



Land Use

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BOULDER COUNTY PLANNING COMMISSION

ADENDA ITEM # 5

December 21, 2016 – 1:30 PM

Commissioners Hearing Room, Third Floor

Boulder County Courthouse

DIRECTION, FEEDBACK AND PUBLIC HEARING

Docket BVCP-15-0001: Boulder Valley Comprehensive Plan Policy Update

STAFF PLANNER: Nicole Wobus, Amy Oeth, Steven Giang, Long Range Planning and Policy Team, Boulder County Land Use; Lesli Ellis, Comprehensive Planning Manager, City of Boulder

INTRODUCTION AND BACKGROUND

City of Boulder and Boulder County planning staff has been working to identify emerging areas of work and to ensure the updated Boulder Valley Comprehensive Plan (BVCP) policies align better with city and county master plans or programs introduced since the last BVCP major update in 2010. Attachment A includes the most current drafts of recommended policy updates.

The BVCP policy updates reflect input from city and county staff, including staff input from the following county departments: Parks and Open Space, Public Health, Resource Conservation, Community Services, Boulder County Housing Authority, Sustainability, Transportation and Land Use.

Initial discussion of policy updates occurred at the November Planning Commission meeting. Discussion at the November meeting focused on policy sections 1 (Core Values), 3 (Natural Environment), 8 (Community Well-Being) and 9 (Agriculture and Food). Drawing on input from Planning Commissioners, members of the public, as well as city and county staff and other stakeholders, city staff prepared revised drafts of Sections 3 and 9. The latest versions of those sections are included in this memo for reference (Attachment A). Staff is available to answer any questions on recent changes to those sections.

The focus of the policy updates discussion for the December Planning Commission meeting is policy sections 4 (Energy and Climate), 5 (Economy), and 6 (Transportation). In addition, staff will provide an update on revisions to the BVCP Trails Map and related policy implications; recent work by staff and other stakeholders on preparing a revised BVCP Trails Map resulted in proposed policy revisions to Section 8 that were not included in discussion at

the November meeting.¹ Staff will also provide a brief update on policy Section 7 (Housing). That section is still undergoing revision, but there is initial progress to report.

This staff memo includes a summary of public input received to date on the draft policy updates. Those comments are included as Attachment C. Public comments are also available on the BVCP-15-0001 docket webpage:

<http://www.bouldercounty.org/property/build/pages/lubvcp150001.aspx>. The link to access the public comments related to the BVCP policy updates is available on that page under the “Policy Updates” section. Staff will continue to update the comments posted there as we receive additional comments.²

BVCP staff requests input from Planning Commission by the end of December on the policy sections listed here:

- Section 1: Core Values
- Section 3: Natural Environment
- Section 4: Energy and Climate
- Section 5: Economy
- Section 6: Transportation
- Section 8: Community Well Being
- Section 9: Agriculture and Food

Sections 2 (Built Environment) and 7 (Housing) are proceeding on a different schedule. The revised content in those sections will reflect findings from scenario analyses currently underway, as well as input received in response to a second BVCP survey underway through mid-December. Those sections are included for reference in Attachment B and as noted, staff will provide a brief update on housing policy discussions at the December meeting.

Staff will present revised policy language to city and county decision makers for approval in early 2017. Note that temporary endnotes in the attached draft policy sections are intended to explain the origin of the proposed changes. Policies will be renumbered for the final draft, and several policies will be relocated within a new document structure designed to align with the city’s sustainability framework.

Schedule of Key Dates for BVCP Policy Integration:

Upcoming Dates (Proposed):

- **Dec. 21, 2016** County Planning Commission continued review and input on Sections 1, 3, 4, 5, 6, 8, 9; focus on Sections 4, 5, 6, including public hearing
- **Jan. 19, 2017** City Planning Board review and initial approval of revised core values, Sections 3, 4, 5, 6, 8, 9 including public hearing

¹ The proposed policy changes moving forward at this time pertain only to Section 8. However, policy updates resulting from the Trail Map review could ultimately affect other section as well.

² Note that the some public comments included among the “policy updates” comments refer to “Scenarios”. The reference is to early draft development scenarios discussed starting at the August 29 joint Board meeting and open house. Those comments are included among the policy update comments because the scenarios development will inform updates to the policy sections that will undergo later revision: Sections 2 (Built Environment) and 7 (Housing).

- **Jan. 24, 2017** City Council and Planning Board Study Session
- **Feb. TBD** City Council and County PC and BOCC direction and initial approval of Sections 3, 4, 5, 6, 8, 9.

Previous events regarding policy integration:

- **July 28, 2016** City Planning Board discussion regarding core values; Sections 3, 4, 5, 6, 8, and 9; and Amendment Procedures
- **Aug. 8, 2016** City Transportation Advisory Board (TAB) review and discussion of Section 6
- **Aug. 10, 2016** City OSBT review and discussion of Section 3
- **Aug. 11, 2016** City Planning Board continued discussion regarding core values, Sections 3, 4, 5, 6, 8, 9
- **Aug 25, 2016** County Parks and Open Space Advisory Committee review of Sections 2, 3, 8, and 9, opportunity for public comment provided
- **Aug. 29, 2016** Public Open House and online version of revised sections (comments due Sept. 23)
- **Aug. 29, 2016** City Joint Boards and Commissions preview of revised sections and request for input on relevant sections
- **Sept. 14, 2016** City OSBT review of trails map changes and discussion of Sections 3 and 9
- **Sept. 22, 2016** County Parks and Open Space Advisory Committee continued review of Sections 2, 3, 8, and 9, opportunity for public comment provided
- **Nov. 16, 2016** County Planning Commission continued review and input on Sections 1, 3, 4, 5, 6, 8, 9; focus on Sections 1, 3, 8, 9, including public hearing

Guidance for Review of the Following Materials

As you proceed in your review, please keep the following in mind:

- Since there have been several rounds of edits by multiple contributors, you may find the language could benefit from additional editing. Please focus on the concepts versus the wording to make sure the policies are in line with county goals. Additional editing will take place once all substantive changes are completed and will improve organization, reduce redundancies and improve overall flow and readability.
- That said, if there are particular policies where language issues stand in the way of effectively communicating the intent of the policy, please let Land Use staff know.
- Under the BVCP, the county decision bodies only have decision authority over policies that affect the county (not those focusing on the city only). However, for practical purposes policy sections will be put forward for county approval in their entirety (i.e., county bodies won't be asked to vote on policies one by one). When reading through the policies, please review the city and county roles and references in the policy language. Most policies refer to both "city and county." However, some refer only to the city. County staff is in the process of identifying potential locations in the policy text where adding reference to the county warrants consideration. Staff welcomes PC's feedback on this topic. If you identify cases in which you believe reference to the county should be added or removed, please let Land Use staff know.

- As noted, the Housing and Built Environment sections are on a different schedule, and policies in these sections have not yet undergone comprehensive updates. Therefore, significant additional changes may be made to these sections in the months to come that are not yet identified in the current draft. At this time, staff is looking for initial feedback on those sections.

Organization of Memo:

For each policy section (section 1 through 9) this memo includes a summary and list of topics addressed in the section, a list of major changes affecting the county, outstanding issues for county staff, and a summary of public input received to date. Redlined policy section drafts are included as attachments.

The memo ends with a summary of proposed changes to the Trails Map and Description. Discussion of the Trails Map and Description are included in this memo as those items are part of the Policy Updates and Integration work track as shown on the BVCP Major Update schedule.

Attachments:

- Attachment A: Policy sections of primary focus for current discussions
 - A1: Section 1 – Core Values, pages A1-A3
 - A2: Section 3 – Natural Environment, pages A4-A12
 - A3: Section 4 – Energy and Climate, pages A13-A16
 - A4: Section 5 – Economy, pages A17-A23
 - A5: Section 6 – Transportation, pages A24-A31
 - A6: Section 8 – Community Well-Being, pages A32-A38
 - A7: Section 9 – Agriculture and Food, pages A39-A41
- Attachment B: Additional policy sections for reference
 - B1: Section 2 – Built Environment, pages B1-B20
 - B2: Section 7 – Housing, pages B21-B25
- Attachment C: Trails Map Update-Related Materials:
 - C1: Summary of Changes to the BVCP Trails Map, pages C1-C3
 - C2: Draft Trails Map, page C4
 - C3: Revised Trails Map Description – BVCP Implementation Section, pages C5-C7
 - C4: Proposed Changes to Trails Policies (related to policy Section 8), page C4
 - C5: Documentation and Assessment of Feedback on Trails, pages C9-C19
- Attachment D: Public Comments, pages D1-D77

BVCP POLICY UPDATE SUMMARY

Sections

Section 1: Core Values, Sustainability Framework and General Policies

Summary

This introductory section includes a vision statement, overview of the sustainability and resilience framework for the policies in the plan, and summary of Boulder’s planning history.

Draft Updated Vision Statement:

The Boulder Valley community honors its history and legacy of planning for a livable community surrounded by open space and rural lands while striving together to create and preserve a truly special place that is sustainable, resilient, equitable and inclusive – now and for future generations.

Major Changes Affecting the County

None

Outstanding Issues for County Staff

None

Summary of Public Input Received to Date

A member of the public submitted a comment noting that the following sets a vague and subjective standard, and requesting that more objective standards be used instead to ensure consistency and predictability:

“The city and county strive to support all of the values listed below but recognize that may not be possible with each and every decision. They are not listed in any priority order. Careful consideration of important tradeoffs among these values and all the plan’s policies should be employed in implementing the Boulder Valley Comprehensive Plan.”

Section 2: Built Environment

Summary

This section defines city structure (natural setting, individual character areas, activity centers map, mobility grid, and the public realm), provides growth projections, and defines sustainable urban form.

Topics Covered

- Community identity / land use pattern
- Rural lands preservation
- Neighborhoods
- Mixed use and higher density development
- Activity centers
- Community conservation (and historic preservation)
- Design quality

Major Changes Affecting the County

The Built Environment section is on a different time track from other sections. Therefore, it is still not clear what major changes may be made to this section.

Initial ideas for improvements to the section that have been circulated include the following:

- Better convey through maps and diagrams the “elements that define Boulder’s city structure” such as “activity centers,” and now relationship of transit corridors from renewed vision for transit

- Illustrate and provide metrics and principles of sustainable urban form
- Clarify guidance on neighborhood protection strategies (such as transitions and mix of complementary land uses)
- Describe and illustrate principles of quality mixed use and higher density development
- Convey other principles of design quality (such as sensitive infill and redevelopment)
- Alignment between city and county building codes

Outstanding Issues for County Staff

Staff welcomes initial conceptual ideas for improvements to the section. Staff will provide updates on proposed changes from other stakeholders, and will work to solidify county feedback on this section at a later date that is to be determined.

Section 3: Natural Environment

(This section will remain a stand-alone chapter rather than be combined with others as initially proposed.)

Summary

This section focuses on policies related to the natural environment. (Note: Text will be edited in this section to improve organization and reduce redundancies.)

The latest version of the section (12/5/16) includes a more extensive and descriptive preamble to call out features of the natural environment. This includes the differences between policies as attributed to publicly-owned versus private lands, and lands in the urban context versus those that are part of the city and county open space surrounding the city. It also includes new language and policies related to climate change and resilience. In general, the policies maintain or increase levels of protection and clarity about this section's relationship to other master plans and the city and county's respective roles in environmental protection. The changes reflect input from the community and county staff with additional review and input by city staff. Some further editing will be necessary to reduce redundancies and wordiness.

Topics Covered

- Incorporation of ecological systems into planning
- Adaptive management approach
- Protection of natural lands
- Management of wildlife
- Water conservation
- Flood management
- Air quality

Major Changes Affecting the County

- New policies related to the county:
 - (no number) Climate Change Preparation and Adaption;
 - (no number) Soil Carbon Sequestration; and
 - (no number) Natural Environment Investments for Resilience.

- Policy text updates related to the county (besides those mentioned under status updates):
 - 3.04 Ecosystem Connection and Buffers
 - 3.05 Maintain and Restore Natural Disturbance and Ecological Processes
 - 3.06 Wetland and Riparian Protection
 - 3.07 Invasive Species Management
 - 3.12 Water Conservation
 - 3.15 Mineral Deposits
 - 3.18 Wildfire Protection and Management
 - 3.20 Flood Management
 - 3.21 Non-Structural Approach
 - 3.26 Drinking Water
 - 3.30 Protection of Air Quality

Status Update on Issues of Focus for County Staff

The latest draft of the Natural Environment section addresses all of these points raised previously by county staff, and discussed with Planning Commission in November. However, county staff in other departments are currently reviewing the latest version.

- For *Policy 3.03 Natural Ecosystems*, county staff requested that the city consider adding features that were identified in the Boulder County Comprehensive Plan Environmental Resources Element.
- For *Policy 3.07 Invasive Species Management*, county staff requested to include reference and deference to some of the other levels of regulation that are applicable to invasive species such as State Noxious Weed laws and duties of the County Weed Manager.
- For *Policy 3.09 Management of Wildlife-Human Conflicts*, county staff suggested including the county in this policy.
- For *Policy 3.10 Urban Environmental Quality*, county staff suggested dropping references to agriculture.
- For *Policy 3.13 Integrated Pest Management*, county staff, with support of the county Parks and Open Space Advisory Board, recommended revising the language to “encourage responsible use of pesticides.” County Parks and Open Space staff expressed concern that the county will be unable to “discourage” the use of pesticides given the requirements to follow state weed law and the county agriculture program. Potential language was discussed at the November Planning Commission meeting and staff later arrived at the language “strive to reduce the use of pesticides” in reference to the county; this language was incorporated into the latest version.
- For *Policy 3.24 Protection of Water Quality*, county staff requested that the policy be revised to focus on general watershed health and not just the Boulder Creek specific watershed.

Summary of Public Input Received to Date

- A group of five individuals collaborated to provide comments on Sections 3 and 8. Those individuals have all played an active role in open space management and environmental issues locally for many years. The group provided a comprehensive mark up of Section 3, which is included as Attachment B of this staff report. The

group suggested a number of minor text edits and changes to align the language with current terminology. In addition, the group provided more substantive input on the following topics:

- **In the introductory narrative**, suggested adding language on these topics:
 - Ecosystems in the Boulder Valley span a continuum. On one end of the continuum are high quality ecosystems containing primarily native plants and on the other end are lands that contain mostly non-native plants and animals and are used primarily for developed recreation, transportation or other purposes (e.g., parks, greenways) in an urban environment. These lands are often managed differently for different purposes.
 - Reaching natural environment-related policy goals requires an overall planning and management strategy that incorporates an understanding of ecological systems and implements adaptive management principles for monitoring and course corrections.
 - Overall strategies for protecting the natural environment should include: 1) protection of the remaining large blocks of open space land that support the long-term viability of native plants and animals, 2) sharpened focus on managing water resources to benefit the environment, 3) heightened attention on the interface between the natural and urban environments in order to better manage natural resources and human-wildlife interactions and to reduce the potential for wildfire, and 4) achieve a better understanding of actions necessary to maintain or restore the ecological functions of natural systems.
- **Policy 3.7 - Invasive Species Management**: Suggestion to add language noting: 1) that the city and county will continue to cooperate in jointly managing invasive species and will seek multi-agency cooperation and public-private partnerships to maximize the effectiveness of invasive species management, and 2) that details related to management to minimize invasive species are available in the relevant city and county management plans. The group recommended deleting changes that had been suggested by others regarding changing species composition as a result of climate change, and treatment of non-native species that may have become naturalized at a given site.
- **NEW POLICY on Soil Carbon Sequestration**: The group provided substantial changes to content proposed as part of the August draft. Suggestions included noting that: 1) soil health is especially important for both the natural environment and agricultural lands; 2) that high quality native grasslands and forests shall be maintained and protected, and city and county resource management plans will qualitatively improve the quality of all native grasslands and forests.

- **Policy 3.15 - Mineral Deposits:** Suggested language noting that: 1) use of non-renewable resources will be considered only when conservation and recycling is not a feasible alternative; and 2) impacts of resource use will be balanced with other community values and priorities.
- **Policy 3.21 - Non-Structural Approach:** Suggested adding language noting that recent flood events, including the 2013 flood, highlight the importance of requiring flood insurance for all residential and commercial buildings or structures in identified and mapped 100-year floodplains.
- **Policy 3.22 - Protection of High-Hazard Areas- Suggested:** 1) adding reference to the county in general; 2) suggesting the city follow the county's lead in acquiring property and mitigating impacts in flood areas; and 3) adding the following language, "to reduce risk and loss, riparian corridors will be preserved, and natural ecosystems, wildlife habitat and wetlands will be protected."
- **Policy 3.25- Water Resource Planning and Acquisition:** Suggested removing language stating that the city will continue to obtain additional water supplies, and replacing that with language stating that the city will seek to meet future municipal consumptive demand through conservation, demand management, and reuse as first options, to minimize the need for acquisition of additional water rights and supplies.
- **NEW POLICY - Protecting the Resilience of the Natural Environment and Assessing Climactic Changes:** Suggested the following policy language,

“The city and county recognize that the natural environment contributes to city and county sustainability goals. A primary strategy for confronting climate change threats to our native ecosystems is designing and implementing ecosystem management programs that include large-scale reserves. These reserves must be on landscape-level and watershed-level scales. Achievement of these goals requires regional, multi-agency coordination to effectively protect and manage regional watersheds and landscapes. Such efforts will benefit from including adjacent designated areas of public and private lands to ensure connectivity and ecosystem function. Preserving such ecological reserves enhances the resilience of native ecosystems, and reduces the loss of native biodiversity, ecological processes and ecosystems.

An adaptive approach may be employed to assess potential impacts from changes in the local climate. Long term studies will be necessary to provide sufficient data for sophisticated analyses and to design subsequent best management practices that address climatic changes. These data will be essential to understand the response of native ecosystems to environmental change.

These strategies also help to protect the resilience of our urban environment and achieve climate change goals through soil carbon sequestration, sustaining ecosystem functions and services, reducing costly damage from flooding by preserving drainages, and facilitating the absorption of precipitation within the natural environment. Within the urban environment, the city and county's efforts will focus on promoting urban forestry, habitat enhancements for native pollinators, and xeriscaping and providing opportunities for enjoyment of natural areas.”

- A member of the public submitted comments on the following topics:
 - **Policy 3.09 - Urban Environmental Quality:** Commented that the proposed changes would weaken the current version, and uses language that sets subjective standards.
 - **Policy 3.04 - Ecosystem Connections and Buffers:**
 - Questioned why the word “undeveloped” is deleted. Suggested adding a sentence such as, “Efforts also will be made to enhance connections and buffers on already developed land.”
 - Questioned why the second sentence in the following paragraph refers just to “public lands” instead of all lands. “Urban areas also are important for supporting biodiversity and maintaining wildlife habitat. Efforts should be made to best use and manage public lands to optimize the quality and quantity of natural habitat and provide connections and corridors within the urban built environment between natural lands to support movement of native organisms. The city and county recognize the importance of buffers to mitigate the effects of urban and intensive land uses and human activity upon natural areas and where practicable will work together to establish and maintain buffers between areas of urban development and high levels of human activity and those with significant ecological value. iii
 - Suggested eliminating use of vague language and qualifiers (e.g., “where practicable” and “significant”) and replacing it with clearer language.

Section 4: Energy and Climate (proposed: new title - Environmentally Sustainable Community and combine with sections 3, 4 & 9)

Summary

This section focuses on policies related to energy, sustainability, and climate. There is a strong focus on promoting energy efficiency and renewable energy to reduce greenhouse gas emissions. Some methods include promoting alternative transportation options and a compact city form. The objective is to help address energy and climate goals and integrate them with other planning activities, such as decisions regarding development patterns, infrastructure, transportation, economic development, building and site design, and natural resources. (Note: Text will be edited in this section to improve organization and reduce redundancies.)

Topics Covered

- Climate action and greenhouse gases
- Energy conservation and renewable energy
- Energy efficient land use and building designs
- Waste minimization, recycling, and sustainable purchasing

Major Changes Affecting the County

- New policies related to the county:
 - 4.02 Climate Adaptation Planning
 - (no number) Local Energy Generation Opportunities
 - 4.06 Building Construction Waste Minimization
- Policy updates related to the county (besides the issue mentioned under outstanding issue):
 - 4.01 Climate Action: Reduce Emissions
 - 4.02 Climate Adaptation Planning
 - 4.03 Energy Conservation and Renewable Energy
 - 4.04 Energy-Efficient Land Use
 - 4.05 Energy-Efficient Building Design
 - 4.07 Waste Minimization and Recycling

Outstanding Issue for County Staff

- For *Policy 4.06 Building Construction Waste Minimization*, staff suggests adding language that supports temporary and/or permanent debris management sites and exceptions.

Section 5: Economy (proposed new title: Economically Vital Community)

Summary

The policies in this section focus on providing a sustainable path for economic development with the understanding that Boulder's economic success also leads to challenges such as the rising costs of commercial space and housing, potential displacement of existing businesses, and increasing demands for services, infrastructure, and local and regional transportation. Many of the policies in this section are focused on the city. (Note: Text will be edited in this section to improve organization and reduce redundancies.)

Topics Covered

- Strategic Redevelopment and Sustainable Employment
- Diverse Economic Base
- Quality of Life
- Sustainable and Resilient Business Practices
- Job Opportunities, Education and Training

Major Changes Affecting the County

- New policies related to the county:
 - 5.10 Communications
 - (no number) Economic Resilience
 - 5.17 Diverse Work Force, Education, and Training

- Policy updates related to the county (most only have small updates):
 - 5.03 Diverse Mix of Uses and Business Types
 - 5.05 Support for Local Business and Business Retention
 - 5.09 Role of Arts, Cultural, Historic and Parks and Recreation Amenities
 - 5.14 Employment Opportunities
 - 5.16 Support for the University of Colorado and Federal Labs

Outstanding Issues for the County

- Minor text change suggestions for policy and introductory text related to the county – see full policy document for details.

Section 6: Transportation (proposed new title: Accessible and Connected Community)

Summary

The policies in this section focus on the vision to create and maintain a safe and efficient transportation system that meets the sustainability goals of Boulder Valley by providing travel choices and reducing the share of single occupant auto trips. These policies reflect on the need for the transportation to be developed and managed in conjunction with land use, social, economic and environmental goals. (Note: Text will be edited in this section to improve organization and reduce redundancies.)

Topics Covered

- Complete Transportation System
- Regional Travel
- Funding and Investments
- Integration of Land Use and Transportation with Sustainability Initiatives
- Other Transportation Policies

Major Changes Affecting the County

- *Policy 6.11 Transportation Facilities in Neighborhoods* now focuses on the city, so references to the county are being removed
- New policies related to the county:
 - (no number) Renewed Vision for Transit
 - (no number) Integrated TDM Programs
 - (no number) Infrastructure Investments - suggested by the HR&A Resilience report – inclusion is TBD
 - (no number) Emergency Response Access – suggested by the HR&A Resilience report – inclusion is TBD
- Policy text updates related to the county (besides those mentioned under outstanding issues):
 - 6.01 All-Mode Transportation System and Complete Streets
 - 6.02 Reduction of Single Occupancy Auto Trips
 - 6.04 Regional Travel Coordination
 - 6.07 Investment Priorities
 - 6.08 Transportation Impact
 - 6.13 Improving Air Quality and Reducing Greenhouse Gas Emissions
 - 6.14 Municipal Airport

Outstanding Issues for County Staff

- For *Policy 6.03 Congestion*, the city and county transportation master plans address this issue differently. This policy will have additional input and work from the transportation departments to clarify respective policies.
- For combined *Policy 6.05 and 6.06 Accessibility and Mobility for All*, county staff has made suggestions for additional language that connects social, public health and housing perspectives to accessible and affordable mobility.

Summary of Public Input Received to Date

A member of the public submitted a comment requesting removal of the Level of Service (LOS) clause "for all modes," noting that the existing Master Plans do not indicate the measure regarding "all modes." The commenter also requested removing mention of "Complete Streets" from the plan, noting significant disagreement amongst the community regarding this concept. The commenter stated that the BVCP should proceed further with the concept of Complete Streets, without that term having a precise form of implementation in the city.

Section 7: Housing

This section is on a different track as it relates to the BVCP scenario and key choices analyses, but the latest version dated December 9, 2016 is attached for feedback.

Addressing the future of affordable and diverse housing has been a major theme of this BVCP update, and Housing Boulder and the Middle Income Housing strategy work have also helped inform the emerging policies. Planning Board reviewed an initial draft of the chapter in August at which time the chapter contained a number of questions. Staff has narrowed the key questions for the chapter.

In particular, Planning Board suggested new language to incentivize or ensure that when additional intensity is provided through changes in zoning, a higher level of permanent affordable housing and middle income housing will be required. Some council members suggested taking a slightly broader approach and considering this requirement in the context of community benefit, as noted above.

This section is on a different track as it relates to the BVCP scenario and key choices analyses, but the latest version dated December 9, 2016 is attached for feedback.

Summary

This section notes that the high cost of local housing causes many who work in the city to live outside, and that the combined housing / transportation burden leaves less for other necessities making it difficult for many to participate in the community. The section also highlights emerging trends: growth in senior and college student populations, loss of middle income households, scarcity of affordable housing, and a need to evaluate regulations to accommodate a variety of household types.

Topics Covered

- Supporting for Community Housing Needs (local support for affordable housing, populations with special needs, populations with special needs, partnerships)

- Preserving and Enhancing Housing Choices (mix of housing types, preserve existing housing, preserve and develop manufactured housing)
- Advancing and Sustaining Diversity (housing for range of households, balancing housing with jobs)
- Integrating Growth and Community Housing Goals (integration of permanently affordable housing, minimizing displacement, etc.)

Major Changes Affecting the County

- Policy text updates related to the county (besides those mentioned under outstanding issues):
 - 7.01 Local Solutions to Affordable Housing
 - 7.03 Populations with Special Needs
 - 7.05 Strengthening Regional Housing Cooperation
 - 7.06 Mixture of Housing Types
 - 7.07 Preserve Existing Housing Stock
 - 7.08 Preservation and Development of Manufactured Housing
 - 7.09 Housing for a Full Range of Households

Ideas for improvements to the section that have been circulated include the following:

- Updates to reflect new plans / programs put in place since 2010 (e.g., Housing Boulder Action Plan (2016/17); Jobs/Housing and Housing Affordability and Diversity white papers)
- Several specific policy revisions
- Possible new policies:
 - Allowing affordable housing wherever housing is allowed (consistent with Federal Fair Housing Act)
 - Preference for smaller, more affordable homes, and limit detached units
 - Provide a strong link between housing, transportation and energy in recognizing overall housing costs
- The 10 Year Plan to End Homeless Board and other affordable housing providers have recommended including this policy:

(New Policy) Local Solutions to Housing Diversity

The city and county recognize that housing diversity, including homeownership and rental housing for low, moderate, and middle income individuals and families, provides a significant community benefit. The city will encourage housing diversity by establishing an alternative process and standards for the review, analysis and approval of affordable housing projects, that gives consideration to the community benefit of housing diversity, while also considering and balancing other goals and values of the community and Boulder Valley Comprehensive Plan (including neighborhood character). The purpose in identifying and applying alternative review standards for certain developments is to provide a more flexible, streamlined, predictable, and thorough review of such projects within an environment of robust and thoughtful community engagement. The city will endeavor to create a culture of problem solving for affordable housing, where potential solutions could include streamlined administrative processing; new zoning districts; density bonuses for the provision of affordable housing; the review and revision of floor area ratio, open

space and parking requirements; and the revision or elimination of other regulatory barriers that may unnecessarily or inadvertently prevent housing diversity.

Outstanding Issues for County Staff

Staff welcomes initial ideas for improvements to the section. Land Use staff will work with other county departments to review the latest version of this section and future iterations.

Summary of Public Input Received to Date

A member of the public submitted a comment challenging the proposed new policy regarding affordable housing. The individual challenged use of the term “community benefit” and expressed that the need for policy changes are a result of the city’s previous policies (i.e., allowing development that developers to pay cash in lieu of locating affordable housing on site). The commenter also noted that there are negative consequences of affordable housing developments.

Section 8: Community Well-Being (proposed new title: Healthy and Socially-Thriving Community)

Summary

The policies in this section focus on promoting the physical health and well-being of everyone in the community as well as promoting civil and human rights. Additionally, the city and county will strive to foster mental and social health and well-being and health equity through the cultivation of a wide range of recreational, cultural, educational and social opportunities. In providing human services, the city and county partner to comprehensively create and support a safety net of services and opportunities for individual and family economic mobility and self-sufficiency through coordinated regional planning, service delivery and integrated partnerships. (Note: Text will be edited in this section to improve organization and reduce redundancies. Additionally, it is proposed to move some of the policies to a new section called “Safe and Resilient Community.”)

As noted previously, recent work by staff and other stakeholders related to preparation of a revised BVCP Trails Map resulted in proposed policy revisions to Section 8 that were not included in discussion at the November meeting. Information in Attachment C provides a more complete summary of proposed changes to the Trails Map and related policies. Changes related to the Trails Policy 8.12 and 8.13 are summarized in the *Trails Map and Description* section of this memo.

Topics Covered

- Human Services
- Social Equity
- Safety and Community Health
- Community Infrastructure and Facilities, including schools, community facility needs, parks and trails
- Culture

Major Changes Affecting the County

- New policies related to the county:
 - (no number) Youth Engagement
 - (no number) Resilience in Public Safety and Risk Prevention

- (no number) Physical Safety
- (no number) Community Connectivity and Preparedness
- Policy text updates related to the county:
 - 8.01 Providing a Broad Spectrum of Human Needs
 - 8.02 Regional Approach to Human Services
 - 8.03 Equitable Distribution of Resources
 - 8.04 Addressing Community Deficiencies
 - 8.05 Diversity
 - 8.06 Safety
 - 8.07 Health and Well-Being
 - 8.08 Planning for School Sites and Facilities
 - 8.09 Accessibility to Schools
 - 8.10 Support for Community Facilities
 - 8.11 Parks and Recreation
 - 8.12 Trail Functions and Location
 - 8.13 Trails Network
 - 8.17 Arts and Cultural Facilities
 - 8.18 Arts and Community Culture
 - 8.19 Public Art

Outstanding Issues for County Staff

- Parks and Open Space Advisory Committee requested that staff further revise policy language with attention to striking a balance between introducing new trails and preserving segmented tracts of land to support wildlife habitat.
- Parks and Open Space Advisory Committee requests the addition of language to address inappropriate use of open spaces (e.g., illegal camping, littering).
- Parks and Open Space staff suggest considering whether and how to build reference of open space into policy 8.11 (Parks and Recreation).

Summary of Public Input Received to Date

- A group of five individuals collaborated to provide comments on Sections 3 and 8. Those individuals have all played an active role in open space management and environmental issues locally for many years. The group suggested making the following changes to policies that relate to Trail Functions and Locations (Policy 8.12) and Trails Networks (Policy 8.13):
 - Designated and undesignated trails should not further fragment intact open space natural areas.
 - Social/undesignated trails should be eliminated and measures should be taken to strongly discourage fragmentation by off-trail use.
 - Add reference to signage in Policy 8.12 (i.e., ...ensuring that formal trails are well-designed, signed, ...)

Section 9: Agriculture and Food

(This chapter will now remain a separate chapter rather than combining it with other chapters as originally proposed.)

Summary

This section focuses on agriculture, food, sustainable practices, and access to food for the community. The city and county have made significant contributions to the preservation of lands for agricultural production and the water needed to use these areas for agriculture. Most agricultural production in the Boulder Valley occurs on city and county open space. (Note: Text will be edited in this section to improve organization and reduce redundancies.)

The latest version of the section (12/5/16) reflects input from the community and county staff as explained below. It also includes an updated preamble with new definitions of “agricultural lands” based on a suggestion from a member of the public.

Topics Covered

- Support for Agriculture
- Sustainable Food Production Practices
- Regional Efforts to Enhance the Food System
- Urban Gardening and Food Production
- Access to Healthy Food

Major Changes Affecting the County

- New policies related to the county:
 - 9.04 Soil Health and Soil Carbon Sequestration
- Policy text updates related to the county (besides those mentioned under status updates):
 - 9.01 Support for Agriculture
 - 9.05 Access to Healthy Food

Status Update on Issues of Focus for County Staff

The latest draft of the Agricultural and Food section addresses most of the points raised previously by county staff, and discussed with Planning Commission in November. However, county staff in other departments are currently reviewing the latest version.

- For *Policy 9.01 Support for Agriculture*, staff requested including language that supports agricultural uses in Area 3.
- Staff commented on *Policy 9.03 Sustainable Food Production Practices*:
 - Boulder County will be phasing out GMOs and supports the responsible use of pesticides. County staff supports policies reflecting those changes while recognizing that conventional agricultural operations remain an important component of Parks and Open Space.
 - In the latest draft, this was not included in the policy, but city staff noted that it may be woven into the introduction or into other related plans.
 - Staff commented on an earlier version that the topic header should be changed back to Agriculture and not just *Food Production*. Much of the agricultural land in the Boulder Valley is not suitable for food production, and it is important to recognize the value of animal feed, range, and pasture systems.
 - With the latest update, the title is now “Sustainable Food Production and Agriculture Practices.”

- For *Policy 9.05 Access to Healthy Food*, county staff suggested including the county in this policy.

TRAILS MAP AND DESCRIPTION

The BVCP Trails Map is a comprehensive guide for existing and proposed trails and trail connections for the entire Boulder Valley. It shows proposed trails, including grade separated trail underpasses that have been planned through departmental master planning, or area planning processes, as well as trail connections that are important links in the Boulder Valley and regional trails systems.

The draft map has been reviewed by the Open Space Board of Trustees, Parks and Recreation Advisory Board, Transportation Advisory Board, Greenways Advisory Board, Boulder County Parks and Open Space Advisory Committee and Planning Board.

A summary of *all* proposed changes to the BVCP Trails Map are described in **Attachment C-1** and shown on the draft map in **Attachment C-2**. A revised the Trails Map description from the Implementation Section of the BVCP is included in **Attachment C-3**.

Trail-related Policies

Staff received various suggested revisions and feedback on trails policies from members of the public and county staff. Proposed changes to trails policies can be found in **Attachment C-4** and a list of feedback with analysis and recommendations is documented in **Attachment C-5**.

Proposed changes to trails policies include:

- Policy 8.12 Trail Functions and Location
 - Include intro sentence reflecting positive functions of connectivity
 - Design to include enjoyable visitor experience
 - Encourage trail designs that promote on-trail travel
 - Design for long-term sustainability
 - Look for opportunities to enhance habitat connectivity
- Policy 8.13 Trails Network
 - Support for trails system connectivity and identify relationship with regional trails systems beyond the BVCP area.

Attachment A:

DRAFT BVCP Policy Sections:

1, 3, 4, 5, 6, 8, 9

ATTACHMENT A1: Proposed changes to Core Values Section

Core Values and Sustainability Framework

Draft – Aug. 24, 2016

*Note: This section is a part of the current Chapter 1 and will become part of a refreshed introductory section which will include a vision statement, the longstanding core values, and the overview of sustainability and resilience as an organization framework for the plan's policies. It will also later contain Boulder's Planning History and information about how the plan is organized. The section will become more graphic to better convey the community's values and vision. Changes noted here reflect input from the 2015 BVCP survey and other input from public, boards, and elected bodies. **The values will continue to evolve, incorporating ongoing feedback.** Also please note that a further round of editing will occur to improve organization, reduce verbosity and redundancies, and renumber policies as necessary*

The Boulder Valley Comprehensive Plan is a joint plan between the City of Boulder and Boulder County to inform and guide their shared responsibility for planning and development in the Boulder Valley. This section of the plan sets forth the plan's core values and sustainability framework, ~~and provides overall planning guidance for intergovernmental cooperation, growth management, annexation and provision of urban facilities and services.~~ⁱ

The Boulder Valley community honors its history and legacy of planning for a livable community surrounded by open space and rural lands while striving together to create and preserve a truly special place that is sustainable, resilient, equitable and inclusive – now and for future generations.

Core Values

Many of the key policies in the Boulder Valley Comprehensive Plan stem from long-standing community values and represent a clear vision of our community and our commitment to:

- **Sustainability** as a unifying framework to meet environmental, economic and social goals
- A welcoming ~~and inclusive, and diverse~~ community
- Culture of creativity and **innovation**
- Strong **city and county** cooperation
- Our unique community **identity and sense of place**
- **Compact, contiguous** development and infill that supports evolution to a more **sustainable urban form**
- **Open space** preservation
- Great **neighborhoods** and **public spaces**
- **Environmental** stewardship and **climate** action
- A vibrant **economy** based on Boulder's quality of life and economic strengths
- A diversity of **housing** types and price ranges
- An all-mode **transportation** system to make getting around without a car easy and accessible to everyone
- Physical **health and well-being**ⁱⁱ

Interpreting Core Values and Policies

Applying a sustainability framework to decision-making in Boulder means considering the issues of environment, economy and social equity together. An action or decision in any one of these areas will have consequences on the others. The policies in this plan outline the future vision of the community, focusing on the built environment and its relationship to environmental, economic and social well-being and overall community livability. At the intersection of all these areas is the community's ability to sustainably meet its needs now and in the future, to adapt successfully to ~~and be a resilient~~ community that is able to recover quickly after chronic stresses and rebound quickly from disruptive shocks, and to ensure that everyone in our community is able to thrive in a changing environment.

The policies of the Boulder Valley Comprehensive Plan contained in the subsequent sections of the plan define and expand upon the vision and values expressed above and provide guidance and direction for achieving this plan's vision. The city and county strive to balance the values noted above, recognizing that achieving all the values may not be possible in any circumstance. Careful consideration of tradeoffs among the plan's policies is necessary when implementing the Boulder Valley Comprehensive Plan.ⁱⁱⁱ

Aligning Plan Organization with City Sustainability Framework^{iv}

The city's sustainability framework addresses environment, economy and social equity goals and is used in master plans, decision-making and budgeting process. The notion of resilience has increasingly become important in the community – being ready to bounce back in times of emergency or disruption and to adapt over time to chronic stresses. That thread is now woven throughout the plan, including in the newer policy sections of "safety and preparedness" and "governance and engagement," as noted below. The policies in this plan are generally organized according to the sustainability framework to achieve values toward:

- 1. Livability and a High Quality Built Environment**
- 2. Environmental Sustainability**
- 3. Economic Vitality**
- 4. Accessibility and Connectedness**
- 5. Housing**
- 6. Healthy, Socially Thriving Community**
- 7. Safety and Preparedness**
- 8. Good Governance and Community Involvement**

Sections to follow in this chapter:

- Boulder's Planning History (carried forward from current plan with better illustrations and description)
- About This Major Update – Current Conditions and Focus Topics and Emerging Themes

ⁱ These topics will be carried forward under separate cover.

ⁱⁱ In addition to these long-standing values that the community largely affirmed in the 2015 survey, community members have suggested mentioning new values including: The ability to be safe everywhere in the community; Engaging the community in all civic matters; Representative and responsive government; and well-maintained infrastructure (and assets). These values are all addressed in the refined policies. They may or may not need to be added to the core values.

ⁱⁱⁱ Planning team has heard input that this section needs clarification about how values and policies are to be interpreted. This might need a bit more work.

^{iv} As proposed in draft plan organizational outline.

DRAFT

ATTACHMENT A2: Proposed changes to Natural Environment Section

Red text represents text additions or deletions.

3. Natural Environment

Draft – Dec. 5, 2016

In this section, the “natural environment” includes the city and county owned open space lands as well as environmental components (like air, water, geological features) and remnants of the natural environment within the urban area. Preservation and protection of the natural environment that characterizes the Boulder Valley is a core community value that has defined Boulder since the end of 19th century. Within the Boulder Valley’s complex ecological system, there are inextricable links among the natural environment, plants and animals, the built environment, the economy and community livability. Changes to the natural ecosystems within the Boulder Valley can have a profound effect on ecosystem viability and the quality of life desired by Boulder Valley residents.

A mixture of wildlands and urban lands exist throughout the Boulder Valley in a continuum often referred to as the “urban wildland” interface. High quality ecosystems containing primarily native plants and animals occupy one end of the natural environment gradient. Land that is not dominated by native species but that is in a natural condition without buildings or development is found further along the gradient. On the other end of the gradient are lands that contain mostly non-native plants and animals and are used primarily for developed recreation, transportation or other purposes (e.g., parks, greenways) in an urban environment. These lands are often managed differently for different purposes.

Over many decades, with the initiative and financial support of local citizens, the city and county have actively protected and managed open space around the urban area, and existing city and county open space plans and policies apply to those public lands acquired and managed as habitat conservation areas, natural areas, recreational areas, and agricultural areas.

As in the rest of the world, the Boulder Valley climate is experiencing local and regional climate change within the larger global climate regimes. Anticipated further changes and intensified weather events and warming heighten the need for the city and county to proactively reduce risk and protect resources.

Boulder has been at the forefront of environmental protection and preservation for many years. Sixty-three percent (63%) of the Boulder Valley Comprehensive Plan area has been protected by the city and county as open space for critical habitat for native plants and animals, agricultural productivity, and ~~The vast amount of natural land protected by the city and county~~ contributes to the high quality of life for residents for recreation, relaxation, and connection with nature. The community’s historic and on-going emphasis on clean air and water, and preservation of natural habitats has resulted in significant progress toward a sustainable, resilient and healthy urban environment.

The city ~~and county places strong emphasis on being a leader and role model to other communities for its exemplary environmental protection practices and accomplishments.~~ The city will continue to identify and develop and implement state-of-the-art environmental policies both community wide ~~and within the city government organization~~ to further its natural environmental sustainability goals.

The policies in this section support the following city and county goals related to the conservation and preservation of land, water, air resources and pollution prevention and resilience:

- Protecting Native Ecosystems and Biodiversity ~~and Native Ecosystems~~
- Enhancing Urban Environmental Quality
- Protecting Geologic Resources and Reducing Risks from Natural Hazards
- Sustaining and Improving Water and Air Quality

Reaching these goals requires an overall planning and management strategy that incorporates an understanding of ecological systems and implements adaptive management principles for monitoring and course corrections.

3.01 Incorporating Ecological Systems into Planning

The city and county will approach planning and policy decisions in the Boulder Valley through an ecosystem framework in which natural regions like bioregions, airsheds and watersheds are considered and incorporated into planning.

3.02 Adaptive Management Approach

~~The city will employ an adaptive management approach to resource protection and enhancement.~~ An adaptive management approach to resource protection and enhancement involves establishing objectives, conducting ongoing monitoring of resource conditions, assessment of the effectiveness of management actions, revision of management actions based on new information from research, and learning from experience what works and what does not. The city and county will employ this approach.

