University Hill Alley Enhancements Plan

Final Draft 8.01.2018

August 2018

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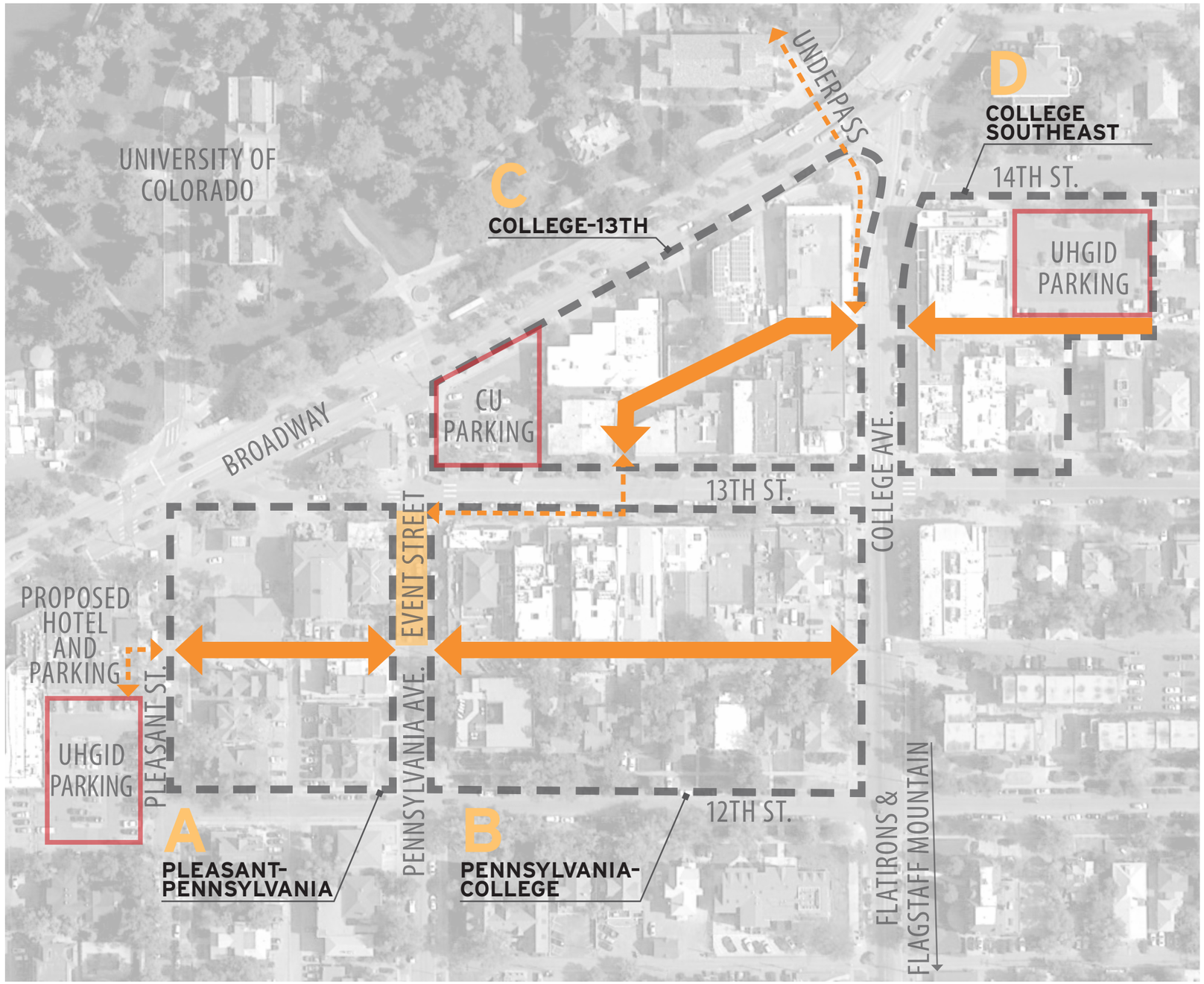
Alley Network and Context



Project Background

The University Hill Commercial Area represents a small, four block area which lies between neighborhoods to the west and the University of Colorado Campus. Businesses and services in the area have historically been student-oriented and the area has a character unique from other commercial areas in Boulder which reflects this.

Alleys within the University Hill Commercial Area are narrow and intensively used by commercial as well as residential properties. Over time, these spaces have become areas for vehicle movement, waste storage and collection, deliveries, as well as functioning as utility corridors. This intensive use has resulted in visual clutter, created barriers to movement and detracts from the potential of the area to become a safe, appealing and inviting community amenity used by a broad demographic.

This document examines an approach to improve the alley corridors to more efficiently utilize the spaces and create a safer, more inviting and vibrant commercial area.

Alley Connections

4 blocks define the alley segments and only include alleys bordered by commercial uses:

- **Alley A** - Connections to the University Hill Event Street and the Proposed Hotel at Pleasant St.
- **Alley B** - Connection to the University Hill Event Street and College Ave.
- **Alley C**- Connections to 13th St. retail and services and College Ave. underpass to CU Campus
- **Alley D** - Connection to College Ave. underpass to CU Campus and UHGID managed parking at south

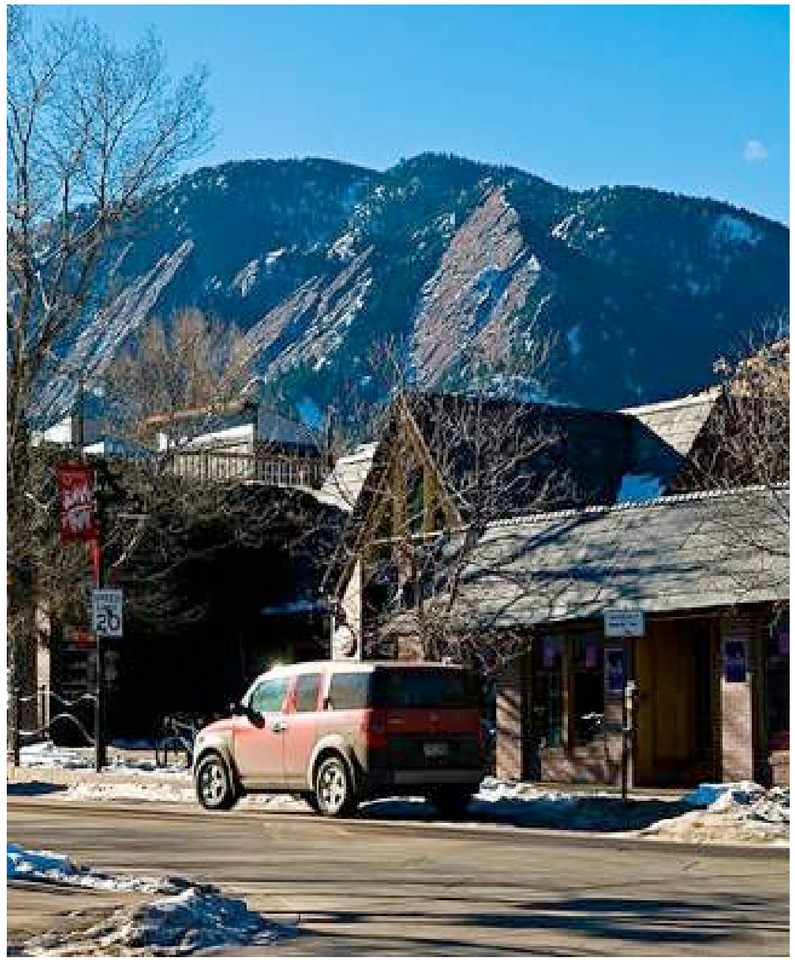
Alley Character

- Alley adjacencies to commercial and residential parcels throughout alley network
- Narrow alley R.OW. throughout network (15')
- Intensive use of back-of-house areas primarily for parking
- Frontage to parking areas for businesses and residences
- Frontage to back-of-house operations of businesses and residences
- Delivery and waste disposal vehicular traffic

