NUZUM GARDENS

Application for Annexation / Initial Zoning

96 Arapahoe Avenue
12/07/2015

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Written Statement for Resubmittal of Annexation / Initial Zoning
Date: 12/07/2015

SUMMARY

The Landowner is petitioning the City of Boulder to annex 96 Arapahoe and to grant vested rights in the form of RM-3 Zoning.

Once the terms of the annexation agreement are finalized, it is the intent of the Landowner to redevelop the property with residential dwelling units.

Per the Boulder Revised Code (BRC), Section 9-2-10, the Annexation request is in compliance with State Statutes[1] and the Boulder Valley Comprehensive Plan (BVCP)[2].

- The property sits on the western boundary of the City and has been designated Area II, which is a property that the BVCP has identified as one that it will actively pursue for annexation[3].
- Costs to the City to provide services to the property are nominal, as the property is currently served by City water and sewer, roadway and bike paths currently border the property.
- The Landowner believes that the community benefits outlined here-in are commensurate with the impacts that future residential redevelopment would bring[4].
- Per the BVCP[5], "Area II is anticipated to become part of the city within the planning period."

PROPERTY DESCRIPTION

The existing Property is 59,801 sf (1.37 acres) and contains a residential duplex, a barn (once a retail plant nursery store) and a large equipment shed. The previous Use was a commercial nursery and residential property, and the property has been developed to a point approximately 80' above the Blue Line.

The site is approximately 120' wide and 500' long and is oriented up the north slope of a hill at the entrance of Boulder Canyon. The bottom 2/3 of the Property has an average slope of 12% and consists of a series of stone terraces. The top 1/3 of the Property is much steeper and is effectively separated

[1] Meets requirements of Colorado Revised State Statute, Section 31-12-101
[2] 2010 BVCP, Policy 1.24 Annexation
[3] 2010 BVCP, Policy 1.24 Annexation (b) – "The city will actively pursue annexation of county enclaves, Area II properties along the western boundary, and other fully developed Area II properties."
[4] As required per BVCP, Policy 1.25 Annexation (e)
[5] 2010 BVCP, Policy 1.24 Annexation (g)

from the lower portion of the site by a cut in the hillside. Boulder Open Space borders 15% of the property on the south and south-east.

The property occupies a unique location nestled at the base of the foothills and within walking distance to both downtown and some of Boulder's most popular parks, hiking trails, rock climbing and water sports.

COMMUNITY BENEFIT

Per BVCP, Policy 1.24(e) – "*Annexation of substantially developed properties that allows for some additional residential units or commercial square footage will be required to demonstrate community benefit commensurate with their impacts." ….*

Per BVCP, Policy 1.24(d) – *…"For annexation considerations, emphasis will be given to the benefits achieved from the creation of permanently affordable housing. Provision of the following may also be considered a special opportunity or benefit: receiving sites for transferable development rights (TDRs) reduction of future employment projections, land and/or facilities for public purposes over and above that required by the city's land use, environmental preservation, or other amenities determined by the city to be a special opportunity or benefit."*

The terms of the Annexation Agreement would include the following community benefit (refer to Appendix A for more detail):

AFFORDABLE HOUSING – Any future residential development that would add more dwelling units to the property would include a permanently affordable housing component. This component would be 42.9% of the new dwelling units added to the property. The Affordable units will be constructed concurrent with the Market rate units, be located roughly in the middle of the redevelopment and would be an average of 1,150sf comprised of the following minimum requirements:

Affordable 1 – 2-bed/2-bath, attached duplex (1,015 sf +/-)
Affordable 2 – 2-bed/2-bath, attached duplex (1,015 sf +/-)
Affordable 3 – 3-bed/2 bath, 1-car garage and bike storage, single-family (1,420 sf +/-)

ENVIRONMENTAL GOALS OF THE CITY of carbon reduction would be reflected in any future redevelopment by requiring new construction to implement sustainable building strategies above and beyond those required by the City's Green Point program.

In addition, the location on Boulder Creek multi-use path, proximity to downtown and access to public transportation lends itself to the walkable and bike friendly transportation goals of the City. New residential on this side of town would provide housing that wouldn't overlap the predominant rush hour traffic patterns.

PRESERVATION OF THE EXISTING HOUSE AND BARN. Landmarks Staff has identified two structures as being desirable for preservation. The historical integrity of the house and barn would be protected by covenants and by City requirements that require review demo proposed for structures over 50 years old.

In addition, Anderson Ditch is open for most of its length through the property, and it is agreed that the ditch will remain open and its historic character maintained where visible.

PRESERVATION OF THE OAK. The existing oak identified by Staff would be preserved and any future redevelopment of the property would require that a certified arborist be involved in order to protect the health of the tree.

PUBLIC HEALTH AND SAFETY will be improved by eliminating the use of the old septic tank next to the ditch and tying into the City sewer system.

Any future redevelopment would require remediation of the cut adjacent to the shed through stabilization and retaining strategies, and would require replacement of the existing access bridge over the ditch.

Any future redevelopment would benefit the City through the fees assessed for new dwelling units, which could be applied to other parts of the City's system since there is not the need for the City to extend or enlarge any City services to the property.

SCENIC EASEMENT of the upper 14.6% of the property would ensure that its natural state is maintained where it is most visible from Settler's Park. The line of the scenic easement will be defined by the extension of the City of Boulder Open Space property-line located on the south-east end of 96 Arapahoe.

Appendix A
Community Benefit

AFFORDABLE HOUSING

Any future residential development that would add more dwelling units to the property would include a permanently affordable housing component. This component would be 42.9% of the new dwelling units added to the property. (2) of the units would be priced for low/moderate income levels and (1) of the units would be priced for middle income. The average size of the units would be 1,150 sf[6]. It is anticipated that the permanently affordable units would conform to the minimum specifications outlined below:

AFFORDABLE HOUSING UNITS

Unit #	Apx. Size	Bedrooms	Bathrooms	Building Type	Notes
1	1015 sf	2	2	duplex	Re-purposed Barn structure
2	1015 sf	2	2	duplex	Re-purposed barn structure
3	1,420 sf	3	2	single-family	New construction

All of the units would have views of Settler's Rock and be located in one of the most desirable locations in the City. There are very few new affordable units constructed west of Broadway near downtown, so it is anticipated that the units will be highly desirable.

In discussions with the Inclusionary Housing Program (IHP) Manager, it was indicated that prior Annexations the City required that 40%-60% of new development to be designated as permanently affordable and that the affordable units should be constructed concurrently with the redevelopment of the property. It was indicated that the appropriate percentage of permanently affordable units would be determined when weighed against the other Community Benefits proposed by the project and through consideration of the redevelopment plan. The current version of the redevelopment plan is **dated 12/07/2015**.

[6] Area does not include garage area

The percentage of affordable housing and the sizes/locations proposed are appropriate for the following reasons:

1) The percentage of Affordable units being proposed is consistent with prior annexations that have occurred over the past 15 years. The only annexation that required a higher percentage offered no other community benefits (1000 Roasewood).

PRIOR ANNEXATIONS (past 15 years)

Property	Year	Affordable Component Required
Cherryvale Commons	2014	40% of dwelling units constructed shall be Affordable (50/50 Low-Mod/Medium Income).
2156 Tamarack	2013	2x Cash-in-lieu allowed if new dwelling units were to be constructed
2475 Topaz	2012	Existing single-family home was credited as existing dwelling unit. No affordable component required as condition of annexation.
1000 Rosewood	2011	50% of the (18) dwelling units to be Affordable (HUD Low + 10%) Property had no dwelling units prior to development.
3015 Kalmia Ave	2011	42.1% of the (57) dwelling units to be Affordable (24.5% Low/Mod & 17.5% Middle).
201 Arapahoe Park Gables	2005	37.5 % Affordable approved. (5) existing structures (not even dwelling units) credited as existing dwelling units.

