Open Space Advisory Board

Agenda

Wednesday, December 10, 2025
Library 1st Floor Meeting Room
951 Spruce Street
6:45 PM

Members of the public are welcome to attend and give comments remotely; however, the in-person meeting may continue even if technology issues prevent remote participation.

- *Call in to: +1 346 248 7799 or +1 408 638 0968 or 877 853 5247 (Toll Free) Webinar ID: 883 3175 6380 or*
- *You can log in via your computer. Please visit the City's website here to link to the meeting: www.louisvilleco.gov/osab*

The Council will accommodate public comments during the meeting. Anyone may also email comments to the Council prior to the meeting at EmberB@LouisvilleCO.gov.

1. 6:45 pm Call to Order
2. Roll Call
3. Approval of Agenda
4. Approval of October Minutes
5. 6:55 pm Staff Updates (5 Minutes)
6. 7:00 pm Board Updates (5 Minutes)
    - Quasi-Judicial Update
7. 7:05 pm Public Comments on Items Not on the Agenda (5 minutes, more time as needed)

8. 7:10 pm Discussion Item: PROST Long Range Plan- Findings & Initial Feedback. Presented by, Keith Walzak KJT Design (40 Minutes):

   - The October 29th PROST Open House
   - The November 14th Trails/Natural Resources Stakeholders Group
   - Next Steps

9. 7:50 pm Discussion Item: Marshall Fire Remembrance. Presented by Brandi Cummings, Director of Cultural Services (15 Minutes)

10. 8:05 Update Item: Presentation from Olsson Vegetation on Open Space Vegetation Survey Results & Land Classifications. Presented by Caleb Pharris, Senior Scientist, Olsson Vegetation (30 Minutes)

11. 8:35 pm Discussion Item: Follow-up from Joint Meetings. Presented by Susan McEachern, OSAB Chair (20 Minutes)

    - Study Session with City Council on November 10th Regarding Acquisition Process & Next Steps.
    - Joint Meeting with Superior Open Space Advisory Committee on November 12th

12. 8:55 pm Discussion Item: OSAB 2025 Accomplishments. Presented by Susan McEachern, OSAB Chair (10 Minutes)

13. 9:10 pm Discussion Items for Next Meeting January 14th, 2026

    - Board Member Introductions
    - 2026 Updates: Posting Locations, Meeting Dates
    - Elections: Chair, Vice Chair, Secretary
    - Review of 2026 Open Space Education Plan
    - Discuss OSAB 2026 Work Plan Objectives/Goals
    - LOSA Updates

14. Adjourn

pen Space d isory oard Meeting Minutes
Wednesday, October 8, 2025, 6:45 pm
Library 1st Floor Meeting Room
951 Spruce St.

1 6:45 pm all to rder

2 Roll all

Present: Michiko Christiansen, Andy Dorsey, Susan McEachern, Graeme Patterson, Mark Poletti, Brad Pugh, Daniel Rupp
Absent: none
City Staff Present: Ember Brignull

ppro al o genda

The Quasi-judicial Pine Street review will not be on the agenda due to last minute withdrawal of the application.
Motion to approve: Brad (motion), Graeme (second). Unanimously approved.

4 ppro al o Minutes

Move to approve: Andy (motion), Susan (second). Unanimously approved

5 6:50 pm Sta pdates 5 Minutes

- Fire mitigation efforts related to Open Space mowing and grazing have been fully funded by a Grant Fund from 2023 2027.
- Information requested by board members regarding how to respond to citizens: Board members can respond to citizen requests for input. If a Board member can't answer a question, remind the citizen that Board members are volunteers and to refer them to Council or staff members.
- Interpretive sign review and approval will be done by email in mid-October
- Goat grazing will be at North Open Space on east side.
- Speed limit signs for e-bikes on trails seem to be effective so far and serving their purpose.
- The application for Louisville to become a Bird City will come to City Council in November for discussion and approval. Ember will share the draft with OSAB for review before it goes into the Council packet

6 6:55 pm oard pdates 5 Minutes

- Andy asked when consultants will be able to come to OSAB to provide an update on the City of Louisville Comprehensive and PROST Long Range Plans. No schedule has been planned, and Ember will look into a response. It should be noted that postcards were mailed to a subset of citizens to take a PROST survey, however, it is understood that

using a subset of citizens will be difficult to get a statistically valid response for the survey.

- Graeme provided an update that there has been no response from Lafayette Open Space tiger team to have a joint Louisville/Lafayette discussion on common Open Space topics.

:00 pm Public omments on tems ot on t e genda 5 minutes, more time as needed

- A member of the public (Cathern Smith) provided comments on a City of Louisville Trails and Trail Placement Focus Group that she participated in that discussed Open Space management for the PROST plan. She felt there was insufficient discussion on the management of open space, specifically regarding trail setbacks from riparian areas . In her view, the Focus Group consultant said no guidelines would be included for setbacks. Her recommendation is to require a 120-foot setback from riparian and wetland parcels, since it will reduce impact on wildlife and plant life. She wants to bring awareness to OSAB for future consideration.

:05 pm Public earing:1155 Pine Street, Preliminary and Platt Public Land Dedication Presented by mily line ibbs, ommunity De elopment Planner 0 Minutes

- **Sta Report**
- **oard uestions**
- **Public omment minutes eac**
- **oard Discussion and ction Roll call ote o S and record eac member s ote**

- This portion of the agenda was cancelled since the property owner withdrew his request.

9 : 5 pm Discussion tem: 2026 Legislati e genda Presented by Susan Mc ac ers, S air 15 Minutes

- Link to Reference Materials: https://www.louisvilleco.gov/home/showpublisheddocument/44218/638743530398870000
- Areas For Consideration:
    i. The City supports increased wildfire mitigation funding for local communities in the plains areas to establish and maintain risk reduction measures on public lands including climate change adaptation strategies.
    ii. The City supports state and federal efforts to protect open spaces.

- The City Council is preparing its legislative agenda for the year. OSAB has been invited to provide recommendations. Susan would like an OSAB statement on wildfire mitigation funding that would also include protection for wildlife.
- Susan proposed to add to section i the following: and methods to effectively protect wildlife and plant life while maintaining habitat. There was unanimous agreement by OSAB to recommend this change to City Council
- Susan proposed to add to section ii the following: protect and preserve '. There was unanimous agreement by OSAB to recommend this change to City Council.

10 :50 pm Discussion tem: pen Space andidate Parcels: pportunities or Preser ing pen Space and mpro ing rail onnecti ity Ran ing Properties Presented by Susan Mc ac ern, S air 45 Minutes

- OSAB members discussed the format and final recommendation on the Open Space Candidate Parcels to City Council per OSAB parcel visits and collective rankings of each of the parcels included in the OSAB package (highlights of discussion below):
    - The D parcels are tricky since their main value is to reroute the Coal Creek Trail and the city would need to acquire two of them to do that. Consensus of group is if they were to be pursued, a trail reroute is worth doing.
    - Most people agree with the high rankings of the BB, WWs, , OO parcels.
    - It was noted that Graeme and Mark only ranked visited sites.
    - Rankings represent OSAB viewpoints on parcels. It is important to put this on record, since we know that City Council members will change and this will help new members understand parcel ranking history.
    - It was noted that the City Manager asked OSAB to provide acquisition strategy in the spreadsheet. She wanted to see the rationale.
    - When considering parcels for Open Space, access to trailheads and the open space should be a strong consideration i.e., where to place and how to build public access to a trail and add parking.
    - Davidson Mesa parking lot tends to be full during high traffic times it may be worth considering overflow parking at WW and WW1. Rangers may also benefit from this access to do their patrols. This would also help with emergency access.
    - Susan recommends keeping the OSAB ranking format to keep consistency with previous OSAB reviews.
    - All OSAB agree with top 5 OSAB rankings, which meets the City Manager's request to identify OSAB's top priorities There was discussion about whether to prioritize parcels that have conservation easements on them, especially parcel CC. One member preferred not to include them,

but other members noted that in the past, we didn't bias ourselves with whether a property included easements but just looked at intrinsic property qualities to offer a neutral evaluation. There was consensus to include CC in the top priorities based on it's unique location and critical riparian habitat, even though it has a conservation easement on it.

- OSAB discussion on format of Open Space Parcel rankings:
    - General consensus is not to include scores as not all members ranked all properties, and the top 6 are all high priority.
    - We could list the top 6 as priorities to City Council, with the remainder as under consideration.
    - There are past examples of proposed acquisition strategies that are part of the meeting package that can be used as a recommendation for each acquisition strategy to Council.
    - Could also make a recommendation to recommend a parcel contingent on purchasing another parcel. (e.g., WW and WW1)
    - Could also color code.
    - Let's remember that the City Manager wants a simple presentation and recommendation from which to decide.
- Final agreement by OSAB on format of Open Space Parcel rankings:
    - Use a single sheet to list recommended parcels with relevant details.
    - Format will include the following columns and categories:
        - Property name, parcel alpha code, size, conservation easement, zoning, acquisition strategy, rationale
    - Add reference material for each property that provides further details (same as past example in packet from previous years).
    - Put top 6 as high priority, then have a colored demarcation that states other considerations for the parcels listed below .
    - Add a line above parcel F and label the parcels listed below it (e.g., F, AA1, AA2, F, , P) as Properties considered but no recommendations. ' These are lower priorities.
    - Include the map with a color code to reflect the new priorities.

11 : 5 pm Discussion tem: pen Space andidate Parcels: pportunities or Preser ing pen Space and mpro ing rail onnecti ity Determine Format or ity ouncil Meeting in o ember Presented by Susan Mc ac ern, S air 0 Minutes (See above for discussion)

12 9:05 pm Discussion tems: Discussion tems or e t Meeting o ember 12t , 2025 oint Meeting it Superior Presented by mber rignull, pen Space Superintendent 10 Minutes

- **Location: o n all at 124 oal ree Dr, Superior, 002**
- **ime: 6:00 pm**
- **Possible opics:**
    - **i pen Space Management Plan**
    - **ii Wild ire Mitigation**
    - **iii Prairie Dog Playboo**
    - **i bi es**
    - **Wildli e Monitoring**
    - **i Rodenticides**
    - **ii oal ree restoration**

- Agenda items for the joint Superior Open Space board are in agreement by both parties.
- Since next meeting is in Superior, they are required to take the notes. Mochiko is next in line to take meeting minutes, so she will take December meeting notes.
- The joint meeting with Superior is expected to start at 6pm.

1 d ourn

- Meeting adjourned at 8:26pm.

City of Louisville
PARKS & RECREATION

M M R D M

o: pen Space d isory oard
From: pen Space
Date: December 10, 2025
Re: n ormation tem 5: Sta pdates

General:

- Budget Calander- Upcoming OSAB Deadlines. Tentatively: April- Capital Project Improvement, Staffing Request, Operations Budget Review.
- New Open Space Advisory Board appointments will be made on December 16th.
- Staff has been asked to participate in drafting and reviewing the "Wildfire in Grasslands- A Front Range Practitioner's Guide". This will be coordinated by a consortium of agencies, counties, municipalities, and non-profits along the Front Range. Publication tentatively planned for 2026/2027.

Natural Resources:

- Staff have closed out the Bioblitz Contract with CNHP with all invoicing completed – staff will be meeting with the marketing department to create communications with the public detailing the work completed.
- Staff have collected all the data from the vegetation surveying contract and draft report.
- Interpretive panels for 2025 have been delivered (1) North, (1) Coyote Run, and (1) Warembourg. Installation planned for summer 2026.
- Staff are reviewing restoration and reclamation standards for pass-off to the Public Works Department for increased collaboration on projects impacting public lands.
- Herbicide applications are scheduled for December 2-5 on select properties. Treatments are for cheat grass and Japanese brome locations.
- Staff has been working on Russian olive removals on CTC and Hecla Lake Open Spaces.
- Staff is looking into software options for mapping herbicide applications.
- Staff worked with Boulder County Open Space staff on Jointly-owned Warembourg to install additional fencing to help prevent encroachment of prairie dogs from the City-managed Conservation Area on the property.
- Prairie dog management was completed in October on select properties. A total of 91 prairie dogs were successfully relocated to the receiving site in Pueblo, Colorado.

Maintenance & Trails:

- The Daughenbaugh Parking Lot resurfacing project is underway with work to start on December 1, 2025 and to be completed by December 31, 2025.
- Staff has installed a new drain along the Warembourg concrete trail to alleviate flooding at the cross section of the Polk Ave and Sycamore St trail access points.
- Staff is evaluating additional services and costs for the Human Dimensions program with possibility of acquiring new technologies and an increased number of trail counters.
- Staff completed the final cycle of trail corridor mowing on October 30, 2025 for the season.

Resource Protection:

- Rangers have observed high visitation on Open Space as weather has remained mild.
- Rangers have been conducting extra patrols of North Open Space in response to Dispatched calls. Their efforts have yielded a significant number of leash law enforcement contacts, including several tickets issued to repeat offenders.
- Rangers are remaining vigilant for encroachment of private holiday decorations onto City-owned property.
- Rangers will lead training sessions for the Police Department on 12/03 and 12/17 to help familiarize new officers with the role and scope of authority of the ranger program and teach them about Open Space geography and place names.

Education and Volunteers:

- Staff has scheduled a Volunteer Appreciation Pizza Party on December 13 for 2025 participants. Groups invited include OSAB, Adopt Program, Raptor Monitoring, and Weed Whackers volunteers.
- The HR and IT Departments are looking at updating the current volunteer interest form on the City website. Updates to the website anticipated around April of 2026.
- Staff are working on proposed education and volunteer programming for 2026 with plans to bring the proposal to OSAB in January.
- The Friends of Coal Creek Adopt group assisted with Russian olive removal on CTC Open Space.
- Staff will be meeting with a representative from the Agents of Discovery to review the app and discuss potential future use for additional education programming.

Education Events Past:

1. Saturday, October 11, 2025, from 5:30 PM to 7:00 PM, *Guardians of Hope* documentary film screening at the Louisville Recreation and Senior Center. 60 participants.
2. Sunday, October 12, 2025, from 3:30 PM to 5:30 PM, Coyote Run on Canvas (Open Space Plein Air Series) at Coyote Run Open Space. 7 participants.
3. Sunday, November 9, 2025, from 10:00 AM to 12:30 PM, Louisville During the Great War at Harney Lastoka Open Space. 13 participants.
4. Tuesday, December 2, 2025, from 6:30 to 8:00 PM, Unearthed: Ancient Life in Boulder Valley at Louisville Library. Participation not available at time of publication.

MEMORANDUM

To: OSAB (Open Space Advisory Board)

From: Bryon Weber, Project Manager

Date: December 10, 2025

Re: Discussion Item 8: PROST Long Range Plan - Findings & Initial Feedback

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Purpose:

Consultants from DTJ will present an update on the Guidebook planning effort, with an emphasis on the Trails Plan. After a brief overview of the planning process and some of the public input received to date, consultants will share output from the recent trails and open space workshop held on November 14th. The workshop included 20+ participants including staff from Louisville Open Space and surrounding agencies, advocates of both open space and trails, along with various other stakeholders and residents. Roundtable discussions were held with diverse groups exploring topics such as community values, trail system gaps and solutions, big ideas and overall priorities. The board will have a chance to provide input pertaining to the workshop outcomes given this data will help inform preliminary goals and recommendations being drafted in early 2026.

JOIN the JOURNEY!

GUIDING THE FUTURE

of Louisville Parks, Open Spaces, Trails, Recreation & Senior Center, and Golf Course

PROS GUIDEBOOK

Open Space Advisory Board Mtg. #2

December 10, 2025

City of Louisville

AGENDA

Project Update

Community Engagement Findings

Joint Open Space / Trails Workshop Results

Trends + Preferences

Discussion

Next Steps

JOIN the JOURNEY!

GUIDING THE FUTURE

of Louisville Parks, Recreation, Senior Services, Golf, Open Space & Trails

What is the PROS Guidebook?

Plan Purpose

Define PROS Long Range Plan priorities
Next 10+ years

Addresses each division

- **Parks**
- **Recreation + Senior Center**
- **Open Space + Trails**
- **Golf Services**

JOIN the JOURNEY!
GUIDING THE FUTURE
of Louisville Parks, Recreation, Senior Services, Golf, Open Space & Trails

Project Process

PHASE I
Project Initiation
June 2025

PHASE II
Exploration + Ideas

WE ARE HERE

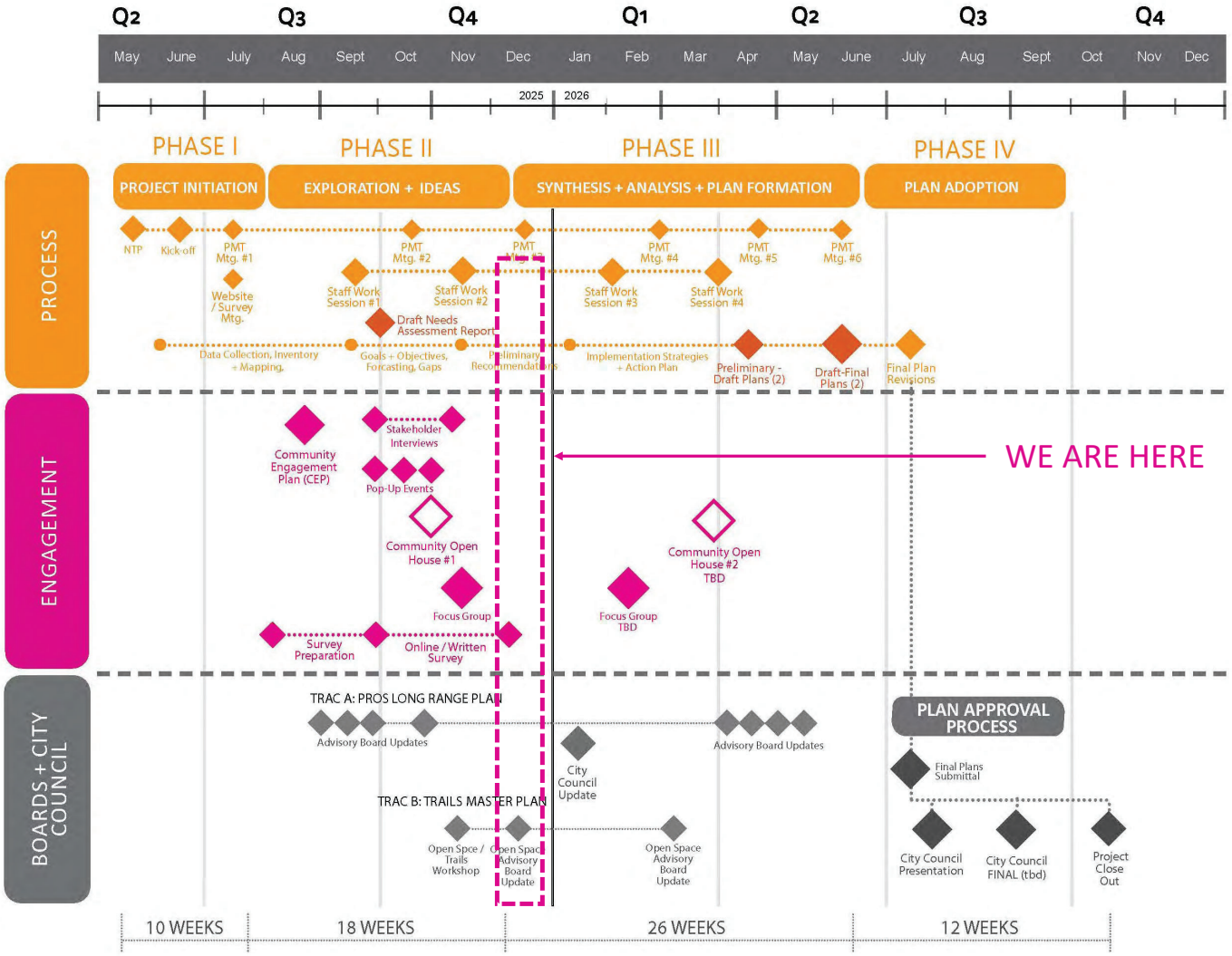
PHASE III
Synthesis + Analysis
Plan Formation

PHASE IV
Plan Adoption

PROJECT COMPLETION
Summer 2026

JOIN the JOURNEY!
GUIDING THE FUTURE
of Louisville Parks, Recreation, Senior Services, Golf, Open Space & Trails

PROJECT TIMELINE



Project Schedule Milestones

Phase 2: Exploration + Ideas

Events + Deliverables

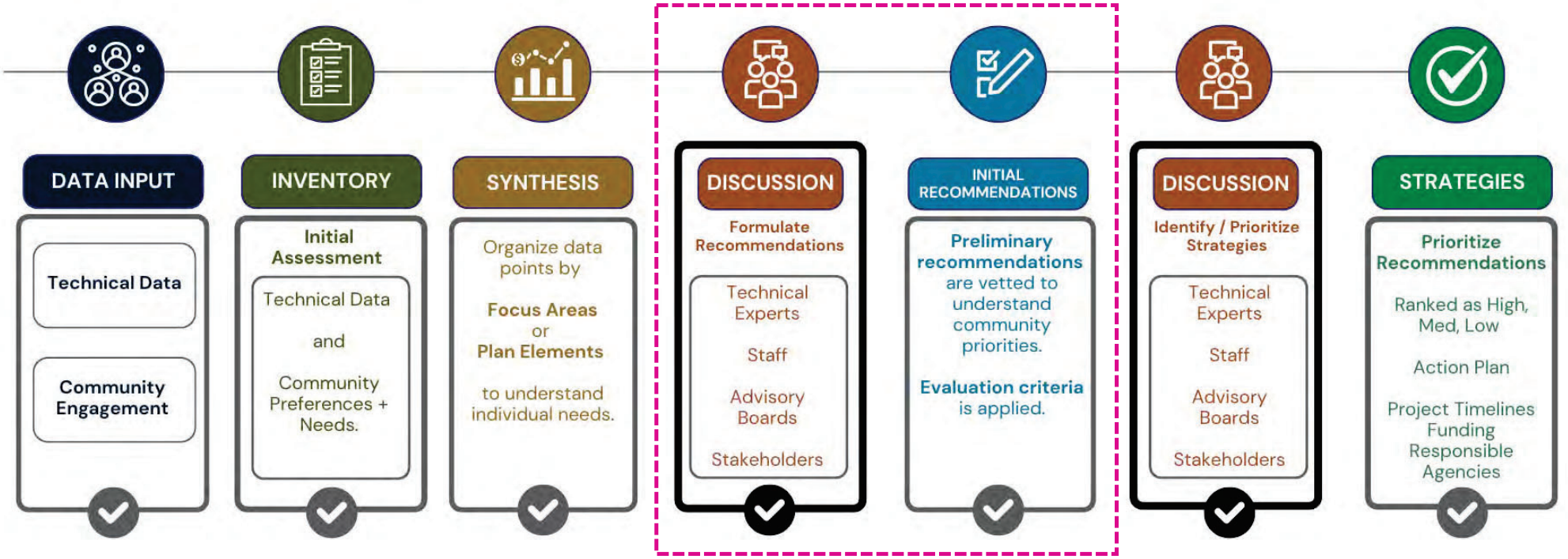
- Trails Taskforce Workshop – 11/14
  - Combined Focus Group #1 + Joint Advisory Board Meeting
- OSAB Mtg. 12/10
- PMT Meeting #3 12/16

Phase 3: Synthesis + Analysis

Events + Deliverables

- Draft Community Engagement Summary
- Draft Needs Assessment Report
- City Council Update 1/6
- OSAB Mtg. #3 Feb
- Focus Group #2 TBD
- Community Open House #2 TBD

Process Diagram

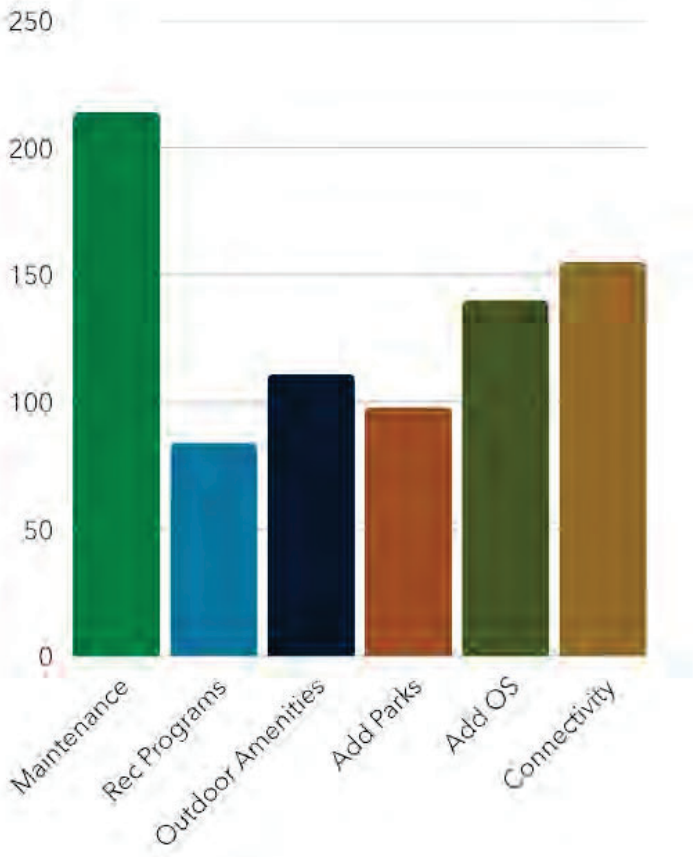


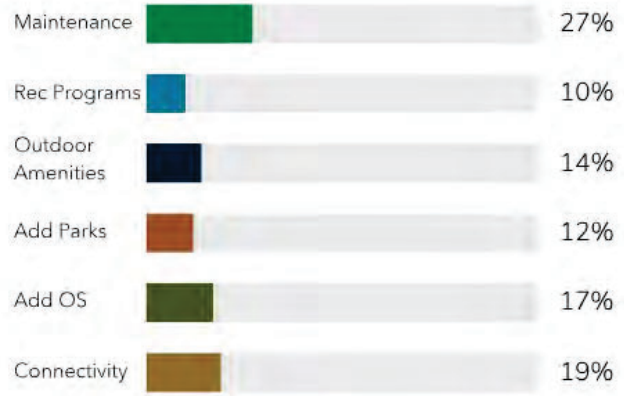
COMMUNITY ENGAGEMENT

PRELIMINARY RESULTS

- **Pop-up Events (7)** — **~150 plus participants**
  - Recreation + Senior Center Health Fair
  - Louisville Elementary Soccer
  - Cottonwood Park
  - Davidson Mesa Trailhead
  - Coal Creek Golf Course
  - Monster Dash At Community Park
  - Open Space Grasslands Walk
- **Community Open House #1** — **Oct 29**
  182 participants
- **Survey**
  - Statistically valid: 766 responses — **+/- 3.5 margin of error**
  - Open link: 1,407 responses
- **Joint Open Space / Trails Workshop** — **Nov 14**
  23 participants
- **Community Engagement Summary Report** — **Dec 15**

PRELIMINARY RESULTS - Jar Preferences





Priority #1: Deferred Maintenance

Take care of what we have

Priority #2: Improve Trail Connectivity

Priority #3: Acquire More Open Spaces

Priority #4: Enhance Outdoor Recreation Amenities

Courts, multi-use field, aquatics, etc.

Priority #5: Build New Parks

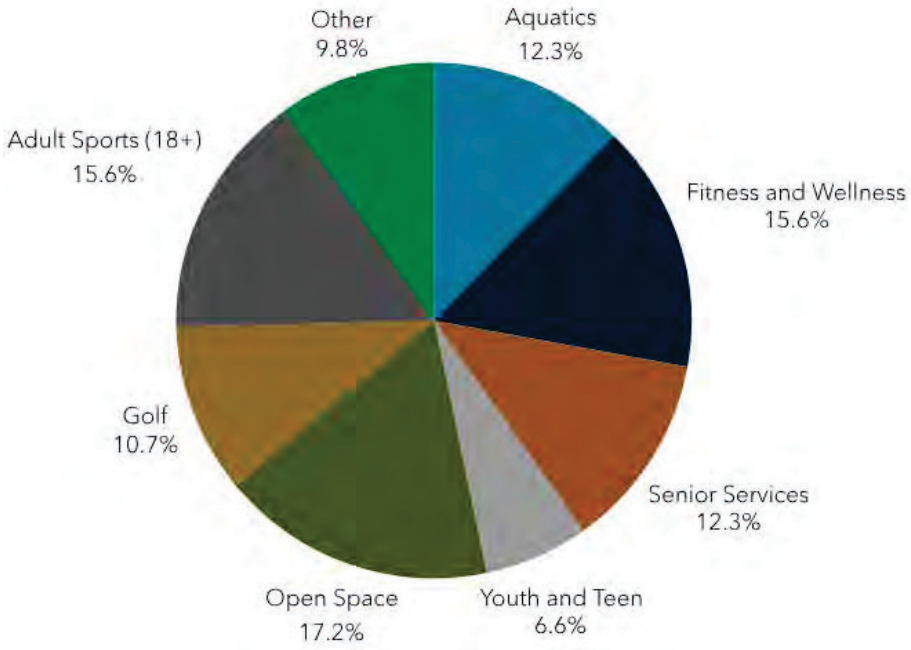
on vacant land owned by Louisville

Add More Recreation Programs

Sports, swim, arts, etc.

PRELIMINARY RESULTS - Programs

PROMPT:
Using stickers, indicate which **PROS Programs** you are most likely to participate in over the next 10 years.



Open Space (17.2%)
- Educational Outreach
- Volunteer Events

Fitness + Wellness (15.6%)
- Yoga & Pilates
- Group & personal training
- Nutrition talks

Adult Sports (15.6%)
- Tennis instruction
- Pickleball instruction & play
- Drop-in sports

Senior Services (12.3%)
- Brooks Cafe Lunch & Events
- Classes & Seminars
- Day Trips

Aquatics (12.3%)
- Water aerobics
- Swim lessons
- Lifeguard Certification

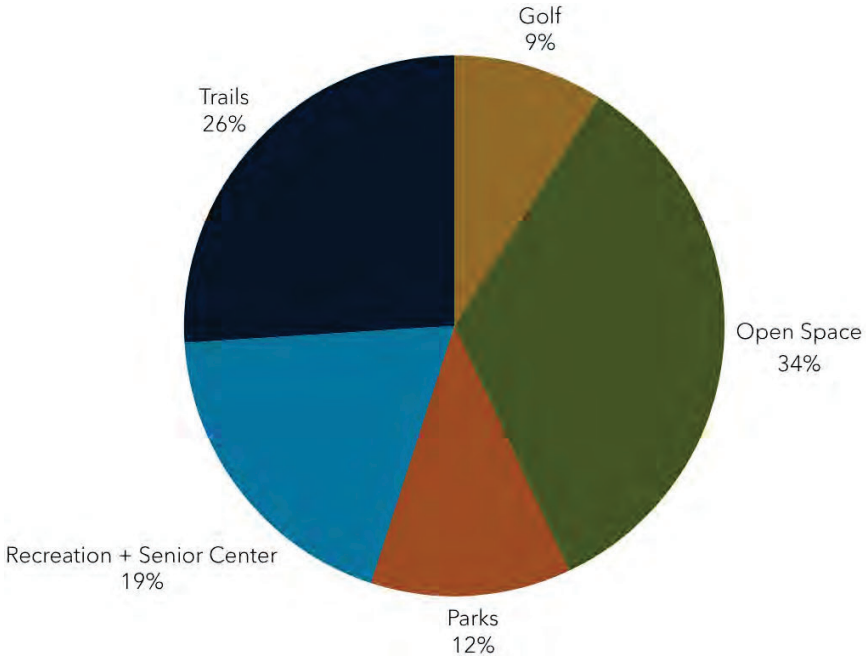
Golf (10.7%)
- Adult & Senior Leagues
- Junior programs & camps
- Lessons

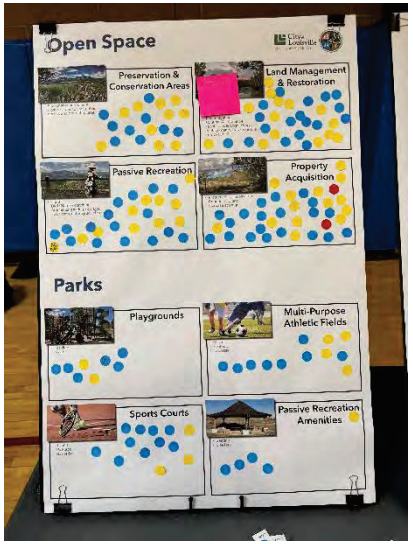
Other (9.8%)
- Partnerships with external events
- Holiday-specific events
- General Interests (music, hiking)

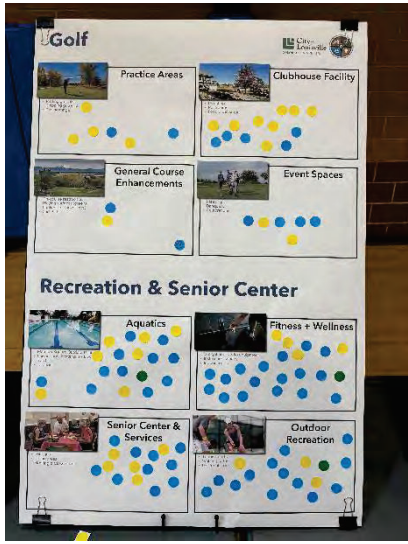
Youth and Teen (6.6%)
- Birthday parties
- Summer day camp
- Sports leagues

PRELIMINARY RESULTS - Amenities

PROMPT:
Using stickers, indicate which **PROS Amenities** you would most like to see enhanced over the next 10 years.







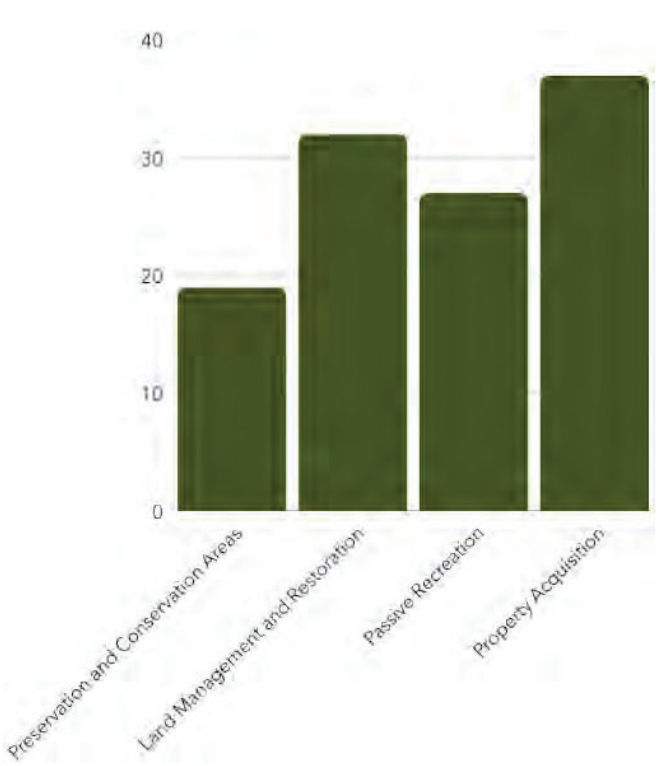
PRELIMINARY RESULTS - Amenities

PROMPT:

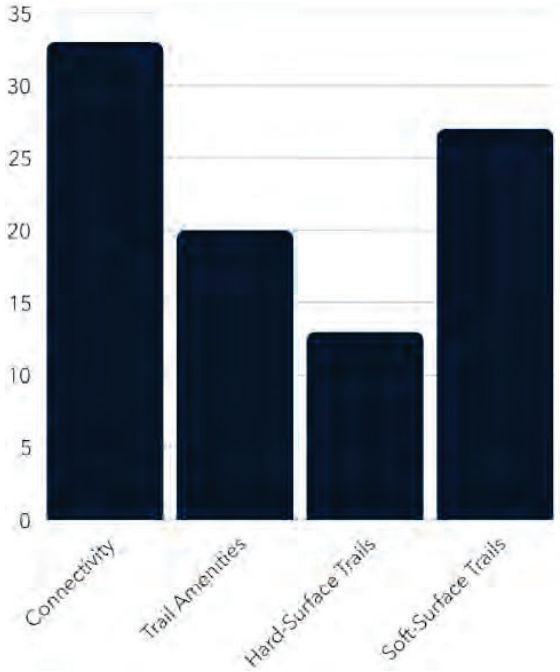
Using stickers, indicate which **PROS Amenities** you would most like to see enhanced over the next 10 years.