Adjacencies and views

- Connections to regional circulation on Broadway
- Connections to residential neighborhoods to the west
- Views of Flatirons and Flagstaff Mountain

Character of 'The Hill'



Cozy aesthetic with a mountain backdrop

- Capitalize on eclectic aesthetic/culture
- Catalyze alternative modes of transportation
- Create inviting "back-of-house" environments

Intimate cafes, restaurants, and shops

Energetic pedestrian right of ways

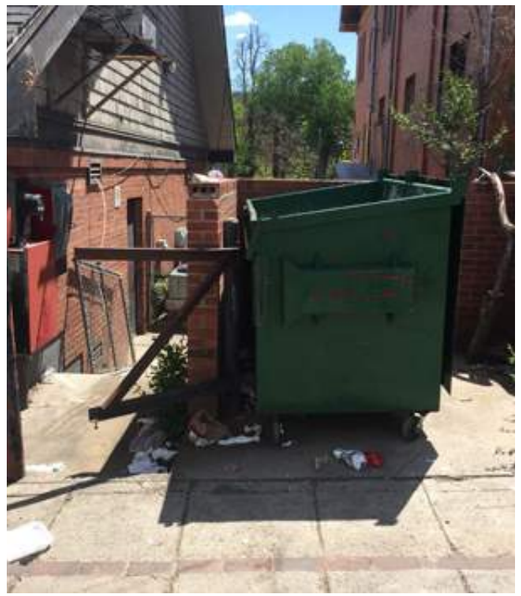
Street frontage businesses and large shade trees

Eclectic, Bohemian storefronts and facades

University Hill Character

The character of University Hill is distinct among other commercial districts within the City of Boulder and has evolved into an eclectic mix of establishments with an artful and 'bohemian' character that is approachable but should continue to evolve into a safe, inviting and energetic environment that can be enjoyed by a broad demographic, beyond students.

Stakeholder Concerns



Aesthetic

- Need amenities and character enhancements to activate alleys
- Dumpsters in ROW taking up space/creating hiding places and associated mess
- Overhead utilities add to visual clutter

Operations

- Maintain current operational needs
- Need well designed dumpster enclosures
- Clearly defined parking to improve enforcement potential
- Alley access to businesses presents challenges

Safety

- Poor lighting and hiding places lead to safety issues
- Transient use and tendency to occupy hidden or dark places
- Cleanliness and safety top priorities

Drainage

- Poor drainage in many areas
- Icy conditions in some areas due to poor drainage
- Anderson ditch can cause flooding
- Inconsistent and uneven paving

Key Opportunities

Back-of-house business entries with grade change

Back-of-house retail entries

Back-of-house business entries and bicycle parking

Private investment in unterutilized back-of-house spaces

Painting and signage to reduce visual clutter

Highly lit alley entries (with reflective pavers to amplify lighting)

- Increase visibility
- Use warm color lighting
- Create a comfortable, hospitable environment

Provide a uniform, well drained surface with inverted crown drainage and no more than 2% cross-slopes

On-Alley Entries

Alleys within University Hill should allow for private businesses to create entries which are complemented by a safe, inviting corridor that minimizes visual clutter and is aesthetically appealing.

- Allow for and encourage businesses to develop/improve back-of-house operations and/or provide on-alley entries
- Improve waste collection process (circulation impediments, waste in streets, etc.)

Sense of Ownership

As a public investment in Right-of-Way enhancements, the alley enhancements have the potential to cultivate further investment into private properties that could be both aesthetic and functional. Examples could range from murals on building walls, to paving improvements, to landscaping or more minor aesthetic improvements such as painting to de-emphasize existing on-wall utilities.

Lighting

Safety enhancements such as lighting have the potential to allow the University HIll Alley network to become a place more frequently enjoyed by families and other groups of users aside from students. Lighting is critical to enjoying the commercial district and enhancements should be made that create a festive atmosphere while illuminating surfaces that are relatively free from clutter.

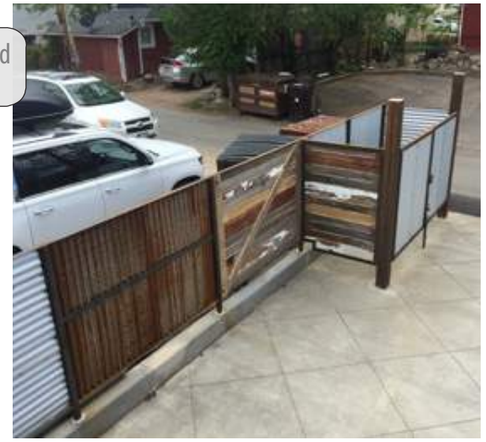
Drainage

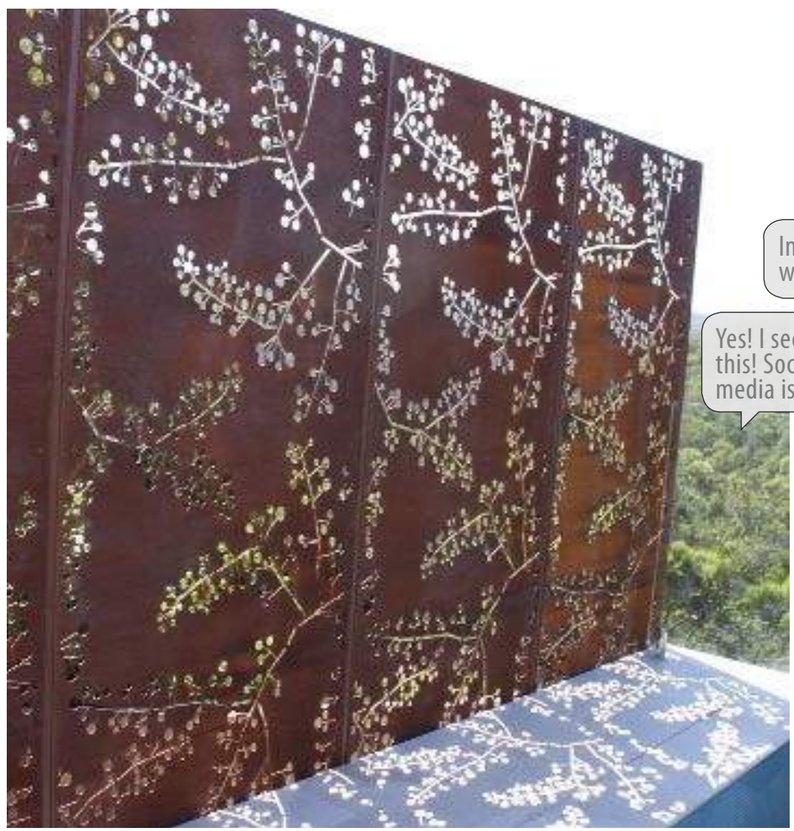
Non-uniform surfaces, cracks, potholes and other aspects of aged paved surfaces prohibit effective drainage and create standing water and ice during the winter. Alley Rights-of-Way should be re-paved with inverted crown drainage that provides a uniform slope throughout.

