



**Study Session  
MEMORANDUM**



**TO:** Members of City Council

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**DATE:** August 11, 2015

**SUBJECT:** Boulder Junction Phase I Form-Based Code (FBC) pilot project

**EXECUTIVE SUMMARY**

The purpose of this study session is to check in with City Council on the progress of the Form-Based Code (FBC) pilot project to date and receive feedback. CodaMetrics has been drafting the FBC since the guiding principles were reviewed by council in June 2015. The study session is meant to function in a workshop format to allow council the opportunity to learn more in depth about key components of the FBC and see how it is being formulated to address key design concerns raised throughout the process before a more complete draft is prepared later this year. CodaMetrics and staff will present the draft components of the FBC and then will allow council members to circulate to review display boards for each topic before bringing the council back together for discussion. At this time, staff is seeking input from council on the general structure and draft components (**Attachment A**).

## QUESTIONS FOR COUNCIL

1. Does council have any feedback on the proposed table of contents and structure of the FBC for Boulder Junction Phase I? The five key components of the FBC that staff is seeking input on are:
  - I. *Regulating Plan*
  - II. *Public Realm*
  - III. *Building Materials and Construction Quality*
  - IV. *Façade and Building Proportions*
  - V. *Building Massing*
2. Is there anything that appears to be missing, or should be modified to better address design concerns raised in the community relative to Boulder Junction?

## BACKGROUND

City Council received an update on the FBC project on May 26, 2015 and provided input on draft Guiding Principles on June 15, 2015. The guiding principles were prepared by the consultant, CodaMetrics, to assist in the formulation of the draft FBC and inform applicants that have projects in the pipeline in the Boulder Junction area. The guiding principles included a list of “potential” regulations to address key design concerns identified through the process with goals of creating better buildings and ones that fit the vision for Boulder Junction. The findings of the principles were that Boulder desired “Honest, Simple and Human-Scaled” buildings. The packet regarding the FBC pilot including the guiding principles and a narrative of the entire process since April 2015 can be reviewed [here](#) and searching for the June 15<sup>th</sup> packet.

## PUBLIC INPUT

CodaMetrics and city staff held a workshop with members of the public on July 22<sup>nd</sup>. CodaMetrics presented an overview of the FBC and the input received thus far before discussing the draft components, which are discussed in the ‘Analysis’ section of this memorandum. Following the presentation, attendees circulated to review information and provide input on the following five topics: I. Regulating Plan, II. Public Realm, III. Building Materials and Construction Quality, IV. Building Proportions, and V. Building Massing. Most of the workshop was an opportunity for members of the public to better understand how FBC might work and what the proposed content would be.

CodaMetrics and staff have also met with members of the community in stakeholder meetings ranging from neighborhood representatives (e.g., Steel Yards, North Boulder etc.) and other groups like the Chamber of Commerce and Downtown Boulder. Most feedback has been positive. Some concerns heard relate to whether FBC would create too many buildings that look the same or whether the FBC would add additional layers of development review complexity upon proposals. CodaMetrics indicated that while certain parameters would have to be met to get a specified level of quality or design, there would still be flexibility to achieve varied, creative buildings. Generally, when

FBCs are adopted they have specific requirements that get applied to the area and only specified sections of the underlying zoning would apply in addition (e.g., off-street parking, use requirements).

## **BOARD AND COMMISSION FEEDBACK**

### **Joint Board Workshop**

CodaMetrics and city staff held a workshop with members of Planning Board, Boulder Design Advisory Board, Transportation Advisory Board and Boulder Junction Access District on July 23rd. The workshop followed a similar format to the community workshop on the day prior.

Most of the comments were positive and specific to the regulating plans and public realm plans. Many comments expressed interest in design attributes of well-designed narrow, human scaled pedestrian pathways through sites. Some multi-use paths in Boulder have been found to not be particularly pedestrian friendly as they are too wide and detached from building streetscapes. The north-south pedestrian walkway from Walnut up to Pearl was often cited as a model for a pedestrian-friendly, publicly accessible space. Opportunities for new connections were discussed and the need for new interesting places for people to hang out was emphasized. There were also discussions about how to categorize “primary” and “secondary” streets (e.g., A or B streets) and perhaps consider a change in terminology to clarify that a “primary” or “A” street should refer to a highly pedestrian oriented environment, rather than one where the vehicle is given priority. One particular connection, which is discussed in the ‘working group’ section below, was a key discussion topic (e.g., extension of Mapleton right-of-way into Depot Square). A suggestion was also made to test the draft FBC with architects and developers to learn if there are any unintended consequences.

At both the community and board workshops there was interest in the proposed ideas for breaking down the mass of building without creating overly-articulated, “busy” buildings and how to achieve a diversity of building heights. Specific comments received on the regulating and public realm plans can be found in **Attachment B**.

### **FBC Working Group**

Staff has met with the FBC working group on five occasions. The most recent meeting occurred on July 22<sup>nd</sup> where the draft components of the FBC were presented and discussed. Comments focused on the opportunity of new pedestrian ways (“Paseos”) to break up large blocks and increase permeability. Some felt that the FBC should have specific ‘paseo’ criteria. There were also conversations around a possible new special pedestrian or shared space connection from 30<sup>th</sup> into the plaza/park space by Depot Square (also discussed in the ‘Analysis’ section). There was a lot of interest in creating a new connection, whether it be pedestrian only or a shared space, but one that could be an extension of the Mapleton Avenue public right-of-way into the developing neighborhood taking advantage of the proximity to Goose Creek and views towards the Flatirons.

Several working group members wanted the underpass by the future train platform to be built sooner than later and that such an underpass could be public art opportunity like the underpass under Broadway by Euclid Avenue.

**STRUCTURE OF THE FORM-BASED CODE**

This section provides an overview of the structure of the FBC including the table of contents and the evolving draft components. Sample code regulations are also provided to show what the FBC would regulate.

The FBC has been designed to be independent of the city’s land use code and could be adopted by ordinance as an Appendix as opposed to wholesale changes within the land use code. There will be places in the code that will need to be updated to refer to the new regulations, but this could be done in limited places and footnotes. Staff’s current thinking is that it is preferable to have all of the FBC regulations related to Boulder Junction in one place as opposed to making the current land use code more complicated. Further, additional appendices could be added in the same portion of the code if new FBC area regulations are developed in the future.

As a pilot it is also recommended that complex changes to the land use code be avoided in the event the city opts to not use the FBC in the future. Beyond just incorporating the new code into the city’s land use code, the question of review process is important and will be a topic of future meetings when the draft FBC is being reviewed.

Table of Contents

The proposed table of contents is shown here:

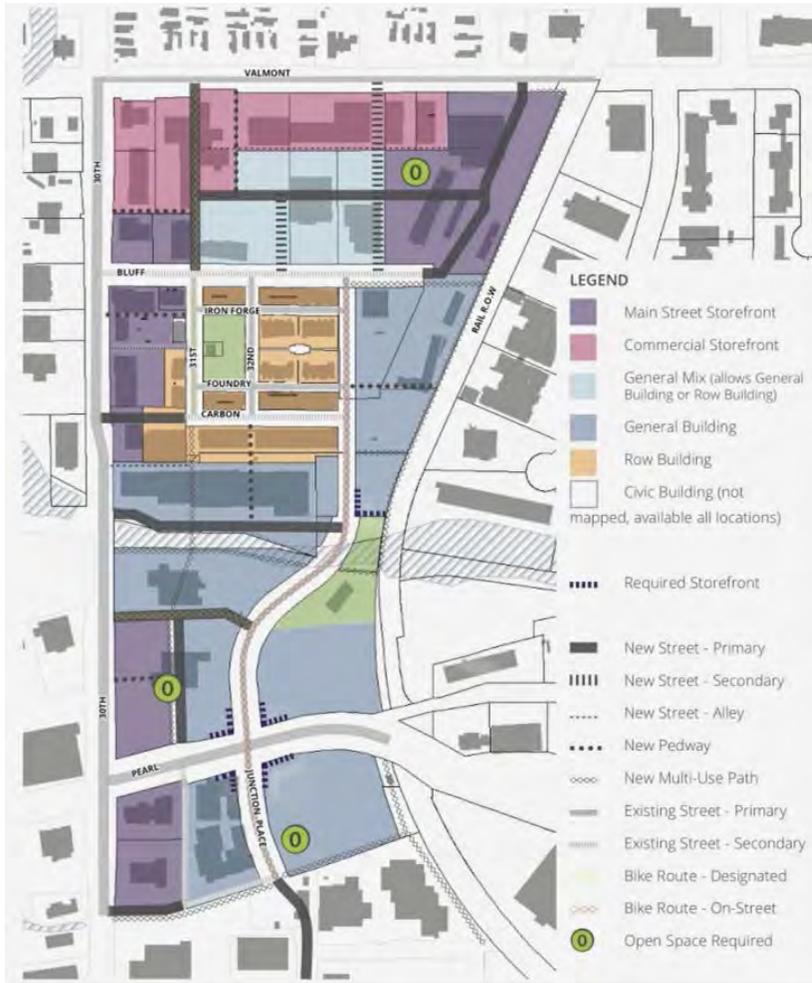
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Figure 1- FBC Table of Contents.

## Draft Components

The five FBC components, which are included in **Attachment A**, are described in this section:

**Figure 2- FBC Regulating Plan** (see Exhibit A of **Attachment A**)



### *I. Regulating Plan*

The regulating plan is a development guiding map based on the city's Boulder Valley Comprehensive Plan (BVCP) land use map designations for Boulder Junction, the TVAP plan and the zoning in the area. It is more specific than a zoning map and breaks up the area into sub-districts and specifies unique or special design elements for certain sites or blocks. It may outline streets with special design considerations, desired public open space locations, vista opportunities, required storefront retail areas etc. The regulating plan also specifies required TVAP street, alley and

pedway connections in the phase I Boulder Junction area.

Another purpose of the regulating plan is outlining specific allowable 'building types' for each sub-area district, each with their own form and massing requirements. Examples are 1) Main Street Storefront, 2) Commercial Storefront, 3) General Mix, and 4) Row Building. Each of these building types would be regulated by a number of specific form regulations such as 1) Built-to lines, 2) Setbacks, 3) Required percentage of frontage along a streetscape, 4) Maximum site coverage, and 5) Maximum Building Width etc.

There would also be maximum story heights, maximum number of stories and requirements for transparency (i.e., windows) at each floor to avoid blank walls. These regulations would be similar to some of the code requirements found in the land use code, but would be more specific.

Some sample building type requirements are found on Exhibit A-3 in **Attachment A**.

## II. Public Realm

The experience and interface of buildings to the adjacent pedestrian and vehicular environment has been an important issue discussed in this process. The public realm plan would specify the desired streetscapes in terms of street width, building to street ratios, tree plantings, hardscape materials as well as specific plaza/open space design requirements.

The public realm plan, like the regulating plan, is an opportunity to require certain design features that are not explicitly specified in the zoning map or connections plan. For instance, if there are opportunities for additional pedestrian pathways through blocks to create additional permeability and to break down the mass of block-long buildings they can be added to the plan.

Another identified opportunity that has been proposed on the plan above (shown in red on the public realm graphic) is the opportunity for a special pedestrian corridor along the north edge of Goose Creek. This idea generated a lot of discussion at the FBC working group and the joint board meeting. Whether the connection is multi-modal or just an emphasized pedestrian connection, it was considered important to ensure that buildings on the site (currently occupied by a long industrial used building) would face southward with their backs positioned along what would be an alley already constructed in Steel Yards. Having new buildings face that alley with their backs to Goose Creek would not be a preferred urban design outcome.