Note: the number of responses are different for each value set.

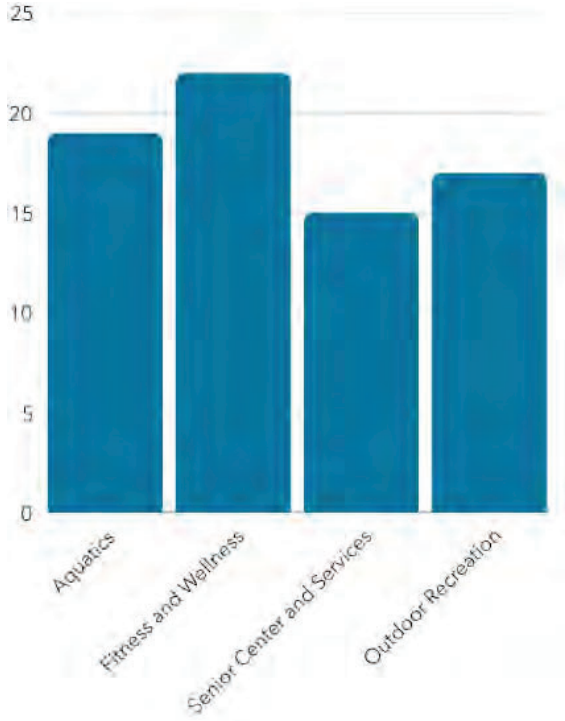
Open Space (34%)



Trails (26%)



Recreation + Senior Center (19%)



PRELIMINARY RESULTS - Amenities

PROMPT:

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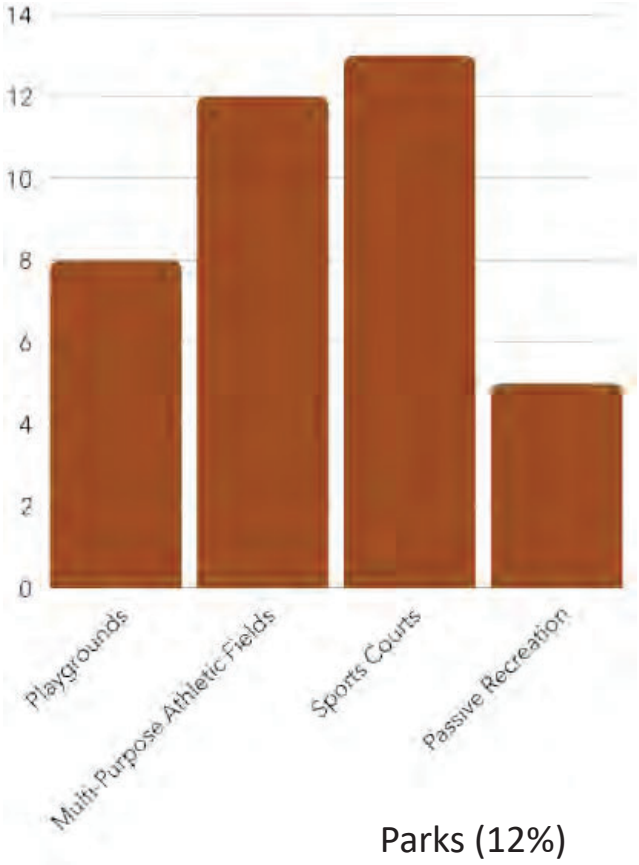
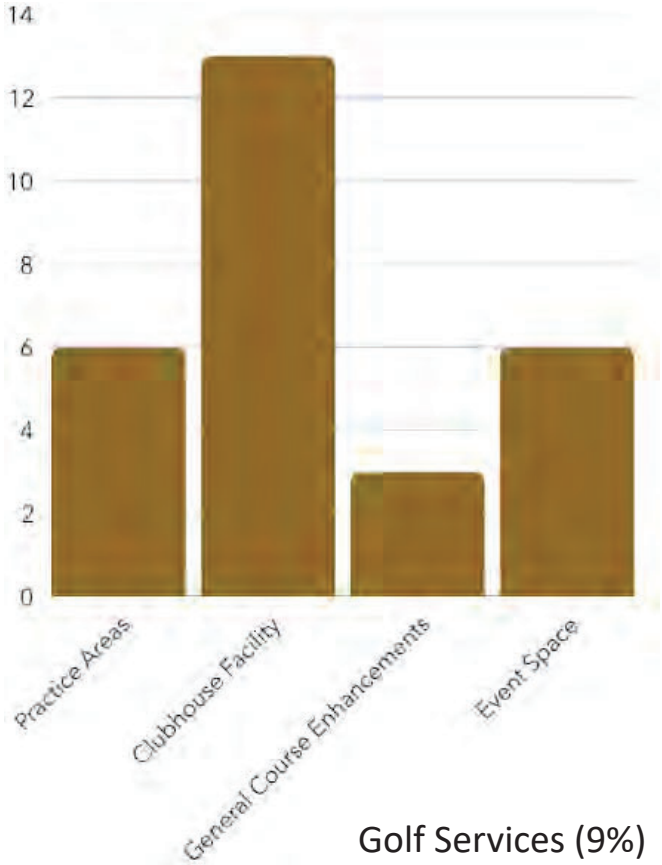


Parks (12%)



Golf Services (9%)

PRELIMINARY RESULTS – Map Comments

Parks

- **Add amenities** - picnic tables, trash bins, year-round restrooms
- **Improve accessibility** – more handicap parking and safer crossings
- **Preserve natural aesthetics** – minimize excessive signage, manage vegetation for fire safety

Recreation

- **Sport courts** - more tennis courts and basketball courts in underused spaces
- **User group variety** - adult workout zones and teen center
- **Seasonal uses** - Extend summer outdoor pool hours, consider winter recreation options like ski trails

Golf

- **New clubhouse**
- **Allow after-hours trail use** through course
- **User group variety** - offer non-golf activities at CCGC
- **Connectivity** - Reroute Coal Creek Trail through CCGC

Open Space

- **Maintain existing open space** before acquiring more
- Improve weed and invasive species control
- **Protect sensitive habitat areas -** creek corridors, riparian zones from overdevelopment or trail encroachment
- Mixed feedback on goat grazing
    - Some support for fire mitigation
    - Others oppose due to expense and fire risk from leftover thatch

Trails

- **Expand connections** between neighborhoods, parks, and schools
- Safe crossings and signage.
- **Enforce e-bike regulations** speed limits, age restrictions
- Preserve trail quality gravel, crusher, soft surface
- **Formalize popular social trails** and single-track routes

PRELIMINARY RESULTS - Survey

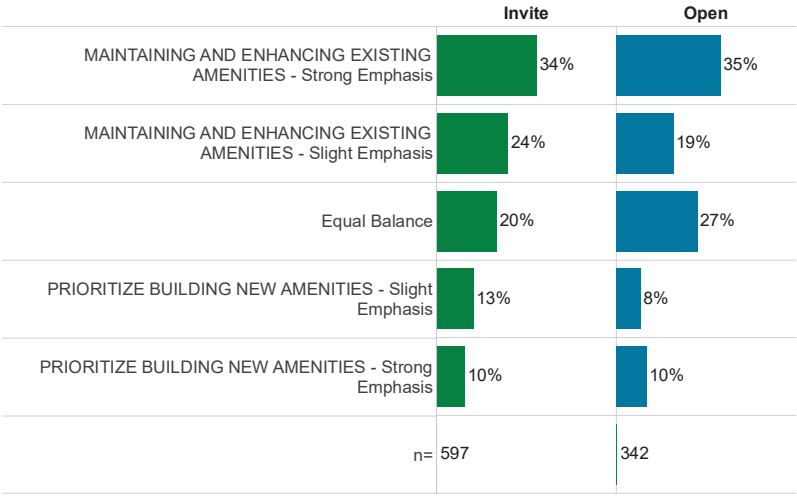
Current Responses

- Statistically valid: 766 responses
- Open link: 1,407 responses

Key Takeaways

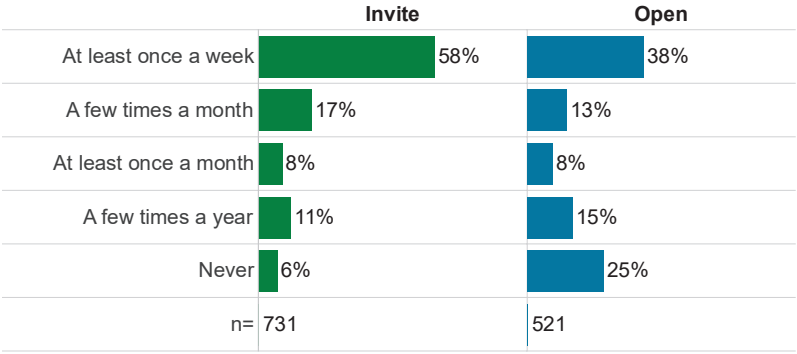
- Parks, recreation, open spaces and trails are important to why people live in Louisville.
- Respondents are frequent users of PROS system.
- Majority of respondents use **non-vehicular modes of transportation** to get to destinations in Louisville at least once a week.
- Strong support to invest in Memory Square Pool.
- Respondents are more interested **in maintaining existing amenities** than building new amenities.
- Trails and Open Space are priorities for the future.

Given the City of Louisville has a limited budget for the Parks, Recreation & Open Space Department, how would you prioritize maintaining/improving existing amenities versus building new ones?



Source: RRC Associates, 2025 City of Louisville 2025 PROST Survey

How often do you use non-vehicular modes of transportation (i.e. walking, biking) to get to a destination in Louisville?



Source: RRC Associates, 2025 City of Louisville 2025 PROST Survey

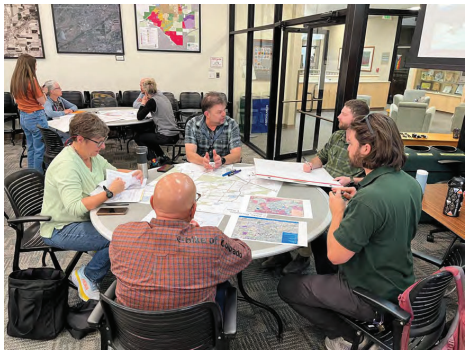
OPEN SPACE + TRAILS FOCUS GROUP WORKSHOP

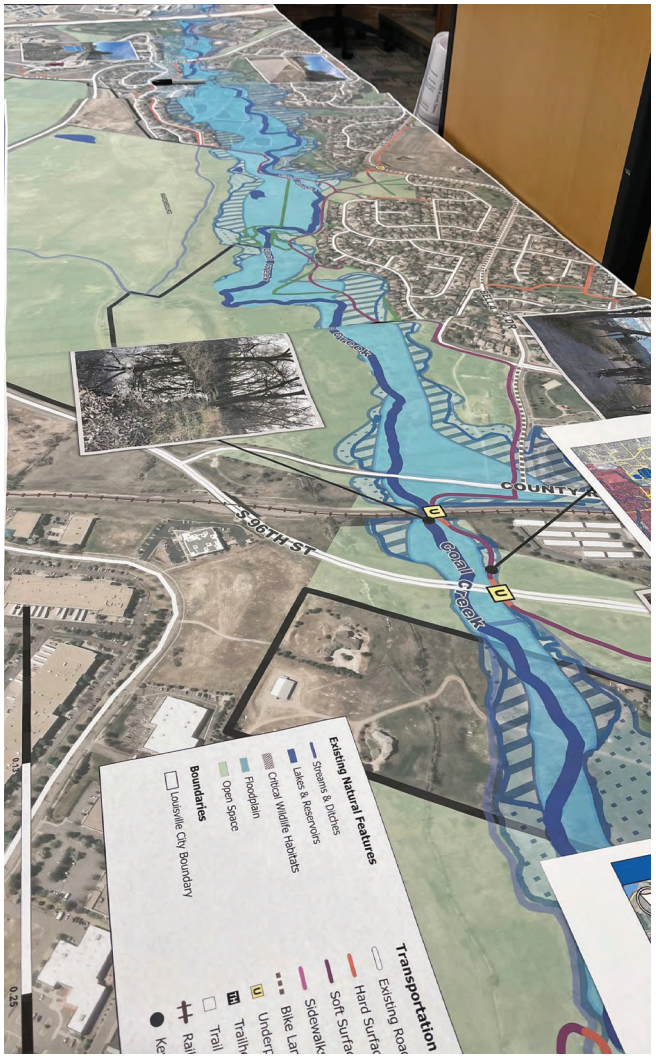
Workshop Format

Friday, November 14th
City Hall
Participants: 23 community members + staff
4 consultant team members

Topics

- Community Values
- Trail System Gaps
- Plan Recommendations
- Top Priorities
- Big Ideas





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WORKSHOP GOAL

Workshop Purpose

Establish Trails Master Plan Priorities

- Assess the open space + trails system in Louisville
- Identify open space + trails compatibility issues (and points of conflict)
- Identify physical gaps in the trails system
- Provide recommendations for future improvements

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WORKSHOP GOAL

Trails Master Plan

Strategic Framework Document

Considerations

- Existing Open Space Land Classification System
- Land Management Practices
- Recreation Trail Access
- Multi-Modal Transportation Needs
    - Connecting Origins and Destinations
    - Eliminating Barriers
    - Wayfinding and Signage

Trail System Standards

- National Recreation and Park Association (NRPA)
    - CAPRA Accreditation (Commission for Accreditation of Park and Recreation Agencies)
- AASHTO Standards (American Association of State Highway and Transportation Officials)
    - Shared pathways and trails
- MUTCD Standards (Manual on Uniform Traffic Control Devices)
- USDA Forest Service Standards

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Topic #1: Community Values

Community values represent your priorities and help inform decision makers.

Task: Identify 3 high-level community values associated with open space and trails in Louisville.

Primary Themes

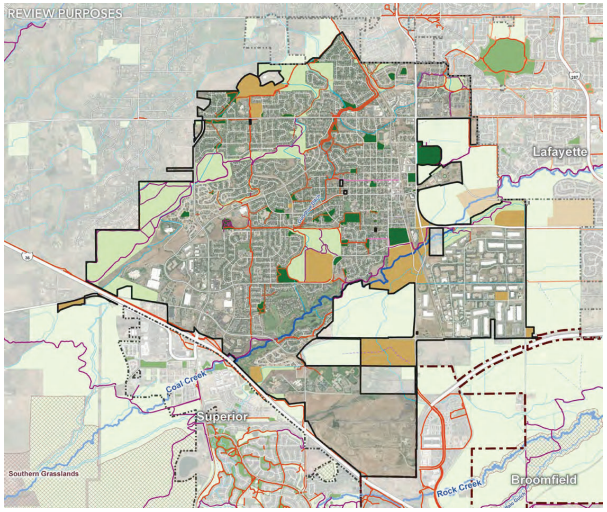
- **Habitat + Ecosystem Protection**
  - Emphasis on conservation + sustainability guided by City Charter
  - Protect high-value areas
  - Science based decision-making for trail placement to avoid habitat loss
  - Balance recreation with ecological integrity – protection first, recreation second
- **Safe, Connected + Accessible Trail Network**
  - Safety is a top priority
  - Ensure mobility and connectivity for all users, including regional trail links
  - Provide equitable access for all abilities
  - Develop clear standards + policies for social trails
- **Recreation, Health + Community Engagement**
  - Trails as spaces for exercise, wellness + nature connection
  - Support multi-use opportunities while managing impacts
  - Foster education + stewardship; engage all in environmental learning
  - Encourage community involvement
  - Encourage community involvement in planning + prioritization of initiatives

Topic #2: Trails Gaps

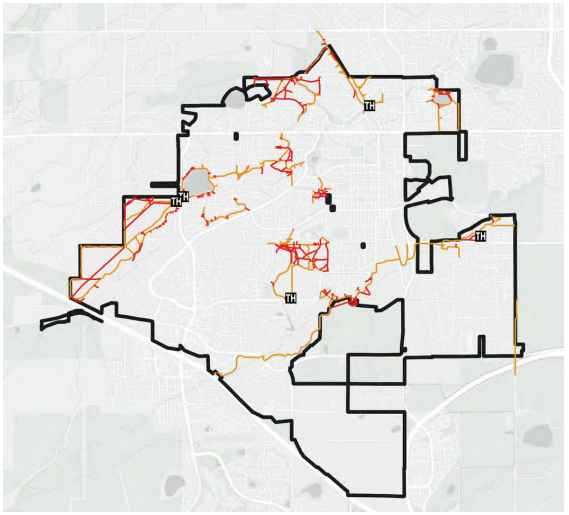
Task: Identify key gaps and/or safety concerns in the current trail system.

Primary Themes

- Railroad Crossings + Underpasses
  - Focus on barriers that limit connectivity
- Lack of Regional + Local Connectivity
  - Address missing links
- Trails Design + Unauthorized Social Trails
  - Need for policy and standards
  - Address restoration or closure of social trails



Existing Open Space and Trails System



2014 Social Trails Inventory (Source: City of Louisville)

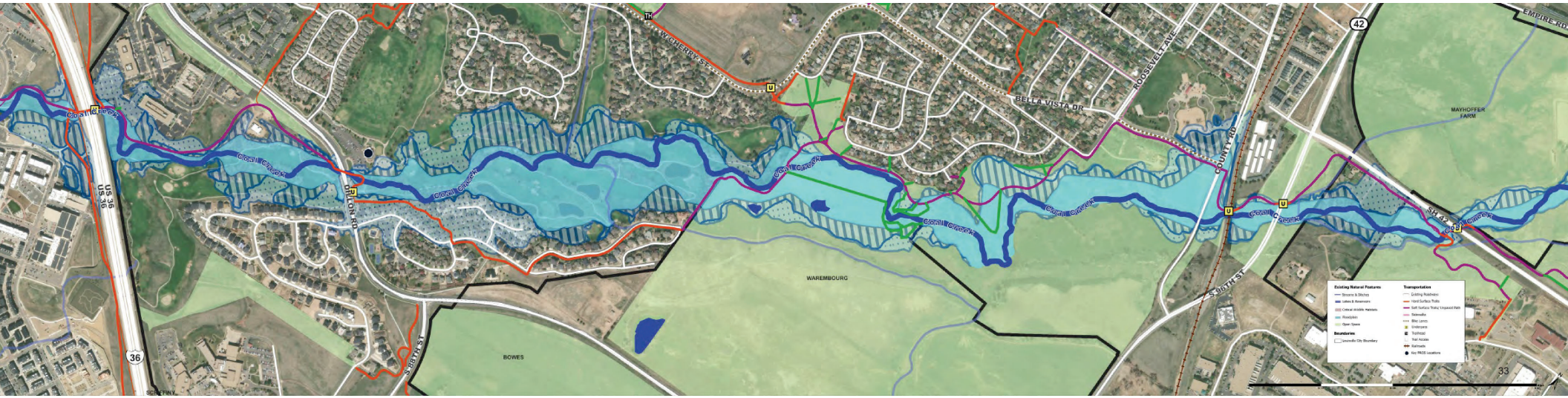
Example Workshop Map (Table #3)

Topic #3: Plan Recommendations

Task: Identify and list your initial plan recommendations.

Primary Themes

- Improve Connectivity + Protected Routes
  - Prioritize safety and connections – common theme among all participants
- Address Safety + Infrastructure Standards
- Manage Social Trails + Environmental Impacts
  - Update inventory of undesignated social trails
  - Provide educational and stewardship programs

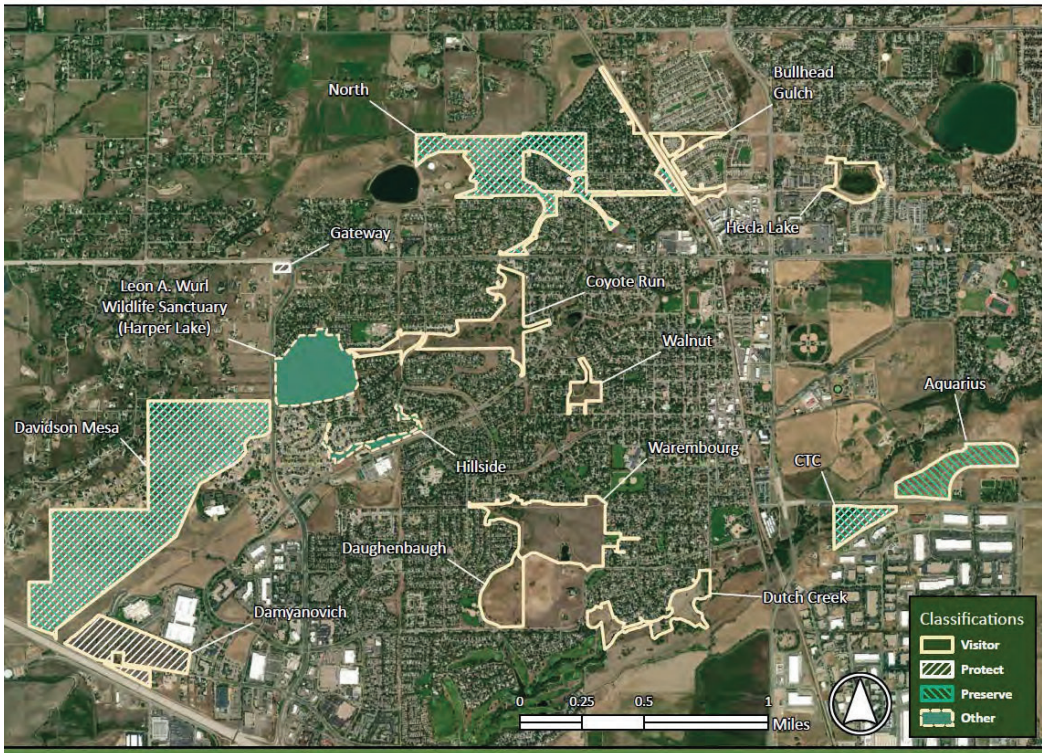


Topic #4: Top Priorities

Task: List high priority implementation strategies for the Open Space + Trails program.

Primary Themes

- **Trail Connectivity + Protected Crossings**
  - Complete critical trail connections
  - Implement safe crossings
  - Ensure protected routes for non-motorized users
- **Safety + Maintenance Upgrades**
  - Improve underpasses (lighting, drainage, visibility)
  - Address known safety issues (steep grades, flooding, trail alignment issues)
  - Apply consist surfacing standards for durability + accessibility
- **Environmental Stewardship**
  - Protect sensitive areas like Coal Creek
  - Conduct baseline studies for wildlife + vegetation
  - Integrate educational and enforcement to support responsible trail use and habit protection



Open Space Classifications in Louisville, CO

Topic #5: Big Ideas

Task: Identify 3 Big Ideas for the Trails Master Plan.

Primary Themes

- Connectivity + Wayfinding
- Policy + Standards for Trails
- Habitat + Ecosystem Protection

PRELIMINARY RECOMMENDATIONS

- Preliminary Recommendations in progress and will be vetted over the next several weeks.

- Recommendations address all PROS Divisions and are based on:

Community Input - Preferences and Trends
Stakeholder Feedback
Needs Assessment Technical Findings
Best Practices

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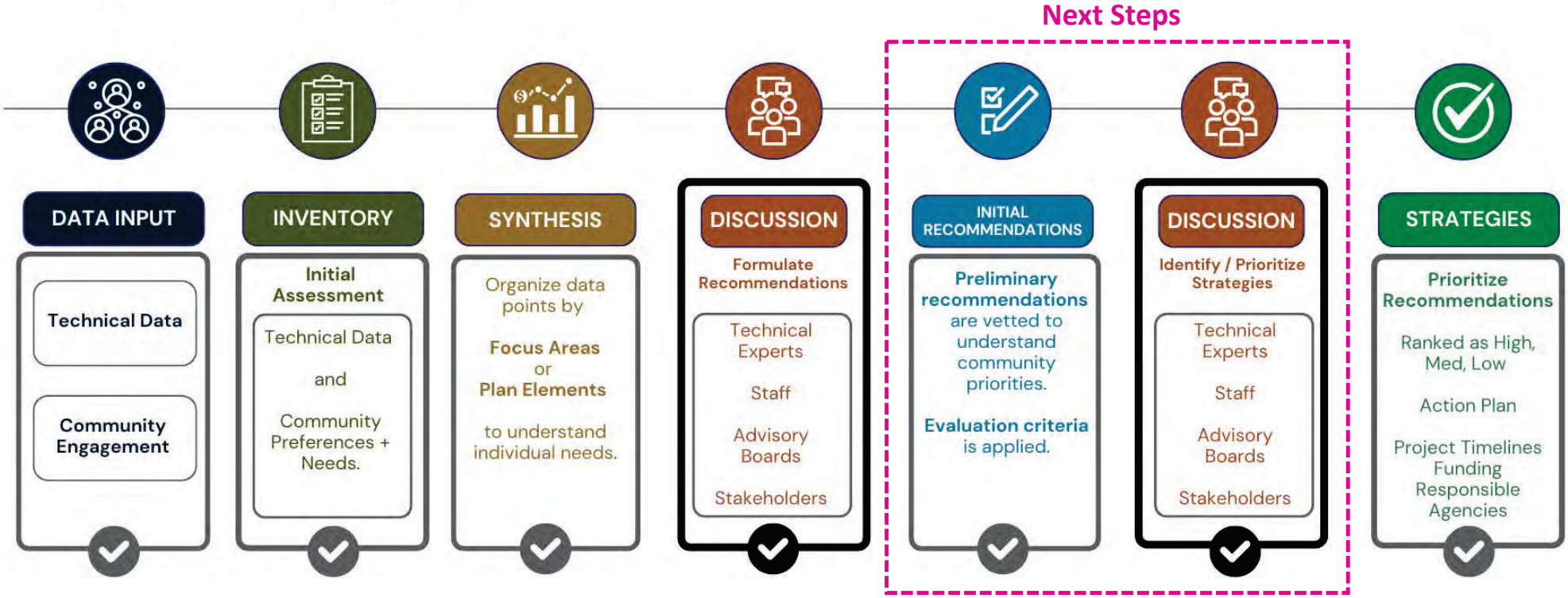
PRELIMINARY RECOMMENDATIONS

Process Diagram



NEXT STEPS

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▪ Submit Open Space /Trails Workshop Results	December
▪ Complete Community Engagement Summary	December
▪ Refine Draft Plan Recommendations	December-January
• Prioritize Plan Strategies	
▪ Draft PROS Long Range Plan + Trails Master Plan	Winter-Spring 2026

Key Upcoming Dates

▪ City Council Update	January 6
▪ Focus Group #2 (Recreational Programs)	Spring - TBD
▪ Open Space Advisory Board Mtg. #3	February
▪ Advisory Board Mtgs. (Round 2)	Spring - TBD

Thank you!

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Discussion Item 9: Marshall Fire Remembrance

Marshall Fire 5 Year Remembrance DRAFT SURVEY

On December 30, 2021, the Marshall Fire swept through the City of Louisville, Town for Superior, and unincorporated Boulder County, destroying and damaging more than 1,000 homes and over 30 commercial structures. December 2026 will mark the 5 year anniversary of this disaster which had such a significant impact on our community.

The City of Louisville has allocated $35,000 towards a Remembrance Project for the 5 year anniversary. We want this project to be informed by the desires of the community. The survey below will provide City staff direction for the initial planning phase of the project.

1. **Were you living in Louisville at the time of the Marshall Fire?**
    a. Yes
    b. No
2. **How has the Marshall Fire impacted you?**
    a. Directly, my home was lost (home owner)
    b. Directly, my home was lost (home renter)
    c. Directly, my home was damaged (home owner)
    d. Directly, my home was damaged (home renter)
    e. Indirectly, my home was not lost or damaged, but it affected me as a community member
    f. I have not been affected by the Marshall Fire/I moved here after the fire
    g. Other (please specify)
3. **How important, in your opinion, is it for the City of Louisville to develop and realize a remembrance project for the five-year anniversary of the Marshall Fire in 2026?**
    a. *Scale from 1-5 (or 1-10) where 1 is 'not at all important' and 5 is 'very important'*
4. **To date, we have been referring to Louisville's effort to commemorate the Marshall Fire as a "remembrance". What words should be used for the commemoration of the Marshall Fire event?**
    a. Memorial
    b. Marker
    c. Reflection
    d. Remembrance

e. Tribute

f. Other (please specify)

5. **What purpose/effect(s) do you hope this project will serve for the Louisville community?**

    a. Document history

    b. Offer a place for reflection

    c. Remember loss

    d. Honor actions taken during and after the event

    e. Recognize the community healing, closeness, and support that was fostered in the aftermath of the fire

    f. Other (please specify)

    g. Multiple answer checkboxes

6. **A few primary ideas have emerged for what the project could be. Please select all the ideas that resonate with you.**

    a. A peace garden

    b. A labyrinth walk (learn more here)

    c. A mosaic

    d. Other (please specify)

7. **Assuming an outdoor installation for the project is desired, where should it be located?**

    a. The Arboretum

    b. Community Park

    c. An open space, like Davidson Mesa

    d. Other (please specify)

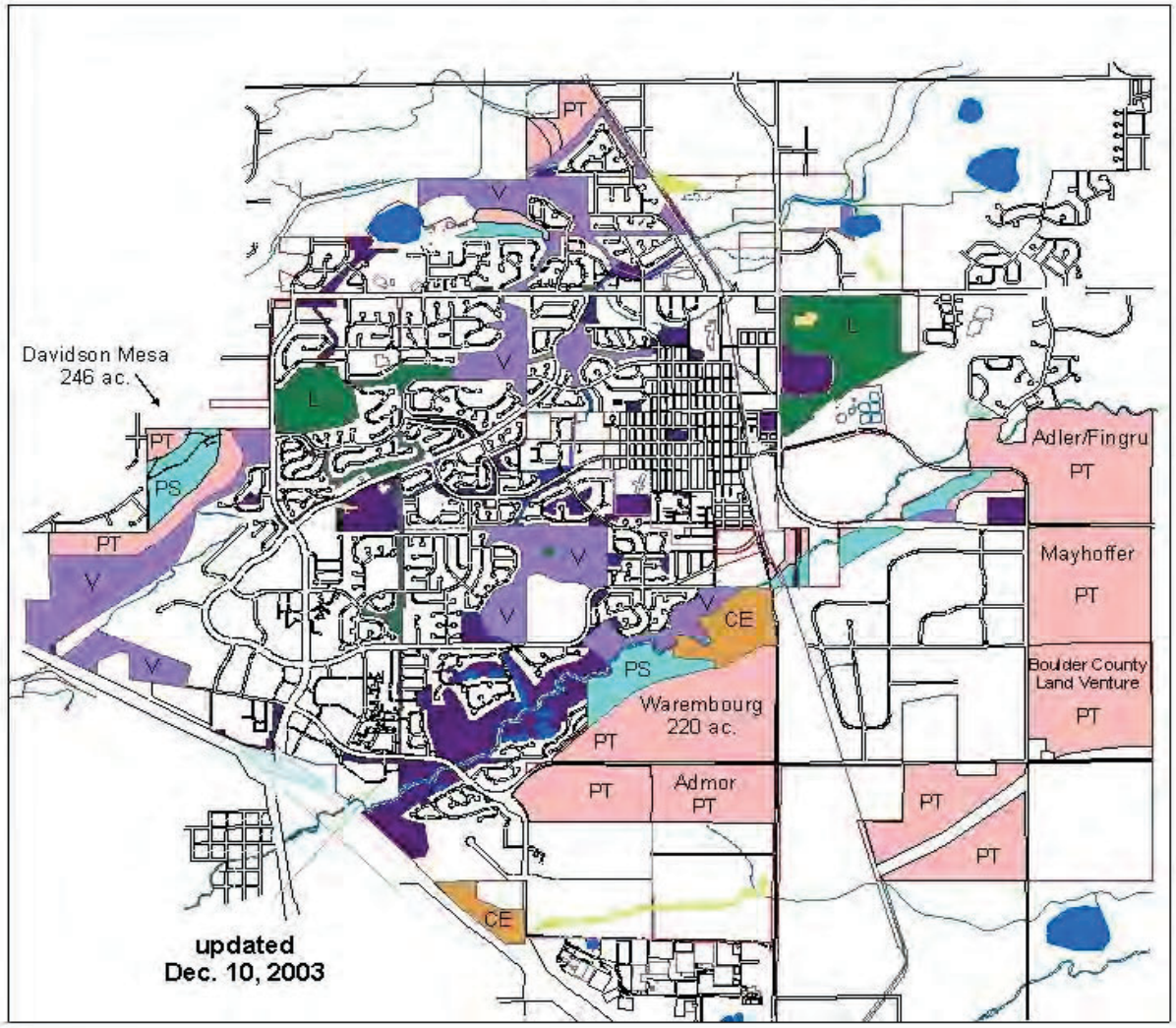
8. **If you have an alternative idea for a project, describe it here.**

    a. Text box for open ended answer

9. **If you have a visual example for a project, upload it here.**

    a. Option to upload photo or include link

City of Louisville Open Space



Map 1 - Open Space Master Plan Management Classifications

Based on vegetation and current wildlife use as well as ecological contiguity and restoration potential

Legend

Classification

- Private Lands Under Conservation Easement (CE)
- Open Space - OTHER Lands (L)
- Open Space - PRESERVE Land (PS)
- Open Space - PROTECT Land (PT)
- Open Space - VISITOR Land (V)

N

Base Map Source:
AutoCAD 2000 drawing file
provided by City of Louisville
Public Works Department
Revisions by City of Louisville
Department of Land Management

ESCO Associates Inc.

