metals and a green roof which incorporates plant life and helps with insulation for the building.⁶ Overall if we

³ Nowakowski, K. (2017, December 22). Green Buildings Could Save Our Cities. Retrieved July 27, 2020, from <https://www.nationalgeographic.com/environment/urban-expeditions/green-buildings/benefits-of-green-buildings-human-health-economics-environment/>

⁴ EPD International AB. (2017, October 25). What is an EPD? - The International EPD® System. Retrieved July 27, 2020, from <https://www.environdec.com/What-is-an-EPD/>

⁵ Forest Stewardship Council. (2020). About us. Retrieved July 27, 2020, from <https://www.fsc.org/en/about-us>

⁶ Bernard, M. (2019, October 18). What To Look For When Buying Eco-Friendly Building Materials. Retrieved July 27, 2020, from <https://www.thespruce.com/eco-friendly-building-materials-1821766>

increase our specifications in terms of what materials we use for our buildings and make sure that they are sustainable we can help decrease our impacts on the environment, save money through using more effective water and energy conservation techniques and improve our air quality in our buildings by preventing the use of products with high volatile organic compound concentrations. The NGAC strongly urges the City to encourage the use of renewable building materials within the zoning code as much as possible.

Comments on Sec. 10-2-18 (H) - Downtown Greenspace and Tree Protection Requirements - Page 72

Subsection 1

In regard to the stated purpose and intent of this section, the Next Generation Advisory Committee (NGAC) strongly supports the inclusion of items 1(c) and 1(d) which are critical for long term sustainability efforts.

Subsection 3(a)

NGAC is in support of including more detailed language and clear standards around “xeric landscaping practices and techniques.” As is done in other parts of the ULUC, NGAC advocates for inclusion of an external reference standard (for example, from Colorado State University Extension: <https://extension.colostate.edu/topic-areas/yard-garden/xeriscaping-creative-landscaping-7-228/> or a comparable guideline) to ensure clearly stated sustainability standards are incorporated into the ULUC. Additional verbiage that encourages the selection of low volatile organic compound (VOC) producing trees is also encouraged.

Table 10-2-18(H)-1.

- Plazas: Allowing for the development of an open space in which the majority of the area will be covered with impermeable construction materials seems counterproductive to the stated purpose 1(c) since it will directly contribute to further urban heat island effects. If the plaza is felt to be an essential public open space standard, the inclusion of a shade tree requirement, either based on number/size of trees, or percent shade coverage, could help mitigate this effect.
- Common Green: An open space primarily composed of grass requires intensive water usage and is not an ideal option from a sustainability perspective. As with plazas, the inclusion of a shade tree requirement could help to further achieve purpose 1(c) and also reduce the space dedicated to grass.
- Rooftop Garden: With the many benefits rooftop gardens have on both the urban heat island effect and energy consumption within the building,⁷ NGAC would like to see this option incentivized over other open space options in the ULUC.

⁷ U.S. Environmental Protection Agency. 2008. "Green Roofs." *Reducing Urban Heat Islands: Compendium of Strategies. Draft.* <<https://www.epa.gov/heat-islands/heat-island-compendium>>.

- Parklet: NGAC has some concern about the inclusion of parklet as an open space option. Parking is at a premium in downtown Littleton and the development of parklets would further exacerbate this issue. From a sustainability perspective, it would be unfortunate if this option were selected preferentially over other open space options as the parklet represents a minimal increase in green space. While this is likely not an ideal option for the downtown area, the parklet might have more utility in other areas within the city.

In addition to the six types of Public Open Spaces included in Table 10-2-18(H)-1, NGAC sustainability subcommittee encourages inclusion of community gardens in the zoning code. Community Gardens offer multiple physical and mental health benefits in addition to the creation of additional green space within the City of Littleton.⁸

Finally, the NGAC sustainability Subcommittee would like to promote foraging in public open spaces and urge the city to facilitated and encourage this activity.

Subsection 5(d)

NGAC advocates for the removal of fences or walls as a requirement in buffers. The impermeable materials allowed in construction of these barriers are counterproductive to the stated purpose 1(c) as it will directly contribute to further urban heat island effects.⁹ If fences or walls are a necessary buffer component and can't be removed, NGAC advocates for a focus on selection of sustainable materials.