2) The percentage of Affordable units provided is based on the number of *new* dwelling units proposed. All other annexations have given credit to existing dwelling units and based the permanently affordable housing requirement on only the new dwelling units added to the property. The basis for this comes from the BVCP, which states that…"Annexation of substantially developed properties that allows for some additional residential units or commercial square footage will be required to demonstrate community benefit **commensurate with their impacts**." As existing development does not trigger an 'impact', the community benefit consideration should be, and historically has been, based on a development.
3) It is proposed that the duplex units (Affordable 1 &2) meet Low/Moderate income levels and the single-family (Affordable 3) meet Medium level income. That would represent a percentage of the total project of 28.6% Low/Mod and 14.3% for Medium income levels, which is a higher percentage than previous annexations have provided[7].
4) The sizes of the permanently affordable units are on the larger side or exceed the areas identified in the Inclusionary Housing pricing chart.
    a. The 1,015 sf, 2-bedroom duplex units (low/mod) are housed in the relocated and refurbished barn structure. They have dedicated parking spots that are proposed as being open. Bike racks would be provided for residents and guests. There are unobstructed views of Settler's Rock from the upper floor.
    b. The 1,420 sf, 3-bedroom unit (medium income) has a 1-car garage and room for bike storage, and the architecture will be consistent with the style of the new construction. Views from the main floor extend over the existing home to Settler's Rock.
5) The units are located in the middle of the project to address previously voiced concerns from IHP. The proposed layout ensures that the Affordable units are not perceived to be in a less desirable location. In order to make the project viable, the upper lots, which are the higher-value lots need to be dedicated to the Market rate dwelling units. Our preference is to locate

[7] With the exception of 1000 Rosewood

the Affordable 3 unit at the entrance to the property because it would be a more appropriate scale for the entrance of the redevelopment, but as a compromise, the units are located in the middle of the lot, and enjoy exceptional views.

6) The barn has been identified by Landmarks Staff as a building that they would like to preserve, and it is sized ideally for (2) 2-bedroom dwelling units. Staff has agreed that the building can shift to the west and still retain largely the same historic relationship to the existing house. The desire to keep the barn in the same general location as it currently sits is why the Affordable duplex is located where it is.
7) The 3-bedroom affordable unit will be constructed as an Energy Star Certified Home.
8) IHP has previously supported a permanently affordable percentage of 42.9% [8] of new dwelling units in their Land Use Review and Comments dated 12/19/2014. IHP did however request the units be repositioned on the site and that the size/# of bedrooms for the units be modified[9]. The modification suggested by IHP was for a total of (7) bedrooms and an average unit size of 1,150sf. Our current preliminary redevelopment plan (dated 12/07/2015) provides for (7) bedrooms and average unit size of 1,150 sf.

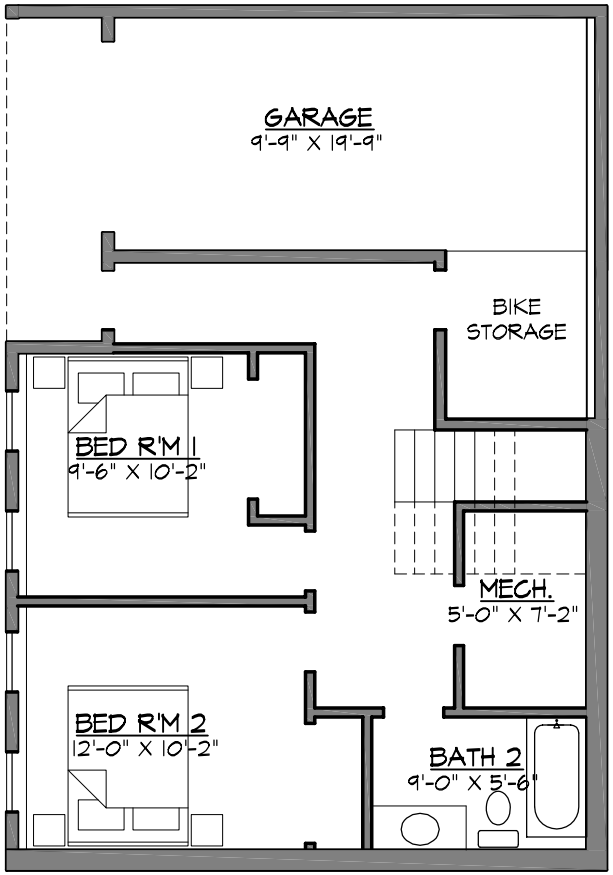
As an alternative to the proposed permanently Affordable housing units, the Landowner would be willing to pay 2x cash-in-lieu for one or more of the required Affordable dwelling units. This would be similar to the annexation agreement for 2156 Tamarack in 2013. A recent article in the Daily Camera indicated that affordable housing developers can leverage $4-$6 for every dollar contributed to the program[10]. The City should be able to get more permanently affordable dwelling units out of a cash-in-lieu payment than it would if the affordable housing was constructed on-site.[11] There is nothing in the BVCP that requires affordable housing to be constructed on annexed properties and the allowance for cash-in-lieu has been previously exercised on 2156 Tamarack.

[8] See Land Use Review and Comments from Case #LUR2014-00100 dated 12/19/2014, pages 2-3 comment #4 from Michelle Allen.

[9] See Land Use Review and Comments from Case #LUR2014-00100 dated 12/19/2014, pages 2-3 comment #5 from Michelle Allen.

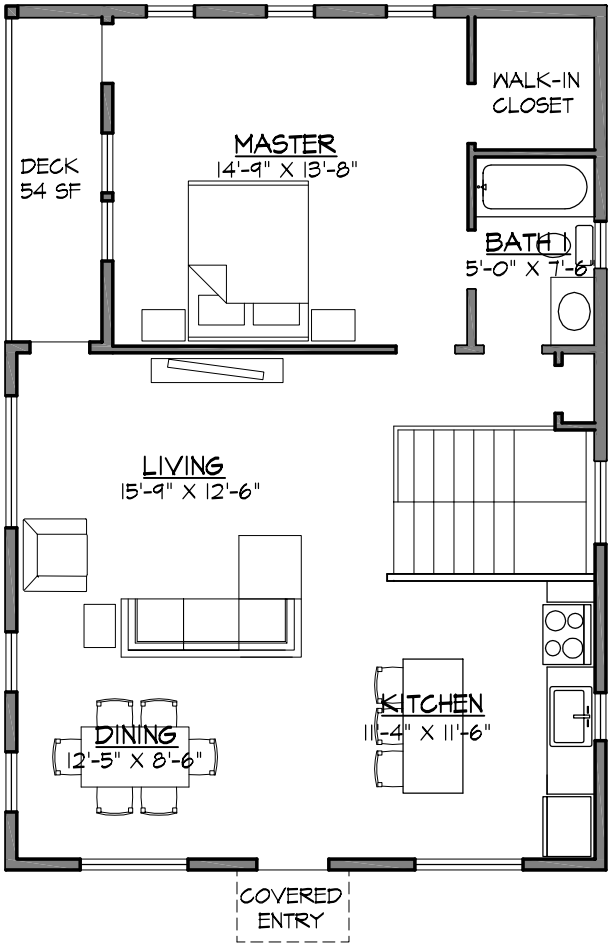
[10] Betsey Martens from Boulder Housing Partners quoted in a Daily Camera article; 'Boulder: Is Affordable Housing Working?', by Erica Meltzer, dated 12/13/14

[11] Assuming cash-in-lieu payment for 1 DU of $359,942, the leveraged amount for affordable housing off-site would be approximately $1.8M, or enough for (8) 2-bedroom units