City of Louisville
Open Space

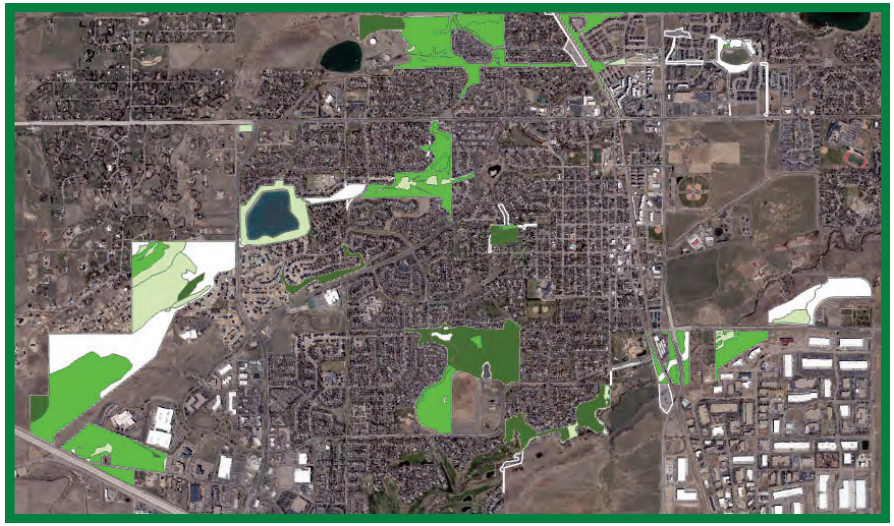
2025 City of Louisville Open Space Vegetation Surveying

City of Louisville
Open Space

Scope: All COL OS Properties

Surveys were focused on all substantial properties of the COL OS space portfolio. Methodology used: transects, remote sensing, vegetation mapping, T&E surveying

Data	Property	Survey Data (Transects)	Point Observations	Vegetation Mapping
Yes	Aquarius	No	Yes	Yes
No	Bullhead	No	No	No
Yes	Coyote Run	Yes	No	No
Yes	CTC	No	Yes	Yes
No	Damyanovich	No	No	No
Yes	Daughenbaugh	Yes	No	No
Yes	Davidson Mesa	Yes	Yes	Yes
Yes	Dutch Creek	No	Yes	Yes
No	Gateway	No	No	No
No	Harper Lake	No	No	No
Yes	Heda Lake	Yes	No	No
No	Hillside	No	No	No
Yes	North OS	Yes	No	No
Yes	Olsen	No	Yes	Yes
No	Walnut OS	No	No	No
Yes	Warembourg	Yes	No	No



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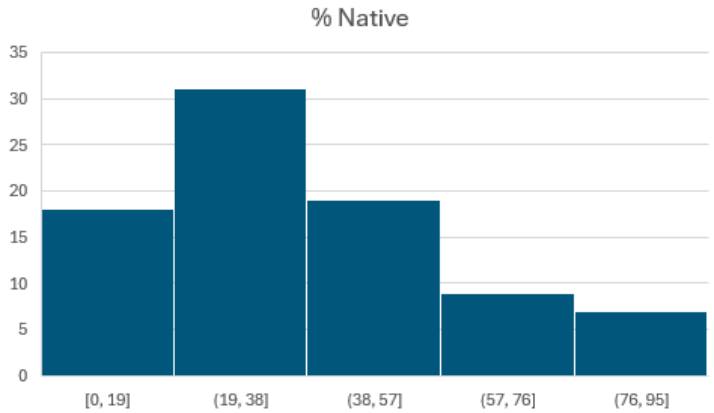
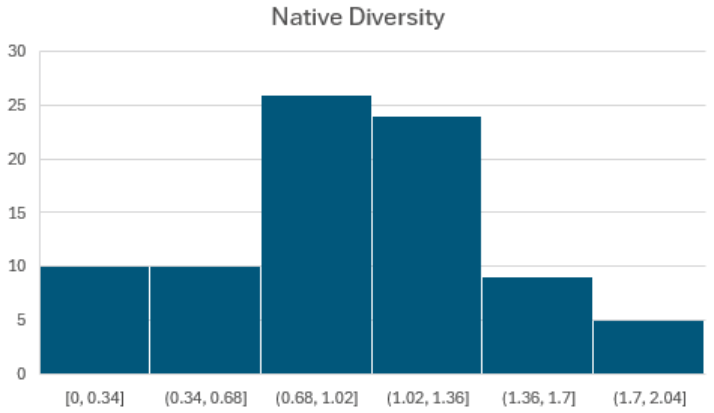
Key Data Sets

$$H' = -\sum_{i=1}^{S} p_i \ln p_i$$

- **% Native**
  - Percent of native plants that comprise the veg. Community of property
- **Native Diversity**
  - # of each species, proportion each species is of the total # of individuals, sum the proportion (times), the natural log of the proportion for each species
  - Typical Values 1.0 - 3.5 (rarely exceeds 4)
  - For us Range of (0 to 2.04)
- **T&E Species**
  - Presence & Absence of Threatened and Endangered species and habitats
- **Classifications and Methodology**
  - Updated land classifications
  - Creation of a Methodology for scoring classifications and future inventories (change over time)





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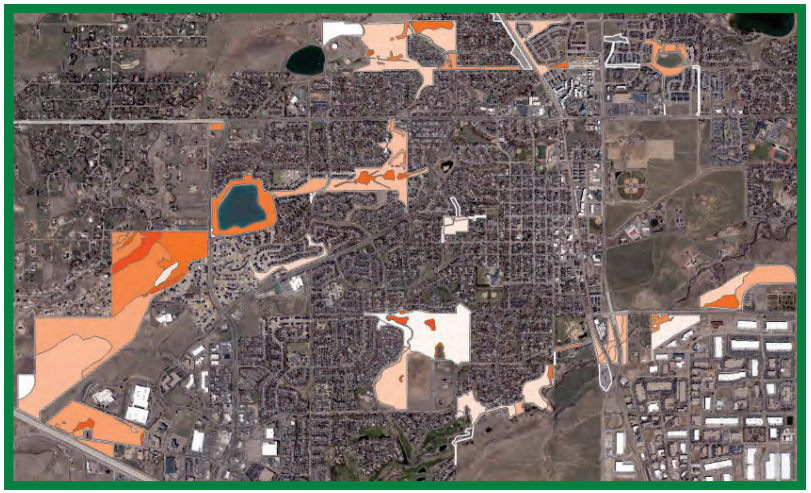
Moving Forward



Restoration Prioritization

This data helps to determine areas of focus with restoration and reseeding efforts (Grow the Core). Leveraging off of healthy population of natives, areas with native seed bank, etc.

Tracking Change Over Time

Baseline data to measure and compare changes in plant and vegetation communities, the ability to measure the success of restoration efforts, weed control effectiveness, classification movements, etc.

Established Quantified Scoring (Classifcations)

Creation of a set methodology for scoring classifications, qualitative and repeatable, can be used in the future to continue monitoring changes over time, plant communities and quality

City of Louisville
Open Space

Classifications and Home Rule Charter

Section 15-4. Classification and Management of Open Space Land

- **Open Space - Preserve Land**
  - Moderate to High level of relative ecological importance with lower levels of habitat fragmentation. This land shall be managed in a manner that preserves and promotes the long-term viability of native plants and native wildlife, restoration, restoration potential, and ecologically sound agricultural use.
- **Open Space - Protected Land**
  - Moderate to High levels of relative ecological importance with lower levels of habitat fragmentation shall be managed in the same manner as preserve land, except that management may permit passive recreation under select criteria
- **Open Space - Visitor Land**
  - lower level of relative ecological importance with higher levels of habitat fragmentation, shall be managed so that recreational opportunities are designed to encourage resource protection with minimal landscaping using native plants and limited irrigation.
- **Open Space - Other**
  - shall be managed to include construction of entryway features and trail rests, planting of trees, and other buffer plantings. Reasonable attempts shall be made to minimize the impact of entryway features and trail rests on the land, and to use native trees and plants

City of Louisville Open Space

Classification Changes

Old Classifications		
Category	**Acres**	**Percent**
Other	89.4	13.88%
Visitor	372.3	57.81%
Protect	95.41	14.80%
Preserve	86.98	13.50%

Total Other & Vistor
71.69%
Total Protect & Preserve
28.30%

New Classifications			
Category	**Acres**	**Percent**	**Percent Change**
Other	106.8	17.00%	(+) 3.12
Visitor	275.36	45.00%	(-) 12.81
Protect	139.51	23.00%	(+) 8.2
Preserve	95.12	15.00%	(+) 1.5

Total Other & Vistor	
62%	(-) 9.7%
Total Protect & Preserve	
38%	(+) 10%

Louisville Open Space Vegetation Survey 2025

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Introduction

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- illside pen Space
- Leon Wurl pen Space
- ort pen Space
- lson pen Space
- Walnut pen Space
- Waremburg pen Space

Methods

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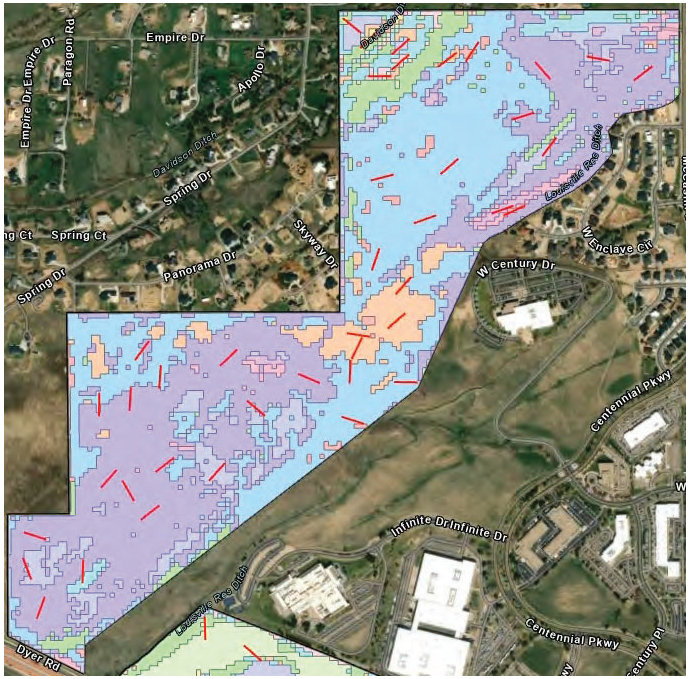
Desktop Review

- Remote Sensing Data data was used to identify changes in vegetation types.
- Transect Identification Using aerial imagery and remote sensing results, transects were placed in observed habitats with one transect for every five acres with no less than three transects per open space.
- If previous transects area available, they were used again for this survey.



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Methods - Continued

Site Visit

- Line Point Intercept Survey

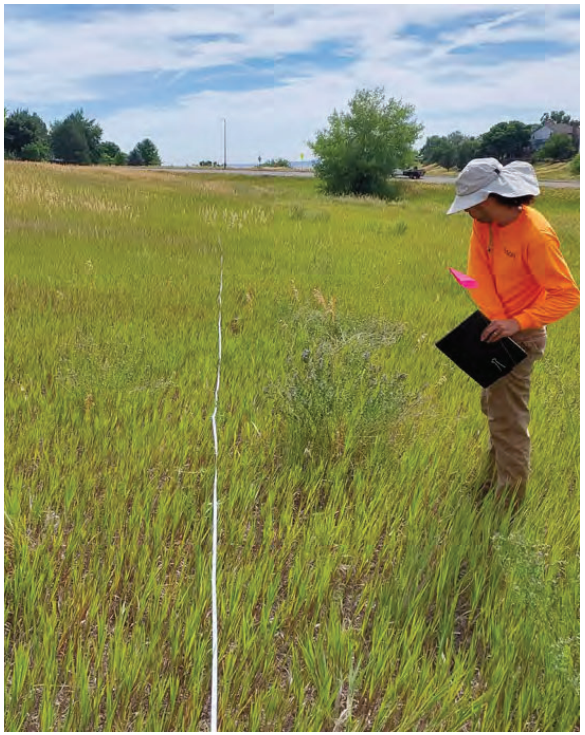
  50-meter transects with one point every meter on each side of the transect.

- Percent Cover Survey

  Overall percent cover of species was taken within 1 meter on each side of the 50 meter transect for a 200 square meter plot.

- Rare Communities and Noxious Species

  Boulder County Rare Plant Community and Colorado Department of Agriculture Noxious Weed List.



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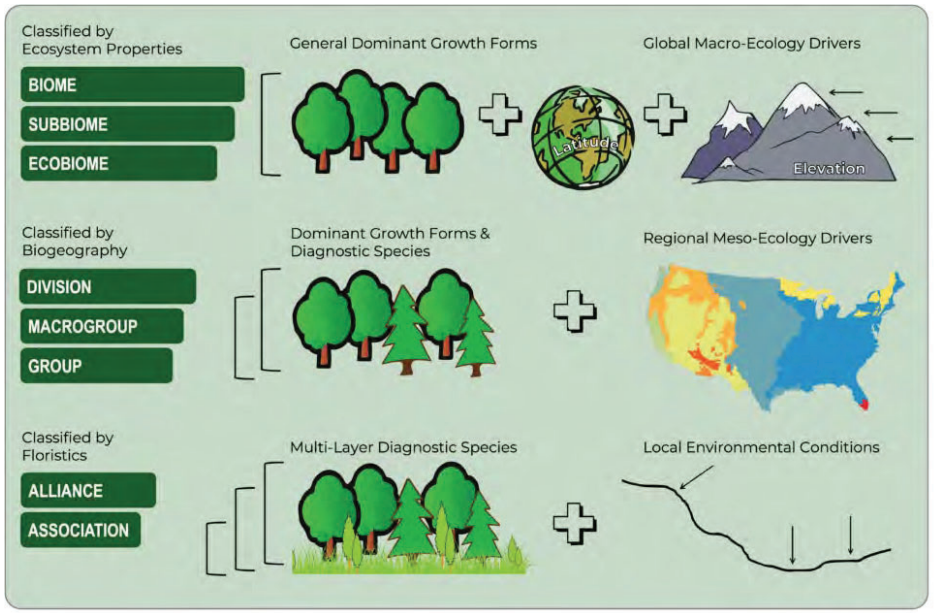
Post Field Work Classifications

National Vegetation Classification System

- Comprehensive Hierarchical Classification System
- The National Standard for Study, Classification, and Mapping
- Provides a Common Language for Effective Management
- Used by Most Agencies, NGOs, and Other Stakeholders across the Country
- This Survey was Completed Using Version 2.0, However, Version 3.0 Came Out In October



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National Vegetation Classification System

Using the line point intercept data and remote sensing results each open space was dissected based on the dominant vegetation types.

Next, the dominant species from the percent cover calculations was used to determine which classification each area most closely represents.

There are three levels of classification with upper, mid-, and lower levels which are then broken down into eight sub-levels.

Within each level there are increasing numbers of different Types of classifications. When possible, the Association and Alliance sub-levels were used. Some areas could only be classified to the Group sub-level

ierarc y	ypes
Upper Levels	
L1 - Biome	11
L2 - Subbiome	25
L3 - Biome	41
Mid-Levels	
L4 - Division	77
L5 Macrogroup	178
L6 - Group	441
Lower Levels	
L7 Alliance	1,520
L8 - Association	6,975

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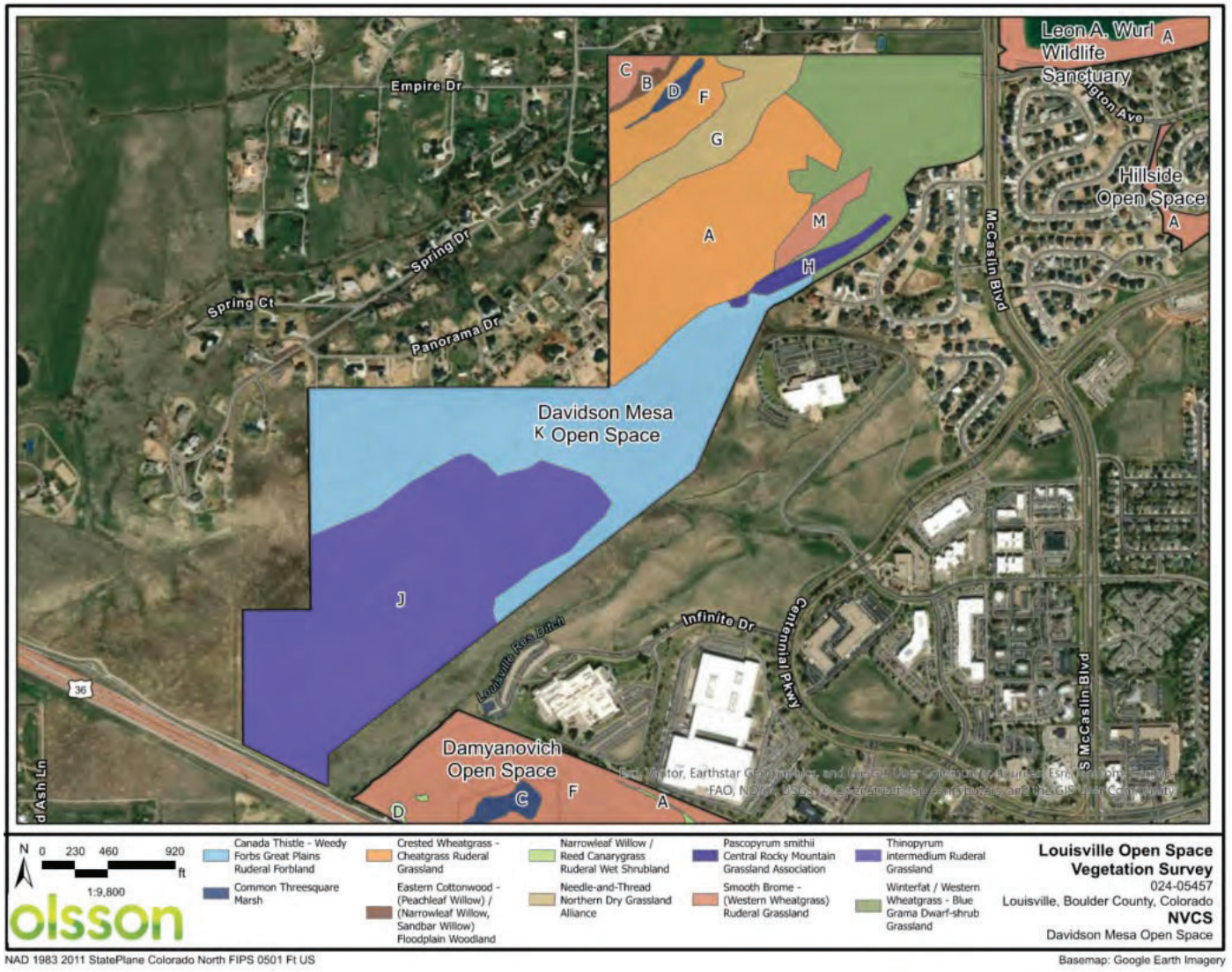
Leon A. Wurl Wildlife Sanctuary
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Empire Dr
Arrington Ave
Hillside Open Space
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Panorama Dr
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Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland
Common Threesquare Marsh
Crested Wheatgrass - Cheatgrass Ruderal Grassland
Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland
Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland
Needle-and-Thread Northern Dry Grassland Alliance
Pascopyrum smithii Central Rocky Mountain Grassland Association
Smooth Brome - (Western Wheatgrass) Ruderal Grassland
Thinopyrum intermedium Ruderal Grassland
Winterfat / Western Wheatgrass - Blue Grama Dwarf-shrub Grassland
Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
NVCS
Davidson Mesa Open Space
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US
Basemap: Google Earth Imagery

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There were 83 separate classified areas comprised of 28 different NVCS classifications

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National Vegetation Classification System	Number of Areas	Area (Acres)
Smooth Brome - (Western Wheatgrass) Ruderal Grassland	23	320.04
Thinopyrum intermedium Ruderal Grassland	1	63.77
Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	2	57.61
Crested Wheatgrass - Cheatgrass Ruderal Grassland	2	41.80
Wheatgrass - CheatCrested grass Ruderal Grassland	2	25.27
Eastern Cottonwood / Smooth Brome Ruderal Forest	9	13.63
Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	8	11.36
Needle-and-Thread Northern Dry Grassland Alliance	1	10.73
Curly Dock Ruderal Grassland	1	9.81
(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	3	5.10
Western Wheatgrass - Buffalograss - (Wedgeleaf, Spotted Evening-primrose) Wet Meadow	1	4.78
Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	3	4.08
Common Threesquare Marsh	3	3.51
Pascopyrum smithii Central Rocky Mountain Grassland Association	1	2.73
Reed Canarygrass Western Marsh	2	2.35
A4389 Needle-and-Thread Northern Dry Grassland Alliance***	2	1.89
Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	2	1.63
Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	2	1.48
Narrowleaf Cottonwood / River Hawthorn Riparian Woodland	1	1.35
Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	3	1.31
Nebraska Sedge Wet Meadow	3	1.22
Chokecherry Northern Plains Shrubland	1	0.87
Exotic Western Hardwood Planted Woodland Cultural Type	1	0.81
Great Plains Exotic Ruderal Woodland Group	2	0.68
Populus spp. - Robinia pseudoacacia Western Exotic Planted Woodland Association	1	0.64
Chairmaker''s Bulrush Western Marsh	1	0.04

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Overall Diversity Calculations

The Shannon Wiener Index was used to calculate diversity for each transect. $-\sum_{i=1}^{s} p_i \ln p_i$

This index was chosen as it is more sensitive to rate species and includes species richness and species distribution.

Low Diversity 1.5 Medium Diversity 1.5 2.5 High Diversity 2.5

Diversity correlates to the abundance of different species based on percent cover.

The highest score was at Gateway Open Space with a score of 2.17

The lowest score was at North Open Space with a score of 0.31

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Continuous Area / Habitat Fragmentation

Habitat Fragmentation occurs when a large area is converted to smaller isolated habitats

For the purposes of this survey, roads, railroad tracks, and commercial and residential developments were considered to break the continuity of an area.

To determine the level of fragmentation, continuous unbroken area was determined using aerial imagery and GIS data.

Larger properties typically had greater continuous area and therefore less Habitat fragmentation.

Davidson Mesa Open Space, Dutch Creek Open Space, Damyanovich Open Space, Aquarius, and North Open Space had the highest continuous area which were all over 200 acres.

Hillside Open Space, Bullhead Gulch Open Space, and Gateway Open Space had the lowest continuous area which were all less than 10 acres.

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Percent Native Species

The percent of native species coverage was calculated using the percent cover data.

Percent Cover was calculated for each transect plot and then overlayed on the NVCS classification areas.

The percent cover for each classification was calculated by averaging the percent native of all transects that are at least 50 within that classified area.

Percent Natie varied across the open space properties and even within the properties themselves.

The highest Percent Native was 94.29 is a wetland at Warembourg Open Space

The lowest Percent Native was 0 in a smooth brome dominated grassland at North Open Space

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Threatened and Endangered Species

During the survey, the properties were evaluated for suitable threatened and endangered species habitat.

Coal Creek within the Dutch Creek, Olson, and CTC open spaces has potentially suitable habitat for the federally threatened Preble's Meadow Jumping Mouse.

The prairie dog colonies are present throughout the open space properties which may provide nesting habitat for the state threatened Burrowing Owl.

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Native Diversity

Native Diversity was also calculated using only the percent cover of native species.

This calculation gave a better interpretation of the desirable species within each Open Space.

By removing non-native species, the scores decreased due to less species being included.

Scores ranged from 1.87 in the Needle-and-Thread Northern Dry Grassland Alliance at Davidson Mesa Open Space to 0.00 at North Open Space in the Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association.

Open Space Quality Scoring

DRAFT

Using the data we gathered, and the calculations made, a quality scoring method was developed.

Scores for Native Diversity, Percent Native, T&E Habitat, and Continuous Area / Fragmentation were used to produce a Quality Score.

Native Diversity and Percent Native were given a scale of 1-10, broken down by score percentiles.

T&E habitat was given a score of 1 for no habitat and 10 for suitable habitat for the federally listed PMJM. Due to the poor vegetative condition in prairie dog colonies, burrowing owl habitat was not included.

Continuous Area / Fragmentation was given a scale of 1-3, again broken down by percentiles.

These scores were then added up to get an overall quality score.

DRAFT

Louisville Open Space Quality Scoring

Scores were given to all classified areas, ranging from 6-30.

These scores were then correlated to Louisville's Home Rule Charter definitions for Open Space Quality.

The previous method of determining which level an area fell within was made strictly by a visual analysis.

This made the scoring subjective and difficult to repeat when new data was obtained.

The newly established scoring method is quantifiable and repeatable.

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LOUISVILLE OPEN SPACE VEGETATION SURVEY 2025

Prepared or:

City of Louisville Open Space Division

Louisville, Colorado

December 2025

Olsson Project No. 024-05457

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1. INTRODUCTION

This report documents the methods and results of a vegetation survey of the Louisville Open Space properties. The purpose of the survey is to determine vegetative communities within the properties and classify them according to the U.S. National Vegetation Classification (USNVC) system. The following properties were surveyed as part of this report (Figure 1, Appendix A).

- Aquarius Open Space
- Avista Open Space
- Bullhead Gulch Open Space
- Coyote Run Open Space
- CTC Open Space
- Damyanovich Open Space
- Daughenbraugh Open Space
- Davidson Mesa Open Space
- Dutch Creek Open Space
- Gateway Open Space
- Helca Lake Open Space
- Hillside Open Space
- Leon Wurl Open Space
- North Open Space
- Olson Open Space
- Walnut Open Space
- Waremburg Open Space

Phase A vegetation surveys were completed in 2024 for proposed trail locations. Transects from previous surveys were used when applicable and new transects were placed in areas with transitions in vegetative communities to document vegetation classifications. In 2025 (Phase B) all open space properties were surveyed with transects placed throughout the properties to determine what vegetation classifications were present. Vegetation classes were then analyzed to determine fragmentation based on the amount of continuous area, percent native, native diversity, and overall diversity. Any rare or noxious species were noted and overall percent cover around the transects was taken.

Methods for the field work and post field work are described below in Section 2. Results can be found in Section 3, and a discussion can be found in Section 4.

1.1 Open Space Background

The Louisville Open Space Properties are located throughout the city ranging in size from 1.5 acres at Gateway to 210 acres at Davidson Mesa. Most of the open space properties were once rural pastureland which has since been annexed by the city as it grew. Because the primary purpose of the land was for livestock production, many of the open spaces were once seeded with non-native grasses which provide a more reliable yield. While livestock production was the primary use of these lands prior to being protected, some areas still consist of naturalized habitats especially along Dutch Creek.

The Louisville Open Spaces are currently classified as Preserve, Protect, Visitor, or Other as described in Article 15 of the Louisville Home Rule Charter. These classifications are relevant in ensuring that these open spaces are managed with good stewardship and sound ecological

principles. The management classifications help determine the management policies for reasonable levels of protection, consistent with the desired use of the property.

The Home Rule Charter defines the management classes as follows:

Open Space – Preserve

1) Land under this classification is characterized by a moderate to high level of relative ecological importance with lower levels of habitat fragmentation. It is the intention that land under this classification, when possible, shall include sufficient surrounding lands, to serve as a buffer to permit the successful management of this classification of land.
2) This land shall be managed in a manner to preserve and promote the long-term viability of native flora and fauna, restoration, restoration potential and ecologically sound agricultural use. It is the intention that management of City-owned lands surrounding Open Space-Preserve lands shall, to the extent possible, not be in conflict with the management required under this section. Visitation for research purposes and formal supervised educational visitation are permitted. It is intended that there shall be no or very low levels of passive recreational visitation.
3) When there is a real conflict between human use and any area or item of ecological importance in this classification of land, preference shall be given to sustaining the area or item of ecological importance.

Open Space – Protect

1) Land under this classification shall be characterized by a higher to moderate level of relative ecological importance with higher levels of habitat fragmentation.
2) This land shall be managed in the same manner as Open Space-Preserve Land, except that management may permit passive recreational opportunities so long as:
    a. the passive recreational opportunities are designed to encourage resource protection, long-term ecological viability of native flora and fauna, restoration, ecologically sensitive agricultural use, research and education; and
    b. the recreational impacts can be contained to prevent spillover to Open Space-Preserve Land.
3) Visitation levels to this classification of land shall be moderate to moderately high.
4) When there is a real conflict between human use and any area or item of ecological importance in this classification of land, preference shall be given to sustaining the area or item of ecological importance.

Open Space – Visitor

1) Land under this classification shall be characterized by a higher to moderate level of relative ecological importance with higher levels of habitat fragmentation.

2) Open Space-Visitor Land is intended to be managed so that recreational opportunities are compatible with resource protection with minimal landscaping using native plants and limited irrigation. Moderate to high levels of visitation may be permitted on land in this classification.

Notwithstanding the foregoing, all current uses, including those contemplated in any intergovernmental or other contractual obligation of the City in existence before the enactment of the Open Space ordinance, will be allowed unless and until the City Council recommends a change and takes all necessary legal steps to implement such a change. The Open Space Advisory Board may recommend such a change to Council at any time.

City decisions regarding Open Space identification, classification and management shall consider the best available information.

Open Space – Other

1) Open Space – other lands shall be managed to include construction of entryway features and trail rests, planting of trees and other buffer plantings, provided that reasonable attempts shall be made to minimize the impact of entryway features and trail rests on the land, and reasonable attempts are made to use native trees and plants.
2) High levels of visitation and use consistent with existing patterns shall be permitted on such open space – other lands

While these classifications are important for the management of the open space properties, they are subjective and can be interpreted differently depending on who is classifying them. One goal of the 2025 vegetation surveys is to establish a quantitative method of classifying the open spaces for management purposes.

1.2 Previous Vegetation Surveys

Vegetation monitoring occurred in 2018 (Ecotone 2018) and 2019 (Ecotone 2019) for Davidson Mesa. While areas were classified during this effort, the categories do not match the current NVCS.

The 2018 survey only covered the northern half of Davidson Mesa Open Space. Vegetation types were classified as Disturbed, Tall Introduced Grass, Native Dominated, Prairie Dog, Smooth Brome, Ditch Woody, Rose, Wetland Seep, Crested Wheatgrass, Open Gravel Native, Trail, and Dog Park – Parking. Twenty 50-meter transects were placed throughout the northern half of Davidson Mesa. Data taken during this survey included line-point intercept data points 0.5 meter each side of the transect with points taken at each meter for a total of 100 points per transect. Data analyzed during this survey included species composition throughout the open space such as average cover, frequency, and relative vegetative cover. The report also discusses vegetation populations within the land classifications described above. Finaly the

report discusses results of the line-point intercept survey for litter, bare soil, total vegetation cover, ground cover, and species diversity.

The 2019 survey only covered the southern portion of Davison Mesa. This survey used the same land classifications as the 2018 survey and recorded the same data for the southern half of the open space property.

In 2020 an additional vegetation survey was completed for Aquarius, CTC, Olson and Dutch Creek (Ecotone 2020). Transects were only taken at Aquarius. The other open space properties were classified in the field visually. Classes used during this survey include Planted Introduced Grass, Wetland, Wetland – Typha, Woodland, *Populus alba* Woodland, Trail, Prairie Dog Disturbance, Irrigation Ditch, Coal Creek, Trail, Rock Outcrop, Railroad, and Bridge Rock Armor. Like the 2018 and 2019 surveys, transect data for Aquarius was used to determine species composition throughout the open space such as average cover, frequency, and relative vegetative cover.

A comparison of the past surveys at Davidson Mesa with the current survey will be discussed in Section 4 below.

2. METHODS

The methods used for Phase A and Phase B of the vegetation surveys were meant to be similar in structure to the previous vegetation surveys completed in 2018, 2019, and 2020. When possible, the same transects used in the previous survey were used again. Because of the lack of transects in all open space areas and within areas already surveyed, additional transects were selected to ensure that the majority of vegetation classifications present within the open space properties were documented.

2.1 Desktop Review

The initial stage of the survey was a desktop review. The desktop review involved natural resources data such as the National Wetland Inventory, National Land Cover Dataset, and remote sensing techniques. Grassland areas within the Project Area will be classified using current satellite imagery (e.g., National Agriculture Imagery Program [NAIP], Sentinel 2 Imagery, etc.) and remote sensing algorithms to detect grasslands at finer spatial scales than what is available in publicly available data. Data gained form the desktop review was used to place transects in most vegetative communities to get a complete evaluation of what's present in each open space.

For Phase A, the same desktop methods would be used to identify vegetative communities. Transects will be placed so that all vegetative communities will be included. The number of transects will be determined using a one transect per linear 1,000 feet (ft). If additional

vegetative communities are not covered by these transects, an additional transect may be used or transect locations may be shifted to cover multiple communities. There will be at least one transect per trail line, including the connectors at Warembourg and Daughenbaugh.

For Phase B areas where transect locations are not defined, Olsson will presume approximately one transect per five acres (ac) with no fewer than three transects per open space regardless of size. Larger sites such as Aquarius, which is approximately 31.2 ac, there would be 6.24 rounded down to six transects. On the other hand, sites such as Walnut which is approximately 8.5 ac would still have three transects. Table 1 provides details on the number of transects for each open space property.

able 1 ransect mount Selection

Phase A		
Site ID	Trail Length (ft)	Number of Transects
Avista	2,270	2
Damyanovich	1,675	2
North	3,833	4
Warembough / Daughenbaugh	2,963	5 (individual transects for each connector)
Walnut	339	1
Davison Mesa	389	1
Olson	1,039	2 (multiple communities present including riparian)
otal		**1**

Phase B		
Site ID	Area (ac)	Number of Transects
Avista	9.3	3
Aquarius	31.2	6
Bullhead	18.5	4
Coyote Run	47.7	10 total including 5 existing

Phase B		
Site ID	Area (ac)	Number of Transects
Damyanovich	44.17	9
Daughenbaugh	23.5	5 total including 1 existing
Davidson Mesa	209.4	40 all existing
Dutch Creek	28	6
Gateway	1.2	3
Harper Lake	49 (20 non-water)	4
Helca Lake	17.4 (11.7 non-water)	4 total including 1 existing
Hillside	8.2	3
North	68.5	14 total including 6 existing
Olson / CTC	34.5	7
Walnut	8.5	3
Warembourgh	58	12 total including 3 existing
otal		**1**

2.2 Site Visit

For Phase A, the site visit was completed in September of 2024. Methods followed standard line-point intercept methodology with cover-point optical scope with points being taken half a meter from the transection each side of the 50 meter transects. Overall percent cover for each transect was also taken. Transects were surveyed over three (3) days working as a team of two to get data from both sides of the transects surveyed in unison. This allowed for quick survey times and surveyors to verify species identification with one another. For Phase B, the site visits were completed in late July and early August of 2025. Phase B followed the same methods as Phase A.

Additionally, the rare plant communities, significant natural communities, and rare species described in the Boulder County Comprehensive Plan for Environmental Resources Elements (Boulder County 2020) were reviewed to determine if any sensitive species or habitats used within the county were present. This allows the City of Louisville to have the potential to collaborate with the county on future projects and potential restoration.

2.3 Data Analysis

Following the site visit transects were analyzed for percent native, native diversity, and overall diversity. Next, using the transect and percent cover data, the open space properties were classified using the USNVC 2.0.

The USNVC system is a comprehensive and hierarchical framework designed to classify all vegetation types across the United States. It serves as the national standard for studying, classifying, inventorying, and mapping both natural and cultural vegetation. By providing a consistent language and structure, USNVC supports effective management and conservation of plant communities among federal agencies, non-governmental organizations, and other stakeholders. The system is maintained through a formal partnership coordinated by the Federal Geographic Data Committee (FGDC) – Vegetation Subcommittee, with the USDA Forest Service acting as the lead agency.

Note that the USNVC 3.0 was released in October 2025, however this version was not available during the initial classification. No major changes in vegetation classification were observed, however, there may be small differences in the classifications between the two versions.

The USNVC is made up of an eight-tiered hierarchy consisting of the three levels: the upper, mid, and lower levels. The upper level consists of ecosystem properties at a global scale; the mid-levels continental biogeography and ecological gradients, and the lower levels consist of floristic and environments at a local scale (Muldavin et. al. 2025). Table 2 shows the different levels and subdivisions of the USNVC system.

able 2 S ierarc y o Le els and Subdi isions

ierarc y	ypes
Upper Levels	
L1 - Biome	11
L2 - Subbiome	25
L3 - Biome	41
Mid-Levels	
L4 - Division	77
L5 – Macrogroup	178
L6 - Group	441

ierarc y	ypes
Lower Levels	
L7 – Alliance	1,520
L8 - Association	6,975

All areas were classified to the lowest level possible. For most areas, classifications to the Association level were made, however, not all areas were classified to this level with some being classified to Alliance and some to Group.

Next the transect data was analyzed primarily using the percent cover data and some of the line-point intercept data. Calculations for overall diversity and native diversity were made using the Shannon-Weiner index. Next, the percentage of native species compared to the overall total was calculated by taking the percentage of native species per transect and dividing that by the total percentage of that transect and multiplying by 100 to get “Percent Native”. Finally, the transect data was evaluated to determine if any noxious, rare, or protected species were present.

Transect data was then correlated by location with the USNVC classified areas. Transects with at least 50 percent of the line-point intercept points in a classified area were then used to determine an average for the classified area. That area was then given the average for overall diversity, native diversity, and percent native.

3. RESULTS

Results of the survey are shown below for each open space property. Metrics including overall diversity, native diversity, and percent native are shown for each classified area within each one space. Additional details on the presence of noxious, rare, and protected species or habitats are also provided for each classified area.

Finally, the combination of all open space properties were analyzed by classification and are presented to give an overall picture of the different areas within the city of Louisville. Open Space USNVC Classification

3.1 Aquarius Open Space

Aquarius Open Space is located on the eastern edge of the Louisville city limits. The property totals approximately 31.17 acres. Three NVCS classifications were identified within the property including *Curly Dock Ruderal Grassland Association* in the northern and western portions of the property, *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* in the

southern portion of the property, and *Western Wheatgrass - Buffalograss - (Wedgeleaf, Spotted Evening-primrose) Wet Meadow Alliance* in the eastern half of the property.