Subsections 7(c)(iii) and (d)

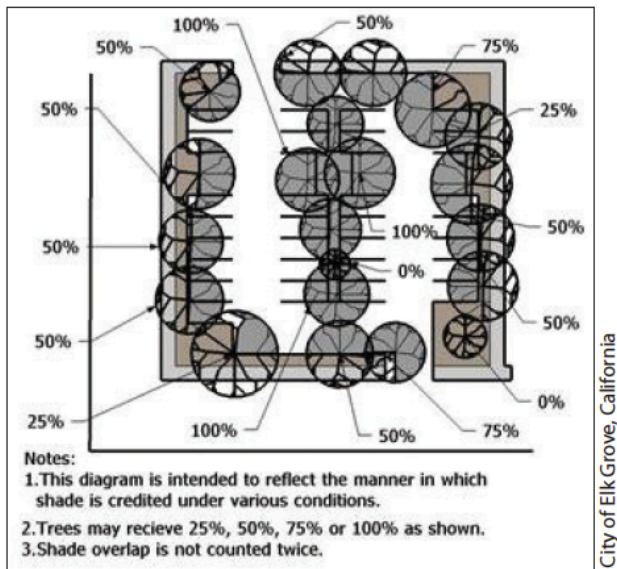
NGAC encourages a modification of the shade tree requirement to focus on percent area shaded at tree maturity (see figure), rather than a tree spacing requirement as currently outlined, since ensuring a high percentage of shade coverage is the ultimate goal of these requirements. According to the EPA, tree shade can keep parked cars cooler, which lowers evaporative emissions of volatile organic compounds (VOCs), a critical precursor pollutant in the formation of ground-level ozone. As an example, one analysis predicted that light-duty vehicle evaporative VOC emission rates throughout Sacramento County could be reduced by 2 percent per day if the community increased the tree canopy over parking lots from 8 to 50 percent.¹⁰

⁸ US Centers for Disease Control and Prevention. "Healthy Places: Community Gardens" <https://www.cdc.gov/healthyplaces/healthtopics/healthyfood/community.htm>

⁹ U.S. Environmental Protection Agency. 2008. "Heat Island Reduction Activities." *Reducing Urban Heat Islands: Compendium of Strategies. Draft.* <<https://www.epa.gov/heat-islands/heat-island-compendium>>.

¹⁰ U.S. Environmental Protection Agency. 2008. "Trees and Vegetation." *Reducing Urban Heat Islands: Compendium of Strategies. Draft.* <<https://www.epa.gov/heat-islands/heat-island-compendium>>.

Figure 1: Parking Lot Shade Guidelines¹¹



Shade diagrams, such as this one from Elk Grove, California, help determine if planned or actual vegetation meet the communities guidelines.

Subsection 7(e)(i)(II)

NGAC advocates for the removal of a masonry wall option within the parking area screening section. As mentioned above, this type of construction material contributes to the urban heat island and is in conflict with purpose 1(c).

Subsection 11(c)

NGAC appreciates and strongly supports the inclusion of these native mature tree protection standards within the ULUC.

Comments on Sec. 10-2-18 -5C- Vehicle Parking Credits and Reductions- PAGE 67

NGAC applauds the efforts of the city to encourage the use of public transportation by providing a reduction of parking requirements for businesses providing RTD passes to all employees and residents. However, we have a few questions that we believe should be more fully discussed within the code. For example, how long do these passes need to be provided? Additionally, how will this program be monitored to ensure compliance?

¹¹ U.S. Environmental Protection Agency. 2008. "Heat Island Reduction Activities." Reducing Urban Heat Islands: Compendium of Strategies. Pg 12. <<https://www.epa.gov/heat-islands/heat-island-compendium>>.

Subsection (G)4 Rooftop Equipment

NGAC appreciates and strongly supports the inclusion of solar panels within this section. However, we would also like to see the city advocate for the use of solar panels on all public, private, and commercial buildings.

Additional Areas for Consideration

Water Conservation Language

The code should express encouragement of water conservation, in general. While Littleton is not a water provider, careful stewardship of water resources is critical to environmental sustainability and should be included as a principle in any proposed changes to the zoning codes.

Wildlife Corridors

According to the US Fish and Wildlife Service, wildlife corridors are “vital to connecting and maintaining safe wildlife corridors for birds, fish and mammals. The more crowded and developed our world becomes, the more critical these pathways become.”¹² The movement of animals within our city needs to be accounted for in any zoning and land use plan in all areas of the City of Littleton. Connections for wildlife in Downtown Littleton in particular, must be maintained as the downtown district provides a necessary connection between the South Platte River to the West and Slaughter House Gulch to the East.