The connection, which could be an extension of the Mapleton right-of-way into Boulder Junction, could be treated with unique landscape and hardscape details, tree plantings, and include south-facing benches with potential views of the Flatirons. The connection could also create a new celebrated connection from the future park and Depot Square to the retail uses north on 30<sup>th</sup>. It is unlikely that such a connection would be vehicular given alignment issues with 30<sup>th</sup> and Mapleton and in the vicinity of the new Goose Creek bridge in Depot Square. These are the specific kinds of urban design ideas that could make the FBC a better implementing tool for TVAP's vision for Boulder Junction than the current zoning or Site Review process.

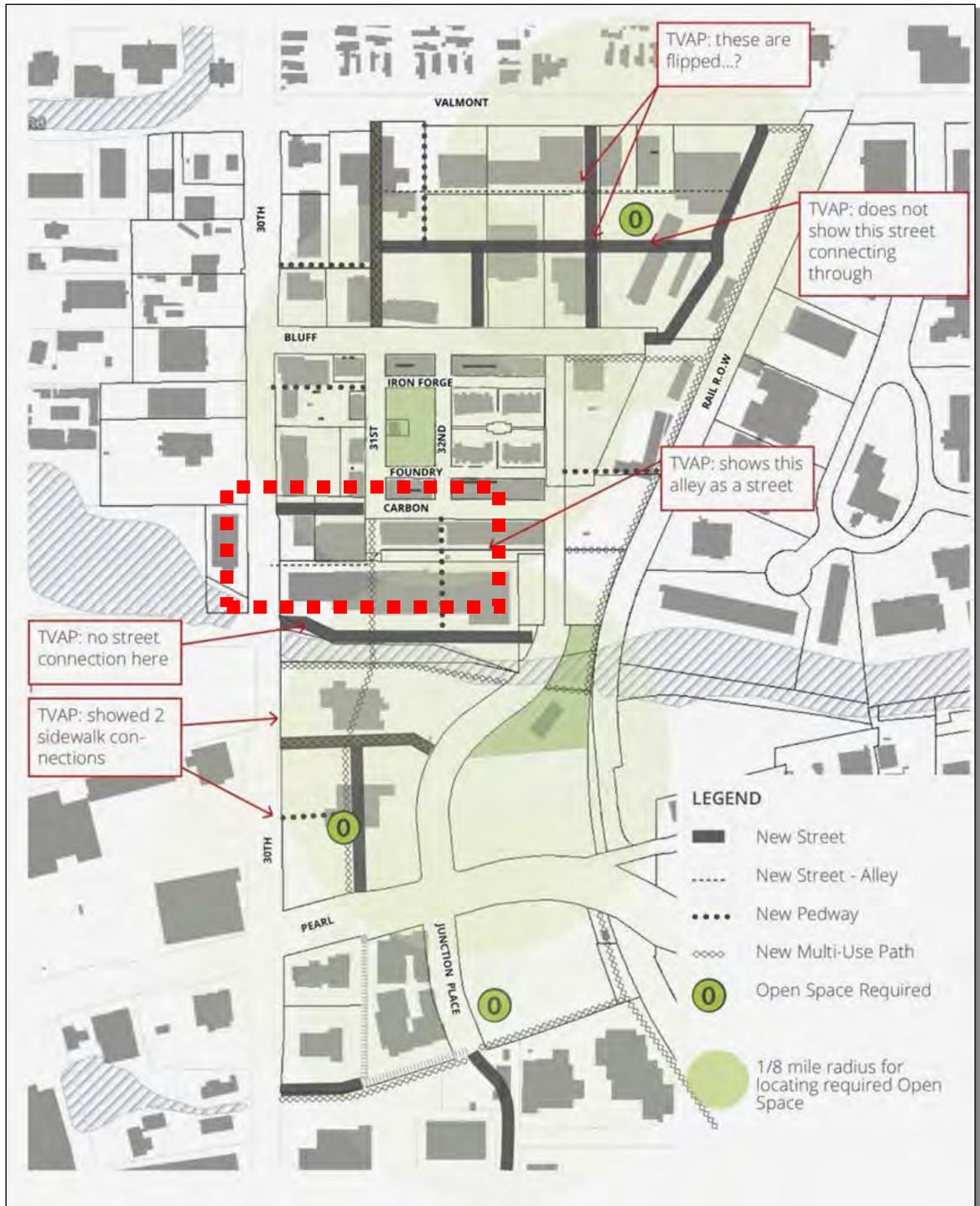


Figure 3- FBC Public Realm plan (also see Exhibit B-1 of Attachment A)

III. Building Materials and Construction Quality

The quality of building materials approved for developments and how they are constructed and assembled has also been a key design consideration identified through the FBC pilot process and as part of the Design Excellence initiative. A specific part of the FBC that effectively goes beyond just form alone is clearly specifying what materials are permitted or prohibited. Percentages (e.g., primary building materials and secondary building materials) and locations of the materials can also be specified.

The image preference surveys and other forums for feedback identified building materials that were desired or found to be appropriate to Boulder Junction versus other materials that were not considered as durable or did not match the intended character of Boulder. For instance, some materials make buildings appear permanent and coherent with other buildings of an area and some materials make buildings appear more temporary or out of character with the surrounding context. Sometimes building materials can be applied simply with primary and secondary building materials while other buildings have been designed with multiple materials that appear “too busy”.

While there are good examples of building design and material usage in buildings in Boulder, Figure 4 below shows some of the types of design flaws that could be improved upon with more specific building material requirements in a FBC. Exhibits C-1 and C-3 of **Attachment A** include sample language designed to avoid these qualitative concerns.

Some examples of building materiality concerns that have been raised are as follows:

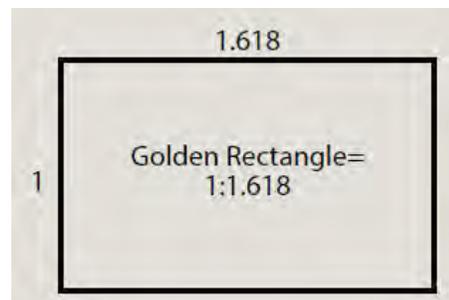
		
Too many materials	Change of materials on building facades do not diminish the appearance of the 4th floor	Utility placement along streetscapes



**Figure 4- Building material concerns**

***IV. Façade and Building Proportions***

Beyond just material concerns, the over-articulation of buildings in recent years has also garnered criticism. Over-articulation of buildings has been evident in recent years partly from contemporary architectural styles, but also because of the city’s adopted design guidelines and Site Review criteria that have been applied to buildings with efforts to “reduce building mass” and “create pedestrian interest.” While these well intentioned guidelines and criteria have avoided monotonous buildings, they have not necessarily resulted in well-liked buildings or resulted in less massive buildings.



**Figure 5- Golden Ratio diagram**

When Victor Dover visited Boulder last year, he raised the issue that many historic buildings that have been constructed over time used the “Golden Ratio” which effectively involves integrating rectangles of a ratio of 1 to 1.6 to create a sense of harmony and

balance in building facades (see Figure 5 and Exhibit D of **Attachment A**). This practice was common in pre-World War II designs, but has been used less so in contemporary times. When unused, many critics of buildings have found that the buildings appear irregular and trigger a strong human reaction. Use of the Golden Ratio could be mandated in the FBC in a way that would still encourage unique and different building designs, but enough that a sense of balance and symmetry could be achieved. Many of the buildings that Boulder citizens have found to be acceptable use the Golden Ratio, as evidence by the top four buildings in the image preference survey (Figure 6) or the Hotel Boulderado (Figure 7).



**Figure 6-** Top rated designs from both the community and joint board image preference survey.

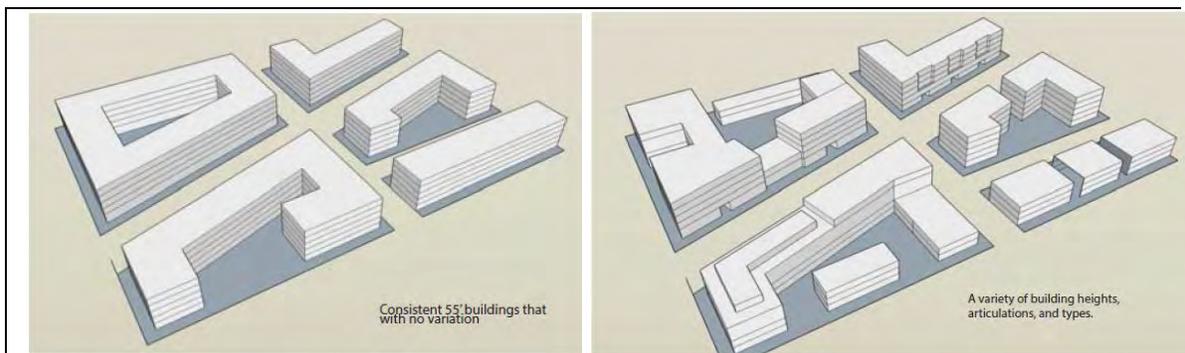


**Figure 7-** Proportions of Hotel Boulderado.

### V. Building Massing

Building massing – both horizontally and vertically – has been a prominent issue in the design conversation. Staff has heard significant concerns about the appearance of block-long buildings that do not effectively appear as multiple buildings despite attempts to create that effect, uniform building height at 55 feet with no diversity in height and the lack of real publicly accessible permeability through project sites, which also can reduce the massing of buildings.

CodaMetrics shows in the following two diagrams how massing often plays out under the current land use code and Site Review process followed by the massing that could be created through specific new regulations in the FBC.



**Figure 8-** Building massing based on floor area ratio and uniform 55-feet (left) and possible massing through specific regulations in FBC.

To achieve the breaking down of massing without creating the affect of over-articulation and to achieve multiple buildings with a diversity of heights, the following regulations are proposed in the draft FBC (see Exhibit E of **Attachment A**):

1. Remove floor area ratio (FAR) and open space requirements which create too much uncertainty and variability. Alternatively, add specific form requirements

and designate open space locations, which set the level of expectation and create more predictability.

2. Require a “base, middle, and top” in buildings to avoid over-articulation and create more symmetry. Proportion requirements related to the Golden Ratio discussed above would also avoid over “busy” facades.
3. Specify “maximum building width” to avoid block long buildings, in addition to requiring additional pedway connections through large blocks. This would cut down on building size and would be an acceptable trade off considering the proposed removal of FAR requirements.
4. Place requirements on the fourth story of buildings such as maximum percentage above the third floor or requirements to have upper stories step down at intervals to avoid the build-out of 55-foot tall buildings across sites.