The *Curly Dock Ruderal Grassland Association* consisted of weedy species common to areas which have been manipulated by humans in the recent past. Dominant species include curly dock (*Rumex crispus*) and field bindweed (*Convolvulus arvense*). Field bindweed is a List C Species according to the Colorado Department of Agriculture (CDA) noxious weeds list.

Notable native species within the *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* in the southern portion of the property include blue grama (*Bouteloua gracilis*) and western wheatgrass (*Pascopyrum smithii*). However, downy brome (*Bromus tectorum*) is also dominant and is included as a List C Species according to the CDA noxious weeds list.

The *Western Wheatgrass - Buffalograss - (Wedgeleaf, Spotted Evening-primrose) Wet Meadow Alliance* is located in the eastern half of the property. The dominant species in this class is smooth brome (*Bromus inermis*) and crested wheatgrass (*Agropyron cristatum*).

Table 3 provides the results of the vegetation survey for each NVCS class area identified within the property.

able uarius pen Space Results

S	D	erall Di ersity	ati e Di ersity	ontinuous rea cres	Percent ati e	abitat Present	rea cres
urly Doc Ruderal rassland ssociation	A	1.5	1.31	200+	19.37	No	9.81
Smoot rome Western W eatgrass Ruderal rassland ssociation	B	1.69	1.13	200+	25.81	No	16.58
Western W eatgrass u alograss Wedgelea , Spotted ening primrose Wet Meado ssociation	C	1.79	1.39	200+	64.71	No	4.78

3.2 Avista Open Space

Avista Open Space is located on the southern end of Louisville. The property is approximately 9.39 acres in area. Two NVCS classifications were identified within the property including *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* and *Eastern*

Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association.

The dominant species throughout the site is smooth brome (*Bromus inermis*) which makes up the *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association.* No other species in this association were above five percent total cover.

Meanwhile the *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association* is associated with a drainage way extending through the central portion of the property and the dominant species in this area is narrowleaf willow (*Salix exigua*).

Table 4 provides the results of the vegetation survey for each NVCS class area identified within the property.

able 4 ista pen Space Results

S	D	erall Di ersity	ati e Di ersity	ontinuous rea cres	Percent ati e	abitat	rea cres
Smoot rome Western W eatgrass Ruderal rassland	A	1.33	1.03	121	6.5	N	9.28
astern otton ood Peac lea Willo arro lea Willo , Sandbar Willo Floodplain Woodland	B	1.27	1.73	121	43.75	N	0.11

3.3 Bullhead Gulch Open Space

Bullhead Gulch Open Space is located in the northeastern portion of Louisville. This property is approximately 10.26 acres in size. The property consists of open areas dominated by grassland surrounding a residential development. Two NVCS associations and one NVCS alliance consisting of two areas were identified within the property. The two associations include *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association* and *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association*. The *Needle-and-Thread Northern Dry Grassland Alliance* is only classified to the alliance level due to no defining associations available.

The *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association* canopy is dominated by eastern cottonwood (*Populus deltoides*), and the dominant species in the understory is blue grama (*Bouteloua gracilis*) and smooth brome.

The *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* is dominated by smooth brome. The *Needle-and-Thread Northern Dry Grassland Alliance* which consisted of native grasses such as blue grama, sideoats grama (*Bouteloua curtipendula*), western wheatgrass (*Pascopyrum smithii*), needle and thread (*Hesperostipa comata*).

Table 5 provides the results of the vegetation survey for each NVCS class area identified within the property.

able 5 ull ead ulc pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
eedle and read ort ern Dry rassland lliance	A	1.98	4.85	55.71	N	1.18	0.48
astern otton ood Peac lea Willo arro lea Willo , Sandbar Willo Floodplain Woodland ssociation	B	0.62	4.85	55.71	N	1.18	0.27
Smoot rome Western W eatgrass Ruderal rassland ssociation	C	0.99	10	21.5	N	1.12	10.26
eedle and read ort ern Dry rassland lliance	D	1.78	2.38	67.78	N	1.42	1.42

3.4 Coyote Run Open Space

Coyote Run Open Space is located in the north central portion of Louisville. The property is approximately 47.95 acres in size. The property is surrounded by residential development and other open areas including Leon A. Wurl Open Space. Five different associations were identified within the property including the following.

- *Chokecherry Northern Plains Shrubland Association*
- *Eastern Cottonwood / Smooth Brome Ruderal Forest Association*
- *(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh Association*
- *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association*

The *Chokecherry Northern Plains Shrubland Association* is located in a low area on the east side of the property. This area consists of a shrub stratum with narrowleaf willow and American

plum (*Prunus americana*) being dominant with wetland herbaceous species such as common three-square bulrush (*Scirpus pungens*) in the understory.

Eastern Cottonwood / Smooth Brome Ruderal Forest Association is located in the eastern and northern portion of the property. Eastern cottonwood is the dominant species in the canopy with smooth brome being dominant in the understory.

The *(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh Association* is located in a low area on the east side of the property. The dominant species in this wetland area is narrowleaf cattail (*Typha angustifolia*) being the dominant species.

The *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* is located throughout the property with smooth brome consisting of at least 70 percent of vegetative cover. Two areas of this association are present but separated by Tyler Avenue.

Table 6 provides details on the results of the survey for Coyote Run Open Space.

able 6 oyote Run pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Smoot rome Western W eatgrass Ruderal rassland ssociation	A	1.35	96	26.71	N	1.09	7.15
Smoot rome Western W eatgrass Ruderal rassland ssociation	B	1.2	80	22.98	N	0.9	32.20
roadlea attail, arro lea attail Western Mars ssociation	C	1.44	80	69.07	N	1.01	4.56
o ec erry ort ern Plains S rubland ssociation	D	1.6	80	75.31	N	1.18	0.87
astern otton ood Smoot rome Ruderal Forest ssociation	E	1.13	80	31.85	N	0.73	3.18

3.5 CTC Open Space

CTC Open Space is located on the eastern end of Louisville. Three associations were identified within the property including *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow,*

Sandbar Willow) Floodplain Woodland, Smooth Brome - (Western Wheatgrass) Ruderal Grassland, and *(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh*.

The *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland* includes a reach of Coal Creek riparian habitat which may be suitable for the federally threatened Preble's meadow jumping mouse (PMJM; *Zapus hudsonius preblei*). The dominant species in the canopy is eastern cottonwood with box elder (*Acer negundo*) and crack willow (*Salix fragilis*) also present in the canopy and the shrub layer. Common snowberry (*Symphoricarpos alba*) is also present in the shrub stratum and smooth brome is dominant in the herbaceous layer.

Smooth Brome - (Western Wheatgrass) Ruderal Grassland makes up the majority of the property. Smooth brome and western wheatgrass are the dominant species in this area.

The *(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh* association is located int eh northern portion of the property near Coal Creek. Narrowleaf cattail is the dominant species within this wetland habitat. This area lacks the multiple stratums needed to be considered habitat for PMJM.

Table 7 provides details on the results for the Coyote Run Open Space vegetation survey.

able pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Smoot rome Western W eatgrass Ruderal rassland	A	1.48	86	7.59	N	1.23	14.13
roadlea attail, arro lea attail Western Mars	B	1.87	86	50	N	1.72	0.37
astern otton ood Peac lea Willo arro lea Willo , Sandbar Willo Floodplain Woodland	C	1.87	86	50	Y	1.72	2.68

3.6 Damyanovich Open Space

Damyanovich Open Space is in the southwest portion of Louisville along the Denver-Boulder Turnpike. This property consists of two areas of *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association,* two areas of *Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland Association,* and two areas of *Common Three-square Marsh Association*.

The two areas of *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* make up the majority of the property with one area north of Dyer Road and another area south of Dyer Avenue. Dominant species include smooth brome and Idaho fescue (*Festuca idahoensis*).

Two areas of *Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland Association* were also identified within the property. One area is in the northeast corner, and the other is in the southwest corner of the property.

The two areas of the *Common Three-square Marsh Association* are located in the middle of the and east end of the property. Common three-square and green bulrush (*Juncus effusus*) were the dominant species with narrowleaf cattail also present. Only one of the areas of this association had transect data, so both areas were given the same scores.

Table 8 provides details on the results for the Damyanovich Open Space vegetation survey.

able Damyano ic pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
arro lea Willo Reed anarygrass Ruderal Wet S rubland	A	1.14	200	17	N	0.27	0.48
ommon ree s uare Mars	B	1.81	200+	85	N	1.66	0.54
ommon ree s uare Mars	C	1.81	200+	85	N	1.66	2.01
arro lea Willo Reed anarygrass Ruderal Wet S rubland	D	1.63	200+	38.89	N	1.28	0.64
Smoot rome Western W eatgrass Ruderal rassland	E	1.26	8.41	32.52	N	0.64	4.85
Smoot rome Western W eatgrass Ruderal rassland	F	1.26	200+	32.52	N	0.63	34.54

3.7 Daughenbaugh Open Space

Daughenbaugh Open Space is in the south central portion of Louisville. This property abuts the southern portion of Warembourg Open Space which is discussed in more detail below. Most of the property falls within the *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* with four other associations including *Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland Association, Chairmaker's Bulrush Western Marsh Association, Nebraska*

Sedge Wet Meadow Association, and *Eastern Cottonwood / Smooth Brome Ruderal Forest Association.*

Unlike other properties with the *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association,* the dominant species in this area is field bindweed (*Convolvulus arvensis*) with smooth brome still present but only dominant in one transect.

The *Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland Association* is located on the western boundary of the property. The dominant species in this area is Kentucky bluegrass (*Poa compressa*) which may have spread from adjacent residential developments.

The *Chairmaker's Bulrush Western Marsh Association, Nebraska Sedge Wet Meadow Association* is located in a narrow concrete lined drainage on the west side of the property. The edge of the concrete ditch had sedge and rush species indicating that water floods outside of the ditch at certain times of the year.

As its name suggests, the *Nebraska Sedge Wet Meadow Association* is dominated by Nebraska sedge (*Carex nebrascensis*). This area is also a low lying drainage running along the west side of the property.

The *Eastern Cottonwood / Smooth Brome Ruderal Forest Association* consists of a small stand of eastern cottonwood on the east side of the property.

Table 9 provides details on the results for the Daughenbaugh Open Space vegetation survey.

able 9 Daug enbaug pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Smoot rome Western W eatgrass Ruderal rassland	A	1.5	81	20	N	0.93	22.43
entuc y luegrass Western W eatgrass Ruderal rassland	B	1.59	81	13.33	N	1	0.56
airma er s ulrus Western Mars	C	1.47	81	50	N	1.31	0.04
ebras a Sedge Wet Meado	D	2.03	81	43.37	N	1.31	0.30
astern otton ood Smoot rome Ruderal Forest	E	0.97	81	90	N	0.63	0.22

3.8 Davidson Mesa Open Space

Davidson Mesa Open Space is located on the west side of Louisville and is the largest open space in the city. Due to its size, it consists of many different vegetation classifications. Below is a list of NVCS associations or alliances in the property.

- *Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland Association*
- *Crested Wheatgrass - Cheatgrass Ruderal Grassland Association (x2)*
- *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association*
- *Common Three-square Marsh*
- *Thinopyrum intermedium Ruderal Grassland Association*
- *Needle-and-Thread Northern Dry Grassland Alliance*
- *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association (x2)*
- *Winterfat / Western Wheatgrass - Blue Grama Dwarf-shrub Grassland Association (x2)*
- *Pascopyrum smithii Central Rocky Mountain Grassland Association*

The *Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland Association* makes up the central portion of the property. This area is dominated by field bindweed indicating that weedy noxious species have established throughout this area. Other species of note include western wheatgrass and smooth brome.

The *Crested Wheatgrass - Cheatgrass Ruderal Grassland Association* is in the northwest portion of the property. This area is dominated by western wheatgrass, crested wheatgrass and prickly Russian thistle (*Salsola tragus*). While western wheatgrass is present, most species are weedy invasives.

The *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association* is located along a small drainage in the northwest corner of the property. Eastern cottonwood is the dominant species in the canopy with smooth brome and crested wheatgrass in the understory.

The *Common Three-square Marsh Association* is in a depression in the northwest portion of the property. Dudley's rush (*Juncus dudleyi*) and common three-square are the dominant species within this wetland habitat.

The *Thinopyrum intermedium Ruderal Grassland Association* areas in the southern portion of the property. This area is dominated by intermediate wheatgrass (*Thinopyrum intermedium*) with brome species such as smooth brome and downy brome at lesser amounts. Downy brome is a List C noxious weed according to the CDA noxious weed list.

The *Needle-and-Thread Northern Dry Grassland Alliance* is in the northern portion of the property. This area is dominated by herbaceous species including wood's rose (*Rosa woodsii*) and grass species such as needle and thread (*Hesperostipa comata*).

The *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* areas are in the northwest corner and northeast portion of the property. These areas are dominated by smooth brome with the property in the northwest corner of the property having a more diversity (Report ID C) with Dudley's rush and showy milkweed (*Asclepias speciosa*) due to the transition from a riparian habitat to an upland habitat.

Winterfat / Western Wheatgrass - Blue Grama Dwarf-shrub Grassland Association areas are in the northeast corner of the property. The area is dominated by western wheatgrass with smooth brome common mullein (*Verbascum thapsus)* also present in lesser concentrations. Common mullein is a List C Species according to the CDA noxious weeds list.

The *Pascopyrum smithii Central Rocky Mountain Grassland Association* is located in the northeast corner of the property. The dominant species is western wheatgrass with lesser amount of Kentucky bluegrass and smooth brome.

Table 10 provides details on the results for the Davidson Mesa Open Space vegetation survey.

able 10 Da idson Mesa pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Crested Wheatgrass - Cheatgrass Ruderal Grassland	A	1.52	200+	50.38	N	1.49	33.58
Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	2.1	200+	38.96	N	1.34	0.88
Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	2	200+	40	N	0.97	1.94
Common Three-square Marsh	D	1.3	200+	85	N	1.04	0.95
Needle-and-Thread Northern Dry Grassland Alliance	E	1.68	200+	90.92	N	1.87	10.73
Crested Wheatgrass - Cheatgrass Ruderal Grassland	F	1.38	200+	50	N	0.72	8.23

Needle-and-Thread Northern Dry Grassland Alliance	G	1.68	200+	90.92	N	1.87	10.73
Pascopyrum smithii Central Rocky Mountain Grassland Association	H	1.22	200+	84.61	N	1.48	2.73
Thinopyrum intermedium Ruderal Grassland	J	1.17	200+	19.92	N	0.65	58.13

3.9 Dutch Creek Open Space

Dutch Creek Open Space is located in the southern portion of Louisville along Coal Creek. This property has four different associations including *Wheatgrass – Cheat Crested grass Ruderal Grassland Association, Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association, Reed Canarygrass Western Marsh Association,* and *Populus spp. - Robinia pseudoacacia Western Exotic Planted Woodland Association.*

The *Wheatgrass – Cheat Crested grass Ruderal Grassland Association* areas make up most of the property. There are two large areas, the first is located on the west side and the second is on the east side of the property. Smooth brome and crested wheatgrass are the dominant species in this grassland habitat.

The *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association* makes up the riparian area along Coal Creek. Eastern cottonwood Is the dominant species in the canopy with narrowleaf willow (*Salix exigua*) and reed canarygrass (*Phalaris arundinacea*) in the understory. This classification has suitable habitat for PMJM, a federally listed threatened species.

The *Reed Canarygrass Western Marsh Association* is in a depression in the eastern portion of the property. This wetland habitat is dominated by reed canarygrass with lesser concentrations of *Populus spp*. and smooth brome.

The *Populus spp. - Robinia pseudoacacia Western Exotic Planted Woodland Association* is in the western portion of the property. This area is located near the Dutch Creek Golf Course and a residential development. The canopy is dominated by white poplar (*Populus alba*) with smooth brome dominant in the understory.

Table 11 provides details on the results for the Dutch Creek Open Space vegetation survey.

able 11 Dutc ree pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
W eatgrass eat rested grass Ruderal rassland	A	1.35	200+	12.7	N	0.7	19.49
astern otton ood Peac lea Willo arro lea Willo , Sandbar Willo Floodplain Woodland	B	1.78	200+	24.77	Y	1.18	4.13
W eatgrass eat rested grass Ruderal rassland	C	1.76	200+	12.7	N	0.7	0.39
Reed anarygrass Western Mars	D	2.09	200+	61.05	N	1.51	1.17
Populus spp Robinia pseudoacacia Western otic Planted Woodland ssociation	E	1.66	200+	12	N	0.45	0.64

3.10 Gateway Open Space

Gateway Open Space is in the northwest corner of Louisville and is one of the smallest open spaces surveyed. The entire site consists of the *Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland Association.* While smooth brome is observed throughout the property, many native species such as tarragon (*Artemisia dracunculus*) and white sagebush (*Artemisia ludoviciana*) were also present.

Table 12 provides details on the results for the Gateway Open Space vegetation survey.

able 12 ate ay pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
anada istle Weedy Forbs reat Plains Ruderal Forbland	A	2.17	6.33	51.28	N	1.77	1.37

3.11 Hecla Lake Open Space

As its name suggests, the Hecla Lake Open Space surrounds Hecla Lake in the northeastern portion of town. Six different classifications were identified in the property with five associations and one group. The following classifications were identified:

- *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association*
- *(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh Association*
- *Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland Association*
- *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association*
- *Great Plains Exotic Ruderal Woodland Group*
- *Eastern Cottonwood / Smooth Brome Ruderal Forest Association*

The *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* makes up most of the property. Smooth brome is the dominant species with a concentration of western wheatgrass in the southern portion of the site.

The *(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh Association* is located on the northwest side of Hecla Lake. This wetland area is dominated by narrowleaf cattail (*Typha angustifolia*) and reed canarygrass.

The *Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland Association* is located just east of the previous classification where narrowleaf willow becomes the dominant species with reed canarygrass and narrowleaf cattail still present as well.

The *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association* abuts the north side of Hecla Lake. This area is dominated by a mix of eastern cottonwood and narrowleaf willow.

The *Great Plains Exotic Ruderal Woodland Group* ius located along the northern boundary of the property and the dominant species is Siberian elm (*Ulmus pumila*) with smooth brome in the understory.

The *Eastern Cottonwood / Smooth Brome Ruderal Forest Association* is located on the east side of Hecla Lake. This classification consists of eastern cottonwood with a smooth brome and weedy annual species understory.

Table 13 provides details on the results for the Hecla Lake Open Space vegetation survey.

able 1 ecla La e pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Smoot rome Western W eatgrass Ruderal rassland	A	1.43	17.5	32.95	N	1.12	9.70
roadlea attail, arro lea attail Western Mars	B	1.62	25	25.26	N	0.86	0.18

arro lea Willo Reed anarygrass Ruderal Wet S rubland	C	1.62	25	25.26	N	0.86	0.19
astern otton ood Peac lea Willo arro lea Willo , Sandbar Willo Floodplain Woodland	D	1.62	25	23	N	1.48	0.21
reat Plains otic Ruderal Woodland roup	E	1.5	25	29.09	N	1.48	0.51
astern otton ood Smoot rome Ruderal Forest	F	1.5	25	29.09	N	1.48	0.50

3.12 Hillside Open Space

Hillside Open Space is located in the center of Louisville north of Via Appia Way, surrounded by residential developments. The entire property was determined to fall in the *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association*. The dominant species include smooth brome, crested wheatgrass, and western wheatgrass.

Table 14 provides details on the results for the Hillside Open Space vegetation survey.

able 14 illside pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Smoot rome Western W eatgrass Ruderal rassland	A	1.24	8.22	15.3	N	0.56	8.22

3.13 Leon A. Wurl Wildlife Sanctuary Open Space

The Leon A. Wurl Wildlife Sanctuary Open Space is located along the western edge of Louisville surrounding Harper Lake. Only the *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* classification was identified in this property. Smooth brome and western wheatgrass were dominant throughout the property. Trees were observed on the property but not at a high enough coverage to change the classification.

Table 15 provides details on the results for the Leon A. Wurl Wildlife Sanctuary Open Space vegetation survey.

able 15 Leon Wurl Wildli e Sanctuary pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Smoot rome Western W eatgrass Ruderal rassland	A	1.44	83.52	51.97	N	1.15	20.90

3.14 North Open Space

North open space is located along the northern boundary of Louisville and was determined to have four different classifications, three associations and on group level classification. Ditches run through the western and eastern portions of the property, both draining to Davidson Ditch. The following associations were identified within the property.

- *Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland Association (x2)*
- *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association (x4)*
- *Eastern Cottonwood / Smooth Brome Ruderal Forest Association (x6)*
- *Great Plains Exotic Ruderal Woodland Group*

Both areas of *Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland Association* are found in and along the two ditches extending south to north through the property. Dominant vegetation consisted of narrowleaf willow and various herbaceous and grass species in the understory.

The *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* comprises most of the property. Smooth brome was the dominant vegetation and field bindweed (List C Noxious Weed) was also present throughout these areas.

In some areas an eastern cottonwood canopy is present comprising the *Eastern Cottonwood / Smooth Brome Ruderal Forest Association*. Scattered throughout the property and a large concentration in the northeastern portion of the property. Eastern cottonwood and smooth brome are the dominant species in this association.

One area classified as *Great Plains Exotic Ruderal Woodland Group* was observed in the southern portion of the site. This area appeared to have been disturbed in the recent past and has become a mix of woody species. Dominant species were Siberian elm, chokecherry (*Prunus virginiana*), and American plum (*Prunus americana*).

Table 16 provides details on the results for the North Open Space vegetation survey.

able 16 ort pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Sandbar Willo arro lea Willo reat Plains Wet S rubland	A	0.92	200+	71	N	0.07	1.284953
Smoot rome Western W eatgrass Ruderal rassland	B	0.31	200+	0	N	0	9.858626
astern otton ood Smoot rome Ruderal Forest	C	1.5	200+	75	N	1.08	0.434962
reat Plains otic Ruderal Woodland roup	D	0.5	200+	50	N	0.5	0.169597
astern otton ood Smoot rome Ruderal Forest	E	1.18	200+	63.23	N	0.58	5.583068
astern otton ood Smoot rome Ruderal Forest	F	0.9	200+	51	N	0.1	1.392122
astern otton ood Smoot rome Ruderal Forest	G	1.54	200+	51.55	N	0.64	1.177442
Sandbar Willo arro lea Willo reat Plains Wet S rubland	H	1.33	7.3	36.84	N	0.8	0.345444
astern otton ood Smoot rome Ruderal Forest	I	1.33	7.3	36.84	N	0.8	0.249676
Smoot rome Western W eatgrass Ruderal rassland	J	0.89	200+	19.83	N	0.78	48.63834
astern otton ood Smoot rome Ruderal Forest	K	0.89	200+	19.83	N	0.64	1.106839
Smoot rome Western W eatgrass Ruderal rassland	L	1.33	3	36.84	N	0.8	1.739076

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Smoot rome Western W eatgrass Ruderal rassland	M	1.33	7.3	36.84	N	0.8	3.719312

3.15 Olson Open Space

Olson Open Space is located in the southeast portion of Louisville and consists of three separate areas split by South 96th Street and the BNSF railroad. Coal Creek also extends through this property. Four different associations were identified within the property including the following:

- *Narrowleaf Cottonwood / River Hawthorn Riparian Woodland Association*
- *Eastern Cottonwood / Smooth Brome Ruderal Forest Association*
- *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association (x3)*
- *Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest Association (x3)*

The *Narrowleaf Cottonwood / River Hawthorn Riparian Woodland Association* was found in a low area to the south of Coal Creek and west of the BNSF railroad tracks. Douglas hawthorn (*Crataegus douglasii*) formed a thick stand in this area with eastern cottonwood and green ash (*Fraxinus pensylvanica*) also present.

The *Eastern Cottonwood / Smooth Brome Ruderal Forest Association* was identified along the south side of Bella Vista Drive. This area consist of a narrow strip of trees in the right-of-way with an eastern cottonwood canopy and a smooth brome understory.

The *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* areas are located in the higher areas to the north and south of Coal Creek. Smooth brome was the dominant species with few other species above five percent cover.

The *Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest Association* areas are associated with the Coal Creek riparian area. Common species in this association include green ash, crack willow (*Salix fragilis*), and Siberian elm. These areas consist of suitable habitat for the federally threatened PMJM.

Table 17 provides details on the results for the Olson Open Space vegetation survey.

able 1 Ison pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
arro lea otton ood Ri er a t orn Riparian Woodland	A	1.53	23.07	22.11	N	0.85	1.35
astern otton ood Smoot rome Ruderal Forest	B	1	200+	50	N	1	1.12
Smoot rome Western W eatgrass Ruderal rassland	C	1.63	12.68	22.14	N	1.07	2.35
Smoot rome Western W eatgrass Ruderal rassland	D	1.63	23.07	22.14	N	0.95	3.00
Smoot rome Western W eatgrass Ruderal rassland	E	1.63	86	22.14	N	0.94	3.87
reen s merican lm o elder, merican ass ood reat Plains Floodplain Forest	F	1.67	12.46	24.92	Y	1.07	0.69
reen s merican lm o elder, merican ass ood reat Plains Floodplain Forest	G	1.67	23.07	24.92	Y	1.07	1.08
reen s merican lm o elder, merican ass ood reat Plains Floodplain Forest	H	1.67	86	24.92	Y	0.6	2.32

3.16 Walnut Open Space

Walnut Open Space is in the central area of Louisville with Goodhue Ditch extending through the northwest corner of the property. Three different associations were identified within the property including the following:

- *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association*
- *Nebraska Sedge Wet Meadow Association*
- *Exotic Western Hardwood Planted Woodland Cultural Type Association*

The *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* makes up most of the property. The dominant species is smooth brome with lesser concentrations of crested wheatgrass.

The *Nebraska Sedge Wet Meadow Association* is located in Goodhue Ditch. The ditch doesn't get enough flow to prevent vegetation from being established. Nebraska sedge (*Carex nebrascensis*) was the dominant species in the understory with white poplar and white mulberry (*Morus alba*) also present in lesser concentrations.

The *Exotic Western Hardwood Planted Woodland Cultural Type Association* makes up a portion of the northern boundary of the property. This area had a mix of tree species including white poplar, crack willow, and white mulberry. Other species in this association include chokecherry and American plum.

Table 18 provides details on the results for the Walnut Open Space vegetation survey.

able 1 Walnut pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Smoot rome Western W eatgrass Ruderal rassland	A	1.19	11.5	9.34	N	0.76	5.71
ebras a Sedge Wet Meado	B	0.77	11.5	14	N	0.9	0.16
otic Western ard ood Planted Woodland ultural ype	C	0.77	11.5	14	N	0.9	0.81

3.17 Warembourg Open Space

Warembourg Open Space is in the center of Louisville just north of Daughenbaugh Open Space. A small drainage extends along the western edge of the property, and a small pond is present in the southern portion of the property. The following six different classifications were identified:

- *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association*
- *Nebraska Sedge Wet Meadow Association*
- *Wheatgrass – Cheat Crested grass Ruderal Grassland Association*
- *Reed Canarygrass Western Marsh Association*
- *Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland Association*

- *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association*

The *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association* consists of three separate areas with one area surrounding a small pond and the other two areas in the northern portion of the property near a drainage area. The dominant species throughout this association is smooth brome with no other species having more than 10 percent coverage.

The *Nebraska Sedge Wet Meadow Association* is found in the drainage extending through the western portion of the property. This area is completely vegetated, and the dominant species is Nebraska sedge.

Wheatgrass – Cheat Crested grass Ruderal Grassland Association makes up the western boundary of the site. The dominant vegetation in this area is smooth brome and crested wheatgrass.

The *Reed Canarygrass Western Marsh Association* is located in a depression in the north central portion of the property. This wetland area was almost solely comprised of reed canarygrass.

The *Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland Association* Is located in a connector area between the open space and a residential development. Kentucky bluegrass is the dominant species in this area.

The *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* makes up most of the property east of the drainage. Smooth brome is the dominant species with no other specie making up more than ten percent of the coverage.

Table 18 provides details on the results for the Warembourg Open Space vegetation survey.

able 1 Warembourg pen Space Results

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
astern otton ood Peac lea Willo arro lea Willo , Sandbar Willo Floodplain Woodland	A	1.08	81	88.67	N	0.79	2.87
ebras a Sedge Wet Meado	B	0.91	81	9.08	N	1.31	0.76
W eatgrass eat rested grass Ruderal rassland	C	1.12	81	3.16	N	0	5.39

S	D	erall Di ersity	ontinuous rea cres	Percent ati e	abitat	ati e Di ersity	rea cres
Reed anarygrass Western Mars	D	0.43	81	94.29	N	0.2	1.18
entuc y luegrass Western W eatgrass Ruderal rassland	E	0.5	81	5	N	0.2	0.92
Smoot rome Western W eatgrass Ruderal rassland	F	0.55	81	5.39	N	0.33	45.78

4. DISCUSSION

This section provides context for the results of the vegetation survey for each of the calculations made in Section 3. These calculations were then used to establish a scoring system in order to determine an Open Space Quality Classification System for the Louisville Open Spaces.

4.1 National Vegetation Classification System

The results of the NVCS analysis resulted in the identification of 83 separate classified areas consisting of 28 different classifications. The *Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association* made up the largest area within all the open spaces at approximately 320 acres. The *Chairmaker's Bulrush Western Marsh Association* had the smallest overall area at 0.04 acres. Table 19 shows the different classifications and overall size within all open spaces.

able 19 ational egetation lassi ication System

NVCS	Acres
Smooth Brome - (Western Wheatgrass) Ruderal Grassland Association	320.04
Thinopyrum intermedium Ruderal Grassland Association	63.77
Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland Association	57.61
Crested Wheatgrass - Cheatgrass Ruderal Grassland Association	41.80
Wheatgrass – CheatCrested grass Ruderal Grassland Association	25.27
Eastern Cottonwood / Smooth Brome Ruderal Forest Association	13.63
Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association	11.36
Needle-and-Thread Northern Dry Grassland Alliance	10.73
Curly Dock Ruderal Grassland Association	9.81
(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh Association	5.10

NVCS	Acres
Western Wheatgrass - Buffalograss - (Wedgeleaf, Spotted Evening-primrose) Wet Meadow Association	4.78
Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest Association	4.08
Common Threesquare Marsh Association	3.51
Pascopyrum smithii Central Rocky Mountain Grassland Association	2.73
Reed Canarygrass Western Marsh Association	2.35
A4389 Needle-and-Thread Northern Dry Grassland Alliance	1.89
Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland Association	1.63
Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland Association	1.48
Narrowleaf Cottonwood / River Hawthorn Riparian Woodland Association	1.35
Nebraska Sedge Wet Meadow Association	1.22
Chokecherry Northern Plains Shrubland Association	0.87
Exotic Western Hardwood Planted Woodland Cultural Type	0.81
Great Plains Exotic Ruderal Woodland Group	0.68
Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland Association	0.64
Populus spp. - Robinia pseudoacacia Western Exotic Planted Woodland Association	0.64
Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland Association	0.48
Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland Association	0.19
Chairmaker’s Bulrush Western Marsh Association	0.04

4.2 Overall Diversity

Overall diversity is defined as the diversity of all species observed within the open space properties. For this calculation the Shannon-Wiener Index was used to calculate the diversity of each transect based on the percent cover calculations. This index was chosen over other common diversity indices because it is more sensitive to rate species and includes species richness and species distribution.

Species diversity for all Louisville open space NVSC classifications ranges from 0.31 to 2.17. Typically ranges between 0 and 1.5 indicate lower levels of diversity, ranges between 1.5 and 2.5 indicate medium levels of diversity and index scores above 2.5 indication a high level of diversity.

Gateway open space had the highest overall diversity with a score of 2.17. Although this area has a lot of weedy species, it also has a lot of native species and perennial species establishing. Appendix B contains figures of each site and the associated overall diversity. Table 20 below shows the scores for all NVCS areas.

able 20 erall Di ersity

Property ame	S	Report D	erall Di ersity
ate ay pen Space	Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	A	2.17
Da idson Mesa pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	2.1
Dutc ree pen Space	Reed Canarygrass Western Marsh	D	2.09
Daug enbaug pen Space	Nebraska Sedge Wet Meadow	D	2.03
Da idson Mesa pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	2
ull ead ulc pen Space	A4389 Needle-and-Thread Northern Dry Grassland Alliance	C	1.98
pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	B	1.87
pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	C	1.87
Damyano ic pen Space	Common Three-square Marsh	B	1.81
Damyano ic pen Space	Common Three-square Marsh	C	1.81
uarius	Western Wheatgrass - Buffalograss - (Wedgeleaf, Spotted Evening-primrose) Wet Meadow	C	1.79
ull ead ulc pen Space	A4389 Needle-and-Thread Northern Dry Grassland Alliance***	D	1.78
Dutc ree pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	1.78
Dutc ree pen Space	Wheatgrass - CheatCrested grass Ruderal Grassland	C	1.76
uarius	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	1.69
Da idson Mesa pen Space	Needle-and-Thread Northern Dry Grassland Alliance	G	1.68
Ison pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	F	1.67
Ison pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	G	1.67
Ison pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	H	1.67
Dutc ree pen Space	Populus spp. - Robinia pseudoacacia Western Exotic Planted Woodland Association	E	1.66
Damyano ic pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	D	1.63
Ison pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	1.63
Ison pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	D	1.63
Ison pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	E	1.63

Property ame	S	Report D	erall Di ersity
ecla La e pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	B	1.62
ecla La e pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	C	1.62
ecla La e pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	D	1.62
oyote Run pen Space	Chokecherry Northern Plains Shrubland	D	1.6
Daug enbaug pen Space	Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	B	1.59
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	G	1.54
Ison pen Space	Narrowleaf Cottonwood / River Hawthorn Riparian Woodland	A	1.53
Da idson Mesa pen Space	Crested Wheatgrass - Cheatgrass Ruderal Grassland	A	1.52
Daug enbaug pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.5
uarius	Curly Dock Ruderal Grassland	A	1.5
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	C	1.5
ecla La e pen Space	Great Plains Exotic Ruderal Woodland Group	E	1.5
ecla La e pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	F	1.5
pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.48
Da idson Mesa pen Space	Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	K	1.48
Daug enbaug pen Space	Chairmaker"s Bulrush Western Marsh	C	1.47
Leon Wurl Wildli e Sanctuary	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.44
oyote Run pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	C	1.44
ecla La e pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.43
Da idson Mesa pen Space	Winterfat / Western Wheatgrass - Blue Grama Dwarf-shrub Grassland	L	1.43
Da idson Mesa pen Space	Crested Wheatgrass - Cheatgrass Ruderal Grassland	F	1.38
Dutc ree pen Space	Wheatgrass – Cheat Crested grass Ruderal Grassland	A	1.35
oyote Run pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.35
ista	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.33
ort pen Space	Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	H	1.33

Property ame	S	Report D	erall Di ersity
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	I	1.33
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	L	1.33
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	M	1.33
Da idson Mesa pen Space	Common Three-square Marsh	D	1.3
ista	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	1.27
Damyano ic pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	E	1.26
Damyano ic pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	F	1.26
illside pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.24
Da idson Mesa pen Space	Pascopyrum smithii Central Rocky Mountain Grassland Association	H	1.22
oyote Run pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	1.2
Walnut pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.19
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	E	1.18
Da idson Mesa pen Space	Thinopyrum intermedium Ruderal Grassland	J	1.17
Damyano ic pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	A	1.14
oyote Run pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	E	1.13
Warembourg pen Space	Wheatgrass - CheatCrested grass Ruderal Grassland	C	1.12
Warembourg pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	A	1.08
Ison pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	B	1
ull ead ulc pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	0.99
Daug enbaug pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	E	0.97
ort pen Space	Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	A	0.92
Warembourg pen Space	Nebraska Sedge Wet Meadow	B	0.91
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	F	0.9
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	J	0.89

Property ame	S	Report D	erall Di ersity
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	K	0.89
Walnut pen Space	Nebraska Sedge Wet Meadow	B	0.77
Walnut pen Space	Exotic Western Hardwood Planted Woodland Cultural Type	C	0.77
ull ead ulc pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	0.62
Warembourg pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	F	0.55
Warembourg pen Space	Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	E	0.5
ort pen Space	Great Plains Exotic Ruderal Woodland Group	D	0.5
Da idson Mesa pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	M	0.47
Warembourg pen Space	Reed Canarygrass Western Marsh	D	0.43
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	0.31

Based on the results of the overall diversity scores, sites varied depending on the NVCS classification with very few areas having a diversity score greater than 2.0. Some notable open space areas include Aquarius, where all NVCS areas have a diversity score of 1.5 or greater. Daughenbaugh Open Space also had all NVCS areas scoring above 1.5. Olsson Open Space also had all but one NVCS areas greater than 1.5. The remaining sites have a mixture of some areas with medium diversity while no sites had a score above 2.5 indicating high levels of diversity.