Urban Heating

As Littleton becomes more densely developed we are seeing the effects of the creation of an Urban Heat Island, especially in the Downtown District. An Urban Heat Island is the effect created as open space is converted to buildings, roads, and other paved and impermeable surfaces.¹³ These changes cause urban areas to become warmer than their surrounding areas. An Urban Heat Island effect occurs both on the surface as well as in the air and can lead to additional environmental impacts such as temperature inversions and increased air conditioning usage. We urge the City to keep these factors in mind as they consider the zoning changes in the Downtown Littleton District. Especially the proposed change to the city owned property at the corner of W Berry Ave and S Prince St from Governmental/Instructional land use to Downtown Mixed Use. The current land use is an example of Borrowed Green Space that should be encouraged and maintained whenever and wherever possible to reduce the impact of the previously discussed. Heat Island Effect in the Downtown Littleton area. See Appendix 1- Borrowed Space Handout and Appendix 2- Borrowed Space in Littleton, CO

¹² US Fish and Wildlife Service, “Wildlife Corridors.”

<<https://www.fws.gov/refuges/features/wildlife-corridors.html>>

¹³ US Environmental Protection Agency, “Learn About Heat Islands.”

<https://www.epa.gov/heatislands/learn-about-heat-islands>

Stormwater

This section was compiled with assistance from South Metro Land Conservancy

As a Municipal Separate Stormwater System (MS4) permit holder, Littleton has a responsibility to manage both the quantity of quality of stormwater produced in the city. Impervious surfaces generate more stormwater than other surfaces and will be especially relevant in the downtown area, which is intensely paved. Currently the requirements of the MS4 permit are siloed from the zoning codes and these two regulatory responsibilities need to be married together. Some areas where the two efforts overlap are listed below.

- We encourage the City to resist the development of surface parking lots and widening the alleyways to avoid more impervious surface. Where increasing impervious areas cannot be avoided, the use of regional cisterns should be considered following the practices at Sterling Ranch. To be clear, it's best to avoid increasing impervious surfaces but where it can't be avoided, allowing for construction of cisterns should be included into the zoning code.
 - When paving is necessary, we also strongly urge the city to advocate and encourage the use of permeable pavement techniques such as the use of the grasscrete technique. Grasscrete is a method of laying concrete flooring, walkways, sidewalks, and driveways in such a manner that there are open patterns allowing grass or other flora to grow. While this provides the benefit of reducing concrete usage overall it also improves stormwater absorption and drainage.
- Consider implementing new treatment methods to preserve the health of neighbourhoods and larger waterways through the instillation of stormwater planters. These planters collect stormwater runoff and filter it through the planter. The soil and roots of the plants filter out pollutants as the water moves through the planter. Additionally, the plants catch debris and stop it from entering the water system. Brighton Boulevard in Denver has recently installed innovative stormwater features that could be suited to Downtown Littleton.
- Currently the waterway running through the downtown area, Little's Creek, has been channelized and sunk below surface grade, separating it from people and diminishing it's value as an amenity. Consideration should be given to include encouragement of projects that renovate the waterway, turning it back into a community amenity and connecting people to it, much like the ongoing work along the South Platte River.
- Permanent stormwater control feature maintenance – especially in Skunk Hollow in the Downtown area, there is an opportunity to incorporate environmental improvements with changes in the zoning codes. For example, xeric landscaping materials should be incorporated in the stormwater improvements and potentially be used as a model for other areas in downtown. Littleton could both comply with their MS4 permit and model stormwater protection becoming an amenity in the downtown area. The details of how that could happen should be included in the proposed zoning code changes to the downtown area and incorporated into improvements being planned in Skunk Hollow.
- Encourage Stormwater Best Management Practices (BMPs) – there is a field of study about effective ways to control stormwater. BMPs should be considered and incorporated into any zoning changes. The only way Littleton is going to achieve compliance with it's MS4 permit responsibilities is if the requirements are woven into all land use activities, including zoning codes.

Composting

Littleton should consider incorporating onsite composting into the land use code. Composting may be particularly practical in denser areas such as downtown.

Energy Efficiency Standards

We would like to see the City of Littleton adopt minimum energy efficiency standards for all new construction and redevelopment across the city. Additionally, in an effort to increase affordable housing within the city, it is important to keep in mind that affordable housing options must be energy efficient because low-income individuals cannot afford the market driven fluctuations of energy bills.