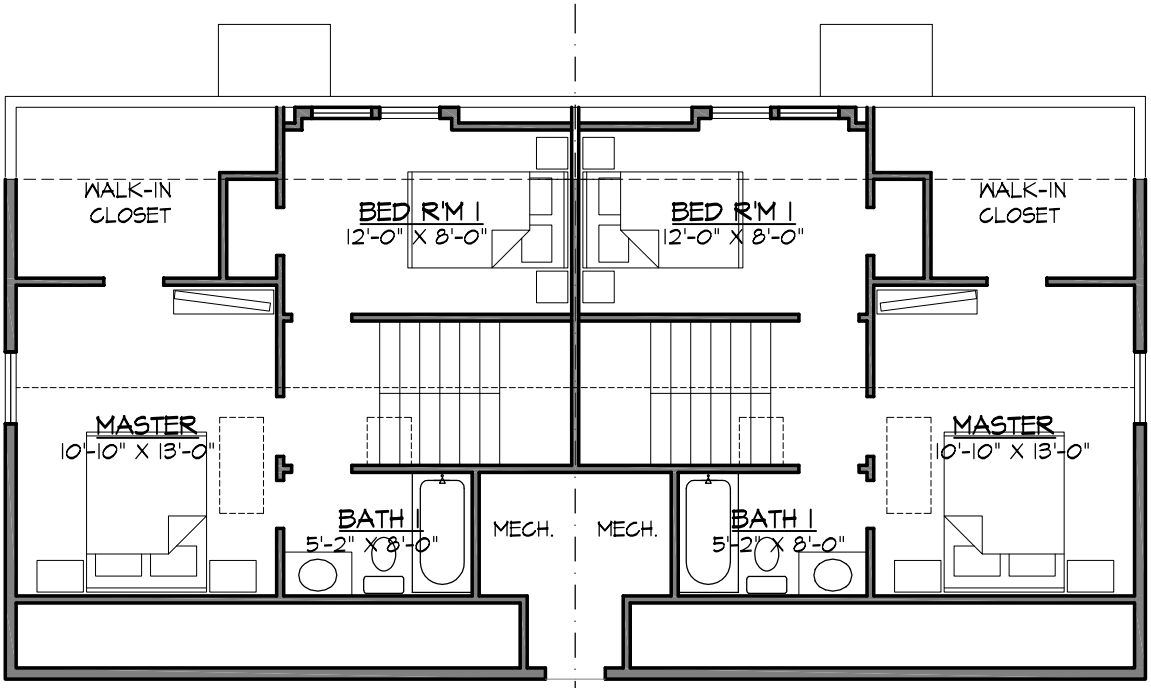


FLOOR AREA: 1,427 SF
GARAGE AREA: 261 SF
DECK: 54 SF

B AFFORDABLE 3 - LOWER FLOOR PLAN
1/8" = 1'-0"

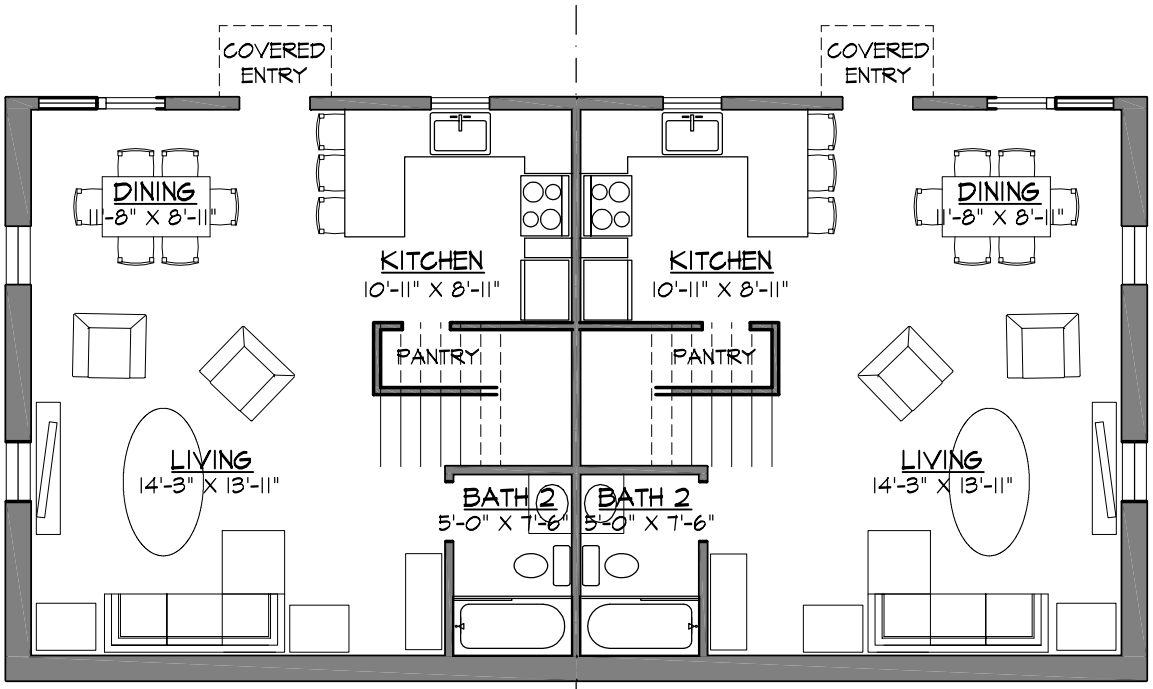


A AFFORDABLE 3 - UPPER FLOOR PLAN
1/8" = 1'-0"



B AFFORDABLE 1 - UPPER FLOOR PLAN
1/8" = 1'-0"

A AFFORDABLE 2 - UPPER FLOOR PLAN
1/8" = 1'-0"



FLOOR AREA: 1,015 SF

D AFFORDABLE 1 - LOWER FLOOR PLAN
1/8" = 1'-0"

C AFFORDABLE 2 - LOWER FLOOR PLAN
1/8" = 1'-0"

ENVIRONMENTAL GOALS OF THE CITY

Any future redevelopment of the property would incorporate sustainable building strategies that will produce some of the most energy efficient and 'green' housing in the City. As more 'green' housing is introduced to the real estate market in Boulder, the more the market will demand energy efficient and healthy homes. Any development of new residential units would provide the following:

1) Greenhouse Gas Reduction Report - Builder will deliver a report to the City in the form of an energy analysis that exhibits the reduction of greenhouses gasses that our buildings achieve when compared against both a typical new home and a building that complies with Boulder's Green Point Requirements.
2) Passive Solar – Each new dwelling unit will be designed using energy modeling to identify the ideal orientation of window openings. Window glazing will be selected, specific to its placement, with optimal solar reflectance ratings.
3) Solar PV – The project will incorporate Solar PV systems to offset a minimum 60% of the anticipated residential energy needs of the project[12].
4) Electric Vehicle (EV) Charging Stations – All garages will be provided with EV charging capability.
5) Energy Efficient Building Design – All new dwelling units to be Energy Star Certified Homes. The Certification includes benchmarks for HVAC design, moisture barriers, Indoor Air Quality (IAQ) and an independent inspection regime. The Energy Star web site claims that Certified homes reduce greenhouse gases by 3,700 lbs per year and uses 30% less energy than a typical new home.
6) Advanced Storm Water Management – utilization of rain gardens, permeable paving at parking areas and bio-swales to reduce peak runoff rates.
7) Reuse of Existing Structures – The existing house, barn and shed will be retained and rehabilitated. The adaptation of existing structures reduces the need to extract fresh resources and keeps the existing building materials out of local landfills.
8) Walkable Communities – In addition to the environmental and health benefits of residents being able to walk/bike to nearby public and commercial amenities, this area of the City would benefit from full-time residents utilizing the Boulder Creek Path. All garages will have space for a minimum of 3 bikes.

[12] Assume an average 6 KW system, which produces 9,168 kWh on average per year and requires 548 sf of area for 20% efficient panels or 731 sf for 15% efficient panels. The average household usage for Colorado is 687 kWh per month, or 8,244 kWh/year. An energy model will determine the anticipated energy use of the homes, but for a conservative preliminary estimate for the needs of the residential component, it was assumed that each residence will use 1.5x the average Colorado household. With use of LEDs and Energy Star appliances, it is anticipated that the actual usage will be lower, but the encouragement of EV could raise the usage higher. Residential usage will be estimated without inclusion of EV.

PRESERVATION OF THE EXISTING HOUSE AND BARN

Upon annexation of the property, protective covenants would be placed on two of the existing structures. Landmarks Staff has determined that both the existing residence and the barn (excluding the red addition) are desirable of preservation. Refer to Appendix B for photos of the existing buildings. The Owner has agreed to retain both structures. Because the two structures are more than 50 years old, it is felt that there is sufficient protection of the buildings once the property is annexed into the City[13], however the annexation agreement could contain language requiring review if future remodeling is requested.

The Landowner requests that the following be allowed as conditions for placing protective covenants on the two buildings:

1) That the limit of oversite be restricted to the exterior envelope of the structure(s) and not extend to the rest of the property.
2) That the barn will be relocated and a new foundation constructed with the stone veneer matching the existing eastern wall. The existing foundation is made primarily of cmu blocks that are beginning to exhibit signs of failure. Landmarks Staff was most interested in the stone veneer that is on approximately ¼ of the existing lower east wall of the barn, so this veneer would be placed on the lower walls around the new foundation in the repositioned location.
3) The red addition on the front of the barn would be demolished, but the original wood construction of the upper floor of the barn would be preserved and rehabilitated.
4) There is a painted 'sign' on the front of the barn which was identified as a distinctive feature by Staff. The 'sign' is painted on the shingles that are likely original to the barn construction and need, or will need, to be replaced. When the original shingles are replaced, the 'sign' would be lost, although it could be replicated.
5) The existing residence would be allowed to have a new entry/connection to a new garage that would be designed in an appropriate manner to leave the existing character of the home intact.
6) There would also be the ability to alter the home further. The alterations could be reviewed by Landmarks Staff to ensure that the character of the existing structure is maintained.
7) The house would be converted back to its original use as a single-family home.