Protecting Native Ecosystems and Biodiversity

3.03 Natural Native Ecosystems

The city and county will protect and restore significant native ecosystems on public and private lands through land use planning, development review, conservation easements, acquisition and public land management practices. The protection and enhancement of biological diversity ~~and habitat for state and federal endangered and threatened species and state, as well as county-critical wildlife habitats/migration corridors, environmental conservation areas, high biodiversity areas, rare plant areas, and significant natural communities~~ and county and local species of concern will be emphasized. Degraded habitat may be restored and selected extirpated species may be reintroduced as a means of enhancing native flora and fauna in the Boulder Valley. Important guidance and strategies for protection and restoration are in city and county plans listed at the end of this section.

3.04 Ecosystem Connections and Buffers

The city and county recognize the importance of preserving large habitat areas ~~of unfragmented habitat~~ in supporting the biodiversity of its natural lands and viable habitat for native species. The city and county will work together to preserve, enhance, restore and maintain undeveloped lands identified as critical and having significant ecological value for providing ecosystem connections (e.g., wildlife corridors) and buffers to support the natural movement of native organisms between ecosystems. Connected corridors of habitat may extend through or along the edges of the urban environment and often serve as vital links between natural areas for both wildlife and humans. They are often at the greatest risk of degradation and thus should be identified for planning and where appropriate for acquisition, restoration, and/or management.

3.05 Maintain and Restore Natural Ecological Processes and Natural Disturbances

Recognizing that natural ecological processes, such as wildfire and flooding, are integral to the productivity and health of natural ecosystems, the city and county will work to ensure that, when appropriate precautions have been taken for human safety and welfare, ecological processes will be maintained or mimicked-replicated in the management of natural lands.

3.06 Wetland and Riparian Protection

Natural and human-made wetlands and riparian areas are valuable for their ecological and, where appropriate, recreational functions, including their ability to enhance water and air quality and reduce the impacts of flooding. Wetlands and riparian areas also function as important wildlife habitat, especially for rare, threatened and endangered plants, fish and wildlife. Because they have historically been so scarce in the Front Range and because of continued degradation, ~~t~~The city and county will continue to support and develop programs to protect, ~~and~~ enhance, and educate the public about the value of wetlands and riparian areas in the Boulder Valley. The city will strive for no net loss of wetlands and riparian areas by discouraging their destruction, ~~or~~ requiring the creation and restoration of wetland and riparian areas in the rare cases when development is permitted and the filling of wetlands or destruction of riparian areas cannot be avoided. Management of wetland and riparian areas on city open space lands is described in the OSMP Grasslands Ecosystems Management Plan.

3.07 Invasive Species Management

The city and county will cooperate and promote efforts, both public and private, to prevent the introduction and spread of invasive and non-native plant and animal species ~~and seek to control their spread~~. High priority will be given to managing invasive species that have, or potentially could have, a substantial impact on city and county resources or ecosystem function. City and county resource management plans will provide direction and guidance for identifying -priorities for management and control of invasive non-native species. Management decisions should also take into account changing species composition due to climate change and other human impacts as well as the role in the ecosystem provided by each organism based on the best available science.

3.08 Public Access to Public Lands

Certain city and county-owned or managed lands provide a means for educating users on the importance of the natural environment. These pPublic lands may include areas for recreation and

preservation of agricultural use, unique natural features, and wildlife and plant habitat. Public access to natural lands will be provided for, except where closure is necessary to protect areas from unacceptable degradation or impacts to agriculture, habitat or wildlife, for public safety, or limits on access necessary to preserve the quality of the visitor experience.

New Policy: Climate Change Mitigation and Adaptation and Resilience

The city and county are working to mitigate climate change and recognize that adaptation to climate change will be necessary as well. Preserving ecological reserves enhances the resilience of native ecosystems, and reduces the loss of native biodiversity, ecological processes, and ecosystems. Additionally, to prepare open space lands and natural areas for climate change, the city and county will use an adaptive approach to assess potential impacts from changes in the local climate. The city and county will consider allowing or facilitating ecosystems' transition to new states in some sites and increasing the stability and resiliency of the natural environment elsewhere. Open space master plans guide other topics related to climate change, such as visitor experiences to open space. Overall strategies may include:

1. A continued integrated approach to actively managing aspects of the local ecosystems;
2. Protection of the reserves of open space land to support the long-term viability of native plants and animals;
3. Conducting restoration projects using arid-adapted ecotypes or species;-
4. On-going attention on the interface between the natural and urban environments to better manage natural resources and human-wildlife interactions and to reduce the potential for wildfire; and
5. Improve understanding of actions necessary to maintain or restore the ecological functions of natural systems under a changing climate.

Enhancing Urban Environmental Quality

3.09 Management of Wildlife-Human Conflicts

The Boulder Valley sits within a wildland-urban interface, and tThe city and county recognizes the intrinsic value of wildlife in both itsthe urban and rural settingareas. The city and county will promote wildlife and land use management practices to minimize conflicts with residents and urban land uses while identifying, preserving and restoring appropriate habitat for wildlife species in the urban area. When a wildlife species is determined to be a nuisance or a public health hazard, a full range of alternative wildlife and land use management techniques will be considered by the city and county in order to mitigate the problem in a manner that is humane, effective, economical and ecologically responsible.

(Note: move this policy to after 3.12 in final draft.)

3.10 Urban Environmental Quality

To the extent possible, the city and county will seek to protect the environmental quality of areas under significant human and urban influence ~~such as agricultural and urban lands~~ and will balance human needs and public safety with environmental protection. The city will develop community-wide programs and standards for new development and redevelopment so that negative environmental impacts will be mitigated and overall environmental quality of the urban environment will ~~not worsen and may improve~~ be maintained and improved.

3.11 Urban Forests

The city will support, promote and, in some cases, regulate the protection of healthy existing trees and the long-term health and vitality of the urban forest in the planning and design of public improvements and private development. Urban canopy plays an important role in ameliorating the effects of climate change; therefore, the city will guide short- and long-term urban forest management that encourages overall species diversity and native and low water demand tree species where appropriate.

3.12 Water Conservation

The city and county will promote the conservation of water resources through water quality protection, public education, monitoring and policies that promote appropriate water usage such as water conserving landscaping. The city will endeavor to minimize water waste and reduce water use during peak demand periods. New development and redevelopment designed to conserve water will be encouraged.

3.13 Integrated Pest Management

The city and county policies differ slightly in management approach. The city and county aims encourage efforts to reduce and eliminate, where possible, the use of pesticides and synthetic, inorganic fertilizers on public properties and also provides outreach and education to encourage the public to use a similar approach on private property. In its own The city's practices carefully consider when pest management actions are necessary and focus on creating healthy and thriving ecosystems to lower pest pressure by natural processes. When pest management is necessary, the city commits to the use of ecologically-based integrated pest management principles, which emphasizes the selection of the most environmentally sound approach to pest management and the overall goal of reducing or eliminating the dependence on using non-chemical pest-control strategies. When public or environmental health risks are identified, the city and county will balance the impacts and risks to the residents and the environment when choosing management control measures. The county will strive to reduce the use of pesticides and synthetic, inorganic fertilizers where use does occur.

(Note: For the next draft of this chapter, this policy will be moved to right before 3.07 in the "Native Ecosystems and Biodiversity" subsection, since invasive species are managed using IPM. It helps frame the issue there, and it is not just an urban environmental quality issue.)

New Policy: Soil Carbon Sequestration

The city and county recognize that soil carbon sequestration may have a range of potential benefits, including water retention, soil health and soil stabilization. Soil health is especially important for both the natural environment and agricultural lands. Section 9 (Food and Agriculture) includes a description of soil sequestration policy for tilled agricultural lands.

For the natural environment, the current capacity of native grasslands and forests to sequester carbon will be important in city and county soil carbon sequestration efforts. Native grasslands and forests will be maintained and protected following resource management plans. Opportunities to manage soil carbon levels in such areas if and when appropriate need to be consistent with adopted plans and policies.

Protecting Geologic Resources and Reducing Risks from Natural Hazards

3.14 Unique Geological Features

Due to its location at the interface of the Great Plains and the Rocky Mountains, the Boulder Valley has a number of significant or unique geological and paleontological features. The city and county will attempt to protect these features from alteration or destruction through a variety of means, such as public acquisition, public land management, land use planning and regulation, and density transfer within a particular site.

3.15 Mineral Deposits

Deposits of sand, gravel, coal and similar finite resource areas will be delineated and managed according to state and federal laws and local government regulations. ~~Mineral deposits and other non-renewable resources will be used with the greatest practical efficiency and the least possible disturbance to existing natural and cultural resources.~~ The use of non-renewable mineral resources will be considered only when conservation and recycling is not a feasible alternative. The impacts of such resource use will be balanced against other community values and priorities, including environmental and cultural resource protection, health concerns and carbon emission reduction. The city and county will work together to acquire mineral rights as appropriate.

3.16 Hazardous Areas

Hazardous areas that present a danger to life and property from flood, forest fire, steep slopes, erosion, unstable soil, subsidence or similar geological development constraints will be delineated, and development in such areas will be carefully controlled or prohibited.

3.17 Erosive Slopes and Hillside Protection

Hillside and ridge-line development will be carried out in a manner that, to the extent possible, avoids both negative environmental consequences to the immediate and surrounding area and the degradation of views and vistas from and of public areas. Due to the risk of earth movement and/or mud slides, special attention needs to be paid to soil types and underlying geological strata before and during planning, design and construction of any development on or at the base of hillsides.

3.18 Wildfire Protection and Management

As Boulder County's climate changes, wildfire may become increasingly common. The city and county will require on-site and off-site measures to guard against the danger of fire in developments adjacent to natural lands and consistent with forest and grassland ecosystem management principles and practices. Recognizing that fire is a widely accepted means of managing ecosystems, the city and county will integrate ecosystem management principles with wildfire hazard mitigation planning and urban design.

3.19 Preservation of Floodplains

Undeveloped floodplains will be preserved or restored where possible through public land acquisition of high hazard properties, private land dedication and multiple program coordination. Comprehensive planning and management of floodplain lands will promote the preservation of natural and beneficial functions of floodplains whenever possible.

3.20 Flood Management

The city and county will protect the public and property from the impacts of flooding in a timely and cost-effective manner while balancing community interests with public safety needs. The city and county will manage the potential for floods by implementing the following guiding principles: a) Preserve floodplains; b) Be prepared for floods; c) Help people protect themselves from flood hazards; d) Prevent unwise uses and adverse impacts in the floodplain; and e) Seek to accommodate floods, not control them. The city seeks to manage flood recovery by protecting critical facilities in the 500-year floodplain and implementing multi-hazard mitigation and flood response and recovery plans. The city and county recognize that multiple hazard risks are closely linked, such as the role of fire damaged slopes and increased risk of flooding.

3.21 Non-Structural Approach to Flood Management

The city and county will seek to preserve the natural and beneficial functions of floodplains by emphasizing and balancing the use of non-structural measures with structural mitigation. Where drainageway improvements are proposed, a non-structural approach should be applied wherever possible to preserve the natural values of local waterways while balancing private property interests and associated cost to the city.

3.22 Protection of High Hazard Areas

The city will prevent redevelopment of significantly flood-damaged properties in high hazard areas. The city will prepare a plan for property acquisition and other forms of mitigation for flood-damaged and undeveloped land in high-hazard flood areas. Undeveloped high hazard flood areas will be retained in their natural state whenever possible. To reduce risk and loss, Compatible uses of riparian corridors, such as riparian corridors, natural ecosystems, wildlife habitat and wetlands will be encouraged protected wherever appropriate. Trails or other open recreational facilities may be feasible in certain areas.

3.23 Larger Flooding Events

The city and county recognizes that floods larger than the 100-year event will occur resulting in greater risks and flood damage that will affect even improvements constructed with standard flood protection measures. The city will seek to better understand the impact of larger flood events and consider necessary floodplain management strategies, including the protection of critical facilities, as defined by the city.

Sustaining and Improving Water and Air Quality

3.24 Protection of Water Quality

Water quality is a critical health, economic and aesthetic concern. The city and county have been protecting, maintaining and improving water quality and overall health within ~~the~~ Boulder Creek Valley watersheds as a necessary component of existing ecosystems and as a critical resource for the human community. The city and county will continue seek to reduce point and nonpoint sources of pollutants, protect and restore natural water systems, and conserve water resources. Special emphasis will be placed on regional efforts, such as watershed planning, and priority will be placed on pollution prevention over treatment.

3.25 Water Resource Planning and Acquisition

Water resource planning efforts will be regional in nature and incorporate the goals of water quality protection, ~~and as well as~~ surface and ground-water conservation. The city will continue to obtain additional ~~municipal~~ water ~~supplies~~ resources as needed to ~~e~~nsure adequate drinking water, maintain instream flows and preserve agricultural uses. The city will seek to minimize or mitigate the environmental, agricultural and economic impacts to other jurisdictions in its acquisition of additional municipal water supply to further the goals of maintaining instream flows and preventing the permanent removal of land from agricultural production elsewhere in the state.

3.26 Drinking Water

The city and county will continually seek to improve the quality of drinking water and work with other water and land use interests as needed to assure the integrity and quality of its drinking water supplies. The city and county will employ a system-wide approach to protect drinking water quality from sources ~~s~~ waters to the water treatment plant and throughout the water distribution system.

3.27 In-stream ~~Minimum~~ Flow Program

The city will pursue expansion of the existing in-stream flow program consistent with applicable law and manage stream flows to protect riparian and aquatic ecosystems within the Boulder Creek watershed.

3.28 Surface and Ground~~w~~-Water

Surface and groundwater resources will be managed to prevent their degradation and to protect and enhance aquatic, wetland and riparian ecosystems. Land use and development planning and public land management practices will consider the interdependency of surface and groundwater and potential impacts to these resources from pollutant sources, changes in hydrology, drilling, mining, and dewatering activities.

3.29 Wastewater

The city will pursue sustainable wastewater treatment processes to achieve water quality improvements with greater energy efficiency and minimal chemical use. Pollution prevention and proactive maintenance strategies will be incorporated in wastewater collection system management. The county will discourage the installation of private on-site wastewater systems where municipal collection systems are available or where a potential pollution or health hazard would be created.

3.30 Protection of Air Quality

Air quality is a critical health, economic and aesthetic concern. The city and county will seek to reduce stationary and mobile source emissions of pollutants. Special emphasis will be placed on local and regional efforts to reduce pollutants, which cause adverse health effects, ~~and~~ impair visibility and contribute to climate change.

Relevant Master Plans include:

- Grasslands Ecosystem Management Plan, OSMP
- Forest Ecosystem Plan, OSMP
- Boulder County Comprehensive Plan Environmental Resources Element (2016)

- Visitor Master Plan, OSMP
- Water Utility Master Plan
- Water Efficiency Plan
- Boulder's Climate Commitment
- City of Boulder Resilience Strategy
- Greenways Master Plan
- Integrated Pest Management Policy

ATTACHMENT A3: Proposed changes to Energy and Climate Section

Draft – Aug. 24, 2016

4. Energy and Climateⁱ

Proposed new section title: **Environmentally Sustainable Community**

Note: This may be combined with other policies around natural environment and agriculture and local food. Also please note that a further round of editing will occur to improve organization, reduce verbosity and redundancies, and renumber policies as necessary.

Boulder's efforts to promote energy efficiency and renewable energy are essential to reducing greenhouse gas emissions and helping to reduce the severity of future climate change. ~~as are our efforts to promote alternative~~ Promoting transportation options and a compact city form ~~also contribute to climate action~~. The objective is to help address energy and climate goals and integrate them with other planning activities, such as decisions regarding development patterns, infrastructure, transportation, economic development, building and site design, and natural resources. The city and county will continue to prioritize emission reductions programs that address climate action, create local economic opportunities, enhance community well-being and resilience and inspire other communities.

Changes in the dynamics of energy markets as well as the threat of climate change may profoundly affect our community both economically and physically. A number of factors are increasing uncertainty about future energy issues, but rapidly evolving technology and the economic benefits of energy efficiency and renewable energy are providing Boulder and Boulder County with new opportunities to take charge of our energy future and make greater use of local and regional energy resources. Changes and solutions related to energy and climate are occurring at a rapid rate and therefore necessitate an agile, predictive and responsive approach. Recognizing the need for a comprehensive strategy, Boulder's Climate Commitment focuses on the areas of energy, resources, and ecosystems. Energy use (in buildings, mobility, and clean energy sources, and energy resilience) is the primary near-term focus due to the critical importance of reducing fossil fuel use. Simultaneously, the city and county continue to explore ways to use natural resources more wisely and reduce waste, and to understand how ecosystem management can help sustain our community and play a key role in climate stability. This chapter addresses:

~~The policies in this section support the city and county's goals of meeting energy needs, reducing greenhouse gas emissions, and adapting to climate changes:~~

- Climate Action and Greenhouse Gases ~~Emissions~~
- Energy Conservation and Renewable Energy
- Energy-Efficient Land Use and Building Design
- Waste Minimization, and Recycling, and Sustainable Purchasing
- ~~Sustainable Purchasing~~

Climate Action and Greenhouse Gas Emissions

4.01 ~~Greenhouse Gas Climate Action: Reduce Emissions~~

The city and county will continue to take action to mitigate climate change, addressing its root cause of fossil-fuel related emissions. ~~The city and county~~Both bodies will identify and

implement innovative as well as cost-effective actions to dramatically reduce the community's contribution to total global greenhouse gas emissions- and power a vibrant future. The city's goal is to reduce its energy-related emissions 80 percent or more below 2005 levels by 2050, and the Climate Commitment Strategy identifies interim goals before 2050.ⁱⁱ

4.02 ~~New Policy:~~ Climate Adaptation Planning

In addition to climate mitigation planning addressed in the policy above, ~~t~~he city and county will cooperatively develop and implement a climate change adaptation plan to identify current vulnerabilities and determine strategies to protect the community against the potential negative impacts associated with climate change. These challenges include droughts, flash flooding, communicable diseases, heat waves, fire mitigation and fire protection and increased road maintenance, among others. The city and county seek to improve the community's ability to effectively and quickly respond to and recover from adversity and disruptions.

Energy Conservation and Renewable Energy

4.03 Energy Conservation and Renewable Energy

Boulder's transition to clean energy through innovative strategies, products, and services aims to dramatically reduce greenhouse gas emissions, enhance community resilience, enhance local environmental health and diversity, promote creative solutions, and support a vital and equitable economy. The city and county will plan for and implement innovative programs and opportunities for individuals, businesses and organizations to reduce energy consumption ~~and develop local energy generation.~~ The city will support private decisions to use renewable energy; ~~develop local renewable energy resources~~ and preserve options for developing renewable energy in the future. ~~The city will review and consider revisions to regulations to support on-site energy generation, including solar and wind.~~

The city and county ~~will pursue an energy path that not only dramatically reduces carbon emissions, but also promotes innovation, competition and economic vitality, and~~ will set goals to ensure that the community has access to reliable, ~~competitively-competitively~~priced and increasingly clean energy.ⁱⁱⁱ

New Policy: Local Energy Generation Opportunities

The city and county support innovative programs and opportunities for individuals, businesses and organizations to develop and share local energy generation and will consider the local and regional impacts of distributed energy development^{iv}. The city will support private decisions to use renewable energy, develop local renewable energy resources and preserve options for developing renewable energy in the future. The city will review and consider revisions to regulations to support on-site energy generation, including solar and wind.^v

New Policy: Clean Mobility

The city recognizes accelerated retirement of fossil-fuel based transportation is a critical element of the city's emissions reduction strategy. To achieve this, the city supports efforts in three broad areas: reducing vehicle miles traveled, replacing fossil fuel-based transportation and continuing to plan a built environment that reduces the need for people to drive. The city supports innovations in these areas of transportation and clean mobility.^{vi}

New Policy: Energy System Resilience

The city recognizes that energy resilience is necessary for properly functioning emergency infrastructure and overall community resilience. The city supports a communitywide network that can deliver basic services in case of a grid disruption through strategies such as modernizing, on-site generation, storage technologies and reduced demand.^{vii}

Energy-Efficient Land Use and Building Design

4.04 Energy-Efficient Land Use

The city and county will encourage energy conservation through land use policies and regulations governing placement and orientation and clustering of development of land uses to minimize energy use, including co-location of mixed use developments that are surrounded by open space.^{viii}

4.05 Energy-Efficient Building Design

The city and county will pursue efforts to improve the energy and resource efficiency of new and existing buildings. The city and county will consider the energy consumption associated with the building process (i.e., from the raw materials through construction).^{ix} improve regulations ensuring energy and resource efficiency in new construction, remodels and renovation projects, and will establish energy efficiency requirements for existing buildings. Energy conservation programs will be sensitive to the unique situations that involve historic preservation and low-income homeowners and renters and will ensure that programs assisting these groups are continued.

Waste Minimization, and Recycling, and Sustainable Purchasing

4.06 ~~New Policy:~~ Building Construction Waste Minimization

To minimize construction waste, the city and county will strongly encourage renovation of existing buildings over demolition. -The city and county and will develop will support policies and programs that promote the reuse of materials salvaged after deconstruction -as a resource.^x

4.07 Waste Minimization and Recycling^{xi}

The city and county will pursue and support programs and activities that reduce the amount of waste that must be landfilled and pursue Zero Waste as a long term goal. Neither entity is responsible for waste hauling; they rely on a strong network of nonprofit, for-profit, governmental and community partnerships to invest resources toward zero waste systems. Policies, programs and regulations will emphasize waste prevention, reuse, composting, recycling and the use of materials with recycled content. The city and county will pursue the goal of 85% waste diversion in residential single-family, residential multi-family and commercial uses by 2025.

Sustainable Purchasing

4.08 Environmental Purchasing Policy

The city will maintain a robust Environmental Purchasing Policy for the city organization that promotes the purchase of recycled and compostable products and encourages consideration of

Comment [GS1]: Add language that supports the need for temporary and/or permanent debris management sites and policy language that would allow exceptions or promote land use regulations to allow this use.

materials, length of use, re-use and disposal options, as well as cost when procuring materials and products.

Relevant Links:

- CAP and Community Guide
- Waste Reduction MP
- Built Environment Policies – energy efficient land use
- Economy: sustainable business practices

ENDNOTES

ⁱ Slightly reorganize the chapter to reflect Boulder’s Climate Commitment (draft Oct. 2015), and reflect ongoing work being done related to Boulder’s Energy Future, building codes, and Zero Waste Strategic Plan (2015). Boulder County suggests additional alignment with several plans and policies including:

- Zero Waste Action Plan (2010),
- Environmental Sustainability Plan (2012),
- Solid Waste Element of the Comprehensive Plan (is in the process of being updated in 2016)

The following plans may also be relevant in a resilience section:

- OEM’s All-Hazards Recovery Plan (2013),
- Boulder Recovery Plan Support Annex A – Damage Assessment (2013),
- OEM’s Emergency Operations Plan (2014),
- Disaster Debris Management Plan (2016)

ⁱⁱ This policy has been modified to reflect Climate Commitment goals.

ⁱⁱⁱ Planning Board expressed support for innovative solutions such as solar gardens, etc. This policy more generally reflects that intent.

^{iv} This is new language suggested based on the city’s Climate Commitment. Planning Board also suggested language about sharing infrastructure and resources. It is framed as a city policy that would need to be verified with county.

^v New language is suggested based on Planning Board feedback.

^{vi} This policy is consistent with the TMP and Climate Commitment and reflects Planning Board input. It is framed as a city-only policy.

^{vii} This policy is an emerging area being addressed as part of energy future and currently framed as city-only.

^{viii} Modified language generally suggested by Planning Board to clarify intent behind “clustering” of development (which is a term typically used in rural areas).

^{ix} New language suggested based on Planning Board feedback.

^x New language suggested based on Planning Board feedback.

^{xi} Consistent with Zero Waste Strategic Plan.

ATTACHMENT A4: Proposed changes to Economy Section

Draft – Aug. 24, 2016

5. Economyⁱ

Proposed new section title: **Economically Vital Community**

Please note that a further round of editing will occur to improve organization, reduce verbosity and redundancies, and renumber policies as necessary.

Boulder’s highly-educated workforce, quality of life, high concentration of companies in growing industries, and synergies with the University of Colorado and federally-funded research labs are the foundation of its economic vitality. The city fosters and retains high-caliber employees and talented entrepreneurs and has earned recognition as one of the nation’s best places for startups. Boulder has a diverse mix of small and mid-sized businesses as well as several large employers.

A balanced approach to a healthy economy maintains the outstanding quality of life enjoyed by existing residents and businesses while collaborating for economic vitality. Boulder recognizes that economic strength can bring many benefits to the community including greater tax revenues, local job opportunities, increased diversity, a variety of services and business types and physical improvements.

While the city is fortunate to enjoy economic success, it also faces challenges. Cyclical global and economic downturns affect the local economic climate, and the rising costs of commercial space and housing affects businesses and their ability to recruit and retain new employees. Additionally, Boulder Valley redevelopment or growth may lead to displacement of existing businesses, increase demands for services and infrastructure, and strain -regional transportation systems and local housing affordability throughout Boulder Valley.ⁱⁱ

Boulder also recognizes that economic growth can bring many benefits to the community including greater tax revenues, local job opportunities, increased diversity, a variety of services and business types and physical improvements. The city will collaborate with the business community to facilitate growth, development and infrastructure improvements that benefit residents and businesses alike.

Through its Resilience Strategy, the city is adopting strategies to foster preparedness for uncertainty and disruptions to economic prosperity. Boulder is also following a sustainable path to economic development through the implementation of an Economic Sustainability Strategy that focuses on business formation, retention and growth. The policies in this section support the following goals related to maintaining a sustainable and resilient economy:

- Strategic Redevelopment and Sustainable Employment
- Diverse Economic Base
- Quality of Life
- Sustainable and Resilient Business Practices
- Job Opportunities, Education and Trainingⁱⁱⁱ

Strategic Redevelopment ~~Opportunities~~ and Sustainable Employment

Newly Separated Policy: Existing Businesses

The city will support the growth and success of existing businesses, including primary and secondary employers. The city recognizes the importance of community-serving local businesses

Comment [OA1]: BoCo staff suggestions to highlight that this is a regional scale - not reviewed by city staff yet.

and the importance of balancing their needs against redevelopment in certain areas with strategies that minimize their displacement.^{iv}

5.01 Revitalizing Commercial and Industrial Areas^v

The city ~~will develop specific~~supports place-based strategies ~~that to support optimize~~ redevelopment of commercial and industrial areas. Revitalization should reflect the unique characteristics and amenities in those areas and nearby neighborhoods. Examples of commercial and industrial areas for revitalization ~~that have been~~ identified in previous planning efforts are Diagonal Plaza, and University Hill Commercial district, and the East Boulder ~~Industrial~~ Industrial area.

The city will use a variety of tools to create public/private partnerships that lead to successful redevelopment. These tools may include, but are not limited to, area planning with community input, infrastructure improvements, shared parking strategies, changes to zoning or development standards and incentives including (e.g., financial incentives, increased development potential, or urban renewal authority). As an integral part of redevelopment and area planning efforts, the city acknowledges that displacement and loss of service and affordable retail uses need to be considered as a potential tradeoff in the context of redevelopment and planning goals

5.02 Regional Job Center

~~The city is one of several job centers in the region, and significant additional employment growth is projected in the future.~~ The city will adopt policies and supports strategies that support the city's further Boulder's continued role as a regional job center, in the future consistent with sustainability goals and projected employment growth and will continue to address related impacts on housing affordability and transportation.^{vi} The city will support the growth and success of existing businesses, including primary and secondary employers.

Diverse Economic Base

5.03 Diverse Mix of Uses and Business Types^{vii}

The city and county will support a diversified employment base within the Boulder Valley, reflecting labor force capabilities and recognizing the community's strengths ~~in scientific, professional, technological and related industries and quality of life.~~ Therefore, the city will identify areas that should be continue to identify and ~~protected for~~ industrial, service and office uses and will evaluate areas with non-residential zoning to ensure the existing and future economic vitality of Boulder while responding to the needs of a rapidly changing more global economy. ensure that the existing and future needs of a rapidly changing and technologically-oriented global economy and employment base are adequately accommodated.

~~As an integral part of redevelopment and area planning efforts, the city acknowledges that displacement and loss of service and affordable retail uses will be considered in the context of redevelopment and planning goals.~~

5.04 Vital and Productive Retail Base

The city recognizes the importance of its retail base and will develop and implement a retail strategy that ~~will take into account~~ emerging trends such as shifting demographics and changing consumer behavior. addresses the market opportunities and shopping needs of the

community, ensures an appropriate mix of retail, and identifies strategies to improve the retail base and the city's sales tax revenues, including maintaining affordable retail space.^{viii}

5.05 Support for Local Business and Business Retention^{ix}

~~Boulder's economic sustainability and resilience efforts recognize the importance of jobs already in the city; business retention and support for homegrown companies and existing jobs is a priority.~~ The city and county recognize the significant contribution of existing businesses ~~in the local economy~~ and will work to nurture and support ~~established businesses~~ them and maintain a positive climate to retain ~~businesses~~ them.

~~Business retention and expansion is a primary focus for the city. The existing jobs that are in Boulder are the city's most important jobs.~~

5.06 Industry Clusters^x

The city will adopt an industry cluster approach to business development and consider special financial and technical assistance programs and other tools to retain, expand and attract businesses in those clusters. Cluster efforts focus on supporting multiple businesses in an industry. ~~Boulder's primary clusters include: the technological and scientific sectors, natural and organic products, biosciences, active living / outdoor recreation, clean technology and creative arts.~~ Boulder's key industry clusters include aerospace, bioscience, clean tech, data storage, digital media, natural and organic products, recreation, software, tourism and the creative sector. Boulder acknowledges that these clusters will evolve and change over time.

Quality of Life

5.07 Funding City Services and Urban Infrastructure^{xi}

The city will encourage a strong sustainable economy to generate revenues to fund quality city services ~~for the public that are consistent with community goals and character and~~

~~The city~~ recognizes that urban infrastructure, facilities, services, and amenities are important to the quality of life of residents, employees and visitors to the community. A strong and complete regional and local transportation system and transportation demand management programs ~~is~~ are essential to a thriving economy, as they can offer options for commuters, help attract and retain key businesses and employers and ~~and~~ provides regional access to global markets. The city will continue to plan for and invest in urban amenities and infrastructure such as bike paths, parks, shared and managed parking, public spaces, quality gathering places, cultural destinations, and public art; as well as community services including but not limited to open space and mountain parks, high speed internet, fire-rescue, public safety, transit and senior services.

Comment [OA2]: BoCo staff text suggestions

5.08 Role of Tourism in the Economy

Recognizing the importance of tourism to the unique qualities of Boulder economy, the city will continue to work supports ongoing tourism efforts with various partners including the Boulder Convention and Visitors Bureau ~~to~~ study the existing and future role of different types of tourism in the community, track the benefits and impact of tourism on the economy, and invest in ways to enhance the sector.^{xii}

5.09 Role of Arts, ~~and Cultural, Historic and Parks and Recreation~~ Amenities Programs

The city and county will support ~~the resiliency, sustainability and innovation of arts, cultural, historic, parks and recreation amenities so they continue to contribute to the economic vitality of the community, provide unique offerings, foster meaningful connections to Boulder among its residents, workforce, and visitors; and offer additional benefit to the community and encourage further development of arts and cultural programs that can serve as attractors for new business investment and visitors to the city.~~ The city values the arts within the public realm and will work to enhance the capacity of arts and culture ~~to act as an economic generator as an important contributor to economic vitality and quality of life.~~^{xiii}

(Note: Most of these topics are addressed in the Built Environment chapter, so this policy will likely need some refining.)

5.10 ~~New Policy:~~ Communications

The city ~~and county~~ will support and facilitate the development of technologically-advanced communications infrastructure and other improvements that will provide support to the community, help businesses thrive and grow ~~as well as, facilitate, foster~~ the growth of emerging telecommunications industries, ~~and support emergency systems.~~

Comment [OA3]: BoCo staff suggestion to include the county in this policy

Sustainable ~~and Resilient~~ Business Practices

5.11 ~~New Policy:~~ Sustainable Business Practices

The city ~~will promote and encourages~~ supports sustainable and energy efficient business practices ~~and~~. ~~The city~~ will continue to establish and maintain programs to assist ~~and encourage~~ businesses and ~~their employees individualsto~~ employ sustainable practices including reducing waste and greenhouse gas emissions, increasing energy process and building efficiency (in existing or renovated structures), reducing energy costs, ~~conserving water, employing sustainable practices, making building renovations to reduce greenhouse gas emissions,~~ and reducing transportation impacts.^{xiv}

5.12 ~~New Policy:~~ Home Occupations

The city will evaluate regulations for home based occupations to balance potential impacts to residential neighborhoods and reflect the goal of allowing more flexibility to have home based businesses, neighborhood services, and employment opportunities. ~~The city supports the entrepreneurial activity of residents who are in the very early stages of creating start-up companies or providing neighborhood services. The city and also,~~ supports ~~people's~~ efforts to reduce ~~the~~ number and length of trips ~~through working from home. The city~~ will revise its regulations to be responsive to new uses and types of businesses; and neighborhood services that may be compatible with residential areas.

5.13 ~~New Policy:~~ Responsive to Changes in the Marketplace

The city recognizes that development regulations and processes have an impact on the ability of business to respond to changes in the marketplace. The city will work with the local business community ~~and the community at large~~ to make sure ~~the city's policies,~~ regulations, and development review processes provide a level of flexibility to allow for creative solutions while meeting broader community goals. This could involve modifying regulations to make them more

responsive to emerging technologies and evolving industry sectors and continually improving the application and permitting process.

New Policy: Economic Resilience^{xv}

The city will develop an economic resilience plan and work with the county and other partners to identify risks to future economic vitality and facilitate disaster preparedness, response and recovery for businesses.

Job Opportunities, Education and Training

5.14 Employment Opportunities

The city and county will encourage local employers to provide employment opportunities for all persons including the local unemployed and underemployed work force, and to implement equal opportunity and workplace diversity programs in cooperation with various agencies providing employment assistance programs.

5.15 ~~Business Partnerships~~ to Support Economic Vitality Goals

The efforts of the city and the private sector to enhance the economic prosperity of the community are directly and indirectly supported by many organizations and entities. ~~These include~~ but are not limited to the University of Colorado, Downtown Boulder Inc., Boulder Chamber, Boulder Economic Council, Boulder Convention and Visitors Bureau, Boulder Innovation Center, Latino Chamber of Boulder County, Boulder Small Business Development Center, Boulder Valley School District, the Boulder Independent Business Association, CO-LABS and other diverse and emerging groups. Though each has an independent focus, their work contributes to the overall quality of life enjoyed within the community.^{xvi}

5.16 Support for the University of Colorado and Federal Labs

The city and county understand the ~~central~~ important role that ~~the~~ federally-funded labs and the University of Colorado play in our economy and will continue to work with our state and federal elected officials regarding their important economic contribution. The city will take an active role in efforts to preserve the state and federal funding for these entities to ensure they remain in Boulder and will pursue mutually beneficial partnerships. The city recognizes the importance of having strong institutions for higher education, continuing education and workforce training thriving in the community. Also, the seminal role of the University of Colorado, a world class research university, and the federal labs in business support, technology transfer ~~s,~~ and tech start ups ~~and entrepreneurial business creation~~ needs to be fully understood, evaluated and enhanced. The city will work with CU to further the community's goals for sustainable urban form as university owned land is developed or redeveloped.

5.17 ~~New Policy: Diverse Workforce, Education and Training~~^{xvii}

The city and county will encourage and support the Boulder Valley School District ~~as well as the variety of~~ and post-secondary educational institutions to offer quality continuing education and vocational training. The city will work with employers, educators, and partners to support programs designed to help develop and attract workers in multiple fields with specialized skills and experience and ~~will~~ support efforts to add focused workforce vocational training facilities, including but not limited to those that provide training for “green” jobs.

Moved from Policy 5.03 above: Addressing Disproportionate Impacts

The city recognizes that the rising costs of commercial space and housing can disproportionately affect lower-income and minority residents and small businesses and non-profits and will develop strategies to maintain a range of options to support a diverse workforce and employment base.^{xviii}

Related Topics:

- See the Built Environment Section for policies related to infill/redevelopment priorities, enhancing activity centers, mixed-use development, and historic preservation.
- See Community Well-Being Section for policies on community infrastructure, the and ability of people to meet their basic needs, and arts and culture.
- See Transportation Section for policies on improving and creating a more resilient the transportation system and- increasing transportation options with local partners for commuters through regional transit alternatives other than single-occupant vehicles.
- See Energy and Climate Action for policies on support for sustainable practices and buildings.
- See Local Food and Agriculture for policies on access to markets for food and agricultural products.
- See Housing for the policy regarding supporting economic resilience through planning for residential displacement.

ENDNOTES

ⁱ Overall, changes to this chapter reflect work since the 2010 plan including:

- Economic Sustainability Strategy (ESS) (2013)
- Community Cultural Plan (CCP) (2015)
- HR&A's Recommendations for Resilience Integration (2016)
- In addition, the city will be developing a citywide retail strategy, framework for redevelopment and revitalization through public/private partnerships, and plans to enhance economic resilience, sustainable tourism, innovation/entrepreneurship, and multimodal access to support economic activity.

ⁱⁱ Some of this new introductory language reflects input from Economic Sustainability Strategy as well as from Planning Board to emphasize balanced approach to economic "vitality" vs. "growth" strategy.

ⁱⁱⁱ Consistent with content from Economic Sustainability Strategy (ESS) and Community Cultural Plan (CCP).

^{iv} Some language carried over from previous policy 5.02, and also reflects language recommended by Planning Board to present a balance perspective on redevelopment and retention of existing businesses.

^v This modified language in policy 5.01 is consistent with the ESS and includes some additional suggestions from Planning Board.

^{vi} Some new language has been added to this policy to reflect feedback from Planning Board. The "support for existing business" last statement got moved to a separate policy; it seemed a bit out of place here.

^{vii} This language is updated to be consistent with ESS. It was suggested to be more descriptive of different types of tourism, but that could increase the workload for partners. (e.g., heritage, cultural, sports, open space). Would need to confirm.

^{viii} This language reflects ongoing program work in Economic Vitality and suggestions from Planning Board regarding "affordable space."

^{ix} This language is updated to be consistent with ESS

^x Updated clusters are consistent with Primary Employer Study and -ESS

^{xi} Updated policy 5.07 to include reference to Access Management and Parking Strategy (AMPS) and clarify that infrastructure, services and amenities that contribute to business attraction are not limited to

transportation infrastructure alone. Additional examples reflect suggestions from ESS and input from Planning Board

^{xii} Language reflects additional suggestions from Planning Board to enhance it. Note: Historic Preservation policies (in Built Environment) could also say more about the role of heritage tourism and value of historic preservation.

^{xiii} A former policy about the “Creative Economy” was consistent with the CPP. However, Planning Board suggested that the policy sounded exclusive, so it has been removed. This policy has been modified to show support for the arts and recognition as it contributing to economic vitality. This may need some further refining, depending on other community input.

^{xiv} Policy 5.11 has been modified to be consistent with the ESS and programs and practice. It also reflects some input from Planning Board.

^{xv} This new resilience policy is consistent with work that has been ongoing and recommendations from city’s resilience strategy.

^{xvi} List intended to be inclusive and reflective of the groups who work together to support economic vitality.

^{xvii} Modified policy 5.17 is consistent with ESS.

^{xviii} This new language reflects input from Economic Vitality and Planning Board.

DRAFT

ATTACHMENT A5: Proposed changes to Transportation Section

Draft – Aug. 24, 2016

6. Transportationⁱ

Proposed new section title: Accessible and Connected Community

Note: This chapter will be further refined to include the city and county plan visions and to be organized in a more logical sequence – starting with the vision and travel modes and ending with relevant metrics. Also please note that a further round of editing will occur to improve organization, reduce verbosity and redundancies, and renumber policies as necessary.

The Boulder Valley Comprehensive Plan and the ~~county and city's~~ city and county's Transportation Master Plans ~~have~~ reflect the fundamental premise that the transportation system be developed and managed in ~~conjunction in service of with~~ land use, social, economic and environmental goals. The vision is to create and maintain a safe and efficient transportation system that meets the sustainability goals of the community and the Boulder Valley to accommodate increased person trips by providing travel choices and reducing the share of single occupant auto trips.

Comment [NW1]: Long sentence. Consider how to break this into multiple sentences.

A mature community like Boulder has little opportunity or ~~desire~~ ability to add road capacity, as widening streets and building new roads would have significant negative environmental, community character and financial impacts. Consequently, the strategies of the city's Transportation Master Plan (TMP) center on maintaining a safe and efficient system as noted above, and developing a balanced transportation system, that supporting increased person trips and all modes of travel. ~~The TMP focuses on and making the system more efficient in carrying travelers, increasing access for the community, maintaining a safe system and on shifting trips away from the single-occupant vehicle.~~

~~Boulder's challenge is to manage and improve the existing system to accommodate increasing demands for travel needs, both local and regionally through greater efficiency, better access, and by providing a broader range of travel choices. Important issues and trends include:~~

- ~~• Limited funding for both new infrastructure and maintenance of existing resources at all levels of government;~~
- ~~• Increasing importance of frequent and affordable regional transit; and~~
- ~~• Increasing energy costs with corresponding increases in the cost of travel.~~

The policies in this section generally reflect the Focus Areas of the city's TMP and the adopted Boulder County Transportation Master Plan including:

- Complete Transportation System
- Regional Travel
- Funding and Investments
- Land Use and Transportation Integration and Sustainability Initiatives
- Other Transportation Policies
- ~~• Complete Transportation System~~
- ~~• Integration of Land Use and Transportation~~
- ~~• Air Quality~~
- ~~• Boulder Municipal Airport~~

Complete Transportation System

6.01 All-Mode Transportation System and Complete Streets

The Boulder Valley will be served by an integrated all-mode transportation system, developed cooperatively by the city and county. ~~The city's~~ transportation system will be based on complete streets including completed networks for each mode, making safe and convenient connections between modes, and providing seamless connections between the city and county systems, and promoting access and place-making for the adjacent land uses and activities. Improvements to ~~the urban~~ travel corridors ~~network~~ will be made in a manner that recognize pedestrian travel as the primary mode and preserves or improves the capacity or safety and efficiency of all modes and recognizes pedestrian travel as a component of all trips. For rural parts of the Boulder Valley, the transportation system is focused on sustainable mobility through development of a multimodal system, creating the complete trip and investing in key transportation corridors.