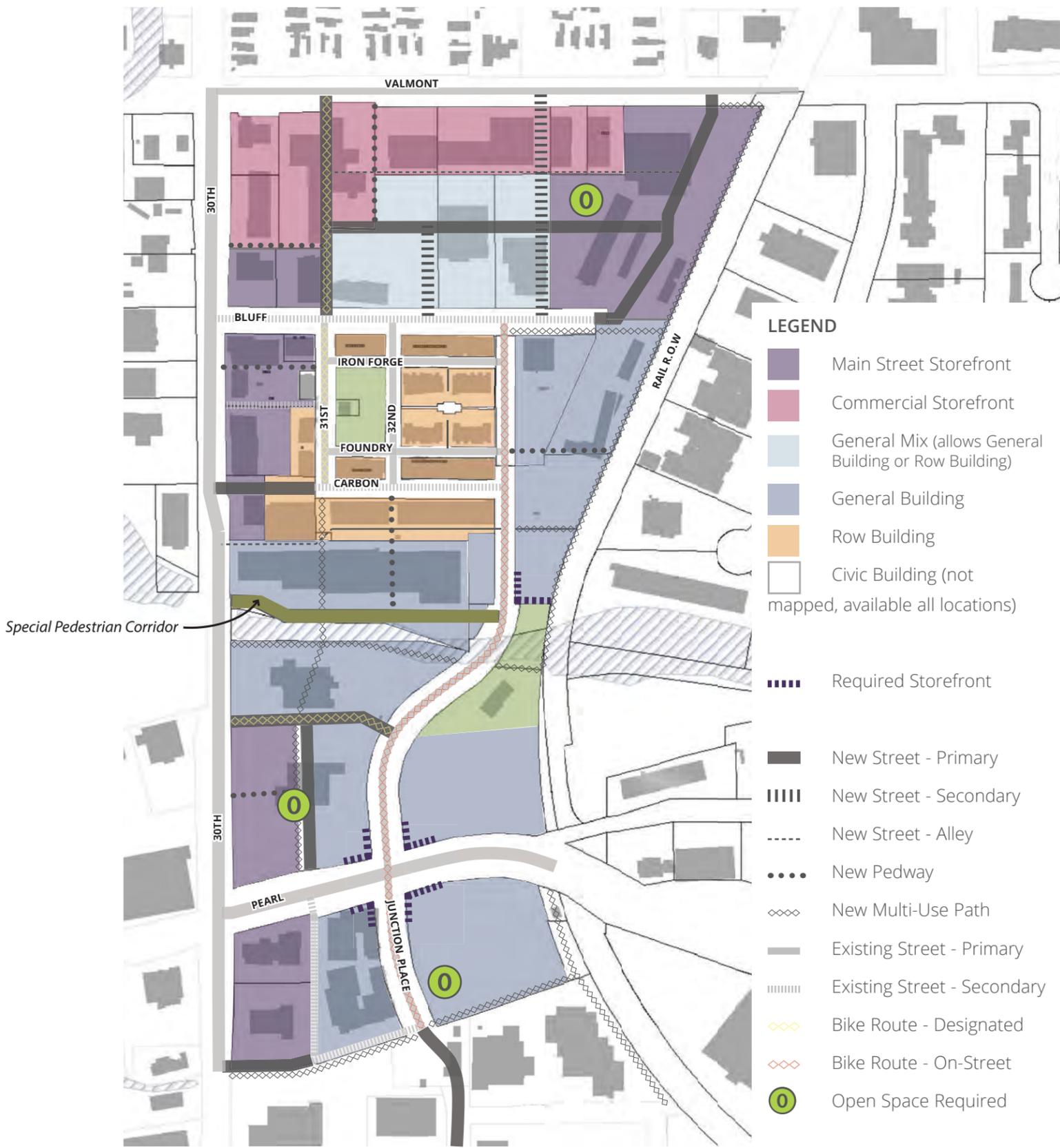
### **NEXT STEPS**

Following City Council input on the FBC draft components and structure, city staff will continue working with CodaMetrics to prepare a more complete draft of the FBC. It is anticipated that a draft will be prepared by October for presentation to the FBC working group, to the general public at an open house and then to the Planning Board. Following Planning Board recommendation on the FBC, the draft FBC and ordinance will be advanced to City Council for review.

### **ATTACHMENTS**

- A. Draft components of the FBC for Boulder Junction Phase I
- B. Community and joint board meeting comments from July workshops

# EXHIBIT A-1: Regulating Plan



Draft Regulating Plan

## EXHIBIT A-2: Regulating Plan

**ISSUE:**

The current zoning code does not always effectively implement the Transit Village Area Plan (TVAP) because the zoning code primarily regulates building uses with no explicit standards on form and public spaces.

**APPROACH:**

A form-based code with a regulating plan that is drawn from the TVAP will ensure the area is built out in accordance with the vision of the TVAP.

**DRAFT CODE LANGUAGE:**

**A. REGULATING PLAN**

The regulating plan provides the framework of the regulations that apply to each parcel. Refer to Figure XXX. The regulating plan illustrates the following:

- **New Streets and Alleys.** The location of required new streets and alleys (per the Transit Village Area Plan) is defined to implement walkable blocks and the requirements of the area plan. Refer to XXX Public Realm for street and alley requirements.
- **New Pedestrian & Bicycle Ways.** The location of required new pedestrian ways or paseos and new multi-use path locations (per the Transit Village Area Plan) are defined to implement a high level of walkability and bike-ability per the requirements of the area plan. Refer to XXX Public Realm for pedestrianway, paseo, and multi-use requirements. Additional paseos may be required per XXX General Design Requirements for All Sites.
- **Permitted Building Types.** The permitted locations for the Building Types are shown. Refer to XXXX for requirements of Building Types.
- **Primary and Secondary Frontages.** Frontages define how the buildings are required relate to the street. Primary and secondary frontages are shown on the regulating plan and referenced in the Building Types. Refer to XXX.D, below for additional information, and XXXX Building Types.
- **Required Shopfronts on General Buildings.** In addition to locations defined for storefront buildings (Main Street and Commercial Storefronts), portions of the frontage of some General Buildings may be required

to have shopfronts. Typically these locations are at key intersections or adjacent to open space. Refer to XXXX.X General Building Type.

- **Required Open Space Locations.** The general location for additional open spaces is shown to achieve a distribution of small open space types within 1/8th of a mile of all building entrances. Refer to XXX Public Realm requirements for additional information.

**B. PRIMARY FRONTAGES**

This code establishes a hierarchy of street frontage as follows:

- **Primary Frontages.** The regulating plan designates primary frontages to prioritize fronts of lots and buildings, located the principal entrance on the building, and define limitations on locations for parking and garage entrances.. Refer to Building Type requirements (refer to XX through XX)
- **Secondary Frontages.** The secondary frontages are established to allow for a lower level of façade treatment as well as permitted locations for garage and drive entrances. Refer to Building Type requirements (refer to XX through XX).
- **Two Primary Streets.** When two primary streets and/ or no secondary street exists on the lot, the zoning administrator shall determine which frontage is most appropriate to serve as the secondary street. Orientation of other parcels along the street and status of the street shall be considered.

**C. BUILDING TYPES**

The following building types are established for development within the Boulder Junction Overlay. Figure XX illustrates the locations for the districts.

- **Main Street Storefront.** The Main Street Storefront Building Type is a highly pedestrian-oriented, mixed-use building required to be a minimum of 2 stories and up to 5 stories in height. Located along 30th Street this building type is meant to serve a wider area in addition to Boulder Junction. This building type requires ground story storefront along all primary streets with active retail and service uses. Upper story uses are highly flexible. Parking is in the rear or off-site.
- **Commercial Storefront.** The Commercial Storefront Building Type permits single use buildings and more parking locations, but is still focused on pedestrian orientation. This district allows a broader spectrum of retail and service uses on the ground story, including auto-oriented services.
- **General Mix.** The General Mix designation allows either the General Building or the Row Building.
- **General Building.** The General Building Type is a basic building envelope, defining the edges of the public realm with urban edges meant to enhance walkability in between the more active commercial spaces and open spaces. This building can accommodate a wide range of uses, from residential to office to light industrial.
- **Row Building.** The Row Building Type is a smaller scale building similar to the General Building with separate entrances into each unit. Townhouses, rowhouses, live-work units, or small width maker spaces could fit well into this building type.

# EXHIBIT A-3: Regulating Plan

## SAMPLE BUILDING TYPE REQUIREMENTS:

### Building Types Main Street Storefront Building

DRAFT DRAFT

### Building Types Main Street Storefront Building

#### C. MAIN STREET STOREFRONT BUILDING

	BOULDER JUNCTION	OTHER CODE AREAS?
<b>BUILDING SITING</b> Refer to Figure (B)(3) 1, XXXX for explanation of height requirements, & XXX for height variability requirements..		
1 Minimum Primary Build-to Zone Coverage	95% refer to Note 1	
2 Primary Build-to Zone	0' to 5' refer to Note 2	
3 Secondary Build-to Zone	0' to 5' refer to Note 2	
4 Minimum Side Yard Setback	0'; 5' if abutting other building type	
5 Minimum Rear Yard Setback	5'; 25' if located abutting to residential	
6 Maximum Building Width	none; one paseo required for each 100' segment of buildings over 150' wide along the street	
7 Maximum Site Coverage Additional Semi-Pervious Coverage	75% 25%	
8 Surface or Accessory Parking Location & Loading Location	Rear yard	
9 Permitted Driveway Access Locations Shared access is encouraged	Off alley; if no alley exists, one driveway permitted off secondary frontage.	
<b>HEIGHT</b> Refer to Figure (B)(3) 2, XXXX for explanation of height requirements, & XXX for height variability requirements.		
10 Minimum Overall Height	2 stories	
11 Maximum Overall Height	5 stories; 55'	
12 Ground Story: Minimum Height Maximum Height (Measured floor to floor)	14' 22' refer to Note 3	
13 Upper Stories: Minimum Height Maximum Height (Measured floor to floor)	9' 12'	

- NOTES**
1. Plazas per XXXX count towards Minimum Primary Build-to Zone Coverage.
  2. Locations of Build-to Zones may change based on available street r.o.w. for ped/bike areas. After any additional needed space, these are expected BTZs.
  3. If 18 feet or more in height, ground story shall count as 2 stories towards maximum building height.

	BOULDER JUNCTION	OTHER CODE AREAS?
<b>USES</b> Refer to Figure (B)(3) 2.		
14 Primary Frontage Ground Story		Retail, Service, Light Industrial, other? uses only
15 Secondary Frontage & All Upper Stories		All permitted uses
16 Parking within Building Garage Entrance Location		Permitted fully in any basement and in rear of upper floors Permitted only on Interior Side or Rear Facade
17 Required Occupied Space		30' deep on all full height floors from the front facade
<b>FACADE &amp; ROOF REQUIREMENTS</b> Refer to Figure (B)(3) 3.		
18 Minimum Primary Frontage Ground Story Transparency Measured between 2' and 8' above grade	75%	
19 Minimum Required Transparency Measured per Story, All Stories	20%	
20 Entrance Location & Number		Principal entrance required on primary facade: entrances required a minimum of one per every 60' of building facade
21 Entrance Requirements		Recessed between 3' and 8' from the portion of the primary facade closest to the street
22 Entrance/Ground Story Elevation		80% of entrances and the ground story shall be within 1.5' of adjacent sidewalk elevation
23 Ground Story Vertical Facade Divisions		One per every 30' of facade width
24 Horizontal Facade Divisions		Within 3' of the top of the ground story
25 Facade Variety Required Refer to XXX for requirements.		Every 90' of facade width
26 Permitted Roof Types		Parapet, Pitched, Flat

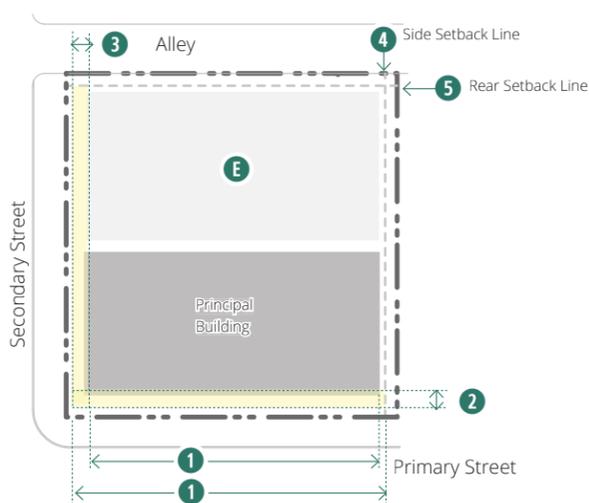


Figure 8. Storefront Building: Building Siting

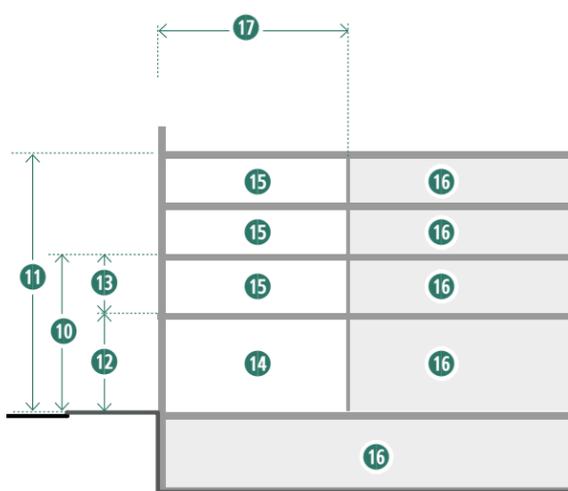


Figure 9. Storefront Building Section: Floor-to-Floor Height & Use Requirements



Figure 10. Storefront Building Elevation: Street Facade Design Requirements

# EXHIBIT B-1: Public Realm

**ISSUE:**  
 Current regulations do not always result in an attractive, functional public realm.

**APPROACH:**  
 Create a code that sets requirements for streetscapes and open space that create more walkable, vibrant urban public spaces through design and sometimes use.