[13] If the structure is more than 50 years old, then Landmarks Board approval is required for partial structure demolition.

PRESERVATION OF THE OAK

Any future redevelopment of the property would require that a certified arborist be retained to:

1) Provide a written plan reflecting best practices in order to protect the health of the tree.
2) Observe implementation of the plan and verify in writing that that plan was adhered to.

Care of the existing mature oak will be coordinated with our arborist. See Appendix B for letter from arborist indicating that the existing tree shows signs of insect damage and that approximately half of the root system is covered with concrete paving, which is blocking moisture and air from getting to the roots. Given the existing condition of the tree, it is not a guarantee that the tree will survive whether or not redevelopment occurs.

It is anticipated that redevelopment of the property would include removing the concrete paving that covers 40%-50% of the root structure and that the roots of the tree would be aerated to improve its health. Where new construction occurs under the crown, piers would be used to limit the root disturbance. Overall, the continued health of the tree should be more viable when soils are exposed and the roots are aerated versus keeping the current conditions in place.

PUBLIC HEALTH AND SAFETY

Upon annexation [within 360 days of adoption of the annexation ordinance] the existing residence will abandon the existing septic tank and connect to the City sewer. The existing duplex and barn are served by a Type 1 Septic Tank Based System that is assumed to have been installed when the residence was constructed 60 years ago. The system is located just uphill from the Anderson Ditch. It is preferable that the existing system be removed and the property to be connected to the City sewer, which is in the street adjacent to the property.

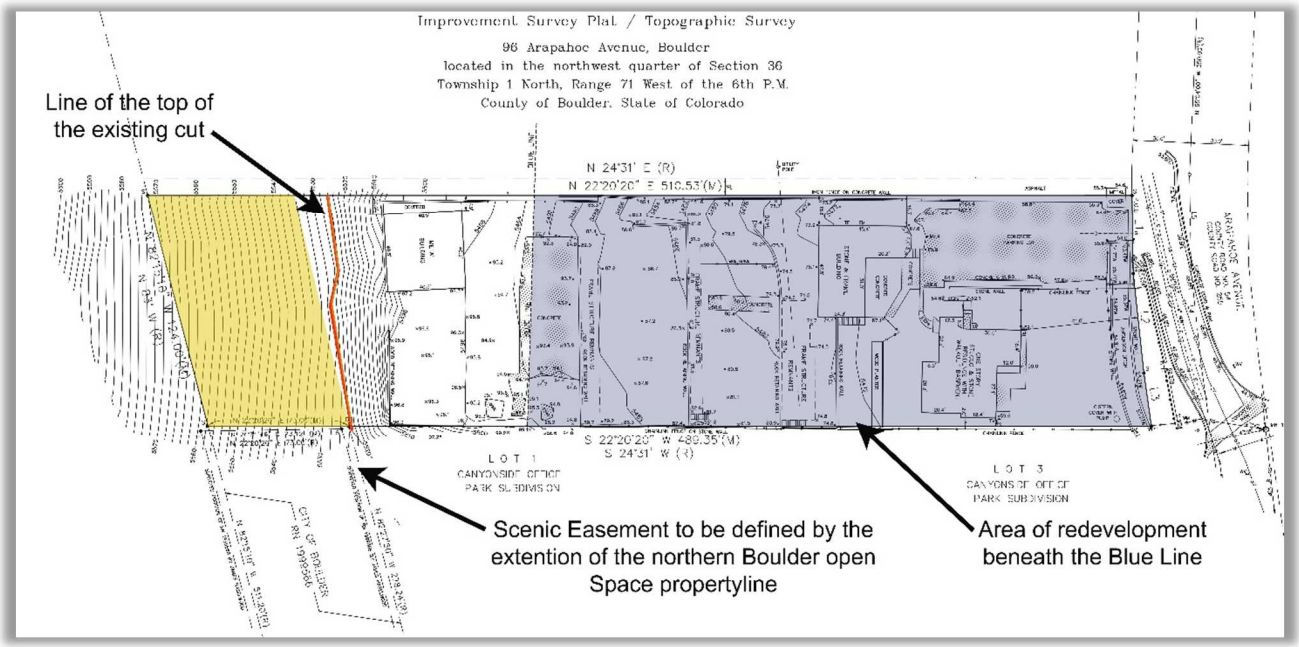
Any future redevelopment of the property would include remediation of the existing cut in the hillside above the Blue Line. The cut is mainly unsupported and is at a 1:1 slope along much of its length. While the hillside remained intact during the 2013 flood, it is still desirable that remediation occur. Retaining walls and fill from the excavation during redevelopment would be positioned to ensure the stability of the hillside. Also, the cut is visible from Settler's Park and appears as a scar on the landscape. It would be visually more appealing if the slope was remediated and landscaped. The redevelopment would terrace the cut with stones from the existing terraces on the lower part of the property and would place landscaping that transitioned from the redevelopment to native vegetation up the hillside. Landscaping would be irrigated utilizing the property's water rights, as has been historically practiced.

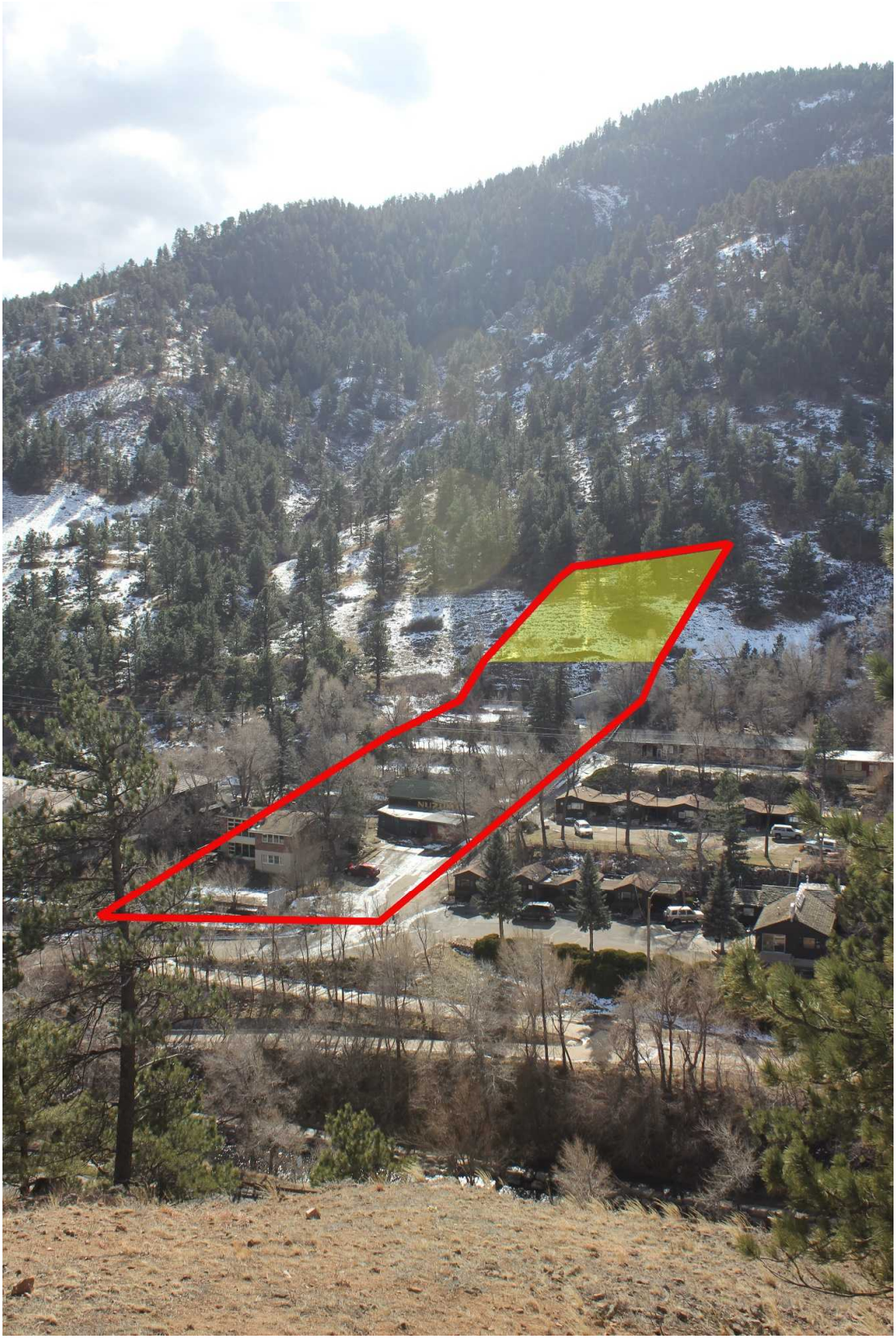
Any future redevelopment of the property would include fees (impact, plant investment, etc.) that could be directed to public infrastructure in other parts of the City, as the site already has utilities and roadways serving it. Impact fees paid through the redevelopment would go toward city services that are already being used by the residents of the property. Also, emergency services of the City are more readily available to respond than County services, which will increase protection of the residents and surrounding properties.