Example Images

Stakeholder comments

Love wood and steel





Materiality: Corten steel and wood (top) and shadow panels (bottom)

If $$$ feasible, add lights

Bollards for safety

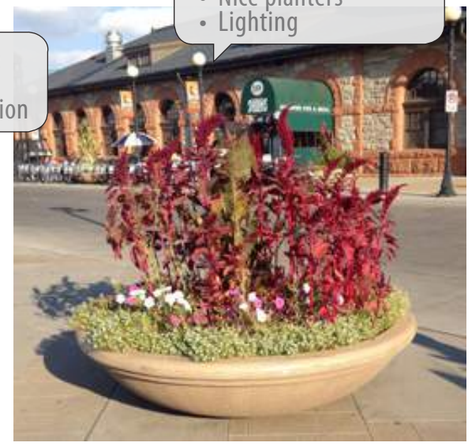
Instagram worthy! Yes!

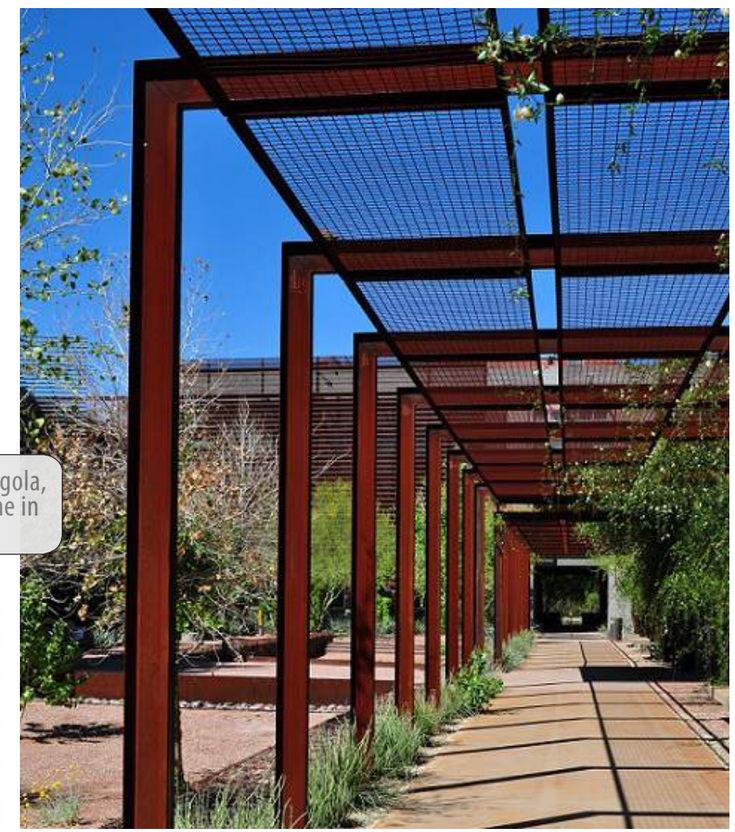
Yes! I second this! Social media is key!

Artful attractions: lighting (left) and temporary art (right)

Cafe seating opportunities

Example Images

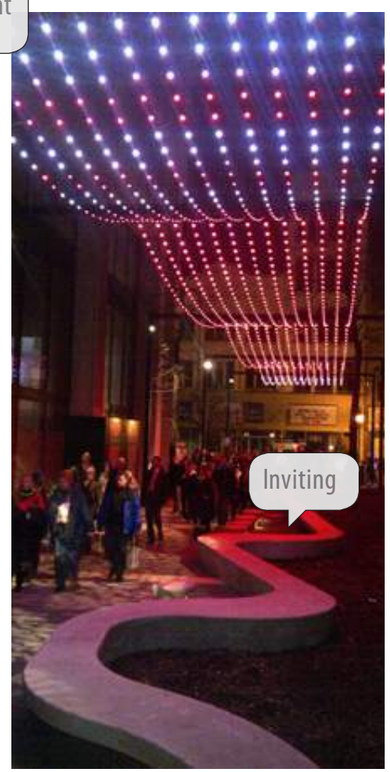




Planting methods, clockwise from top left: edge planting, planter pots, vines, Corten steel planters, hanging baskets, artful planters, Corten steel trellises, and vine trellises

Example Images

Stakeholder comments



Traditional (top) and artful (bottom) Tivoli lighting

Benches, clockwise from top left: wood/Corten steel, concrete, steel, and stone

Goals and Objectives

Goals and objectives shown to the right incorporate stakeholder concerns as well as observed issues. The goals and objectives focus on four key stakeholder concerns: pedestrian and bicyclist safety, activation and business stimulation, maintaining operational needs and aesthetics/ identity.

1 Create a safe pedestrian/bike network of alleys that complements circulation between key destinations in University Hill


Adequate lighting


Clutter-free/Clear visual access


Pedestrian oriented

2 Develop concepts for activated, engaging alleys that help stimulate business activity


Clean, appealing space


Night-time vitality


Allow business access/gathering

3 Integrate operational needs of alleys including service, waste disposal, parking/vehicular access and emergency vehicles


Enclosures not in ROW


Clear vehicle paths


Consider loading zones

4 Build upon and continue to establish the unique "Hill" identity


Art opportunities


Build on materials in 'The Hill'


Community oriented

Executive Summary

Approach

Overall enhancement concepts include design elements that promote safety, activation, enhanced entries, resurfacing, artistic lighting, planting and art elements. The intent is to illustrate overall potential enhancement opportunities that serve as a guide for future design efforts.

Vehicular Travel

In most cases, a minimum of 11.5' is intended to be provided for vehicular travel zones. Alleys are also shown configured as one-way with directional travel according to current delivery traffic patterns conforming to topographic constraints, traveling in a down-hill direction. Coordination with property owners will be required where existing diagonal parking directions oppose this proposed travel direction. One-way travel signage will be required at alley entries according to MUTCD and City Standards. All overhead elements are shown at a minimum of 14' clearance in order to facilitate trucks and larger vehicles. Vehicular signage shall exempt bicycles from the one-way travel direction in order to facilitate effective multi-modal use of the alleys.

Lighting

Narrow Right-of-Way conditions and existing utilities pose extensive limitations for installing pedestrian pole mounted fixtures. Building mounted fixtures which provide uniform lighting levels while meeting code requirements to the extent possible are shown as a means to improve desired safety conditions in an expedient manner.

Waste Collection and Storage

To eliminate illegal occupation of the public Right-of-Way with dumpsters, consolidated trash enclosures are shown in potentially feasible locations, some of which are on private property, requiring owner participation and permission. Daily trash pick-ups by waste disposal providers reduce numbers of required dumpsters and volumes for each property owner were provided by waste disposal providers to determine volumes.

Maintenance Considerations

The University Hill Commercial Area is currently maintained with budgetary constraints and enhancements are designed with minimal maintenance requirements in mind. Features such as planting areas are reserved for alley entries where they can be maintained in conjunction with streetscape maintenance efforts. In addition, the planting concepts shown are intended to consist of low water use planting that could be irrigated with extensions of streetscape irrigation systems.

Right-of-Way Enhancements vs. Private Property Concepts

The concept plans illustrate potential enhancements emphasizing those confined to public Rights-of-Way, however, ideas for private property enhancements are shown as well, to provide an overall, unified concept. When considering future implementation, any enhancements shown on private property are entirely discretionary by the respective owner and must be undertaken by the private property owner.

Easements

Any attachments of elements which span the alley Right-of-Way, such as tivoli lighting cables to buildings, will require easements granted by the respective private property owner.