4.3 Continuous Area / Habitat Fragmentation

All NVCS classifications were analyzed using a GIS process and aerial imagery to determine the amount of continuous area within and adjacent to each open space. Breaks in continuous area include roads, developments, and row crop fields. Areas such as adjacent pastures and golf courses were not counted as breaks in continuous areas as these areas still provide habitat for wildlife. For a scale the area was calculated in acres of continuous habitat ranging from 0 – >200 acres. While most NVCS classifications within an open space were the same, some open space properties consist of multiple unconnected areas varying in size. Table 21 provides details on the continuous area for all NVCS areas from largest to smallest.

able 21 ontinuous abitat Fragmentation

Property Name	NVCS	Report ID	Continuous Area
Davidson Mesa Open Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	200+
Dutch Creek Open Space	Reed Canarygrass Western Marsh	D	200+
Davidson Mesa Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	200+
Damyanovich Open Space	Common Three-square Marsh	B	200+
Damyanovich Open Space	Common Three-square Marsh	C	200+
Aquarius	Western Wheatgrass - Buffalograss - (Wedgeleaf, Spotted Evening-primrose) Wet Meadow	C	200+
Dutch Creek Open Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	200+
Dutch Creek Open Space	Wheatgrass – Cheat Crested grass Ruderal Grassland	C	200+
Aquarius	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	200+
Davidson Mesa Open Space	Needle-and-Thread Northern Dry Grassland Alliance	G	200+
Dutch Creek Open Space	Populus spp. - Robinia pseudoacacia Western Exotic Planted Woodland Association	E	200+
Damyanovich Open Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	D	200+
North Open Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	G	200+
Davidson Mesa Open Space	Crested Wheatgrass - Cheatgrass Ruderal Grassland	A	200+
Aquarius	Curly Dock Ruderal Grassland	A	200+
North Open Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	C	200+
Davidson Mesa Open Space	Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	K	200+
Davidson Mesa Open Space	Winterfat / Western Wheatgrass - Blue Grama Dwarf-shrub Grassland	L	200+
Davidson Mesa Open Space	Crested Wheatgrass - Cheatgrass Ruderal Grassland	F	200+
Dutch Creek Open Space	Wheatgrass – Cheat Crested grass Ruderal Grassland	A	200+
Davidson Mesa Open Space	Common Three-square Marsh	D	200+

Property Name	NVCS	Report ID	Continuous Area
Damyanovich Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	F	200+
Davidson Mesa Open Space	Pascopyrum smithii Central Rocky Mountain Grassland Association	H	200+
North Open Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	E	200+
Davidson Mesa Open Space	Thinopyrum intermedium Ruderal Grassland	J	200+
North Open Space	Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	A	200+
North Open Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	F	200+
North Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	J	200+
North Open Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	K	200+
North Open Space	Great Plains Exotic Ruderal Woodland Group	D	200+
Davidson Mesa Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	M	200+
North Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	200+
Damyanovich Open Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	A	200+
Avista	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	121
Avista	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	121
Coyote Run Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	96
CTC Open Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	B	86
CTC Open Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	C	86
Olson Open Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	H	86
Olson Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	E	86
CTC Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	86
Leon A. Wurl Wildlife Sanctuary	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	83.52

Property Name	NVCS	Report ID	Continuous Area
Daughenbaugh Open Space	Nebraska Sedge Wet Meadow	D	81
Daughenbaugh Open Space	Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	B	81
Daughenbaugh Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	81
Daughenbaugh Open Space	Chairmaker''s Bulrush Western Marsh	C	81
Warembourg Open Space	Wheatgrass - CheatCrested grass Ruderal Grassland	C	81
Warembourg Open Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	A	81
Daughenbaugh Open Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	E	81
Warembourg Open Space	Nebraska Sedge Wet Meadow	B	81
Warembourg Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	F	81
Warembourg Open Space	Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	E	81
Warembourg Open Space	Reed Canarygrass Western Marsh	D	81
Coyote Run Open Space	Chokecherry Northern Plains Shrubland	D	80
Coyote Run Open Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	C	80
Coyote Run Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	80
Coyote Run Open Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	E	80
Hecla Lake Open Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	B	25
Hecla Lake Open Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	C	25
Hecla Lake Open Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	D	25
Hecla Lake Open Space	Great Plains Exotic Ruderal Woodland Group	E	25
Hecla Lake Open Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	F	25
Olson Open Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	G	23.07

Property Name	NVCS	Report ID	Continuous Area
Olson Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	D	23.07
Olson Open Space	Narrowleaf Cottonwood / River Hawthorn Riparian Woodland	A	23.07
Olson Open Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	B	23.07
Hecla Lake Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	17.5
Olson Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	12.68
Olson Open Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	F	12.46
Walnut Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	11.5
Walnut Open Space	Nebraska Sedge Wet Meadow	B	11.5
Walnut Open Space	Exotic Western Hardwood Planted Woodland Cultural Type	C	11.5
Bullhead Gulch Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	10
Damyanovich Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	E	8.41
Hillside Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	8.22
North Open Space	Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	H	7.3
North Open Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	I	7.3
North Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	M	7.3
Gateway Open Space	Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	A	6.33
Bullhead Gulch Open Space	A4389 Needle-and-Thread Northern Dry Grassland Alliance	C	4.85
Bullhead Gulch Open Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	4.85
North Open Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	L	3
Bullhead Gulch Open Space	A4389 Needle-and-Thread Northern Dry Grassland Alliance	D	2.38

Areas on the edge of Louisville had the largest continuous areas due to not being restricted by city roads and development. Davidson Mesa is the largest open space surveyed and abuts pastureland giving it a high amount of continuous area. Other sites with greater than 200 acres

of continuous area include North Open Space, Damyanovich Open Space, Dutch Creek Open Space, and Aquarius Open Space. These areas also abut pastureland or a golf course giving them large amounts of continuous habitat and low fragmentation. The remaining sites are located in developed areas with many roads and buildings separating them, giving them low levels of continuous habitat.

4.4 Percent Native

Percent native was calculated using the percent cover data obtained in the field. The percent cover of species and what percent of the overall coverage that is native was determined by taking the percent cover of native species divided by the overall percent cover. Appendix C contains figures showing the percent native for each site. Table 22 provides details on the percent native for each NVCS area.

able 22 Percent ati e

Property ame	S	Report D	Percent ati e
Warembourg pen Space	Reed Canarygrass Western Marsh	D	94.29
Da idson Mesa pen Space	Needle-and-Thread Northern Dry Grassland Alliance	G	90.92
Daug enbaug pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	E	90
Warembourg pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	A	88.67
Damyano ic pen Space	Common Three-square Marsh	B	85
Damyano ic pen Space	Common Three-square Marsh	C	85
Da idson Mesa pen Space	Common Three-square Marsh	D	85
Da idson Mesa pen Space	Pascopyrum smithii Central Rocky Mountain Grassland Association	H	84.61
oyote Run pen Space	Chokecherry Northern Plains Shrubland	D	75.31
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	C	75
ort pen Space	Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	A	71
oyote Run pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	C	69.07
ull ead ulc pen Space	A4389 Needle-and-Thread Northern Dry Grassland Alliance	D	67.78
uarius	Western Wheatgrass - Buffalograss - (Wedgeleaf, Spotted Evening-primrose) Wet Meadow	C	64.71
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	E	63.23
Da idson Mesa pen Space	Winterfat / Western Wheatgrass - Blue Grama Dwarf-shrub Grassland	L	61.74

Property ame	S	Report D	Percent ati e
Dutc ree pen Space	Reed Canarygrass Western Marsh	D	61.05
ull ead ulc pen Space	A4389 Needle-and-Thread Northern Dry Grassland Alliance	C	55.71
ull ead ulc pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	55.71
Leon Wurl Wildli e Sanctuary	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	51.97
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	G	51.55
ate ay pen Space	Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	A	51.28
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	F	51
Da idson Mesa pen Space	Crested Wheatgrass - Cheatgrass Ruderal Grassland	A	50.38
Da idson Mesa pen Space	Crested Wheatgrass - Cheatgrass Ruderal Grassland	F	50
ort pen Space	Great Plains Exotic Ruderal Woodland Group	D	50
pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	B	50
pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	C	50
Daug enbaug pen Space	Chairmaker"s Bulrush Western Marsh	C	50
Ison pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	B	50
ista	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	43.75
Daug enbaug pen Space	Nebraska Sedge Wet Meadow	D	43.37
Da idson Mesa pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	40
Da idson Mesa pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	38.96
Damyano ic pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	D	38.89
ort pen Space	Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	H	36.84
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	I	36.84
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	M	36.84
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	L	36.84
ecla La e pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	32.95
Damyano ic pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	F	32.52

Property ame	S	Report D	Percent ati e
Damyano ic pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	E	32.52
oyote Run pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	E	31.85
ecla La e pen Space	Great Plains Exotic Ruderal Woodland Group	E	29.09
ecla La e pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	F	29.09
Da idson Mesa pen Space	Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	K	27.3
oyote Run pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	26.71
uarius	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	25.81
ecla La e pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	B	25.26
ecla La e pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	C	25.26
Ison pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	H	24.92
Ison pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	G	24.92
Ison pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	F	24.92
Dutc ree pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	24.77
ecla La e pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	D	23
oyote Run pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	22.98
Ison pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	E	22.14
Ison pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	D	22.14
Ison pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	22.14
Ison pen Space	Narrowleaf Cottonwood / River Hawthorn Riparian Woodland	A	22.11
ull ead ulc pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	21.5
Daug enbaug pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	20
Da idson Mesa pen Space	Thinopyrum intermedium Ruderal Grassland	J	19.92
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	J	19.83
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	K	19.83
uarius	Curly Dock Ruderal Grassland	A	19.37
Damyano ic pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	A	17

Property ame	S	Report D	Percent ati e
illside pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	15.3
Walnut pen Space	Nebraska Sedge Wet Meadow	B	14
Walnut pen Space	Exotic Western Hardwood Planted Woodland Cultural Type	C	14
Daug enbaug pen Space	Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	B	13.33
Dutc ree pen Space	Wheatgrass - CheatCrested grass Ruderal Grassland	C	12.7
Dutc ree pen Space	Wheatgrass - CheatCrested grass Ruderal Grassland	A	12.7
Dutc ree pen Space	Populus spp. - Robinia pseudoacacia Western Exotic Planted Woodland Association	E	12
Da idson Mesa pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	M	11
Walnut pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	9.34
Warembourg pen Space	Nebraska Sedge Wet Meadow	B	9.08
pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	7.59
ista	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	6.5
Warembourg pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	F	5.39
Warembourg pen Space	Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	E	5
Warembourg pen Space	Wheatgrass - CheatCrested grass Ruderal Grassland	C	3.16
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	0

With 94.29 percent native species, Warembourg's *Reed Canarygrass Western Marsh Association* had the highest percent native primarily due to the area being dominated by reed canarygrass. Reed canarygrass is debatable as a native species as some papers indicate that populations of non-native reed canarygrass area ae present along the front range of Colorado. For the purposes of this report the U.S. Department of Agriculture (USDA) Plant Database determination of native versus non-native. According to the USDA Plant Database, reed canarygrass is native to Colorado. Other notable areas with high native percentages include Davidson Mesa Open Space's *Needle-and-Thread Northern Dry Grassland Alliance*; *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association* at Daughenbaugh Open Space, Warembourg Open Space, and North Open Space; *Common Three-square Marsh Association* at Davidson Mesa Open Space and two areas at Damyanovich Open Space; *Pascopyrum smithii Central Rocky Mountain Grassland Association* at Davidson Mesa Open Space; and *Chokecherry Northern Plains Shrubland Association* at Coyote Run Open Space; and *Eastern Cottonwood / Smooth Brome Ruderal Forest Association*

(C) at North Open Space. All of these areas consist of 75 percent or more native species composition.

4.5 Threatened and Endangered Species Habitat

Suitable habitat for species listed in the *Endangered Species Act* was evaluated for all sites. Suitable habitat for PMJM was identified along Coal Creek in the Dutch Creek Open Space, Olson Open Space, and CTC Open Space. Suitable habitat for PMJM includes dense shrub, forb and grass cover along creeks and rivers (CPW 2015). No habitat for any other federally listed species was identified during the vegetation survey. Habitat for state listed threatened and endangered species according to Colorado's *Nongame and Endangered Species Conservation Act* was also analyzed. Prairie dog colonies are present at several open space properties. While these areas may provide nesting habitat for the state threatened burrowing owl (*Athene cuniculalria*), these areas are typically found in disturbed areas and impacts to burrowing owls can be avoided through timing restrictions, typically from March through October. For the purposes of this report only federally listed species habitat is included.

4.6 Native Diversity

Native diversity was calculated similarly to overall diversity using the Shannon-Wiener Index; however, only native species and native overall coverage was used in the calculations. This eliminated all non-native species in order to get a better idea of the native communities throughout the open space properties. Appendix D contains figures showing the native diversity for each site. Table 23 provides details on the native diversity for all NVCS areas.

able 2 ati e Di ersity

Property ame	S	Report D	ati e Di ersity
Da idson Mesa pen Space	Needle-and-Thread Northern Dry Grassland Alliance	G	1.87
ate ay pen Space	Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	A	1.77
ista	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	1.73
pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	B	1.72
pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	C	1.72

Property ame	S	Report D	ati e Di ersity
Damyano ic pen Space	Common Three-square Marsh	B	1.66
Damyano ic pen Space	Common Three-square Marsh	C	1.66
Dutc ree pen Space	Reed Canarygrass Western Marsh	D	1.51
Da idson Mesa pen Space	Crested Wheatgrass - Cheatgrass Ruderal Grassland	A	1.49
Da idson Mesa pen Space	Pascopyrum smithii Central Rocky Mountain Grassland Association	H	1.48
ecla La e pen Space	Great Plains Exotic Ruderal Woodland Group	E	1.48
ecla La e pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	F	1.48
ecla La e pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	D	1.48
ull ead ulc pen Space	A4389 Needle-and-Thread Northern Dry Grassland Alliance***	D	1.42
uarius	Western Wheatgrass - Buffalograss - (Wedgeleaf, Spotted Evening-primrose) Wet Meadow	C	1.39
Da idson Mesa pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	1.34
Daug enbaug pen Space	Chairmaker"s Bulrush Western Marsh	C	1.31
Daug enbaug pen Space	Nebraska Sedge Wet Meadow	D	1.31
uarius	Curly Dock Ruderal Grassland	A	1.31
Warembourg pen Space	Nebraska Sedge Wet Meadow	B	1.31
Damyano ic pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	D	1.28
pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.23

Property ame	S	Report D	ati e Di ersity
oyote Run pen Space	Chokecherry Northern Plains Shrubland	D	1.18
ull ead ulc pen Space	A4389 Needle-and-Thread Northern Dry Grassland Alliance***	C	1.18
ull ead ulc pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	1.18
Dutc ree pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	1.18
Leon Wurl Wildli e Sanctuary	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.15
uarius	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	1.13
ecla La e pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.12
Da idson Mesa pen Space	Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	K	1.12
ull ead ulc pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.12
oyote Run pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.09
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	C	1.08
lson pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	G	1.07
lson pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	F	1.07
lson pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	1.07
Da idson Mesa pen Space	Common Three-square Marsh	D	1.04
ista	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	1.03

Property ame	S	Report D	ati e Di ersity
oyote Run pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	C	1.01
lson pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	B	1
Daug enbaug pen Space	Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	B	1
Da idson Mesa pen Space	Winterfat / Western Wheatgrass - Blue Grama Dwarf-shrub Grassland	L	0.98
Da idson Mesa pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	0.97
lson pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	D	0.95
lson pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	E	0.94
Daug enbaug pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	0.93
oyote Run pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	0.9
Walnut pen Space	Nebraska Sedge Wet Meadow	B	0.9
Walnut pen Space	Exotic Western Hardwood Planted Woodland Cultural Type	C	0.9
ecla La e pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	B	0.86
ecla La e pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	C	0.86
lson pen Space	Narrowleaf Cottonwood / River Hawthorn Riparian Woodland	A	0.85
ort pen Space	Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	H	0.8
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	I	0.8

Property ame	S	Report D	ati e Di ersity
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	M	0.8
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	L	0.8
Warembourg pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	A	0.79
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	J	0.78
Walnut pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	0.76
oyote Run pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	E	0.73
Da idson Mesa pen Space	Crested Wheatgrass - Cheatgrass Ruderal Grassland	F	0.72
Dutc ree pen Space	Wheatgrass - CheatCrested grass Ruderal Grassland	C	0.7
Dutc ree pen Space	Wheatgrass - CheatCrested grass Ruderal Grassland	A	0.7
Da idson Mesa pen Space	Thinopyrum intermedium Ruderal Grassland	J	0.65
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	G	0.64
Damyano ic pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	E	0.64
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	K	0.64
Daug enbaug pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	E	0.63
Damyano ic pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	F	0.63
Ison pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	H	0.6

Property ame	S	Report D	ati e Di ersity
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	E	0.58
illside pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	0.56
ort pen Space	Great Plains Exotic Ruderal Woodland Group	D	0.5
Dutc ree pen Space	Populus spp. - Robinia pseudoacacia Western Exotic Planted Woodland Association	E	0.45
Warembourg pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	F	0.33
Damyano ic pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	A	0.27
Da idson Mesa pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	M	0.21
Warembourg pen Space	Reed Canarygrass Western Marsh	D	0.2
Warembourg pen Space	Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	E	0.2
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	F	0.1
ort pen Space	Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	A	0.07
Warembourg pen Space	Wheatgrass – Cheat Crested grass Ruderal Grassland	C	0
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	0

While overall diversity is less when only looking at native species, this is due to the removal of non-native species which lowers the overall number and coverage of species. The majority of areas with a high overall diversity score also had a high overall native diversity score, some areas had greater changes due to being dominated by non-native species. Areas with a native diversity score of 1.5 or greater include Davidson Mesa Open Space's *Needle-and-Thread Northern Dry Grassland Alliance* (G); Gateway Open Space's *Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland*; Avista Open Space's *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association*; CTC Open Space's

(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh Association and *Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland Association*; Damyanovich Open Space's *Common Three-square Marsh Association* (B and C); and Dutch Creek Open Space's *Reed Canarygrass Western Marsh Association*.

4.7 Overall Scoring

To determine an overall score Olsson worked with Louisville Open Space Division to weigh the following variables. Native Diversity, Continuous Habitat/Fragmentation, Percent Native, and Federally Listed Threatened and Endangered Species Habitat. Overall Diversity was not used in the overall calculations because Native Diversity provides a better idea of the level of desirable species within each NVCS area.

Native Diversity was weighted on a scale of one through ten based on percentiles of the overall number of scores. Scores within the 10th percentile were given a score of one while scores above the 90th percentile were given a score of ten.

For Continuous Habitat and Fragmentation, the weighted scale was reduced to one through three with smaller areas within the 33rd percentile given a one and areas between the 33rd and 66th percentiles given a two and areas greater than the 66th percentile given a score of three.

Like Native Diversity, Percent native was weighted on a scale of one through ten based on percentiles of the amount of scores.

Once the scores were determined they were combined to get an overall quality score. These scores were then correlated with the Home Rule Charter open space definitions of Protect, Preserve, Visitor, and Other. The breaks for these classifications was made using the 25th, 50th, and 75th percentiles to get four groups with the highest scores associated with Protect and the lowest scores being associated with Other. Appendix E contains figures of each site with the quality classifications. Table 24 shows the scores for each NVCS classification and the corresponding Open Space Classification according to the Home Rule Charter.

able 24 pen Space uality lassi ications

Property ame	S	Report D	Score	uality lassi ication
pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	C	30	Protect
Dutc ree pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	25	Protect
Da idson Mesa pen Space	Needle-and-Thread Northern Dry Grassland Alliance	G	24	Protect

Property ame	S	Report D	Score	uality lassi ication
Ison pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	F	24	Preserve
Ison pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	G	24	Preserve
Damyano ic pen Space	Common Three-square Marsh	B	24	Protect
Damyano ic pen Space	Common Three-square Marsh	C	24	Protect
Da idson Mesa pen Space	Pascopyrum smithii Central Rocky Mountain Grassland Association	H	22	Protect
Dutc ree pen Space	Reed Canarygrass Western Marsh	D	22	Protect
uarius	Western Wheatgrass - Buffalograss - (Wedgeleaf, Spotted Evening-primrose) Wet Meadow	C	22	Protect
Da idson Mesa pen Space	Common Three-square Marsh	D	21	Protect
pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	B	21	Protect
oyote Run pen Space	Chokecherry Northern Plains Shrubland	D	21	Protect
ista	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	21	Protect
Ison pen Space	Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest	H	21	Preserve
Da idson Mesa pen Space	Crested Wheatgrass - Cheatgrass Ruderal Grassland	A	20	Protect
ull ead ulc pen Space	A4389 Needle-and-Thread Northern Dry Grassland Alliance***	D	20	Protect
Daug enbaug pen Space	Chairmaker's Bulrush Western Marsh	C	20	Protect
Daug enbaug pen Space	Nebraska Sedge Wet Meadow	D	20	Protect
Leon Wurl Wildli e Sanctuary	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	20	Protect
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	C	20	Protect
ate ay pen Space	Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	A	19	Protect
Da idson Mesa pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	19	Protect
oyote Run pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	C	19	Protect
ull ead ulc pen Space	A4389 Needle-and-Thread Northern Dry Grassland Alliance***	C	18	Preserve

Property ame	S	Report D	Score	uality lassi ication
Damyano ic pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	D	18	Preserve
Warembourg pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	A	18	Preserve
ull ead ulc pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	B	18	Preserve
ecla La e pen Space	Great Plains Exotic Ruderal Woodland Group	E	18	Preserve
ecla La e pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	F	18	Preserve
Da idson Mesa pen Space	Winterfat / Western Wheatgrass - Blue Grama Dwarf-shrub Grassland	E	18	Preserve
Da idson Mesa pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	17	Preserve
Daug enbaug pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	E	17	Preserve
lson pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	B	17	Preserve
uarius	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	17	Preserve
ecla La e pen Space	Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland	D	17	Preserve
ecla La e pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	16	Preserve
oyote Run pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	16	Preserve
uarius	Curly Dock Ruderal Grassland	A	16	Preserve
Da idson Mesa pen Space	Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland	K	16	Preserve
Da idson Mesa pen Space	Crested Wheatgrass - Cheatgrass Ruderal Grassland	F	15	Visitor
Warembourg pen Space	Nebraska Sedge Wet Meadow	B	15	Visitor
Warembourg pen Space	Reed Canarygrass Western Marsh	D	15	Visitor
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	E	15	Visitor
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	G	15	Visitor
pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	14	Visitor
oyote Run pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	E	14	Visitor
ort pen Space	Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	A	14	Visitor
ull ead ulc pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	14	Visitor

Property ame	S	Report D	Score	uality lassi ication
ecla La e pen Space	(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh	B	14	Visitor
ecla La e pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	C	14	Visitor
lson pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	C	14	Visitor
oyote Run pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	13	Visitor
ort pen Space	Great Plains Exotic Ruderal Woodland Group	D	13	Visitor
ort pen Space	Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland	H	13	Visitor
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	I	13	Visitor
Damyano ic pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	F	13	Visitor
lson pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	D	13	Visitor
lson pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	E	13	Visitor
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	L	13	Visitor
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	M	13	Visitor
Daug enbaug pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	12	Visitor
ista	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	12	Visitor
Da idson Mesa pen Space	Thinopyrum intermedium Ruderal Grassland	J	12	Visitor
Daug enbaug pen Space	Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	B	12	Visitor
lson pen Space	Narrowleaf Cottonwood / River Hawthorn Riparian Woodland	A	12	Visitor
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	F	12	Visitor
Walnut pen Space	Nebraska Sedge Wet Meadow	B	11	Visitor
Walnut pen Space	Exotic Western Hardwood Planted Woodland Cultural Type	C	11	Visitor
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	J	11	Visitor
Damyano ic pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	E	11	Visitor
ort pen Space	Eastern Cottonwood / Smooth Brome Ruderal Forest	K	10	Other
Walnut pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	9	Other
Dutc ree pen Space	Wheatgrass - CheatCrested grass Ruderal Grassland	A	9	Other

Property ame	S	Report D	Score	uality lassi ication
Dutc ree pen Space	Wheatgrass - CheatCrested grass Ruderal Grassland	C	9	Other
Damyano ic pen Space	Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland	A	8	Other
Dutc ree pen Space	Populus spp. - Robinia pseudoacacia Western Exotic Planted Woodland Association	E	8	Other
illside pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	A	7	Other
Warembourg pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	F	7	Other
Da idson Mesa pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	M	7	Other
Warembourg pen Space	Wheatgrass - CheatCrested grass Ruderal Grassland	C	6	Other
Warembourg pen Space	Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland	E	6	Other
ort pen Space	Smooth Brome - (Western Wheatgrass) Ruderal Grassland	B	6	Other

5. REFERENCES

Boulder County. *Boulder County Comprehensive Plan*. Adopted by the Boulder County Planning Commission, 15 July 2020. https://www.bouldercounty.org/property-and-land/land-use/planning/boulder-county-comprehensive-plan/

Muldavin, E, D. Faber-Langendoen, A. Davidson, and A. Conley. 2025. U.S. National Vegetation Classification 3.0: User Guide. Proceedings of the U.S. National Vegetation Classification. USNVC-Proc-8. October 2025. Ecological Society of America, Washington, DC., USA. 30 pages + Appendices

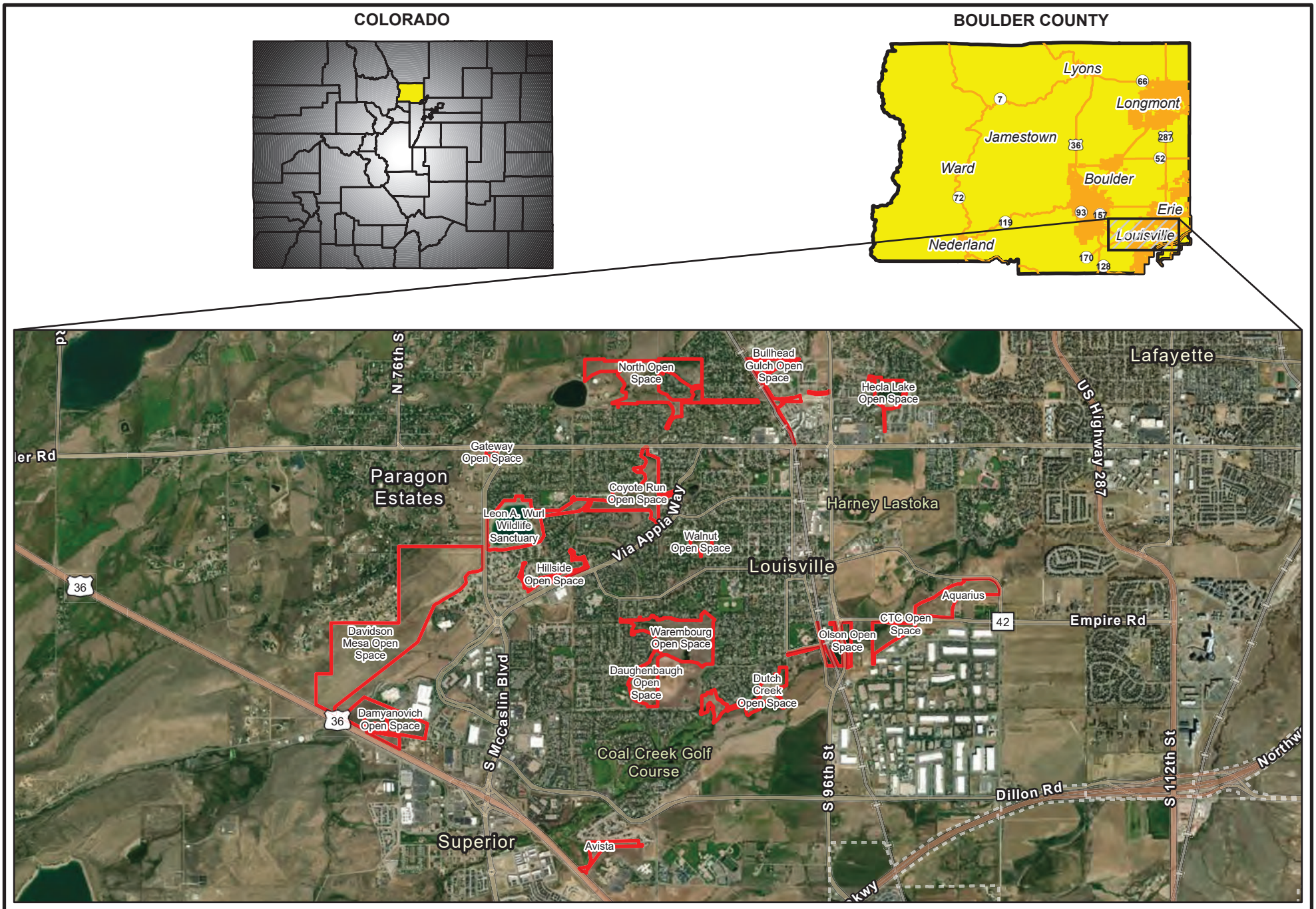
APPENDIX A
LOCATION MAP

APPENDIX B
OVERALL DIVERSITY FIGURES

APPENDIX C
NATIVE DIVERSITY FIGURES

APPENDIX D
NATIVE PERCENTAGE FIGURES

APPENDIX E
QUALITY SCORE FIGURES



N

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olsson

Louisville Open Space Properties

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Location Map
130 Figure 1

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WGS 1984 ARC System Zone 11

Basemap: USGS Topographic Imagery

N 0 90 180 360 ft

1:4,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
131 Aquarius

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 70 140 280 ft

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olsson

Native Diversity

0.00-0.99

1.00-1.49

≥1.50

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

Native Diversity

132 Avista

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

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1:5,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Bullhead Gulch Open Space

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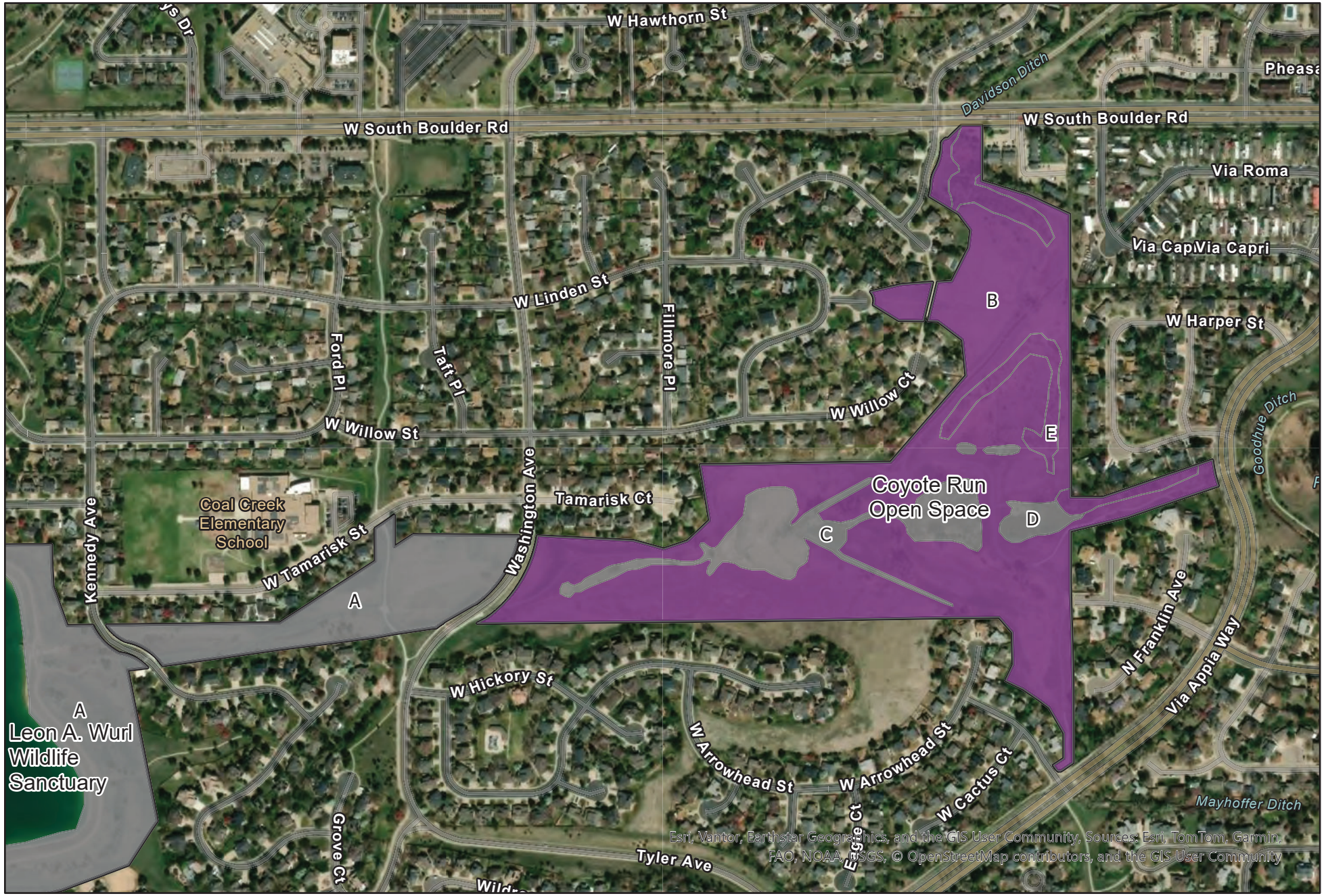
Basemap: Google Earth Imagery



N

0 140 280 560 ft

1:6,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Coyote Run Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 70 140 280 ft

1:3,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
CTC Open Space

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

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N 0 70 140 280 ft

1:3,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Damyanovich Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 90 180 360 ft