**DRAFT CODE LANGUAGE:**

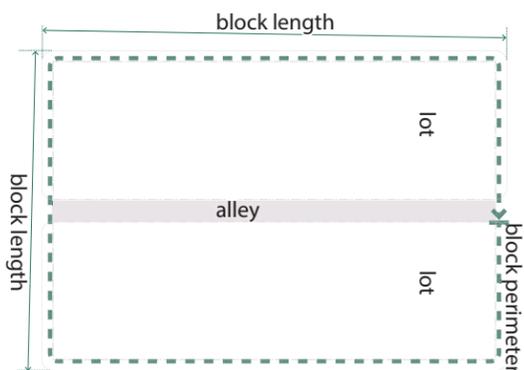
**D. BLOCK & STREET LAYOUT REQUIREMENTS.**

For all developments with total parcel acreage of more than 7 acres, subdivision and construction of a new streets will yield the most buildings. (Building types require buildings to front streets). Refer to Figure XX for an example of a typical new block and street configuration. The following applies:

- **Intent.** In addition to the intents defined in XX, these regulations are intended specifically to increase the walkability of Boulder Junction.
- **Interconnected Street Pattern.** Streets shall connect and continue existing streets from adjoining areas and cul-de-sac and dead end streets should be avoided when not necessitated by natural features or site constraints.
- **Blocks.**
  - The shape of a block shall be generally rectangular, but may vary due to natural features or site constraints.
  - Blocks shall typically be two lots deep with the exception of blocks containing open space. Blocks may also include an alley. Blocks may include existing lots within an existing zoning district.
  - Blocks shall typically be fronted with lots on at least two faces, preferably on the longest street faces.
  - Consider lot and block orientation for maximum energy efficiency. For example, block orientation along an east-west longitudinal axis will encourage development of buildings oriented along an east-west

- axis, with smaller east and west facing façades, able to take advantage of passive solar technology.
- Block perimeter shall be less than 2000 feet. Deviations permitted with Design Review for sites with natural or existing constraints.
- **Access Points.** A minimum of two access points shall be provided for each development, with a minimum of one per every 1,500 feet of boundary.
- **Primary Streets.** Designate appropriate new streets as primary streets so that all buildings front at least one primary street. Vehicular access should not be located off a Primary Street, unless the parcel is fronted by more than two primary streets.
- **Typical Lot Configuration.** All lots shall have frontage along a public street unless otherwise specified in building type requirements. Flag lots are prohibited.
- **Street Types.**
  - The Connector Street Type is provided. Refer to Figure XX. The city may require additional street right-of-way or configuration based on existing context and circulation needs.
  - The Alley is provided for new drives through blocks to provide parking access as well as service access and refuse pickup. Refer to Figure XX
- **Open Space Requirements.**
  - All developments over 7 acres are required to provide one of the following types of open space.

- One type of open space is required within 1/6th of a mile of the principal residential entrance of all residential and mixed use buildings or units. The intent of this regulation to provide open space within a walkable distance from every residence for a small child.
- Types of Open Space. The following types of open space are permitted:
  - i. Plaza. A plaza is a generally hardscaped area, minimum 1/8 acre in size, with either street, pedestrian, or river right-of-way or building frontage on all sides and at least one side the equivalent of 25 percent of the perimeter open to the street.
  - ii. Square. A square is a combination of hardscape and landscape, minimum 1/4 acre in size, and surrounded by street, pedestrian, or river frontage on all sides.
  - iii. Green. A green is a generally landscaped space, minimum 1/2 acre with street, pedestrian, or river right-of-way on at least 75 percent of the perimeter.
  - iv. Park. A park is a larger, generally landscaped space, a minimum of 2 acres in size, with at least 25 percent of the perimeter on street, pedestrian, or river right-of-way.
- Existing Open Space. Existing usable natural area or open space, more than 1/4 of an acre and meeting one of the types defined above, XX, shall fulfill the requirements.



Plaza



Green



Square

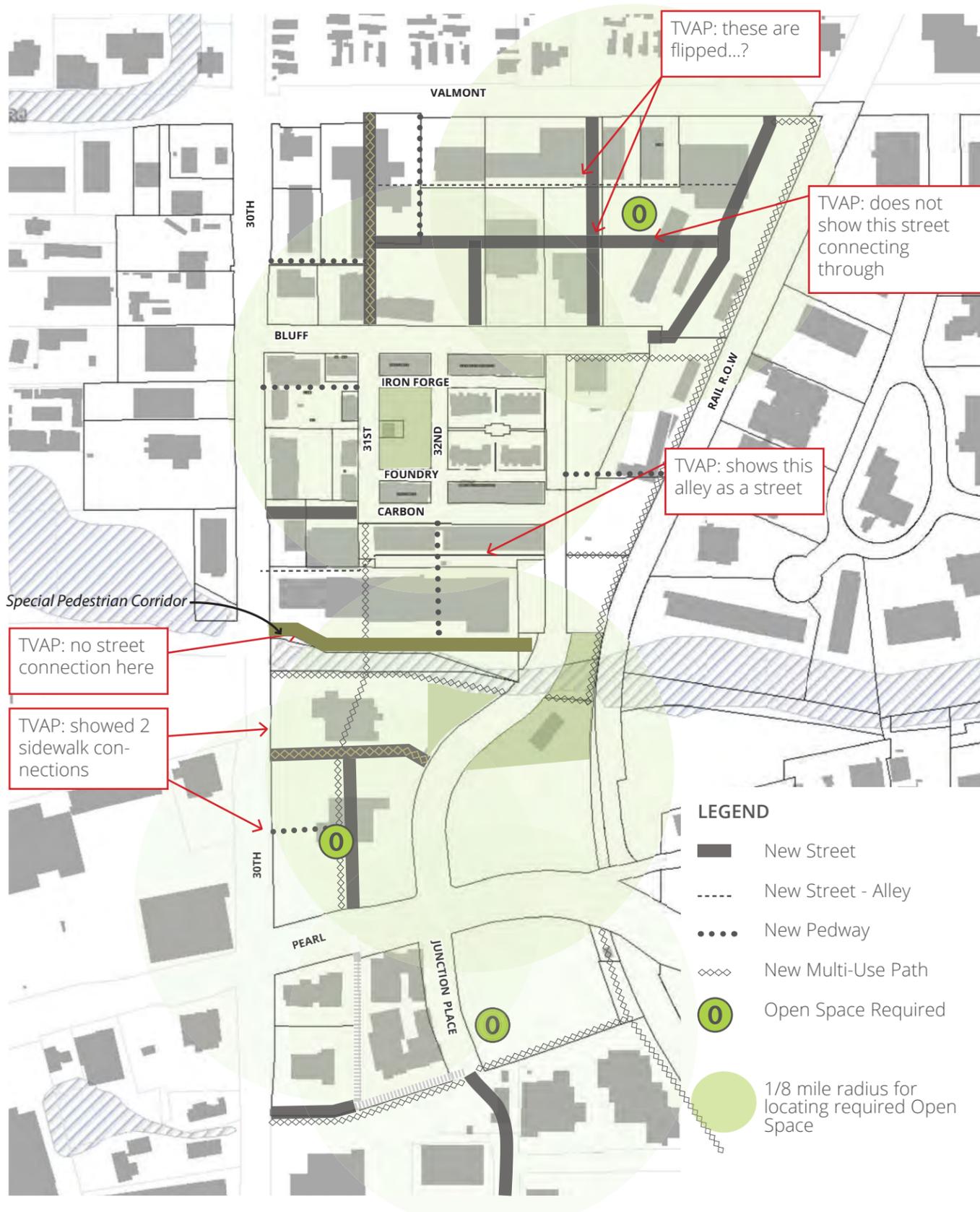


Park

# EXHIBIT B-2: Public Realm

DRAFT

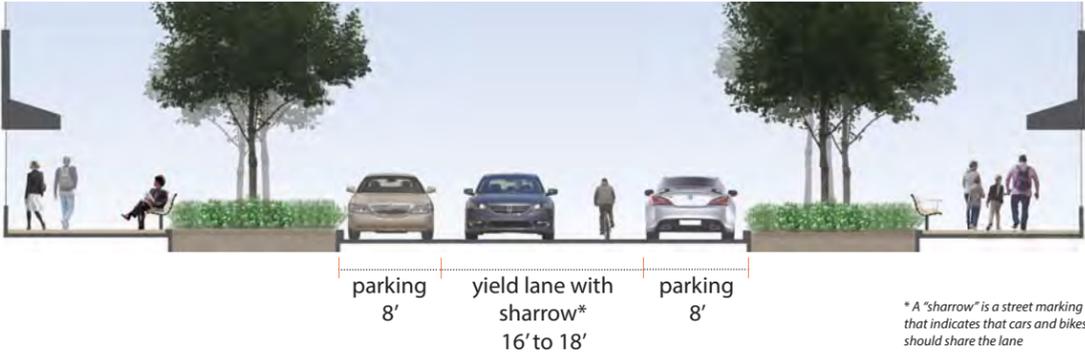
## Public Realm Requirements for all Sites Block & Street Layout Requirements.



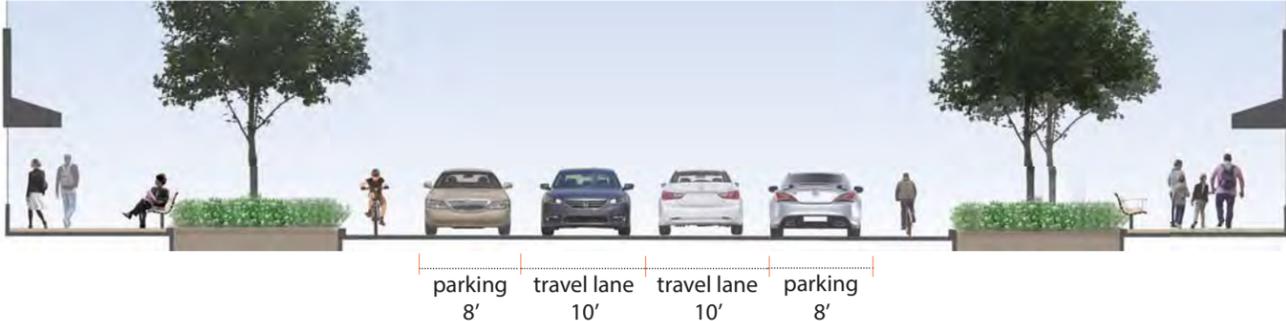
# EXHIBIT B-3: Public Realm

## Streetscapes

**Low Traffic Shared Street**  
For use at row houses and lower density housing streets



**Typical Street Section**  
For through streets and more traffic-intense streets



## Pedestrian Walkways

**TYPES**

*Pedestrian alleyway:* a narrow lane or path between buildings that may have service utilities but has been modified to for pedestrian use

*Paseo:* a designed plaza or walkway for strolling

*Passage:* a walkway under or between buildings, often at least partially covered

*Arcade:* a covered walkway, often with archways, onto which businesses face for shopping



Passage at Walnut & 10th, Boulder



Paseo in Santa Clara, CA



Passage in Steelyards, Boulder, CO



Alley in Sacramento, CA



Paseo in Portland, OR



Alley in Los Angeles, CA



Arcade in Sydney, Australia



Alley in Fort Collins, CO

## EXHIBIT C-1: Materials and Construction

**Issue:**  
Recent projects have used a palette of materials that create a confusing facade and streetscape often due to lack of hierarchy (no primary material) and multiple contrasting accent materials.