6.02 Reduction of Single Occupancy Auto Tripsⁱⁱ

The city and county will support and promote the greater use of alternatives to single occupancy automobile travel. It is the city's specific objective to continue progress toward 'no long-term growth in traffic' reduce vehicle miles of travel (VMT) 20 percent from 1994 levels through the year 20325 within the Boulder Valley to achieve transportation and greenhouse gas reduction goals. These efforts will require inclusion of other communities and entities (especially origin communities such as Longmont, Lafayette, Louisville, and Erie) and will include developing and implementing integrated travel demand management (TDM) programs, and new mobility services and improved local and regional transit service. Within the city, new developments will be required to include travel demand management to reduce the vehicle miles traveled and single occupant vehicle trips produced by the development.

6.03 Congestion

The city ~~and county~~ will strive to limit the extent and duration of congestion, defined as Level of Service (LOS) F, to 20 percent of the roadway system within the Boulder Valley while providing for increased mobility for people using all modes of travel.ⁱⁱⁱ

New Policy: Renewed Vision for Transit^{iv}

Transit investments and improvements will occur in an integrated manner in the areas of service, capital, policies, programs and implementation. These will expand the Community Transit Network (CTN) and improved regional transit service and connections outside the city such as bus rapid transit (BRT) along state highways and regional bus services.

Modified Policies 6.05& 6.06 from below: Accessibility and Mobility for All^v

The city and county will develop a complete all-mode transportation system accommodating all users, including people with mobility impairments, youth, older adults, monolingual Spanish speakers, and low-income persons. This will include increased support for mobility services for older adults and people with disabilities, reflecting the expected increases in these populations. Efforts should focus on giving people options to live well without a car and may include prioritizing affordable public transportation and transit passes as well as new technologies and

Comment [OA2]: See footnote iii – city and county have different policies on this, so it is being reviewed. For now, the county has been removed from this policy.

Comment [OA3]: BoCo Public Health suggestion that has not been reviewed by city staff yet.

mobility services and prioritizing connections between multimodal transportation and affordable housing to ~~instigate~~facilitate affordable living.

Comment [OA4]: BoCo staff suggestion that has not been reviewed by city staff yet.

New Policy: Integrated TDM Programs

The city and county will cooperate in developing comprehensive TDM programs for residents and employees. These include incentives such as developing a universal community transit pass program; promoting shared use mobility, ridesharing, bikesharing, carsharing, vanpools and teleworking; and supporting programs for walking and biking such as secured long term bike parking. Strategies such as shared, unbundled, paid and managed parking (i.e., SUMP) principles can reflect the real cost of Single Occupancy Vehicle (SOV) travel. The city will require TDM plans for new larger, residential and commercial developments.^{vi}

Comment [NW5]: Define "SUMP" acronym.

New Policy: Safety^{vii}

Safety for people of all ages using any mode within the transportation system (i.e., walking, bicycling, riding) is a fundamental goal. The city's policy "Toward Vision Zero" is aimed at reducing serious injury and fatal collisions involving people using all modes of travel, focusing on crash trends and mitigation strategies identified in the Safe Streets Boulder Report and on-going local, regional, and state-wide safety assessments.^{viii}

Regional Travel

6.04 Regional Travel Coordination Cooperation

City transportation and land use decisions have regional transportation impacts. The city and county will work to develop regional consensus for multimodal improvements to regional corridors. ~~This can be achieved by, and working~~ing with the Colorado Department of ~~Transportation and the Transportation,~~ the Regional Transportation District (RTD) and other providers to develop high quality, high frequency regional transportation options, including improvements identified in the Northwest Mobility Study (NAMS), FasTracks arterial bus rapid transit (BRT) service and commuter bikeways between the communities, with first and final mile connections to local systems and longer-term rail planning.-

New Policy: Regional Transit Facilities^{ix}

The city will develop and enhance the regional transit anchors that serve the primary attractors of Downtown Boulder, the University of Colorado and Boulder Valley Regional Center, including at Boulder Junction. Developing Mobility Hubs and first and last mile connections to these facilities are a priority to support employees commuting into and throughout Boulder.

6.05 Accessibility

The city and county will develop a complete all-mode transportation system based on complete streets that accommodates all users, including people with mobility impairments, as well as youth, older adults and low-income persons. Efforts should focus on giving people options to live well without a car and may include prioritizing affordable public transportation and transit passes.

6.06 Mobility Services

The city and county will increase their support for mobility services for older adults and people with disabilities to reflect the expected increases in these populations.

Funding and Investment

6.07 Investment Priorities

To protect previous investments and ensure efficient use of existing travel corridors, the city and county will prioritize ~~their~~ investment ~~first to for safety and~~ maintenance ~~and safety~~ improvements ~~for all modes~~ of the existing systems. Second priority is given to capacity additions for the non-automotive modes and efficiency improvements for existing road facilities that increase ~~levels of service person carrying capacity~~ without adding general purpose lanes. ~~Any additional road capacity will be managed and priced to provide reliable and rapid travel times for transit, high occupancy vehicle lanes and other car sharing options.~~^x

(Note: 6.08 has been moved to below.)

Integration of Land Use and Transportation and -with Sustainability Initiatives

New Policy: Access Management and Parking^{xi}

~~Vehicular and bicycle parking will be considered a component of a total access system of all modes of transportation - bicycle, pedestrian, transit and vehicular - and will be consistent with the desire to reduce single occupant vehicle travel, balance the use of public spaces, and consider the needs of residential and commercial areas, and address neighborhood parking impacts.~~^{xii} Parking demand will be accommodated in the most efficient way possible with the minimal necessary number of new spaces. The city will promote parking reductions through a variety of tools including parking maximums, shared parking, unbundled parking, parking districts and transportation demand management programs. Parking districts will be expanded and managed based on SUMP principles (shared, unbundled, managed and paid) to support the city's transportation and GhG reduction goals, as well as broader sustainability goals including economic vitality and neighborhood livability.

Comment [NW6]: Consider breaking into multiple sentences.

Moved from 6.08 Above: Transportation Impact

~~Transportation~~~~ffe or traffic~~ impacts from a proposed development that cause unacceptable community or environmental impacts or unacceptable reduction in ~~a multimodal~~ level of service ~~or parking impacts to surrounding areas~~ will be mitigated.^{xiii} All development will be designed and built to be multimodal, pedestrian-oriented and include ~~TDM~~ strategies to reduce the vehicle miles traveled generated by the development. New development will provide continuous pedestrian, bike and transit systems through the development and ~~connect~~~~ion of~~ these systems to those surrounding the development. The city and county will provide tools and resources to help businesses manage employee access and mobility and support public-private partnerships, such as transportation management organizations, to facilitate these efforts.

New Policy: Concurrent Land Use and Transportation Planning

~~Overall citywide transportation and land use planning should be coordinated. Future major changes to the land use map and policies of this plan and the Transportation Master Plan should be, to the extent practicable, be coordinated, modeled and evaluated concurrently.~~^{xiv}

6.09 ~~Integration with Land Use~~ **Integrated Planning for Multimodal Centers**

~~Land use in and surrounding the~~ three intermodal regional centers (i.e., ~~of, will be developed or maintained~~ Downtown Boulder, the University of Colorado and the Boulder Valley Regional Center ~~at, including including~~ Boulder Junction), in the downtown, Boulder Junction and on the university's main campus ~~as will support their function as~~ anchors to regional transit connections and ~~as~~ Mobility Hubs for connecting pedestrian, bicycle and local transit to regional services.

Separate New Policy: Integrated Planning for Corridors

The land along multimodal corridors will be designated as multimodal transportation zones where transit service is provided on that corridor. In ~~and along~~ these multimodal transportation zones, the city will ~~develop plan for~~ a highly connected and continuous transportation system for all modes, ~~emphasis on high quality pedestrian experience and urban design,~~ identify locations for mixed use and higher density development integrated with transportation functions through appropriate design, and develop parking maximums and encourage parking reductions. The city will complete missing links in the transportation grid through the use of area transportation plans and at the time of parcel redevelopment.

(Note: The Built Environment chapter will more clearly define land use for different types of centers and corridors and where intensity is most appropriate or not^{xv}.)

6.10 **Managing Parking Supply**

~~Providing for vehicular parking will be considered as a component of a total access system of all modes of transportation—bicycle, pedestrian, transit and vehicular—and will be consistent with the desire to reduce single occupant vehicle travel, limit congestion, balance the use of public spaces and consider the needs of residential and commercial areas. Parking demand will be accommodated in the most efficient way possible with the minimal necessary number of new spaces. The city will promote parking reductions through parking maximums, shared parking, unbundled parking, parking districts and transportation demand management programs.~~

6.11 **Transportation Facilities in Neighborhoods**

The city ~~and county~~ will strive to protect and improve the quality of life within city neighborhoods while ~~developing~~ a balanced transportation system. Improving access and safety within neighborhoods by controlling vehicle speeds or providing multi-modal connections will be given priority over vehicle mobility. The city ~~and county~~ will design and construct new transportation facilities to minimize noise levels to the extent practical. Neighborhood needs and goals will be balanced against the community necessity or benefit of a transportation improvement. Additionally, neighborhood parking permit (NPP) programs will seek to balance access and parking demands of neighborhoods and adjacent traffic generators.^{xvi}

New or Modified Policy: Transportation Infrastructure to Support Walkable 15-Minute Neighborhoods^{xvii}

The city will prioritize improvements to transportation facilities to create a variety of neighborhood supporting activities and supportive infrastructure within approximately a one-quarter mile radius where residents and employees can fulfill more of their daily needs through safe, healthy and convenient walking and biking.

(Note: The Built Environment chapter includes policies related to neighborhood centers, mix of land uses and amenities such as parks and schools, and area planning within neighborhoods to

Comment [NW7]: Language / sentence flow and length needs attention here.

Comment [OA8]: Policy now focuses on the city, references to the county are being removed.

Comment [OA9]: BoCo Public Health provided a variety of resources with the connection between the built environment and health. If desired, health could be incorporated here or in the built environment section:

consider adding mention of health...

- Investments in transportation infrastructure, such as off-street trails, dedicated bicycle lanes, and pedestrian bridges promote health and save money. For every dollar invested in these projects, between \$1.20 and \$3.80 is saved as a result of reduced health care utilization and fuel consumption.
 - Sidewalks have a notable return on investment. A recent study from the United States using National Household Travel Survey data determined that sidewalk construction yields a cost-benefit ratio of 1.87 over a decade.
 - 43% of people with safe places to walk within 10 minutes of home met recommended activity levels. Just 27% of residents without safe places met recommended activity levels.¹
- Residents are 65% more likely to walk in neighborhoods with sidewalks compared to those without sidewalks¹

support complete neighborhoods to serve neighborhood needs. The scenarios will also address this topic.)^{xxviii}

6.12 Neighborhood Streets Connectivity

City nNeighborhood streets and alleys are part of the public realm and will be developed-planned as a well-connected and fine grained pattern to facilitate public access, ~~to promote safe and convenient travel for all, and to effectively~~ disperse and distribute vehicle traffic, and maintain character and community cohesion. In historic districts, alleys are particularly important for maintaining character and providing travel routes for pedestrians and bicycles.^{xix}

New Policy: Mobility Hubs^{xx}

As guided by the Transportation Master Plan, the city will establish Mobility Hubs that provide seamless integration between transit and pedestrian and bicycle facilities, car/ridesharing, and context-appropriate parking supply for people of all physical abilities. Mobility Hubs will emphasize excellent pedestrian infrastructure within a quarter- to half-mile walkshed and connections to the bicycle network as well as high quality urban design of structures and public spaces.^{xxi}

Other Transportation Policies

Air Quality

6.13 Improving Air Quality and Reducing Greenhouse Gas Emissions

Both the city and county are committed to reductions in greenhouse gas emissions with the city committing to an 80 percent reduction from 2005 levels by 2050. The city and county will design the transportation system to minimize air pollution and reduce GhG emissions by promoting the use of non-automotive low emission transportation modes, reducing auto traffic, and supporting and encouraging the use of fuel efficient and alternatively clean- fueled vehicles that demonstrate air pollution reductions, and maintaining acceptable traffic flow.

Comment [OA10]: In reference to the need for EV infrastructure in order to facilitate adoption of using EVs.

Boulder Municipal Airport

6.14 Municipal Airport

Boulder Municipal Airport is a general aviation airport that has been in existence since 1928. The Boulder Municipal Airport will continue aThe airport will continue at the appropriate scale to ensure it meets the needs of the community by providing a safe environment for aviation business and business-related travel; scientific and research flights; recreation and tourism; flight training and vocational education; aerial fire-fighting; emergency medical flights; as well as flood and other disaster-related support for the city and county. ~~is a small-scale general aviation airport.~~ The city will seek to mitigate noise, safety and other impacts of airport operation while assuring that new development in proximity will be compatible with existing and planned use of the airport.^{xxii}

Potential New Transportation Resilience Policies

The HR&A Resilience report suggests the following:

New Policy: Infrastructure Investments

The city will support infrastructure investments that provide multiple benefits, such as greenways, which both serve as a public amenity and mitigate risk. *(The county's climate change preparedness section might also be useful here.)*

New Policy: Emergency Response Access

The city and county will assess and develop solutions with stakeholders to coordinate transportation policies, infrastructure planning, and response plans in the event of a disruption.

Graphics and Maps to Add to This Chapter

- Add new Renewed Vision for Transit
- Transportation GHG reduction graph – 40% of reduction needed in the Clean Energy and Innovations area
- Images of Mobility Hubs
- Photos of people walking, bicycling, and transit
- Photos of recently completed capital construction projects (e.g. Boulder Junction and Broadway Euclid)
- Call out the metrics from the TMP including LOS, VMT, GHG goals, etc.

ENDNOTES

The changes to this chapter reflect work since the 2010 plan including:

- Boulder County Transportation Master Plan (2012) and Multimodal Transportation Standards (2013)
- City Transportation Master Plan (2014) which included county and other partner input;
- City draft Climate Commitment strategy (2015);
- City Transportation Report on Progress (2016);
- County Mobility4All Needs Assessment (2016);
- The city has also been working on an Access Management and Parking Strategy (AMPS) and adopted new standards related to Transportation Demand Management (TDM).
- HR&A's Recommendations for Resilience Integration (2016)

ⁱⁱ Includes new language from TMP.

ⁱⁱⁱ The city and county transportation master plans address this issue differently. This policy may need additional input and work to clarify respective policies.

^{iv} Transit policy from TMP

^v Combined with policy 6.06 Mobility Services and includes information from the County Mobility for All Needs Assessment+.

^{vi} Revised language reflects input from Transportation Advisory Board.

^{vii} From TMP and some new language to reflect Planning Board input.

^{viii} Transportation Master Plan focuses on a broad range of crash cause rather than calling out any specific type of cause (e.g., distracted drivers). Needs a broad approach that will be applicable over time.

^{ix} Consistent with TMP.

^x Consistent with TMP.

^{xi} Portions of this policy are from previous policy 6.10, which has been modified to reflect work completed during the Access Management Parking Strategy work.

^{xii} Planning Board members suggested addressing parking impacts in neighborhoods as well.

^{xiii} Addressing parking impacts (particularly from parking reductions) suggested by Planning Board.

^{xiv} Planning Board suggestion to reflect on overall citywide coordination of TMP and BVCP before getting to more specific language about multimodal centers and corridors.

^{xv} Reflects suggestions from Planning Board.

^{xvi} New language is intended to convey different goals for city neighborhoods vs. rural neighborhoods. Also, the parking language is a new suggestion from Planning Board.

^{xvii} Consistent with TMP.

^{xviii} TAB suggested some language about bicycling parking, and Planning Board suggested a refinement and additions to other parts of the plan to address the land use aspect of this concept of 15-minute neighborhoods, and an inclusive local process for planning them.

^{xix} Planning Board suggested this type of language to address historic value and connected nature of alleys – importance for pedestrian and bicycle transportation off the main streets.

^{xx} Consistent with TMP

^{xxi} Suggestion from TAB.

^{xxii} Reflects Airport Master Plan.

DRAFT

ATTACHMENT A6: Proposed changes to Community Well-Being Section

Draft – Aug. 24, 2016

8. Community Well-Beingⁱ

*Proposed new section title: **Healthy and Socially-Thriving Community***
Note: Some of the following policies relating to safety will move to a new “Safe and Resilient Community” section. Also please note that a further round of editing will occur to improve organization, reduce verbosity and redundancies, and renumber policies as necessary.

The Boulder Valley, like all communities, is much more than its physical form. It is composed of people as well as the places where they live and work; it is as much a social environment as it is a physical environment. The Boulder Valley is a center of active living, attracting residents, businesses and visitors who value community and individual health. The city and county are committed to continuing to be a national leader in promoting the physical health and welfare-well-being of everyone in the community as well as promoting civil and human rights. Additionally, the city and county will strive to foster mental and social health and well-being and health equity through the cultivation of a wide range of recreational, cultural, educational and social opportunities.

Boulder is a fluid and growing community; with changing demographics. The city and county proactively anticipate and plan for emerging demographic trends and social issues; and consider challenges faced by different demographic groups including:

- Needs of a growing older adult population and their family caregivers; Supporting the ability of a growing older population to age well in our community;
- Ensuring healthy starts for children and youth development and opportunities to be contributing members of the community;
- Supporting and inclusion of immigrants and other culturally diverse people into the community;
- Addressing the impacts of a large university population on housing and other infrastructure; and
- Addressing the full range of impacts from the community’s lack of affordable housing and the increasing cost of affordable living.
- Need for ongoing support of services and facilities for basic needs such as food, health care, shelter, child care, elder care, and education and training;
- Support for community non-profits; and
- Accessibility and affordability of basic health and human services.

In providing human services, the city and county partner vision for Boulder is to comprehensively create and support a comprehensive safety net of services and opportunities for individual and family economic mobility and self-sufficiency for residents; through coordinated regional planning, service delivery; and integrated partnerships. Generally, Boulder County provides many of the critical state- and federally-supported/mandated programs, entitlement programs and countywide services. The city complements and augments these services and those provides services identified as important to the Boulder community, including a range of services from safety net services to and early intervention and prevention services, to meet critical human service needs.

The policies in this section support the city's and county's goals related to:

- Human Services
- Social Equity
- Community Health
- Community Infrastructure and Facilities

Human Services

8.01 Providing for a Broad Spectrum of Human Needs

The city and county will develop and maintain human service programs that provide for the broad spectrum of human needs. ~~An emphasis will be placed on supporting best practices and evidence-based programs that build upon community resilience through increased self-reliance and self-sufficiency. Using a resilience framework will help individuals avoid crisis and recover more quickly in emergency situations, which will in turn reduce the community's long term costs of providing services, from safety net services to early intervention and prevention programs which mitigate more costly, long-term interventions and forestall worsening social conditions.~~ Services will balance meeting ~~emergency and short-term~~ immediate needs with long-term solutions ~~and supports for~~ critical social issues.

8.02 Regional Approach to Human Services

The city ~~and county~~ will continue ~~their~~ collaborative roles in human services planning and funding through partnerships with other agencies and local government ~~as well as shared data and reporting that offers easy access for community residents and facilitates data-driven decision-making.~~ The city and county will ~~use a~~ coordinate a regional approach to policy and program development ~~such as that articulated in the Ten-Year Plan to Address Homelessness and the Human Services Strategic Plan.~~ The city ~~and county~~ will seek to ~~build partnerships with surrounding communities and the region, which will help~~ address the ~~often~~ disproportionate service burden placed on Boulder as a key regional ~~service~~ center.

Comment [NW1]: Long sentence. Consider breaking into multiple sentences.

Social Equity

8.03 Equitable Distribution of Resources

The city ~~and county~~ will work to ensure that ~~basic-human~~ services are accessible and affordable to those most in need. The city and county will consider the impacts of policies and planning efforts on low- and moderate- income and special needs populations and ensure impacts and costs of sustainable decision making do not unfairly burden any one geographic or socio-economic group in the ~~city~~community. The city and county will consider ways to reduce the transportation burden for low income, ~~older adult~~, and disabled populations, enabling equal access to community infrastructure.

8.04 Addressing Community Deficiencies

The city ~~and county~~ will ~~use community feedback in conjunction with robust data resources to identify barriers to development and provision of important basic human services and will work closely with community partners to find solutions to critical deficiencies.~~ ~~and work to find solutions to critical social issues such as lack of housing options for very low income and special~~

~~needs populations, access to and affordability of basic services, and limited availability of affordable retail products.~~

8.05 Diversity

The community values diversity as a source of strength and opportunity. The city and county will support the integration of diverse cultures and socio-economic groups in ~~the~~ physical, social, cultural and economic environments and promote opportunities for community engagement ~~of diverse community members;~~ and ~~promote~~ formal and informal representation of diverse community members in civic affairs.

New Policy: Youth Engagementⁱⁱⁱ

The city and county support youth engagement and partner with organizations in the community to offer opportunities to youth for civic engagement and education and fostering innovative thinking and leadership.

Safety and Community Health

8.06 Safety

The city and county will promote safety by fostering good neighborhood and community relations, building a sense of community pride and involvement, and promoting safe and attractive neighborhoods. The city and county will provide police, fire protection and emergency management services and preparedness education to ensure a safe community. The city and county will adjust public safety service delivery to respond to changing community needs including demographic changes and redeveloping and urbanizing areas to support safe, livable neighborhoods and vibrant business districts.

8.07 ~~Physical Health and Well-Being~~

The city and county strive to ensure that ~~the~~ is community continues to be a leader in promoting physical, mental and social well-being ~~health and welfare~~ of community members and will support recreational, cultural, educational and social opportunities. The city and county recognizes that healthy diet and physical activity ~~are~~ is essential to individual and health and community well-being. ~~The city will support opportunities for people to exercise.~~ Neighborhood and community design will encourage physical activity and healthy eating by establishing easy access to parks and trails, healthy food retailers, and locating activity centers close to where people live, work and attend school. ~~The city will support community health programs such as: obesity prevention, outdoor education, safe routes to school, and healthy eating.~~

New Policy: Resilience in Public Safety and Risk Prevention

The city and county will provide focused efforts around public safety risk prevention and early intervention. Working with the community, the city and county will strive to prepare all segments of the community for uncertainty and disruptions by encouraging community and individual preparedness and creating a culture of risk awareness.

New Policy: Physical Safety

The city and county strive to ensure community members are safe from physical violence.^{iv}
Note: This is a new suggested policy in its early stages. Further development to follow.

New Policy: Community Connectivity and Preparedness²

The city and county will support fostering social and community connectivity and communications which promote well-being, deepen a sense of community and encourage civic participation and empowerment. The city and county recognize that supporting connections in the community furthermore enhances preparedness and improves the ability to respond and recover when emergencies happen.

Community Infrastructure and Facilities

Elementary and Secondary Schools

8.08 Planning for School Sites and Facilities

The city and county will assist the Boulder Valley School District in its planning efforts to assure that the number, size and location of school lands and facilities is adequate to serve the population for the foreseeable future. The city and county will consider current and projected school enrollment and available school capacities when approving the type, scale and timing of residential development. The city and county will work with the school district to consider transportation impacts when planning for school sites and facilities.

8.09 Accessibility to Schools

The city and county will work with the Boulder Valley School District to develop safe and convenient pedestrian, bicycle and transit access for students to existing and new schools. New school facilities will be located so that school-age children have the opportunity to arrive safely on their own.

Community Facility Needs

8.10 Support for Community Facilities

The city and county recognize the importance of educational, health, cultural and non-profit community agencies that provide vital services to the residents of the Boulder Valley and will work collaboratively with these agencies to reasonably accommodate their facility needs and consider location based on transportation accessibility or other needs.

Parks and Trails

8.11 Parks and Recreation

The city and county recognize park and recreation facilities provide one of the most effective ways to build people’s sense of community and quality of life throughout the city, especially in redeveloping areas and in the revitalization of neighborhoods. Parks and Recreation programs and facilities will continue to provide for a well-balanced and healthy community by providing a range of activities that support mental and physical health through high-quality programs and services that meet the needs of the community. Such facilities and services will be designed in a manner that responds to the needs of the intended users.

~~Park and recreation facilities and services of the city or other service entities will provide an adequate range of exercise and recreational opportunities for residents. Such facilities and services will be designed in a manner that responds to the needs of the intended users. City park~~

Comment [NW2]: Parks and Open Space staff suggested considering whether / how to include reference to "open space" here- as contributor to quality of life. It may not be appropriate here since the focus is more on urban resources in this particular policy. However, consider alternative places to include reference to open space in one of these policies. Perhaps the section should be called "Parks, Trails and Open Space" and this policy title could be changed to "Parks and Recreation, and Open Space" and expand to include open space language.

~~and recreation facilities will provide a variety of landscape types as amenities and recreational resources for urban dwellers, including irrigated green spaces, low water need plantings and natural vegetation areas.~~

New Policy: Parks as Gathering Spaces

The city will strive to ensure Boulder's public green spaces among residential areas are gathering places for neighbors and community members to build relationships and social ties that encourage safety and support within neighborhoods. These spaces will be planned and managed to remain clean, open, safe and accessible to neighbors and build strong social capital which is the backbone of a resilient and engaged community.

8.12 Trail Functions and Locations

Trails serve a variety of functions such as exercise, recreation, transportation, education and/or environmental protection. Trails should be designed and managed to minimize conflicts among trail users. Trailheads should be located so they are convenient and safe for those arriving by alternate modes of transportation as well as automobiles. In order to provide environmental protection, informal trails and ~~the user~~-widening of trails by users should be discouraged by ensuring that formal trails are ~~well~~-well-designed, monitored and adequately maintained. Trail and trailhead locations and alignments should avoid environmentally sensitive areas and minimize environmental impacts.

8.13 Trails Network

The city and county will coordinate with other trail providers and private landowners in trail system planning, construction, management and maintenance. Where compatible with environmental protection goals and conservation easement agreements, trail connections will be developed to enhance the overall functioning of the trails network.

Culture

8.14 Libraries

Library facilities and services of the Boulder Valley will be responsive to the needs of all populations, providing an adequate range of informational, educational and intellectual opportunities for all residents.

8.15. Information Resource/Community Center

The city will provide access to information through a variety of formats providing materials, technology and services to enhance the personal development of the community's residents. In its role as the community's public and civic information center, the library will provide venues for community group meetings and resources and services to meet the needs of the community's multicultural and special populations. Other community gathering spaces and information sources include the city and county websites, municipal buildings, and recreation and senior centers.

8.16 Education Resource

The city will seek to provide educational, cultural and literacy resources and ~~opportunities~~services for the community. The city will develop and maintain resources to assist learners and students of all ages, including support for formal education programs, and provide public workspaces and independent learning resources. The city will develop collaborative

relationships with community educational institutions and function as a research center for residents.

8.17 ~~Performing and Visual Arts and Cultural Facilities~~

~~The city and county recognize the ability of cultural facilities and activity to positively contribute to community members' well-being and sense of community. The city and county, recognizing the need to enhance the personal development of the public and to build a sense of community by providing for cultural needs, will encourage the provision of venues and facilities for a wide range of the performing and visual arts and cultural expression that are available and affordable to everyone. and the provision of art in public buildings and spaces.~~

8.18 ~~The Arts and Community Culture (reverse order of 8.17 and 8.18)~~

~~The city and county recognize and support the arts and community members' easy access to cultural experiences. Arts and culture advance civic dialogue, awareness and participation, contribute to people' authentic expression of diversity, and promote community inclusion. They are central to the cultural life for children, youth and adults of the Boulder community and a clean industry that contributes significantly to the Boulder economy. They present significant quality of life advantages to the Boulder community through education, entertainment and the aesthetic environment and The city and county will encourage a rich mix of cultural offerings by supporting cultural organizations, artists and creative professionals, the expression of culture and creativity in the public realm and Boulder's cultural destinations, provide a vehicle to bring together people of all walks of life and diverse ages, genders, religions, abilities, opinions, races, ethnicities, classes, and economic means for better communication and mutual understanding.~~

8.19 Public Art

~~The city and county recognize the importance of public art and the environmental vibrancy it instills. The city and county will build a high-performing public art program to encourage the installation of art in public buildings and spaces.~~

~~The city and county will incorporate artistic elements in public projects whenever possible.~~

8.20 Canyon Boulevard Cultural Corridor

~~The city will encourage public and private projects within the Canyon Boulevard Cultural Corridor to have an arts focus and to incorporate public art.~~

ENDNOTES

ⁱ ~~The changes to this chapter reflect work since the 2010 Plan including:~~

- ~~• Human Services Strategy (in progress)~~
- ~~• Homelessness Strategy (in progress)~~
- ~~• HR&A's Recommendations for Resilience Integration (2016)~~
- ~~• Community Cultural Plan (2015)~~
- ~~• Parks and Recreation Master Plan (2013)~~
- ~~• Fire-Rescue Master Plan (2011)~~
- ~~• Police Master Plan (2013)~~

ⁱⁱ Revisions based on Boulder County’s Building a Community of Support (2016 Report) and Human Service Safety Net (2014 Report) and the City of Boulder’s Human Services Strategy.

ⁱⁱⁱ New suggested policy by Planning Board. Could incorporate language from the inclusion report that regards public safety practices.

^{iv} Revisions based on Human Services Strategy guiding principles for human services delivery

^v On-going emphasis around youth engagement through YOAB, GUB, and recommendations in Community Cultural Plan Strategies.

DRAFT

ATTACHMENT A7: Proposed changes to Agriculture and Food Section

Red text represents text additions or deletions.

Green double underlined text has been relocated from elsewhere

9. Agriculture and Food

Draft – Dec. 5, 2016

~~A strong local food system can positively impact the resiliency, health, economy and environment of the Boulder Valley and surrounding region.~~ Food choices and their agricultural method of production represent one of the most significant impacts that humans have on the quality of our lives~~world around us.~~ A strong local food system can positively impact the resiliency, health, economy and environment of the Boulder Valley and its surrounding areas. Sustainable rural and urban agricultural practices and efficient short distances to transport of food can help reduce energy used to feed the community. Access to healthysafe food, including locally grown food for all Boulder residents, is a top priority for our community. It is important that such~~healthy~~ food be available to individuals and families in all neighborhoods, regardless of economic situation and location.

~~Roots in progressive food movements run deep in Boulder County and have contributed to the dynamic and thriving natural foods industry. Many local restaurants specialize in providing local ingredients in their food, garden to table processes have been developed in local schools, and the desire for a year-round farmers market are all indications of people's growing interest and demand for locally produced food.~~

The city and county have made significant contributions to the preservation of lands suitable for agricultural production, and the water needed to use these areas for agriculture. Most agricultural production in the Boulder Valley occurs on city and county open space. Agricultural lands in the Boulder Valley included tilled cropland, irrigated fields, hay fields, grazed fields, orchards, tree farms, and urban plots.

The following policies on agriculturalle and ~~access to local~~ food systems guide public policy and decision-making in to move our community toward a more robust agricultural economy and ensuring everyone has access to food.

- Support for Agriculture
- ~~Local Food Production~~
- Sustainable Food Production~~Agricultural~~ Practices
- Soil Health and Soil Carbon Sequestration
- Regional Efforts to Enhance the Food System
- Urban Gardening and Food Production
- Access to ~~Locally Produced~~ Healthy Food

9.01 Support for Agriculture

The city and county ~~will~~ encourage the preservation of working agricultural lands, and sustainable production of food on them ~~use of agricultural lands as a current and renewable~~

~~source of food and feed and for their contribution to the degree they provide~~ cultural, environmental, ~~and economic diversity and resilience~~ benefits to the community. These ~~uses~~ areas are important for preserving the rural character ~~and agriculture in~~ Area III. The success of agriculture on these lands is vitally dependent on their water supplies. The city and county will demonstrate and encourage the protection of significant agricultural areas and related water supplies and facilities, including the historic and existing ditch systems, through a variety of means, which may include public acquisition, land use planning, and sale or lease of water for agricultural use. The city and county will support farmers and ranchers in this area as they negotiate the challenges of operating in a semi-arid environment that is often near residential areas.

9.025 Urban Gardening and Food Production

The city encourages community and private gardens to be integrated in the city. City incentives include allowing flexibility and/or helping to remove restrictions for food production and sales on private lands and in shared open spaces and public areas, and encouraging rooftop gardens and composting and planting edible fruit and vegetable plants where appropriate.

9.02 Local Food Production

~~The city and county will encourage and support local food production to improve the availability and accessibility of healthy foods and to provide other educational, economic and social benefits. The city and county support increased growth, sales, distribution and consumption of foods that are healthy, sustainably produced and locally grown for all Boulder Valley residents with an emphasis on affordable access to food for everyone and long-term availability of food.~~

9.03 Sustainable Food Production and Agriculture Practices

The city and county will promote sustainable food production and agricultural practices on publicly- owned lands and will encourage them on private lands. Sustainable practices include food production methods that ~~are healthy, have low environmental impact, integrate ecological conservation objectives, enhance soil health, responsibly use water and protect its quality, provide for pollinator and beneficial insect habitat, are~~ respectful to workers, are humane to animals, provide fair wages to farmers, integrate whole farm planning and support farming communities. These can include a range of production types that take into account land suitability, water availability, invasive species, energy use and labor and capital needs. The city and county will also promote sustainable agriculture by recognizing the critical importance of delivering irrigation -water to agricultural lands.

New Policy 9.04: Soil Health and Soil Carbon Sequestration

The city and county may consider strategies to enhance soil health and sequester soil carbon on certain agricultural lands. They city and county recognize that there is baseline work to be done, such as conducting research and literature reviews, identifying relevant information gaps, and determining if and how Open Space Mountain Parks (OSMP) and county Parks and Open Space tilled lands best offer opportunities to address carbon sequestration,- beginning with limited experimentation in tilled lands.

9.05 Access to Healthy Food

The city and county will support cooperative efforts to establish community markets throughout the community and region. Such efforts include working to identify a location or develop facilities to allow one or more year-round farmers' markets, supporting sales of produce from small community gardens and working with local partners on food programs. The city and county support increased growth, sales, distribution and consumption of foods that are healthy,

sustainably produced and locally grown for all Boulder Valley residents with an emphasis on affordable access to food and long term availability of food.

9.064 Regional Efforts to Enhance the Food System

The city and county will participate in regional agricultural efforts and implement recommendations at a local level to the extent appropriate and possible.

~~9.05 Urban Gardening and Food Production~~

~~The city will encourage community and private gardens to be integrated in the city. This may include allowing flexibility and/or helping to remove restrictions for food production in shared open spaces and public areas, encouraging rooftop gardens and composting and planting edible fruit and vegetable plants where appropriate.~~

~~9.06 Access to Locally Produced Food~~

~~The city will support cooperative efforts to establish community markets throughout the community and region. Such efforts include working to identify a location or develop facilities to allow a year round farmers market and support sales of produce from small community gardens.~~

Relevant Master Plans include:

- Agriculture Resources Management Plan (in progress)
- City of Boulder Water Efficiency Plan (2016)
- HR&A's Recommendations for Resilience Integration (2016)
- 2015 State of Colorado Water Plan (2015)
- Boulder County Environmental Element (2014)
- Parks and Recreation Master Plan (2012)
- Boulder County Cropland Policy (2011)
- City of Boulder Source Water Master Plan (2009)

Final draft plan will include links to relevant policies in the Built Environment, Natural Environment, Energy and Climate, and Community Well-Being chapters

Attachment B:

Initial Concepts for BVCP

Policy Sections: 2 & 7

ATTACHMENT B1: Proposed changes to Natural Environment Section

Draft – Aug. 15, 2016

2. Built Environment

This chapter will evolve to become part of the proposed new section entitled: “*Livable Community and High Quality Built Environment*” and should accompany the Land Use Plan and newly revised Land Use Designation descriptions.

Initial changes proposed reflect policies approved since the 2010 Plan including from the: Community Cultural Plan (2015); Parks and Recreation Master Plan (2013); and Input from city Water Resources regarding ditches.

Additional proposed changes will result from the work being done such as through land use scenarios and policy choices relating to jobs/housing balance, affordable and diverse housing, and design issues. The elements of this chapter that define city structure (i.e., natural setting, individual character areas, activity centers map, mobility grid, and the public realm, and sustainable urban form definition) will likely be revised as an outcome of that work. Additional edits to policies relating to community identity/land use, rural lands preservation, neighborhoods, mixed use and higher density development, activity centers, community conservation (and Historic Preservation), and design quality may also need to be addressed.

In general, it is proposed this chapter will be updated to:

1. better convey through maps and diagrams the “elements that define Boulder’s city structure” such as “activity centers,” and now relationship of transit corridors from renewed vision for transit,
2. illustrate principles of sustainable urban form,
3. clarify guidance on neighborhood protection strategies (such as transitions and mix of complementary land uses),
4. describe and illustrate principles of quality mixed use and higher density development,
5. convey other principles of design quality (such as sensitive infill and redevelopment), and
6. provide metrics where possible.

Boulder's compact, interconnected urban form helps ensure the community's environmental health, social equity and economic vitality. It also supports cost-effective infrastructure and facility investments, a high level of multimodal mobility, and easy access to employment, recreation, shopping and other amenities, as well as a strong image of Boulder as a distinct community. The Built Environment policies help shape the form and quality of future growth in addition to protecting historic and environmental resources and preserving established neighborhood character.¹ This chapter includes:

Comment [NW1]: Consider revising language to reflect that the compact development is contained to the city's service area, a part of the Boulder Valley community as a whole.

- Elements that define Boulder's City Structure,
- Community identity,
- Rural lands preservation,
- Neighborhoods,
- Mixed use and higher density development,
- Activity centers
- Urban design linkages
- Community concertation (and historic preservation) and
- Design quality

Background

Elements That Define Boulder's City Structure

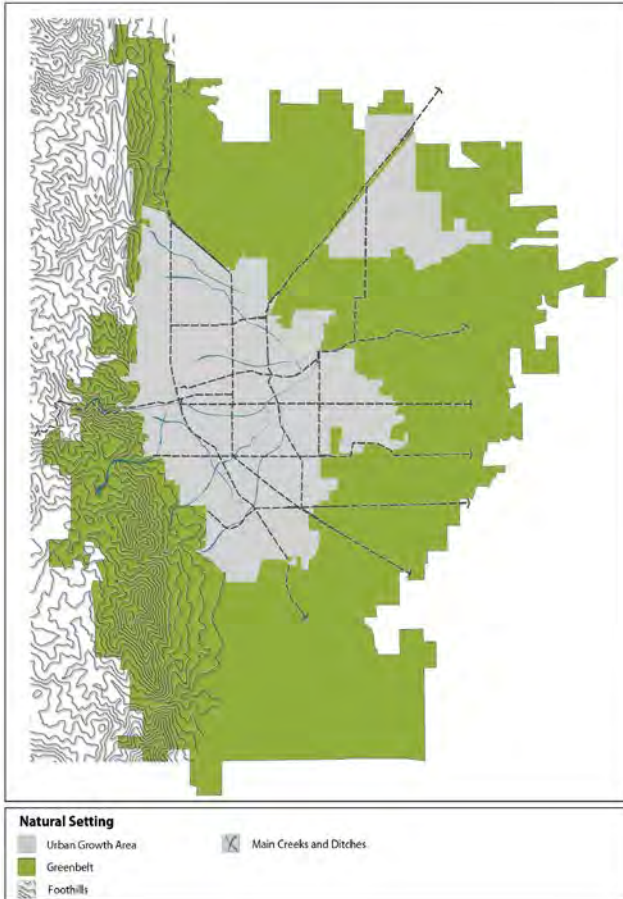
Boulder's distinctive 'sense of place' and compact size did not happen by accident. It has taken creative public policies and pragmatic planning decisions over many years to produce and preserve Boulder's unique character and physical beauty. Elements that define Boulder's city structure and support its continuing evolution to a more sustainable urban form are described below.

1. Natural Setting

Boulder's natural setting defines its size and shape.

The two most important factors that shape the City of Boulder are its mountain backdrop and surrounding greenbelt. These natural features form a clearly-defined edge that separates the urban area from the open countryside. Creeks and manmade irrigation ditches have also shaped the layout of the city. Irrigation ditches are a unique and important link between natural features and Boulder's rural and agricultural areas.

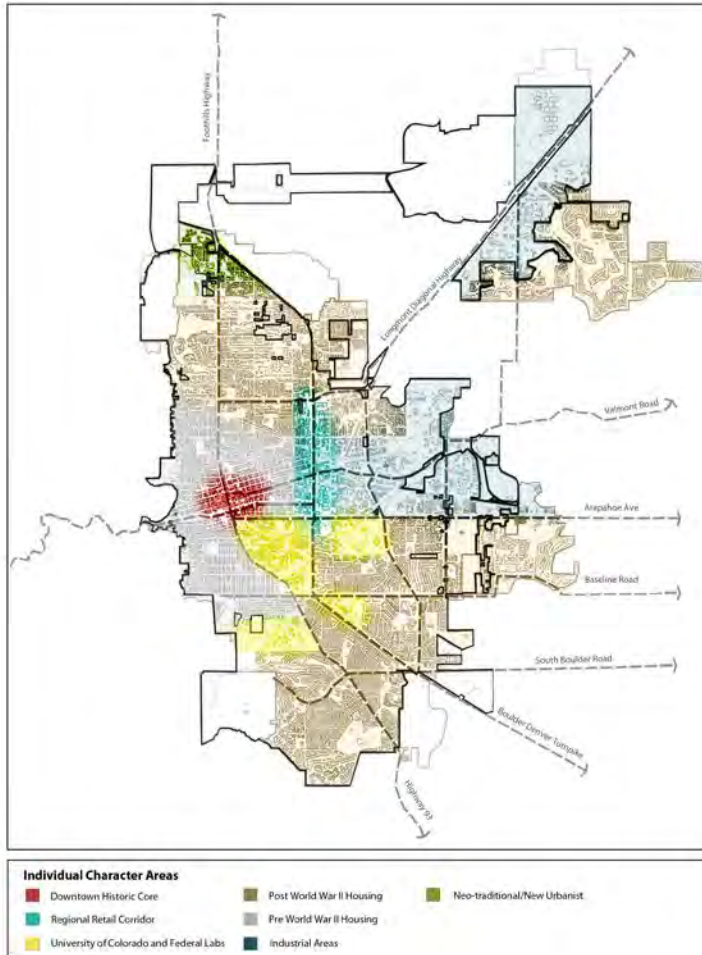
Note: Requested by water utilities and..



Note: Proposing to replace above diagram with an updated diagram or to integrate greenbelt and other "natural setting" features into "Structure Plan."