1:4,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Daughenbaugh Open Space

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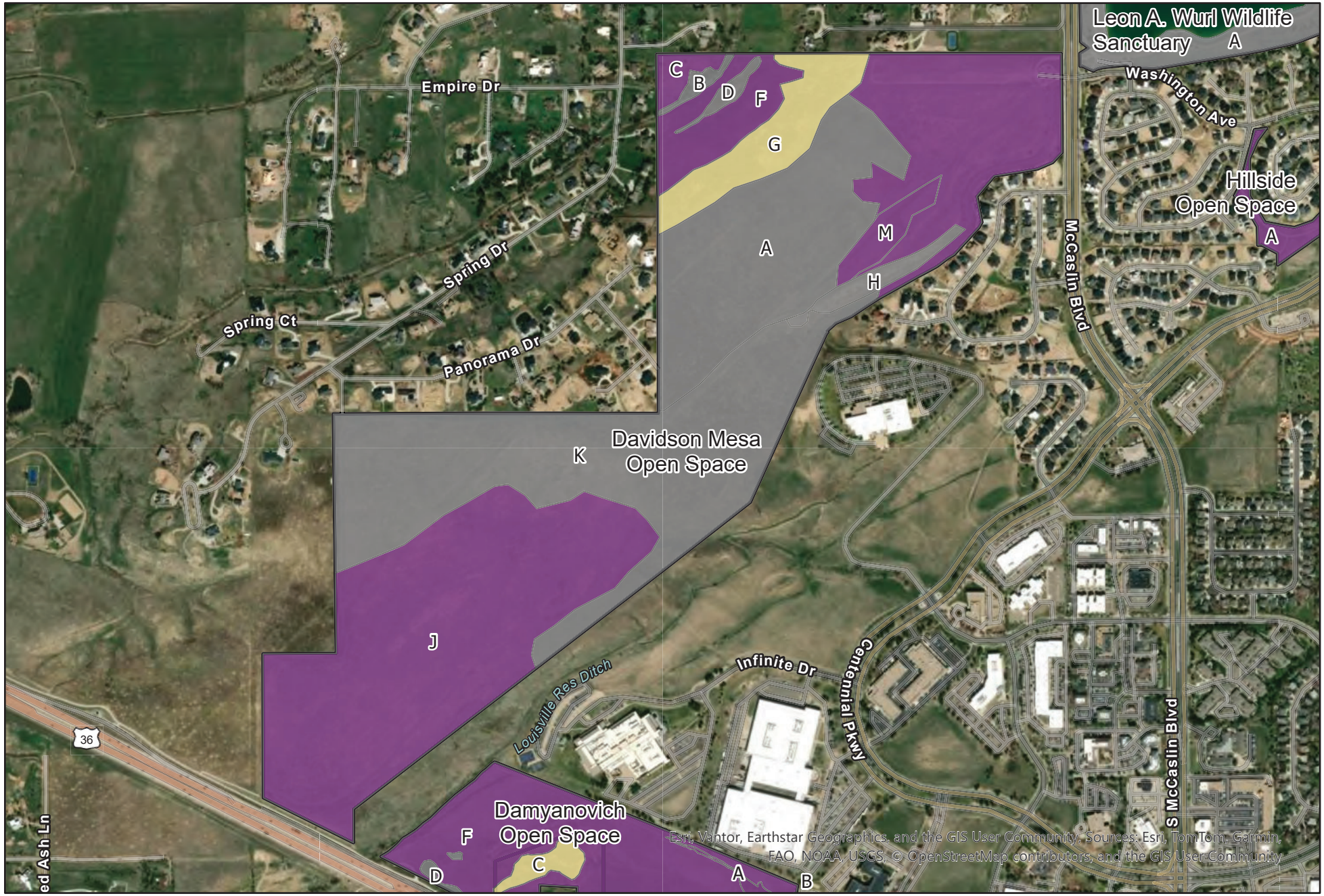
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N

0 235 470 940 ft

1:10,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Davidson Mesa Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Dutch Creek Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 20 40 80 ft

1:1,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Gateway Open Space

140

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Hecla Lake Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 70 140 280 ft

1:3,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Hillside Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 90 180 360 ft

1:4,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Leon A. Wurl Wildlife Sanctuary

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

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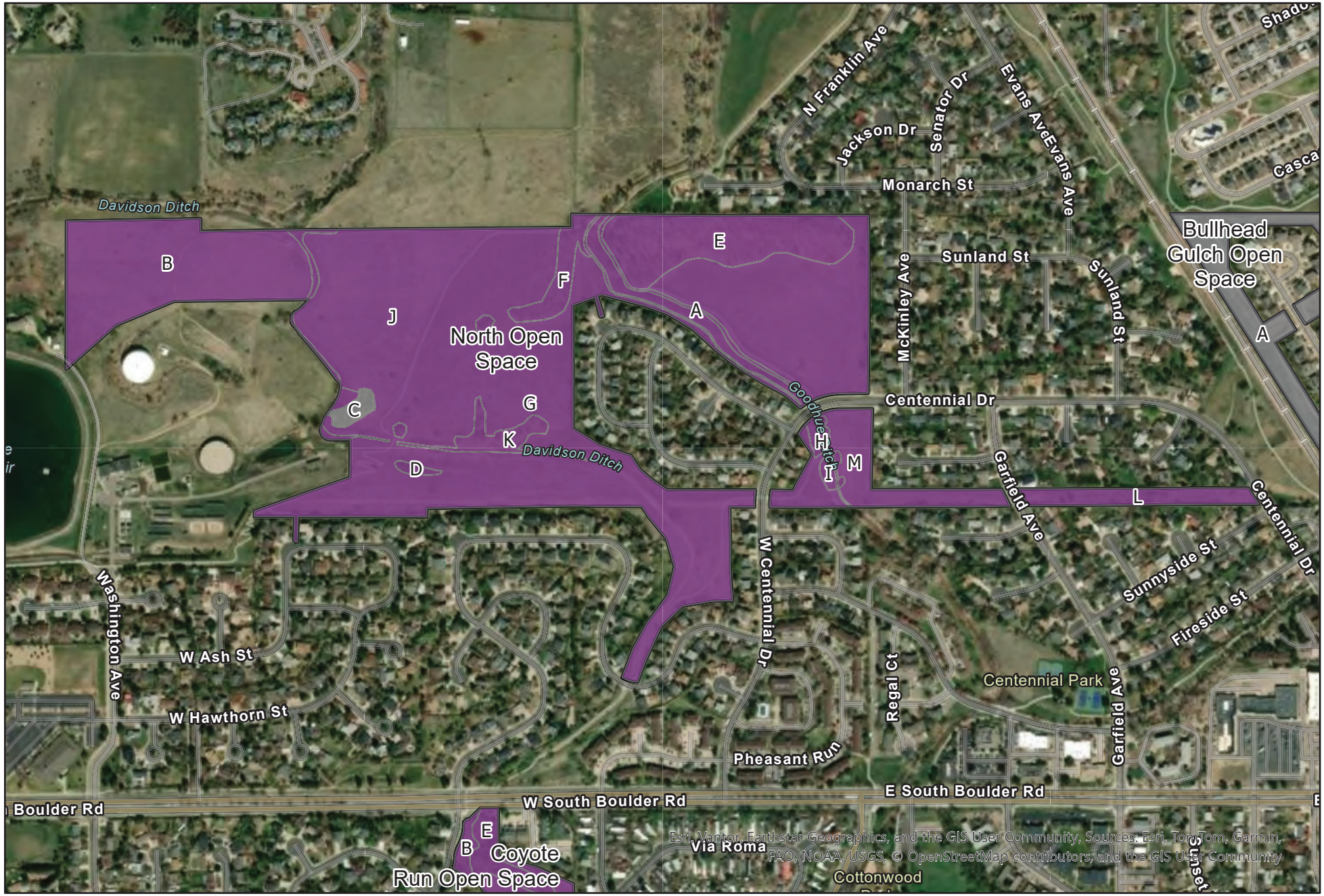

N

0 162.5 325 650 ft

1:7,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
North Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 70 140 280 ft

1:3,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Olson Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 45 90 180 ft

1:2,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Walnut Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Native Diversity

- 0.00-0.99
- 1.00-1.49
- ≥1.50

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Native Diversity
Warembourg Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

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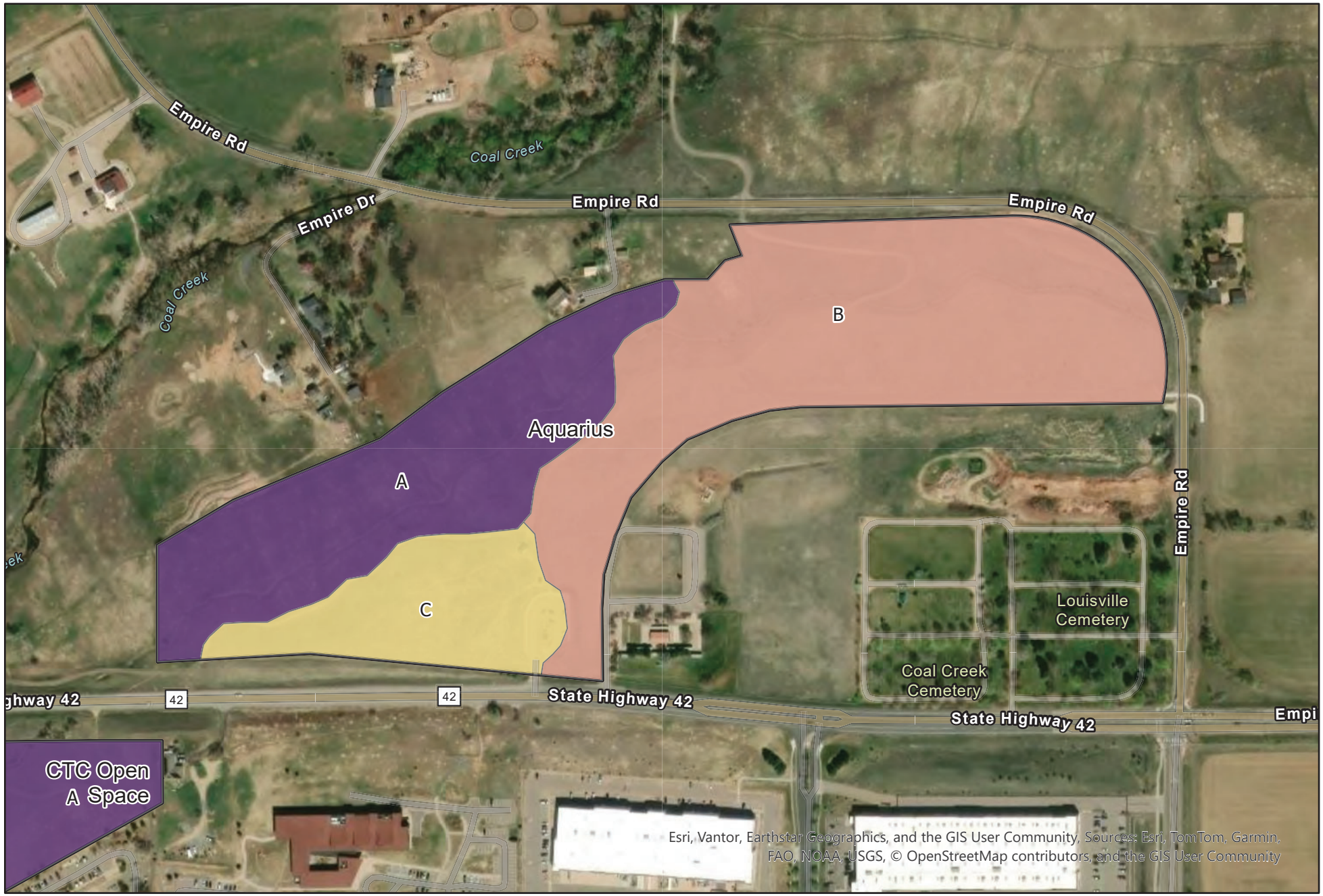

N 0 90 180 360 ft

1:4,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
148 Aquarius

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 70 140 280 ft

1:3,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

Percent Native

149 Avista

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 115 230 460 ft

1:5,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Bullhead Gulch Open Space

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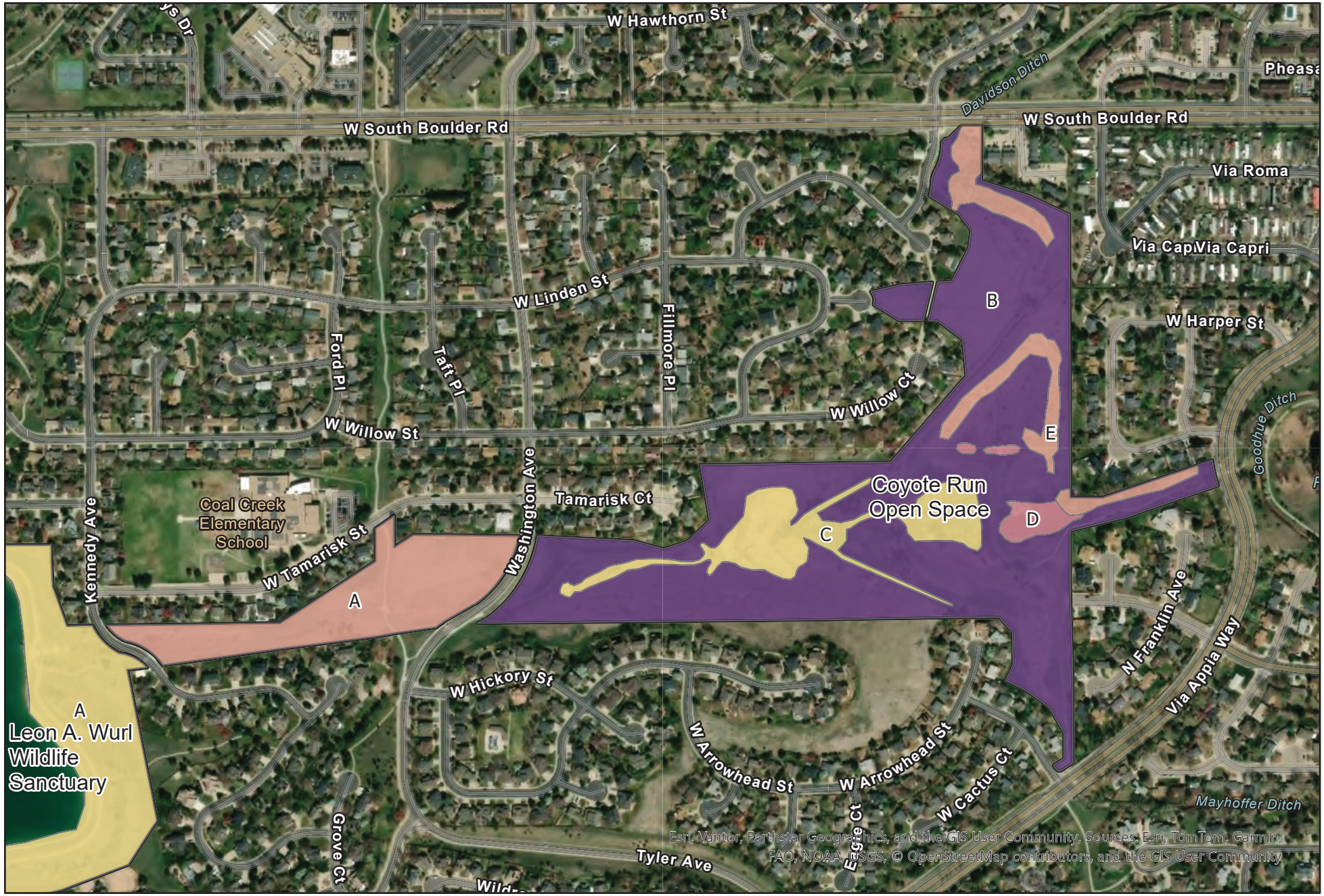
Basemap: Google Earth Imagery



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N 0 140 280 560 ft

1:6,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Coyote Run Open Space

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 70 140 280 ft

1:3,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

Percent Native

CTC Open Space

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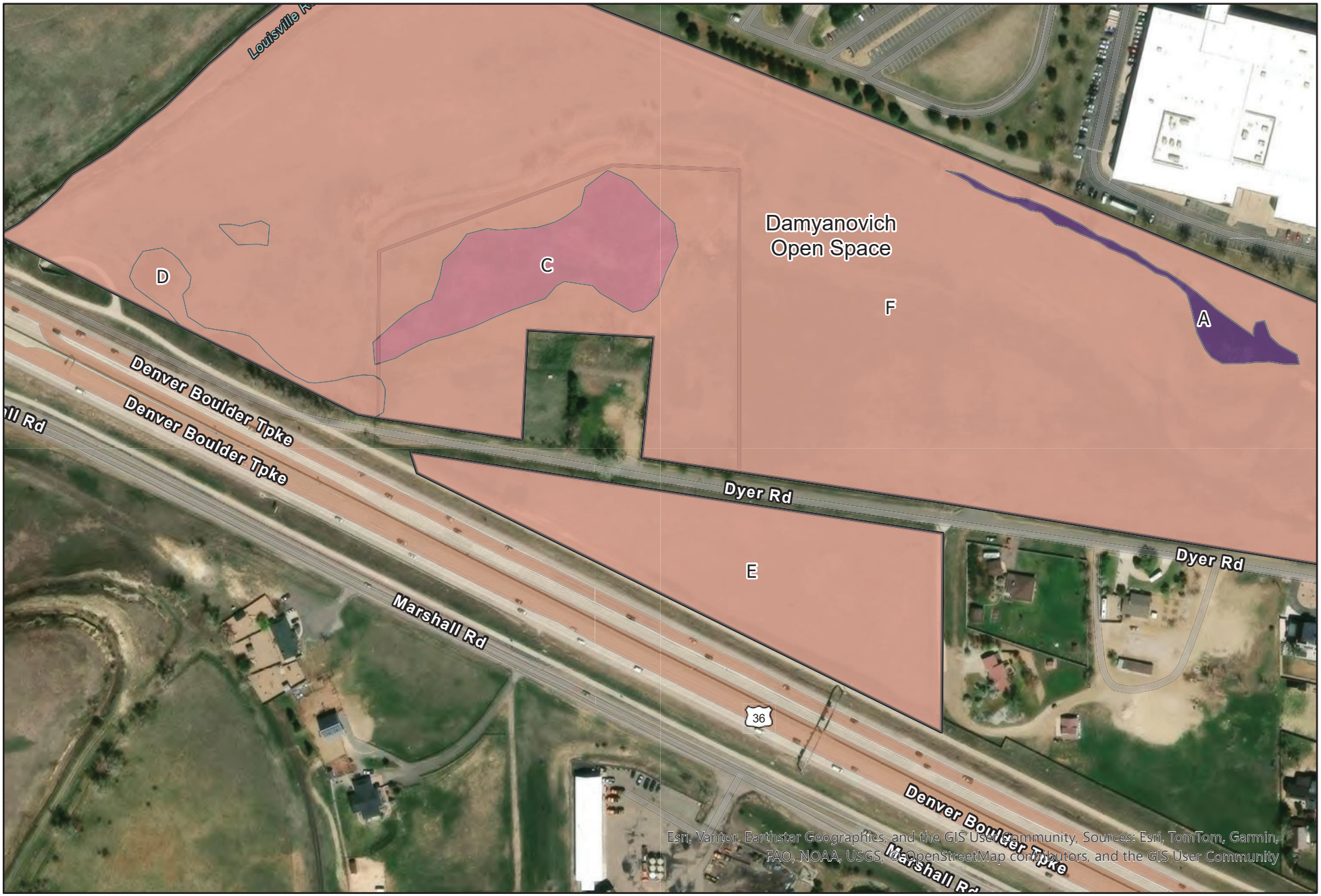
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N 0 70 140 280 ft

1:3,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Damyanovich Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Daughenbaugh Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

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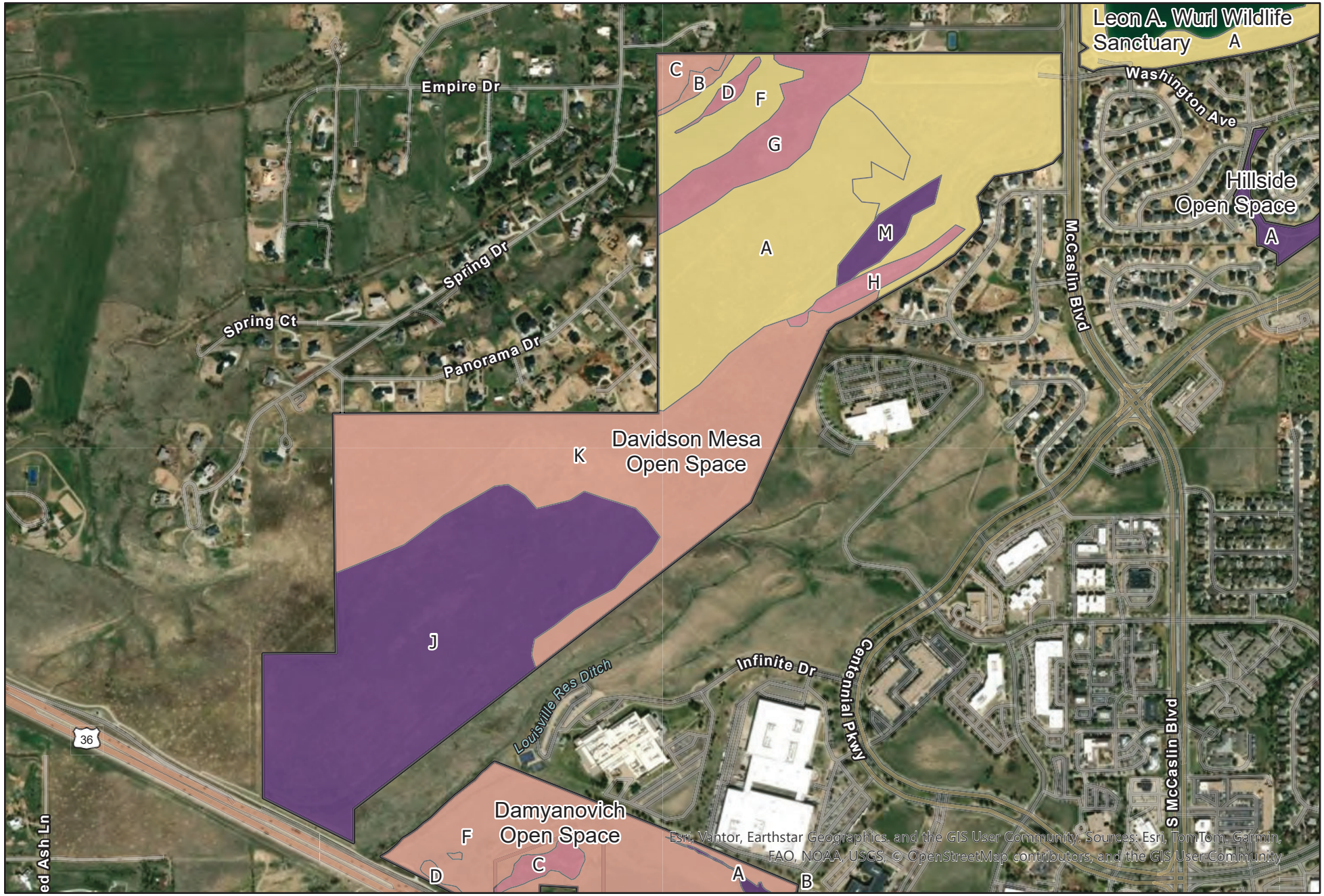

N

0 235 470 940 ft

1:10,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Davidson Mesa Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 90 180 360 ft

1:4,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Dutch Creek Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 20 40 80 ft

1:1,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Gateway Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Hecla Lake Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 70 140 280 ft

1:3,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Hillside Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Leon A. Wurl Wildlife Sanctuary

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

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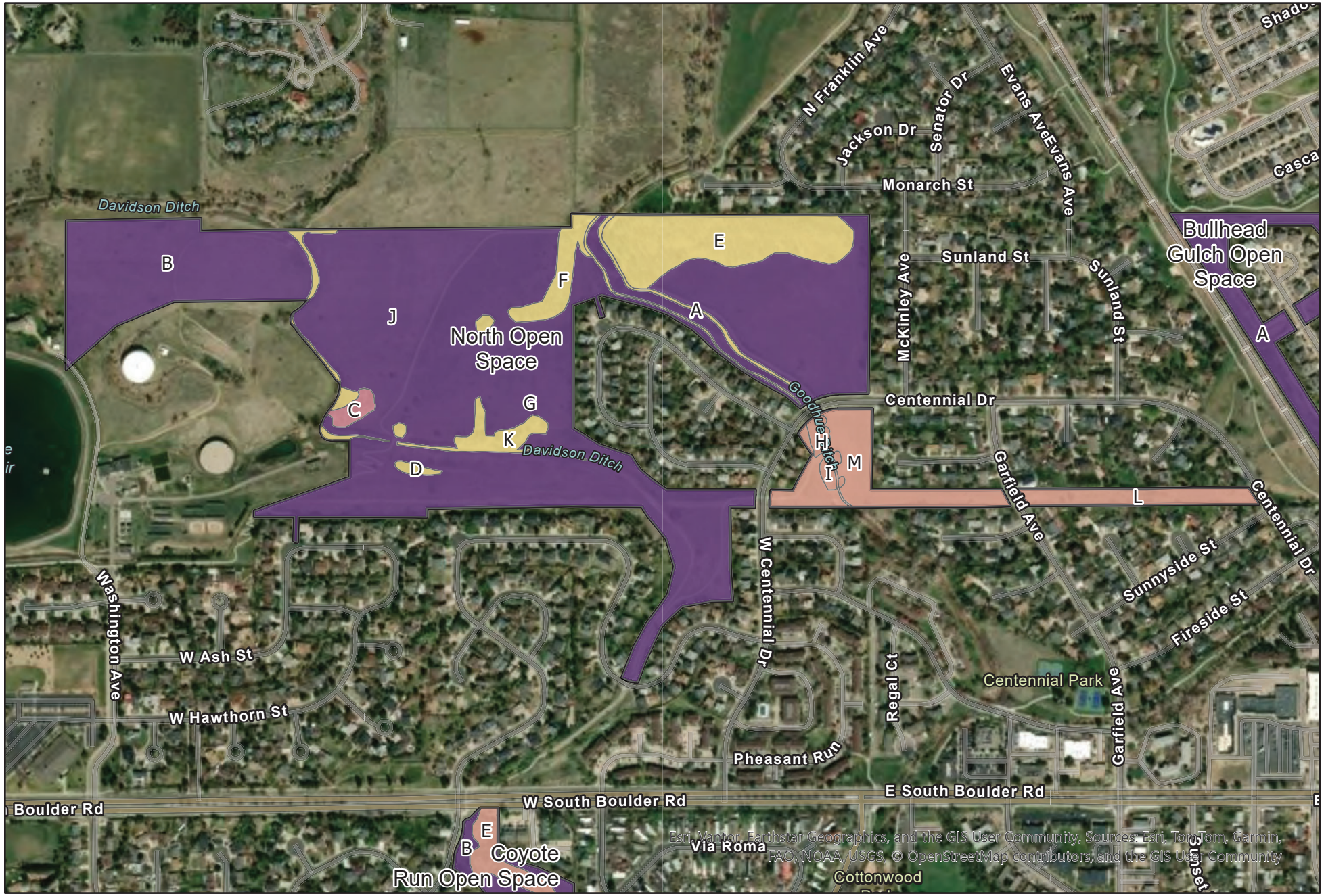
Basemap: Google Earth Imagery



N

0 162.5 325 650 ft

1:7,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
North Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 70 140 280 ft

1:3,000

olsson

Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Olson Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 45 90 180 ft

1:2,000

olsson

Percent Native

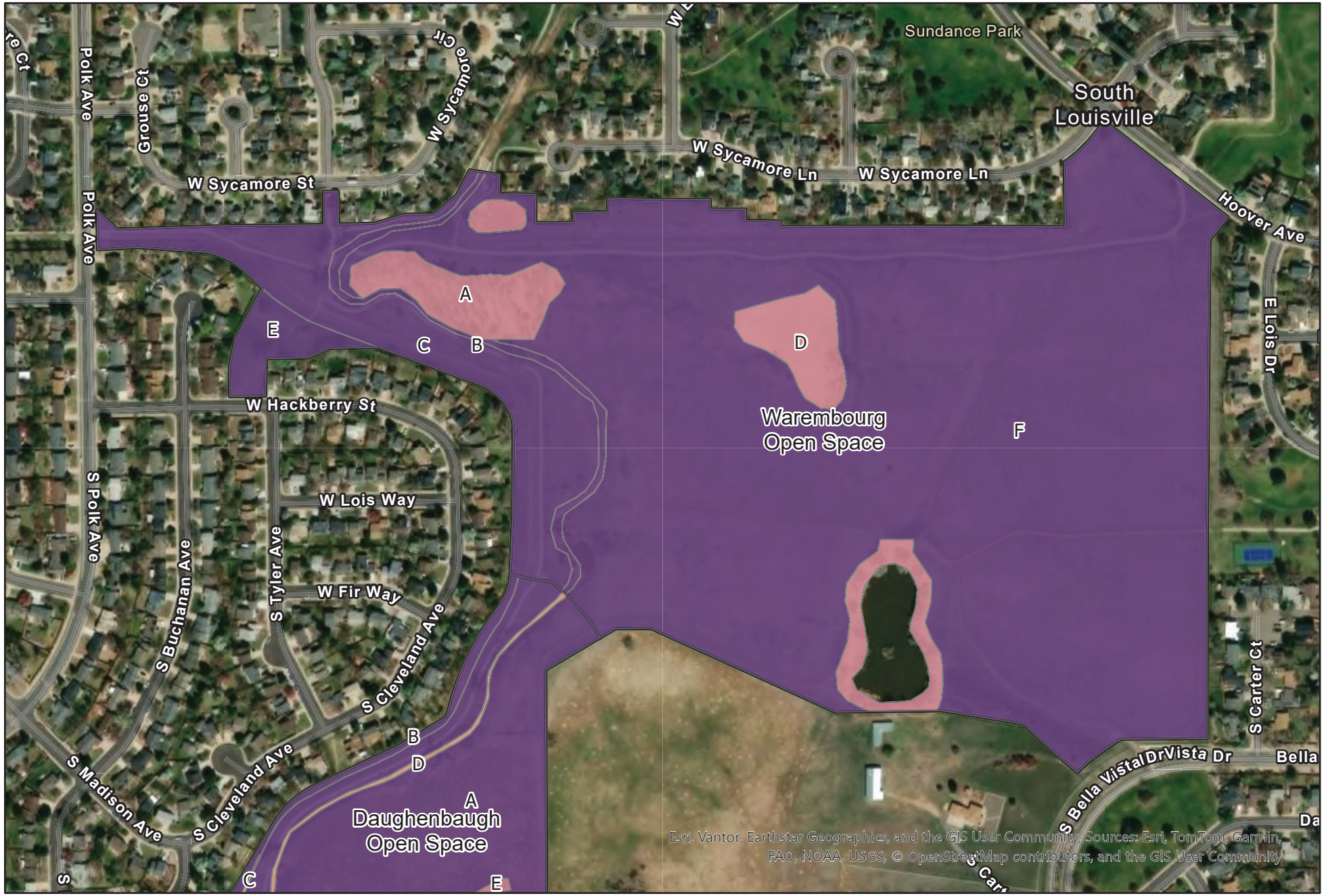
- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Walnut Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

N

0 90 180 360 ft

1:4,000

olsson

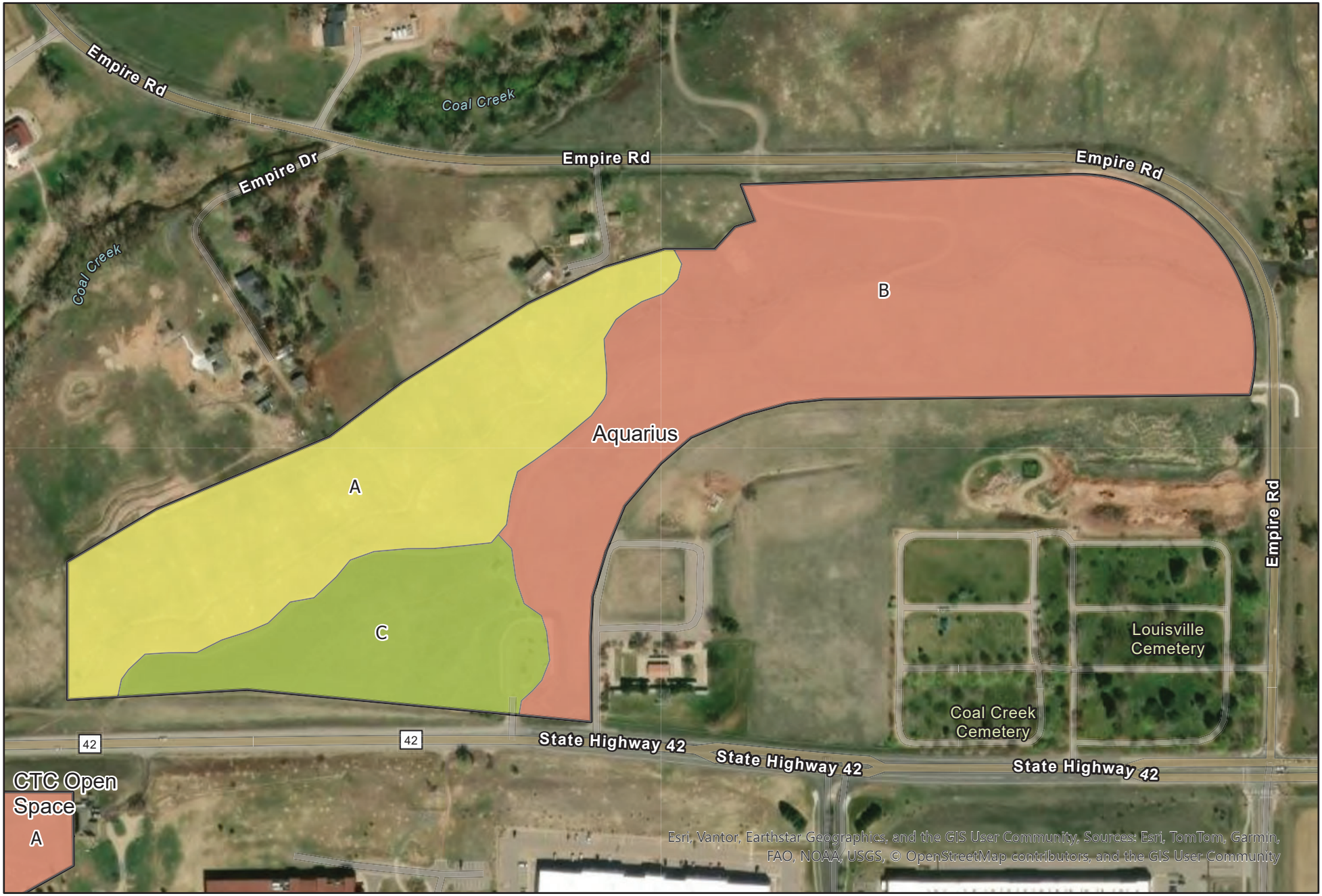
Percent Native

- 0-24 Percent
- 25-49 Percent
- 50-74 Percent
- ≥75 Percent

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Percent Native
Warembourg Open Space

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N 0 80 160 320 ft

1:3,400

Curly Dock Ruderal Grassland

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

Western Wheatgrass - Buffalograss - (Wedgeleaf, Spotted Evening-primrose) Wet Meadow

olsson

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Aquarius

165

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 60 120 240 ft

1:2,600

olsson

Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Avista

166

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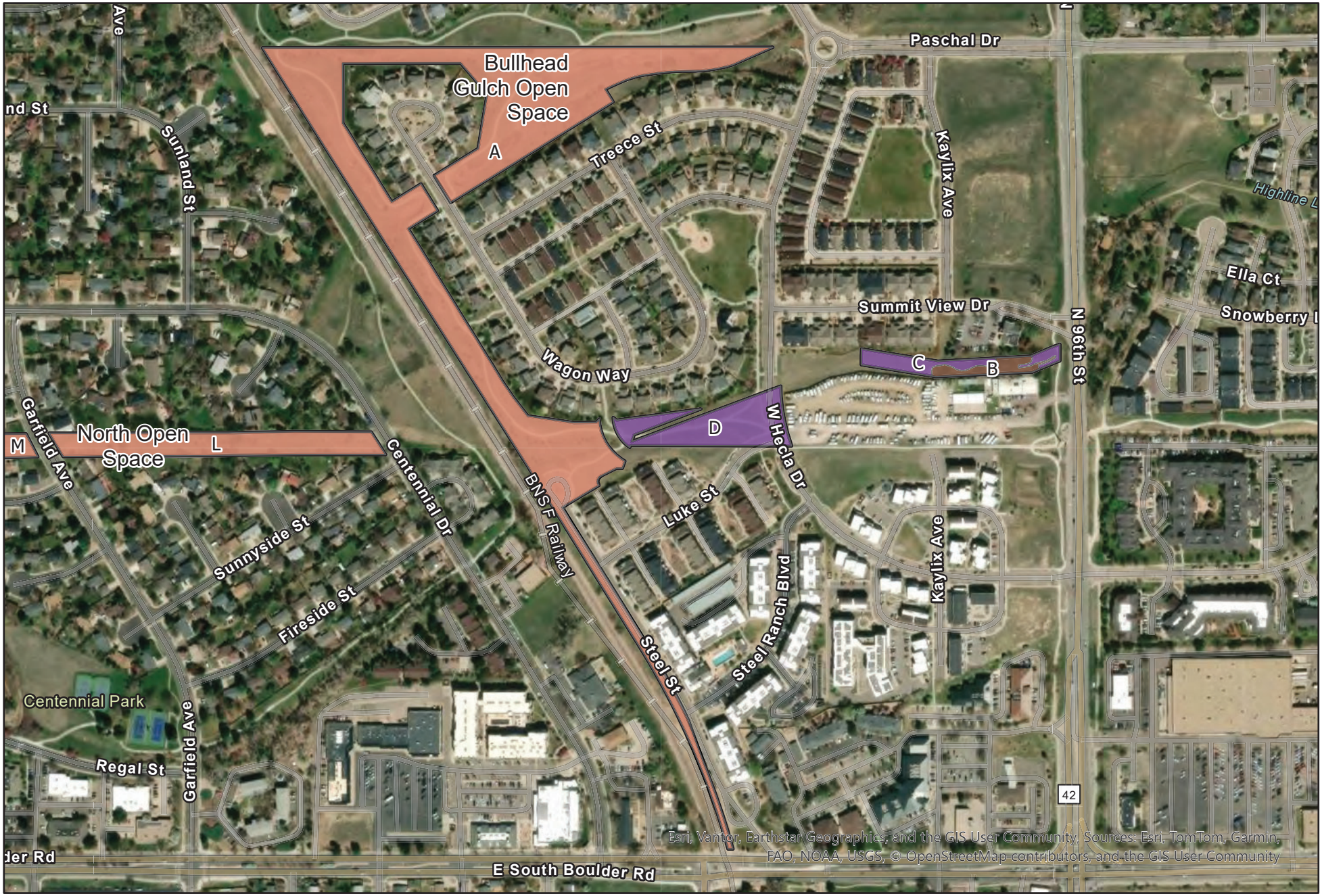
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N 0 115 230 460 ft