Alley Entries

Alley Entries are designed to create a welcoming and inviting effect and create a synergy with the existing streetscape environment utilizing the following elements:

- tivoli lighting extending into the streetscape
- planting trellises in some locations to create a gateway effect
- benches similar to those at the Event Street to create a unified University Hill theme
- concrete spherical bollards as an artful way to protect building corners and delineate vehicular travel areas
- steel hoop ring lights attached to buildings

Midblock Features

To create a draw to the alley interiors, mid-block tivoli lighting or art elements are shown spanning the alley. These features act as a draw to the interior alley and encourage activation and use by pedestrians, while enhancing the spaces aesthetically.

Artistic Elements

Artistic elements such as murals are shown on privately owned buildings and should be encouraged to provide additional character to the spaces, however, they will require permission of the property owner, or must be undertaken by the private property owner.

Alley Surfacing

Re-paving the alley Rights-of-Way should be undertaken in order to create more effective drainage patterns and create a unified aesthetic. Scored concrete paving is envisioned with a dense score pattern that creates a pedestrian, human scale. Scoring should be saw-cut to create a smooth surface for travel and to eliminate potential for ice build-up (tooled score joints are not recommended for this reason). Cross-slopes should not exceed 2% and should form an inverted crown with central flow-lines. At intersections, grades will need to transition to a more uniform slope to facilitate drainage.

Overhead Electric Lines

Existing overhead electric lines should ideally be relocated underground to create a more uniform aesthetic and eliminate barriers. The cost to achieve this is significant, however, the enhancemnt concepts can be achieved without electric undergrounding, if the cost proves infeasible. Also, additional costs would be incurred by private property owners if alley overhead electric lines are relocated underground.

Assessment of Existing Conditions and Opportunities

Existing Conditions Analysis Methodology

Alley Walk-through

The alley networks were walked and observed with the goals and objectives in mind to determine where potential enhancements could be made, where constraints exist and where existing features that should be incorporated are located. During the walk-through, diagrams were developed to document these conditions as a foundation for the assessment diagrams shown on the following pages.

Stakeholder Meetings and Workshops

Meetings and workshops were conducted with the University Hill Commercial Area Management Commission (UHCAMC) and Business/ Property Owners to understand key issues, delivery and waste removal needs, safety concerns and aesthetic goals.

On-Line Survey

An on-line survey was utilized in order to assess current perceptions of safety, pedestrian and bicycle movement patterns, aesthetic preferences, and to rank the importance of potential enhancement opportunities.

Utility Locates

An overall existing utility assessment was conducted using City of Boulder and private utility provider documentation and maps with confirmation of locations done on-site. The horizontal alignments were confirmed and adjusted on utility maps and cross-sections were developed to illustrate approximate depths. Depths were verified through measurements in manholes or vaults where possible. Locations of existing overhead utilities were confirmed on-site as well.

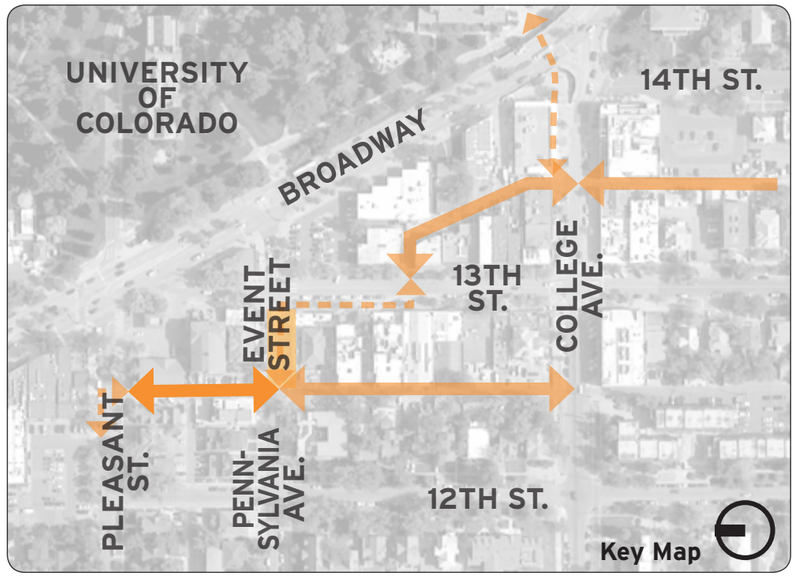
Waste Disposal Discussions

Several interviews were conducted with waste disposal providers in order to determine potential for consolidation of waste within the alley network. Waste disposal providers also obtained quantitative volumes for each customer within the alley network and provided these to the master planning team. These quantities were used to determine overall waste volumes.

Alley Comparison of Opportunities and Challenges

A matrix was developed to compare and assess alley opportunities and challenges for improvements and enhancements. The matrix provides a qualitative assessment and is intended to assist with prioritization and phasing for future implementation efforts.