Any future redevelopment of the property would include replacing the existing concrete slab that gives access to the property over the ditch. The existing access would be replaced with a new box culvert designed to meet the load ratings required by emergency vehicle access.

SCENIC EASEMENT

Upon annexation a Scenic Easement would be filed with the County Clerk for the upper 14.6% of the property. The Scenic Easement would begin roughly at the top of the existing cut on the eastern property line and would extend in the same bearing as the adjacent Boulder Open Space north property line. The Scenic Easement would ensure that the most visible part of the property (from Settler's Park) would be left in its natural state.





Yellow area indicates approximate area of proposed Scenic Easement

Appendix B

Consultant Letters
Regarding Feasibility

7 January 2015

City of Boulder
1739 Broadway, Third Floor
P.O. Box 791
Boulder, CO 80306

RE: 96 Arapahoe Ave
Proposed Annexation
Civil Engineering Feasibility Analysis

SG: B1093

To Whom It May Concern,

On behalf of Creative West Architects, The Sanitas Group has performed a schematic level feasibility review of the 96 Arapahoe Ave property for civil engineering related constraints related to proposed redevelopment of the site. At this time, Creative West is pursuing annexation of the property into the City of Boulder and this letter is intended to provide civil engineering support addressing the feasibility of future redevelopment and the ability of the site to be served by City of Boulder facilities.

Currently, the property lies within Boulder County and is developed with a single family residence as well as two barn type structures that were related to a former nursery operation on the property. The site is accessed from an extension of Arapahoe Ave that also serves the Silver Saddle Motel property immediately to the west. The scope of this letter is intended to address three primary civil engineering topics; **Utilities, Storm Drainage, and Access**. This analysis is based on current site conditions as well as the schematic site plan prepared by Creative West Architects. This review is not intended to be a detailed construction level design analysis at this time, but rather a review of the feasibility to redevelop the project site in a manner intended by the client.

Utilities:

Currently the property is served by the City of Boulder for water service with an existing service line extending from Arapahoe Ave under the Anderson ditch to the existing residence at the northeast corner. Additionally, an existing 6" CIP water main extends west along Arapahoe Ave along the property frontage in order to serve the Silver Saddle Motel to the west. An 8" water main extends from Canyon Blvd south across the bridge to Arapahoe Ave and ties into the 6" CIP line. The proposed site can be served adequately by this system, with the existing 6" CIP line along the property frontage to be upgraded to an 8" water main that would be extended into the site to provide adequate domestic water service and fire protection requirements. The proposed 8" water main extension into the site will follow the new access drive and provide a new fire hydrant within the site.

The property is currently not connected to the City of Boulder Sanitary sewer system, but rather is served by an existing leech field located in the northeast corner of the site. An existing 8" sanitary sewer main is located in Arapahoe Ave at the northeast corner of the property north of the Anderson Ditch. In order to serve the proposed redevelopment of the property, a new 8" sewer

main would to be extended west along Arapahoe Ave and then up into the site along the proposed access drive. Due to the elevation change in the area and low elevation of the existing sanitary sewer, there should be no issue with extending sewer to the site and being able to go under the Anderson Ditch with the required clearances. The existing leech field will be removed in accordance with public health requirements.

Electrical service is currently provided by an overhead power line running from east to west across the property at approximately mid-lot. This line currently serves the site as well as properties to the west. Based on the location of the line we anticipate a relocation as part of redevelopment. Relocation will most likely involve burying the lines underground as they cross the site. New transformers shall be installed to serve the new development as needed.

Gas service is currently provided to the property by an existing gas main located in Arapahoe Ave to the north of the property. Redevelopment of the property would be served by this gas main. At this time, the owner is currently discussing a possible shared dry utility easement on the western boundary with the adjacent property owner in order to provide a shared utility corridor that would benefit both properties.

Storm Drainage:

The Sanitas Group reviewed existing and proposed drainage conditions for the property to determine feasibility and any constraints related to redevelopment of the site. During the September 2013 flood event some of the properties in vicinity of 93 Arapahoe suffered damage from flows coming from Flagstaff Mountain to the south via various gullies and drainages. Damaged areas included properties immediately to the east and west of the site. Fortunately, the 96 Arapahoe property did not experience any serious damage or debris flows during that event. A review of tributary offsite conditions to the south shows the property lying below a minor ridge of Flagstaff Mountain. This ridge diverts flows away from the site. The resulting tributary area flowing into the south side of the site appears to be approximately 1.13 acres, with a 100-year runoff of 5.49 cfs based on a Rational Method analysis. The offsite runoff sheet flows into the site and is small enough that it can be adequately conveyed through a redevelopment of the site via standard methods. In addition to the immediate upstream flows, some flows from above the Silver Saddle Motel are currently directed along the western shared property line towards Arapahoe Ave. These flows will need to be addressed as part of any site design, but based on preliminary site design and grades these flows should be able to be conveyed past the reconstructed barn building and along the proposed drive lane in a historical manner without adverse impacts.

Regarding onsite conditions, the site encompasses 1.38 acres and drains from south to north towards Boulder Creek, which lies immediately north of Arapahoe Ave. Currently, the property is divided into two drainage basins. The northeast corner of the site currently sheets flows directly into the Anderson Ditch. The remainder of the property flows to the northwest, eventually flowing down the existing driveway and into Arapahoe Ave. Existing storm sewer located in Arapahoe Ave at the northeast corner of the site conveys flows directly to Boulder Creek. Based on a Rational Method analysis, the existing runoff conditions result in a 5-year flow of 2.22 cfs and a 100-year flow of 8.44 cfs.

The proposed drainage conditions analysis was based on the schematic site plan provided by Creative West Architects and is representative of anticipated site development. City of Boulder Criteria were utilized for a review of the proposed conditions runoff based on the Rational Method.

Resulting overall site runoff conditions without detention are 4.23 cfs for the 5-year storm and 11.51 cfs for the 100-year. As a result, we anticipate the project site to require stormwater detention in order to reduce flows to match existing conditions. Both the Modified FAA Method and a schematic level hydraulic routing analysis were run for the site to estimate the required detention volume needs associated with site redevelopment. As a result, we estimate the necessary detention requirements to be on the order of 350 C.F. for the 10-year event and 1,000 C.F. for the 100-year event. Alternately, due to the site location being adjacent to Boulder Creek with only public right of way between the project site and creek with no developed properties in between, it may be preferable to direct release flows to Boulder Creek without detention as is common practice.

The property will be required to provide water quality treatment in accordance with City of Boulder and Urban Drainage and Flood Control District requirements. Based on the anticipated redeveloped site impervious of 48.3% and 1.38 acre total site acreage, the required Water Quality Capture Volume (WQVC) for the property is approximately 1,220 C.F.

Based on the proposed site layout and grade constraints, we expect that the necessary water quality and detention requirements for the development will be met by being incorporated into structural planter systems located throughout the site as well as smaller surface ponding systems at the southern and northern ends of the site. The proposed site design incorporated numerous planters adjacent to the buildings as part of the landscape design and to address grades, etc. The planters are ideally placed to capture runoff from rooftops and provide detention as necessary. The proposed site plan provides approximately 1,780 square feet of planter and surface areas that can be used for meeting detention and water quality requirements. This should be adequate to meet the needs of the site and appropriately incorporate the systems into the site plan in an aesthetic manner.