1:5,000

olsson

A4389 Needle-and-Thread Northern Dry Grassland Alliance***

Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
NVCS
Bullhead Gulch Open Space

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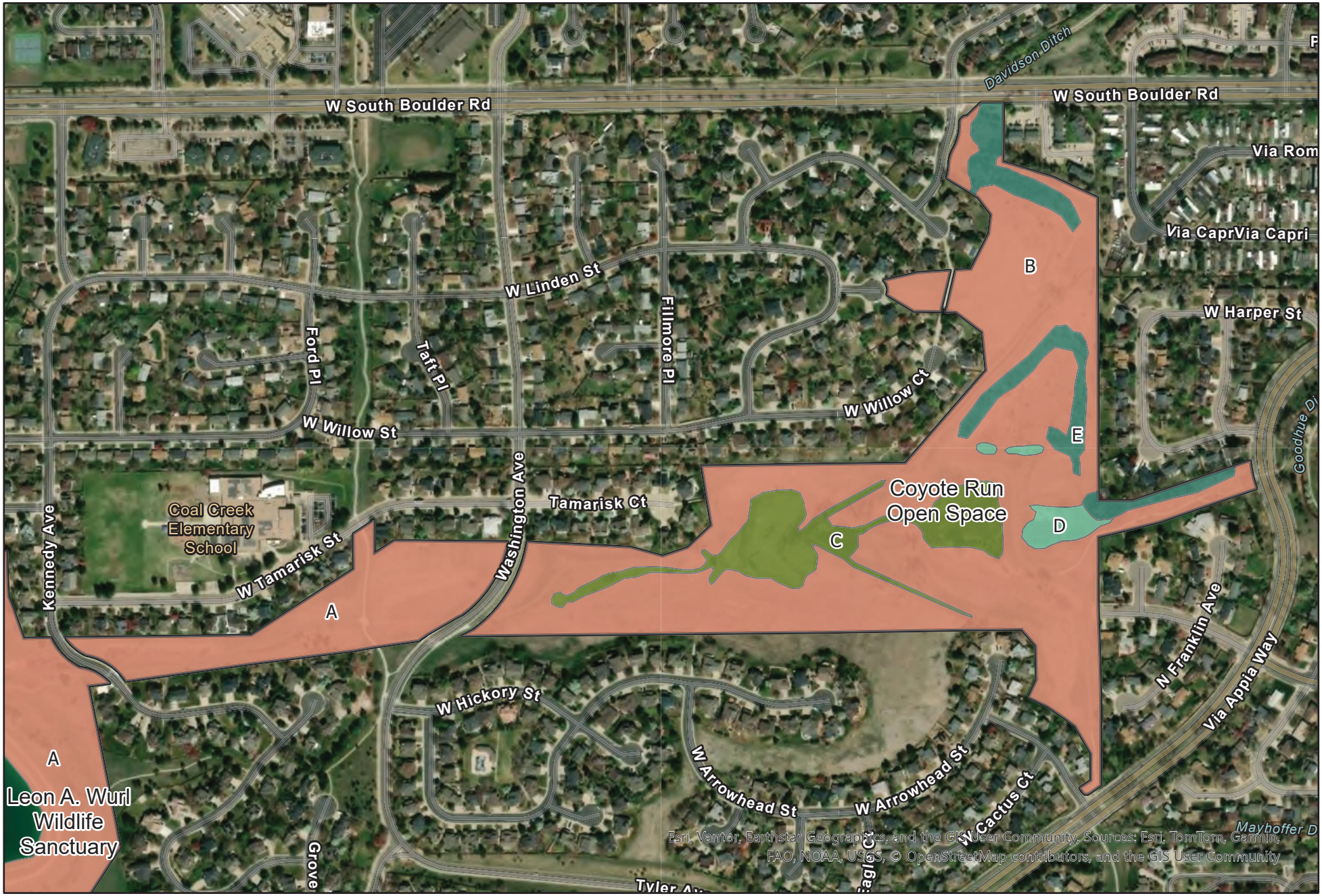
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N

0 130 260 520 ft

1:5,600

olsson

(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh

Chokecherry Northern Plains Shrubland

Eastern Cottonwood / Smooth Brome Ruderal Forest

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Coyote Run Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 55 110 220 ft

1:2,500

olsson

(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh

Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

CTC Open Space

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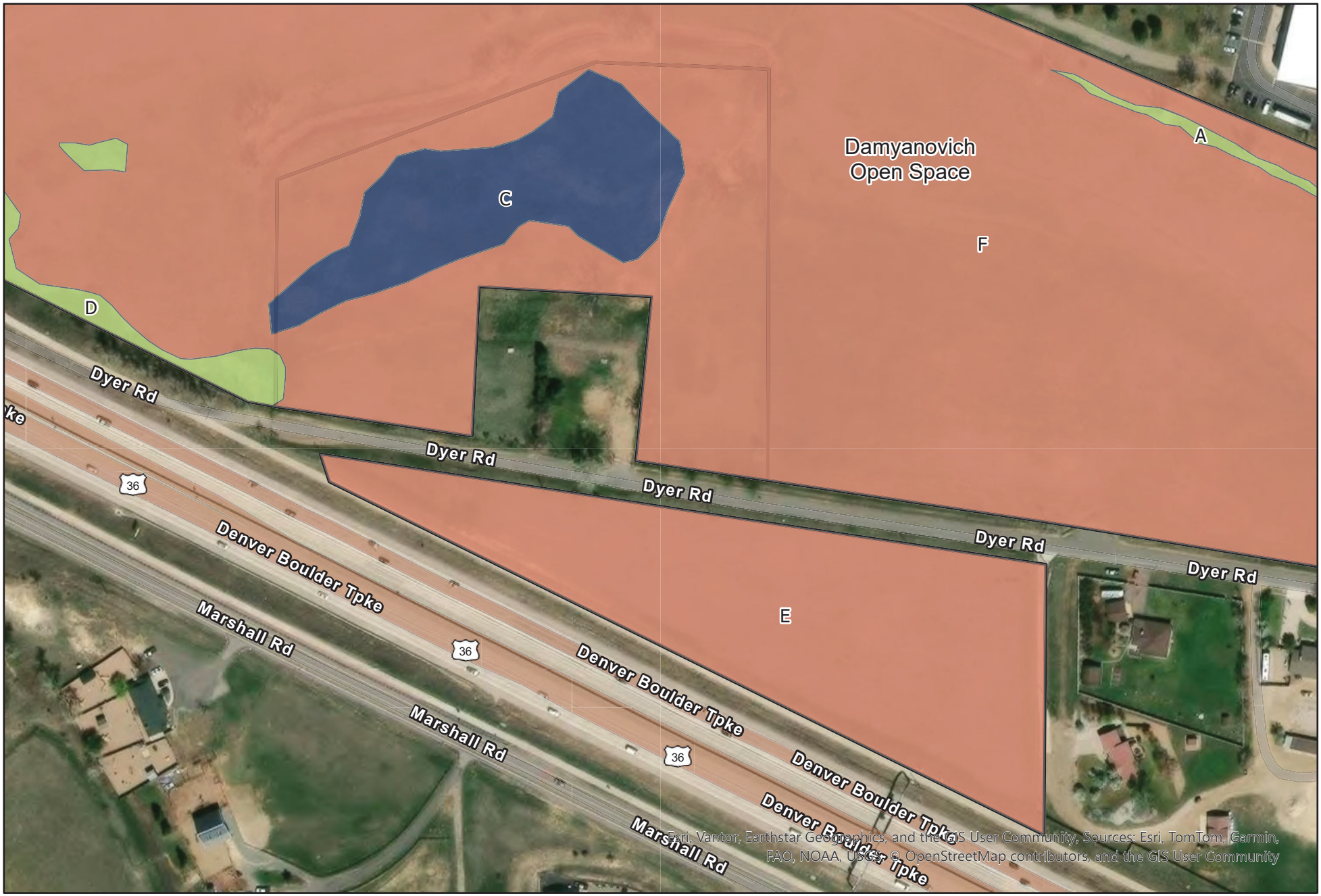
Basemap: Google Earth Imagery



N 0 50 100 200 ft

1:2,200

Common Threesquare Marsh

Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

olsson

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Damyanovich Open Space

170

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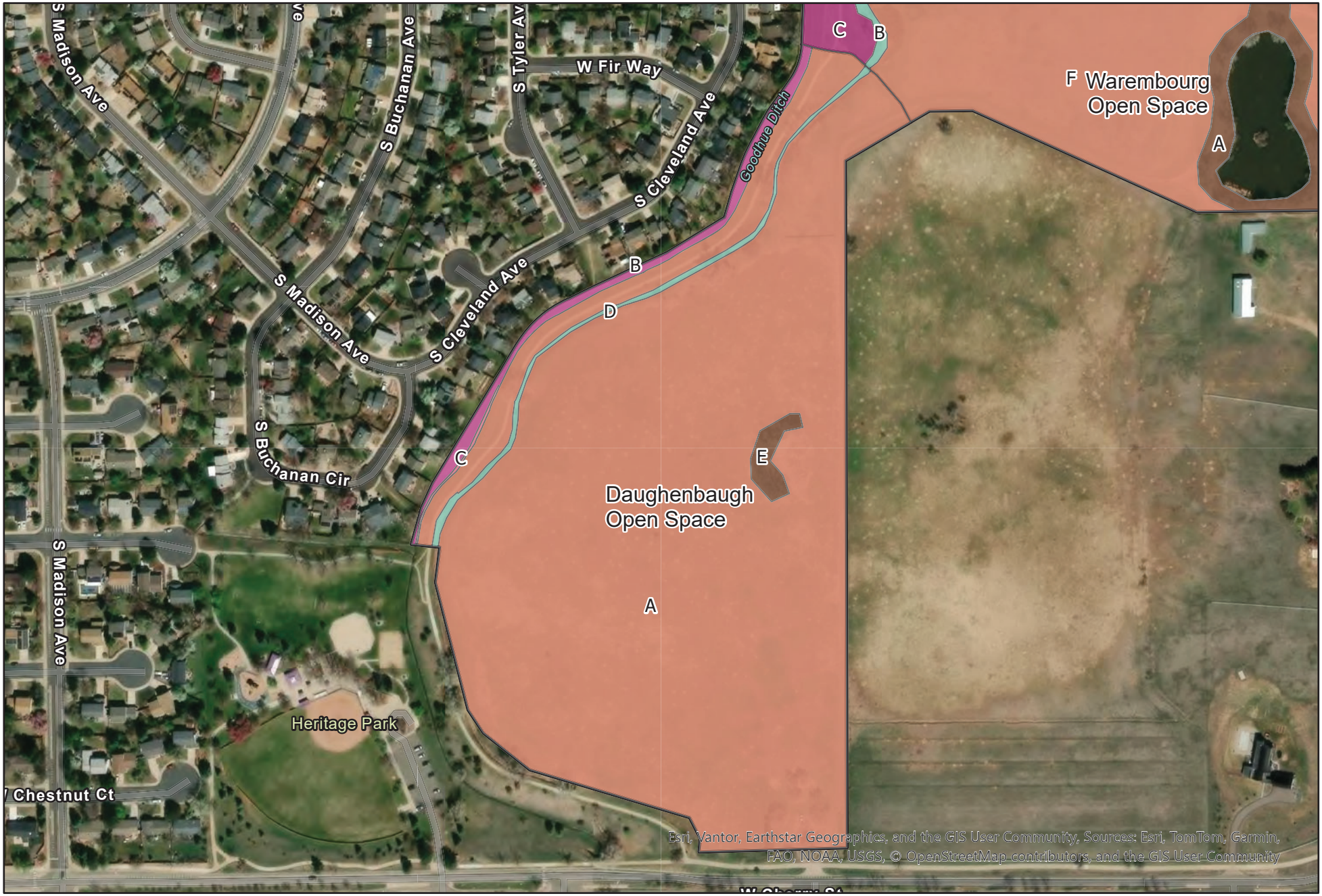
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N

0 75 150 300 ft

1:3,300

olsson

- Chairmaker"s Bulrush Western Marsh
- Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland
- Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland
- Nebraska Sedge Wet Meadow
- Smooth Brome - (Western Wheatgrass) Ruderal Grassland
- Wheatgrass - CheatCrested grass Ruderal Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Daughenbaugh Open Space

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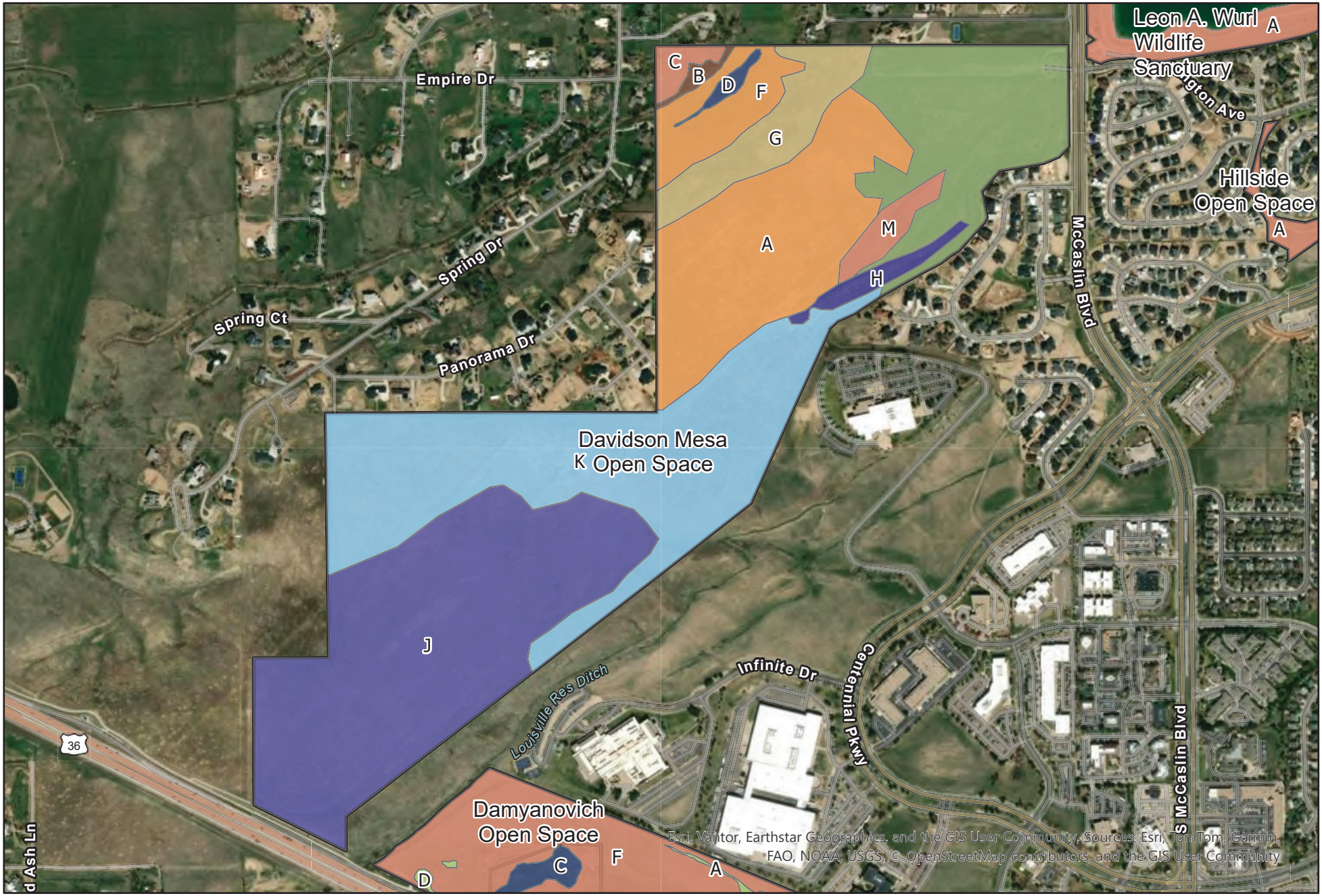
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N

0 230 460 920 ft

1:9,800

olsson

- Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland
- Common Threesquare Marsh
- Crested Wheatgrass - Cheatgrass Ruderal Grassland
- Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland
- Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland
- Needle-and-Thread Northern Dry Grassland Alliance
- Pascopyrum smithii Central Rocky Mountain Grassland Association
- Smooth Brome - (Western Wheatgrass) Ruderal Grassland
- Thinopyrum intermedium Ruderal Grassland
- Winterfat / Western Wheatgrass - Blue Grama Dwarf-shrub Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Davidson Mesa Open Space

1/2

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 80 160 320 ft

1:3,500

olsson

Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland

Populus spp. - Robinia pseudoacacia Western Exotic Planted Woodland Association

Reed Canarygrass Western Marsh

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

Wheatgrass - CheatCrested grass Ruderal Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Dutch Creek Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 10 20 40 ft

1:500

Canada Thistle - Weedy Forbs Great Plains Ruderal Forbland

olsson

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
NVCS
Gateway Open Space

1/4

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 75 150 300 ft

1:3,300

olsson

(Broadleaf Cattail, Narrowleaf Cattail) Western Marsh

Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland

Eastern Cottonwood / Smooth Brome Ruderal Forest

Great Plains Exotic Ruderal Woodland Group

Narrowleaf Willow / Reed Canarygrass Ruderal Wet Shrubland

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Hecla Lake Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 65 130 260 ft

1:2,800

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

olsson

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Hillside Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 75 150 300 ft

1:3,200

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

Winterfat / Western Wheatgrass - Blue Grama Dwarf-shrub Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Leon A. Wurl Wildlife Sanctuary

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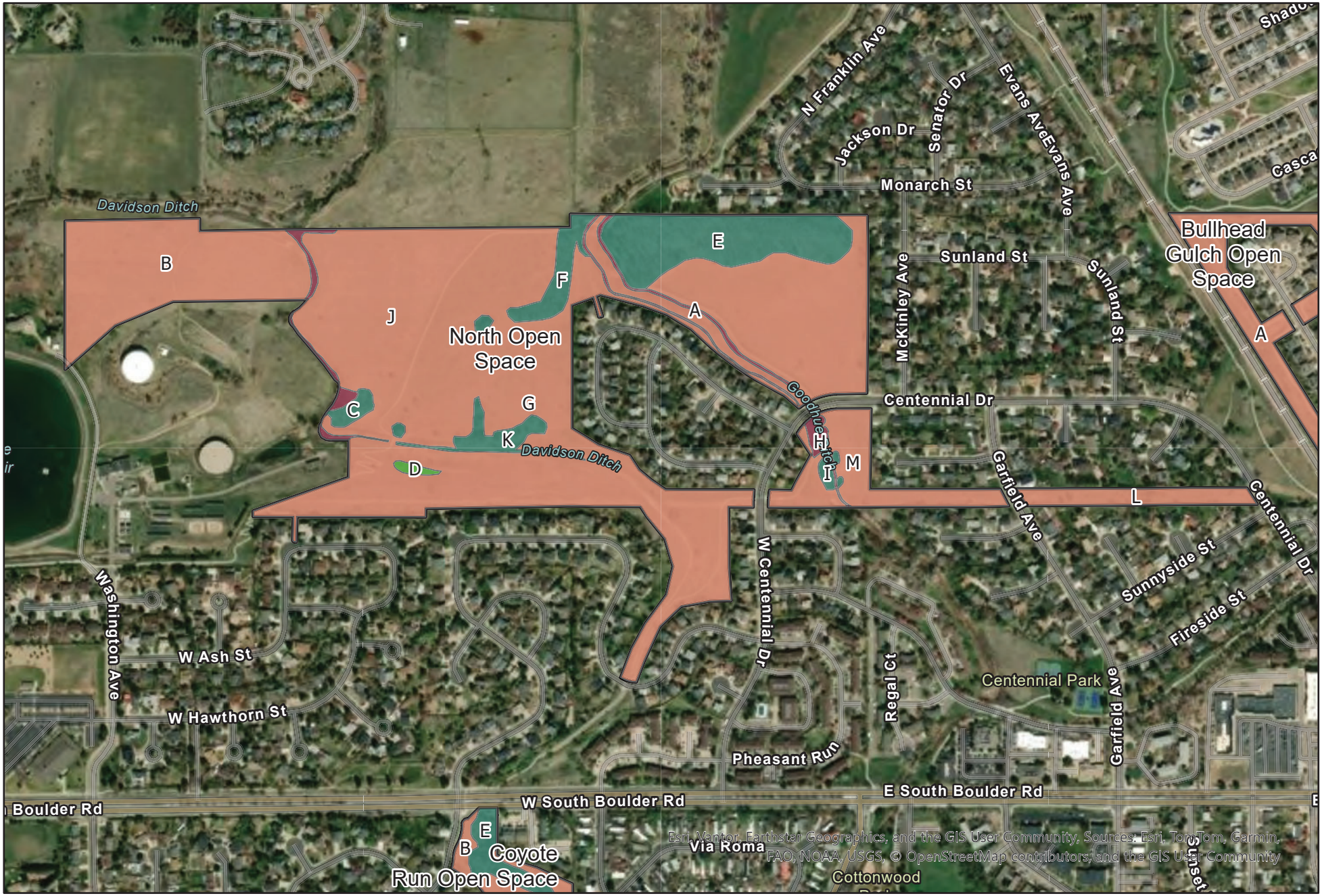
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N

0 162.5 325 650 ft

1:7,000

olsson

- Eastern Cottonwood / Smooth Brome Ruderal Forest
- Great Plains Exotic Ruderal Woodland Group
- Sandbar Willow - (Narrowleaf Willow) Great Plains Wet Shrubland
- Smooth Brome - (Western Wheatgrass) Ruderal Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

North Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 62.5 125 250 ft

1:2,700

olsson

- Eastern Cottonwood / Smooth Brome Ruderal Forest
- Green Ash - American Elm - (Box-elder, American Basswood) Great Plains Floodplain Forest
- Narrowleaf Cottonwood / River Hawthorn Riparian Woodland
- Reed Canarygrass Western Marsh
- Smooth Brome - (Western Wheatgrass) Ruderal Grassland
- Wheatgrass - CheatCrested grass Ruderal Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Olson Open Space

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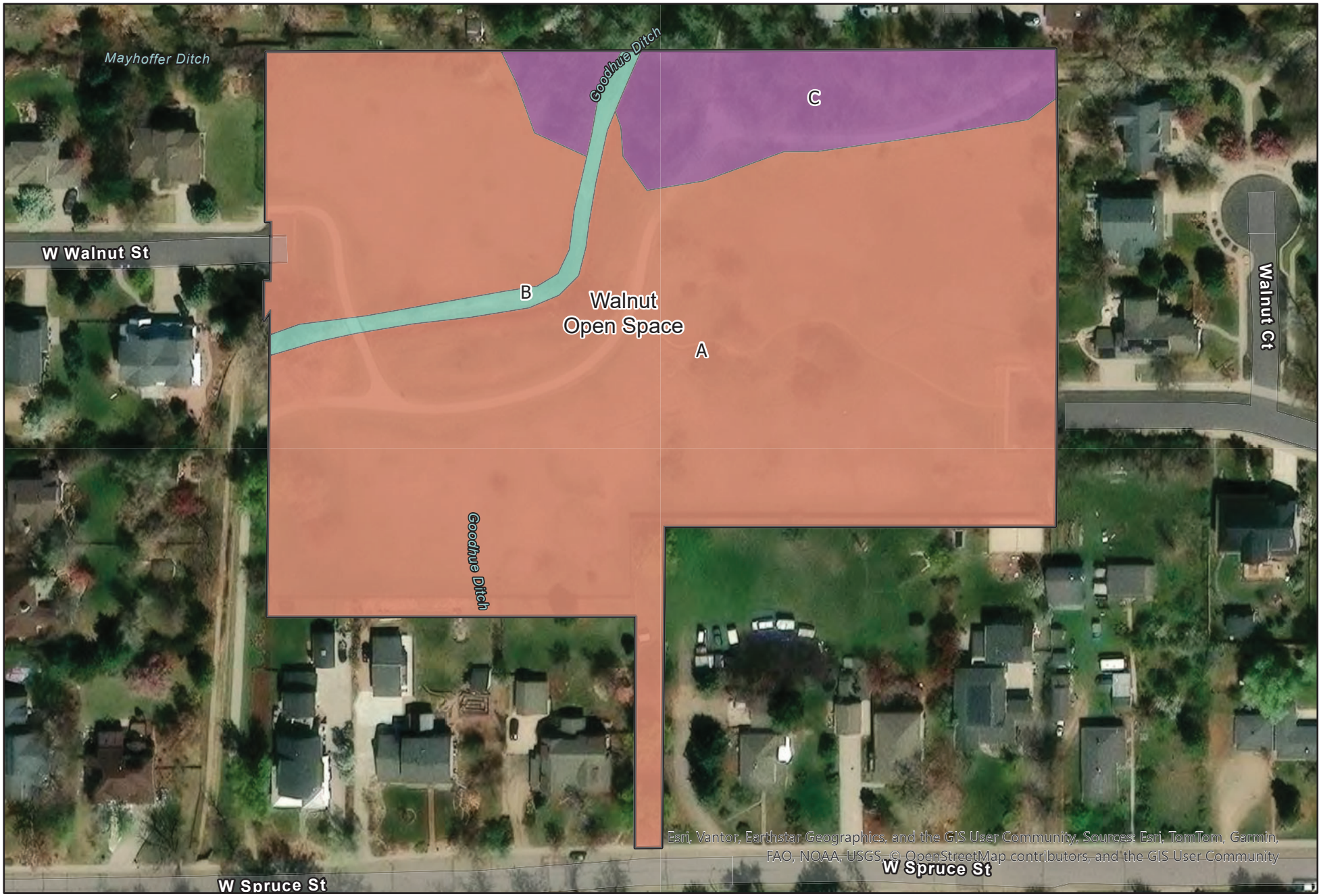

N 0 30 60 120 ft

1:1,300

Exotic Western Hardwood Planted Woodland Cultural Type

Nebraska Sedge Wet Meadow

Smooth Brome - (Western Wheatgrass) Ruderal Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Walnut Open Space

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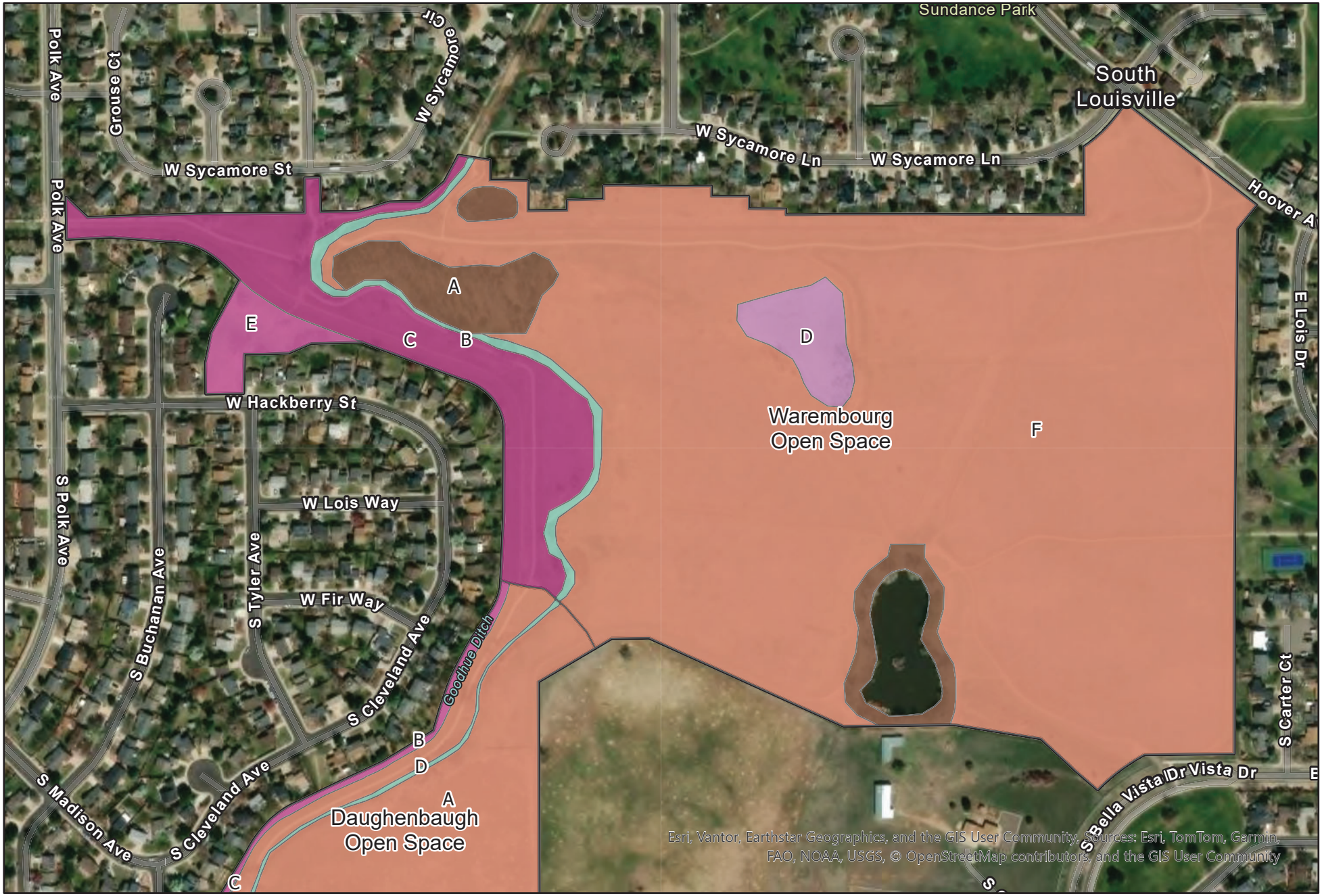

N

0 87.5 175 350 ft

1:3,800

olsson

- Chairmaker"s Bulrush Western Marsh
- Eastern Cottonwood - (Peachleaf Willow) / (Narrowleaf Willow, Sandbar Willow) Floodplain Woodland
- Kentucky Bluegrass - (Western Wheatgrass) Ruderal Grassland
- Nebraska Sedge Wet Meadow
- Reed Canarygrass Western Marsh
- Smooth Brome - (Western Wheatgrass) Ruderal Grassland
- Wheatgrass - CheatCrested grass Ruderal Grassland

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

NVCS

Warembourg Open Space

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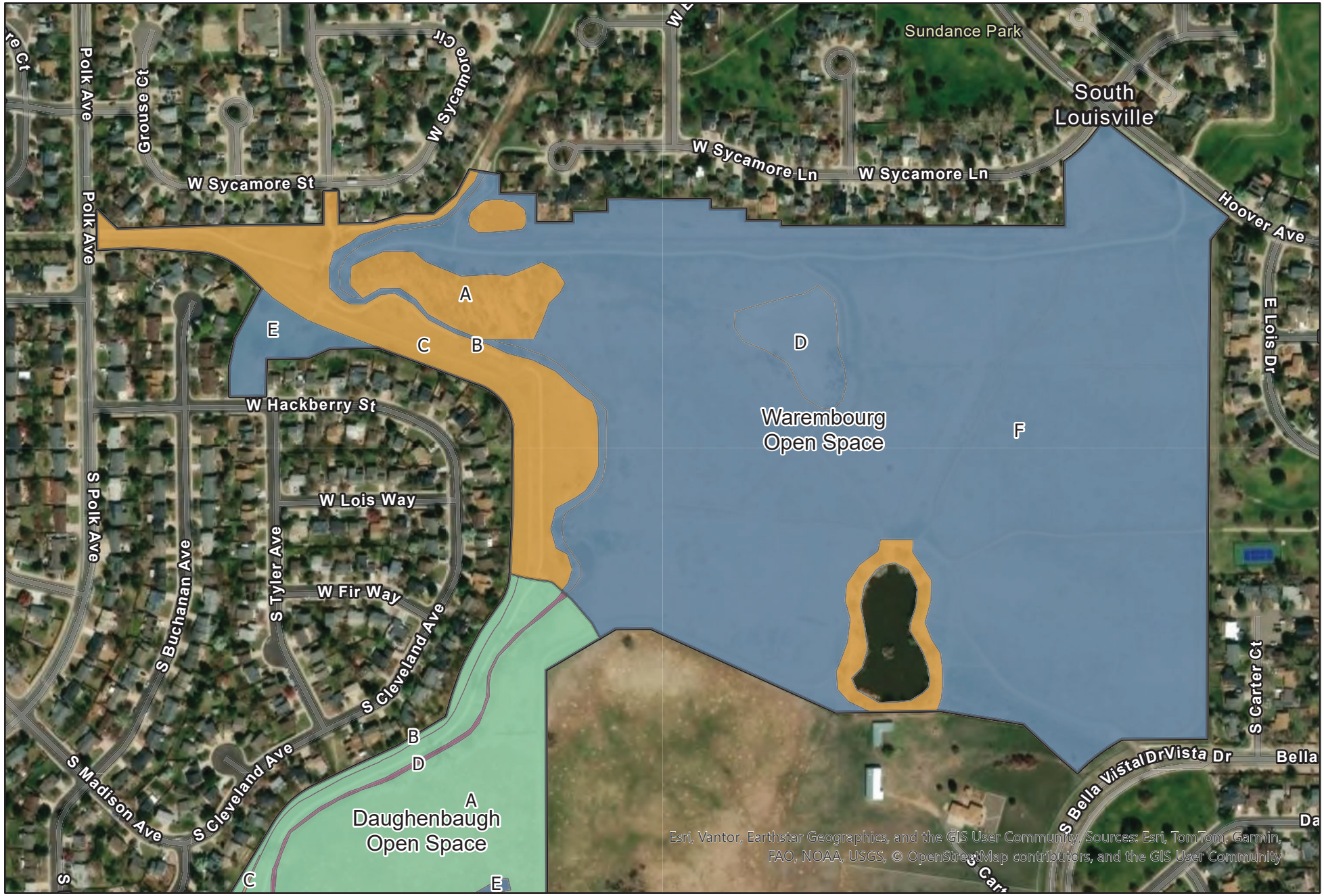
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N