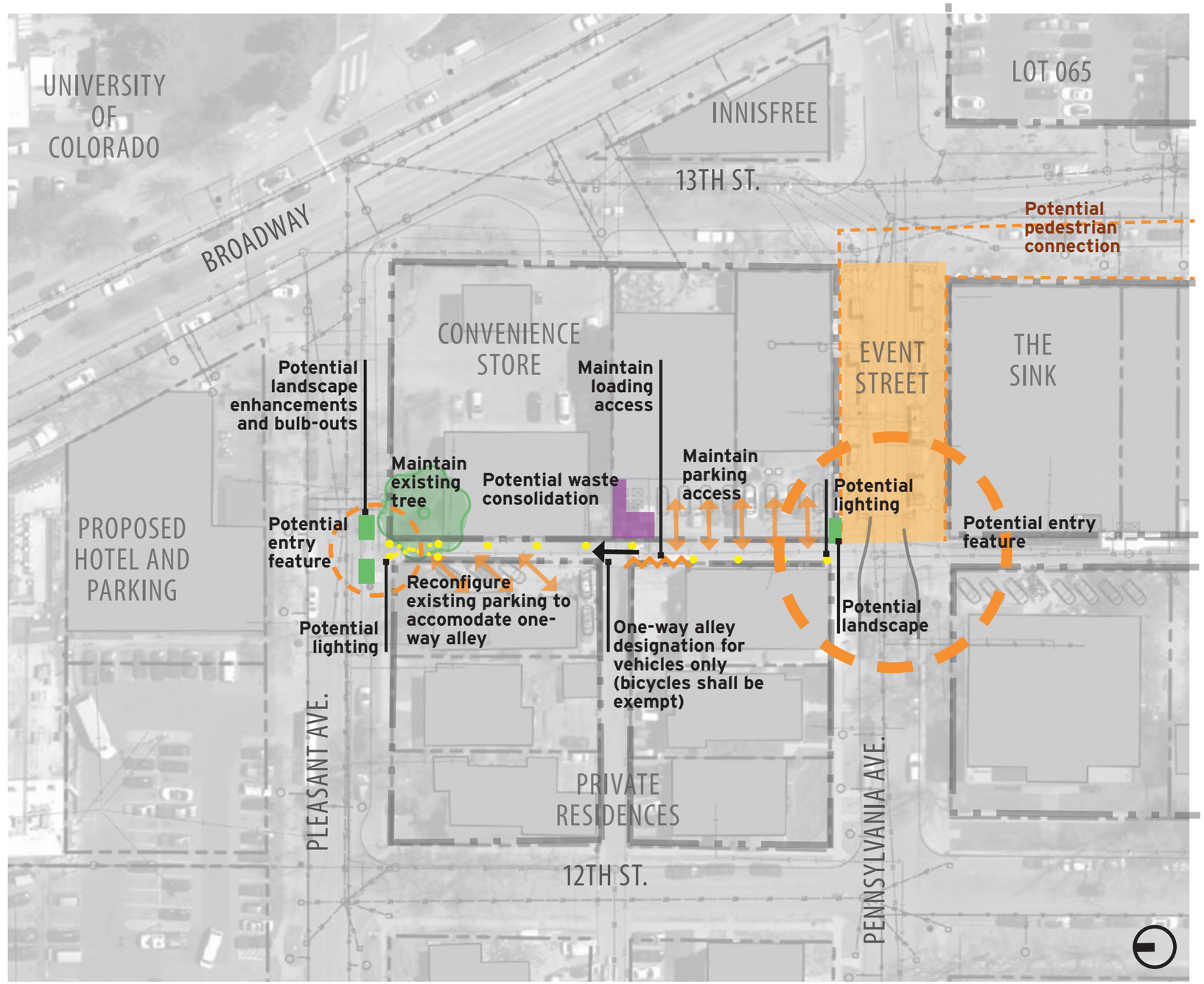
Alley A: Pleasant-Pennsylvania



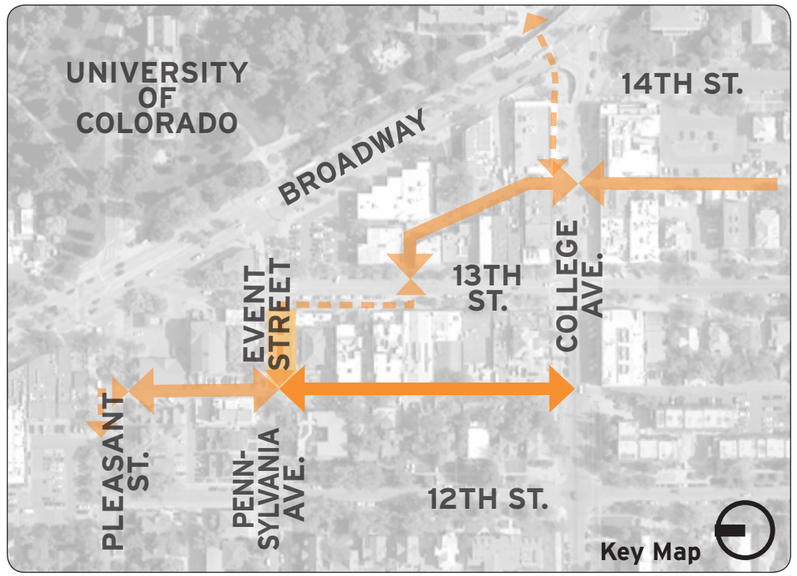
No pedestrian scale, lacking edge at parking, poor transition from Event Street

Overhead lines dominate sight lines, no defined entry

Lack of visual interest to proposed hotel destination



Alley B: Pennsylvania-College

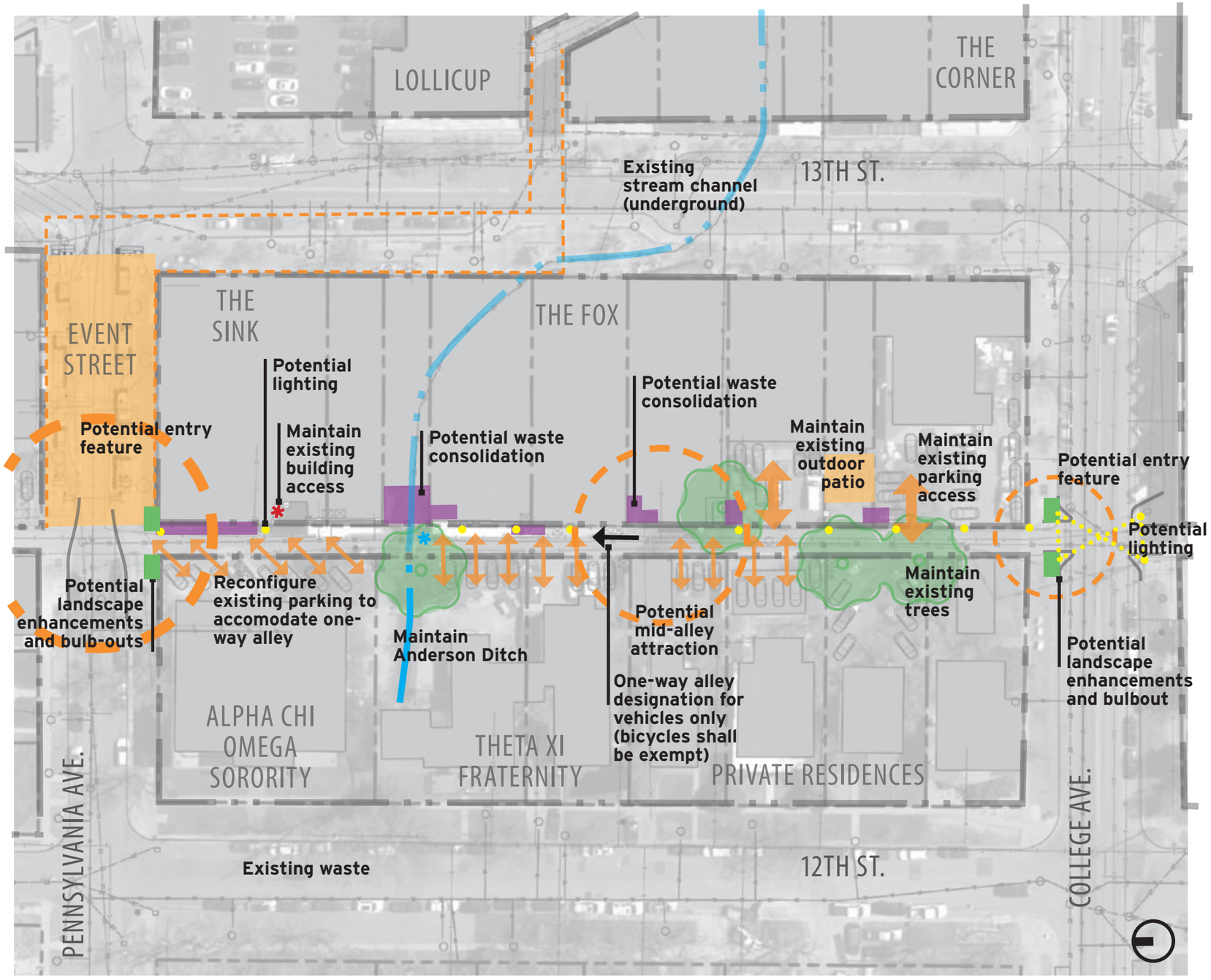



No pedestrian scale, poor transition from Event Street

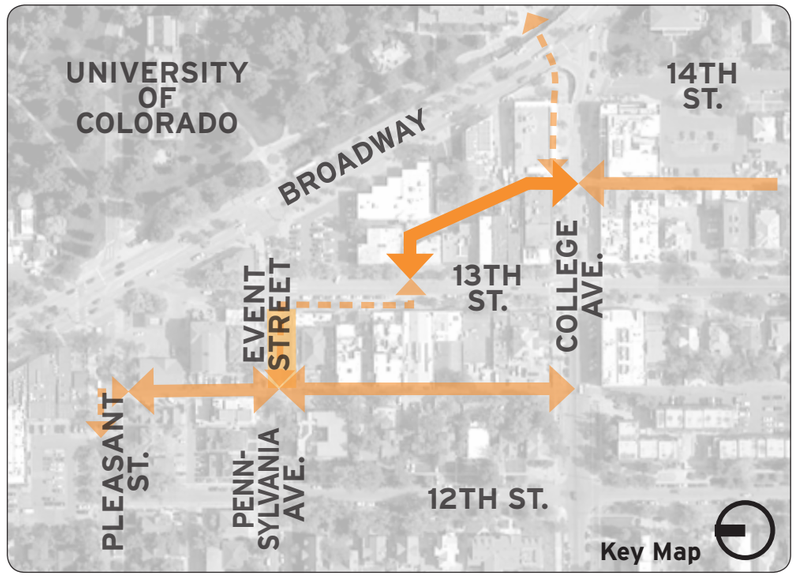

Illegal occupation of R.O.W. with dumpsters


Maintain access to parking and utilities, narrow R.O.W.