The Anderson Ditch lies along the northern edge of the property between the proposed development and Arapahoe Ave. The ditch incorporates numerous stone retaining walls and is located above Arapahoe Ave at the northeast corner of the site. The ditch is currently an open channel across the site excluding the western end where the site access crosses over the ditch. The ditch is located within an existing pipe from the site access to the west across the Silver Saddle Motel property. Due to the elevation and layout of the Anderson Ditch, the ditch serves as a significant site constraint limiting the location of the site access as well as utility and drainage connections. The proposed redevelopment does not plan to change the ditch beyond replacement of the existing access crossing with a new box culvert meeting current standards.

Access:

The property is currently accessed by an existing drive lane entering the site from Arapahoe Ave at the northwest corner. The location and elevation of the Anderson Ditch dictate the location and elevation of the access point, and the proposed redevelopment plans to maintain the current access location. The existing access ditch crossing consists of a concrete slab sitting on the walls of the ditch. This will be replaced with a new concrete box culvert or similar meeting AASHTO H-20 minimum load rating as necessary for emergency vehicle access into the property.

A new 20-foot wide private drive lane is proposed to serve the project. Due to site grading constraints, this drive is proposed at a maximum grade of 8% after a 5% transition into the site from the right of way over the Anderson Ditch. The drive lane is planned to S-curve up into the site

to provide access to the units and reduce the steepness of the drive. As the drive will serve as an emergency access for the site, the lane is designed to meet the requirements of an AASHTO SU-30 turning movement with a minimum centerline turning radius of 38 feet. In August 2014, prior to the start of the feasibility analysis, the project team met with Mr. David Lowrey from the Boulder Fire Department at the site to review site conditions and obtain initial feedback on possible access solutions. As is common on hillside development sites, providing a template based International Fire Code turn-around or a full cul-de-sac style turn-around is not practical due to site constraints. Therefore a detailed vehicle turning analysis for the site access drive was completed based on the AASHTO SU-30 turning movement based on past project experience.

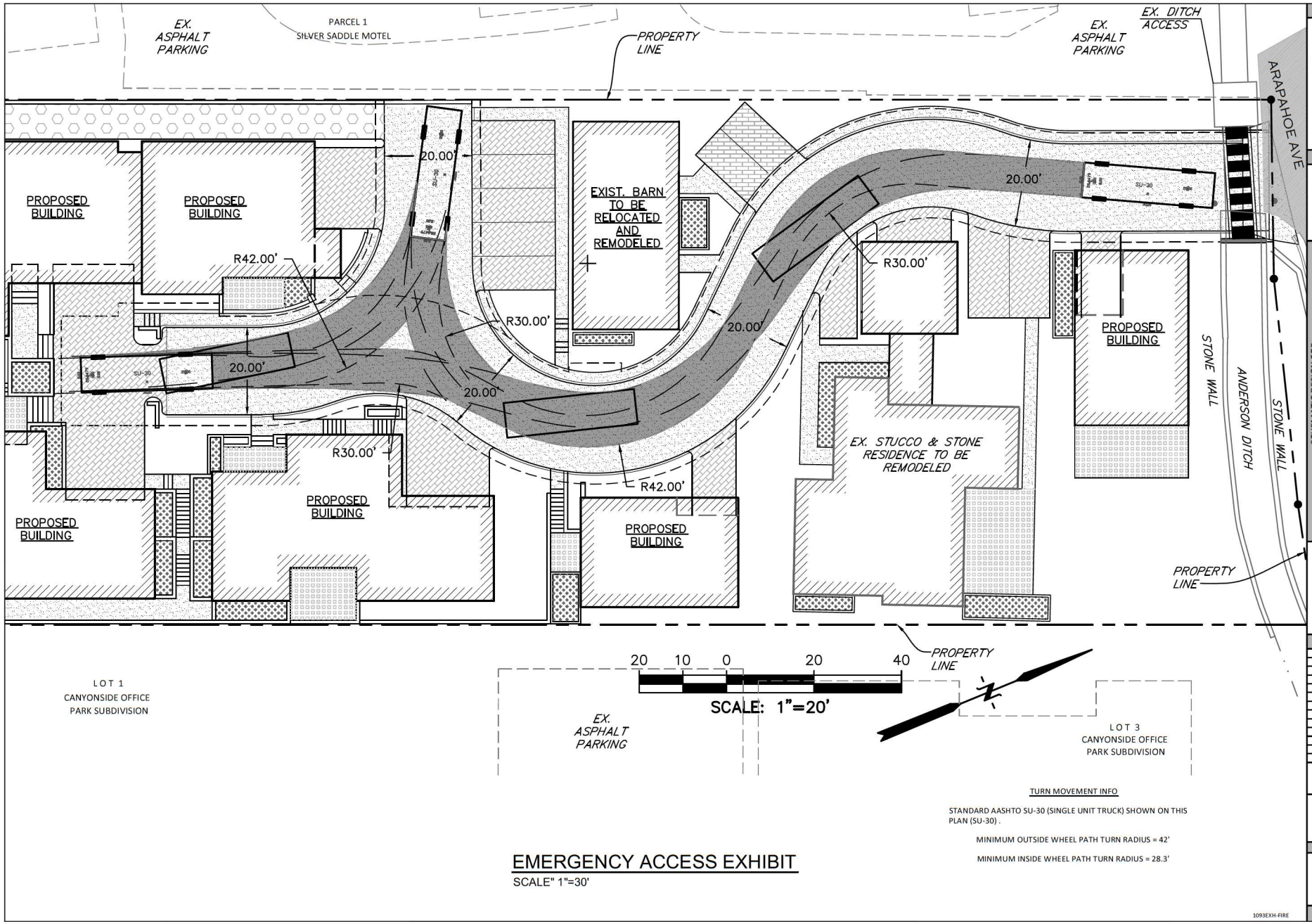
As a result of the detailed access analysis, the project proposes to use a Y-Style turn-around similar to what is utilized in Boulder County for emergency access, although the proposed movement shown is larger than the Boulder County requirements in order to meet the SU-30 movement requirements and provide additional clearance. An exhibit map (EX-1) showing the limits of the turn movements into the site and along the Y-Turn movement is provided with this letter for reference. The project team will work closely with City of Boulder Engineering and Fire Department staff to finalize the access design as necessary during the future detailed design phase for the project site. The site access will be covered by a 25-foot emergency access and utility easement as required.

The above discussion is intended as a feasibility level summary of site conditions for 93 Arapahoe Ave and intends to address the ability of the site to be redeveloped in association with the application for Annexation of the property into the City of Boulder. Please see the Schematic Design Plans included with this submittal for additional details regarding the project site. If you have any questions or comments regarding the above, please feel free to contact me at 720.346.1656 or email me at cstevens@thesanitasgroup.com.

Sincerely,

The Sanitas Group, LLC

Curtis C. Stevens, P.E., CFM
Principal/Civil Engineer



TURN MOVEMENT INFO

STANDARD AASHTO SU-30 (SINGLE UNIT TRUCK) SHOWN ON THIS PLAN (SU-30) .

MINIMUM OUTSIDE WHEEL PATH TURN RADIUS = 42'

MINIMUM INSIDE WHEEL PATH TURN RADIUS = 28.3'

EMERGENCY ACCESS EXHIBIT

SCALE" 1"=30'

1093EXH-FIRE

PREPARED BY:

The Sanitas Group
801 MAIN STREET, SUITE 210
LOUISVILLE, CO 80027
720.346.1656
PROJECT CONTACT:
CURTIS C. STEVENS, PE

PREPARED FOR:

CREATIVE WEST ARCHITECTS
4400 OSAGE DR.
BOULDER, CO 80303
720.644.6699
PROJECT CONTACT:
JONATHON WARNER

SCHEMATIC DESIGN FOR:

96 ARAPAHOE AVENUE
ANNEXATION
96 ARAPAHOE AVE
BOULDER COUNTY, COLORADO

ISSUE	DATE
PROGRESS PRINT	11/04/15

DESIGNED BY:	BAP
DRAWN BY:	TSG
CHECKED BY:	CCS

DRAWING SCALE:
HORIZONTAL: 1"=20'
VERTICAL: N/A

FIRE ACCESS EXHIBIT

PROJECT NO. B1093

EX-1

SHEET: 1 OF 1

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December 2, 2015

Creative West Architects
4400 Osage Drive
Boulder, CO 80303

RE: 96 Arapahoe Avenue
Trip Generation Letter
Boulder, CO

McDowell Engineering has prepared a letter summarizing the anticipated project trip generation for the proposed residential infill development project located at 96 Arapahoe Avenue.