**Issue:**  
Recent projects have used materials that are durable but typically used in industrial settings.

**Approach:**  
To simplify facade compositions by requiring higher quality materials, permitting fewer overall building materials and creating standards that require a primary material to cover at least 60% of the main facade.

### DRAFT CODE LANGUAGE

**C. FACADE MATERIALS.**

1. Major Facade Materials. A minimum of 60 percent of each facade shall be constructed of major facade materials.

2. Permitted Major Materials. Major facade materials shall be high quality, durable, finish materials. The following are acceptable major facade materials. Refer to Figure 10.3-6 Example of Permitted Dominant Materials.

- i. Stone
- ii. Brick
- iii. Glass
- iv. Painted wood lap siding and shingles
- v. Cedar wood?
- vi. Architectural metal panels

3. Prohibited Major Materials. The following materials are not permitted for use as major facade materials:

- i. Exposed concrete?
- ii. Synthetic stucco
- iii. Unfinished wood except cedar
- iv. Concrete masonry units (CMU)
- v. Glass block
- vi. Vinyl siding

4. Limited Use Major Facade Materials. The following materials are permitted on rear, alley, or rail corridor facades. Permitted major facade materials from adjacent facades shall turn the corner a minimum of 15 feet, full height of the facade.

- i. Economy Bricks. Brick types larger than 3 inches in height.

ii. Fiber Cement Board. Fiber cement lap siding or shingles (such as HardiePlank or HardieShingle or similar) are permitted on the Row Building Type.

iii. Cement-Based Stucco. Cement-based stucco is permitted in the upper stories of all facades and on ground story facades facing rear, alleys, the rail corridor. Other permitted major facade materials shall turn the corner of the ground story facade a minimum of 15 feet.

iv. Concrete Masonry Units (CMU). Burnished, glazed, or honed concrete masonry units (CMU) or block are permitted as major facade materials on rear, alley, and the rail corridor. Other permitted major facade materials shall turn the corner of the facade a minimum of 15 feet.

5. Minor Facade Materials. Minor facade materials are limited to trim, details, and other accent areas that combine to less than 20-40 percent of the total facade surface.

6. Major Facade Materials. All permitted major facade materials may serve as minor facade materials.

7. Permitted Minor Facade Materials. Additional minor facade materials include the following:

- i. Fiber cement and wood trim pieces
- ii. Metal for beams, lintels, trim, exposed structure, and other ornamentation
- iii. Burnished, glazed, or honed concrete masonry units (CMU) or block for trim and details, but not surfaces
- iv. Split-face, honed, or glazed concrete masonry units with a height less than 4.5 inches for surfaces less than 10 percent of the facade surface

- v. Cast stone concrete elements
- vi. Vinyl for window trim and soffits

8. Limited Use Minor Facade Materials. The following materials are permitted as minor facade materials on upper floor facades only:

- i. Synthetic stucco or exterior insulation and finishing systems (EIFS), such as Dryvit
- ii. Fiber cement lap siding or shingles (such as HardiePlank or HardieShingle or similar)

9. Limited Use Minor facade Materials by Building Type.

- i. Burnished, glazed, or honed concrete masonry units (CMU) or block are permitted as minor facade materials in the Workshop/Warehouse Building type for trim and details, and surfaces up to 40 percent of the facade.
- ii. Split-face, honed, or glazed concrete masonry units with a height less than 4.5 inches are permitted as secondary materials in the General Building type and the General Row Building type for surfaces less than 10 percent of the facade surface.
- iii. Scored concrete panels or block are not permitted.

10. Appropriate Grade of Materials. Commercial quality doors, windows, and hardware shall be used on all building types with the exception of the General Row and Yardhouse Building type.

11. Color. Dominant building colors shall utilize any historic palettes from any major paint manufacturer. Other colors may be utilized for details and accents, not to exceed a total area larger than 10 percent of the facade surface area.

# EXHIBIT C-2: Materials and Construction

## Overall Façade Material Coverage



Multiple competing materials - NOT permitted

Fewer materials, arranged with a primary material that covers more than 50% of the facade.

## Major Material Types



Synthetic stucco



Concrete masonry units



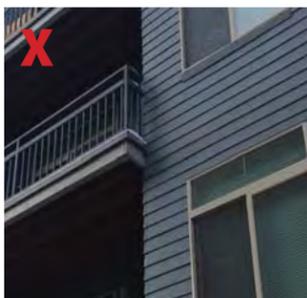
Brick



Metal panel, glass



Plastic



Vinyl siding



Cedar wood



Metal panel, glass

Materials NOT permitted on primary facades

Durable materials permitted on primary facades

# EXHIBIT C-3: Materials and Construction

**Issue:**  
*Recent projects have used materials and construction techniques that will not stand up well over time and have often shown wear and tear only a short time period after construction.*

**Approach:**  
*To require common construction techniques that help ensure durable and lasting buildings.*

### DRAFT CODE LANGUAGE

#### D. BUILDING CONSTRUCTION QUALITY

The intent of the building construction quality requirements is to advance the quality of the construction of new buildings and address specific issues that have been noted on recent construction.

Transition in Material. The following addresses changes in surface materials.

Corners. Where possible, changes in materials shall occur at concave or interior corners. When changes in material occur at a convex corner, the change shall occur at least 12 inches from the corner in either direction.

Same Surface. Transitions in surface materials that occur on the same surface or plane shall also include one of the following:

- i. A trim piece covering the transition. The trim piece should be a whole material, as opposed to another material.
- ii. A change in plane, where the more detailed material is above the less detailed material; e.g. brick is more detailed with more joints and stucco is less detailed as a constant surface.

Expression or Shadow Lines. Materials that have significant thickness may be used to create shadow or expression lines. For example, cast stone pieces may be offset to create a shadow line, where the actual convex corner of the piece is used to create the corner of the detail.

Conversely, materials that have less thickness shall not be used in such a manner as to insinuate thickness. For example, stucco should not be formed to create a pilaster on the surface.

Window Details. Windows shall be incorporated into the facade with trim details on at least 50 percent of the window perimeter.



Applique materials that inadequately cover the underlying structure



Transition of materials on outside corner

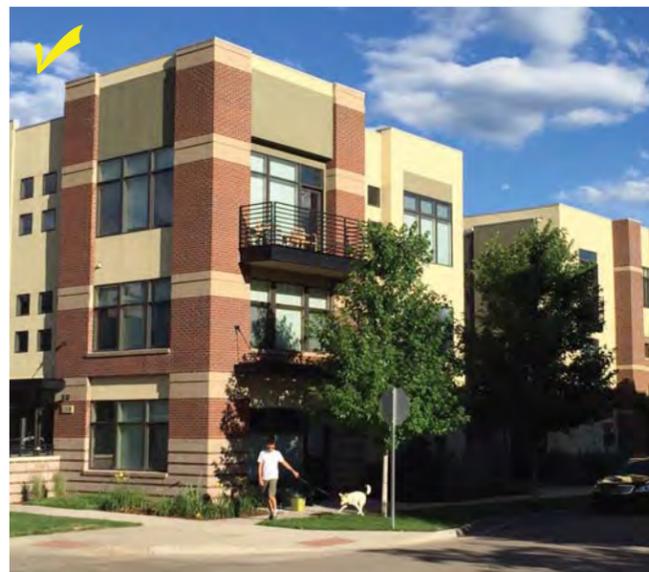


Flush windows



Transition of material with no trim piece or shadow line

**Common construction problems in recent buildings**



Material changes that create a shadow line



Material changes on interior corner

**Preferred construction techniques**

# EXHIBIT D-1: Façade / Building Proportions

**ISSUE:**  
 The lack of clear and specific language regarding building façade design and proportioning in the current design guidelines and code criteria has left the community disappointed with the look of recently built buildings.

**APPROACH:**  
 Create a code that specifically guides a building's façade design and mass to have aesthetically-pleasing proportions.

## DRAFT CODE LANGUAGE:

### E. BUILDING PROPORTIONING

The goal of the following guidelines is buildings proportion to the aesthetically pleasing proportions.

**Definition of the Golden Ratio.** The golden ratio is a proportioning metric used throughout history to achieve what has been considered "divine" (as in the divine proportion) or visually pleasing proportions. The ratio is frequently found in art and architecture, as well as in nature. The Fibonacci pattern (a series of numbers such as 1, 1, 2, 3, 5, 8...) is similar to the golden ratio.

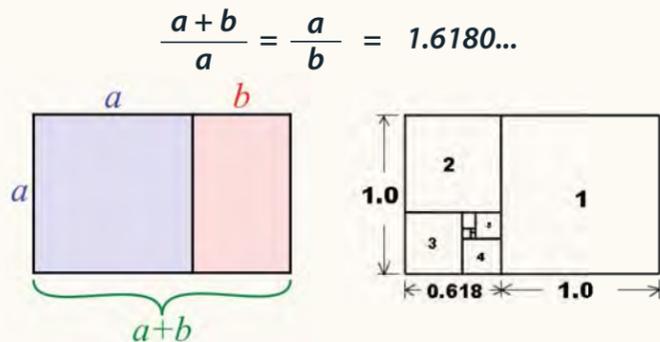
Mathematically, the ratio is found by dividing a line into two parts so that the longest part divided by the smallest part is equal to the whole length divided by the longer part, written as  $b/a = (b + a)/ b$ . Numerically, the ratio is approximately 1:1.680339887.

**Definition of the Golden Rectangle.** The golden rectangle uses the golden ratio, where the sides of the rectangle divided into a square and the remaining rectangle, fulfill the metric. Refer to Figure XXX, below.

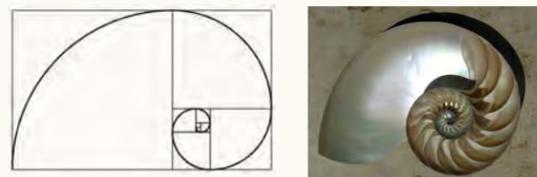
**Demonstrate Use of Golden Ratio.** All projects are required to submit a diagram or series of diagrams demonstrating the use of the golden ratio in the design of the building, including the massing of the building and the design of the façade. Use of the ratio may include massing of bays, windows, divisions of the façade, overall height to width of the building, or other details. Refer to Figure XXX for examples of demonstrated use of the golden ratio.

### What is the Golden Ratio (AKA the Divine Proportion)?

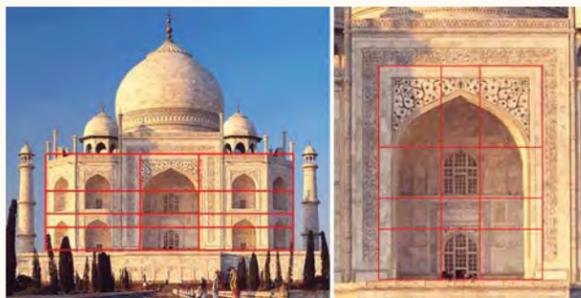
Two objects are in the golden ratio if their ratio is the same as the ratio of their sum to the larger of the two quantities. For example, a golden rectangle with longer side  $a$  and shorter side  $b$ , when placed adjacent to a square with sides of length  $a$ , will produce a similar golden rectangle with longer side  $a + b$  and shorter side  $a$ . This illustrates the relationship:



The Golden Ratio is intimately related to the Fibonacci spiral, which is an approximation of the golden spiral created by drawing circular arcs connecting the opposite corners of squares in the Fibonacci tiling. The golden ratio appears in some patterns in nature, including the spiral arrangement of leaves and other plant parts.