Vehicular conflict with R.O.W. clutter



Alley C: College-13th

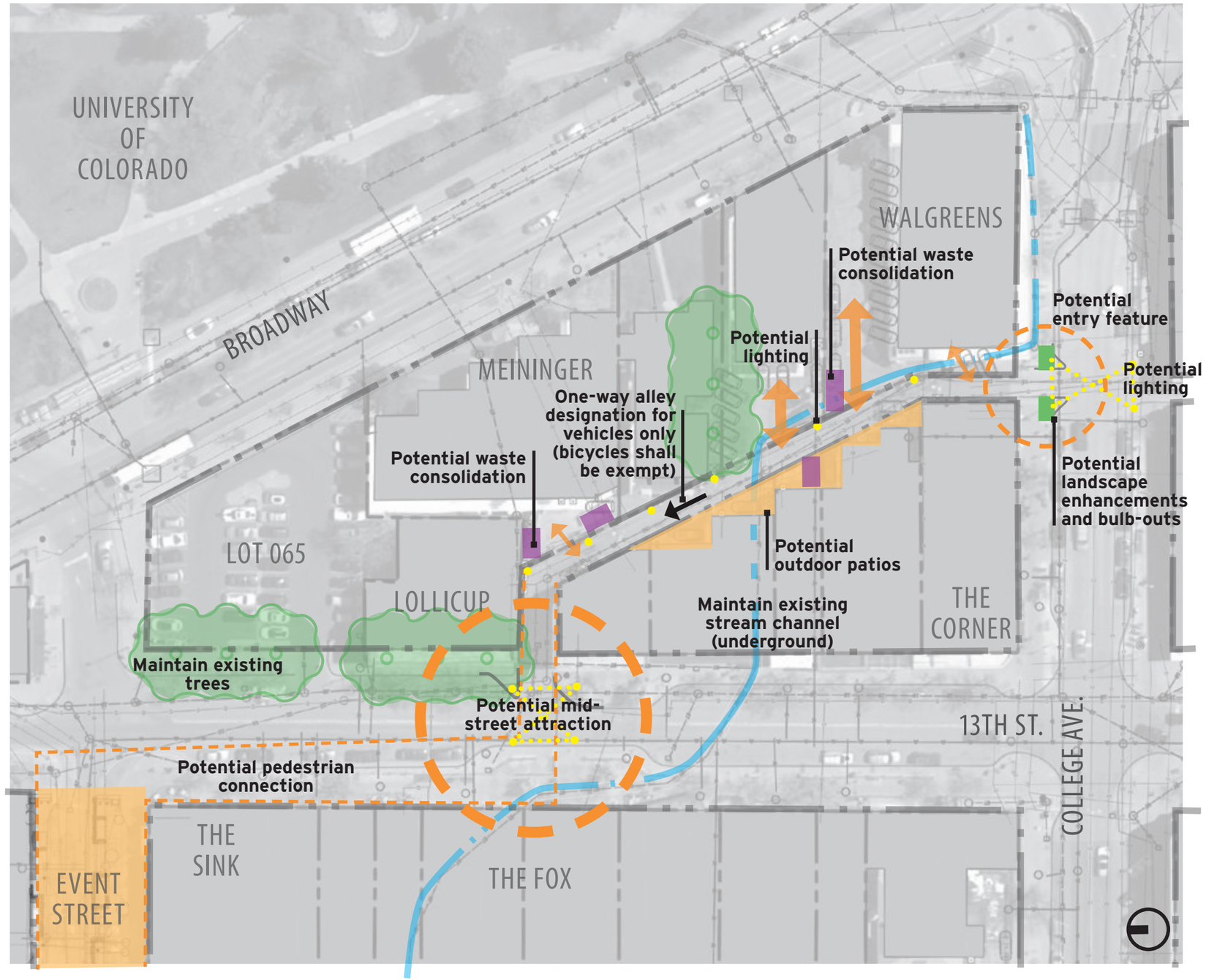


Poorly defined entry, inconsistent paving, no human scale

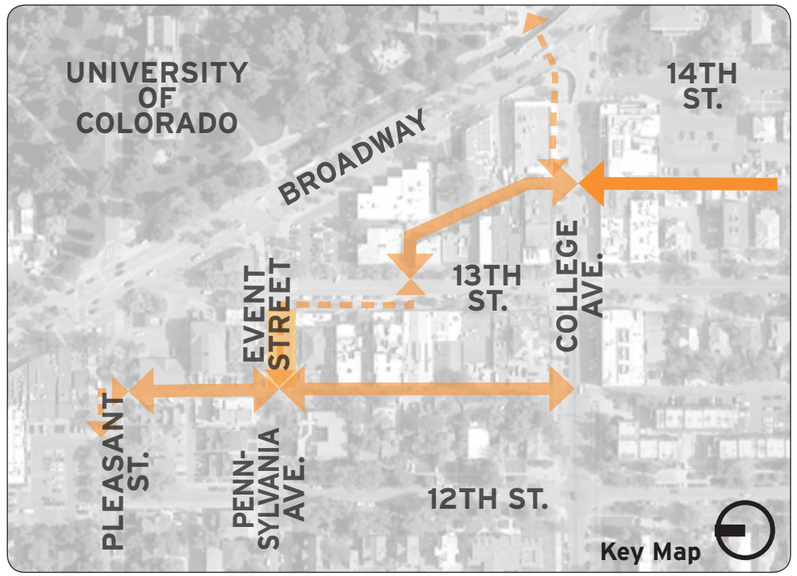
Paving in poor condition, overhead lines dominate views