2. Individual Character Areas

Different parts of Boulder are distinguished by their individual character. Boulder's city structure is also defined by the individual character and distinctive qualities of its different areas, drawing on each area's unique history, development pattern, land uses, amenities and other factors. Some of the more distinctive character areas within the city are: the downtown historic core and surrounding pre-World War II residential neighborhoods, the 28th/30th Street regional retail corridor, the University and federal lab campuses, the industrial areas in East Boulder and Gunbarrel, the post-World War II residential neighborhoods and the North Boulder neo-traditional/New-Urbanist neighborhoods.



Note: Proposing to integrate above Character Areas into the "Structure Plan" map.

3. **Activity Centers**

Activity centers concentrate activities into nodes at a variety of scales. Centers are places where a mix of land use and commercial activities are concentrated.

Boulder's commercial, entertainment, educational and civic regional and neighborhood centers are distributed throughout the community as shown on the Structure Plan map ~~focused in concentrated nodes of activities at a variety of scales distributed throughout the community.~~

Regional Centers

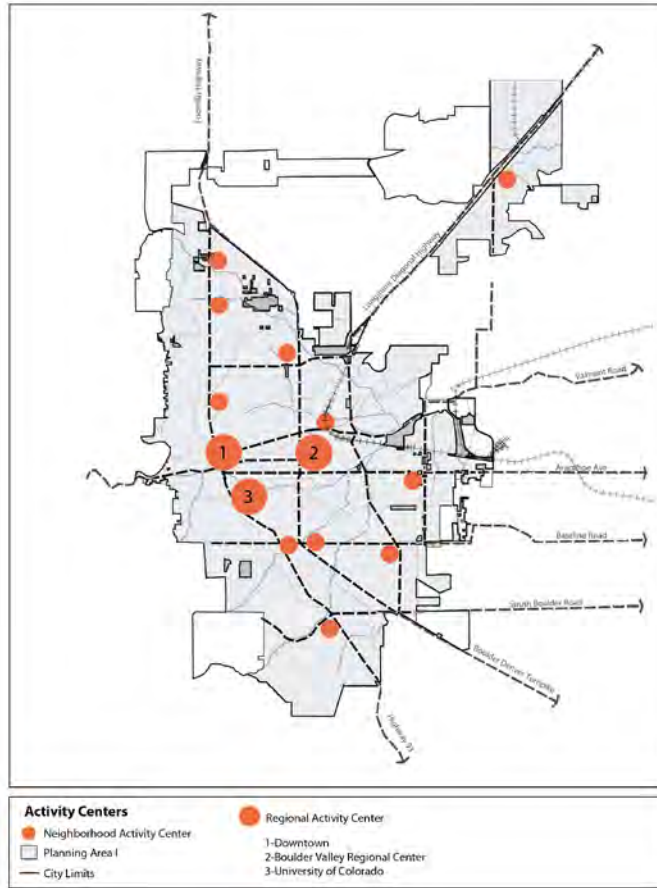
At the highest level of intensity are the city's three regional centers. They form a triangle at Boulder's geographic center: the Historic Downtown, the Boulder Valley Regional Center (BVRC), and the University of Colorado (CU) with the University Hill business district, which also serves as a neighborhood center for the surrounding area. Each regional center has a distinct function and character, provides a wide range of activities and draws from the entire city as well as the region.

Note: Include a new policy to convey the intent of the regional center – their character (e.g.: regional centers...) and show illustrations.

Neighborhood Centers

The next tier of intensity is neighborhood activity centers. In addition to serving as neighborhood gathering places, these centers also provide goods and services for the day-to-day needs of nearby residents, workers and students, and are easily accessible from surrounding areas by foot, bike and transit.

Note: include a new policy or clarify language above to convey the intent of the neighborhood center, and their important role in neighborhoods, particularly in achieving "15-minute" goals. Also, how "new" centers might come to be designated. (criteria) Show illustrations.



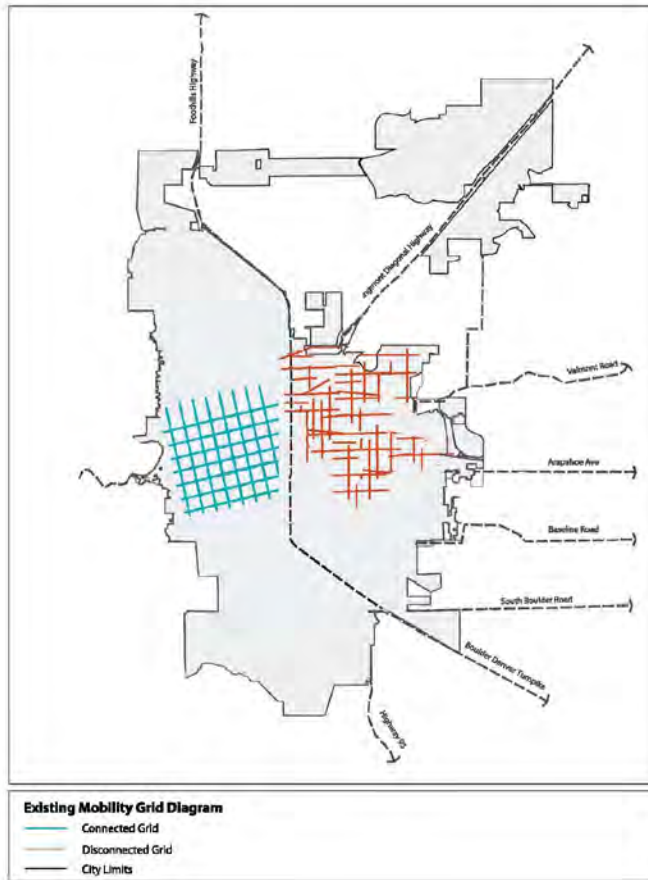
Note: These "centers" will be integrated into the "Structure Plan" map and labeled.

4. Mobility Grid

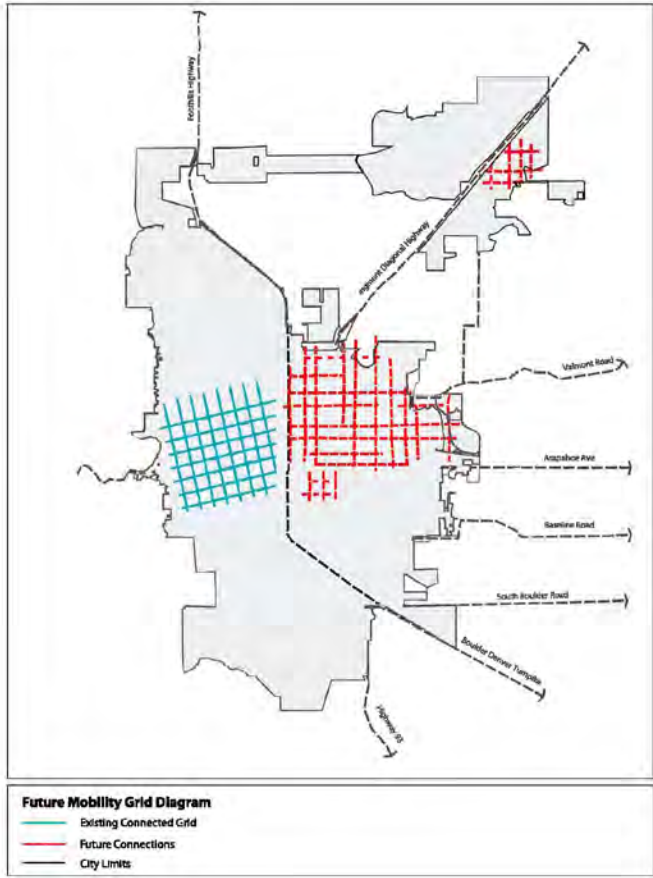
Boulder's 'mobility grid' interconnects the city.

Boulder's 'mobility grid'—the system of streets, alleys, transit corridors, multi-use and greenway paths—interconnects the city and both serves and reflects the city's land use pattern. Networks for vehicles, bicycles, pedestrians and transit—sometimes shared, sometimes separate—overlay the city and create a lacework of movement between and within regional centers, neighborhood centers, and residential and employment areas. In general, the western historic neighborhoods of the city have a fine-grained, walkable and bikeable street grid, whereas other parts of the city, for example, East Boulder, have larger, more car-oriented super-blocks. Over time, the city seeks to extend a more pedestrian and bike-friendly mobility grid to all parts of the community.

Comment [EL2]: Get input from transportation staff. Any edits.



Note: Make these diagrams smaller to support the policy language and add a new map (or include in Structure Map" new "transit mobility diagram and streets maps from TMP")

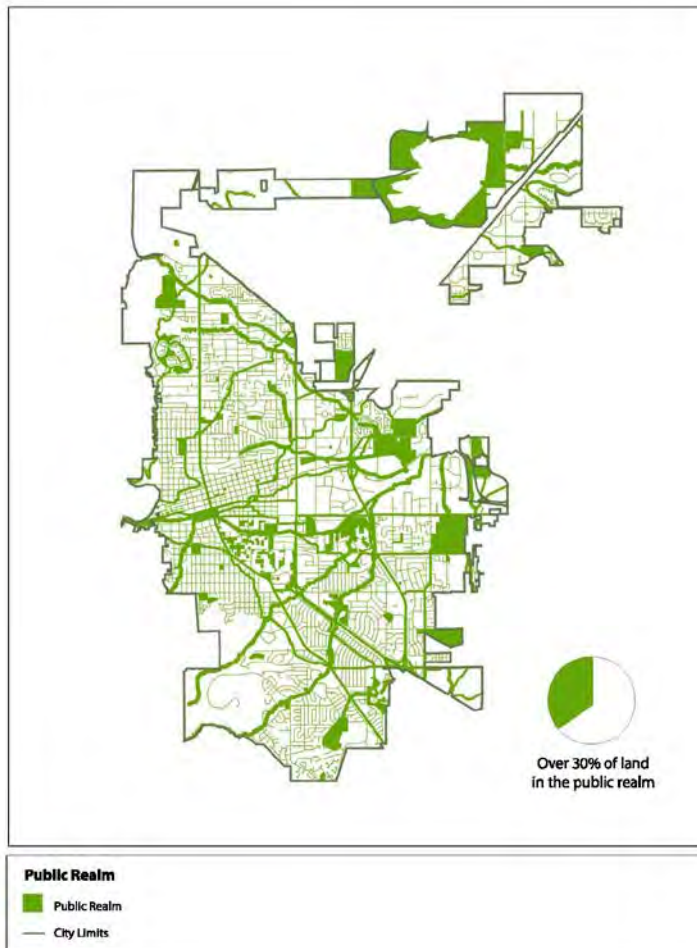


5. The Public Realm

The public realm provides key functions and strongly influences character and aesthetics.

The public realm includes the city's streets, sidewalks and paths, [ditches](#)ⁱⁱ, parks, plazas and other urban outdoor spaces. It comprises a large portion of Boulder's land and represents a substantial public investment. The design of the public realm plays a major role in defining the character, identity and aesthetic quality of the city overall and individual neighborhoods. It also serves a variety of important functions: transportation, passive and active recreation, gathering places, opportunities to connect to nature, [opportunity to express culture, creativity and arts](#), enhancement of air and water quality, and mitigation of urban heat island effects.

Note: add resilience, greenbelts and co-benefits of designing for multiple purposes. Above language reflects input from water utilities and community cultural plan.

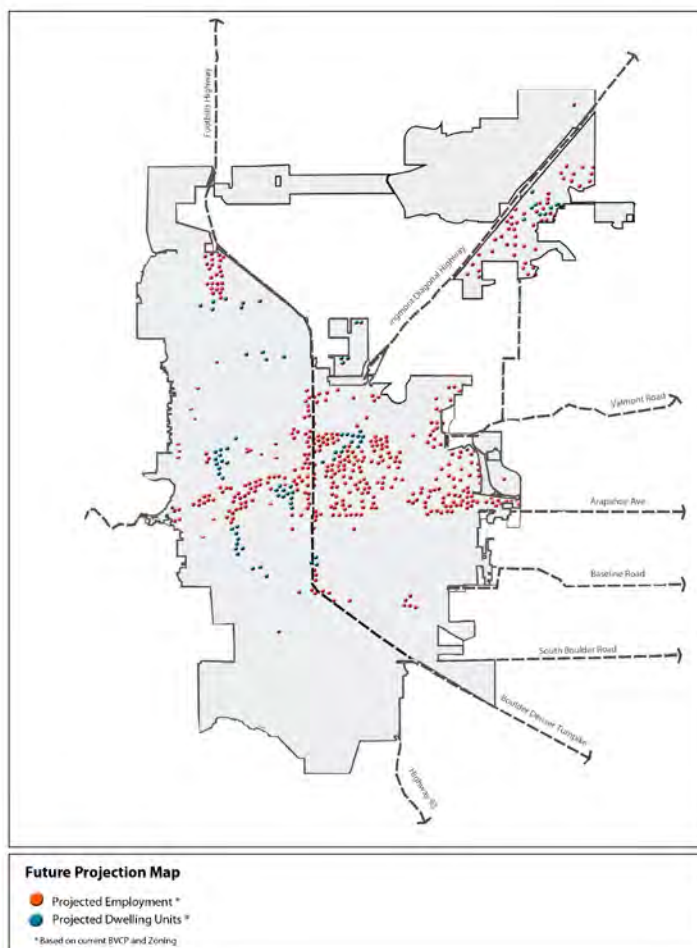


Note: integrate above map into Structure Map.

Projected Growth

This diagram illustrates where housing and jobs could be added within the city Service Area through development of vacant parcels and redevelopment of properties under current plans and regulations. **The Built Environment policies help shape the form and quality of future growth, in addition to protecting historic and environmental resources and preserving established neighborhood character.**

Note: Above language is a mix of policies, not necessarily relating to projected growth. Need to update this diagram with 2015 projections and discuss whether it belongs in this chapter or elsewhere in the plan.



Sustainable Urban Form Definition

Note: discuss whether and how this might be updated to become most useful. Should it be framed as a policy?

The city's urban form is shaped by the location and design of streets, paths and open spaces; the mix of uses and activities that are allowed in each area of the city; and the design and intensity of development and public improvements. The city's goal is to evolve toward an urban form that supports sustainability. This "sustainable urban form" is defined by the following components:

Compact:

- A compact development pattern with density in appropriate locations to create and support viable, long term commercial opportunities and high frequency public transit.

(Note: To reduce ambiguity, suggest replacing "density in appropriate locations" with "urban land uses and density in locations guided by the Structure Map and Land Use Map" to reduce ambiguity.)

Connected:

- An integrated multimodal system with abundant, convenient and pleasant ways to get around on foot, by bike, and by local and regional transit service.
- Opportunities for people to connect to nature and natural systems.

Complete:

- Daily needs within easy ("15-minute") access from home, work or school without driving a car.
- A quality of life that attracts, sustains and retains diverse businesses, creative entrepreneurs and investment in the local economy.

Green, Attractive and Distinct:

- Comfortable, safe, and attractive places to live, work, learn and recreate that have a distinct, memorable character and high-quality design and that promote healthy, active living.
- A public realm that is beautiful, well-used and enriched with art, trees and landscaping.
- Buildings, streets, utilities and other infrastructure that protect natural systems, minimize energy use, urban heat island effects and air and water pollution, and support clean energy generation.
- Preservation of agriculturally significant lands, environmentally sensitive areas and historic resources.

Inclusive:

- A diversity of employment, housing types, sizes and prices, and other uses to meet the needs of a diverse community.
- Welcoming, accessible public gathering spaces for interaction among people of all ages, walks of life and levels of ability.

Community Identity/Land Use Pattern

2.01 Unique Community Identity

The unique community identity and sense of place that is enjoyed by residents of the Boulder Valley and characterized by the community's setting and history will be respected by policy decision makers.

2.02 Physical Separation of Communities

The city and county will strive to maintain and enhance an open land buffer that separates development in the Boulder Valley from surrounding communities and contributes to distinct community identities.

2.03 Compact Development Pattern

The city and county will, by implementing the Boulder Valley Comprehensive Plan, ensure that development will take place in an orderly fashion, take advantage of existing urban services, and avoid, insofar as possible, patterns of leapfrog, noncontiguous, scattered development within the Boulder Valley. The city prefers redevelopment and infill as compared to development in an expanded Service Area in order to prevent urban sprawl and create a compact community.

2.04 Open Space Preservation

The city and county will permanently preserve lands with open space values by purchasing or accepting donations of fee simple interests, conservation easements or development rights and other measures as appropriate and financially feasible. Open space values include use of land for urban shaping and preservation of natural areas, environmental and cultural resources, critical ecosystems, water resources, agricultural land, scenic vistas and land for passive recreational use.

2.05 Design of Community Edges and Entryways

Well-defined edges and entryways for the city are important because they support an understanding and appreciation of the city's image, emphasize and preserve its natural setting, and create a clear sense of arrival and departure. Natural features are most effective as edges, but public open land, major roadways or heavy tree planting can also function as community edges. As new areas are developed, the definition of a community edge will be a design priority. Major entryways into the Boulder Valley will be identified, protected and enhanced.

Rural Lands Preservation

2.06 Preservation of Rural Areas and Amenities

The city and county will attempt to preserve existing rural land use and character in and adjacent to the Boulder Valley where environmentally sensitive areas, hazard areas, agriculturally significant lands, vistas, significant historic resources, and established rural residential areas exist. A clear boundary between urban and rural areas at the periphery of the city will be maintained, where possible. Existing tools and programs for rural preservation will be strengthened and new tools and programs will be put in place.

2.07 Delineation of Rural Lands

Area III consists of the rural lands in the Boulder Valley, outside the Boulder Service Area. The Boulder Service Area includes urban lands in the city and lands planned for future annexation and urban service provision. Within Area III, land is placed within one of two classifications: the Area III-Rural Preservation Area or the Area III-Planning Reserve Area. The boundaries of these two areas are shown on the Area III-Rural Preservation Area and Area I, II, III Map. The more specific Area III land use designations on the Boulder Valley Comprehensive Plan map indicate the type of non-urban land use that is desired as well as recognize those county developments that have or can still develop at other than rural densities and uses. The Area III-Rural Preservation Area is intended to show the desired long-term rural land use; the Area III-Planning Reserve Area is an interim classification until it is decided whether or not this land should be placed in the Area III-Rural Preservation Area or in the Service Area.

a) Area III-Rural Preservation Area

The Area III-Rural Preservation Area is that portion of Area III where rural land uses and character will be preserved through existing and new rural land use preservation techniques and no new urban development will be allowed during the planning period. Rural land uses to be preserved to the greatest possible extent include: rural town sites (Eldorado Springs, Marshall and Valmont); existing county rural residential subdivisions (primarily along Eldorado Springs Drive, on Davidson Mesa west of Louisville, adjacent to Gunbarrel, and in proximity to Boulder Reservoir); city and county acquired open space and parkland; sensitive environmental areas and hazard areas that are unsuitable for urban development; significant agricultural lands; and lands that are unsuitable for urban development because of a high cost of extending urban services or scattered locations, which are not conducive to maintaining a compact community.

b) Area III-Planning Reserve Area

The Area III-Planning Reserve Area (PRA) is that portion of Area III with rural land uses where the city intends to maintain the option of limited Service Area expansion. The location and characteristics of this land make it potentially suitable for new urban development, based on the apparent lack of sensitive environmental areas, hazard areas, and significant agricultural lands, the feasibility of efficient urban service extension, and contiguity to the existing Service Area, which maintains a compact community.

2.08 Rural Density Transfer

The city and county will jointly determine criteria and areas for transfer of development rights (TDRs) within or in proximity to the Boulder Valley, in order to secure conservation easements on valuable rural lands from which density may be transferred and shift those rural residential densities to appropriate urban settings where the negative impacts of growth can be better mitigated or avoided.

Neighborhoods

2.09 Neighborhoods as Building Blocks

The city and county will foster the role of neighborhoods to establish community character, provide services needed on a day-to-day basis, foster community interaction, and plan for urban design and amenities. All neighborhoods, whether residential areas, business districts, or mixed

land use areas, should offer unique physical elements of neighborhood character and identity, such as distinctive development patterns or architecture; historic or cultural resources; amenities such as views, open space, creeks, irrigation ditches, and varied topography; and distinctive community facilities and business areas.

2.10 Preservation and Support for Residential Neighborhoods

The city will work with neighborhoods to protect and enhance neighborhood character and livability and preserve the relative affordability of existing housing stock. The city will seek appropriate building scale and compatible character in new development or redevelopment, appropriately sized and sensitively designed streets and desired public facilities and mixed commercial uses. The city will also encourage neighborhood schools and safe routes to school.

Note: Scenarios and prototypes may provide more specific concrete examples of transitions and “compatibility” that could be included in this policy or used to help illustrate its intent.

2.11 Accessory Units

Consistent with existing neighborhood character, accessory units will be encouraged in order to increase rental housing options in single family residential neighborhoods. Regulations developed to implement this policy will address potential cumulative negative impacts on the neighborhood. Accessory units will be reviewed based on the characteristics of the lot, including size, configuration, parking availability, privacy and alley access.

Note: Prototypes and “gentle infill” examples might help inform any potential changes to this policy.

2.12 Preservation of Existing Residential Uses

The city will encourage the preservation or replacement in-kind of existing, legally established residential uses in non-residential zones. Non-residential conversions in residential zoning districts will be discouraged, except where there is a clear benefit or service to the neighborhood.

2.13 Protection of Residential Neighborhoods Adjacent to Non-residential Zones

The city and county will take appropriate actions to ensure that the character and livability of established residential neighborhoods will not be undermined by spill-over impacts from adjacent regional or community business zones or by incremental expansion of business activities into residential areas. The city and county will protect residential neighborhoods from intrusion of non-residential uses by protecting edges and regulating the impacts of these uses on neighborhoods.

Note: Scenarios and prototypes may provide more specific concrete examples of transitions and “compatibility” that could be included in this policy or used to help illustrate its intent (and the intent of the next policies, 2.14 and 2.15).

2.14 Mix of Complementary Land Uses

The city and county will strongly encourage, consistent with other land use policies, a variety of land uses in new developments. In existing neighborhoods, a mix of land use types, housing sizes and lot sizes may be possible if properly mitigated and respectful of neighborhood character. Wherever land uses are mixed, careful design will be required to ensure

compatibility, accessibility and appropriate transitions between land uses that vary in intensity and scale.

2.15 Compatibility of Adjacent Land Uses

To avoid or minimize noise and visual conflicts between adjacent land uses that vary widely in use, intensity or other characteristics, the city will use tools such as interface zones, transitional areas, site and building design and cascading gradients of density in the design of subareas and zoning districts. With redevelopment, the transitional area should be within the zone of more intense use.

Mixed Use and Higher Density Development

2.16 Mixed Use and Higher Density Development

The city will encourage well-designed mixed use and higher density development that incorporates a substantial amount of affordable housing in appropriate locations, including in some commercial centers and industrial areas and in proximity to multimodal corridors and transit centers. The city will provide incentives and remove regulatory barriers to encourage mixed use development where and when appropriate. This could include public-private partnerships for planning, design or development; new zoning districts; and the review and revision of floor area ratio, open space and parking requirements.

~~Activity~~ Centers

2.17 Variety of ~~Activity~~ Centers

The city and county support a variety of regional, ~~sub~~community and neighborhood ~~activity~~ centers where people congregate for a variety of activities such as working, shopping, going to school or day care, accessing human services and recreating. Activity centers should be located within walking distance of neighborhoods and business areas and designed to be compatible with surrounding land uses and intensity and the context and character of neighborhoods and business areas. Good multimodal connections to and from activity centers and accessibility for people of all ages and abilities will be encouraged.

Note: Would suggest defining the role of each type a bit more (e.g., regional, commercial, and neighborhood centers). Some may be within walking distance, whereas regional centers serve a larger role and are probably less walkable.

2.18 Role of the Central Area

~~The central Boulder's Central~~ area will continue as the regional service center of the Boulder Valley for office, retail, financial, governmental, medical, cultural and university activities. As such, it will remain the primary activity center and focal point of the Boulder Valley. The central area includes distinct, interrelated ~~activity~~ centers such as the Downtown Business District, ~~University of Colorado University Hill, Canyon Boulevard Cultural Corridor,~~ and Boulder Valley Regional Center. ~~It also includes the University of Colorado main campus is adjacent, and Canyon Boulevard Cultural Corridor is a part of it.~~ A variety of land uses surrounds these ~~activity~~

Comment [NW3]: Fix language here.

centers, and [complete streets and multi-modal](#) transportation alternatives provide direct connections between them.

Note: Clarify – is this the “Central” Subcommunity? Reference a map

Public Realm, Urban Design and Linkages

2.19 Urban Open Lands

Open lands within the fabric of the city [are an important part of](#) ~~constitute~~ Boulder’s public realm and provide recreational opportunities, transportation linkages, gathering places and density relief from the confines of the city, as well as protection of the environmental quality of the urban environment. The city will promote and maintain an urban open lands system to serve the following functions: active and passive recreation, environmental protection, flood management, multimodal transportation, enhancement of community character and aesthetics.

2.20 Boulder Creek, Tributaries and Ditches as Important Urban Design Features

Boulder Creek, its tributaries and irrigation ditches will serve as unifying urban design features for the community [with multiple co-benefits for a resilient community](#). The city and county will support the preservation or reclamation of the creek corridors for natural ecosystems, wildlife habitat and cultural resources; for recreation and bicycle and pedestrian transportation; to provide flood management; to improve air and water quality; and to provide a [relief from](#) ~~contrast to~~ urban development. Path [and trail design and development in these greenways](#) will be sensitive to the ecology, terrain and privacy of adjacent residents and surroundings. [The city and county will support agriculture by recognizing and accommodating irrigation ditch maintenance practices and operations.](#)

2.21 Commitment to a Walkable and Accessible City

The city and county will promote the development of a walkable and accessible city by designing neighborhoods and [mixed use](#) business areas to provide easy and safe access by foot to places such as neighborhood centers, community facilities, transit stops or centers, and shared public spaces and amenities. The city will consider additional neighborhood-serving commercial areas where appropriate and supported by the neighbors they would serve.

Note: add any other relevant 15-minute neighborhood principles here.

2.22 Improve Mobility Grid and Connections

The walkability, bikeability and transit access should be improved in parts of the city that need better connectivity and mobility, for example, in East Boulder. This should be achieved by coordinating and integrating land use and transportation planning and will occur through both public investment and private development.

Comment [EL4]: Transportation team should review and provide input.

2.23 Trail Corridors/Linkages

In the process of considering development proposals, the city and county will encourage the development of paths and trails where appropriate for recreation and transportation, such as walking, hiking, bicycling or horseback riding. Implementation will be achieved through the coordinated efforts of the private and public sectors.

Community Conservation and Preservation

2.24 Preservation of Historic and Cultural Resources

The city and county will identify, evaluate and protect buildings, structures, objects, districts, sites and natural features of historic, architectural, archaeological, or cultural significance with input from the community. The city and county will seek protection of significant resources through local designation when a proposal by the private sector is subject to discretionary development review.

2.25 Leadership in Preservation: City- and County-Owned Resources

The city and county will evaluate their publicly owned properties to determine their historical, architectural, archaeological or cultural significance. Eligible resources will be protected through local designation. Secondary structures that are part of and convey the cultural significance of a site, such as a farm complex and alley structure, should be retained and preserved as well.

2.26 Historic and Cultural Preservation Plan

The city and county will develop a Boulder Valley-wide preservation plan in order to: integrate historic preservation issues into the Boulder Valley Comprehensive Plan; ensure coordination between preservation goals and zoning, land use, growth management, transportation and housing goals; and ensure consistency among governmental policies that affect the community's historic, archeological and cultural resources. Preservation plans will be developed with public and landowner participation. Add: The city will continue to implement its Historic Preservation Plan.

2.27 Eligible Historic Districts and Landmarks

The city has identified areas that may have the potential to be designated as historic districts. The Designated and Eligible Historic Districts map shows areas with designation potential, as well as areas that are already designated as historic districts. There are also many individual buildings of landmark quality both within and outside of these eligible areas. Additional historic district and landmark designation will be encouraged.

2.28 Historic Preservation/Conservation Tools

As guided by the Historic Preservation Plan, the city will develop a variety of tools that address preservation and conservation objectives within the community. Specific tools that address historic preservation and conservation objectives will be matched to the unique needs of specific areas. Preservation tools may include incentives programs, designation of landmark buildings and districts, design review, and public improvements. Conservation districts, easements and other tools may be applied in areas that do not qualify as local historic districts but contain features that contribute to the quality of the neighborhood or community. These could include historic resources that have lost integrity, neighborhoods with significant character but that are not historically significant, and scattered sites that share a common historic or architectural theme.

Comment [EL5]: Is this all necessary, or is there new language from the plan that could replace it (more simply)? Sent to Marcy and James for comments.

2.29 Preservation of Archaeological Sites and Cultural Landscapes

The city will develop a plan and processes for identification, designation and protection of archaeological and cultural landscape resources, such as open ditches, street and alleyscapes, railroad rights-of-way, and designed landscapes.

Note: add cultural tourism per PB's comments.

Design Quality

2.30 Sensitive Infill and Redevelopment

With little vacant land remaining in the city, most new development will occur through redevelopment. The city will gear subcommunity and area planning and other efforts toward defining the acceptable amount of infill and redevelopment and standards and performance measures for design quality to avoid or adequately mitigate negative impacts and enhance the benefits of infill and redevelopment to the community and individual neighborhoods. The city will also develop tools, such as neighborhood design guidelines, to promote sensitive infill and redevelopment.

Key Policy Choice: Community Benefit policy could be spelled out a bit more here. (it's implementation would be through the Land Use Code and site review.)

2.31 Design of Newly-Developing Areas

The city will encourage a neighborhood concept for new development that includes a variety of residential densities, housing types, sizes and prices, opportunities for shopping, nearby support services and conveniently sited public facilities, including roads and pedestrian connections, parks, libraries and schools.

Note: this policy as currently worded as limited applicability. Should it also apply to redeveloping areas?

2.32 Physical Design for People

The city and county will take all reasonable steps to ensure that public and private development and redevelopment be designed in a manner that is sensitive to social, health and psychological needs. Broadly defined, this will include factors such as accessibility to those with limited mobility; provision of coordinated facilities for pedestrians, bicyclists and bus-riders; provision of functional landscaping and open space; and the appropriate scale and massing of buildings related to neighborhood context.

2.33 Environmentally Sensitive Urban Design

For capital improvements and private development, the city and county will strive to ensure that buildings, streets, utilities and other infrastructure are located and designed to protect natural systems, minimize energy use, reduce urban heat island effects and air and water pollution, and support clean energy generation.

2.34 Importance of Street Trees and Streetscapes

The city and county will develop regulations and programs to encourage the planting and maintenance of attractive, healthy street trees and streetscapes, which act as the primary connection between the private and public realm and provide aesthetics, comfort, cleaner air, and other environmental benefits for the public realm.

2.35 Outdoor Lighting/Light Pollution

The city and county will encourage the efficient use of outdoor lighting to reduce light pollution and conserve energy while providing for public safety. The city will seek to provide a nighttime environment that includes the ability to view the stars against a dark sky so that people can see the Milky Way Galaxy from residential and other appropriate viewing areas. Measures such as using more energy-efficient lights, ensuring that the level of outdoor lighting is appropriate to the application, minimizing glare, and using shielding techniques to direct light downward will be required.

2.36 Design Excellence for Public Projects

Public projects bear a special responsibility to exhibit design excellence. The city and county will work to ensure that new capital projects and transportation facilities are visually attractive and contribute positively to the desired community character.

2.37 Enhanced Design for Private Sector Projects

Through its policies and programs, the city will encourage or require quality architecture and urban design in private sector development that encourages alternative modes of transportation, provides a livable environment and addresses the elements listed below.

Note: Address the following topics through community benefit policy, and eliminate any language that is redundant with previous policies (or x-reference instead.)

a) The context. Projects should become a coherent part of the neighborhood in which they are placed. They should be preserved and enhanced where the surroundings have a distinctive character. Where there is a desire to improve the character of the surroundings, a new character and positive identity as established through area planning or a community involvement process should be created for the area. Special attention will be given to protecting and enhancing the quality of established residential areas that are adjacent to business areas.

(note: seems to repeat some previous sections. Suggest cross referencing or streamlining)

b) Relationship to the public realm. Projects should relate positively to public streets, plazas, sidewalks, paths, ~~ditches~~ and natural features. Buildings and landscaped areas—not parking lots—should present a well-designed face to the public realm, should not block access to sunlight, and should be sensitive to important public view corridors. Future strip commercial development will be discouraged. Project sponsors should collaborate with irrigation ditch companies on design and construction. Where possible, projects elements should educate and inform about the connection between irrigation ditches and agricultural lands.

Note: request by water utilities.

c) Transportation connections. Projects should provide a complete network of vehicular, bicycle and pedestrian connections both internal to the project and connecting to adjacent properties, streets and paths, including dedication of public rights-of-way and easements where required.

d) Human scale and public spaces. Projects should provide pedestrian interest along streets, paths and thoughtfully designed public spaces that support a-mix of events and destinations, and art.

Add New Language: Encourage individuals, businesses, organizations, and developers to invest in improvements to public spaces through the addition of meaningful, innovative, and quality works of art. Model investment in public art at city.

Note: from Community Cultural Plan

e) Permeability. Projects should provide multiple opportunities to walk from the street into projects, thus presenting a street face that is permeable. Where appropriate, they should provide opportunities for visual permeability into a site to create pedestrian interest.

f) On-site open spaces. Projects should incorporate well-designed functional open spaces with quality landscaping, access to sunlight and places to sit comfortably. Where public parks or open spaces are not within close proximity, shared open spaces for a variety of activities should also be provided within developments.

g) Buildings. Buildings should be designed with a cohesive design that is comfortable to the pedestrian, with inviting entries that are visible from public rights of way. Design innovation and the use of high quality building materials are encouraged.

ⁱ This is language pulled from later in the chapter which seems to belong at the beginning.

ⁱⁱ Water utilities has requested that ditches get removed from “public” realm, since they are not truly public. They are part of natural features as noted in previous section.

ATTACHMENT B2: Proposed changes to Housing Section

7. Housing

Draft – Aug. 19, 2016, updated Dec. 9, 2016

Note: This is one of the plan chapters. Policies related to neighborhoods, design and character appear in the Built Environment chapter under a separate cover.

As noted throughout, these draft policy amendments contain some key policy choices.

To a large extent, ~~the~~ range of available housing opportunities in a community helps to define what the community is and what it has the potential to be. The social, economic and environmental well-being of the community is enhanced when individuals and families are retained, workforce housing is available, and ~~existing~~ residents with changing or special housing needs are served. The Boulder Valley Comprehensive Plan, which identifies desired locations, densities and types of housing planned for Boulder, is an integral link in the community's housing strategy. Through a variety of policies, programs and regulations, the type, number, and affordability of new and existing housing units can be influenced, and programs and assistance made available to those who have limited resources or special needs.

The high cost of local housing results in many households paying a disproportionate amount of their income for housing or moving farther from their work in order to find housing that they can afford. Households who are burdened by housing costs or by the combined costs of housing and transportation have less money available for other necessities and may find it difficult to actively participate in the community, ~~which~~. This can lead to a more transient and less stable workforce, additional demands on supportive human services and to an exclusion of key members of our society from the civic infrastructure.

Emerging trends facing the community include:

- ~~Growth in the An aging senior~~ population;
- Loss of middle income households;
- The addition of 5,000 university students by 2030 CU's anticipated continued student growth;
- The growing difficulty of providing affordable housing attractive to families with children in a land-constrained community; and
- The need to evaluate regulations to creatively accommodate an expanding variety of household types, including multi-generational households.

Therefore, the policies in this section support the following city and county goals related to housing:

- Local Support for Community Housing Needs
- Preserve and Enhance Housing Choices
- Advance and Sustain Diversity
- Integrate Growth and Community Housing Goals

Note: Changes to the Intro reflect work done through the Housing Boulder project and the studies conducted by BBC Research and Consulting. They also provide additional clarification on the impacts of cost burdened households. Also, language is updated throughout to reflect current terminology related to how the city implements the affordable housing program to include middle income households (e.g., policies 7.01, 7.07, 7.11).

Comments received to date:

- put more emphasis on current housing challenges using long term trends
- add language about the importance of diverse housing types and price ranges in terms of retaining socio-economic diversity, creating an inclusive community, and promoting cultural richness.

Local Support for Community Housing Needs

7.01 Local Solutions to Affordable Housing

The city and county will employ local regulations, policies, and programs to meet the housing needs of ~~their~~ low ~~and~~, moderate and middle income households ~~and workforce~~. Appropriate federal, state and local programs and resources will be used locally and in collaboration with other jurisdictions. The city recognizes that affordable housing provides a significant community benefit and will continually monitor and evaluate its policies, programs and regulations to further the city's affordable housing goals.

7.02 Permanently Affordable Housing Goals

The city will increase the proportion of ~~permanently affordable~~ housing units permanently affordable to low and moderate income households to an overall goal of at least ten percent of the total ~~existing~~ housing stock and increase the proportion of market-rate housing and housing units permanently affordable to middle income households as described in the Middle Income Housing Strategy. These goals will be achieved through regulations, financial subsidies and other means. City resources will also be directed toward maintaining existing permanently affordable housing units and increasing the stock of permanent affordable housing through preservation of existing housing within the city. securing replacements for lost low and very low income units

Note: This language includes a new middle income housing goal (as directed by the 2016 Middle Income Housing Strategy) that provides market rate affordable housing as well as deed restricted permanently affordable units for middle income households (www.housingboulder.net).

Comments received to date:

-provide a no net loss of affordable housing policy

7.03 Populations with Special Needs

The city and county will encourage development of housing for populations with special needs, including residences for people with disabilities, populations requiring group homes or other specialized facilities, and other vulnerable populations. ~~where appropriate~~. The location of such housing should be in proximity to shopping, medical services, schools, entertainment and public transportation services and transportation options appropriate for the population being housed. ~~Every effort~~ will be made to avoid concentration of these homes in one area.

Note: This language is aimed at continuing the policy to avoid overconcentration in one part of the community and ensuring that housing is near services and transportation. The language replaces a specific list of amenities with a more general description.

7.04 Strengthening Community Housing Partnerships

The city will create and preserve partnerships dedicated to the community's housing needs by supporting ~~private and~~ nonprofit agencies and private entities that create and maintain permanently affordable housing in the community, and fostering nonprofit and private sector partnerships. The city recognizes the role of the university in the housing market and will

encourage the University of Colorado and other post-secondary institutions in their efforts to increase the amount of on-campus housing.

7.05 Strengthening Regional Housing Cooperation

Affordable housing is a regional issue that requires the city and county to work with other public and private partners to develop regional housing solutions. The city and the county will work to enhance regional cooperation on housing issues to address regional housing needs and encourage the creation of housing in proximity to regional transit routes. Such efforts include the Regional HOME Consortium and the Ten Year Plan to Address Homelessness.

Note: New language to better recognize the regional nature of the issue and work being done with regional partners to address regional affordability.

Preserve and Enhance Housing Choices

7.06 Mixture of Housing Types

The city and county, through their land use regulations and housing policies will encourage the private sector to provide and maintain a mixture of housing types with varied prices, sizes and densities, to meet the housing needs of the full range of the Boulder Valley population. The city will encourage developers to provide a mix of housing types within each development.

Note: The mix and diversity of housing has been an existing policy, but a lot of developments are not yielding a mix. This language strengthens and defines the intent.

7.07 Preserve Existing Housing Stock

The city and county, recognizing the value of their existing housing stock, will encourage its preservation and rehabilitation through its land use policies and regulations. Special efforts will be made to preserve and rehabilitate existing housing serving low, ~~and~~ moderate, and middle income ~~individuals and~~ households.

7.08 Preservation and Development of Manufactured Housing

Recognizing the importance of manufactured housing as an option for many households, the city and county will encourage the preservation of existing mobile home parks and the development of new manufactured home parks, including increasing opportunities for resident-owned parks. ~~Whenever~~ If an existing mobile home park is found in a hazardous area to have health or safety issues, ~~every reasonable~~ efforts will be made to reduce or eliminate the ~~hazard issues~~, when feasible, or to help mitigate for the loss of housing through relocation of affected households.

Note: Clarifies that hazards are specific to health and safety issues.

Advance and Sustain Diversity

7.09 Housing for a Full Range of Households

The city and county will encourage preservation and development of housing attractive to current and future households, persons at all stages of life, and to a variety of

household [incomes and](#) configurations. This includes singles, couples, families with children and other dependents, extended families, non-traditional households and seniors.

Note: Language is slightly modified to reflect goals for low, moderate, and middle incomes.

7.10 Balancing Housing Supply with Employment Base

Expansion of the Boulder Valley housing supply should reflect to the extent possible current [and employer locations](#), projected [employer workforce housing needs, industrial/commercial development sites](#) ~~the resulting variety of~~ salary ranges, and the demand such developments bring for housing employees. Key considerations include housing type, mix, and affordability. The city will explore policies and programs to increase housing for Boulder workers [and their families](#) by fostering mixed-use and multifamily development proximate to transit, employment or services, and by considering the conversion of commercial and industrial zoned or designated land to residential use.

Note: Language slightly refined to address jobs:housing balance workforce housing needs and balance of housing supply with employment base.

Comments received to date:

-Paragraph is redundant and implies a growth on growth approach to growth management.

Growth and Community Housing Goals

7.11 Incorporate Mix of Housing in Future Service Area

In considering future expansion of the Service Area, the city will identify possible sites for housing that serves low ~~and~~ moderate [and middle](#) income households. Designation of land uses in new growth areas will provide for a mixture of housing types, [sizes](#) and densities ~~in order~~ to meet the diversity of housing needs.

Note: Provides consistent language on the income groups the city serves through the various housing programs. Includes size as an important part of providing a mixture of housing to meet housing needs.

7.12 Conversion of Residential Uses in the Community

The city will evaluate and revise its regulations to reduce the opportunities for the conversion of residential uses to non-residential uses or to require mitigation for residential units lost through the redevelopment of existing housing or the conversion of a residential use to non-residential uses.

Comments received to date:

-needs to address loss of affordable units to high priced units.

7.13 Integration of Permanently Affordable Housing

Permanently affordable housing, whether publicly, privately or jointly developed and financed [should be dispersed throughout the community and whenever possible affordable units should be provided on the site of and integrated into all new housing developments.](#) ~~will be designed as to be compatible, dispersed, and integrated with housing throughout the community.~~

Note: Clarifies that affordable housing should be dispersed throughout the community, integrated into all new housing developments, and provided on site as part of new development preferably over off site - consistent with the Federal Fair Housing Act.