The Golden Ratio is believed by many designers and artists to be especially aesthetically pleasing and is theorized to have been used in many famous works of art and architecture.



Information from Wikipedia

# EXHIBIT D-2: Façade / Building Proportions

## THE GOLDEN RATIO IN BOULDER

### The Hotel Boulderado

The Hotel Boulderado, a beloved historic landmark, makes extensive use of the Golden Ratio for its overall mass as well as the proportioning of the main façade. Two overlaid horizontal Golden Rectangles give the basic form for the building (A); this overlap in turn creates additional Golden Rectangles (B).



A. Two Horizontal Golden Rectangles



B. Additional Golden Rectangles

### Two Nine North

This recently built residential building is at Walnut & 30th Street. Aside from a few windows and doors, it does not appear to use the Golden Ratio on its façade or for its overall massing.



### 901 Pearl

This recently built mixed-use building is at Pearl & 9th Street. It uses Golden Rectangles throughout its façade elements and massing.



### Landmark Lofts

This recently built residential development is located at the 28th Street Frontage Road and College Ave. The Golden Rectangle is used frequently to proportion façade elements and massing.



### Daily Camera

This recently built mixed-use development is located at Pearl & 11th Street. The Golden Rectangle is used frequently to proportion façade elements and massing.



## EXHIBIT E-1: Massing Bigger Projects

**Issue:**  
*Some recently built buildings in Boulder are not considered pedestrian friendly, and appear out of scale with their context. Typically, these larger projects have long facades that fail to appear as multiple buildings despite design attempts to create that effect and do not include a variation in height.*

**Approach:**  
*To manage the impact of larger buildings by regulating their horizontal and vertical massing, open spaces, basic articulations, and overall scale.*

### DRAFT CODE LANGUAGE

#### A. BUILDING ARTICULATION

All buildings shall be articulated in a simple, honest manner with the goal of being human-scaled.

Base, Middle, Top Guidelines. Vertically layering the components of the building provides a sense of order and stability to the buildings. All buildings shall include a clearly articulated base, middle, and top as defined in the following intent statements. Refer to Figure XXX Building Base, Middle, and Cap.

i. Base. The base of a building shall/should establish an active ground story along the street and provide a public building face (such as a lobby, retail/service space, or restaurant) for all of the activities that occur within a building. Refer to XXXX Building Types for specific requirements of the ground story.

ii. Middle. The middle section of a building shall/should provide living/working/recreating space for people, to be highly transparent, and provide eyes

on the street. Balconies and terraces in the middle section of the building further meets this intent.

iii. Top. The top of the building shall/should cap the building, protecting the building and its inhabitants from the elements. The top of the building shall clearly read as the end of the building, completing the design. Refer to XXXX Roof Types.

Required Articulation of Stories. Stories shall be articulated on all street, pedestrianway, bicycleway, and rail facades utilizing the following.

Fenestration. Fenestration or window placement shall be organized by stories.

Expression Lines. Horizontal expression lines and lintels shall be used to delineate stories with minimum expression lines required per Building Type.

Mezzanines. Mezzanines treated as a separate floor to floor height and story shall be articulated on the facade as a separate story.

Taller Spaces. Spaces exceeding the allowable floor to floor heights of the Building Type per XXXX Building Types shall be articulated as multiple stories on the street facade.

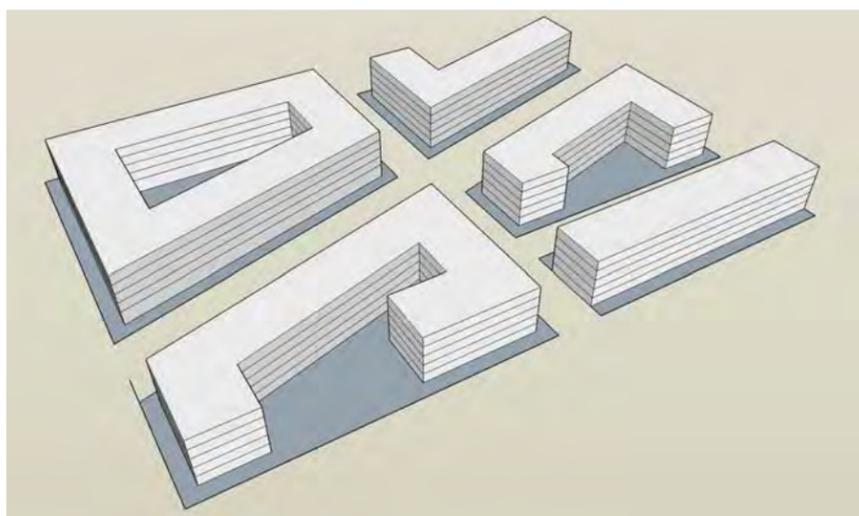
Adjacent Building Variety Guidelines. Building design should vary between adjacent buildings by the type of dominant material or color, scale, or orientation of that material and at least two of the following. Refer to Figure XX for one illustration of this requirement.

The proportion of recesses and projections.

The location of the entrance and window placement, unless shopfronts are utilized.

Roof type, plane, or material, unless otherwise stated in the Building Type requirements.

Heights...does an upper setback count?