Project Description

The proposed residential infill project is located on a 1.37 acre site at the west end of Arapahoe Avenue. The lot currently has a duplex, nursery barn, and equipment shed. The applicant is proposing to redevelop the site with five single family homes and four duplex units. Three of the units will qualify as affordable housing units.

The site will take access to Arapahoe Avenue from the current site access location on the northwest corner of the property. Residents will access the Boulder Creek Path via a sidewalk located directly across from the site access.

A map showing the general vicinity of the project is shown in **Figure 1 – Vicinity Map**. The current site plan is included in **Figure 2 – Site Plan**.

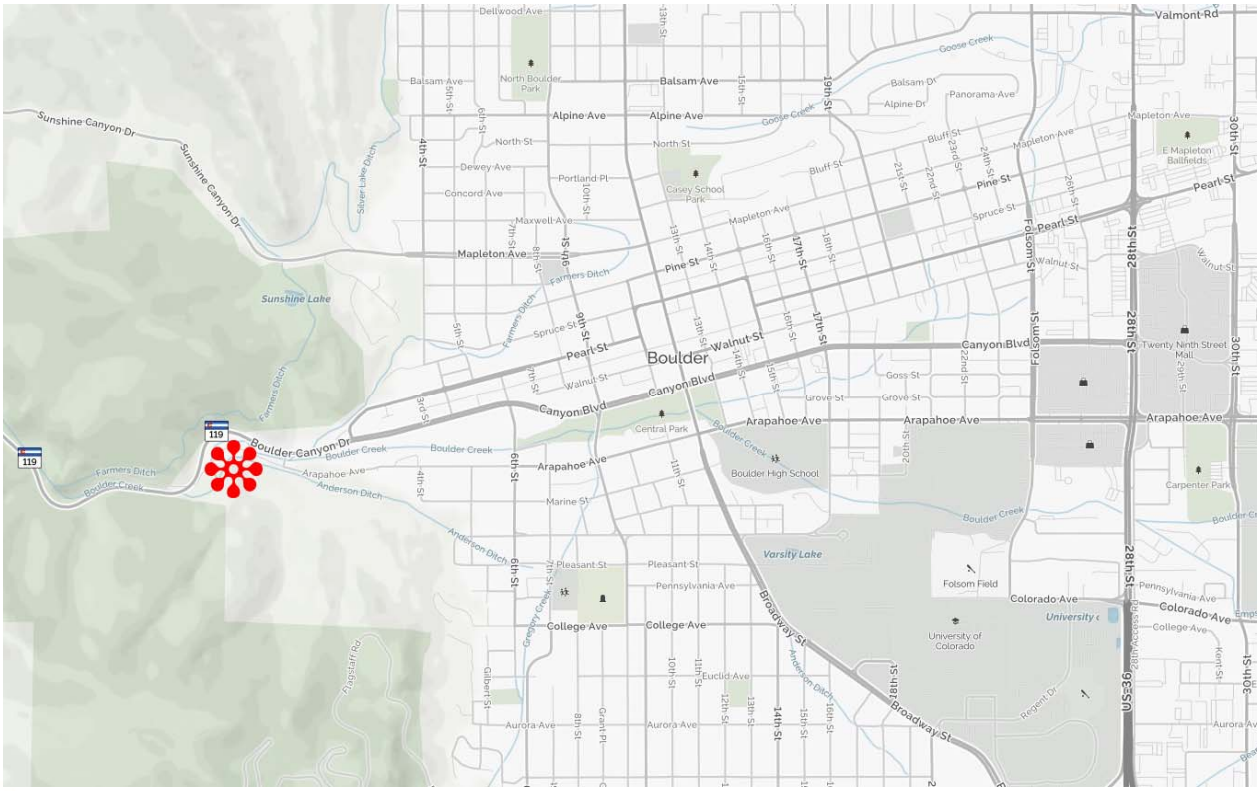
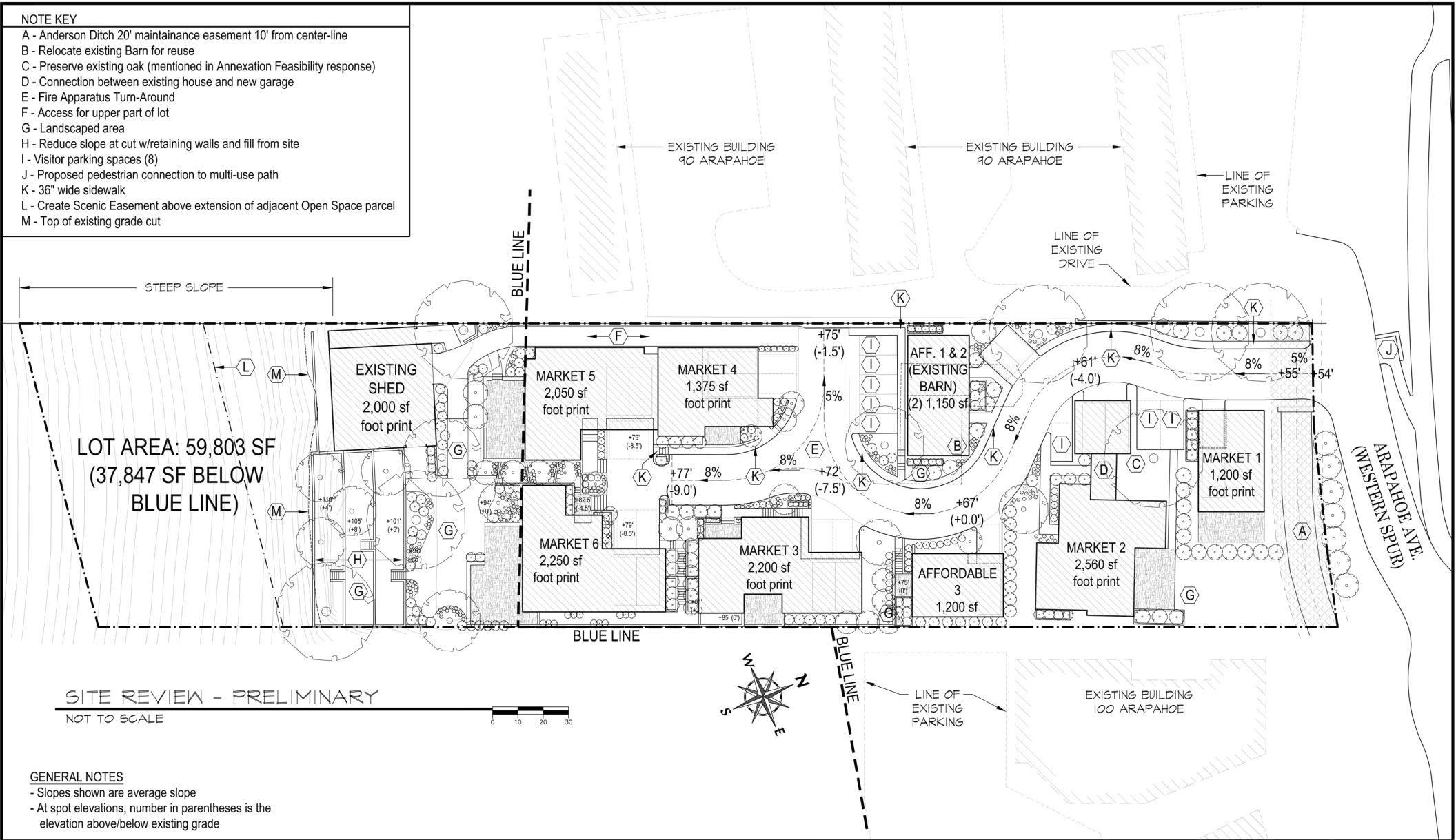


Figure 1: Vicinity Map

McDowell Engineering LLC
Transportation Engineering Consultants
Eagle • Broomfield • Grand Junction 970.623.0788 • McDowellEng.com

NOTE KEY

A - Anderson Ditch 20' maintainance easement 10' from center-line
B - Relocate existing Barn for reuse
C - Preserve existing oak (mentioned in Annexation Feasibility response)
D - Connection between existing house and new garage
E - Fire Apparatus Turn-Around
F - Access for upper part of lot
G - Landscaped area
H - Reduce slope at cut w/retaining walls and fill from site
I - Visitor parking spaces (8)
J - Proposed pedestrian connection to multi-use path
K - 36" wide sidewalk
L - Create Scenic Easement above extension of adjacent Open Space parcel
M - Top of existing grade cut



SITE REVIEW - PRELIMINARY

NOT TO SCALE

0 10 20 30

GENERAL NOTES

- Slopes shown are average slope
- At spot elevations, number in parentheses is the elevation above/below existing grade