Potential New Policy: Market Affordability

The City will encourage and support efforts to provide market-rate housing priced to be more affordable to middle income families. The city will identify opportunities to eliminate regulatory barriers in building more moderately sized homes with a priority on homeownership.

Key Policy Choice: *Should the city state a clear priority for market rate solutions to providing more middle income housing options, including identifying and eliminating regulations that incentivize larger and more expensive units within new developments?*

Comments received to date:

-skepticism that market rate units will remain affordable over time.

Potential New Policy: Special Consideration for Affordable Housing Projects

Request: *A coalition of affordable housing providers (the Affordable Housing Network, the Human Services Alliance, Boulder Housing Partners and the Boulder County Housing Authority) proposes a new policy that explicitly recognizes affordable housing as a community benefit that should receive special consideration, including:*

- regulatory changes that unlock more “diverse housing” opportunities.*
- priority review to meet funding timelines and improve overall project feasibility.*
- clear guidance on areas open to community input.*

Language was provided to Planning Board under separate cover from the Coalition.

Feedback received to date:

-they should follow the same rules as all other developers

-neighborhood input should not be limited

Attachment C:

Trails Map Update

ATTACHMENT C1: Brief Summary of Changes to the BVCP Trails Map

PROPOSED CHANGES

The proposed changes to the BVCP Trails map include:

- Addition of descriptive language on the map (*purpose of map, definitions of proposed trails, conceptual trail alignments and conceptual connections, and where to get more information*)
- New proposed trails and new conceptual alignment for proposed trails
- Modifications to proposed trails
- Changes from ‘proposed’ to ‘existing’ to reflect newly constructed trails.
- Removal (deletion) of proposed trails and proposed rerouting / removal of existing trails
- Map corrections

New Proposed Trails:

New proposed trails are highlighted in purple (circles and lines). These include upgrades to multi-use paths and proposed connections to trails or other paths identified in the Transportation Master Plan (TMP), West and North Trail Study Area Plans, or the Boulder Reservoir Master Plan.

- Newly identified trails in the North Trail Study Area Plan (2016):
 - Antler Loop – west of Wonderland Lake
 - Wonderland Lake– Designate parallel path on north side of Wonderland Lake
 - North Sky Trail – Foothills Trail connection to Joder Ranch Trail
 - Mahogany Loop – loop on Joder Ranch Trail
 - Connection from Joder Ranch Trail to Buckingham Park
 - Connection from proposed Coyote Trailhead to Joder Ranch Trail
 - Connection from Foothills Trail to Degge / Eagle trails
 - Shale Trail – Boulder Valley Ranch Trailhead to Eagle Trail
 - Wrangler Trail – Hidden Valley Trail to Kelso Road
 - Talon Trail – Boulder Reservoir to Niwot Road
 - Area III Future Park Site to OSMP – *conceptual connection*
- Boulder Reservoir (2012): conceptual alignment around the west side of the reservoir and a trail along the north side of the reservoir
- Diagonal to IBM – From TMP
- Various small connections added in the Transportation Master Plan Update (2014)
 - Lehigh to Bear Creek Elementary School
 - Hanover – Broadway east to Summit Middle School
 - Dartmouth – Broadway east to Martin Park / Creekside Elementary School
 - Sioux Dr. at EBRC
 - Greenways connection 38th St. alignment – north of E Aurora at BCSIS/High Peaks
 - CU east – Discovery to Foothills
 - CU east – Potts field across Boulder Creek
 - CU – Boulder Creek connection to Recreation Center
 - Iris south to Hawthorn (near 22nd St.)
 - Utica connection to OSMP north of Wonderland Lake
 - US 36 connection to Vine Pl.

Modifications to Proposed Trails:

Modifications to proposed trails are highlighted in blue and reflect areas where better information about the proposed alignment is available or where alignments have been modified from the previously adopted BVCP Trails Map.

- Trail alignment planned from Airport Rd to Andrus Rd - TMP
- Diagonal – to Pleasantville Fields, Clarified in the TMP
- Anemone Trail – WTSA – conceptual alignment to refined alignment

Modifications to Existing Trails:

Modifications to existing trails occurred in various places on Open Space properties due to flood impacts and reconstruction. These are highlighted in yellow.

Constructed Trails (Constructed/Modified)

Trails that have been constructed since the 2010 update are highlighted in green.

- US36 at Table Mesa east to planning area boundary
- Baseline – Broadway to 36th St.
- CU – Cockerell Dr.
- CU – 28th St. (Baseline to Colorado)
- CU – Boulder Creek to Arapahoe (near 22nd St)
- Arapahoe – Folsom to 30th St. north and south side
- Arapahoe – Cherryvale east to Westview Dr. on south and east to 75th on north
- Boulder Creek path to 48th St. (north of hospital)
- 30th – Arapahoe to Walnut
- Walnut – 29th -30th
- Pearl and 30th (NW and SE)
- Pearl – 30th to Foothills north side
- Foothills Hwy (west side – Goose Creek path to Valmont)
- Valmont Rd. north side at Valmont Park
- Valmont and Airport Rd NW
- Iris Ave and Broadway at Boulder County campus
- Crestview Park
- Fourmile Creek Path – Broadway to Violet
- Fourmile Creek Path – 26th to 28th
- Arrows removed: Chapman Dr. built; US36 multi-use path built

Deletion of Trails:

Proposed trails that are recommended for removal from the BVCP Trails Map are shown in orange. These reflect TMP or TSA planning processes and adopted plans.

- Airport Rd. to Independence Rd (east of Hayden Lake): 2014 TMP, removed due to difficulty to construct and limited connectivity and need
- Hwy 93 to Greenbriar: 2014 TMP, connection determined not necessary
- Gunbarrel west of 63rd Street and Twin Lakes; Gunbarrel Ave north to proposed trail and Spine Rd at Lookout Rd south to proposed trail: 2014 TMP- difficult to construct in drainageway and provides little connectivity.
- 27th St./Mapleton to Goose Creek (west of 28th St):

- Elmers Twomile creek path connections between Glenwood and Iris: 2014 TMP- difficult to construct due to buildings, not needed
- 28th and Iris – connection to Diagonal Hwy: trails reconfigured with Diagonal reconstruction
- Foothills Hwy west side connection to Wonderland Creek: different alignment
- *Southern section of Sunshine Trail – removed in WTSA process*
- Various small connections identified through TMP connections planning (*some need to be changed on the North Boulder Subcommunity Plan*)
 - Connection Greenbriar to Broadway
 - Table Mesa – Vassar to Broadway
 - Skunk Creek – 27th Way to US36 ramp
 - CU Pleasant St. to stadium
 - Mapleton – Goose Creek (west of 30th St.)
 - Boulder Junction to RR
 - 28th St. west to Wonderland creek path
 - Kalmia to Linden at 23rd St.
 - Linden 19th to 21st
 - 9th Street – Iris to Jasmine
 - Poplar – 17th to 19th
 - 19th St. north of Yarmouth to US36

Removal of Existing Trails

Through the North Trail Study Area Plan sections of the following existing trails are recommended for closure and removal: Old Kiln Trail, Old Mill Trail, Mesa Reservoir Trail, and Degge Trail.

Previously existing trails that have been removed due to flood recovery or that had been identified through planning processes are shown in grey.

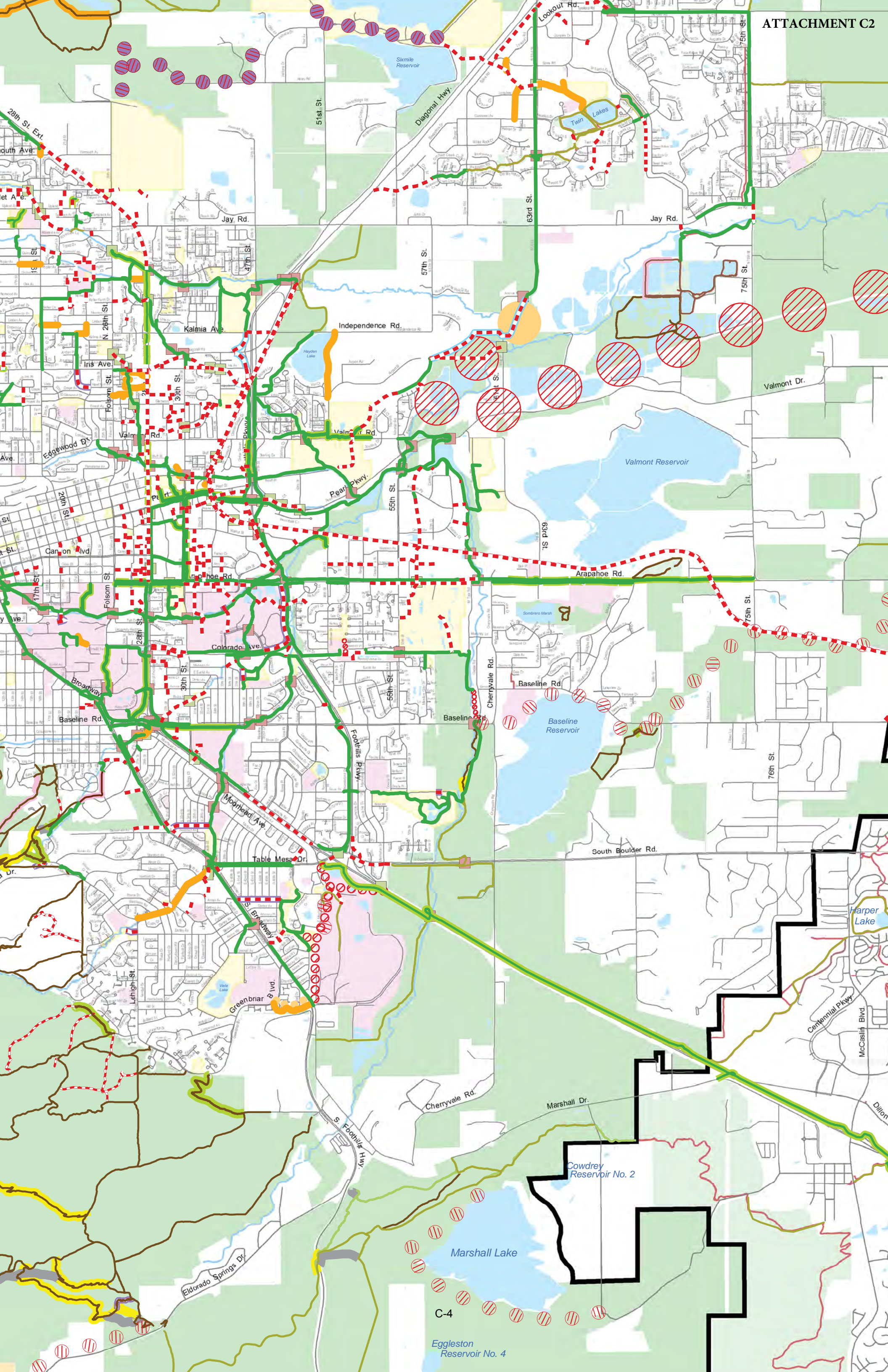
Map Corrections:

Map corrections are highlighted in pink, and are trails that are included in the TMP, TSA, or other Planning process, and appear to have been inadvertently left off from the 2010 version of the map.

- Four Pines Trail – exists, not previously shown on map
- West of 71st Street by Walden Ponds – exists, not previously shown on map
- East of Twin Lakes - exists, not previously shown on map
- Around Coot Lake - exists, not previously shown on map

Revisions to the BVCP Trails Map Description

Minor revisions are proposed to the descriptions of proposed trails and conceptual trail alignments. Arrows indicating conceptual connections outside the planning boundary have been modified to be consistent in size. Additionally, revisions are proposed to the implementation section and BVCP Trails Map Description.



C-4

Eggleston Reservoir No. 4

Attachment C3: Revised Trails Map Description – BVCP Implementation Section

Trails Map

The Boulder Valley Comprehensive Plan Trails Map is a comprehensive guide for existing and proposed trails and trail connections for the entire Boulder Valley. It shows proposed trails that have been planned through departmental master planning or area planning processes as well as trail connections that are important links in the Boulder Valley and regional trails systems.

A color version of the trails map can be found at: <http://www.bouldervalleycompplan.net> and click on Plans.

Trails planning in the Boulder Valley involves balancing environmental, community, and mobility goals as well as resolving or mitigating trail impacts. The following Boulder Valley Comprehensive Plan policies guide trails planning:

- Policy 2.~~30~~-20 Boulder Creek and its Tributaries as Important Urban Design Features
- Policy 2.~~32~~-23 Trail Corridors / Linkages
- Policy 8.12 Trail Functions and Locations
- Policy 8.13 Trails Network

The Trails Map shows existing and proposed trails in the Boulder Valley that are or will be administered by the city of Boulder Planning Department, Parks and Recreation Department, Open Space and Mountain Parks Department, Transportation Division, the Greenways Program and Boulder County Parks and Open Space and Transportation Departments. This map is used by the city, the county, Boulder Valley citizens and other concerned parties to understand, maintain and advance the network of trails that the city, the county, and other public agencies now provide and hope to provide in the future and should be used as a system planning tool.

Each department generates more detailed maps to meet their own needs and those of trails users. Other maps (such as those in departmental master plans or specific area plans) are used to show complete systems.

The Trails Map includes designated unpaved off-street paths, paved off-street paths, multi-use paths that are paved and separated from but parallel to a road, and short, paved off-street paths that connect to a larger trail or bike network and are part of an adopted pedestrian or bike system plan. It does not include sidewalks, on-street bike lanes or bike routes, paved road shoulders or low volume streets serving as bike lanes, routes, or internal walkways.

Trails planning and implementation occur at several steps that get progressively more detailed. The first step is to identify a need or desire for a trail or trail connection, a step that usually occurs as part of departmental master plans. Interdepartmental coordination on trails and trail connections occur as part of the master planning process. Proposed

trails may be further refined through other detailed planning processes, such as the Capital Improvements Program (CIP), Trail Study Area (TSA) or Community and Environmental Assessment Process (CEAP). Two kinds of trail designations are included on the Trail Map—conceptual trail alignments and proposed trails. The primary difference relates to the degree that the trail has been studied and whether or not a specific trail alignment has been worked out.

Specific definitions include:

Proposed Trails

These trails are represented by ~~dashed~~ solid red lines on the Trails Map. These dashed lines show a general ~~the~~ trail need or desire, but they also show a more definite trail alignment accepted by the public entities involved. There may still be issues to be worked out at the project planning step, but the trail alignment is relatively more certain.

Conceptual Trail Alignments

These trails are represented by ~~bubbles (or circles)~~ on the Trails Map. These circles/bubbles show the ~~need or desire~~ recommendations for the trail located ~~in~~ as a conceptual trail corridor, as determined through planning processes. The specific alignment has not yet been selected, often because there are still issues that need to be resolved. These issues may involve the need for further study or public process and usually require resolution of environmental, ownership, neighborhood, or other concerns. However, the concept for the trail is supported by the signatories of the Boulder Valley Comprehensive Plan.

Conceptual Connections

In some cases, a planning process has identified an intention to connect trails within the BVCP area to trails or destinations outside the planning area. In such cases, the Trails Map shows an arrow pointing from an existing or proposed trail toward an area outside the Planning Area Boundary. These arrows indicate a general direction for potential connecting trails but not a specific alignment or trail corridor.

Process for Changes to the Trails Map

At each mid-term or major update to the Boulder Valley Comprehensive Plan, an interdepartmental staff group will assess the need to update the Trails Map. If changes are warranted, staff will analyze the map and compile a list of recommended changes to be included in the Comprehensive Plan update process. Changes to the map may occur when there has been new information or changed circumstances regarding a proposed trail or when an alternatives analysis and public process have occurred at the master planning or area planning level and new trails plans have been adopted. Minor changes can be incorporated into the Trails Map at any time without board adoption. These minor map changes are limited to changes in factual information, which include map corrections and

changes in designation from proposed to existing trails (i.e., built). These minor map changes will be identified for the boards at the Comprehensive Plan update process.

Any member of the public may propose changes to the Trails Map at a mid-term or major update to the Comprehensive Plan. These requests should be made in the application process established for the update. Staff will analyze these proposals and a recommendation will be presented to the four adopting bodies along with other applications.

Changes to the Trails Map will be forwarded to the following advisory boards for review and comment: Open Space and Mountain Parks Board of Trustees, Greenways Advisory Committee, Transportation Advisory Board, Parks and Recreation Advisory Board, and the County Parks and Open Space Advisory Committee. Changes to the Trails Map may also be forwarded to other advisory boards depending on issues associated with a trail proposal. Recommendations and comments will be forwarded to the adopting bodies. Changes to the Trails Map must be adopted by the city Planning Board, City Council, the County Planning Commission, and the County Commissioners. All recommendations for changes to the Trails Map will be evaluated by each of the departments involved. Agreement by affected departments on the suitability of the trail and trail alignment will be sought as part of the interdepartmental review.

ATTACHMENT C4: Proposed changes to Trail Policies

Red text represents text additions or deletions.

Green double underlined text has been relocated from elsewhere

Parks, Open Space and Trails

8.12 Trail Functions and Locations

The city and county recognize that trails are an important tool to achieve accessibility goals and connect humans and the natural environment. Trails serve a variety of functions such as exercise, recreation, transportation, education and/or environmental protection. Trails should be designed to provide a safe and enjoyable experience and managed to minimize conflicts among trail users. ~~Trailheads should be located so they are convenient and safe for those arriving by alternate modes of transportation as well as automobiles.~~ Trails should be designed for physical and environmental sustainability, signed, monitored and adequately maintained to encourage on-trail travel. Informal trails, the widening of trails by users, and off-trail use should be discouraged and/or eliminated. ~~In order to provide environmental protection, informal trails and user widening of trails should be discouraged by ensuring that formal trails are well designed, monitored and adequately maintained.~~ Trail and trailhead locations and alignments should avoid environmentally sensitive areas, ~~and~~ minimize environmental impacts and look for opportunities to enhance habitat connectivity. Trailheads should be located so they are widely accessible, convenient and safe for those arriving by alternate modes of transportation as well as automobiles.

8.13 Trails Network

The city and county will coordinate with other trail providers and private landowners in trail system planning, construction, management and maintenance. In consideration, ~~Where compatible~~ with environmental protection goals and ~~conservation~~ easement agreements, trail connections will be developed to enhance the local access to trails and the overall functioning of the trails network. The city and county strive to connect trails systems and expand connections to adjacent trails systems to further regional connectivity.

ATTACHMENT C5: Documentation and Assessment of Feedback on Trails Policies

Policy revisions aim to:

- Provide policy language, not background, supporting information or rationale unless essential to understanding and implementing the policy.
- Decrease redundancy throughout the section, with other sections or other policies.
- Simplify the language and eliminate jargon
- Provide appropriate policy level for broad application at the comprehensive plan level. (Detail appropriate to specific areas and circumstances should be developed in master or area plans).

Policy 8.12 Trail Functions and Locations provides guidance for:

	Current concepts	Additions
Function	Exercise, recreation, transportation, education, and environmental protection	Trails serve many functions: accessibility and connecting humans and natural setting
Design	Designed to minimize conflicts among users. Formal trails should be well-designed. Discourage and eliminate informal trails, widening of trails, off-trail use.	Design for safe and enjoyable visitor experience Encourage on-trail travel and sign formal trails Design for physical and environmental sustainability
Management	Trails should be monitored and adequately maintained.	
Location	Avoid environmentally sensitive areas and minimize environmental impacts Trailheads located so they are convenient and safe for those arriving by car, transit, bike or walking.	Look for opportunities to enhance habitat connectivity widely accessible

Documentation and Assessment of Feedback

Suggested Revision	Themes	Assessment
<p>8.12 Trail Functions and Location</p> <p><i>Karen Hollweg, et.al, comments to trails policies that were included with other extensive suggestions for the Natural Environment section:</i></p> <p>The following revisions are needed to update the sections regarding Trail Functions and Locations and Trails Networks:</p> <ul style="list-style-type: none"> • Designated and undesignated trails should not further fragment intact open space natural areas • Social / undesignated trails should be eliminated and measures should be taken to strongly discourage fragmentation by off-trail use • Add “signed” i.e. ensuring that formal trails are well-designed, signed 	<ol style="list-style-type: none"> 1. Trails should not further fragment intact open space natural areas. 2. Social / undesignated trails should be eliminated and measures should be taken to strongly discourage fragmentation by off-trail use 3. Add “signed” to design 	<ol style="list-style-type: none"> 1. Add concept “look for opportunities to enhance habitat connectivity” 2. Addressed in revisions about informal or social trails 3. Add “signed”

Suggested Revision	Themes	Assessment
<p>8.12 Trail Functions and Location</p> <p><i>The following suggestions were made by community member Jason Vogel</i></p> <p>Trails are central to the character and identity of Boulder County’s people, towns, and landscape. Trails are infrastructure critical to enjoyment of, recreation in, and conservation of open space. The trails in Boulder County support the healthy lifestyle that draws residents and tourists alike and are a necessary resource for developing a land ethic in the next generation of Boulder citizens. As important infrastructure, trails deserve the same level of professional expertise in planning, design, construction, and maintenance as would be given to other facilities such as libraries, schools, parks, and recreation centers. Current best practices blend four inter-related components of sustainability: ecological, physical, social, and managerial.</p>	<ol style="list-style-type: none"> 1. Central to character of Boulder Valley 2. Critical to enjoyment of recreation and conservation of open space 3. Support healthy lifestyle for residents and visitors/tourists 4. Necessary for developing land ethic for next generation 5. Need professional expertise in planning, design, construction and maintenance 6. Best practices blend inter-related components of sustainability: ecological, physical, social and managerial 	<ol style="list-style-type: none"> 1. Descriptive – reflect in to section intro language to be revised. 2. Descriptive – not broadly applicable (more than OSMP trails). 3. Addressed generally in list of functions 4. Descriptive, not policy 5. Implementation – not appropriate comp plan policy level 6. Add design for physical and environmental sustainability
<p>Trails are more than lines on a map; they are an experience in nature. Trail planning and design efforts must explicitly consider and provide for the enjoyment and fun that trails provide the community. The fun and enjoyment of trails is directly linked to youth spending time outdoors to develop a conservation ethic and healthy lifestyle in an era monopolized by digital screens and convenience foods.</p>	<ol style="list-style-type: none"> 1. Planning and design must consider and provide for enjoyment and fun 2. Fun and enjoyment linked to youth spending time outdoors, conservation ethic and healthy lifestyle 	<ol style="list-style-type: none"> 1. Addressed - Add concept “enjoyable visitor experience” 2. Descriptive, not policy

Suggested Revision	Themes	Assessment
<p>8.12 Trail Functions and Location</p> <p>Within the context of public lands, trails are a useful tool in helping manage visitors to accomplish other open space goals. Trails guide visitors through open space, taking them to places with high quality recreation experiences such as viewpoints and unique land features and leading them away from critical or imperiled natural resources, thus minimizing impacts. Trails should be routed with careful attention to popular destinations—both within, and outside of open space areas—to provide loops of varying length, and quickly disperse visitors near access points. Use modern trail design to cue on trail compliance and curb trail braiding, short-cutting switchbacks and off-trail travel. Understanding and meeting visitor needs helps to minimize the creation of social trails, reduce user conflict, and ultimately moderate ecological impacts. While respecting environmental constraints, trails should be designed to integrate humans with nature rather than separate them.</p>	<ol style="list-style-type: none"> 1. Trails useful tool to help manage visitors 2. Guide visitors through open space to take people to viewpoints, unique land features and popular destination 3. Lead people away from critical or imperiled natural resources, minimizing impacts. 4. Use design to curb trail braiding, short cutting, and off-trail travel. 5. Understanding visitor needs to minimize social trails, reduce user conflict and ecological impacts 6. Designed to integrate humans with nature 	<ol style="list-style-type: none"> 1. Not applicable to all trails, “useful tool to achieve many goals” concept included in proposed change 2. Not applicable to all trails (outside OSMP) 3. Detailed – high-level concept addressed in design. 4. “ “ 5. Addressed in discouragement of social trails 6. Addressed in concepts for design. 7. Add intro “trails as important tool.. connect humans and natural environment”.

Suggested Revision	Themes	Assessment
<p>8.12 Trail Functions and Location</p> <p>Visitor experience and enjoyment are influenced by the setting, scenery, trail character, challenge, and other subtle factors that should be understood and considered. One key influence is the interaction with other visitors. Contemporary knowledge in trail planning and design offers approaches—ranging from specific tread to full trail system scales—to shape positive visitor interactions and minimize conflict. At a trail system scale: provide loops, disperse visitors near access points, intentionally offer variety of character and difficulty, and serve the suite of non-motorized visitors. At a specific trail scale: encourage on-trail compliance with engaging design, interesting trailside anchors, playful character, vistas, and destinations. Design away visitor conflict by reducing speed differentials, balancing sight-lines, and limiting intersections. Avoid design pitfalls, unnecessary restrictions, or inflammatory signage that may counterproductively increase perceived visitor conflict.</p>	<ol style="list-style-type: none"> 1. Visitor experience influenced by setting, trail character and challenge 2. Trail planning and design can shape positive visitor interactions and minimize conflict by reducing speed differentials, balancing sight-lines and limiting intersections 3. Encourage on-trail compliance with engaging design 	<ol style="list-style-type: none"> 1. Descriptive, not policy 2. Detailed, generally addressed 3. Concept generally addressed in “sustainably-designed”

Suggested Revision	Themes	Assessment
<p>8.12 Trail Functions and Location</p> <p>Multiple use and shared use trails should be the mainstay because they serve the greatest number of people, are inherently most equitable, and reduce ecological impact. However, to enhance one user group’s experience or address high use or high conflict situations, sparingly consider single use, alternating use, or directional use policies or purpose-built trails developed to increase trail system functionality. Such management practices should take the least restrictive successful approach, be equitable and fair, be transparent to the public, and be developed collaboratively with the various visitor groups affected.</p>	<ol style="list-style-type: none"> 1. Shared use (multiple use) trails serve greatest number of people and most equitable, reduce ecological impacts 2. To enhance a particular group’s experiences or address high use or high conflict situations, sparingly consider single-use, alternating use, or directional uses or purpose-built trails. 3. Take least restrictive successful approach, be equitable and fair, transparent and develop collaboratively with visitor groups affected 	<ol style="list-style-type: none"> 1. Descriptive and position statement, not policy 2. Too detailed for comp plan, general application possibly at master plan or area plan level 3. Detailed trail design and management process. General application possibly at master plan or area plan level.

Suggested Revision	Themes	Assessment
8.12 Trail Functions and Location		
<p>Trails should be designed and critiqued with physical sustainability in mind—each trail should remain stable in its intended condition. Modern trail design includes techniques (such as rolling grade dips, grade reversals, meander, climbing turns) to minimize erosion and decrease sedimentation while minimizing long-term maintenance needs. Trail condition monitoring, mud closures, and communications to the public are critical to reduce tread damage while respecting citizens’ outdoor lifestyle.</p>	<ol style="list-style-type: none"> 1. Trails designed with physical sustainability in mind 2. Apply trail design techniques to minimize erosion and decrease sedimentation and minimize long-term maintenance needs 3. Condition monitoring, mud closures, and communications to the public are critical to reduce tread damage 	<ol style="list-style-type: none"> 1. Addressed in new language about sustainable design 2. “ “ 3. Detailed, general application possibly at master plan or area plan level.
<p>Informal social trails and off-trail travel—whether in core open space or private connections—should be discouraged by ensuring that formal trails are well designed, monitored, adequately maintained, and truly address visitor desires. Trailheads should be located so they are convenient and safe for those arriving by alternate modes of transportation as well as automobiles. Increasing focus should be placed on public transit stops associated with trailheads as well as parking for bicycles. Trail and trailhead locations and alignments should avoid environmentally sensitive areas and minimize environmental impacts to the fullest extent reasonable.</p>	<ol style="list-style-type: none"> 1. Informal social trails and off-trail travel should be discouraged through design, monitoring, maintenance and addressing visitor desires 2. Trailheads located for convenience and safe for those arriving by alternate modes and automobiles. 3. Focus for locations on public transit stops and provide parking for bicycles 4. Locate trails and trailheads to avoid environmentally sensitive areas and minimize environmental impacts to the fullest extent reasonable 	<ol style="list-style-type: none"> 1. Generally addressed in revisions, with less detail 2. Addressed in existing language (moved) “Trailheads should be located so they are convenient and safe for those arriving by alternate modes as well as automobiles. 3. Too detailed, not broad application 4. Concept addressed in this policy and 3.08

Suggested Revision	Themes	Assessment
8.12 Trail Functions and Location		
Using a thorough understanding of trails and visitor dynamics will yield decisions and designs that offer the greatest good and begin to reverse the unnecessary polarization of conservation and recreation.	1. Trail knowledge and visitor dynamics to yield decisions and designs that offer greatest good and reduce polarization of conservation and recreation.	Process, not function/design. More appropriate for process of master or area planning

Policy 8.13 Trails Network provides guidance for:

	Current concepts	Additions
Coordination	City and county coordinate with other trail providers in trail system planning	
Connections	Trail connections should enhance overall function of trail network and be compatible with environmental goals	Enhance local access to trails Strive to connect trail systems and enhance regional connectivity

Suggested Revision	Themes	Recommended policy addition/revision:
8.13 Trails Network		
<p><i>The following suggestions were made by community member Jason Vogel</i></p> <p>Trails do not exist in isolation. Each is part of a trail system, and good management should consider the role of each trail within the greater trail network or community. Regional connectivity of parks, greenways, open spaces, and residential areas is increasingly important to reduce parking demand, increase accessibility, disperse use, reduce traffic congestion, and reduce global warming and other air pollution. Regional trail connectivity leverages the assets of any one trail system by connecting it to other trail systems, thus creating a larger overall trail network. Local access to multi-use trails systems removes barriers for youth and positions trail access points as an overwhelmingly positive neighborhood amenity. The practical effect of</p>	<ol style="list-style-type: none"> 1. Consider role of each trail within the greater trail network 2. Regional connectivity is important to reduce parking demand, increase accessibility, disperse use, reduce traffic congestion, reduce global warming and other air pollution 3. Regional connectivity leverages the assets of one system by creating a larger overall network 4. Local access to trail systems removes barriers for youth and positions trail access as a positive neighborhood amenity 5. Encourages alternative modes of transportation to trail system; reduces parking demand and impacts of parking facilities; disperse trail use, enhances long distance recreation experiences. 	<ol style="list-style-type: none"> 1. More appropriate for process of master or area planning 2. Add regional connectivity 3. “ ” 4. Descriptive, not policy 5. Descriptive, not policy

Suggested Revision	Themes	Recommended policy addition/revision:
<p>this is to encourage non-automobile modes of transportation to trail systems; to reduce parking demand and the impacts of large parking facilities; to disperse trail use across trail systems; to reduce crowding impacts on users, neighborhoods, and ecosystems; and to enhance opportunities for long distance recreation experiences.</p>		
<p>Land management agencies in Boulder County should strive to work across jurisdictional boundaries, including working with private land owners, to network existing open space trail systems with community bike and pedestrian paths, greenways, and public parks. It is important, however, to recognize the different contexts of different regional trails. Some regional trails operate primarily as transportation corridors and should be designed with transportation accessibility and function in mind. Other regional trails function as connectors between existing recreational trail systems and should be designed to enhance the recreational value of the overall trail network. In some cases, “redundant” connections should be provided to allow for loop circulation or seasonal variances. The city and county should coordinate with other trail providers and private landowners in trail system planning, construction, management, and maintenance. Where compatible with environmental protection goals and conservation easement agreements, trail connections will be developed to enhance the overall functioning of the trails network.</p>	<ol style="list-style-type: none"> 1. Strive to work across jurisdictional boundaries, including working with private land owners, to network existing open space trail systems with community bike and pedestrian paths, greenways, and public parks. 2. Coordinate with other trail providers and private landowners in trail system planning, construction, management, and maintenance. 3. Recognize the contexts of different regional trails, some as transportation corridors, others as connectors between existing recreational trail systems. 4. In some cases, “redundant” connections should be provided to allow for loop circulation or seasonal variances. 5. Where compatible with environmental protection goals and conservation easement agreements, trail connections will be developed to enhance the overall functioning of the trails network. 	<ol style="list-style-type: none"> 1. Addressed in 8.13 2. Addressed in 8.13 3. Design details appropriate at process for master or area planning 4. Too detailed for comp plan, possibly appropriate at process for master or area planning 5. Addressed in 8.13
<p>Trail systems should:</p>	<p>Trail systems should:</p>	<ol style="list-style-type: none"> 1. Generally covered in 8.12

Suggested Revision	Themes	Recommended policy addition/revision:
<ul style="list-style-type: none"> o be accessible from nearby neighborhoods o accommodate the local spectrum of non-motorized visitors in an equitable fashion o offer a variety of trail character, loop length, and challenge in each system o provide a sense of place showcasing unique topography, biomes, and viewsheds 	<ol style="list-style-type: none"> 1. be accessible from nearby neighborhoods 2. accommodate the local spectrum of non-motorized visitors in an equitable fashion 3. offer a variety of trail character, loop length, and challenge in each system 4. provide a sense of place showcasing unique topography, biomes, and viewsheds 	<ol style="list-style-type: none"> 2. Too detailed for comp plan, appropriate to be determined area planning level 3. More appropriate for process of master or area planning 4. Generally addressed in 8.12

Attachment D:

Public Comments

From: [Kristin Bjornsen](#)
To: [#LandUsePlanner](#)
Subject: Letter for Planning Commission regarding BVCP policy changes
Date: Monday, August 29, 2016 12:06:09 PM

Dear Planning Commission,

I saw that the BVCP Open House will discuss proposed policy changes. While some of the changes seem beneficial, several appear to significantly weaken Boulder's environmental protections. To borrow a friend's phrase, they add a lot of "wobble words."

Although I don't have the knowledge to speak to all the proposed changes, I pasted below my concerns about four of them.

Thanks for your time,

Kristin

1) 3.09 Urban Environmental Quality. The following changes are proposed:

~~"the city will develop community wide programs and standards for new development and redevelopment so that negative to mitigate environmental impacts will be mitigated to the extent possible and seek opportunities to improve urban environmental quality when practicable. vi and overall environmental quality of the urban environment will not worsen and may improve.~~

COMMENT: Currently, Policy 3.09 has a strong standard that "the environment will not worsen and may improve." The proposed change strikes that out. Instead it adds these extremely subjective standards: Environmental impacts will be mitigated "to the extent possible" and improved "when practicable." This sets a much lower bar.

2) BVCP Core Values. This paragraph is added:

"The city and county strive to support all of the values listed below but recognize that may not be possible with each and every decision. They are not listed in any priority order. Careful consideration of important tradeoffs among these values and all the plan's policies should be employed in implementing the Boulder Valley Comprehensive Plan."

COMMENT: This is a rather vague and subjective standard also. Policies and decision makers need objective standards. This paragraph could become a permission slip to pick and choose whichever policies support a project de jour.

That defeats the purpose of a Comprehensive Plan. This subjective standard also makes things unpredictable for property owners and citizens, because they would never know which policies will be waived aside and which ones enforced.

3) In 3.04, Ecosystem Connections and Buffers, the word "undeveloped" is deleted.

"The city and county will work together to preserve, enhance, restore and maintain ~~undeveloped~~ lands critical for providing ecosystem connections and buffers for joining significant ecosystems."

Why are they deleting the word undeveloped? This could be interpreted as green-lighting development as long as token mitigation efforts are made. Perhaps a better option is, at the end of the paragraph, to add a sentence such as, "Efforts also will be made to enhance connections and buffers on already developed land."

4) In Policy 3.04, this new paragraph is added (highlighting is mine):

Urban areas also are important for supporting biodiversity and maintaining wildlife habitat. Efforts should be made to best use and manage public lands to optimize the quality and quantity of natural habitat and provide connections and corridors within the urban built environment between natural lands to support movement of native organisms. The city and county recognize the importance of buffers to mitigate the effects of urban and intensive land uses and human activity upon natural areas and where practicable will work together to establish and maintain buffers between areas of urban development and high levels of human activity and those with significant ecological value. **iii**

Why does the second sentence refer just to "public lands"? That will limit the effectiveness of connections. Also, the goal of the BVCP is to best use and manage ALL lands.

The words "where practicable" and "significant" are rather nebulous qualifying words. They could also offer an easy out to environmental protection.

Spence, Cindy

From: Karen Hollweg <khollweg@stanfordalumni.org>
Sent: Thursday, September 08, 2016 5:50 PM
To: boulderplanningboard
Subject: Revision Suggestions for BVCP Draft Sec.3 Natural Environment Policies
Attachments: Ch1_Section_3_Natural_environment-DRAFT_8.24.16_+pbkhda revisions.docx

John, Bryan, Leonard, John, Crystal, Liz, Harmon

I am sending to you (attached) a copy of the Aug. 24, 2016 Sec. 3 Natural Environment Policies BVCP Draft in which we have added our suggestions for revision.

The 5 of us who have worked to produce this document have each been involved in the city's deliberations and decisions about open space and natural resource issues for decades, and believe our suggestions provide important updates, add a bit more clarity/specificity, and reflect our community's core values. We would like to ask you to consider our suggestions as part of the Planning Board's review of BVCP Policies and to include them in the final draft that you are preparing now.

With respect,
Karen Hollweg
Pat Billig
Dave Kunz
Allyn Feinberg
Ray Bridge

3. Natural Environmentⁱ

No new title. Natural Environment must be addressed separately and not mixed with transportation, recycling, or other “sustainability” or energy issues. The natural environment in general, and open space lands in particular, are what make Boulder such an attractive and special place.

*Proposed new section title: **Environmentally Sustainable Community.***

Note: This may be combined with other policies around energy and climate in addition to agriculture and food policies relating to land and environment. Also please note that a further round of editing will occur to improve organization, reduce verbosity and redundancies, and renumber policies as necessary.

In this section, the “natural environment” includes city and county open space lands as well as the environment within the urban area. Preservation and protection of ~~the~~ natural environment that characterizes the Boulder Valley is a core community value that has defined Boulder since the end of the 19th century. Within the Boulder Valley’s complex ecological system, there are inextricable links among the natural environment, plants and animals, the built environment, the economy and community livability. ~~These natural and human systems are connected to the region and world, and c~~ Changes to the natural ecosystems within the Boulder Valley can have a profound effect on their viability and the quality of life desired by Boulder Valley citizens.

Over many decades, at the urging of and with the financial support of local citizens, the city and county have actively protected and managed open space around the urban area, and city and county open space plans and policies apply to those public lands acquired and managed as habitat conservation areas, natural areas, recreational areas, and agricultural areas. ~~or used for other purposes, such as agriculture.~~ⁱⁱ

As in the rest of the world, ~~the~~ climate of the Boulder Valley climate is changing. ~~has warmed and dried over the past three decades, and the potential for further changes and intensified weather events because of climate change~~ heighten the need for the city and county to proactively ~~strengthen intervention and investment in natural resources (e.g. urban forestry, wetland and groundwater protection, and natural hazard mitigation) to reduce risk and protect resources.~~ Overall strategies need to include protection of the remaining large blocks of open space land that support the long-term viability of native plants and animals, active maintenance of stream flows and capacities, and more focus on the interface between the natural and urban environment to better understand how to work with natural systems instead of against them. ~~The more the community can assess risks of changes due to climate change and be prepared to preserve and protect environmental resources, the better prepared the community can be for mitigating the causes and impacts of those changes to the natural environment.~~

The natural environment that characterizes the Boulder Valley is a critical asset that must be preserved and protected. It is the framework within which growth and development take place. The city and county recognize that the Boulder Valley is a complex ecological system and that there are inextricable links among our natural environment, the economy,

~~the built environment and community livability. The Boulder Valley is an open system in that our natural and human systems are connected to the region as well as to the entire world. The city and county acknowledge that regional and global changes can have a profound effect on the local environment and that the local economy and built environment can have adverse impacts on natural systems beyond the Boulder Valley.~~

Boulder has been at the forefront of environmental protection and preservation for many years. ~~The predominant vast amount~~ Sixty-three percent of the land in the Boulder Valley Comp Plan area has been protected by the city and county as open space to support critical habitat for native plants and animals and agricultural productivity, and contributes to the high quality of life for residents ~~and critical habitat for native plants and animals~~. The community's historic and on-going emphasis on clean air and water, flood plain management, and preservation of native habitats has resulted in significant progress toward a sustainable, resilient and healthy urban environment.

The city ~~and county places strong emphasis on being a leader and role model to other communities for its exemplary environmental protection practices and accomplishments. The city~~ will continue to ~~identify and develop and~~ implement ~~state-of-the-art~~ environmental policies both community wide and within the city government organization to further ~~its~~ environmental sustainability goals.

The policies in this section support the following city and county goals related to the conservation and preservation of land, water, air resources and pollution prevention ~~and~~ resilience:

- Protecting Native Ecosystems and Biodiversity ~~and Native Ecosystems~~
- Enhancing Urban Environmental Quality
- Protecting Geologic Resources and Reducing Risks from Natural Hazards
- Sustaining Water and Air Quality

Reaching these goals requires an overall planning and management strategy that incorporates an understanding of ecological systems and uses adaptive management principles for monitoring and course corrections.

3.1 Incorporating Ecological Systems into Planning

The city and county will approach planning and policy decisions in the Boulder Valley through an ecosystem framework in which natural regions like bioregions, airsheds and watersheds are considered and incorporated into planning.

3.2 Adaptive Management Approach

The city ~~and county~~ will employ an adaptive management approach to resource protection and enhancement. An adaptive management approach involves ongoing monitoring of resource conditions, assessment of the effectiveness of management actions, revision of management actions based on new information from research, and learning from experience what works and what does not.

Protecting Native Ecosystems and Biodiversity and Native Ecosystems

3.3 Natural Ecosystems

The city and county will protect and restore significant native ecosystems on public and private lands through land use planning, development review, conservation easements, acquisition and public land management practices. The protection and enhancement of biological diversity ~~and~~ habitat for state and federal endangered and threatened species and state, as well as county-critical wildlife habitats/migration corridors, environmental conservation areas, high biodiversity areas, rare plant areas, and significant natural communities and local species of concern will be emphasized.ⁱⁱⁱ Degraded habitat may be restored and selected extirpated species may be reintroduced as a means of enhancing native flora and fauna in the Boulder Valley.

3.4 Ecosystem Connections and Buffers

The city and county recognize the importance of preserving large areas of unfragmented habitat ~~into~~ supporting the biodiversity of its natural lands and viable habitat for native species. The city

and county will work together to preserve, enhance, restore and maintain ~~undeveloped~~lands ~~identified as~~ critical ~~and having significant ecological value~~ for providing ecosystem connections and buffers ~~to support the natural movement of native organisms (e.g., wildlife corridors) between~~ ~~for joining significant~~ ecosystems.