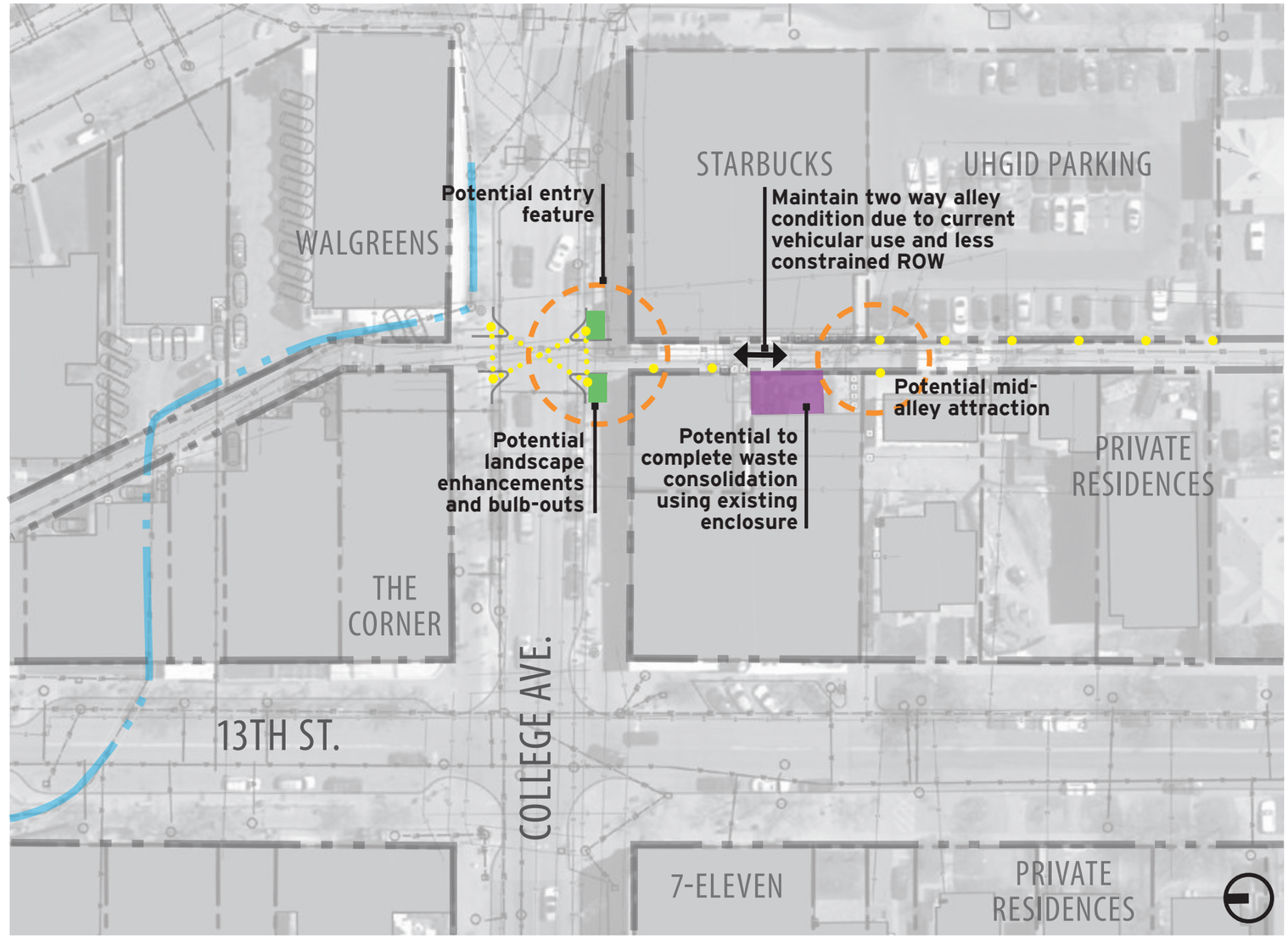
Lack of definition between alley R.O.W. and parking

Narrow R.O.W. conditions



Alley D: College Southeast






Inconsistent private property upgrades


Trash enclosures and private property improvements in progress


Visual clutter needs screening/ painting

Comparison of Assets/Opportunities and Challenges

Alley	Assets	Opportunities	Challenges
A **PLEASANT-PENNSYLVANIA**	• Existing space for waste consolidation on private property • Strong interface w/ Event Street • Visual connection b/t Event Street & proposed hotel • Existing bulbouts for pedestrian safety @ Pleasant & Pennsylvania	• Overhead planting baskets and sconces on zero-lot buildings • Vertical planting structures • Gateway entry @ Pleasant • Enhance street crossings @ Pleasant & Pennsylvania • Activate alley entry @ Pennsylvania	• No pedestrian scale • Overhead power lines dominate view • Parking lacks defined edge • Steep longitudinal slope • Tight turning radii w/i alley
B **PENNSYLVANIA-COLLEGE**	• Strong interface w/ Event Street • Building articulations provide space for waste consolidation • Existing tree canopy along west side • Adjacency to bikeshare on College • Existing bulbouts for pedestrian safety @ Pennsylvania	• Transition from event street • Overhead planting baskets and sconces on zero-lot buildings • Vertical planting structures on fances & commercial property • Art on fences & commercial property • Gateway entry @ College • Enhance street crossings @ Pennsylvania & College • Bulbouts for pedestrian safety @ College • Activate alley entry @ Pennsylvania	• No pedestrian scale • Lack of cohesive aesthetic • Extensive waste needs • Waste currently in ROW • Narrow ROW • Steep longitudinal slope b/t ditch & Pennsylvania • Current parking quantity makes adding lighting difficult • Pedestrian/vehicle conflict along west edge • Grading restraints due to ditch • Parking configuration along west edge makes implementation of site amenities difficult
C **COLLEGE SOUTHEAST**	• Adjacency to public parking lot on 14th • Adjacency to carshare in public parking lot	• Gateway entries @ College, parking lot, & 13th • Enhance street crossings @ College & 13th • Bulbouts or traffic calming measures for pedestrian safety @ College & 13th • Overhead planting baskets and sconces on zero-lot buildings • Improve views from residential balconies • Access easement as pedestrian-only designation • Continuous paving/lighting from alley into access easement to direct circulation & views	• Existing transformers require large access area & dominate aesthetic of east alley edge • Inconsistent aesthetic among private property upgrades • Access easement decreases privacy of neighboring residence on 13th • Visual clutter to northwest of alley
D **COLLEGE-13TH**	• Pedestrian-friendly scale • Usable alley frontages formed by building articulation • Large loading areas & ample parking along east side • Close proximity to bus stops & university parking along Broadway	• Consolidate waste in strategic locations • Back-of-house retail & patio opportunities • Overhead planting baskets and sconces on zero-lot buildings • Enhance street crossings @ College & 13th • Bulbouts for pedestrian safety @ College • Bulbouts or traffic calming for pedestrian safety @ 13th • Capitalize on eclectic/brownstone building aesthetic • Capitalize on views of Fox Theatre facade from alley • Connect to Event Street along 13th	• Extensive waste needs • ROW lacks defined edge • One-way designation is unclear • Depth of building articulations and impeded sight lines may inhibit "natural surveillance" • Large quantity of building entries limits site amenities • Pedestrian/vehicle conflict throughout alley

Waste Storage and Collection Strategy

Strategy and Recommended Approach

Approach

This chapter sets forth a strategy to consolidate alley-scale waste activity without the loss of existing alley functionality. To accomplish this, feasible locations were determined for consolidated waste. Existing waste volumes were calculated per alley and volumes were redistributed throughout the alley in the form of waste "enclosures." The enclosures were then designed to facilitate an improved aesthetic, sense of security, and function of the alley, for its business owners, users and residences.

Location Selection

Alternative locations for enclosures were determined based on several parameters:

- Convenience of proximity to users
- Preservation of existing vehicular parking quantities
- Reduce conflict with existing utilities
- Reduce conflict with existing amenities
- Preferred physical dimensions of the enclosure – based on waste volumes, operating apparatus, and municipal code
- Expressed interests of stakeholders

Enclosure Sizing

Existing container volumes and pickup frequencies were provided by the respective disposal companies. Collection was then standardized to a 6-day pickup frequency with 3-yard dumpsters, the lowest frequency possible to produce the least waste volume. Each volume type measured – trash, recycling, and compost – was individually converted to this 6-day frequency then summed by alley to calculate alley-scale volume. Based on the location alternative parameters, enclosures were designed to accommodate the necessary waste volumes.

Enclosure Design

Safety and Interior Lighting

To facilitate both physical and perceived security, safety measures and lighting are important considerations.

Two gates are provided for access to each enclosure. Pedestrians, property owners, and tenants are able to enter the enclosure through the smaller "person gate." Only disposal companies have access to the vehicular access gate through a keypad lock. To discourage unwanted activities within the enclosure, the walls of each enclosure are designed at 40 to 50 percent transparency. This allows waste to be screened from public view while enabling activities within the enclosure to be observed through natural surveillance.