Consistent 55' buildings that with no variation

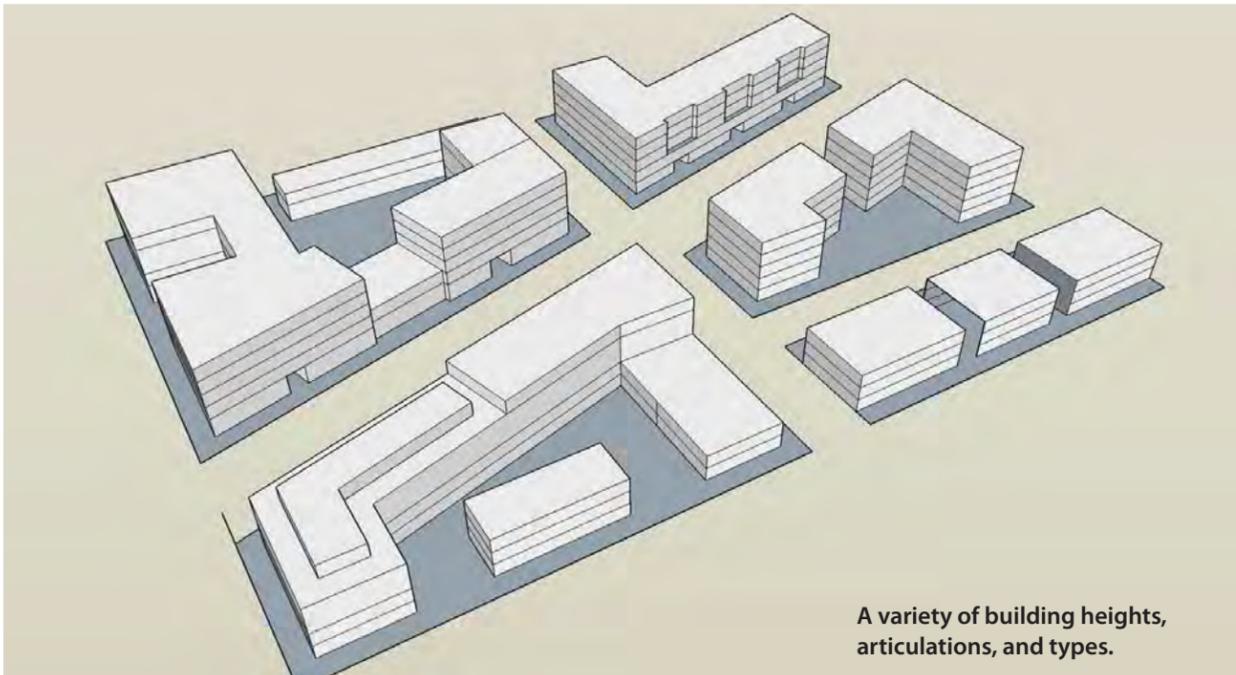
## EXHIBIT E-2: Massing Bigger Projects



Courtyard



Upper Story Stepbacks



Adjacent building variety

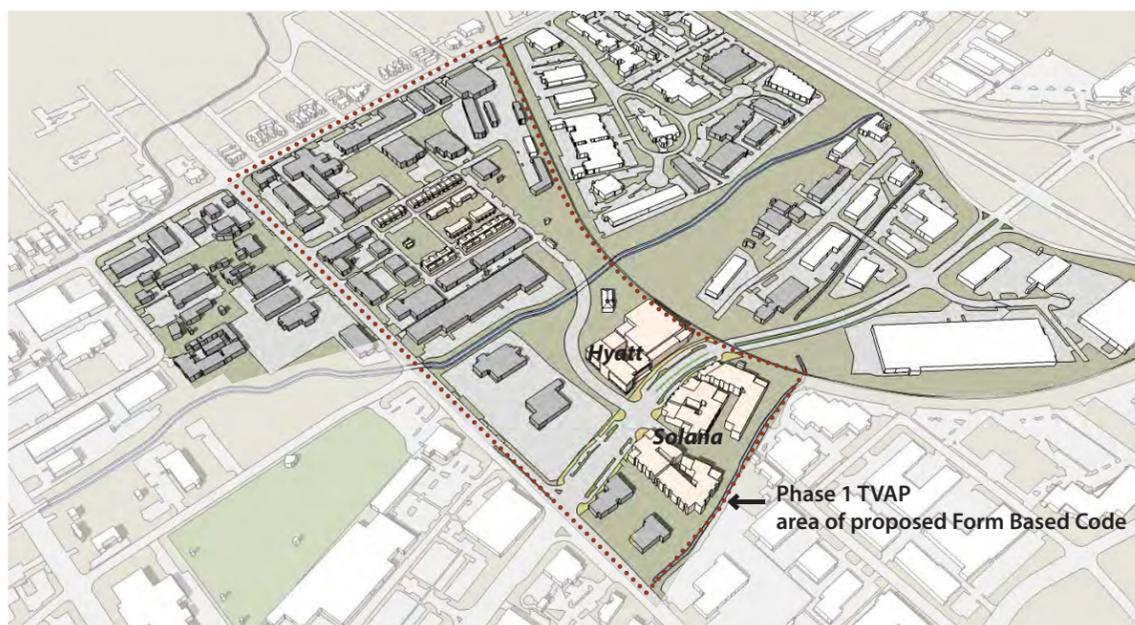


Paseos



Change in massing

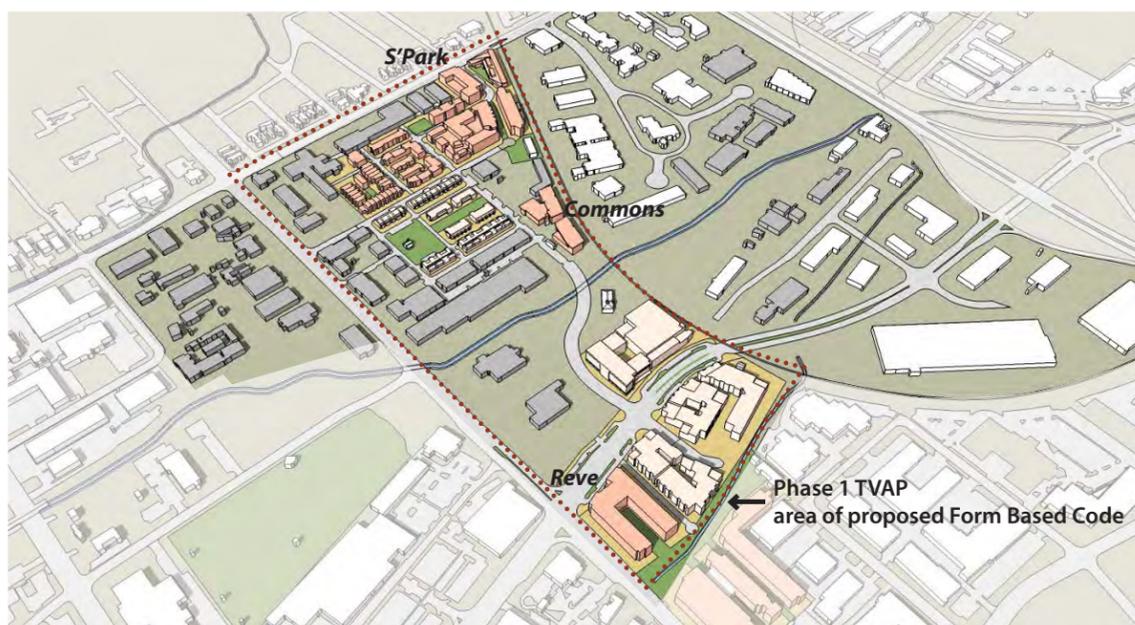
## EXHIBIT E-3: Massing Bigger Projects



*Existing*

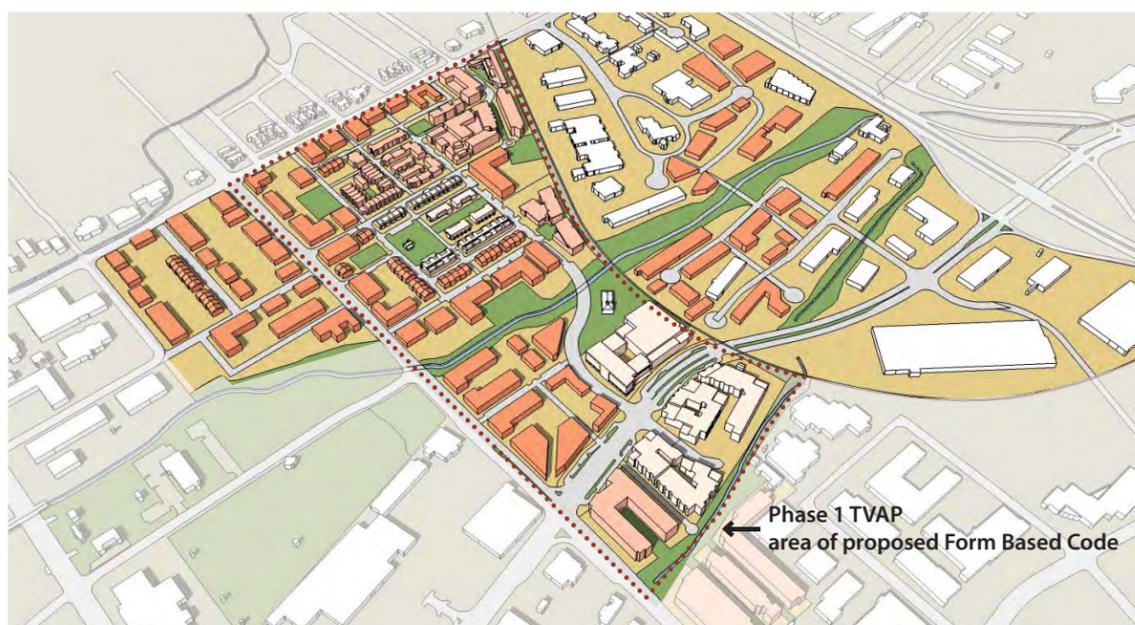
Boulder Junction is a transitioning industrial district that will be redeveloped as a Transit Village. The Master Plan calls for new streets, trails and open spaces to augment new mixed use developments.

Several projects have been completed, including reconstruction of Pearl Parkway, Solana, the Hyatt hotel and improvements to the creek.



*In Progress*

Currently the City is reviewing designs for three projects in Boulder Junction - shown in medium orange



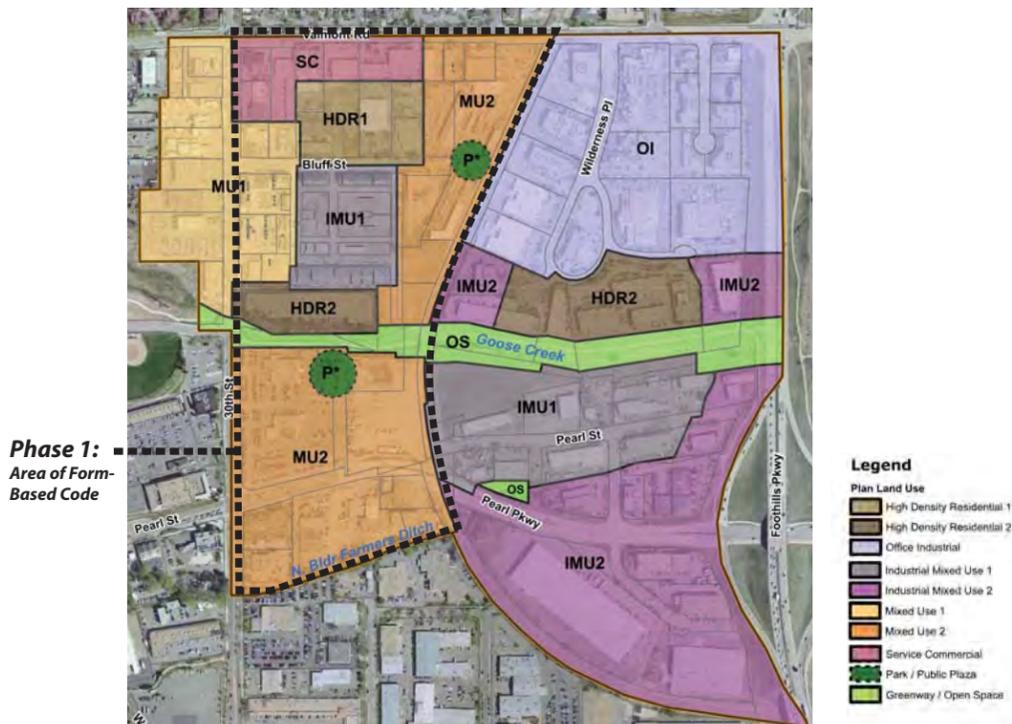
*Build Out*

When built out, Boulder Junction will be a dense mixed-use community with a variety of uses. It will be connected by trails, streets, and sidewalks that allow residents and visitors to access transit, and other parts of the City with ease.

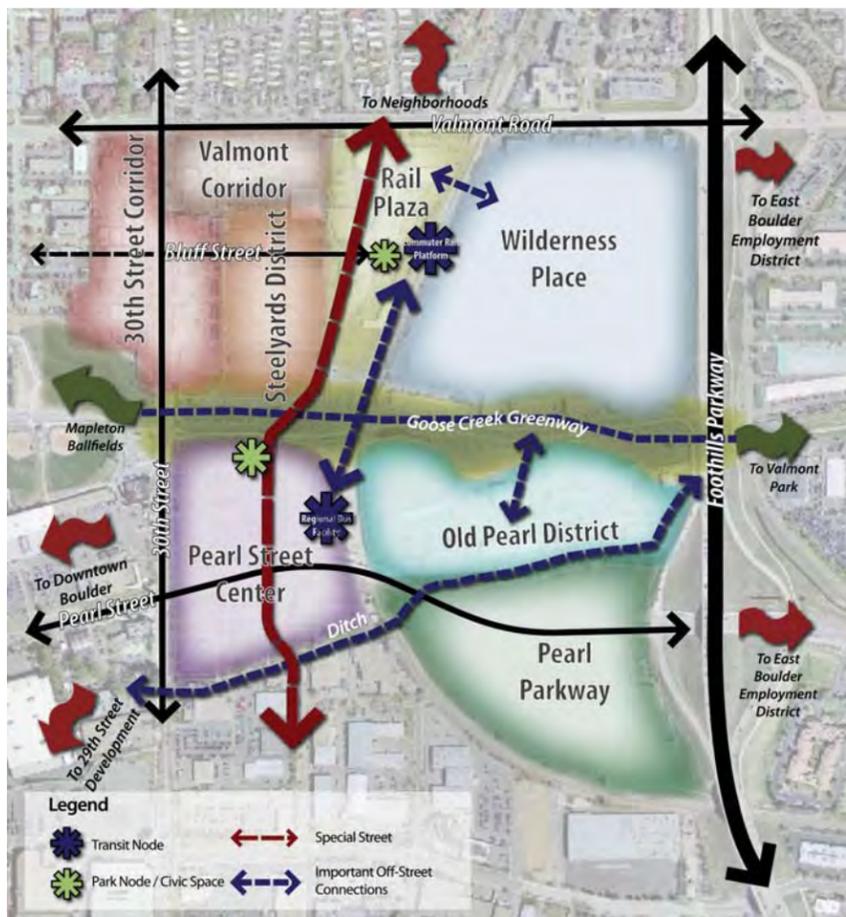
# Transit Village Area Plan / Background Context



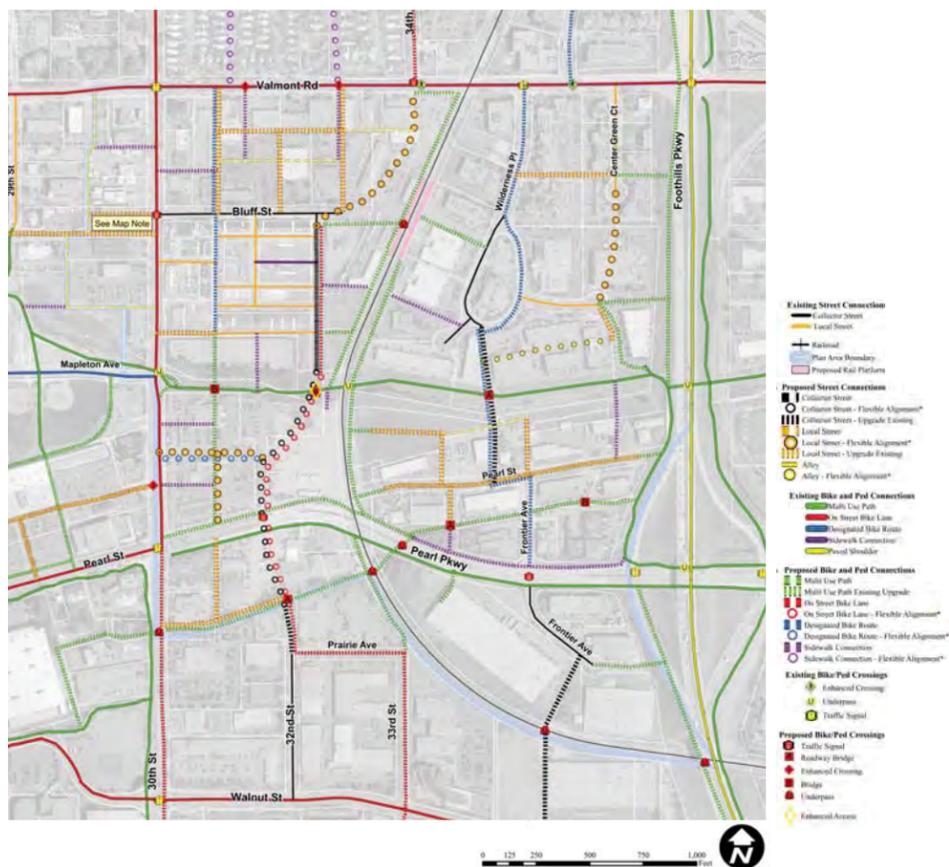
Transit Village Area Plan (TVAP)