Renovation vs New and Redevelopment

Finally, NGAC would like the City of Littleton to encourage renovation and refurbishment of all properties across the City as the preferred use of existing buildings. According to a study of commercial and residential buildings by the Preservation Green Lab of the National Trust for Historic Preservation, the benefits of reusing and renovating buildings outweighed the benefits of constructing new energy-efficient structures over an assumed 75-year lifetime. The results of the study showed that a new building that is 30% more efficient than the average building takes 10 to 80 years to overcome the negative climate change impacts resulting from construction. Therefore, even a LEED Platinum building incurs a carbon debt during construction that it can take years to pay off.¹⁴ The study also showed that roughly 82 billion square feet of existing space will likely be demolished and replaced between 2005 and 2030, representing about 25% of the existing building stock in the U.S. which would account for approximately 15% of their county's total CO2 reduction targets over the next decade.¹⁵ By advocating for the renovation of existing buildings, using sustainable techniques such as the inclusion of solar panels, low flow water fixtures, LED lights, etc., the city will be able to make an important contribution to reducing human carbon emissions.

Density in Downtown Littleton

NGAC would like to encourage sensible, logical density allowances across the city, but especially in the Downtown District. As the most urban of Littleton's districts, it is important to keep in mind the many long-term environmental impacts allowing for greater density in this area will have for Littleton and surrounding areas. We appreciate you taking the time to carefully consider all outcomes when making these decisions as you are not just planning for today- but building the Littleton of tomorrow. The Littleton the Next Generation of Littleton residents will inherit.

¹⁴ Sifferlin, Alexandra. "LEED From Behind: Why We Should Focus on Greening Existing Buildings." Time Magazine. <<https://science.time.com/2012/01/27/leed-from-behind-why-we-should-focus-on-greening-existing-buildings/>>. 27 Jan 2012.

¹⁵ Ibid.

BORROWED SPACE

The concept of **borrowed space** refers to the idea that open space on certain properties can be “borrowed” by residents or occupants of adjoining properties, thereby expanding their view of open space from their own property. Borrowed space can involve open areas on both public and private properties, including lakes, reservoirs, rivers, creeks and ponds.

While neighbors and visitors may have access, even in the case of some adjoining private property, it is visual versus physical access to open space that is borrowed. Such borrowing of visual openness continues literally forever in the case of public parks, trails, greenways and other land in public ownership or otherwise dedicated to ongoing public use.

Public borrowed space can add to the greater sense of openness that is already found in Rural, Estate and Suburban character areas. In areas with Auto Urban and Urban character, the ability to borrow the open space provided by public parks and areas of water is especially valuable. The Mary Carter Greenway and South Platte Park are classic examples of public borrowed space amid developed areas of Littleton.

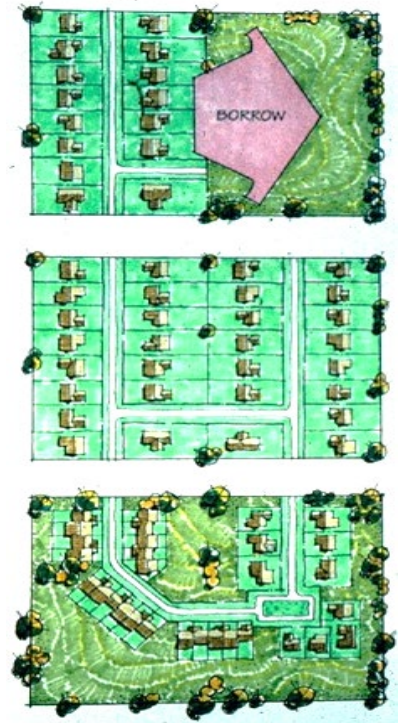
Private borrowed space may also involve land that is intended to be preserved as open space for the long term, with minimal or no land development activity. More often, however, it is temporary borrowed space involving vacant land that will eventually be developed. The accompanying graphic, in the top view, illustrates how residents of an area enjoy the benefit of undeveloped private land on an adjacent property. They may experience a sense of loss as the adjacent property also changes to further residential development, as shown in the middle view. Depending on the nature of the developments, the character of the broader area may transition given the overall decline in quantity and visibility of open space. The bottom view illustrates how a cluster development approach maintains some amount of permanent open space for all to enjoy, both on the subject and adjacent properties.

The accompanying **map of Borrowed Space in Littleton** shows the many and varied locations from which residents and others can visually borrow open space. This is primarily public open space given the extent of parks, trails, greenways and water features found in the community. As Littleton is nearly a built-out city, only a small proportion is borrowed space from privately-owned properties.