(Note: Suggest adding new policy language to “Built Environment chapter” to address conservation and design of open space connections and buffers in urban areas, recognizing that urban lands can also be important for supporting biodiversity and maintaining wildlife habitat.)

3.5 Maintain and Restore Natural Disturbance and Ecological Processes

Recognizing that natural ecological processes, such as wildfire and flooding, are integral to the productivity and health of natural ecosystems, the city and county will work to ensure that, when appropriate precautions have been taken for human safety and welfare, ecological processes will be maintained or ~~mimicked-replicated~~ in the management of natural lands.

3.6 Wetland and Riparian Protection

Natural and human-made wetlands and riparian areas are valuable for their ecological ~~and, where appropriate, recreational~~ functions, including their ability to enhance water and air quality and reduce the impacts of flooding. Wetlands and riparian areas also function as important wildlife habitat, especially for rare, threatened and endangered plants, fish and wildlife. The city and county will continue to support and develop programs to protect, ~~and~~ enhance, and educate the public about the value of wetlands and riparian areas in the Boulder Valley. The city will strive for no net loss of wetlands and riparian areas by discouraging their destruction, ~~or requiring the creation and restoration of wetland and riparian areas in~~ In the rare cases when development in urban areas is permitted and the filling of wetlands or destruction of riparian areas cannot be avoided, the creation and restoration of wetland and riparian areas will be required to mitigate the loss. Management of wetland and riparian areas on open space lands is also covered ~~addressed in the OSMP Grasslands Ecosystem Management Plan.~~

3.7 Invasive Species Management

The city and county will promote efforts, both public and private, to prevent the introduction or limit and reduce areas and opportunities for growth ~~culture~~ of invasive, ~~and non-native~~ plant and animal species and seek to prevent or control their spread. High priority will be given to managing invasive species that are defined and listed by the Colorado Noxious Weed Act and have, or potentially could have, a substantial impact on city and county resources. ~~Management of both non-native and non-local native species will be based on weighing impacts vs. benefits that includes documented threats to species of concern specific to each site, acknowledging that some non-native species may have become naturalized. Management decisions should also take into account changing species composition due to climate change and other human impacts, as well as the role in the ecosystem provided by each organism based on the best available science.~~^{iv}

3.8 Public Access to Public Lands

Certain city and county-owned or managed lands provide a means for educating users on the importance of the natural environment. Public lands may include areas for recreation, preservation of agricultural use, preservation of unique natural features, and preservation of wildlife and plant habitat. Public access to natural lands will be provided where appropriate and where it can be adequately managed and maintained, ~~for~~, except where closure is necessary to protect areas from unacceptable degradation or impacts to agriculture, habitat or wildlife;^v provide for public safety;^v or reduce visitor conflicts ~~or limits on access necessary to preserve the quality of the visitor experience.~~

See New Policy at the End of Section 3

New Policy: Climate Change Preparation and Adaptation

The city and county are both working on climate mitigation and recognize that adaptation plans will be necessary as well. To prepare open space lands and natural areas for climate change, the city and county will consider allowing or facilitating ecosystems' transition to new states in some sites (e.g., newly adapting plants and wildlife) and increasing the stability and resiliency of the

~~natural environment elsewhere. Biological indicators can help to identify high risk species for monitoring and/or relocations and may conduct restoration projects using arid adapted ecotypes or species. Open space master plans guide other topics related to climate change, such as visitor experiences to open space.*~~

Urban Environmental Quality

3.9 Management of Wildlife-Human Conflicts

The city recognizes the intrinsic value of wildlife in both the urban and rural setting. The city will promote wildlife and land use management practices to minimize conflicts with residents and urban land uses while identifying, preserving and restoring appropriate habitat for wildlife species in the urban area. When a wildlife species is determined to be a nuisance or a public health hazard, a full range of alternative wildlife and land use management techniques will be considered by the city and county in order to mitigate the problem in a manner that is humane, effective, economical and ecologically responsible.^{vi}

3.10 Urban Environmental Quality

To the extent possible, the city and county will seek to protect the environmental quality of areas under significant human influence such as agricultural and urban lands and will balance human needs and public safety with environmental protection. The city will develop community-wide programs and standards for new development and redevelopment so that negative environmental impacts will be mitigated and overall environmental quality of the urban environment will not worsen and may improve.

3.11 Urban Forests

The city will support, promote and, in some cases, regulate the protection of healthy existing trees and the long-term health and vitality of the urban forest in the planning and design of public improvements and private development. Urban canopy plays an important role in a semi-arid climate in ameliorating the role of climate change; therefore, the city will guide short- and long- term urban forest management.^{vii} that encourages overall species diversity and, native and low water demand tree species ~~where appropriate.~~

3.12 Water Conservation

The city and county will promote the conservation of water resources through water quality protection, public education, monitoring and policies that promote appropriate water usage. The city will endeavor to minimize water waste and reduce water use during peak demand periods by, e.g., promoting xeriscaping. New development and redevelopment designed to conserve water will be encouraged.

3.13 Integrated Pest Management

The city and county will ~~discourage~~ encourage efforts to reduce the use of pesticides and synthetic, inorganic fertilizers.^{viii} In its own practices, the city and county will carefully consider when pest management actions are necessary and focus on creating healthy and thriving ecosystems to lower pest pressure by natural processes. When pest management is necessary, the city commits to the use of ecologically-based integrated pest management principles, which emphasizes the selection of the most environmentally sound approach to pest management and the overall goal of reducing or eliminating the dependence on chemical pest-control strategies. When public or environmental health risks are identified, the city will balance the impacts and risks to the residents and the environment when choosing management~~control~~ measures.^{ix}

New Policy: Soil Carbon Sequestration

The city recognizes that soil sequestration has a range of potential benefits, including water retention, soil health and stabilization. The city and county will consider soil sequestration strategies, including land management practices in cultivated agricultural areas that may be used to sequester carbon out of the atmosphere, and explore opportunities to incentivize carbon sequestration.^x

The capacity of native grasslands and forests to sequester carbon will be especially important in this effort and native grasslands and forests will be maintained wherever possible to accomplish this objective.

(Note: This policy will continue to be refined.)

Geologic Resources and Natural Hazards

3.14 Unique Geological Features

Due to its location at the interface of the Great Plains and the Rocky Mountains, the Boulder Valley has a number of significant or unique geological and paleontological features. The city and county will ~~attempt to~~ protect these features in situ from alteration or destruction through a variety of means, such as public acquisition, public land management, land use planning and regulation, and density transfer within a particular site.

3.15 Mineral Deposits

Deposits of sand, gravel, coal and similar finite resource areas will be delineated and managed according to state and federal laws and local government regulations. ~~Mineral deposits and other non-renewable resources will be used with the greatest practical efficiency and the least possible disturbance to existing natural and cultural resources. The use of mineral deposits and other non-renewable resources will be evaluated considering only when conservation and recycling is not a feasible alternative. The impacts of resource use will be balanced against the need for these resources and other community values and priorities, including environmental such as natural and cultural resource protection, community and environmental health concerns and carbon emission reduction.~~ The city and county will work together to limit drilling and mining impacts by acquiring mineral rights, as appropriate.^{xi}

3.16 Hazardous Areas

Hazardous areas that present danger to life and property from flood, forest fire, steep slopes, erosion, unstable soil, subsidence or similar geological development constraints will be delineated, and development in such areas will be carefully controlled or prohibited.

3.17 Erosive Slopes and Hillside Protection

Hillside and ridge-line development will be carried out in a manner that, to the extent possible, avoids both negative environmental consequences to the immediate and surrounding area and the ~~degradation~~ of views and vistas from and of public areas. Due to the risk of earth movement and/or mud slides under adverse weather conditions, special attention needs to be paid to soil types and underlying geological strata before and during planning, design and construction of any urban or recreational (e.g., trails) development on or at the base of hillsides.^{xii}

3.18 Wildfire Protection and Management

The city and county will require on-site and off-site measures to guard against the danger of fire

in developments adjacent to natural lands and consistent with forest and grassland ecosystem management principles and practices. Recognizing that fire is a widely accepted means of managing ecosystems, the city and county will integrate ecosystem management principles with wildfire hazard mitigation planning and urban design.

3.19 Preservation of Floodplains

Undeveloped floodplains will be preserved or restored where possible through public land acquisition of high hazard properties, private land dedication and multiple program coordination. Comprehensive planning and management of floodplain lands will promote the preservation of natural and beneficial functions of floodplains whenever possible.

3.20 Flood Management ^{xiii}

The city and county will protect the public and property from the impacts of flooding in a timely and cost-effective manner while balancing community interests with public safety needs. The city and county will manage the potential for floods by implementing the following guiding principles: a) Preserve floodplains; b) Be prepared for floods; c) Help people protect themselves from flood hazards; d) Prevent unwise uses and adverse impacts in the floodplain; and e) Seek to accommodate floods, not control them. The city seeks to manage flood recovery by protecting critical facilities in the 500-year floodplain and implementing multi-hazard mitigation and flood response and recovery plans.

3.21 Non-Structural Approach

The city and county will seek to preserve the natural and beneficial functions of floodplains by emphasizing and balancing the use of non-structural measures with structural mitigation. Where drainageway improvements are proposed, a non-structural approach should be applied wherever possible to preserve the natural values of local waterways while balancing private property interests and associated cost to the city. Flood insurance will be required for all residential or commercial buildings and structures in identified and mapped floodplains.

3.22 Protection of High Hazard Areas

The city and county will prevent redevelopment of significantly flood-damaged properties in high hazard areas. The city, following the county's lead, will prepare a plan for property acquisition and other forms of mitigation for flood-damaged and undeveloped land in high-hazard flood areas. Undeveloped high hazard flood areas will be retained in their natural state whenever possible. To reduce risk and loss, in urban areas, compatible uses of riparian corridors will be preserved, such as natural ecosystems, and wildlife habitat and wetlands will be protected, encouraged wherever appropriate. Trails or other open recreational facilities may be feasible in certain areas.^{xiv}

3.23 Larger Flooding Events

The city and county recognizes that floods larger than the 100-year event will occur resulting in greater risks and flood damage that will affect even improvements constructed with standard flood protection measures. The city will seek to better understand the impact of larger flood events and consider necessary floodplain management strategies, including the protection of critical facilities.

Water and Air Quality

3.24 Protection of Water Quality

Water quality is a critical health, economic and aesthetic concern. The city and county have made great strides in will protecting, maintaining and improving water quality within the Boulder Creek watershed as a necessary component of existing ecosystems and as a critical resource for the human community. The city and county will continue seek to reduce point and nonpoint sources of pollutants, protect and restore natural water systems, and conserve water resources. Special emphasis will be placed on regional efforts, such

| as watershed planning, and ~~priority will be placed~~ on pollution prevention over treatment.

3.25 Water Resource Planning and Acquisition

Water resource planning efforts will be regional in nature and incorporate the goals of water quality protection, ~~and as well as~~ surface and ground water conservation. The city will ~~continue~~ to obtain additional municipal water supplies to ~~ensure~~ adequate drinking water, maintain instream flows and preserve agricultural uses. The city will seek to minimize or mitigate the environmental, agricultural and economic impacts to other jurisdictions in its acquisition of additional municipal water supply. ~~This will to~~ further the goals of maintaining instream flows, minimizing the use of water from transmountain diversions, dewatering watersheds non-contiguous to Boulder County streams -- and preventing the permanent removal of land from agricultural production elsewhere in the state.

3.26 Drinking Water

The city and county will ~~continually~~ seek to improve the quality of drinking water, as needed, and work with other water and land use interests ~~as needed~~ to assure the integrity and quality of its drinking water supplies. The city and county will employ a system-wide approach to protect drinking water quality from sources waters to the water treatment plant and throughout the water distribution system.

3.27 Minimum Flow Program

The city will pursue expansion of the existing in-stream flow program consistent with applicable law and manage stream flows to protect riparian and aquatic ecosystems within the Boulder Creek watershed.

3.28 Surface and Ground Water

Surface and groundwater resources will be managed to prevent their degradation and to protect and enhance aquatic, wetland and riparian ecosystems. Land use and development planning and public land management practices will consider the interdependency of surface and groundwater and potential impacts to these resources from pollutant sources, changes in hydrology, drilling and mining, and dewatering activities.

(Note: Additional policies and regulatory standards will be analyzed to strengthen this language about groundwater to -identify risks and potential impacts.)^{xv}

3.29 Wastewater

The city will pursue sustainable wastewater treatment processes to achieve water quality improvements with greater energy efficiency and minimal chemical use. Pollution prevention and proactive maintenance strategies will be incorporated in wastewater collection system management. The county will discourage the installation of private on-site wastewater systems where municipal collection systems are available or where a potential pollution or health hazard would be created.

3.30 Protection of Air Quality

Air quality is a critical health, economic and aesthetic concern. The city and county will seek to reduce stationary and mobile source emissions of pollutants. Special emphasis will be placed on local and regional efforts to reduce pollutants, which cause adverse health effects, ~~and~~ impair visibility, and contribute to climate change.

(Note: Suggest adding language in "Built Environment" chapter about the important role of street trees and vegetative plantings in mitigating air quality and reducing exposure to pollutants

at the street level.)^{xvi}

Potential New Policy: Protecting the Resilience of the Natural Environment Investments for Resilience

The city and county recognize that the natural environment ~~investments~~ contributes to ward resilience by ~~reducing risk~~ and promoting sustainability. ~~Additionally, urban forestry, tree planting, natural hazard mitigation, improvement of air quality, added recreational activities and storm water mitigation activities have co-benefits.~~^{iviii}

A primary strategy for confronting threats to our native ecosystems due to climate change is designing and implementing ecosystem management programs that include large-scale reserves. These reserves must be on landscape-level and watershed-level scales and must be integrated with other similarly designated areas on public and private lands. Preserving such ecological reserves enhances the resilience of native ecosystems, and reduces the possible loss of native biodiversity, ecological processes and ecosystems.

This strategy also helps to protect the resilience of our urban environment and achieve climate change goals through achieving carbon sequestration and sustaining ecosystem services, reducing risks and costly damage from flooding by preserving drainages and facilitating the absorption of precipitation into our greenbelt. Within the urban natural environment, the city and county's efforts will focus on promoting urban forestry and xeriscaping, and providing opportunities for enjoyment of natural areas.

(Note: Policy directions about coordinated approach, vulnerable populations and resident involvement are suggested in HR&A Report and will need further review over coming weeks.)

ENDNOTES

ⁱ The changes to this chapter reflect work since the 2010 Plan including:

- The city currently is working on updates to its Integrated Pest Management policy, an Urban Forest Strategic Plan, the Resilience Strategy, and draft Climate Commitment.
- The city adopted the Bee Safe Resolution (2015) banning the use of neonicotinoids on city property and a Bear Protection Ordinance to secure waste from bears (2014). The county adopted a resolution to reduce and eliminate pesticide use to protect both people and pollinators (2015).
- Boulder County adopted the Environmental Resources Element of the Boulder County Comprehensive Plan (2015) and is currently working on policy related to Genetically Modified Organisms in the county.
- The city will be developing an Open Space Master Plan (2017).
- Boulder County is analyzing on how to address local oil and gas regulations, and looking at potential policy updates to better align the Fourmile Canyon Creek Watershed Master Plan (2015), Boulder Creek Watershed Master Plan (Urban Drainage and Flood Control District, 2015), and Consortium of Cities Water Stewardship Task Force Final Report (2013).
- HR&A's Recommendations for Resilience Integration (2016)

ⁱⁱ OSBT in particular asked for clarification about how this section of policies apply – to the urban vs. wildlands area, and to OSMP lands vs. more generally. This added language aims at providing that clarification. Additionally, the board asked that the section be edited to sound a bit less human-centric.

ⁱⁱⁱ North Trail Study process clarification and better integration with Boulder County Comprehensive Plan.

^{iv} Clarification of how city and county are programmatically operating – learning from best practices about an ecosystems management approach. OSBT also suggested some language for this policy, reflected here.

^v From city's Climate Commitment document.

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^{vii} City is in process of developing an Urban Canopy Master Plan.

- ^{viii} Stronger language suggested by Planning Board (including applying for private lands, which the city cannot regulate according to state law). Also consistent with city programs.
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- ^{xiv} Clarification suggested by OSBT.
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DRAFT

Spence, Cindy

From: Karen Hollweg <khollweg@stanfordalumni.org>
Sent: Monday, September 12, 2016 9:53 AM
To: boulderplanningboard
Subject: Revision Suggestions for BVCP Sec.3 Natural Environment Policies - DRAFT in PDF
Attachments: Ch1_Section_3_Natural_environment-DRAFT_8.24.16_+pbkhda revisions.pdf; Managing Ecosystems in a Changing World, 11-2015, Frontiers in Ecol.pdf

John, Bryan, Leonard, John, Crystal, Liz, Harmon

Some of you have had problems accessing the docx version of our revision suggestions sent on Sept 8. So, here I am sending to you (attached) a PDF copy of the Aug. 24, 2016 Sec. 3 Natural Environment Policies BVCP Draft in which we have added our suggestions for revision.

COLOR KEY: In this PDF version, the **black** type is the original 2010 BVCP text, the **blue** text are the revisions proposed by staff and revisions added by OSBT and Planning Board in August, and the **red** text shows our suggested revisions.

The 5 of us who have worked to produce this document have each been involved in the city's deliberations and decisions about open space and natural resource issues for decades, and believe our suggestions provide important updates, add a bit more clarity/specificity, and reflect our community's core values. We would like to ask you to consider our suggestions as part of the Planning Board's review of BVCP Policies and to include them in the final draft that you are preparing now.

I have also attached a paper from the Ecological Society of America's journal "With and without warning: managing ecosystems in a changing world" (Nov 2015). It provides the current thinking of ecologists and grounds the revision we propose for the new policy section re: climate change and resilience (it is the last section, just before the ENDNOTES).

With respect,
Karen Hollweg
Pat Billig
Dave Kuntz
Allyn Feinberg
Ray Bridge

3. Natural Environmentⁱ

No new title. Natural Environment must be addressed separately and not mixed with transportation, recycling, or other “sustainability” or energy issues. The natural environment in general, and open space lands in particular, are what make Boulder such an attractive and special place.

*Proposed new section title: **Environmentally Sustainable Community.***

Note: This may be combined with other policies around energy and climate in addition to agriculture and food policies relating to land and environment. Also please note that a further round of editing will occur to improve organization, reduce verbosity and redundancies, and renumber policies as necessary.

In this section, the “natural environment” includes city and county open space lands as well as the environmental components within the urban area. Preservation and protection of ~~the~~ natural environment that characterizes the Boulder Valley is a core community value that has defined Boulder since the end of the 19th century. Within the Boulder Valley’s complex ecological system, there are inextricable links among the natural environment, plants and animals, the built environment, the economy and community livability. ~~These natural and human systems are connected to the region and world, and e~~ Changes to the natural ecosystems within the Boulder Valley can have a profound effect on their viability and the quality of life desired by Boulder Valley citizens.

Over many decades, at the urging of and with the financial support of local citizens, the city and county have actively protected and managed open space around the urban area, and city and county open space plans and policies apply to those public lands acquired and managed as habitat conservation areas, natural areas, recreational areas, and agricultural areas. ~~or used for other purposes, such as agriculture.~~ⁱⁱ

As in the rest of the world, ~~the~~ climate of the Boulder Valley climate is changing. ~~has warmed and dried over the past three decades, and the potential for further changes and intensified weather events because of climate change~~ heighten the need for the city and county to proactively strengthen intervention and investment in natural resources (e.g. urban forestry, wetland and groundwater protection, and natural hazard mitigation) ~~to reduce risk and protect resources.~~ Overall strategies need to include protection of the remaining large blocks of open space land that support the long-term viability of native plants and animals, active maintenance of stream flows and capacities, and more focus on the interface between the natural and urban environment to better understand how to work with natural systems instead of against them. ~~The more the community can assess risks of changes due to climate change and be prepared to preserve and protect environmental resources, the better prepared the community can be for mitigating the causes and impacts of those changes to the natural environment.~~

The natural environment that characterizes the Boulder Valley is a critical asset that must be preserved and protected. It is the framework within which growth and development take place. The city and county recognize that the Boulder Valley is a complex ecological system and that there are inextricable links among our natural environment, the economy,

~~the built environment and community livability. The Boulder Valley is an open system in that our natural and human systems are connected to the region as well as to the entire world. The city and county acknowledge that regional and global changes can have a profound effect on the local environment and that the local economy and built environment can have adverse impacts on natural systems beyond the Boulder Valley.~~

Boulder has been at the forefront of environmental protection and preservation for many years. ~~The predominant vast amount~~ Sixty-three percent of the land in the Boulder Valley Comp Plan area has been protected by the city and county as open space to support critical habitat for native plants and animals and agricultural productivity, and contributes to the high quality of life for residents ~~and critical habitat for native plants and animals~~. The community's historic and on-going emphasis on clean air and water, flood plain management, and preservation of native habitats has resulted in significant progress toward a sustainable, resilient and healthy urban environment.

The city ~~and county places strong emphasis on being a leader and role model to other communities for its exemplary environmental protection practices and accomplishments. The city~~ will continue to ~~identify and develop and~~ implement ~~state-of-the-art~~ environmental policies both community wide and within the city government organization to further ~~its~~ environmental sustainability goals.

The policies in this section support the following city and county goals related to the conservation and preservation of land, water, air resources and pollution prevention ~~and~~ resilience:

- Protecting Native Ecosystems and Biodiversity ~~and Native Ecosystems~~
- Enhancing Urban Environmental Quality
- Protecting Geologic Resources and Reducing Risks from Natural Hazards
- Sustaining Water and Air Quality

Reaching these goals requires an overall planning and management strategy that incorporates an understanding of ecological systems and uses adaptive management principles for monitoring and course corrections.

3.1 Incorporating Ecological Systems into Planning

The city and county will approach planning and policy decisions in the Boulder Valley through an ecosystem framework in which natural regions like bioregions, airsheds and watersheds are considered and incorporated into planning.

3.2 Adaptive Management Approach

The city ~~and county~~ will employ an adaptive management approach to resource protection and enhancement. An adaptive management approach involves ongoing monitoring of resource conditions, assessment of the effectiveness of management actions, revision of management actions based on new information from research, and learning from experience what works and what does not.

Protecting Native Ecosystems and Biodiversity and Native Ecosystems

3.3 Natural Ecosystems

The city and county will protect and restore significant native ecosystems on public and private lands through land use planning, development review, conservation easements, acquisition and public land management practices. The protection and enhancement of biological diversity ~~and~~ habitat for state and federal endangered and threatened species and state, as well as county-critical wildlife habitats/migration corridors, environmental conservation areas, high biodiversity areas, rare plant areas, and significant natural communities and local species of concern will be emphasized.ⁱⁱⁱ Degraded habitat may be restored and selected extirpated species may be reintroduced as a means of enhancing native flora and fauna in the Boulder Valley.

3.4 Ecosystem Connections and Buffers

The city and county recognize the importance of preserving large areas of unfragmented habitat ~~into~~ supporting the biodiversity of its natural lands and viable habitat for native species. The city

and county will work together to preserve, enhance, restore and maintain ~~undeveloped~~ lands identified as critical and having significant ecological value for providing ecosystem connections and buffers to support the natural movement of native organisms (e.g., wildlife corridors) between for joining significant ecosystems.

(Note: Suggest adding new policy language to “Built Environment chapter” to address conservation and design of open space connections and buffers in urban areas, recognizing that urban lands can also be important for supporting biodiversity and maintaining wildlife habitat.)

3.5 Maintain and Restore ~~Natural Disturbance and~~ Ecological Processes

Recognizing that natural ecological processes, such as wildfire and flooding, are integral to the productivity and health of natural ecosystems, the city and county will work to ensure that, when appropriate precautions have been taken for human safety and welfare, ecological processes will be maintained or ~~mimicked-replicated~~ in the management of natural lands.

3.6 Wetland and Riparian Protection

Natural and human-made wetlands and riparian areas are valuable for their ecological ~~and, where appropriate, recreational~~ functions, including their ability to enhance water and air quality and reduce the impacts of flooding. Wetlands and riparian areas also function as important wildlife habitat, especially for rare, threatened and endangered plants, fish and wildlife. The city and county will continue to support and develop programs to protect, ~~and~~ enhance, and educate the public about the value of wetlands and riparian areas in the Boulder Valley. The city will strive for no net loss of wetlands and riparian areas by discouraging their destruction, ~~or requiring the creation and restoration of wetland and riparian areas in~~ in the rare cases when development in urban areas is permitted and the filling of wetlands or destruction of riparian areas cannot be avoided, the creation and restoration of wetland and riparian areas will be required to mitigate the loss. Management of wetland and riparian areas on open space lands is ~~also covered~~ addressed in the OSMP Grasslands Ecosystem Management Plan.

3.7 Invasive Species Management

The city and county will promote efforts, both public and private, to prevent the introduction or limit and reduce areas and opportunities for growth ~~culture~~ of invasive, ~~and non-native~~ plant and animal species and seek to prevent or control their spread. High priority will be given to managing invasive species that are defined and listed by the Colorado Noxious Weed Act and have, or potentially could have, a substantial impact on city and county resources. ~~Management of both non-native and non-local native species will be based on weighing impacts vs. benefits that includes documented threats to species of concern specific to each site, acknowledging that some non-native species may have become naturalized. Management decisions should also take into account changing species composition due to climate change and other human impacts, as well as the role in the ecosystem provided by each organism based on the best available science.~~^{iv}

3.8 Public Access to Public Lands

Certain city and county-owned or managed lands provide a means for educating users on the importance of the natural environment. Public lands may include areas for recreation, preservation of agricultural use, preservation of unique natural features, and preservation of wildlife and plant habitat. Public access to natural lands will be provided where appropriate and where it can be adequately managed and maintained, ~~for,~~ except where closure is necessary to protect areas from unacceptable degradation or impacts to agriculture, habitat or wildlife,^v provide for public safety,^v ~~or reduce visitor conflicts or limits on access necessary to preserve the quality of the visitor experience.~~

See New Policy at the End of Section 3

New Policy: Climate Change Preparation and Adaptation

~~The city and county are both working on climate mitigation and recognize that adaptation plans will be necessary as well. To prepare open space lands and natural areas for climate change, the city and county will consider allowing or facilitating ecosystems' transition to new states in some sites (e.g., newly adapting plants and wildlife) and increasing the stability and resiliency of the~~

~~natural environment elsewhere. Biological indicators can help to identify high risk species for monitoring and/or relocations and may conduct restoration projects using arid-adapted ecotypes or species. Open space master plans guide other topics related to climate change, such as visitor experiences to open space.^v~~

Urban Environmental Quality

3.9 Management of Wildlife-Human Conflicts

The city recognizes the intrinsic value of wildlife in both the urban and rural setting. The city will promote wildlife and land use management practices to minimize conflicts with residents and urban land uses while identifying, preserving and restoring appropriate habitat for wildlife species in the urban area. When a wildlife species is determined to be a nuisance or a public health hazard, a full range of alternative wildlife and land use management techniques will be considered by the city and county in order to mitigate the problem in a manner that is humane, effective, economical and ecologically responsible.^{vi}

3.10 Urban Environmental Quality

To the extent possible, the city and county will seek to protect the environmental quality of areas under significant human influence such as agricultural and urban lands and will balance human needs and public safety with environmental protection. The city will develop community-wide programs and standards for new development and redevelopment so that negative environmental impacts will be mitigated and overall environmental quality of the urban environment will not worsen and may improve.

3.11 Urban Forests

The city will support, promote and, in some cases, regulate the protection of healthy existing trees and the long-term health and vitality of the urban forest in the planning and design of public improvements and private development. Urban canopy plays an important role in a semi-arid climate in ameliorating the role of climate change; therefore, the city will guide short- and long- term urban forest management.^{vii} that encourages overall species diversity and, native and low water demand tree species where appropriate.

3.12 Water Conservation

The city and county will promote the conservation of water resources through water quality protection, public education, monitoring and policies that promote appropriate water usage. The city will endeavor to minimize water waste and reduce water use during peak demand periods by, e.g., promoting xeriscaping. New development and redevelopment designed to conserve water will be encouraged.

3.13 Integrated Pest Management

The city and county will ~~discourage~~ encourage efforts to reduce the use of pesticides and synthetic, inorganic fertilizers.^{viii} In its own practices, the city and county will carefully consider when pest management actions are necessary and focus on creating healthy and thriving ecosystems to lower pest pressure by natural processes. When pest management is necessary, the city commits to the use of ecologically-based integrated pest management principles, which emphasizes the selection of the most environmentally sound approach to pest management and the overall goal of reducing or eliminating the dependence on chemical pest-control strategies. When public or environmental health risks are identified, the city will balance the impacts and risks to the residents and the environment when choosing management control measures.^{ix}

New Policy: Soil Carbon Sequestration

The city recognizes that soil sequestration has a range of potential benefits, including water retention, soil health and stabilization. The city and county will consider soil sequestration strategies, including land management practices in cultivated agricultural areas that may be used to sequester carbon out of the atmosphere, and explore opportunities to incentivize carbon sequestration.^x

The capacity of native grasslands and forests to sequester carbon will be especially important in this effort and native grasslands and forests will be maintained wherever possible to accomplish this objective.

(Note: This policy will continue to be refined.)

Geologic Resources and Natural Hazards

3.14 Unique Geological Features

Due to its location at the interface of the Great Plains and the Rocky Mountains, the Boulder Valley has a number of significant or unique geological and paleontological features. The city and county will ~~attempt to~~ protect these features in situ from alteration or destruction through a variety of means, such as public acquisition, public land management, land use planning and regulation, and density transfer within a particular site.

3.15 Mineral Deposits

Deposits of sand, gravel, coal and similar finite resource areas will be delineated and managed according to state and federal laws and local government regulations. ~~Mineral deposits and other non-renewable resources will be used with the greatest practical efficiency and the least possible disturbance to existing natural and cultural resources. The use of mineral deposits and other non-renewable resources will be evaluated considering only when conservation and recycling is not a feasible alternative. The impacts of resource use will be balanced against the need for these resources and other community values and priorities, including environmental such as natural and cultural resource protection, community and environmental health concerns and carbon emission reduction. The city and county will work together to limit drilling and mining impacts by acquiring mineral rights as appropriate.^{xi}~~

3.16 Hazardous Areas

Hazardous areas that present danger to life and property from flood, forest fire, steep slopes, erosion, unstable soil, subsidence or similar geological development constraints will be delineated, and development in such areas will be carefully controlled or prohibited.

3.17 Erosive Slopes and Hillside Protection

Hillside and ridge-line development will be carried out in a manner that, to the extent possible, avoids both negative environmental consequences to the immediate and surrounding area and the ~~degradation~~ ing of views and vistas from and of public areas. Due to the risk of earth movement and/or mud slides under adverse weather conditions, special attention needs to be paid to soil types and underlying geological strata before and during planning, design and construction of any urban or recreational (e.g., trails) development on or at the base of hillsides.^{xii}

3.18 Wildfire Protection and Management

The city and county will require on-site and off-site measures to guard against the danger of fire

in developments adjacent to natural lands and consistent with forest and grassland ecosystem management principles and practices. Recognizing that fire is a widely accepted means of managing ecosystems, the city and county will integrate ecosystem management principles with wildfire hazard mitigation planning and urban design.

3.19 Preservation of Floodplains

Undeveloped floodplains will be preserved or restored where possible through public land acquisition of high hazard properties, private land dedication and multiple program coordination. Comprehensive planning and management of floodplain lands will promote the preservation of natural and beneficial functions of floodplains whenever possible.

3.20 Flood Management ^{xiii}

The city and county will protect the public and property from the impacts of flooding in a timely and cost-effective manner while balancing community interests with public safety needs. The city and county will manage the potential for floods by implementing the following guiding principles: a) Preserve floodplains; b) Be prepared for floods; c) Help people protect themselves from flood hazards; d) Prevent unwise uses and adverse impacts in the floodplain; and e) Seek to accommodate floods, not control them. The city seeks to manage flood recovery by protecting critical facilities in the 500-year floodplain and implementing multi-hazard mitigation and flood response and recovery plans.

3.21 Non-Structural Approach

The city and county will seek to preserve the natural and beneficial functions of floodplains by emphasizing and balancing the use of non-structural measures with structural mitigation. Where drainageway improvements are proposed, a non-structural approach should be applied wherever possible to preserve the natural values of local waterways while balancing private property interests and associated cost to the city. Flood insurance will be required for all residential or commercial buildings and structures in identified and mapped floodplains.

3.22 Protection of High Hazard Areas

The city and county will prevent redevelopment of significantly flood-damaged properties in high hazard areas. The city, following the county's lead, will prepare a plan for property acquisition and other forms of mitigation for flood-damaged and undeveloped land in high-hazard flood areas. Undeveloped high hazard flood areas will be retained in their natural state whenever possible. To reduce risk and loss, in urban areas, compatible uses of riparian corridors will be preserved, such as natural ecosystems, and wildlife habitat and wetlands will be protected, encouraged wherever appropriate. Trails or other open recreational facilities may be feasible in certain areas.^{xiv}

3.23 Larger Flooding Events

The city and county recognizes that floods larger than the 100-year event will occur resulting in greater risks and flood damage that will affect even improvements constructed with standard flood protection measures. The city will seek to better understand the impact of larger flood events and consider necessary floodplain management strategies, including the protection of critical facilities.

Water and Air Quality

3.24 Protection of Water Quality

Water quality is a critical health, economic and aesthetic concern. The city and county have made great strides in will-protecting, maintaining and improving water quality within the Boulder Creek watershed as a necessary component of existing ecosystems and as a critical resource for the human community. The city and county will continue seek to reduce point and nonpoint sources of pollutants, protect and restore natural water systems, and conserve water resources. Special emphasis will be placed on regional efforts, such

as watershed planning, and ~~priority will be placed~~ on pollution prevention over treatment.

3.25 Water Resource Planning and Acquisition

Water resource planning efforts will be regional in nature and incorporate the goals of water quality protection, ~~and as well as~~ surface and ground water conservation. The city will ~~continue~~ to obtain additional municipal water supplies to ~~e~~nsure adequate drinking water, maintain instream flows and preserve agricultural uses. The city will seek to minimize or mitigate the environmental, agricultural and economic impacts to other jurisdictions in its acquisition of additional municipal water supply. ~~This will to~~ further the goals of maintaining instream flows, minimizing the use of water from transmountain diversions, dewatering watersheds non-contiguous to Boulder County streams -- and preventing the permanent removal of land from agricultural production elsewhere in the state.

3.26 Drinking Water

The city and county will ~~continually~~ seek to improve the quality of drinking water, as needed, and work with other water and land use interests ~~as needed~~ to assure the integrity and quality of its drinking water supplies. The city and county will employ a system-wide approach to protect drinking water quality from sources waters to the water treatment plant and throughout the water distribution system.

3.27 Minimum Flow Program

The city will pursue expansion of the existing in-stream flow program consistent with applicable law and manage stream flows to protect riparian and aquatic ecosystems within the Boulder Creek watershed.

3.28 Surface and Ground Water

Surface and groundwater resources will be managed to prevent their degradation and to protect and enhance aquatic, wetland and riparian ecosystems. Land use and development planning and public land management practices will consider the interdependency of surface and groundwater and potential impacts to these resources from pollutant sources, changes in hydrology, drilling and mining, and dewatering activities.

(Note: Additional policies and regulatory standards will be analyzed to strengthen this language about groundwater to -identify risks and potential impacts.)^{vi}

3.29 Wastewater

The city will pursue sustainable wastewater treatment processes to achieve water quality improvements with greater energy efficiency and minimal chemical use. Pollution prevention and proactive maintenance strategies will be incorporated in wastewater collection system management. The county will discourage the installation of private on-site wastewater systems where municipal collection systems are available or where a potential pollution or health hazard would be created.

3.30 Protection of Air Quality

Air quality is a critical health, economic and aesthetic concern. The city and county will seek to reduce stationary and mobile source emissions of pollutants. Special emphasis will be placed on local and regional efforts to reduce pollutants, which cause adverse health effects, ~~and~~ impair visibility, and contribute to climate change.

(Note: Suggest adding language in "Built Environment" chapter about the important role of street trees and vegetative plantings in mitigating air quality and reducing exposure to pollutants

at the street level.)^{xvi}

Potential New Policy: Protecting the Resilience of the Natural Environment Investments for Resilience

The city and county recognize that the natural environment ~~investments~~ contributes to ward resilience by ~~reducing risk and promoting sustainability. Additionally, urban forestry, tree planting, natural hazard mitigation, improvement of air quality, added recreational activities and storm water mitigation activities have co-benefits.~~^{iv}

A primary strategy for confronting threats to our native ecosystems due to climate change is designing and implementing ecosystem management programs that include large-scale reserves. These reserves must be on landscape-level and watershed-level scales and must be integrated with other similarly designated areas on public and private lands. Preserving such ecological reserves enhances the resilience of native ecosystems, and reduces the possible loss of native biodiversity, ecological processes and ecosystems.

This strategy also helps to protect the resilience of our urban environment and achieve climate change goals through achieving carbon sequestration and sustaining ecosystem services, reducing risks and costly damage from flooding by preserving drainages and facilitating the absorption of precipitation into our greenbelt. Within the urban natural environment, the city and county's efforts will focus on promoting urban forestry and xeriscaping, and providing opportunities for enjoyment of natural areas.

(Note: Policy directions about coordinated approach, vulnerable populations and resident involvement are suggested in HR&A Report and will need further review over coming weeks.)

ENDNOTES

ⁱ The changes to this chapter reflect work since the 2010 Plan including:

- The city currently is working on updates to its Integrated Pest Management policy, an Urban Forest Strategic Plan, the Resilience Strategy, and draft Climate Commitment.
- The city adopted the Bee Safe Resolution (2015) banning the use of neonicotinoids on city property and a Bear Protection Ordinance to secure waste from bears (2014). The county adopted a resolution to reduce and eliminate pesticide use to protect both people and pollinators (2015).
- Boulder County adopted the Environmental Resources Element of the Boulder County Comprehensive Plan (2015) and is currently working on policy related to Genetically Modified Organisms in the county.
- The city will be developing an Open Space Master Plan (2017).
- Boulder County is analyzing on how to address local oil and gas regulations, and looking at potential policy updates to better align the Fourmile Canyon Creek Watershed Master Plan (2015), Boulder Creek Watershed Master Plan (Urban Drainage and Flood Control District, 2015), and Consortium of Cities Water Stewardship Task Force Final Report (2013).
- HR&A's Recommendations for Resilience Integration (2016)

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^{xvi} OSBT suggested some language about mitigating against pollutants at street level with plantings, etc.

^{xvii} [From HR&A Resilience Report.](#)

DRAFT

With and without warning: managing ecosystems in a changing world

Michael L Pace^{1*}, Stephen R Carpenter², and Jonathan J Cole³

Many ecosystems are likely to experience abrupt changes and extreme conditions due to forces such as climate change. These events and their consequences – including the loss of ecosystem services – may be predictable or may occur without warning. Given these considerations, greater efforts are needed in two areas of research: improvements in early warning capability and advances in the management of ecosystems to enhance resilience. Current research has provided enhanced forecasting ability, scenario analysis, and detection of statistical anomalies that indicate abrupt change, but two key concerns remain: the detection of early warning signs near thresholds of change and the use of such warnings for ecosystem management. Furthermore, there may be no advance warning for some types of abrupt change, reinforcing the need to enhance resilience by managing ecosystems to reduce the possibility of crossing thresholds of change. Designing and implementing large-scale management programs is one way to confront these problems.

Front Ecol Environ 2015; 13(9): 460–467, doi:10.1890/150003

In 2011, the worst algal bloom in the history of North America's Lake Erie developed in the western basin of the lake (Stumpf *et al.* 2012), the result of a combination of agricultural fertilizer runoff, heavy spring rains, and stable summer conditions that favored heavy algal growth (Michalak *et al.* 2013). Analysis of the dynamics and projections of climate change, including a prediction of increased storm intensity, led Michalak *et al.* (2013) to call the 2011 Lake Erie bloom “a harbinger of future blooms”. They were right. In the summer of 2014, another massive bloom developed in western Lake Erie, and drinking water drawn from the lake was found to contain unsafe levels of a cyanobacterial toxin. Consequently, the water supply for the city of Toledo, Ohio (population 284 000), was shut down and citizens were soon waiting in long lines for bottled water. In this case, ecologists provided advance

warning; in the future, it will be possible to provide even more detailed predictions of the timing, intensity, and even toxicity of algal blooms in Lake Erie because the causes and conditions leading to such blooms are better understood (Obenour *et al.* 2014).

Climate warming and other human-driven forces mean that, in contrast to the Lake Erie algal blooms, some abrupt ecosystem changes – as well as losses of ecosystem services – may arise without apparent warning. Even in hindsight, the causes of such rapid changes will be hard to discern because of multiple interacting forces. Thus, in the future, abrupt changes are likely to occur both with and without warning. This raises two questions. First, can research improve forecasts and the detection of warning signs? Second, can research help foster ecosystem resilience to limit the risk of crossing irreversible thresholds? Maintaining ecosystem services in the future will require a substantial amount of research on both these questions. Improved forecasts and warnings can help in the management of ecosystems and help to sustain ecosystem services by avoiding unwanted changes and by warning of undesirable conditions. Promoting resilience, especially in cases where there is no forewarning of change, can help avoid thresholds or mitigate abrupt change when thresholds are crossed.

This paper addresses approaches to anticipating and managing adverse ecosystem changes, specifically those resulting from threats such as climate warming, intensification of agriculture, fisheries exploitation, and the introduction of invasive species. Extreme climate events associated with these drivers are of special interest because they may push ecosystems into new states and impede recovery to desirable states. We consider warnings provided by model forecasts and by statistical anomalies indicating loss of resilience as thresholds are approached. We also discuss changes that may occur without warning,

In a nutshell:

- Some ecosystem changes occur without warning; to avoid crossing undesirable thresholds, we need to improve our ability to predict such transitions, to understand the likelihood of their occurrence, and to foster resilience
- Loss of resilience can be assessed using models and statistics, as long as the necessary long-term monitoring is maintained
- Strategies to foster resilience are currently being applied to ecosystems and can have positive ecological and economic outcomes; the Great Barrier Reef (GBR) in Australia provides one such example
- However, regional and global forces are threatening the stability and provision of ecosystem services in ecosystems like the GBR

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especially when driven by extremes (eg severe weather events). Enhancing ecosystem resilience can limit ecosystem change and loss of services and this can be achieved through management, governance, and integration of natural and human infrastructure. We analyze these issues with examples drawn primarily from aquatic ecosystems, but the concepts and lessons are broadly applicable and represent a critical research topic for the future.