0 90 180 360 ft

1:4,000

olsson

Overall Diversity

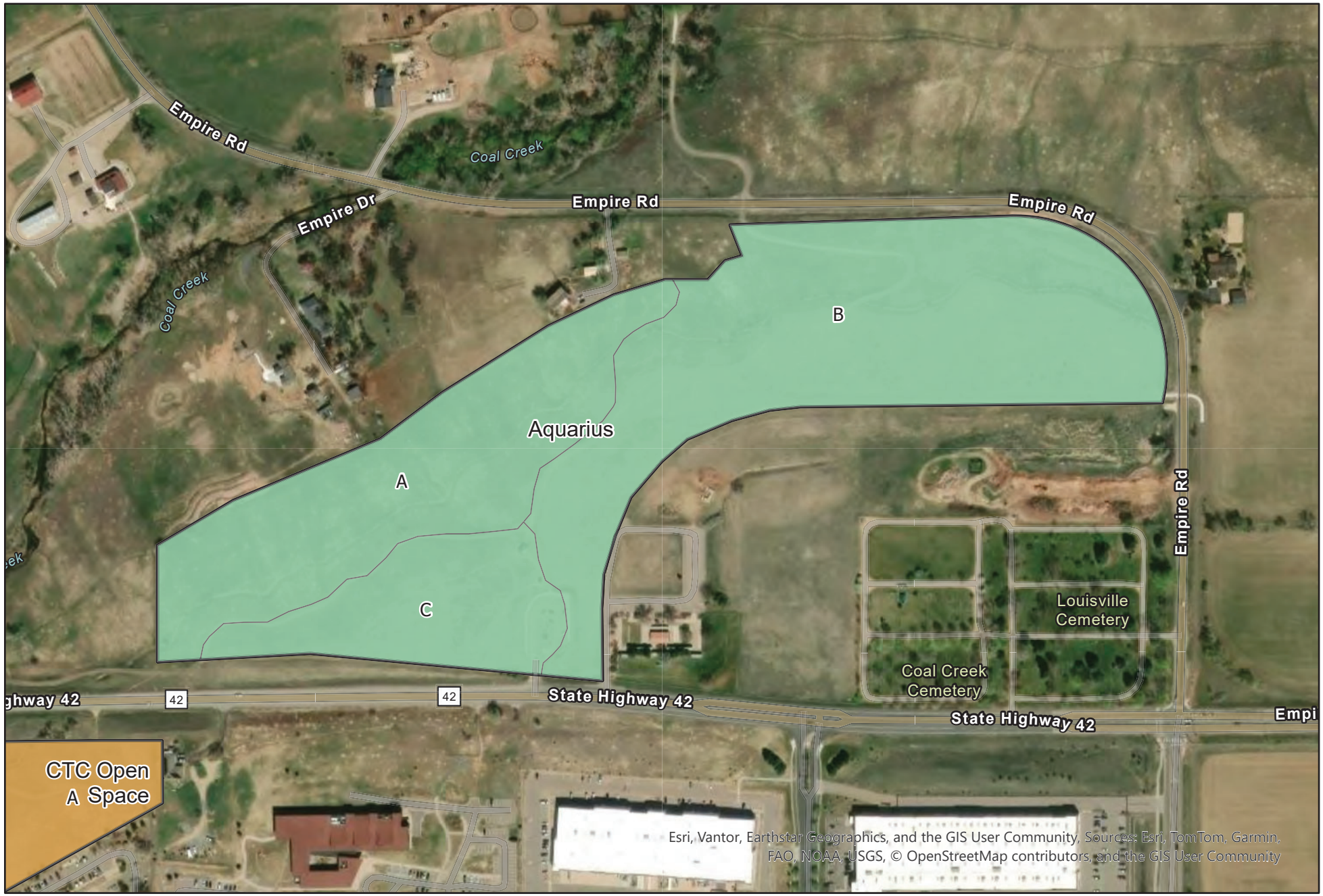
- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Warembourg Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N 0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
183 Aquarius

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

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N

0 70 140 280 ft

1:3,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
184 Avista

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 115 230 460 ft

1:5,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Bullhead Gulch Open Space

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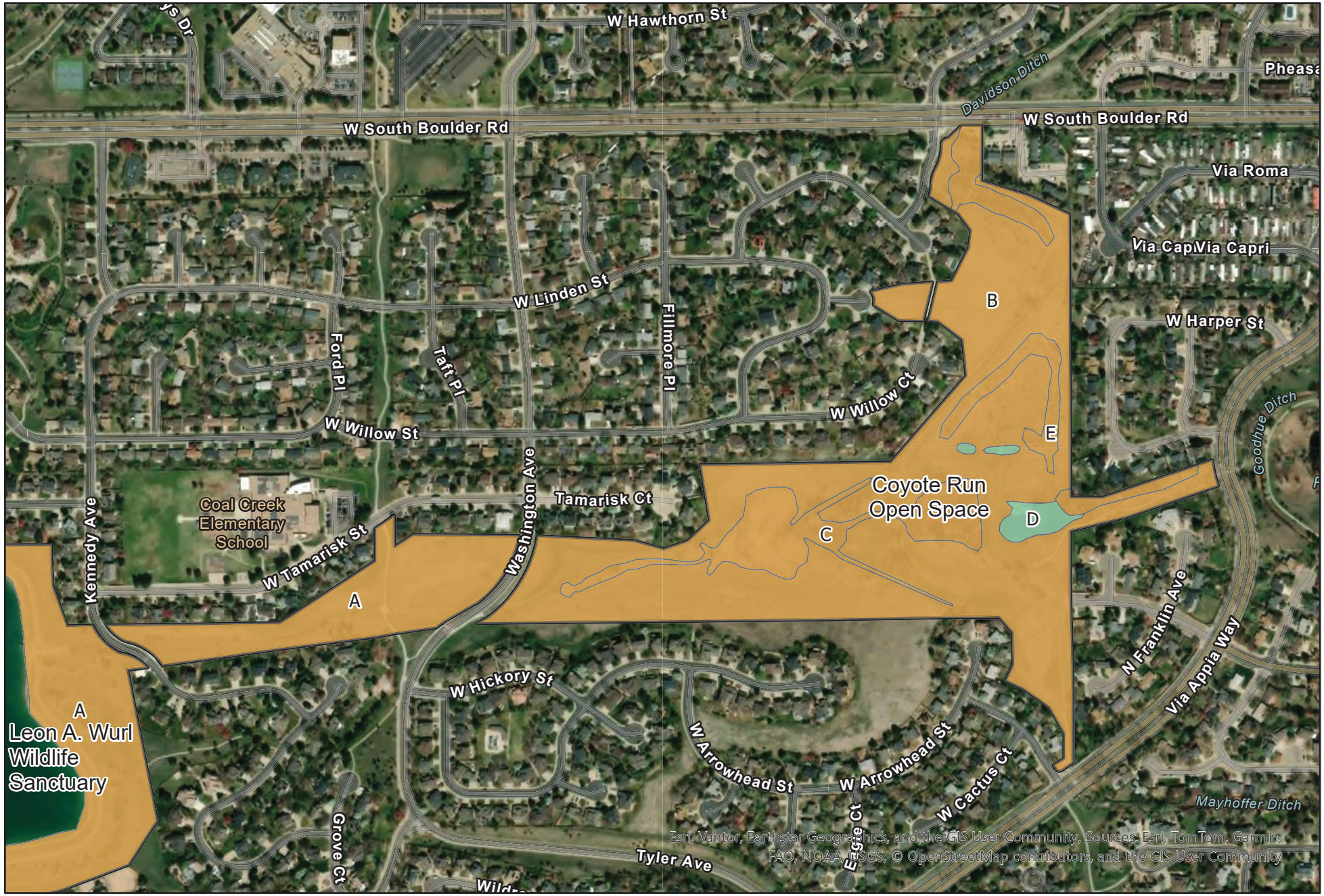
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

N

0 140 280 560 ft

1:6,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Coyote Run Open Space

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 70 140 280 ft

1:3,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

Overall Diversity

CTC Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 70 140 280 ft

1:3,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Damyanovich Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Daughenbaugh Open Space

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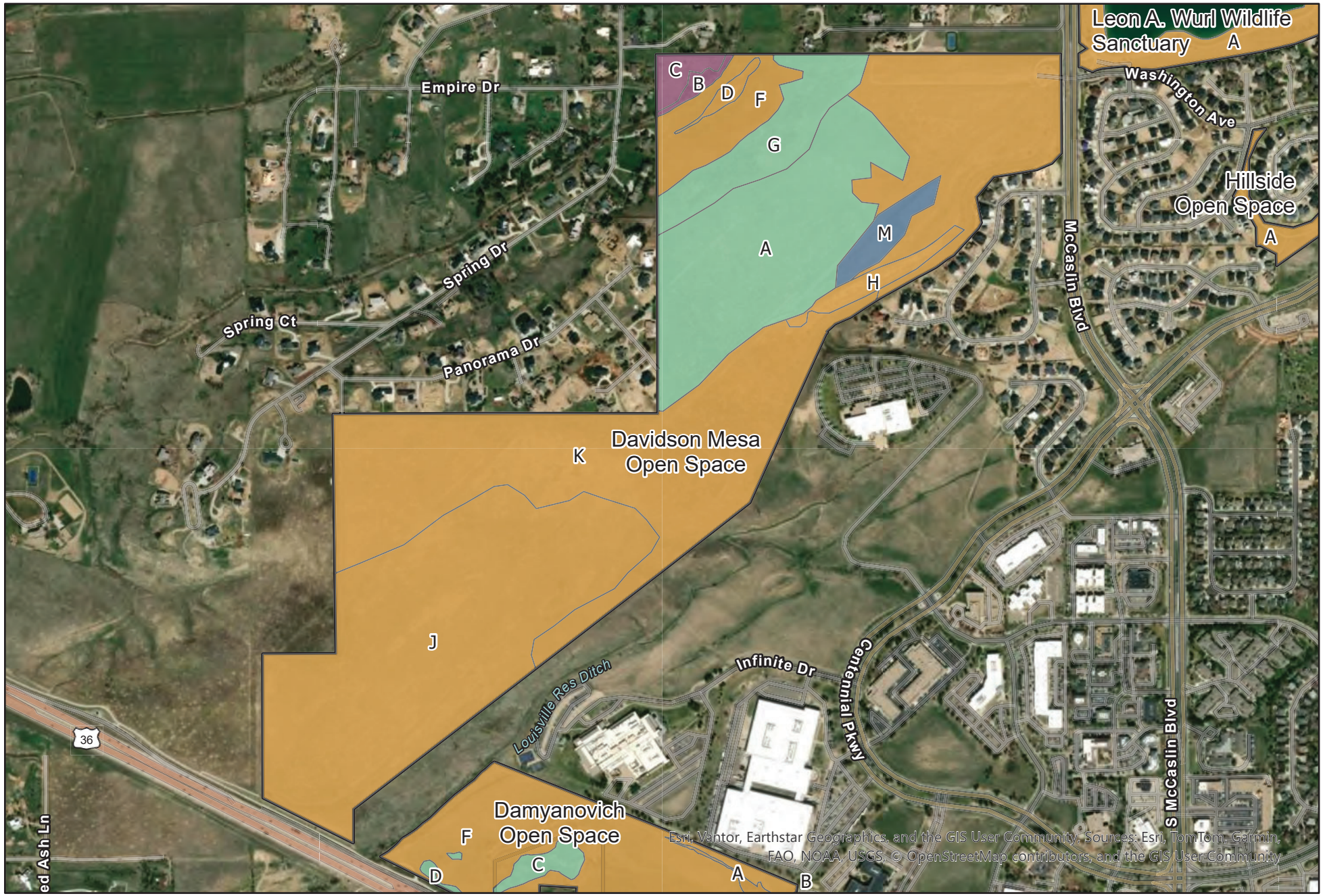
Basemap: Google Earth Imagery



N

0 235 470 940 ft

1:10,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Davidson Mesa Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Dutch Creek Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 20 40 80 ft

1:1,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Gateway Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Hecla Lake Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 70 140 280 ft

1:3,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Hillside Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Leon A. Wurl Wildlife Sanctuary

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 162.5 325 650 ft

1:7,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
North Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 70 140 280 ft

1:3,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Olson Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 45 90 180 ft

1:2,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Walnut Open Space

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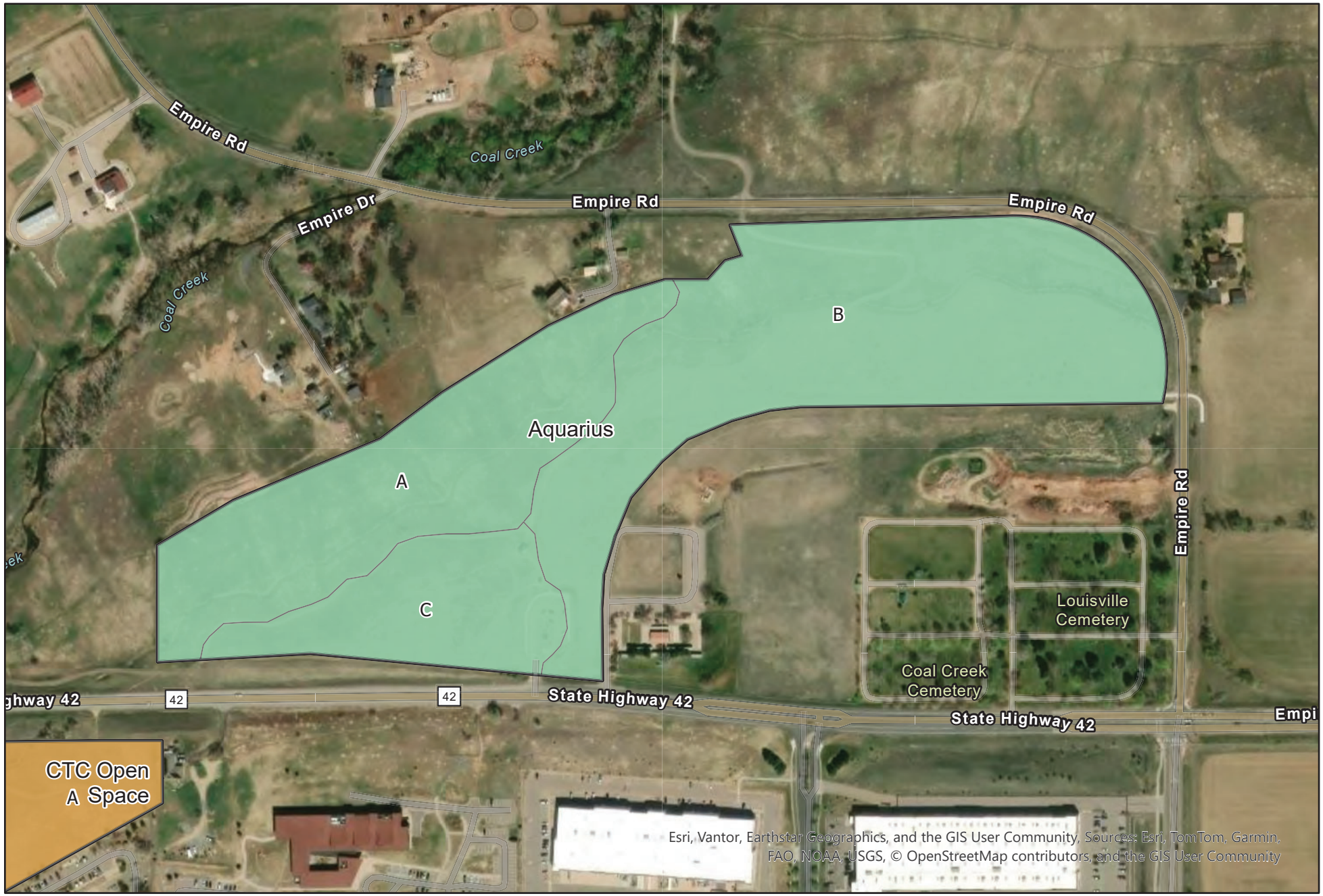

N 0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
199 Aquarius

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 70 140 280 ft

1:3,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
200 Avista

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 115 230 460 ft

1:5,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Bullhead Gulch Open Space

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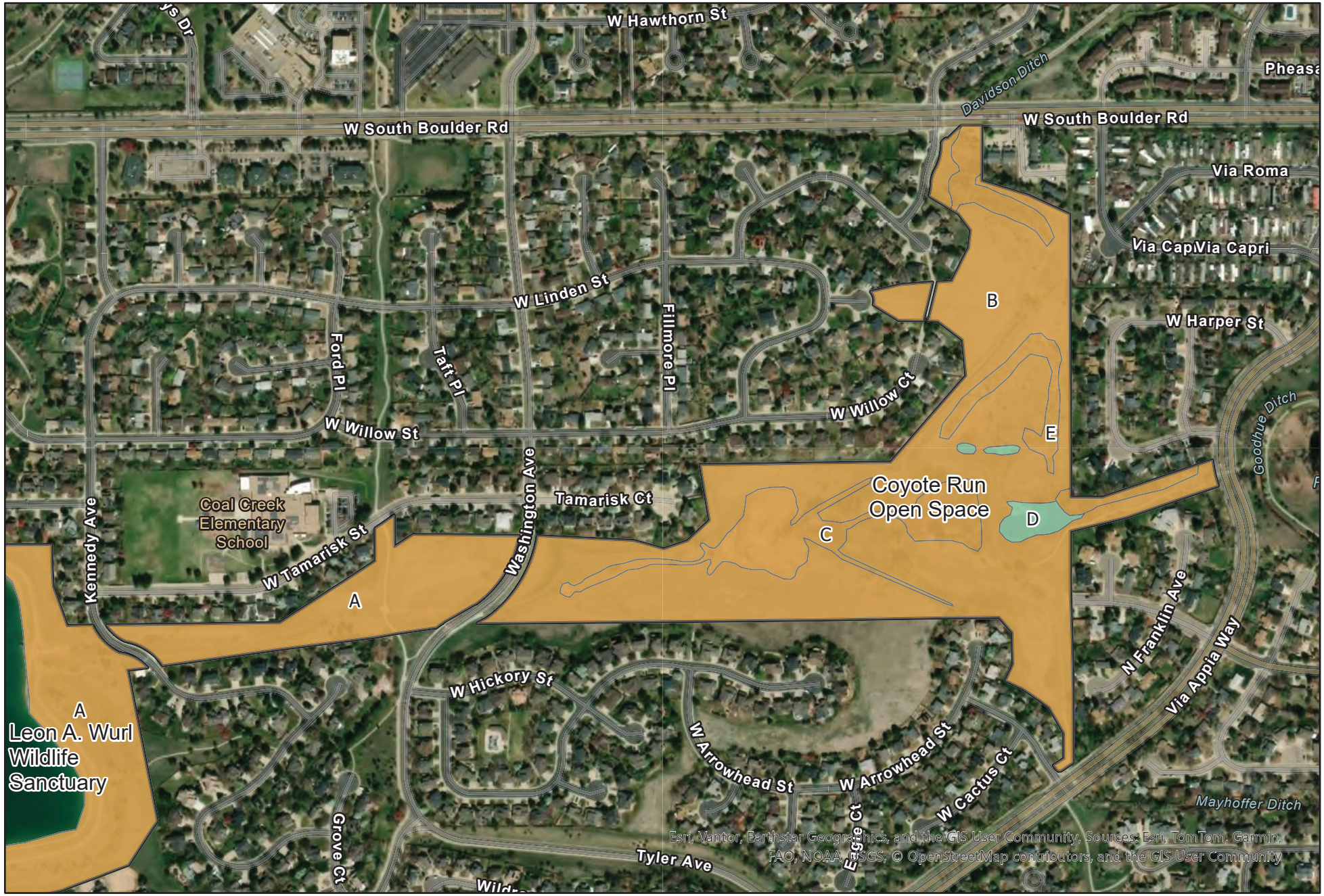

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N

0 140 280 560 ft

1:6,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Coyote Run Open Space

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 70 140 280 ft

1:3,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey

024-05457

Louisville, Boulder County, Colorado

Overall Diversity

CTC Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 70 140 280 ft

1:3,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Damyanovich Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Daughenbaugh Open Space

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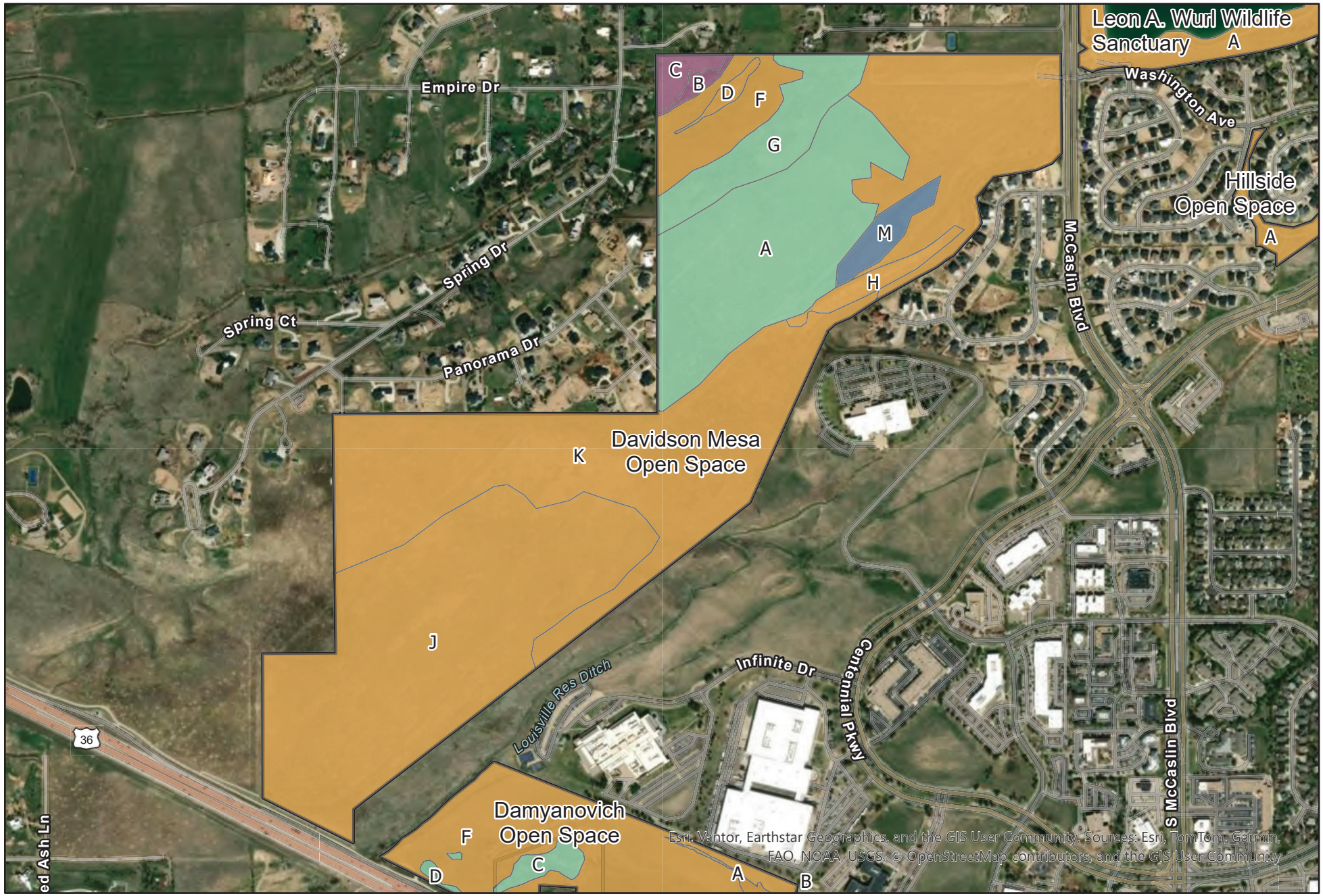
Basemap: Google Earth Imagery



N

0 235 470 940 ft

1:10,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Davidson Mesa Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Dutch Creek Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 20 40 80 ft

1:1,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Gateway Open Space

F:\2024\05001-05500\024-05457\40-Design\GIS\Maps\241015_ENV_Louisville OS Maps.aprx PUBLISHED BY: cpharris DATE: December 01, 2025

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Hecla Lake Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 70 140 280 ft

1:3,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Hillside Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

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N

0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Leon A. Wurl Wildlife Sanctuary

NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 162.5 325 650 ft

1:7,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
North Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N 0 70 140 280 ft

1:3,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space
Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Olson Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

N

0 45 90 180 ft

1:2,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Walnut Open Space

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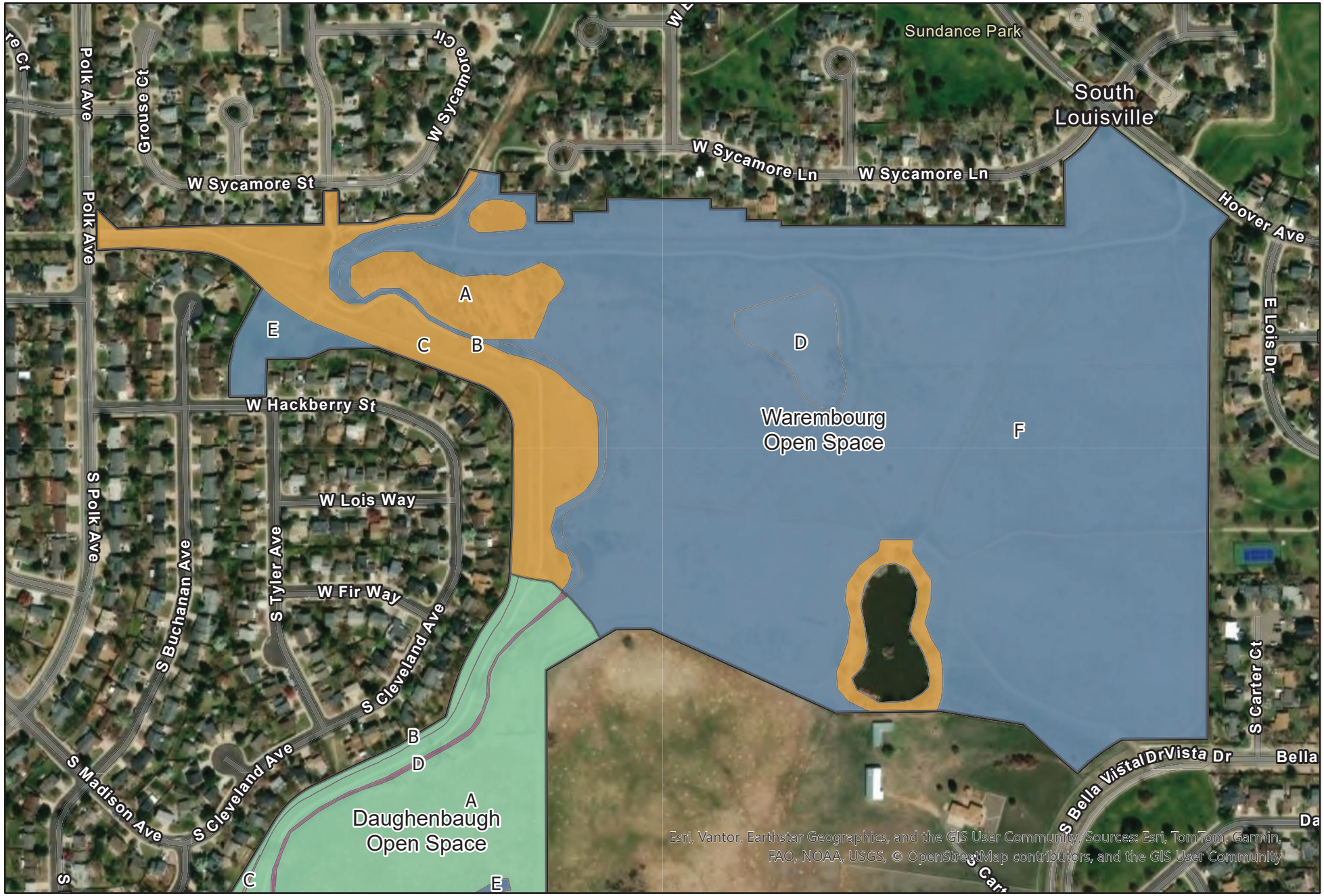
NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery



N

0 90 180 360 ft

1:4,000

olsson

Overall Diversity

- 0.00-0.99
- 1.00-1.49
- 1.50-1.99
- ≥2.00

Louisville Open Space Vegetation Survey
024-05457
Louisville, Boulder County, Colorado
Overall Diversity
Warembourg Open Space

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NAD 1983 2011 StatePlane Colorado North FIPS 0501 Ft US

Basemap: Google Earth Imagery

Open Space Advisory Committee (OSAC)
Joint Meeting with Louisville Open Space Advisory Board
November 12, 2025
6:00 PM
Superior Town Hall
124 E. Coal Creek Drive

This meeting will be held in person and online. Members of the public may participate in the meeting via Zoom *(instructions)* or *view the meeting on YouTube* *(closed captioning available).*
The recording of the meeting will be made available on YouTube and at SuperiorColorado.gov after the meeting.

1. Meeting called to Order 6:00pm @ Town Hall
2. Preliminary Matters
   a. **Roll Call And Introductions**
      - **Present:** Todd Gleeson, Tracey Bain (via Zoom), Joann Maneri, Michael Mcdonnell, Kara Nuese, Rita Trainor, Christi Verbeck, Gordon Sims. Amber Greaves was absent). The members present constituted a quorum.
      - **Staff**: Leslie Clark, PROS Director, Councilperson Stephanie Miller
      - **Invited Guests Louisville Open Space Advisory Board members:** Michiko Christiansen, Andy Dorsey, Susan McEachern (chair), Graeme Patterson, Mark Poletti, Ember Brignull, O.S. Superintendent, Adam Blackmore Director Louisville Parks, Recreation, and Open Space.
      - **Public** Attending/Online: Dan Weber; Approximately 20 student observers.
   b. Agenda Approval 6:05
   c. Public Comment. Dan Weber, Superior resident and frequent user of Coyote Ridge Open Space spoke to needs for more active Coyote Ridge Management, including (1) Creation of annual maintenance plan and budget for Coyote Ridge trails, (2) Engagement of community for maintenance events, and (3) creation of process by which trail additions and modifications could be approved.
3. OSAC Discussion Items
   a. Staff & Town Council Liaison Updates. PROS Director Leslie Clark
      - Coyote Ridge parking lot and trailhead contract awarded. Work to start soon.
      - FEMA funded 3 year grant . Has been used to hire a Wildfire Mitigation Manager.
      - Winter goat grazing has commenced across from Eldorado K8. Open House Nov 22
      - Prairie dog barrier fence to be installed adjacent to Coal Creek Crossing neighborhood Nov 22.
   b. Trail Counters Zoom Presentation by Quentin Leborgne, Eco-Counter, Montreal, Quebec.
      - Counter model options include Pyro Nano, Pyro Evo, and Multi Evo. Model capability difference were summarized. Price quote on file.
      - Louisville OSAB described their use of a four counter unit system which they use to monitor trail traffic and closed trail use. Data combined with data from Strava to evaluate usage and provide data for grant applications.
   c. Town's role in treating Mangy Coyotes?

- Tracey Bain raised concerns regarding health of Town of Superior coyote populations and asked if Town would be interested in treatment. Question about coyote population size in Superior indicated that there are no objective data on coyote population size. Lville OSAB member Graeme Patterson asked if motivation to treat mange was derived from interests in Coyote population conservation, or in animal welfare. Subject tabled for further discussion. Lville PROS track coyote-people and coyote-pet conflict incidents, but have no data on population size either.
- Tracey also reported that one of our two wildlife cameras has been moved to Town 15.

4. Shared Topics with Louisville Open Space Advisory Board (OSAB)

a. Kara provided links to and summarized the following documents
   - ToS PROS Master Plan
   - Coyote Ridge Master Plan
   - Open Space Summary Report and Recommendations 2025

b. Coal Creek/Rock Creek Restoration
   - Kara mentioned ToS' restoration efforts along Coal Creek. Lville reported work on cleanup with MHFD participation.
   - Ember Brignull mentioned an IGA between County and municipalities to use common signage.

c. Rodenticides
   - Information shared on ToS prairie dog playbook and Lville OSAB's recent memo to City Council urging poison ban.

d. E-Bikes
   - Lville recently passed and posted 15 MPH speed signs along Coal Creek, and mentioned partnership with City ebike vendors to educate new owners.

e. Prairie Dogs
   - Lville OSAB is considering a wildlife protection policy like Lafayette and Boulder have. They currently have a wildlife harassment ordinance to address dog-off-leash incidents.
   - Raptor protection policies and Vegetation-Ecotype management policies were mentioned as other contemplated policies which would not conflict with State wildlife policies, which may take precedence.
   - OSAB member Mark Poletti inquired if OSAC had formal top priorities articulated for 2025 or 2026.
   - Meeting concluded with plan to appoint liaisons between OSAC and OSAB who would meet regularly.

f. Reminders
   - No meeting in December

Meeting adjourned at 8:00PM

Discussion Item 9: OSAB Work Plan for City Council Review DRAFT- Brainstorming Session- DRAFT

2024 Accomplishments & 2025 Work Plan Goals

2024 ACCOMPLISHMENTS

OSAB 2024 Accomplishments		City Council Work Plan	Department Goal
Recommendations to City Manager on the Internal Acquisition Process			
Recommendations on the 2C Tax Process			
Recommendation on Budget Amendments to Utilize 2c Tax Funding in 2024			
Recommendations on 2024 Open Space Education & Outreach Program Planning			
Development Review - Redtail Ridge			
Provided input on the creation of the PROST/Trail Long Range Plan RFP			
Provided input on the Wayfinding Implementation			
Recommendation and implementation to Improve Weed Whacker Volunteer Group			
Research potential Grant opportunities to assist with Open Space work			
Recommendations to PD, CC, Staff regarding E-bikes			
Letter to City Council proposing banning of Rodenticides on private property			
Review and Recommendations of Quasi Judicial Process			
OSAB donated 421 hours of work to the City			
2025 GOALS			
OSAB 2025 Priorities Related to the City Council Work Plan		**City Council Work Plan**	**Budgeted in 2025**
City Comprehensive Plan	Engaged with City reps, took survey as individuals.	Yes- Economic Vitality	Yes
Acquisition Policy	with City Council, which approved process and flow chart suggestions.	Yes- Core Services	
Restore Native Ecosystems and Grasslands	In progress. Awaiting results of vegetation survey.	Yes- Core Services	Yes
PROST Long Range Plan	Met with consultants, provided thoughts and feedback.	Yes- Core Services	Yes
Trails Master Plan	Establish a Trails Tiger Team to provide detailed feedback.	Yes- Core Services	Yes
Review Interpretive Education Panels	Reviewed and provided feedback on multiple panels.		Yes
Wildfire Mitigation Communication Campaign	Susan and Andy provided feedback to consultant.		Yes
Short Street & Hwy 42 Urban Renewal Plan	na		Yes
Budget Review	Reviewed and provided feedback and guidence.		
Resource Management	na		
Complete Wayfinding City Wide	Powerline Trail completed. Remainder budgeted for 2026		Yes
Achieve "Bird City" Designation in Louisville	Accomplished!		No
Dark Sky Designation Adjacent to Open Space	Consider working with Sustainability Advisory Board in 2026.		No
Joint Board Meetings with Lafayette LOSAC and Superior OSAC	restoration efforts		
Development Review	na		No
BioBlitz Biodiversity Evaluation	In progress. Awaiting results of vegetation survey.		Yes
City Wide Rodenticide Policy for Private Property	rodenticides.		No
Board/Tiger Team Collaboration with internal and external boards	quarterly		
Convened quasi-judicial review of DD property	Voted in favor of accepting a portion of DD as open space property		
Individual Accomplishments/Tiger Teams			
Weed Whackers	Organized 120 hours of open space weeding (Susan)		
OSAB Future Ideas		**City Council Work Plan**	**Budgeted in 2025**
Implement a Mobile Education Trailer			
Advocate for 2C Permanent Renewal Vote in 2028	Dietrich Hoeffner is in favor of this idea. (Susan)		
Obtain Water Rights to Enhance Coal Creek and Hecla Lake Environmental Health	Would require an outside consultant to anaylze feasibility. (Graeme)		
Restore Coal Creek Riparian Area	Delete here since repeats Tiger Team plan above?		
Advocate for a Wildlife Plan	Advocate for a city ordinance protecting wildlife. (Michiko)		
Work with RAB to Continue Program to Rewild Golf Course Roughs			
Open Space Management Plan	Will follow after PROS Plan is completed.		
Warembourg Fishing Pond in the Budget process			