The community vision and guiding principles adopted by Littleton City Council in December 2018 emphasize stewardship of assets and the need to protect the community’s “cherished natural setting in harmony with new development and redevelopment.” The Envision Report also cites core values in Littleton, which include a passion for and/or a commitment to:

- Stewardship of river and open space assets;
- The integrity of natural resources and Littleton’s open space endowment; and
- The quality of both open space and the built environment.

Goals and policies in the City’s new Comprehensive Plan will build on and reinforce Littleton’s overall vision and guiding principles. Given the values and priorities cited above, the concept of borrowed space and its contribution to community character will be an important consideration during future land use planning discussions for Envision Littleton.

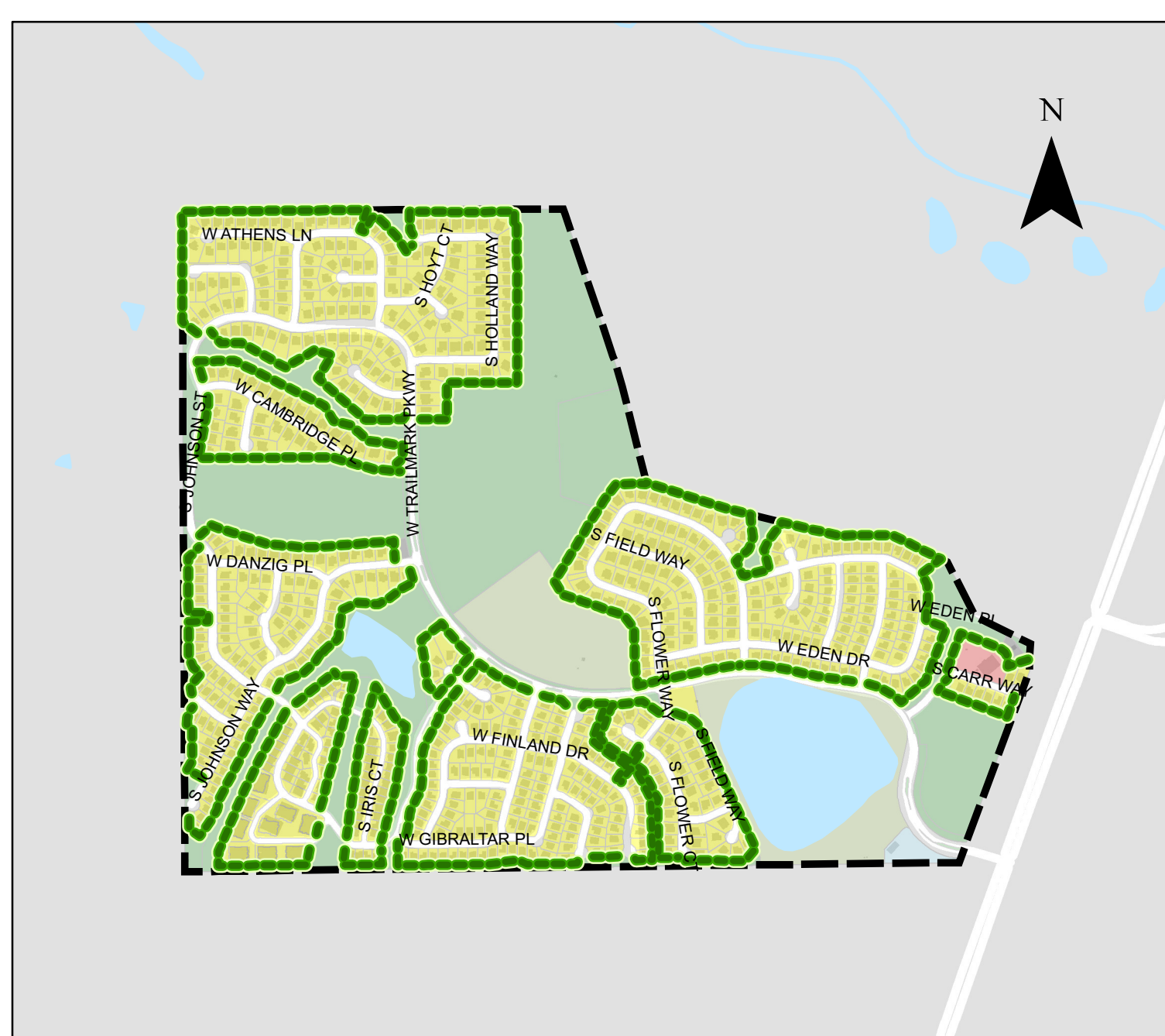
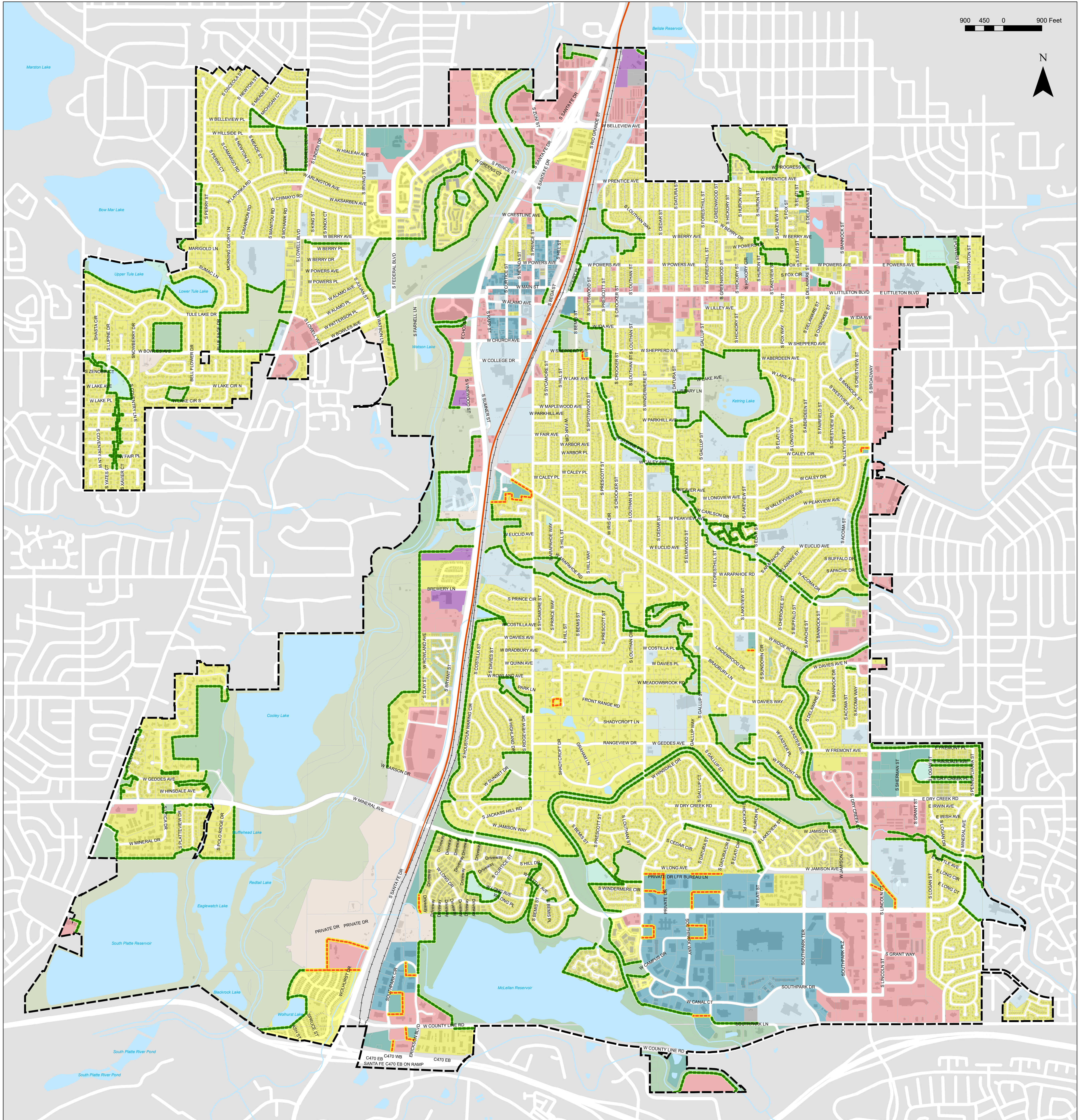


To the left, public open space at Ketring Park that is borrowed by residents of adjacent homes. To the right, private open space on undeveloped, commercially zoned property just north of Mineral Avenue that is borrowed for the time being by nearby residents.



Borrowed Space in Littleton, CO (As of Summer 2018)

DRAFT



Legend

Borrowed Space Boundary

- Private
- Public

Land Use Class

- Open Space
- Park
- Recreation (other than park)
- Rural
- Residential
- Commercial
- Institutional
- Mixed Use
- Industrial
- Parking
- Utility
- Undeveloped

City Limits

- City Limits