■ Extremes and consequences

Climate change is influencing the frequency of extreme weather events. Over a recent 31-year period in the US (1980–2011), there were 134 weather events in the form of floods, droughts, cyclones, and blizzards that caused more than \$1 billion in damage (NRC 2014). Extreme events like these may be predictable in the sense of frequency of occurrence (eg Graham *et al.* 2013) but, depending on the location, severe conditions can be difficult to forecast accurately in terms of when and where these extremes occur (Ghil *et al.* 2011).

Climate extremes may cause marked shifts in ecosystems and alter ecosystem services such as carbon (C) storage. For example, a 1999 windstorm that heavily damaged forests reduced the total annual net production of organic matter (ie net biome production) in Europe by 30%, and droughts in the Amazon Basin in 2005 and 2010 resulted in estimated losses of 1.6 petagrams and 2.5 petagrams of C, respectively (Reichstein *et al.* 2013). While forests generally recover from damaging weather, the periodic effects of extreme events can diminish C sequestration. If C sequestration is a goal of managing forests, the impacts of extreme events that kill trees should be considered, as well as risks that may be increased (eg fire and pest outbreaks).

Extreme events associated with increased precipitation intensity are also becoming more frequent. For instance, while total rainfall increased by 7% in the US during the 20th century, the top percentile of heaviest rainfalls increased by 20% (ie there were more extremely heavy rain events; Bull *et al.* 2007). These types of extremes in precipitation can dramatically alter the loading of nutrients and sediments to aquatic ecosystems. Wisconsin's Lake Mendota is a well-studied example; over 8000 daily observations of the lake were used to fit a three-part statistical distribution of phosphorus (P) loading (Carpenter *et al.* 2015). The distribution represented days of low, medium, and high loads. High loads were delivered on an average of 29 days, collectively accounting for 74% of the annual input. Most days delivered intermediate P inputs (accounting for 21% of the annual load), and some delivered low amounts of P (5% of the annual load). High-load days were associated with the effects of spring precipitation on soils enriched with P, where runoff and P

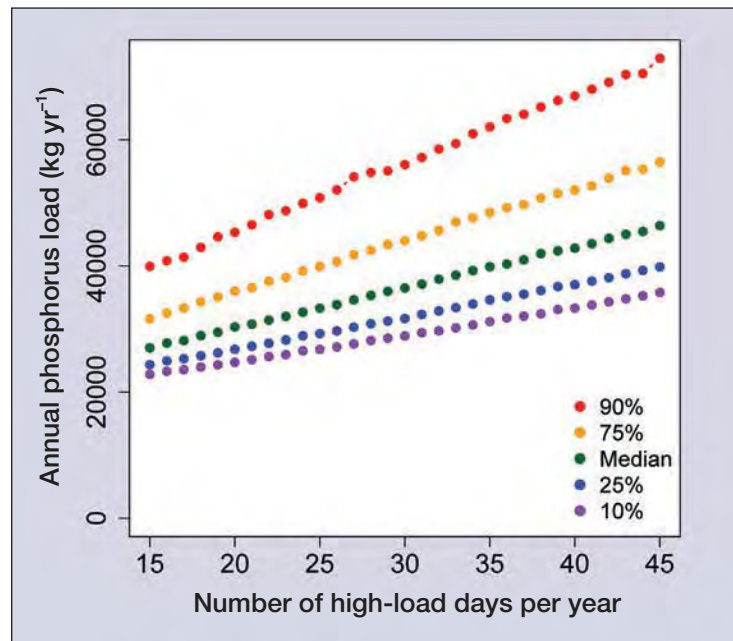


Figure 1. Simulated annual phosphorus loads to Lake Mendota (Wisconsin) in relation to number of days of high phosphorus loads. Percentiles (see key on figure) indicate uncertainty based on 10 000 simulated years. Reproduced with permission from Carpenter *et al.* (2015).

transport rates were high (Carpenter *et al.* 2015).

As with the US as a whole, high-intensity rain events have increased in frequency in the Lake Mendota watershed over time (Kucharik *et al.* 2010). What does this suggest for the future? Simulations of P loading based on the three-part statistical distribution reveal a positive relationship between the number of high-load days per year and annual P loads (Carpenter *et al.* 2015). The trend is linear (Figure 1) but steeper for the higher percentiles (eg for the 90% percentiles, represented as red circles in Figure 1). The more frequent occurrence of extreme precipitation events projected for the future (Vavrus and Van Dorn 2010) will lead to greater numbers of high P loading days. This scenario will limit – and perhaps even reverse – ongoing efforts to reduce P loading and improve water quality in Lake Mendota and similar waterbodies elsewhere. One possible response to this likely future is to initiate changes in watershed management that reduce the amount of P available for runoff.

■ Model-based warnings: ecological forecasting

While predictions are always uncertain, models can provide forecasts and scenarios that guide actions and provide warnings regarding different risks. Several types of models are used for this purpose (eg statistical, process, and simulation models) and the relative merits of each are assessed by Cuddington *et al.* (2013). Here, we focus on short-term (days to months) ecological forecasts based on statistical and process models, and long-term (decades to centuries) projections based on process and simulation models. Short-term forecasts (akin to weather reports)

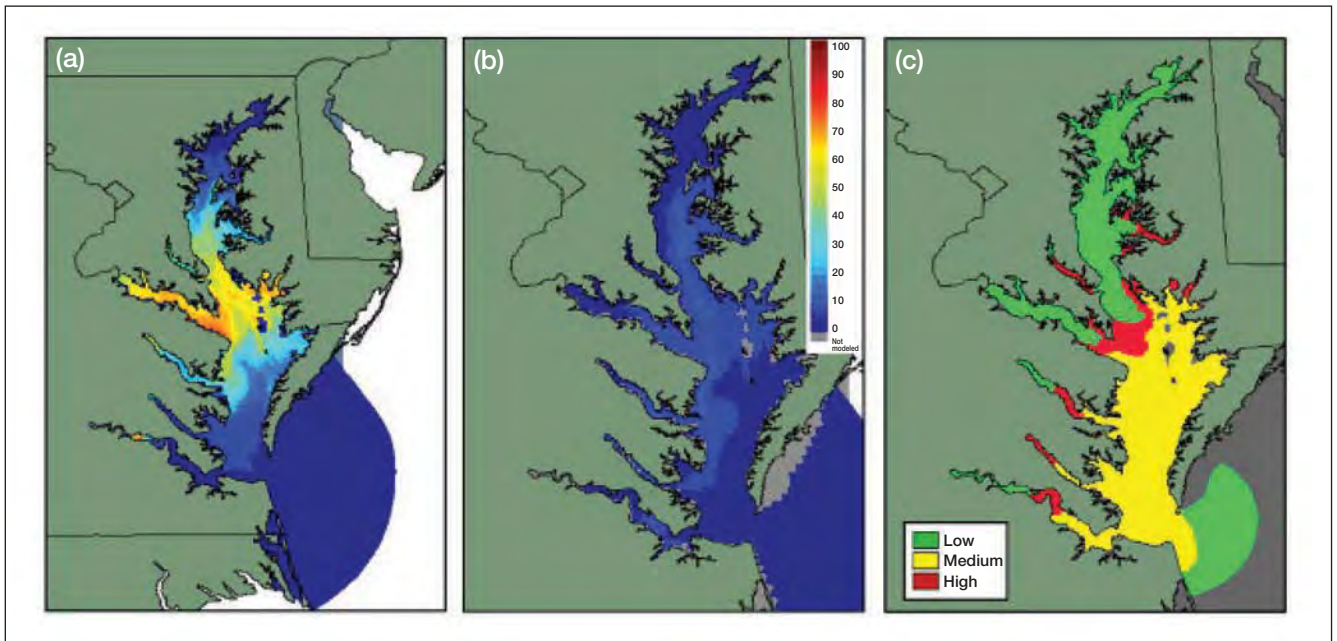


Figure 2. Example of forecasts from Chesapeake Bay models. (a) Probability of encountering Atlantic sea nettles (*Chrysaora quinquecirrha*) on 17 August 2007; (b) probability of encountering pathogenic *Vibrio vulnificus* bacteria on 20 April 2011; (c) relative abundance of the harmful dinoflagellate (*Karlodinium veneficum*) on 20 April 2005. Probabilities for (a) and (b) are 0% (blue) to 100% (red). Colors for (c) are based on low (< 10), medium (10–2000), and high (> 2000) abundances of *K. veneficum* cells per milliliter. Reproduced with permission from Brown *et al.* (2013).

provide warnings about the status of ecosystem services (eg phytoplankton blooms in Lake Erie that affect drinking water), while long-term projections are more useful for identifying threats to services and risks of major changes to ecosystems.

A good example of short-term forecasting comes from a modeling system used for the Chesapeake Bay estuary, located in the mid-Atlantic region of the US. The foundation for forecasting in this instance is a physical–chemical model based on the Regional Ocean Modeling System (ROMS). The ROMS model for the Chesapeake Bay simulates hydrodynamics, temperature, and biogeochemical conditions (eg dissolved oxygen concentrations). Ecological forecasts are based on the physical and chemical characterizations of the bay and use empirical relationships that define habitat suitability for target organisms produced by ROMS. Both “now-casts” (ie current conditions) and “three-day-ahead” forecasts predict the presence and relative abundance of harmful algal taxa, pathogenic bacteria, and other nuisance organisms. These forecasts are updated daily and posted on public websites (Brown *et al.* 2013).

Forecasting is possible because the abundances of organisms of interest in Chesapeake Bay are related to salinity, temperature, and other environmental conditions and all these variables are used to develop empirically based habitat-suitability models. For example, Atlantic sea nettles (*Chrysaora quinquecirrha*, a jellyfish that delivers a nasty sting) are abundant when water temperatures are warm (26–30°C) and salinity is in the range of 10–16 practical salinity units. Data on temperature,

salinity, and abundance of sea nettles were used to develop a logistic regression that indicates probability of occurrence of this species.

These forecasts are useful for both bay users and managers. If, for instance, you were planning to swim in the Chesapeake Bay on August 17, 2007, you would have wanted to avoid mid-bay locations, including portions of the Potomac River, where the odds of encountering sea nettles were high (Figure 2a). On the other hand, the probability of getting an infection in a wound or becoming sick from eating raw shellfish due to the pathogenic bacterium *Vibrio vulnificus* was low throughout the bay on April 20, 2011 (Figure 2b). Forecasts of the relative abundance of harmful algal bloom taxa (Figure 2c) are helpful to managers who must consider when to close beaches and shellfish beds. These forecasts have been shown to predict occurrence reasonably, but comparison with actual data also highlights areas where improvements are needed (Brown *et al.* 2013).

Warnings provided for the Chesapeake Bay suggest great potential for ecological forecasting, but these forecasts are also limited to situations where the system is operating within current bounds. What about projections of longer-term, novel ecosystem conditions that could arise due to environmental drivers such as climate change? For these longer-term situations, models can provide a series of scenarios. For example, the ranges of cold-water fish species are likely to change in the future due to climate warming. Trout inhabiting the rivers of the Southern Appalachian Mountains, for instance, are restricted to higher elevation streams with suitable water

temperatures. Climate warming will reduce the extent of this habitat, and models that project these changes suggest that trout habitat loss will vary from 4% for a 0.5°C rise in mean temperature to 52% for a 2.5°C rise (Flebbe *et al.* 2006). With even higher temperature increases (warming of ~4.5°C), almost all (>90%) suitable habitat will be lost and trout are likely to be eliminated from the region. Furthermore, these habitat suitability models do not account for ecological effects and other changes (eg altered hydrodynamics) that could potentially accelerate the loss of suitable habitat. Thus, models that use these types of warming scenarios do not provide reliable forecasts because many factors not included in the models will affect how trout respond to warming; nonetheless, the models serve to highlight the risks and qualitative patterns of habitat loss that would accompany a warming climate. Evaluating risks is important in managing ecosystems, especially in relation to future uncertainties associated with large-scale environmental drivers such as climate change (Seidl 2014).

■ Regime shifts and warnings from statistical anomalies

One form of abrupt change is a “regime shift”, in which changes in feedbacks on the controls of ecosystems result in critical transitions that lead to different states. Regime shifts are well described conceptually and mathematically (eg Scheffer *et al.* 2001; Scheffer 2009), and in many cases ecosystems either have undergone such changes or exhibit alternate state behavior consistent with regime-shift models (Carpenter 2001; Scheffer 2009; for database of examples of regime shifts see www.regimeshifts.org). Examples of observed regime shifts include transitions from grassland to shrubland that may occur through a variety of mechanisms including fire, grazing, drought, past land use, and other factors (Peters *et al.* 2015). At an even larger scale, sharply defined continental distributions of tropical forests, savannas, and treeless land suggest that each type of vegetation cover represents an alternate state, an observation that is consistent with regime-shift theory (Hirota *et al.* 2011).

Prior to regime shifts, ecosystems respond more slowly after disturbance as thresholds are approached. Responses to successive disturbances are compounded, leading to greater variance in ecosystem states over time. Slow recovery and increasing variance are characteristic of ecosystem states that are becoming less resilient as they approach thresholds of critical change (Scheffer *et al.* 2012). These changes can be observed as statistical anomalies in time and/or space for ecosystem variables (Scheffer *et al.* 2009). A variety of statistical indicators have been evaluated to provide early warnings of pending regime shifts, as detailed by Dakos *et al.* (2012) and Kéfi *et al.* (2014).

The dynamics of statistical indicators in experimental systems approaching and then undergoing a regime shift are consistent with the concept of early warning, as for

example in a food-web model (Carpenter *et al.* 2008), and in laboratory populations of algae (Veraart *et al.* 2012), water fleas (Drake and Griffin 2010), and yeast (Dai *et al.* 2012). We tested this idea in a whole-lake experiment involving the introduction of an apex predator, largemouth bass (*Micropterus salmoides*; Carpenter *et al.* 2011). The manipulated lake was compared to a bass-dominated reference lake. Additions of fish to the manipulated lake triggered a trophic cascade that reorganized the food web. By the final year, bass were plentiful in the manipulated lake, and the system had fully transitioned to a new state similar to that of the reference lake, to which no bass had been added. This manipulation led to changes in the relative abundance of species of plankton and small fish that were consistent with a regime shift (Carpenter *et al.* 2011; Seekell *et al.* 2012; Pace *et al.* 2013). High-frequency measurements were used to analyze whether statistical anomalies occurred during the period of food-web transition (Batt *et al.* 2013). In the manipulated lake, there was a loss of resilience, as represented diagrammatically in Figure 3, and state variables such as small fish abundance and chlorophyll concentrations eventually converged toward conditions resembling those in the reference lake (Figure 3). During the transition, leading indicator statistics (eg moving-window measurements of variance and autocorrelation) spiked, as shown in Figure 3c. These sharp increases in leading statistical indicators occurred more than a year before the full transition to the alternate state (Figure 3). The results of this study were consistent with both theory and prior experiments and, importantly, demonstrated that early warning signals are detectable even amidst the messy variability of complex ecosystems.

Because thresholds for abrupt change are usually unknown, early warnings provide impetus for managers to initiate actions. Ideally, those actions would modify ecosystems so that they move away from threshold levels, maintaining them in a safe operating range (Scheffer *et al.* 2015). Alternatively, actions might help to mitigate the consequences of regime shifts. One issue concerns what variables within an ecosystem should be monitored to provide early warnings, as there is no theoretical basis for deciding on appropriate indicator variables; for now, an investigator's or manager's understanding of a specific system is probably the most reliable guide. Further work is needed to understand the propensity of ecosystems to exhibit warnings near thresholds of change, to determine surveillance methods needed to measure warnings, and to ascertain whether and when warnings come early enough to avoid undesirable changes. The potential for early warning signals also reinforces the value of monitoring.

■ Absence of warning

Despite the possibilities offered by forecasting, and improved detection and interpretation of statistical anomalies, many ecosystems are likely to change without warning (Hastings and Wysham 2010). This will happen

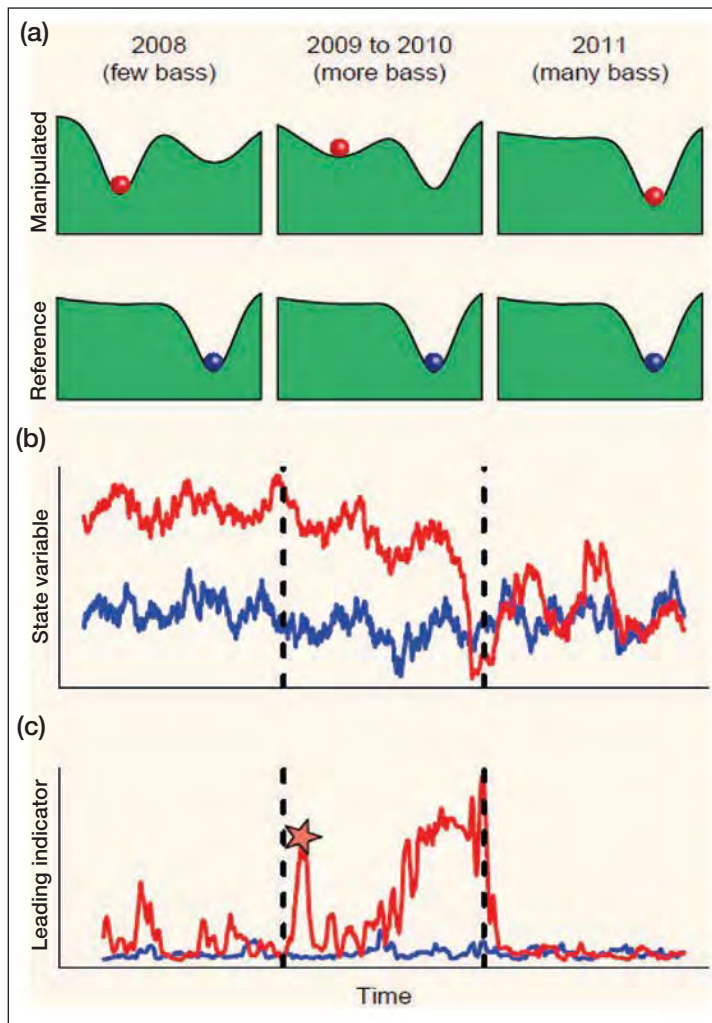


Figure 3. Conceptual model of early warning of a food-web shift, based on a whole-lake apex predator addition experiment. (a) The ball and valley diagrams represent the states of the manipulated (red ball) and reference (blue ball) lakes. When the balls are in a deep valley, the system is stable and unlikely to change. When the ball is in a shallow valley, resilience is lower and change is more likely. Note the loss of resilience in the manipulated lake, illustrated by the flattening of the valley in 2009 and 2010 (middle column). (b) State variable (eg chlorophyll *a*) dynamics in the manipulated (red) and reference (blue) lakes. (c) The shift in the leading indicator to high values (eg a shift to high variance in chlorophyll *a* values) provides early warning, such as denoted by the star. This model is a diagrammatic representation of the predator addition experiment; see the references cited in the text for more detailed explanations. Reproduced with permission from Batt *et al.* (2013).

for at least three reasons: (1) unknown thresholds are crossed rapidly; (2) some types of abrupt change will give no warning, statistical or otherwise (Boettiger *et al.* 2013); and (3) potential warnings will not be detected because many systems are not routinely monitored. Since human drivers of ecosystem change are in many cases intensifying, fostering ecosystem resilience is prudent and may limit future loss of services. This raises the question: can ecosystems be managed to improve resilience, especially in relation to climate change?

■ Establishing goals and managing ecosystems

A starting point for fostering resilience and preparing ecosystems to cope with new kinds of change is to establish goals. What is the system being managed for? What is feasible in terms of either restoring or sustaining services? Governments and communities typically establish management goals for ecosystems and their services, while ecologists contribute perspective and expertise about what is achievable, implement restoration measures, and assess evolving conditions relative to the stated goals.

The management plan for the Hudson River estuary (www.dec.ny.gov/lands/5104.html), developed by environmental agencies in New York State, is one example of effective goal establishment. Twelve goals – encompassing conservation, restoration, education, human use, and improved infrastructure for human access – are specified in the plan. The first goal is to restore both commercial and recreational fisheries. The principal commercial fisheries in the Hudson River are striped bass (*Morone saxatilis*), American shad (*Alosa sapidissima*), Atlantic sturgeon (*Acipenser oxyrinchus*), river herring (*Alosa* spp), and American eel (*Anguilla rostrata*). Commercial fishing is currently not permitted for several species because of their small population sizes (shad, herring, sturgeon, eel) or because of contamination (striped bass). Bringing these species back to abundances that would support commercial harvest requires protection from overfishing outside the Hudson estuary, improvements of both within-river and oceanic habitats, removal of obstructions to migrations (eg barriers in Hudson tributaries for herring and eels), and reductions of persistent contaminants. In addition, sea level is rising and the Hudson River is warming, which will have unknown consequences for fisheries (Seekell and Pace 2011; Strayer *et al.* 2014). Long-term prospects for achieving the commercial fishing goal outlined in the management plan are uncertain because, despite management efforts, the populations of many commercial fish species are at historical lows. Nonetheless, the Hudson River Estuary Action Agenda provides clear direction, laudable goals, and specific actions needed to protect and restore fish populations that are considered to be both culturally important resources and positive indicators of river ecosystem conditions.

Once goals are determined, ecosystem management can begin. Here, we are specifically concerned with deliberate management actions that reduce risk and promote resilience in order to sustain, restore, or buffer ecosystems and their services. What can researchers learn and what actions can managers implement to help ecosystems withstand forces that shift them away from desirable conditions?

Managing ecosystems in the face of future uncertainties

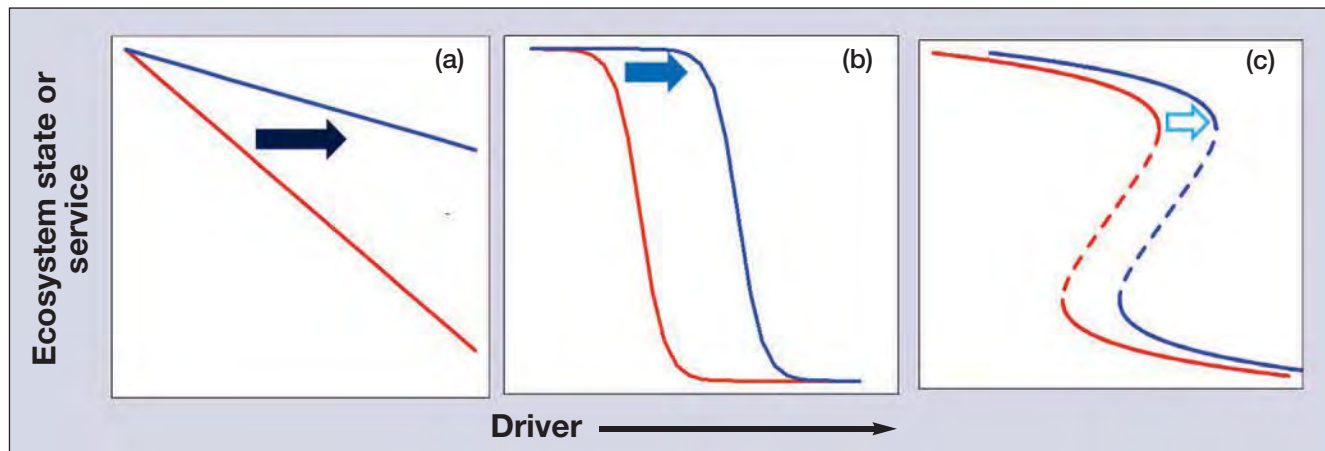


Figure 4. Response of an ecosystem state variable or an ecosystem service to an increase in a driver where a driver represents controlling processes (eg climate controls or harvesting) in the case of: (a) a linear decline, (b) a non-linear decline, and (c) a regime shift. The change from red lines to blue lines reflects actions that increase resilience reducing declines. Arrows within the graphs indicate the points where actions modify or reduce risk of decline in relation to a driver. The dark blue arrow (a) represents a shift in system dynamics from the red line to the blue line that lowers the response rate to a driver. The light blue arrow (b) represents a shift in the threshold at which the driver causes a large decline. The open blue arrow (c) represents a shift from the red line to the blue line where a collapse to an alternate state occurs.

requires increasing resilience of key variables to drivers of change. Consider a simple linear response to a driver, where an ecosystem state or service degrades as a driver increases. To limit degradation, the driver must be reduced and/or the slope of the response must be flattened (Figure 4a). For changes where there are thresholds, actions can move the system/service away from the threshold or alter the relationship of the threshold relative to the driver (Figure 4b). For a regime shift – where the system or service abruptly moves to an undesirable state – actions can also move the system away from a threshold or change the point where the system collapses in response to increases in the driver (Figure 4c). In some cases, it may be possible to change the shape of the curve in Figure 4c such that the system is not subject to a regime shift and transitions are more similar to those shown in Figure 4, a and b. Such a change could build resilience by eliminating an adverse ecosystem state.

■ Enhancing resilience

Biggs *et al.* (2012) described seven principles for maintaining or enhancing resilience. Three of these principles are related to properties of social–ecological systems, whereas the other four relate to governance of social–ecological systems. Management actions that can build or preserve resilience of ecosystems are ones that maintain diversity, manage connectivity, and monitor slow variables. Diversity of species and types of ecosystems provide a greater set of potential responses to disturbances or directional environmental changes (eg warming) and may thereby ameliorate unwanted changes. For example, combinations of species that vary in their resilience to temperature fluctuations stabilize total biomass in a changing climate (Ives *et al.* 1999). Connectivity pro-

motes recovery from disturbance by facilitating colonization from refuges, but too much connectivity can promote the spread of pests and pathogens (Vander Zanden and Olden 2008); thus, optimum connectivity for resilience may be at an intermediate level. Slowly changing regulating variables affect the response of ecosystems to changing drivers and disturbance. In freshwater ecosystems, nutrients accumulated in sediments over decades may stabilize eutrophication, despite strong nutrient-loading reductions by lake managers (Søndergaard *et al.* 2007). For terrestrial systems, the Amazonian tropical forest provides an example of a situation where changing drought intensity and frequency may increase vulnerability, leading to a rapid shift from forest to savanna conditions (Hirota *et al.* 2011). One slowly changing variable that could trigger such a shift would be a decline in deep soil moisture, a resource that tree roots tap into during the dry season to maintain high rates of evapotranspiration, thereby promoting the water recycling needed to sustain the forest (Nepstad *et al.* 1994; Harper *et al.* 2010). Thus, gradual changes in such variables as sediment nutrients and deep soil moisture can either stabilize a current state or shift an ecosystem to a critical point where abrupt transitions occur (Rinaldi and Scheffer 2000).

Resilience can be increased by modifying a managed system in such a way that it moves away from a threshold of unwanted regime shifts. Rangelands in Australia, for instance, exhibit a critical threshold of grass cover (Walker and Salt 2012): in moist rangelands, too little grass leads to shrub encroachment; in dry rangelands, too little grass leads to desertification. Experienced rangeland managers avoid the threshold of shifts from grasslands to shrubs or deserts by lowering cattle densities. However, crossing a second threshold – in this case a financial threshold of income-to-debt ratio – can force pastoralists to overstock

the range, leading to regime shifts that take decades to reverse. Economic considerations often drive managed ecosystems close to thresholds where resilience is low and the risk of a regime shift is high (Ludwig *et al.* 2005).

How can unwanted changes, such as regime shifts, be avoided? Managers of Kruger National Park in South Africa developed the concept of “thresholds of potential concern” (TPCs) as a management tool to identify potentially important changes in the park (Biggs and Rogers 2003). The key words are “potential concern”, because it is not usually known whether reaching one of these thresholds will trigger unwanted change. Rather, managers identify boundaries for park conditions that they seek to operate within, and if a TPC is breached, management intervention is considered. TPCs in Kruger National Park are also updated periodically, as new ecological information becomes available, and so provide a basis for continued surveillance, making management actions more likely when changes occur. Management action is often most difficult when a crisis is acute, and thus TPCs also provide a mechanism to reduce management inertia.

■ Resilience by design

Assessing and increasing resilience is an important goal and research topic, and attempts to manage ecosystem resilience at large scales are now underway. Approaches may include altering and improving natural and human infrastructure, managing species harvests through the establishment of quotas and “no-take” zones, promoting policies that provide economic benefits while conserving species and ecosystems, and sustaining cultural practices in ways that also preserve ecological systems. These strategies, and many others, go beyond simply creating protected areas. We use as an example the management of the Great Barrier Reef (GBR) in Australia, where a network of marine reserves was created under a reef-wide zoning plan. The reef, which occupies an area of >300 000 km², is managed, in part, by demarcating spatial units that differ in fishery regulations, including no-entry zones, no-take zones, limited-fishing zones, and fished zones. Fish abundance and biomass, as well as average fish size, have typically increased in areas where fishing is banned, and especially in no-entry areas (McCook *et al.* 2010). Reef fishes, which characteristically have restricted home ranges, have increased in abundance more than wide-ranging species, such as sharks. Additionally, the GBR supports dugongs (*Dugong dugon*) and a variety of marine turtles of conservation concern – all species that are wide-ranging, and thus cannot be protected by simple zoning of habitat. Nevertheless, the creation of reserves, in combination with other management activities (eg those that reduce bycatch), is improving conditions for these threatened species (McCook *et al.* 2010). The costs of these changes in GBR management are well-documented and are modest in comparison to the direct economic-use benefits. Overall, the changes

associated with marine zoning have induced some negative impacts on commercial fishing and their associated communities but are also associated with substantial growth in tourism revenues (McCook *et al.* 2010). Importantly, the spatial management program has resulted in increased coral growth, reductions in outbreaks of coral-consuming crown-of-thorns starfish (*Acanthaster planci*), and additional protection of non-reef habitats (eg from damage caused by trawling). These changes, especially the increases in coral cover, sustain foundational ecosystem processes and enhance the resilience of the GBR (McCook *et al.* 2010). Despite these successes, there is ongoing deterioration of the GBR as a result of dredging activity, development of fossil-fuel infrastructure, watershed runoff, fishing, and climate change (Hughes *et al.* 2015). These mainly external drivers erode resilience, and there is concern that without action at regional and global scales the GBR will transition to an undesirable state (Hughes *et al.* 2015).

■ Synthesis and conclusions

Ecologists cannot prevent the effects of an anthropogenic global climate warming period that will likely occur over the next few centuries. However, over the next few decades, ecologists can assist in the development of management approaches that foster resilience and create warnings. While the examples we present here are drawn from specific ecosystems, the issues and concepts apply to the biosphere with similar needs for forecasts and early warnings at the global scale (Barnosky *et al.* 2012). These advances will help sustain ecosystems and their services in the face of future uncertainty and change. In this context, the study of extremes – particularly those related to climate – is critical, because extreme conditions have the greatest potential for causing ecosystems to cross thresholds, resulting in the loss of key ecosystem services. Designing and implementing large-scale ecosystem management programs is one way to confront these problems and potentially provide positive ecological and economic outcomes.

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Spence, Cindy

From: Elizabeth Black <elizabeth@elizabethblackart.com>
Sent: Monday, September 12, 2016 1:48 PM
To: 'Karen Hollweg'; Billig, Pat; feinberga@comcast.net; rbridge@earthnet.net
Cc: boulderplanningboard; KenCairn, Brett; Harkins, Jamie; Ellis, Lesli
Subject: RE: Revision Suggestions for BVCP Sec.3 Natural Environment Policies - DRAFT in PDF

Hello Planning Board and FOBOS, Thanks very much for sharing your suggested edits with me. I have a couple of comments regarding two particular areas: #1 **Soil Sequestration of Carbon**, and #2 **Species Management**, in regards to Climate Change. (Your edits are included below (aqua/red/black), with my suggested edits in highlighted yellow.)

#1 Soil Sequestration of Carbon

I am very pleased that Soil Sequestration of Carbon has made it into the draft! However, I am disturbed that you are limiting yourself to “cultivated agricultural areas”, which is a very small percentage of OSMP lands (less than 10%??). The vast majority of OSMP lands are rangelands, pasture, native grasslands and forest. These 4 land-types have great carbon sequestration potential, through techniques such as [compost application to grazed rangelands](#) (accepted for carbon credits by the [American Carbon Registry](#), pioneered by the [Marin Carbon Project](#)), managed rotational grazing (or [holistic range management / the “Savory method”](#)), and slash management techniques or biochar applications for forest lands. I believe you are severely restricting Boulder’s ability to sequester carbon by limiting sequestration to “cultivated agricultural areas.”

I also sense the fear that soil carbon sequestration will lead to the plowing up of “native grasslands”. That is not at all the case. And this highlights a further problem, in that the phrase “native grassland” is being used here as a placeholder for a wide variety of different kinds of grasslands. I think we all would agree that an upland meadow which has not seen cattle for 50 years is not the same as a grazed irrigated lowland pasture or a grazed dryland range, or an enclosed, denuded prairie-dog pale. All 4 are quite different, and carbon sequestration techniques which are appropriate for one may not be appropriate for another. But they all seem to have been lumped under the heading of “native grasslands” here, which is unfortunate. **So I am suggesting the addition of “and grazed/degraded pasture or rangeland” to the first sentence. (See below)**

I also suggest the addition of a final sentence : **“Current management of rangelands and forests will be studied for opportunities to enhance carbon sequestration.”** There are many things that might increase carbon sequestration within OSMP’s current scope of land management. In forest thinning projects, inoculation of slash with fungal rich compost might lead to greater carbon sequestration and more soil building in our forests. Weed control projects using cattle and goats could be managed with soil sequestration in mind, as well as weed control. Leasees of rangelands might increase grass diversity and quality with managed rotational grazing, as has been reported in the literature. Degraded rangelands or prairie dog pales might be restored with compost applications. You won’t know until you try, and I believe the language as currently proposed precludes your even trying some of these techniques.

New Policy: Soil Carbon Sequestration

The city recognizes that soil sequestration has a range of potential benefits, including water retention, soil health and stabilization. The city and county will consider soil sequestration strategies, including land management practices in cultivated agricultural areas and grazed/degraded pasture or rangeland that may be used to sequester carbon out of the atmosphere, and explore opportunities to incentivize carbon sequestration. The capacity of native grasslands and forests to sequester carbon will be especially important in this effort and native grasslands and forests will be maintained wherever possible to accomplish this objective. **Current management of rangelands and forests will be studied for opportunities to enhance carbon sequestration.** (Note: This policy will continue to be refined.)

#2 Species Management

In your suggested edits, it looks like you are deleting language in red that is also crossed out in **sections 3.7** and **New Policy End of Section 3**. Am I reading this correctly? I have highlighted in yellow the sections of text that I believe you should leave in. (See below)

Current climate projections for Boulder are that if we stick to the commitments the world made at COP 21, we can expect Boulder’s climate to be the same as Albuquerque’s by 2100. This means that a tree planted today will have to

survive an Albuquerque-like environment when it reaches maturity. This also means that we have to start thinking RIGHT NOW about the varieties of trees we are planting on Open Space. We need to at least consider using tree seed from further south, from New Mexico, for reforestation projects. We can still plant the Doug firs, Ponderosas, etc. which currently make up our forests, but we need varieties adapted to a much warmer climate. Trees cannot move their ranges fast enough on their own to keep up with the changing climate. We have to help them expand their ranges quickly, since we made this mess in the first place. I know it's uncomfortable and violates all kinds of dearly held environmental tenets, but the alternative is a forest that won't be able to survive or thrive. The biggest bang for our carbon sequestration buck is to keep our forests as healthy as possible and growing as well as possible in this changing climate. That means even more forest thinning projects, as well as using seed sources from more arid regions, for reforestation post-burn. **Please leave in the areas highlighted in yellow below.**

3.7 Invasive Species Management

The city and county will promote efforts, both public and private, to prevent the introduction or **limit and reduce areas and opportunities for growth** of invasive, **and non-native** plant and animal species and seek to **prevent or control** their spread. High priority will be given to managing invasive species that **are defined and listed by the Colorado Noxious Weed Act** and have, or potentially could have, a substantial impact on city and county resources. **Management of both non-native and non-local native species will be based on weighing impacts vs. benefits that includes documented threats to species of concern specific to each site, acknowledging that some non-native species may have become naturalized. Management decisions should also take into account changing species composition due to climate change and other human impacts, as well as the role in the ecosystem provided by each organism based on the best available science.**

See New Policy at the End of Section 3

New Policy: Climate Change Preparation and Adaptation

The city and county are both working on climate mitigation and recognize that adaptation plans will be necessary as well. To prepare open space lands and natural areas for climate change, the city and county will consider allowing or facilitating ecosystems' transition to new states in some sites (e.g., newly adapting plants and wildlife) and increasing the stability and resiliency of the natural environment elsewhere. Biological indicators can help to identify high risk species for monitoring and/or relocations and may conduct restoration projects using arid-adapted ecotypes or species. Open space master plans guide other topics related to climate change, such as visitor experiences to open space.

Thanks very much for your consideration. Please call me with any questions you have. Elizabeth Black

Elizabeth Black
303-449-7532
4340 N 13th St
Boulder CO 80304
Elizabeth@ElizabethBlackArt.com

Climate Wise-Guy says:

The SOIL can SAVE US!
It can sequester CO₂!

There's HOPE?



There's always hope.
Plants and their soil microbes
can put CO₂ back into the soil,
if we treat them right.



#WhyImWatching

From: Karen Hollweg [mailto:kollweg@stanfordalumni.org]
Sent: Monday, September 12, 2016 10:20 AM
To: Elizabeth@ElizabethBlackArt.com
Subject: FW: Revision Suggestions for BVCP Sec.3 Natural Environment Policies - DRAFT in PDF

Here/below & attached are the suggestions we are making – including the one we want you especially to be aware of re carbon sequestration in our native grasslands and forests.

Karen

From: Karen Hollweg [mailto:kollweg@stanfordalumni.org]
Sent: Monday, September 12, 2016 9:53 AM
To: boulderplanningboard@bouldercolorado.gov
Subject: Revision Suggestions for BVCP Sec.3 Natural Environment Policies - DRAFT in PDF

John, Bryan, Leonard, John, Crystal, Liz, Harmon

Some of you have had problems accessing the docx version of our revision suggestions sent on Sept 8. So, here I am sending to you (attached) a PDF copy of the Aug. 24, 2016 Sec. 3 Natural Environment Policies BVCP Draft in which we have added our suggestions for revision.

COLOR KEY: In this PDF version, the **black** type is the original 2010 BVCP text, the **blue** text are the revisions proposed by staff and revisions added by OSBT and Planning Board in August, and the **red** text shows our suggested revisions.

The 5 of us who have worked to produce this document have each been involved in the city's deliberations and decisions about open space and natural resource issues for decades, and believe our suggestions provide important updates, add a bit more clarity/specificity, and reflect our community's core values. We would like to ask you to consider our suggestions as part of the Planning Board's review of BVCP Policies and to include them in the final draft that you are preparing now.

I have also attached a paper from the Ecological Society of America's journal "With and without warning: managing ecosystems in a changing world" (Nov 2015). It provides the current thinking of ecologists and grounds the revision we propose for the new policy section re: climate change and resilience (it is the last section, just before the ENDNOTES).

With respect,
Karen Hollweg
Pat Billig
Dave Kuntz
Allyn Feinberg
Ray Bridge

From: [Hollie Rogin](#)
To: [boulderplanningboard](#)
Subject: Comments regarding the BVCP
Date: Wednesday, September 14, 2016 3:54:44 PM

Planning Board,

In advance of tomorrow evening's meeting, I wanted to send you my thoughts on the BVCP Scenarios, and on the BVCP changes in general.

1. Though it may not be popular, reigning in commercial growth will be key to preserving Boulder's desirability and livability, and to easing the pressure on housing and traffic. Neighboring towns such as Longmont could share in the benefits of growing, vibrant economies.

2. Regarding infill: What's not being addressed is whether the current infrastructure can support increased density. Here's a personal example: in 2007, I replaced the main sewer line that goes from my house to the street. The original 1954 line had collapsed because when my neighborhood was constructed, the contractor laying water lines and sewer lines placed a concrete water meter pit on top of my clay sewer line. Instead of digging two trenches, they dug one. I'm quite sure mine isn't the only home in Boulder at which this occurred. What will happen if neighborhoods like mine become more dense with people, be it through infill or co-ops?

3. Let's consider easing the focus on creating more housing and increasing Boulder's population. Instead, is it possible to convert existing market rate housing to affordable housing? Could the City use in-lieu funds to purchase existing properties and transfer them to BHP?

4. Let's also be extremely careful about turning existing light industrial areas into residential neighborhoods. We rely on the businesses in them. Let's not be forced to drive to Longmont to get a lawnmower fixed or to buy plumbing supplies.

5. Open space acquisition should still be a goal. Curious to know why that was stricken.

6. Low density neighborhoods should remain low density. Let's not assume that everyone wants to live in an urban environment. Some of us, like me, value the small

town feel of our neighborhoods. It's why I moved here from Chicago 20 years ago. I did not move here and try to change Boulder; the city was what I was moving away from. I strongly support implementing neighborhood planning. There are many diverse neighborhoods within different areas of Boulder, and that diversity should be respected.

7. I do not support incentive-based zoning. If I understand correctly, BHP properties do not pay property taxes; lifting zoning regulations will mean that those of us who do pay property taxes will pay more.

8. Define community benefit. One cannot measure what is not defined.

9. In regards to Section 3, Natural Environment: Please stet the following. It is still true and important.

The natural environment that characterizes the Boulder Valley is a critical asset that must be preserved and protected. It is the framework within which growth and development take place.

10. In regards to 4.04 Energy-Efficient Land Use

"The city and county will encourage energy conservation through land use policies and regulations governing placement and orientation of land use to minimize energy use, including co-location of mixed use developments that are surrounded by open space." Please add: where neighborhood character is not degraded, and where existing neighborhoods indicate such developments would be acceptable, either through neighborhood planning or neighborhood outreach.

11. Finally, and I will be addressing this in person tomorrow evening, in regards to Section 5, Economically Viable Community:

5.01:

"As an integral part of redevelopment and area planning efforts, the city acknowledges that displacement and loss of service and affordable retail uses need to be considered as a potential tradeoff in the context of redevelopment and planning goals."

This language must be stronger, and we should take action. It's not simply a potential tradeoff, and acknowledgement would do absolutely nothing for the business owners who will lose their spaces.