	UNIT	DESCRIPTION	EXISTING	BUILDING FOOT PRINT
	Market 1	Single Family - Convert Existing Duplex		apx. 1,200 sf
	Market 2	Single Family - Detached Single Family	Y	apx. 2,600 sf (existing + accessory)
	Market 3	Single Family - Detached or Duplex		apx. 2,200 sf
	Market 4	Single Family - Detached or Duplex		apx. 1,400 sf
	Market 5	Single Family - Detached or Duplex		apx. 2,050 sf
	Market 6	Single Family - Detached or Duplex		apx. 2,250 sf
	Affordable 1	Affordable Units - Convert Existing Barn	Y	apx. 1,200 sf (each unit 1/2 of duplex)
	Affordable 2	Affordable Units - Convert Existing Barn	Y	apx. 1,200 sf (each unit 1/2 of duplex)
	Affordable 3	Affordable Units - Convert Existing Barn		axp. 900 sf
	Shed	Accessory - Repair Existing Equipment Shed	Y	apx. 2,000 sf
TOTAL	9 Dwelling Units			15,800 sf Building Footprints

96 ARAPAHOE ANNEXATION

ANNEXATION SUBMITTAL

PROPOSAL: Annex 1.3728 acres as RM-3 Zoning
(9) Dwelling Units - 42.9% of new Dwelling Units to be Affordable

EXISTING: Current Zoning: Transitional
Current Use: Multi-Family (Duplex)
Existing Buildings: (1) Duplex; (1) Nursery Barn; (1) Equipment Shed

CWA ARCHITECTS
4400 OSAGE DRIVE
BOULDER CO 80303
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Travel Demand Management (TDM) Strategies

TDM effectiveness depends upon a variety of factors such as the distance to multimodal amenities and level of service of the available facilities.

96 Arapahoe has direct access to many local amenities that encourage alternative modes of transportation.

- Secure Bike Storage: The project will encourage the use of bicycle transportation by providing bicycle storage via garages and bike racks. Seven of the nine homes will have garages. Bicycle storage racks will be provided for the two duplex units that do not have a garage.

- Boulder Creek Path: The Boulder Creek Path is located opposite of the project site, on the north side of Arapahoe Avenue. The project's internal sidewalk directly aligns with the Boulder Creek Path's access. This path connects the Boulder Canyon to downtown Boulder and east Boulder. The Boulder Creek Path connects to the City's greater path network and numerous pedestrian and bicycle facilities. The multiuse path is maintained year-round.

- Local/Regional Transit Service: Three local/regional bus routes run on Canyon Boulevard, with a local/regional bus stop located 1,400 feet from the site. Three additional routes can be accessed from Arapahoe Avenue and 9th Street, located 3,000 feet east of the site.

- Hiking Trails: Two trailheads to local hiking trails are located within a very close proximity to the site. The Red Rocks/Settler's Park Trailhead is located 1,000 feet to the northeast and the Viewpoint Trailhead is located 1,500 feet east of the project site.

- Park Access: The Eben G. Fine Park is located between Arapahoe Avenue and Boulder Creek. This park contains portions of the Boulder Creek and Boulder Creek Path with a variety of recreational amenities, including a playground, open turf, a picnic shelter and additional picnic areas. A multi-use pedestrian bridge over Boulder Creek connects the park to the Red Rocks and Settler's Park.

- Other Recreational Opportunities: In addition to the hiking, biking, walking opportunities described above, the project location provides access to Boulder Creek and Boulder Canyon rock climbing.

- Bike Share Access: BCycle has a bike-share station with bicycles available at the Justice Center, which is located 2,500 feet east of the project site.

The impact of TDM on vehicular trip is cumulative. Transit service may decrease vehicular traffic by 1-15% depending on the quality of the available transit service.[1] This project could expect approximately a six percent reduction, given that the network provides an enhanced service in the project area. Biking and walking access can provided a 1-9% reduction based upon the quality and access provided by the entire path system's access to desired destinations.[1] The City of Boulder has excellent connectivity with the bicycle and pedestrian access. This project is located only step from the major spine of the system, the Boulder Creek Path. Combined with the site's planned secure parking, the full 9% reduction is anticipated. This totals an anticipated vehicular trip reduction of 15% given the features described above.

Trip Generation

The total anticipated number of trips for the proposed site was estimated using the Institute of Transportation Engineers' *Trip Generation Manual*.[2] As can be seen in **Table 1**, the proposed residential project is expected to generate a total of 58 trips over the course of an average weekday, including a total of 5 trips during the evening peak hour.

The TDM factors accounted for a reduction of one trip per hour in both the morning and evening peak hours. This could be considered a conservative estimate given the location and connectivity of this project site.

The anticipated increase in vehicular traffic compared to the existing use for this site is 4vph with the additional residential buildout.

											PROJECT NUMBER:			M1204
											PREPARED BY:			KJS
											DATE:			2-Dec-15
											REVISED:			
Table 1 - Project Trip Generation														
96 Arapahoe														
Estimated Project-Generated Traffic[1]														
						Average	**Morning Peak Hour**				**Evening Peak Hour**			
						Weekday	**Inbound**		**Outbound**		**Inbound**		**Outbound**	
ITE Code	Units		AM Peak Hour Rate	PM Peak Hour Rate	Avg. Weekday Rate	Trips (vpd)	% Trips	Trips	% Trips	Trips	% Trips	Trips	% Trips	Trips
Existing Trip Generation [1]														
#230 Duplex Residential	2	dwelling units	0.33	0.43	5.00	10	28%	0	72%	0	65%	1	35%	0
Multimodal Trip Reduction	-15%					-1		0		0		0		0
Total Vehicular Trips from 96 Arapahoe						9		0		0		1		0
Proposed Trip Generation [1]														
#210 Single Family Home	5	dwelling units	0.75	1.00	9.52	48	25%	1	75%	3	63%	3	37%	2
#230 Duplex Residential	4	dwelling units	0.33	0.43	5.00	20	28%	0	72%	1	65%	1	35%	1
Subtotal						68		1		4		4		2
Multimodal Trip Reduction	-15%					-10		0		-1		-1		0
Total Vehicular Trips from 96 Arapahoe						58		1		3		3		2

[1] Values obtained from *Trip Generation, 9th Edition,* Institute of Transportation Engineers, 2012.

Internal Site Circulation Recommendations

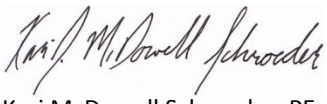
The site shall be configured to allow adequate access for all forms of traffic. It shall encourage bicycle and pedestrian activity. The current site plan shows a sidewalk located along the eastern edge of the internal driveway. With only 5vph anticipated during the peak traffic hours, this allocation is more than adequate to accommodate the proposed residential units. It could be expected that with such low traffic (5vph), some multimodal travel may occur in the shared driveway as well.

The sidewalk is aligned with the Boulder Creek Path's opposite access to Arapahoe Avenue, as recommended.

Conclusions

Appropriate TDM strategies have been incorporated into the current site plan. The traffic projections for the proposed 96 Arapahoe residential infill project are anticipated to be negligible at 5vph.

Sincerely,
McDowell Engineering



Kari McDowell Schroeder, PE, PTOE
Traffic/Transportation Engineer

References:

1 *TDM Impact on Commuters.* City of Boulder, 2015.
2 *Trip Generation Manual*, *9th Edition*. Institute of Transportation Engineers, 2012.

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BLUE RIVER FORESTRY
&Tree Care
www.bluerivertreecare.com

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Boulder, CO 80308

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November 05, 2015

Good afternoon,

This letter is in reference to the property 96 Arapahoe Ave, Boulder, CO 80302. The Oak on the West of the property received a class 2 crown clean in October 2015. The arborist Dustin Brown, RM 2444A, feels the tree is in good to moderate health. He did note that the tree does currently have Kermes Scale. A good amount of the root structure of the Oak tree is under pavement that is currently on the property. His recommendation is that a construction safe zone be put in place to minimize damage to the root structure.

Thank you,
Dustin R Brown

Letter Prepared by
Brandy Brown
Manager

Blue River Forestry & Tree Care

Appendix C

Existing Buildings

Pictures of Barn

Pictures of Barn

Pictures of Main House

Pictures of Existing Oak

Pictures of Existing Cut and Area Above Blue Line #1

Pictures of Existing Cut and Area Above Blue Line #2