TVAP - Land Use Plan



TVAP - Character Districts

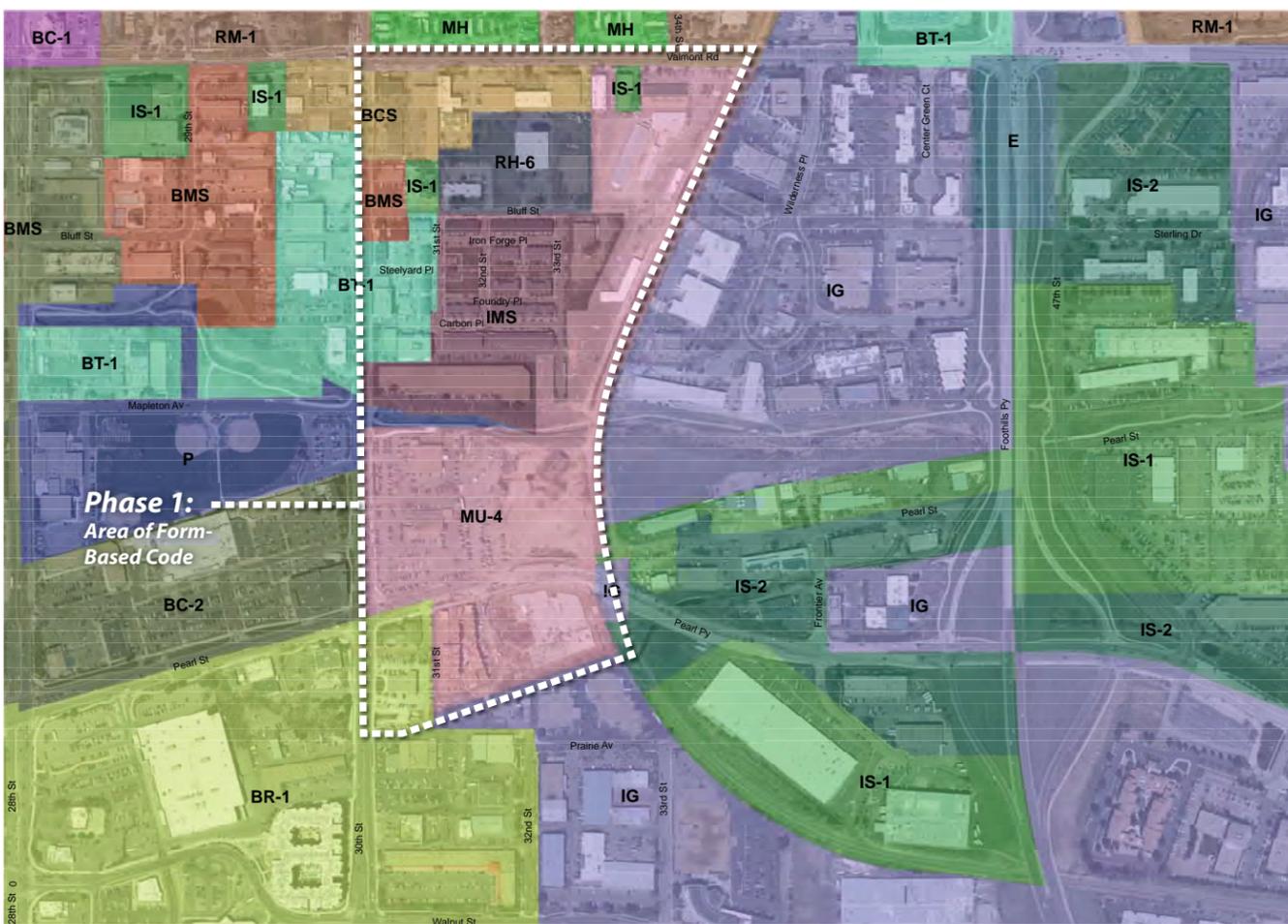


TVAP - Transportation Connections

# Transit Village Area Plan / Background Context



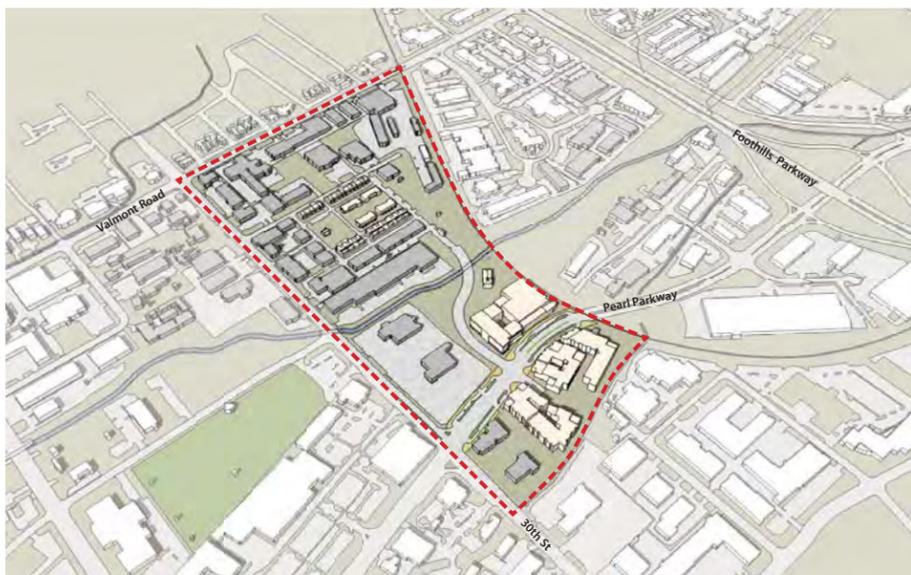
Boulder Junction - Aerial



Boulder Junction - Current Zoning Districts

## Boulder Junction Form-Based Code Zoning Workshop

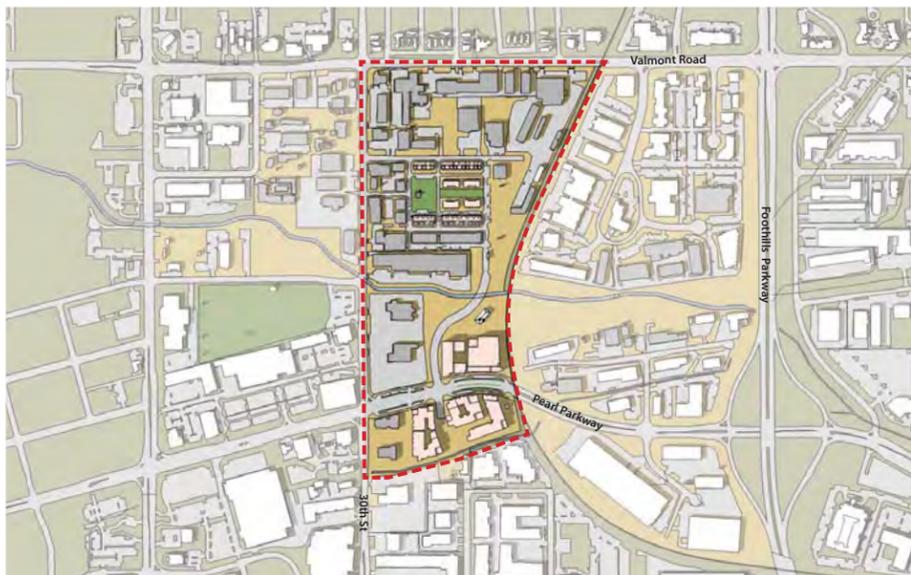
# Transit Village Area Plan / Background Context



EXISTING: Boulder Junction Looking Northeast



PROPOSED: Boulder Junction Looking Northeast



EXISTING: Boulder Junction Plan



PROPOSED: Boulder Junction Plan



EXISTING: Boulder Junction Public Realm



PROPOSED: Boulder Junction Public Realm

## Boulder Junction Form-Based Code Zoning Workshop

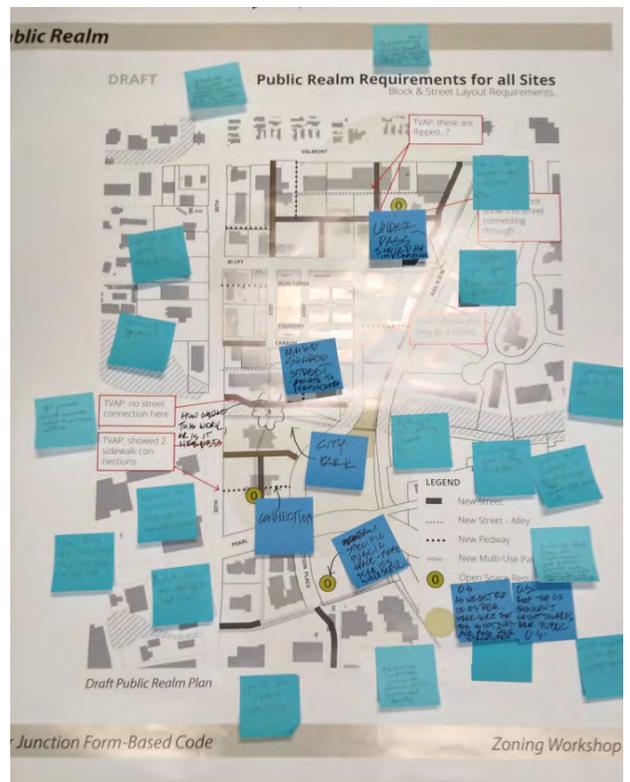
**Regulating Plan Components:**

- Minimal area of change by Valmont and 30th
- Will mandatory build to lines create barriers to unique open spaces along the streetscape?
- Underpass – special art opportunity – Build it now
- Make parking lots human scaled – break it down like buildings
- Area north of Goose Creek:
  - Give-way street? Or One way street? One-way street bad for retail
  - Important location for row residential
  - Ped space? Woonerf? Sunlight landscape
  - Special shared use street? Extend Mapleton in Boulder Junction
  - Use design elements to create more separation b/t bike paths + ped areas
  - Best opportunity to affect change in area
- (A) streets - minimize office - maximize retail
- Need more ped crossings over Goose Creek
- Ped Seating is key
- Need “A” streets (highest ped quality) and “B” streets
- (A) Highest Quality (B) service/ access street



**Public Realm:**

- Need “A” streets (highest ped quality) and “B” streets
- Important to include shared (ped + car) slow speed streets lined with retail bldgs pulled up to the street
- Herder for the Traffic, local traffic only
- Underpass should be implemented
- Connect open space (not random pockets)
- Design for dogs – dog parks
- Community gardens
- Make shared street – relate to views + creek
- How would this work, or is it needed
- City Park
- “A” streets should maximize retail and minimize office



## Attachment B - Community and joint board meeting comments from July workshops

- Pathways don't seem to connect
- Continue bike path to other side
- Interesting places to hang out, get coffee
- Public realm importance is street, humanize – prevent auto short cuts
- Easy way for community to exchange info – community billboard
- Cool things like Candy Chang's "anything to do before I die" art
- What does the open space look like?
- Public art is key to make it interesting
- Connections
- Specific public space – make sure its successful
- Maximize hardscape minimize greenscape to improve ped quality
- Minimize block size with cross access ped paseos and small blocks formed by tightly gridded streets and limit on bldg façade length
- Open space –make sure that parking is not surface parking. Should be structured
- Open space – Roof tops shouldn't count towards required public open space. B.I.D to keep place orderly and maintained
- Like surprise green space (pocket parks)

### Public Realm:

- More yield streets in Family neighborhoods
- Prefer separate buildings – protected bike lanes
- Avoid sidewalk width that is too wide and light posts that are too tall (need human scale)
- Should feel like outdoor room to store slowdown
- Use allowable mins!
- Separated bike lanes b/t cars and pedestrian
- Different material for different areas
- Little nooks for privacy – lots of safe parking
- Cool for residential areas
- Narrow streets 4 ped ways
- Preferred ped way between bldgs
- Like things overhead – stone pavers – for all uses
- Replicate the cross access design! Wonderful human scale
- Flexible street to close streets for events
- Boulder One plaza great public realm example
- Dislike the moat
- Excellent comfortable outdoor room!
- Bike speed bumps