5.05 Support for Local Business and Business Retention

This language and intent is not strong enough. We are talking about people's livelihoods, their families, and their employees. The good news is that there are proven policies that can be implemented now. There are cities and towns around the world that have implemented specific policies, with great success, to retain and encourage the small businesses that contribute character and diversity to their hometowns. I suggest changing this language to:

Small, local, independent businesses of all kinds are essential to Boulder's economic sustainability, diversity, and inclusiveness. The city and county will develop and implement policies in order to nurture, support and retain them.

Thank you for your consideration,

Hollie Rogin

From: [Greg Wilkerson](#)
To: [boulderplanningboard](#)
Subject: Respectful Opinion on the Comp Plan from: Greg Wilkerson
Date: Wednesday, September 14, 2016 3:56:58 PM

Dear Planning Board Members,

It is my sincere considered opinion that Boulder has way too many jobs already and we don't need anymore.

I recommend that you choose Policy Option D.

I request that you put stringent limits on any additional commercial growth.

Further, I request that you make "Neighborhood Plans" be an integral part of the comp plan. These neighborhood plans should be written by the neighbors themselves as they do in many other small cities.

It is my sincere considered opinion that Boulder already has plenty of money and we don't need any further expansion in the commercial sector.

Best regards,

Greg

PS These opinions are mine alone and do not represent any organization.

Greg Wilkerson

Metro Brokers

(303) 447-1068
realtorgreg@hotmail.com

SEARCH HOMES INSTANTLY AT www.GregWilkerson.com

From: [Su Chen](#)
To: [boulderplanningboard](#)
Subject: Boulder Valley Comprehensive Plan
Date: Wednesday, September 14, 2016 5:26:08 PM

Dear Planning Board,

I understand that the BVCP will be discussed at your meeting this Thursday evening. I have read about some of the changes that have been proposed, and the "scenario options" that were presented. To me, the ONLY option that makes any sense is "POLICY OPTION D". Boulder's job growth is way out of line with its housing capacity, and this trend MUST BE SLOWED or REVERSED in order to start solving the fundamental problem. All of the other options appear to be band-aid solutions which are unlikely to be effective. Commercial and job growth has to be slowed down, or spread evenly throughout the region, not concentrated just in the city of Boulder. Let's get that under control, and then concentrate on transportation solutions for the region.

Also, I was alarmed to see that statements pertaining to environmental protection are being watered down with weasel words like "whenever practical" and "to the extent possible". This is just wrong for Boulder. Environmental concerns should be placed above all other considerations.

Regards,
Su Chen
755 13th St

From: rmheg@aol.com
To: [boulderplanningboard](#)
Cc: [Council](#)
Subject: Comp plan
Date: Wednesday, September 14, 2016 5:46:43 PM

I am writing to recommend that policy option D be adopted which limits commercial growth.

I also request Thatcher City incorporate neighborhood plans written neighborhood residents

I request that the comp plan preserve the unique character of Boulder neighborhoods and honor existing zoning limits.

I request that community benefits be defined in this comp update. No more buy outs for affordable housing. Developers need to build affordable housing into their projects onsite of the development period.

Sincerely,

Rosemary Hegarty PT, APT, CCRT
303-499-4602 office
rmheg@aol.com
www.rosemaryhegarty.com

From: [Harold Hallstein](#)
To: [boulderplanningboard](#)
Subject: BVCP Update - Ahead of Meeting
Date: Wednesday, September 14, 2016 6:20:24 PM

Dear Planning Board,

If our City is serious about affordable housing, we should scrap or drastically alter cash-in lieu in the BVCP update. My area, where I serve a local HOA, is made up of nearly *50% affordable housing*. It is an absolutely wonderful community! The reason it is so is very simple. The deed restricted property is interspersed with market property leading to cohesion. The majority is also ownership based - thus creating community buy-in by all residents. Clearly, cash-in-lieu and the centrally planned approach of sticking 100% affordable developments abreast of market developments is creating intense strife and ultimately will cause bifurcated social outcomes.

Almost everyone I speak with personally on staff in all agencies agrees the interspersed model creates better outcomes for all. So let's actually do something about that and make a very clear statement about the values we have regarding these programs - and with rare exception make developers solve this problem for us on each parcel and redevelopment.

I'm also highly supportive of Policy Option D - which respects the special nature of our surroundings in Boulder, and actively seeks to control and manage growth in a way that will take pressure off housing prices. It is one of the few suggestions I've seen that actually stands to make the market rate stock relatively more affordable over time.

I also think neighborhoods should have a leading role in the creation of neighborhood plans. A great deal of City community engagement seems to be ignored these days. This would be a nice way to put democracy back into action.

Lastly, and most critically, as far as zoning is concerned, I think the current rush of upzoning is simply a strategically veiled way of breaking promises to homeowners and voters - for the benefit of select special interests and agencies. The same is true regarding the repurposing of obviously dedicated lands, and annexation for the sake of non-integrated high density development.

Many of us moved here specifically because the zoning was done pretty well and that is why we think it is a lovely place. Many of us simply did not seek out city living and want those older contracts/commitments/promises kept. I think you will find this is the case for many of the affordable owners in our community as well. I know it is in mine. Many affordable owners intentionally bought deed restricted

property after much hesitation - in order to make a known financial sacrifice so they could live in a community with this exact zoning and historic record of environmental stewardship.

Thank you very much for your consideration.

Harold Hallstein

(303) 895-8500

From: [Kimman Harmon](#)
To: [boulderplanningboard](#)
Subject: Re: comp plan
Date: Wednesday, September 14, 2016 7:03:11 PM

Dear Planning Board members;

I would like to say that we should restrict commercial growth in Boulder. Meaning let's not be thinking of trying to out do Broomfield, Louisville or Longmont. Let them have some jobs. We have more than we can handle. As my friends from the south say, "Slow up". Thanks for listening!

Kimman

-

www.kimmanharmon.com

From: [Sgt. Groovy](#)
To: [boulderplanningboard](#)
Subject: Comp Plan Review
Date: Wednesday, September 14, 2016 8:09:52 PM

Dear Planning Board,

I'd like to share my thoughts with you regarding the Comp Plan as you prepare for tomorrow's meeting.

Please recommend "Policy Option D," out of the four Comp Plan scenarios. It, alone, recommends limiting commercial growth. Many of us feel it's about time that surrounding communities like Longmont, Superior, etc, share the burden of commercial growth.

Here in Boulder we've unfortunately created more jobs than housing. This is the primary reason our housing market is so stressed an, unfortunately, puts greater pressure on our residential neighborhoods to solve this issue. Let's keep low density neighborhoods as they are. We didn't buy our homes in low density neighborhoods to live next to high density situations such as co-ops or other "gentle infill" ideas. There is a place for everything in our community and up-zoning our neighborhoods in an attempt to provide dense housing is not a viable solution.

I do not support incentive based zoning. Lifting zoning regulations for entities like BHP will only mean those of us who pay property taxes will pay more. Many of us last year had unexpected astronomical rises in our property taxes. This is unfair to seniors, middle and low income residents that simply wish to stay in their homes.

Please illustrate a concrete definition of "community benefit" in the Comp Plan.

In regards to Section 3, Natural Environment: Please state the following, "The natural environment that characterizes the Boulder Valley is a critical asset that must be preserved and protected. It is the framework within which growth and development take place."

This is very concerning to me. The newly-inserted language in the Comp Plan that advises doing environmental protection: "whenever practical," and "to the extent possible," etc. Environmental protection is a non-negotiable imperative. This type of language could lead to eventual development on our open space. This issue is near and dear to the vast majority of Boulderites that live here. Let's not destroy what makes Boulder such a unique community.

Thanks for listening,

Jan Trussell
Martin Acres

From: Judrenfroe@aol.com
To: [boulderplanningboard](http://boulderplanningboard.com)
Subject: BVCP Update
Date: Wednesday, September 14, 2016 10:05:51 PM

To Boulder Planning Board:

Like many other Boulder area residents, I feel that Boulder's growth has put us at the edge of a precipice. Not enough is being done in regard to planning to pull us back to what the Boulder Valley can sustain, now and in the future, without becoming indistinguishable from "downtown wherever" with the Flatirons in the background, if we can still see them.

It is not being recognized, in practice, that we are almost at "build out." We keep pushing the definition of how much building we can tolerate. We are teetering and about to go over the edge, the point of no return, if we do not severely limit job growth, slow everything, and instead use the available land to balance jobs with housing.

Boulder has reached a point where a Master Plan is not necessary to prevent leap frog development and sprawl. There is no where to leap or sprawl. The 5 year updates of the BVCP are beginning to remind me of a board game where we shuffle around additional game pieces to see where we can make room for more of them. It doesn't seem like the numbers of those additional pieces are determined by our residents. Bigger, taller, and denser, in and of themselves, are not better. The people who think they are should have moved to where that already exists, not here. Unless they fill a specific need, such as the hospital, they benefit no one except those few who directly profit from them. The rest of us pay, both in money and in quality of life.

The traffic, noise (ambient sound level), and pollution are severely impacting the outlying neighborhoods. The irritation involved in just getting into town is growing. The inner neighborhoods are being threatened with de-facto rezoning to squeeze in a few more residences, while the job growth is still outpacing the housing. The same threat of de-facto rezoning is probably coming to the rest of us.

Developers are allowed to put affordable housing off site from their high density developments, while denser housing types are being forced into neighborhoods and even destroying wildlife habitats in the name of affordable housing. This just isn't right.

The communities to the east of us are growing, and sprawling, in spite of what we do. We do not need to ruin Boulder on the basis of some theory that is not working to prevent that. Let the jobs go there also -- instead, not in addition. If Boulder continues on its present trajectory, those communities will be more desirable than Boulder.

We pay lip service to many of the right ideals, but we are not carrying them out in practice much of the time because too much is based on subjective interpretation, and because we make exceptions for each development that comes along. Boulder has become the frog in the hot water. One does not realize how the density, traffic, noise (ambient sound level), and pollution are stressing us until we go somewhere it does not exist and we can appreciate the relaxing quiet and the fresh air. (But no, I'm not moving.)

The only answer is something we should have done long before this. Limit job growth. Better late than never. That is "**Policy Option D**" of the four possible scenarios. Limit it to what is necessary for the welfare of the existing residents and save some options for the next 150 years without needing skyscrapers.

The answer is not to increase the pace of housing growth, and certainly not de-facto rezoning of existing neighborhoods with tactics such as co-ops and ADU/OAU's and "tiny houses" in back yards. To that end, please make it a real policy to preserve the unique character of all of Boulder's existing

neighborhoods, and to incorporate Neighborhood Plans, written by the neighborhoods themselves, not merely subcommunity plans. Please make it a strong policy to honor and enforce existing zoning limits.

In addition, to promote the above goals and provide the kinds of housing we need, please make the necessary changes to require affordable housing on-site, and to include more moderate and medium income housing in that policy. If you want "diversity" to be more palatable, that should mean a full spectrum of income levels for each project.

Regarding other policies, Environmental Preservation should not be optional, only where convenient. Please remove the recently inserted phrases the require environmental protection "whenever practical" and "to the extent possible." Those phrases render the policy useless. Environmental Preservation should be required.

Thank you for reading.

Judy Renfro

From: ellen.friedlander
To: boulderplanningboard
Cc: Council
Subject: Boulder Valley Comprehensive Plan Policies
Date: Thursday, September 15, 2016 7:26:19 AM

Dear Boulder Planning Board:

- RE: the Boulder Valley Comp Plan, please **recommend Policy Option D**, alone, out of the four “scenarios.” It is the only one that seeks to limit non-residential (commercial) growth. Boulder has an oversupply of jobs, by tens of thousands. This, in turn, greatly stresses our housing market, which, in turn, puts quiet residential neighborhoods under great pressure to solve the City’s **self-created crisis**.
- Boulder can do much to undo its housing crisis, by easing off its economic “over-stimulus” approach. Let us return to a reasonable balance of jobs to population – not by swelling our population, but by easing off on the job front. There CAN be too much of a good thing. Please bolster all provisions of the Comp Plan that **preserve our neighborhoods’ unique characters**.
- Please build into the Comp Plan the requirement that all development in and around neighborhoods must be **based on neighborhood plans**, written by the *actual neighborhood residents* themselves (the people who best know the neighborhoods, and what impacts they can absorb). We don’t want “sub-community plans,” in which many neighborhoods are all lumped together. Sub-community plans are written by city planners and they do not allow the level of detailed understanding necessary to really address neighborhood-specific issues.
- Avoid **any up-zoning changes to residential neighborhoods**, whether real up-zoning, or de-facto up-zoning, such as allowing things like co-ops, tiny houses, more ADU’s etc., unless the neighborhood in question has expressed interest in these things, through its neighborhood plan process, by provable majority of neighborhood residents.
- Lastly, **remove the “squishy” language** from the environmental protection section of the Comp Plan. Remove the newly-inserted phrases that advise doing environmental protection: “whenever practical,” and “to the extent possible,” etc. **Environmental protection should be non-negotiable**.

Thank you for your consideration and attention to this very important matter.

Sincerely yours,

Ellen Friedlander

1665 Dogwood Lane

From: [Leslie Durgin](#)
To: [boulderplanningboard](#)
Cc: [Firnhaber, Kurt](#); [Becky Marten](#); [Ruzzin, Mark](#); [Karen Klerman](#); [Dick Harris](#); [Nikki McCord](#); [Jeremy Durham](#); [Ellis, Lesli](#)
Subject: BVCP language and correcting mistaken impression
Date: Tuesday, September 20, 2016 4:39:07 PM
Attachments: [Current Version Bens Ordinance 8.29.16.docx](#)

Dear members of the City of Boulder Planning Board,

It has recently come to our attention that some members of the Planning Board may incorrectly believe that the Affordable Housing Network, organized by Boulder Housing Partners and comprised of 14 other affordable housing and service-providing organizations, is advocating an addition to the BVCP that would omit or reduce neighborhood and public review and involvement in affordable housing project development.

Not at all!!! In fact, as you can see in the attached version of our recommended addition to the BVCP, we have specifically called In Paragraph One for "...considering and balancing goals and values of the community and the Boulder Valley Comprehensive Plan (INCLUDING NEIGHBORHOOD CHARACTER)." (capitalization added).

And in Paragraph Two for "...predictable and thorough review of such projects WITHIN AN ENVIRONMENT OF ROBUST AND THOUGHTFUL COMMUNITY ENGAGEMENT." (Capitalization added).

We believe that projects are often better designed and always better accepted in the neighborhood, both in the planning and development phases and afterwards, with the involvement and engagement of neighbors.

We are not sure where the confusion and misunderstanding began but please know that reducing or omitting public participation is not part of our desired policy change.

We are instead seeking a broad policy statement (see below) that will allow the City Council and City staff, with advice and input from Planning Board, additional flexibility in adopting regulations, policies and processes that will enhance housing affordability while retaining public review and City oversight.

Thank you for your attention to this. We are happy to discuss our recommended policy addition to Chapter 7 with you at your convenience.

Sincerely,

Leslie Durgin

Strategic Policy Advisor

Boulder Housing Partners and the Affordable Housing Network

7.01 Local Solutions to Housing Diversity

The city and county recognize that housing diversity, including homeownership and rental housing for low, moderate, and middle income individuals and families, provides a significant community benefit. The city will encourage housing diversity by establishing an alternative process and standards for the review, analysis and approval of quality affordable housing developments, that gives consideration to the community benefit of housing diversity, while also considering and balancing other goals and values of the community and Boulder Valley Comprehensive Plan (including neighborhood character).

The purpose in identifying and applying alternative review standards for certain developments is to provide a flexible, yet predictable and thorough review of such projects within an environment of robust and thoughtful community engagement. The city will embrace a culture of problem solving to encourage more quality affordable housing development, where potential solutions could include streamlined administrative processing to aid such developments in meeting deadlines for outside funding; new zoning districts; density bonuses for the provision of affordable housing; the review and revision of floor area ratio, open space and parking requirements; and the revision or elimination of other regulatory barriers that may unnecessarily or inadvertently prevent housing diversity.

From: Karen Hollweg [<mailto:khollweg@stanfordalumni.org>]
Sent: Saturday, October 29, 2016 7:50 PM
To: 'Ellis, Lesli'; Wobus, Nicole
Cc: OSBT-Web@bouldercolorado.gov; boulderplanningboard@bouldercolorado.gov; Mark Gershman; 'allyn s feinberg'; Patricia Billig; Dave Kuntz ; Ray Bridge
Subject: Suggestions for Update of BVCP Sec. 3 - please enter the attached doc as a BVCP public comment submission

Lesli and Nicole,

Thank you for meeting with us yesterday to discuss our suggestions for the BVCP Update.

Attached to this e-mail is our current document containing **our suggestions for Updating Sec. 3**, based on our meetings with members of the Open Space Board of Trustees, Planning Board, OSMP staff including ecologists, and our meeting yesterday with staff from the City's Planning and OSMP departments and from the County.

We are sending in a separate e-mail our comments re: 8.12 and 8.13.

We'll look forward to reviewing your next version of the BVCP Policies and staying involved as the Update process proceeds.

Karen Hollweg

Patricia Billig

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3. Natural Environmentⁱ

*Proposed new section title: **Environmentally Sustainable Community.***

Note: This may be combined with other policies around energy and climate in addition to agriculture and food policies relating to land and environment. Also please note that a further round of editing will occur to improve organization, reduce verbosity and redundancies, and renumber policies as necessary.

~~No new title. The natural environment must be addressed separately and not mixed with transportation, recycling or other “sustainability” issues. The natural environment in general and open space lands in particular, are what make Boulder such an attractive and special place.]~~

~~In this section, the “natural environment” includes city and county open space lands as well as environmental components (like air, water, geological features) and remnants of the natural environment within the urban area. Preservation and protection of the natural environment that characterizes the Boulder Valley is a core community value that has defined Boulder since the end of the 19th century. The natural environment that characterizes the Boulder Valley is a critical asset that must be preserved and protected.~~ Within the Boulder Valley’s complex ecological system, there are inextricable links among the natural environment, plants and animals, the built environment, the economy and community livability.

~~natural and human systems are connected to the region and world, and e~~Changes to the natural ecosystems within the Boulder Valley can have a profound effect on their viability and the quality of life desired by Boulder Valley citizens.

A mixture of wildlands and urban lands exists throughout the Boulder Valley in a continuum often referred to as the “ubran-wildland” interface. High quality ecosystems containing primarily native plants and animals occupy one end of the natural environment gradient. Land that is not dominated by native species but that is in a natural condition without buildings or development is found further along the gradient. On the other end of the gradient are lands that contain mostly non-native plants and animals and are used primarily for developed recreation, transportation or other purposes (e.g., parks, greenways) in an urban environment. These lands are often managed differently for different purposes.

Over many decades, with the initiative and the financial support of local citizens, the city and county have actively protected and managed open space around the urban area, ~~and Existing~~ city and county open space plans and policies apply to those public lands acquired and managed as habitat conservation areas, natural areas, recreational areas, and agricultural areas, or used for other purposes, such as agriculture.ⁱⁱ

As in the rest of the world, ~~The climate of the~~ Boulder Valley climate is experiencing local and regional climate change within the larger global climate regimes, including increasing aridity and warmer temperatures. ~~has warmed and dried over the past three decades, and the potential for Anticipated~~ further changes and intensified weather events ~~because of climate change~~ heighten the need for the city and county to proactively ~~strengthen intervention and investment in natural resources (e.g. urban forestry, wetland and groundwater protection, and natural hazard mitigation) to reduce risk, exposure to risk,~~ and protect resources. Overall strategies should include 1) protection of the remaining large blocks of open space land that support the long-term viability

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~~of native plants and animals, 2) sharpened focus on managing water resources to benefit the environment, active maintenance of stream flows and capacities, 3) heightened attention on the interface between the natural and urban environments in order to better manage natural resources and human-wildlife interactions and to reduce the potential for wildfire, and 4) achieve a better understanding of actions necessary to maintain or restore the ecological functions of natural systems.~~

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~~and 3) increased focus on the interface between the natural and urban environments to better understand how to maintain or restore the ecological functions of natural systems. The more the community can assess risks of changes due to climate change and be prepared to preserve and protect environmental resources, the better prepared the community can be for mitigating the causes and impacts of those changes to the natural environment.~~

Boulder has been at the forefront of environmental protection and preservation for many years. ~~Sixty-three percent (63%) of the Boulder Valley Comp Plan area has been protected by the city and county as open space to protect critical habitat for native plants and animals, maintain agricultural productivity, and The predominant amount of natural land protected by the city and county contributes~~ to the high quality of life for residents, ~~and critical habitat for native plants and animals.~~ The community's historic and on-going emphasis on clean air and water, flood plain management, preservation of natural habitats has resulted in significant progress toward a sustainable, resilient and healthy urban environment.

The city ~~and county places strong emphasis on being a leader and role model to other communities for its exemplary environmental protection practices and accomplishments. The city~~ will continue to identify and implement state-of-the-art environmental policies both community wide and within the city government organization to further natural environmental sustainability goals.

The policies in this section support the following city and county goals related to the conservation and preservation of land, water, air resources ~~to enhance and pollution prevention and~~ resilience:

- Protecting Native Ecosystems and Biodiversity
- ~~Enhancing the Natural~~ Urban Environmental Quality
- Protecting Geologic Resources and Reducing Risks from Natural Hazards
- Sustaining and Improving Water and Air Quality

~~Reaching these goals requires an overall planning and management strategy that incorporates an understanding of ecological systems and implements adaptive management principles for monitoring and course corrections.~~

3.1 Incorporating Ecological Systems into Planning

The city and county will approach planning and policy decisions in the Boulder Valley through an ecosystem framework in which natural regions like bioregions, airsheds and watersheds are considered and incorporated into planning.

3.2 Adaptive Management Approach

An adaptive management approach involves ongoing monitoring of resource conditions, assessment of the effectiveness of management actions, revision of management actions based on new information from research, and learning from experience what works and what does not. The city and county will employ an adaptive management approach to resource protection and

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enhancement. [To avoid unduly risking damage to the environment a more conservative approach will be used where there is insufficient time and funding to support monitoring of pre and post conditions to support an experimental approach.](#)

Protecting Native Ecosystems and Biodiversity

3.3 ~~Natural~~ Ecosystems

The city and county will protect and restore significant native ecosystems on public and private lands through land use planning, development review, conservation easements, acquisition and public land management practices. The protection and enhancement of biological diversity and habitat for state and federal endangered and threatened species, as well as critical wildlife habitats, migration corridors, environmental conservation areas, high biodiversity areas, rare plant areas, and significant natural communities and local species of concern will be emphasized.ⁱⁱⁱ Degraded habitat may be restored and selected extirpated species may be reintroduced as a means of enhancing native flora and fauna in the Boulder Valley. [Important guidance for these efforts includes the Boulder County Comp Plan, and OSMP’s Grasslands Ecosystem Management Plan and Forest Ecosystem Management Plan which identify and define strategies for protection and restoration.](#)

3.4 Ecosystem Connections and Buffers

The city and county recognize the importance of preserving large areas of unfragmented habitat in supporting the biodiversity of its natural lands and viable habitat for native species. The city and county will work together preserve, enhance, restore and maintain land identified as critical and having significant ecological value for providing ecosystem connections and buffers ([e.g., wildlife corridors](#)) to support [the natural](#) movement of native organisms between ecosystems.

(Note: Suggest adding new policy language to “Built Environment chapter” to address conservation and design of open space connections and buffers in urban areas, recognizing that urban lands can also be important for supporting biodiversity and maintaining wildlife habitat.)

3.5 Maintain and Restore Natural ~~Disturbance and~~ Ecological Processes

Recognizing that [natural](#) ecological processes, such as wildfire and flooding, are integral to the productivity and health of natural ecosystems, the city and county will work to ensure that, when appropriate precautions have been taken for human safety and welfare, ecological processes will be maintained or [replicated/mimicked](#) in the management of natural lands.

3.6 Wetland and Riparian Protection

Natural and human-made wetlands and riparian areas are valuable for their ecological ~~and, where appropriate, recreational~~ functions, including their ability to enhance water and air quality and reduce the impacts of flooding. Wetlands and riparian areas also function as important wildlife habitat, especially for rare, threatened and endangered plants, fish and wildlife. The city and county will continue to [support and](#) develop programs to protect, ~~and~~ enhance, [and educate the public about the value of](#) wetlands and riparian areas in the Boulder Valley. The city will strive for no net loss of wetlands and riparian areas by discouraging their destruction, ~~or requiring the creation and restoration of wetland and riparian areas in~~ the rare cases when development is permitted and the filling of wetlands or destruction of riparian areas cannot be avoided, [the creation or restoration of wetland or riparian areas in another area of the city or county will be required under federal, state, and local laws and regulations to mitigate the loss. Management of wetland and riparian areas on city open space lands is described in the OSMP Grasslands Ecosystem Management Plan.](#)

3.7 Invasive Species Management

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The city and county will promote efforts, both public and private, to prevent the introduction or limit and reduce areas and opportunities for growth of invasive ~~and~~-non-native plant and animal species and seek to prevent or control their spread. The city and county will continue to cooperate in jointly managing invasive species and will seek multi-agency cooperation and public-private partnerships to maximize the effectiveness of invasive species management. The city's Grassland Ecosystem Management Plan and Forest Ecosystem Management Plan contain specific provisions for managing invasive plants and animals. High priority will be given to managing invasive species that are defined and listed by the Colorado Noxious Weed Act and have, or potentially could have, a substantial impact on city and county resources. City and county resource management plans will provide direction and guidance for identifying other priorities for management and control of invasive non-native species. ~~Management of both non-native and non-local native species will be based on weighing impacts vs. benefits that includes documented threats to species of concern specific to each site, acknowledging that some non-native species may have become naturalized. Management decisions should also take into account changing species composition due to climate change and other human impacts, as well as the role in the ecosystem provided by each organism based on the best available science.^{iv}~~

3.8 Public Access to Public Lands

Certain city and county-owned or managed lands provide a means for educating users on the importance of the natural environment. These public lands may include areas for recreation, preservation of agricultural use, preservation of unique natural features and preservation of wildlife and plant habitat. ~~Public a~~Access to ~~natural these~~ lands ~~will may~~ be provided ~~for where appropriate and where it can be adequately managed and maintained,~~ except where closure is necessary to protect areas from unacceptable degradation or impacts to agriculture, habitat or wildlife, or to provide for public safety, or reduce visitor conflicts, limits on access necessary to preserve the quality — the visitor experience.

See New Climate Change Policy at the end of Section 3 New Policy: Climate Change Preparation and Adaptation

~~The city and county are both working on climate mitigation and recognize that adaptation plans will be necessary as well. To prepare open space lands and natural areas for climate change, the city — county will consider allowing or facilitating ecosystems' transition to new states in some sites (e.g., newly adapting plants and wildlife) and increasing the stability and resiliency of the natural environment elsewhere. Biological indicators can help to identify high risk species for monitoring and/or relocations and may conduct restoration projects using arid-adapted ecotypes — or species. Open space master plans guide other topics related to climate change, such as visitor experiences to open space.*~~

Urban Environmental Quality

3.9 Management of Wildlife--Human Conflicts

The city recognizes the intrinsic value of wildlife in both the urban and rural setting. The city will promote wildlife and land use management practices to minimize conflicts with residents and urban land uses while identifying, preserving and restoring appropriate habitat for wildlife species in the urban area. When a wildlife species is determined to be a nuisance or a public health hazard, a full range of alternative wildlife and land use management techniques will be considered by the city and county in order to mitigate the problem in a manner that is humane, effective, economical and ecologically responsible.^{vi}

3.10 Urban Environmental Quality

To the extent possible, the city and county will seek to protect the environmental quality of areas under significant human influence such as agricultural and urban lands and will balance human needs and public safety with environmental protection. The city will develop community-wide programs and

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standards for new development and redevelopment so that negative environmental impacts will be mitigated and overall environmental quality of the urban environment will ~~not worsen and may be~~ [maintained or improved](#).

3.11 Urban Forests

The city will support, promote and, in some cases, regulate the protection of healthy existing trees and the long-term health and vitality of the urban forest in the planning and design of public improvements and private development. Urban canopy plays an important role in ameliorating the ~~effects~~ [role](#) of climate change; therefore, the city will guide short- and long-term urban forest management^{vii} that encourages overall species diversity and native and low water demand tree species ~~where appropriate~~.

3.12 Water Conservation

The city and county will promote the conservation of water resources through water quality protection, public education, monitoring and policies that promote appropriate water usage. The city will endeavor to minimize water waste and reduce water use during peak demand periods [by, e.g., promoting xeriscaping](#). New development and redevelopment designed to conserve water will be encouraged.

3.13 Integrated Pest Management

The city and county will discourage the use of pesticides and synthetic, inorganic fertilizers.^{viii} In its own practices, the city and county will carefully consider when pest management actions are necessary and focus on creating healthy and thriving ecosystems to lower pest pressure by natural processes. When pest management actions are necessary, the city commits to the use of ecologically-based integrated pest management principles, which emphasize the selection of the most environmentally sound approach to pest management and the overall goal of reducing or eliminating the dependence on chemical pest-control strategies. When public or environmental health risks are identified, the city will balance the impacts and risks to the residents and the environment when choosing ~~control~~ [management](#) measures.^{ix}

New Policy: Soil Carbon Sequestration

The city recognizes that soil [carbon](#) sequestration has a range of potential benefits, including water retention, soil health and stabilization. [Soil health is especially important for both the natural environment and agricultural lands. Section 9 \(Food and Agriculture\) includes a description of the soil sequestration policy for tilled agricultural lands.](#)

[For the natural environment, the current capacity of native grasslands and forests to sequester carbon will be important in city and county soil carbon sequestration efforts. High quality native grasslands and forests will be maintained and protected, while the qualitative improvement of all native grasslands and forests will follow the guidelines in the city's and county's resource management plans. Standard tests of soil health may be conducted in native grasslands and forests to inform managers' understanding of ecological conditions, including soil health, and enable them to identify opportunities to enhance soil carbon sequestration.](#)

~~The city and county will consider soil sequestration strategies, including land management practices that may be used to sequester carbon out of the atmosphere, and explore opportunities to incentivize carbon sequestration.*~~

~~(Note: This policy will continue to be refined.)~~

Geologic Resources and Natural Hazards

3.14 Unique Geological Features

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Due to its location at the interface of the Great Plains and the Rocky Mountains, the Boulder Valley has a number of significant or unique geological and paleontological features. The city and county will ~~attempt to~~ protect these features, in situ, from alteration or destruction through a variety of means, such as public acquisition, public land management, land use planning and regulation, and density transfer within a particular site.

3.15 Mineral Deposits

Deposits of sand, gravel, coal and similar finite resource areas will be delineated and managed according to state and federal laws and local government regulations. The use of ~~mineral deposits and other~~ non-renewable resources will be ~~evaluated~~ considered only when conservation and recycling is not a feasible alternative. The impacts of resource use will be balanced against ing the need for these resources and other community values and priorities, ~~including environmental such as natural~~ and cultural resource protection, ~~community and environmental~~ health concerns and carbon emission reduction. The city and county will work together to limit drilling and mining impacts by acquiring mineral rights for city and county lands, as appropriate.^{xi}

3.16 Hazardous Areas

Hazardous areas that present a danger to life and property from flood, forest fire, steep slopes, erosion, unstable soil, subsidence or similar geological development constraints will be delineated, and development in such areas will be carefully controlled or prohibited.

3.17 Erosive Slopes and Hillside Protection

Hillside and ridge-line development will be carried out in a manner that, to the extent possible, avoids both negative environmental consequences to the immediate and surrounding area and the degradation of views and vistas from and of public areas. Due to the risk of earth movement and/or mud slides ~~under adverse weather conditions~~, special attention needs to be paid to soil types and underlying geological strata before and during planning, design and construction of any urban or recreational (e.g., trails) development on or at the base of hillsides.^{xii}

3.18 Wildfire Protection and Management

The city and county will require on-site and off-site measures to guard against the danger of fire in developments adjacent to natural lands and consistent with forest and grassland ecosystem management principles and practices. Recognizing that fire is a widely accepted means of managing ecosystems, the city and county will integrate ecosystem management principles with wildfire hazard mitigation planning and urban design.

3.19 Preservation of Floodplains

Undeveloped floodplains will be preserved or restored where possible through public land acquisition of high hazard properties, private land dedication and multiple program coordination. Comprehensive planning and management of floodplain lands will promote the preservation of natural and beneficial functions of floodplains whenever possible.

3.20 Flood Management ^{xiii}

The city and county will protect the public and property from the impacts of flooding in a timely and cost-effective manner while balancing community interests with public safety needs. The city and county will manage the potential for floods by implementing the following guiding principles: a) Preserve floodplains; b) Be prepared for floods; c) Help people protect themselves from flood hazards; d) Prevent unwise uses and adverse impacts in the floodplain; and e) Seek to accommodate floods, not control them. The city seeks to manage flood recovery by protecting critical facilities in the 500-year floodplain and implementing multi-hazard mitigation and flood response and

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recovery plans.

3.21 Non-Structural Approach

The city and county will seek to preserve the natural and beneficial functions of floodplains by emphasizing and balancing the use of non-structural measures with structural mitigation. Where drainage-way improvements are proposed, a non-structural approach should be applied wherever possible to preserve the natural values of local waterways while balancing private property interests and associated cost to the city. Recent flood events, including the 2013 flood, highlight the importance of requiring flood insurance for all residential and commercial buildings or structures in identified and mapped 100-year floodplains.

3.22 Protection of High Hazard Areas

The city and county will prevent redevelopment of significantly flood-damaged properties in high hazard areas. The city following the county's lead, will prepare a plan for property acquisition and other forms of mitigation for flood-damaged and undeveloped land in high-hazard flood areas. Undeveloped high hazard flood areas will be retained in their natural state whenever possible. To reduce risk and loss, riparian corridors will be preserved. In urban areas, compatible uses of riparian corridors, such as and natural ecosystems, wildlife habitat and wetlands will be protected, and wetlands will be encouraged wherever appropriate. Trails or other open recreational facilities may be feasible in certain areas.^{xiv}

3.23 Larger Flooding Events

The city and county recognizes that floods larger than the 100-year event will occur resulting in greater risks and flood damage that will affect even improvements constructed with standard flood protection measures. The city will seek to better understand the impact of larger flood events and consider necessary floodplain management strategies, including the protection of critical facilities.

Water and Air Quality

3.24 Protection of Water Quality

Water quality is a critical health, economic and aesthetic concern. The city and county have made great strides in ~~will~~ protecting, maintaining and improving water quality within the Boulder Creek watershed as a necessary component of existing ecosystems and as a critical resource for the human community. The city and county will continue seek to reduce point and nonpoint sources of pollutants, protect and restore natural water systems, and conserve water resources. Special emphasis will be placed on regional efforts, such as watershed planning, and priority will be placed on pollution prevention over treatment.

3.25 Water Resource Planning and Acquisition

Water resource planning efforts will be regional in nature and incorporate the goals of water quality protection, as well as surface and ground water conservation. The city will continue to obtain additional municipal water supplies to ensure adequate drinking water, maintain instream flows and preserve agricultural uses. The city will seek to meet future municipal consumptive demand through conservation, demand management, and reuse as first options, to minimize the need for acquisition of additional water rights and supplies. The city will seek to minimize or mitigate the environmental, agricultural and economic impacts to other jurisdictions in its acquisition of additional municipal water supply to further the goals of maintaining instream flows and preventing the permanent removal of land from agricultural production elsewhere in the state.

3.26 Drinking Water

The city and county will continually seek to improve the quality of drinking water and work with other water and land use interests as needed to assure the integrity and quality of its drinking water supplies. The city and county will employ a system-wide approach to protect drinking water quality from sources waters to the water treatment plant and throughout the water distribution system.

3.27 Minimum In-stream Flow Program

The city will pursue expansion of the existing in-stream flow program consistent with applicable law and manage stream flows to protect riparian and aquatic ecosystems within the Boulder Creek watershed.

3.28 Surface and Ground Water

Surface and groundwater resources will be managed to prevent their degradation and to protect and enhance aquatic, wetland and riparian ecosystems. Land use and development planning and public land management practices will consider the interdependency of surface and groundwater and potential impacts to these resources from pollutant sources, changes in hydrology, drilling, mining, and dewatering activities.

(Note: Additional policies and regulatory standards will be analyzed to strengthen this language about groundwater to identify risks and potential impacts.)^{xv}

3.29 Wastewater

The city will pursue sustainable wastewater treatment processes to achieve water quality improvements with greater energy efficiency and minimal chemical use. Pollution prevention and proactive maintenance strategies will be incorporated in wastewater collection system management. The county will discourage the installation of private on-site wastewater systems where municipal collection systems are available or where a potential pollution or health hazard would be created.

3.30 Protection of Air Quality

Air quality is a critical health, economic and aesthetic concern. The city and county will seek to reduce stationary and mobile source emissions of pollutants. Special emphasis will be placed on local and regional efforts to reduce pollutants, which cause adverse health effects, ~~and~~ impair visibility and contribute to climate change.

(Note: Suggest adding language in "Built Environment" chapter about the important role of street trees and vegetative plantings in mitigating air quality and reducing exposure to pollutants at the street level.)^{xvi}

Potential New Policy: Protecting the Resilience of the Natural Environment and Assessing Climactic Changes Investments for Resilience

The city and county recognize that the natural environment contributes to city and county sustainability goals. A primary strategy for confronting climate change threats to our native ecosystems is designing and implementing ecosystem management programs that include large-scale reserves. These reserves must be on landscape-level and watershed-level scales. Achievement of these goals requires regional, multi-agency coordination to effectively protect and manage regional watersheds and landscapes. Such efforts will benefit from including adjacent designated areas of public and private lands to ensure connectivity and ecosystem function. Preserving such ecological reserves enhances the resilience of native ecosystems, and reduces the loss of native biodiversity, ecological processes and ecosystems.

An adaptive approach may be employed to assess potential impacts from changes in the local climate. Long term studies will be necessary to provide sufficient data for sophisticated analyses and to design subsequent best management practices that address climatic changes. These data will be essential to understand the

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[response of native ecosystems to environmental change.](#)

~~These strategies also help to protect the resilience of our urban environment and achieve climate change goals through soil carbon sequestration, sustaining ecosystem functions and services, reducing costly damage from flooding by preserving drainages, and facilitating the absorption of precipitation within the natural environment. Within the urban environment, the city and county's efforts will focus on promoting urban forestry, habitat enhancements for native pollinators, and xeriscaping and providing opportunities for enjoyment of natural areas. Investments contribute toward resilience by reducing risk and promoting stability. Additionally, urban forestry, tree planting, natural hazard mitigation, improvement of air quality, added recreational activities and storm water mitigation activities have co-benefits.ⁱⁱⁱⁱ~~

(Note: Policy directions about coordinated approach, vulnerable populations and resident involvement are suggested in HR&A Report and will need further review over coming weeks.)

ENDNOTES

ⁱ The changes to this chapter reflect work since the 2010 Plan including:

- The city currently is working on updates to its Integrated Pest Management policy, an Urban Forest Strategic Plan, the Resilience Strategy, and draft Climate Commitment.
- The city adopted the Bee Safe Resolution (2015) banning the use of neonicotinoids on city property and a Bear Protection Ordinance to secure waste from bears (2014). The county adopted a resolution to reduce and eliminate pesticide use to protect both people and pollinators (2015).
- Boulder County adopted the Environmental Resources Element of the Boulder County Comprehensive Plan (2015) and is currently working on policy related to Genetically Modified Organisms in the county.
- The city will be developing an Open Space Master Plan (2017).
- Boulder County is analyzing on how to address local oil and gas regulations, and looking at potential policy updates to better align the Fourmile Canyon Creek Watershed Master Plan (2015), Boulder Creek Watershed Master Plan (Urban Drainage and Flood Control District, 2015), and Consortium of Cities Water Stewardship Task Force Final Report (2013).
- HR&A's Recommendations for Resilience Integration (2016)

ⁱⁱ OSBT in particular asked for clarification about how this section of policies apply – to the urban vs. wildlands area, and to OSMP lands vs. more generally. This added language aims at providing that clarification. Additionally, the board asked that the language be edited to sound a bit less human-centric.

ⁱⁱⁱ North Trail Study process clarification and better integration with Boulder County Comprehensive Plan. ^{iv} Clarification of how city and county are programmatically operating – learning from best practices about an ecosystems management approach. OSBT also suggested some language for this policy, reflected here. ^v From city's Climate Commitment document.

^{vi} OSBT asked for clarification of this policy regarding “nuisance species”. This language is consistent with the Urban Wildlife Management plan which has not been updated recently, so it may need some minor adjustments over coming months to clarify.

^{vii} City is in process of developing an Urban Canopy Master Plan.

^{viii} Stronger language suggested by Planning Board (including applying for private lands, which the city cannot regulate according to state law). Also consistent with city programs.

^{ix} Change reflects decades of learning and best practices to integrate Integrated Pest Management into an ecological approach to land management.

^x City and county are exploring soil carbon sequestration. Also requested by public.

^{xi} Attempting to clarify the intent of the policy is to balance relevant community values with the use of mineral deposit.

^{xii} Recommended after 2013 flood experience. OSBT suggested to add “before”... and during development.

^{xiii} This is an existing policy that hasn't been changed. It has generally not been applied to open space lands – its intent more focused around lands with development potential.

^{xiv} Clarification suggested by OSBT.

^{xv} Planning Board suggested such language.

^{xvi} OSBT suggested some language about mitigating against pollutants at street level with plantings, etc.

^{xvii} From HR&A Resilience Report.

DRAFT

From: Karen Hollweg [<mailto:khollweg@stanfordalumni.org>]

Sent: Saturday, October 29, 2016 7:55 PM

To: 'Ellis, Lesli'; Wobus, Nicole

Cc: OSBT-Web@bouldercolorado.gov; boulderplanningboard@bouldercolorado.gov; 'Mark Gershman'; 'allyn s feinberg'; 'Patricia Billig'; 'Dave Kuntz '; 'Ray Bridge'

Subject: Suggestions for Update of BVCP Sec. 8 - please enter the attached suggestions as a BVCP public comment submission

Please enter into the public record our comments regarding the Aug 24, 2016 Draft of the BVCP Policy Update, Sections 8.12 and 8.13.

The following revisions are needed to update the sections regarding Trail Functions and Locations and Trails Networks:

- Designated and undesignated trails should not further fragment intact open space natural areas.
- Social/undesignated trails should be eliminated and measures should be taken to strongly discourage fragmentation by off-trail use.
- In the 4th sentence of 8.12 add the word “signed” – i.e., ...ensuring that formal trails are well-designed, signed, ...

Thank you for the opportunity to comment on the BVCP Update.

Karen Hollweg

Patricia Billig

Dave Kuntz

Allyn Feinberg

Ray Bridge