Interiors of enclosures ideally should be lit with artificial lighting to enable safe nighttime access and increase natural surveillance. Other options to achieve this include on-building lighting provided adequate coverage is achieved. To light enclosure interiors, wall pack lighting is recommended. Proper connections to electrical services would be required.

Other Design Considerations

An anti-graffiti coating is recommended for exterior surfaces of enclosures.

Options for Enclosure Construction

The responsibility of each enclosure's construction will be either that of the property owner or that of the City.

City-constructed Enclosures

In this option, the City obtains either an access easement or a lease on the portion of a property where an enclosure is to be built. Construction of the enclosure is the sole responsibility of the City.

Owner-constructed Enclosures

In this option, property owners willingly agree to participate in the construction of enclosures on their property.

Enclosure Maintenance

Maintenance of an enclosure is the sole responsibility of the party that constructs it.

City-constructed Enclosures

If the City-constructed method is chosen, a proposed UHGID maintenance district oversees maintenance of enclosure.

If an enclosure is constructed under a lease agreement, the property owner reserves the right to revoke the lease at any time. In such instances, maintenance becomes the sole responsibility of the property owner.

Code Compliance

Strategy and Recommended Approach

All enclosures are designed to adhere to City of Boulder Municipal Code. Once construction completed, code compliance and related fines become the responsibility of the party assigned to maintain the enclosure. The items provided in this section are required for each enclosure.

Bear-proofing

Per code 6-3-12, Ordinance 8161, and the Boulder Urban Wildlife Management Plan, either the enclosure or its containers must be bear-proofed. Bear-proofing the enclosure itself is recommended, as it increases convenience for users. If the enclosure is designed to be bear-proof, it is required to be fully enclosed with a roof and meet FAR requirements

Illegal Dumping

The safety and lighting measures set forth in this chapter are intended to minimize illegal dumping per code 6-3. Roofed enclosures are recommended as well to prevent this, as they discourage waste from being thrown over the walls of the enclosure from outside.

Exterior Lighting

If an enclosure is lit from or on its exterior, the lighting configuration must adhere to code 9-9-16. This includes adhering to prescribed light levels at residential property lines and may require a request for code variances through City Staff review.

Recycling and Composting

Recyclables and compost must be placed within the appropriate containers. Per code 6-3, the enclosure maintenance party and any tenants of the property are to be held accountable for responsible waste education and disposal. Minimums of one container for recycling and one container for composting are provided for each alley for users' convenience. For alleys with multiple enclosures, the enclosure that these containers are located in is to be determined by the programs of the surrounding properties (for example, compost containers should be placed nearer to restaurants).

Fire Rating

Per code 10-8, fire rating standards must be strictly adhered to. Enclosures that have a roof structure must be at least 6 feet from buildings on any dimension and be made entirely of noncombustible materials. Non-roofed enclousres may be closer than 6 feet, but still must be made of non-combustible materials.

Sight Triangles and Vehicular Movement

Enclosures are designed to allow for effective vehicular operation. No part of an enclosure is to exist within the sight triangles prescribed in code 9-9-7. Additionally, no part of any enclosure is to exist within minimum turning radii for waste collection vehicles.

Additional Code Compliance Criteria

All enclosures are required to adhere to the additional following criteria unless a waiver is granted:

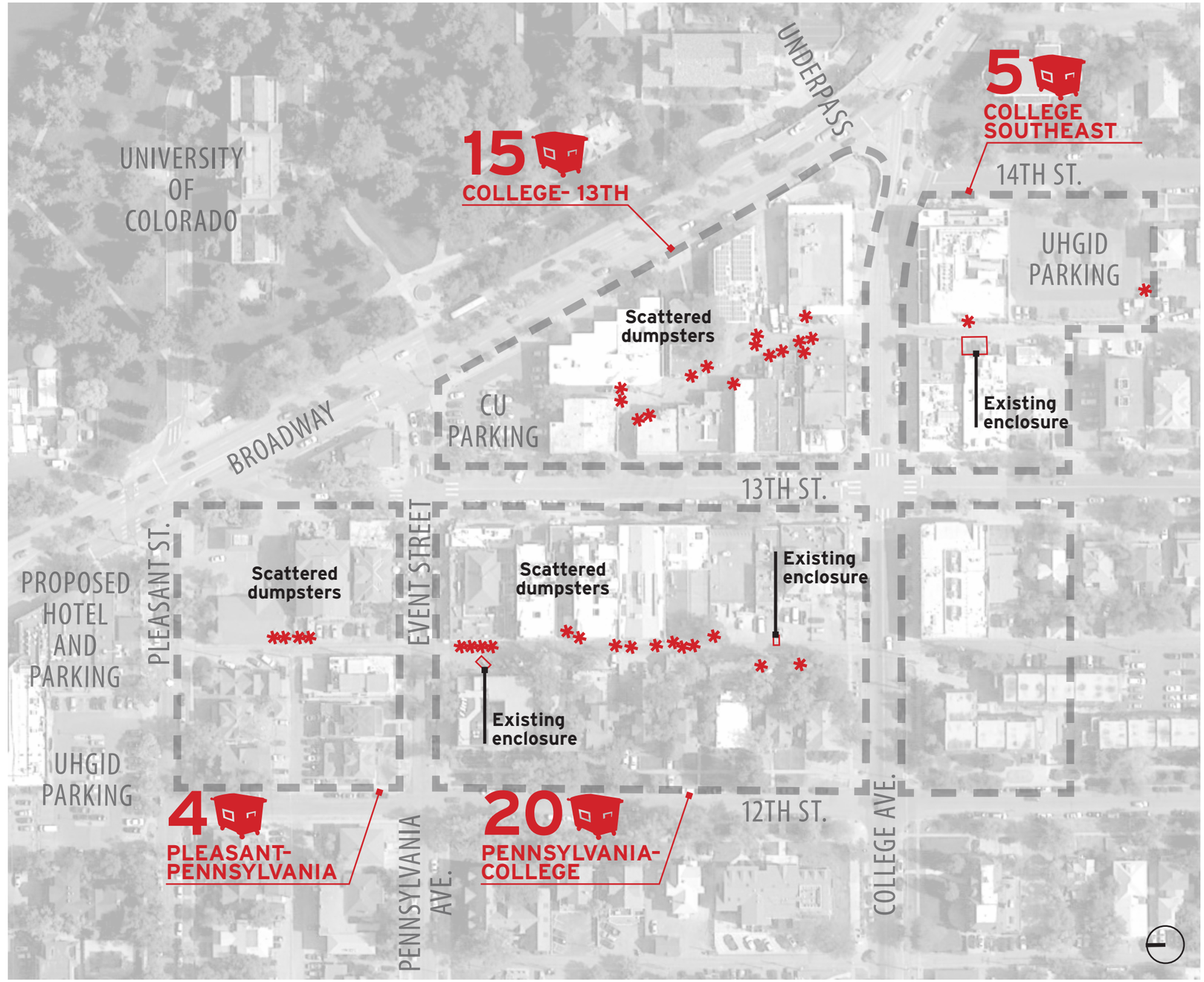
- Floor-area ratio (FAR) compliance (9-8-2) (The enclosure options shown in this document comply with this requirement.)
- Zero waste - Trash, Recycling and Composting receptacles shall be provided.
- Vehicular gates opening into rights of way (8-5 and 9-9-10) (as this will be difficult to achieve, the R.O.W. encroachment could potentially be licensed or permitted through the City. The license or permit should address the operation of the gates is to be exclusive to the respective disposal companies and not by users, via a keypad lock.)

Inventory of Containers

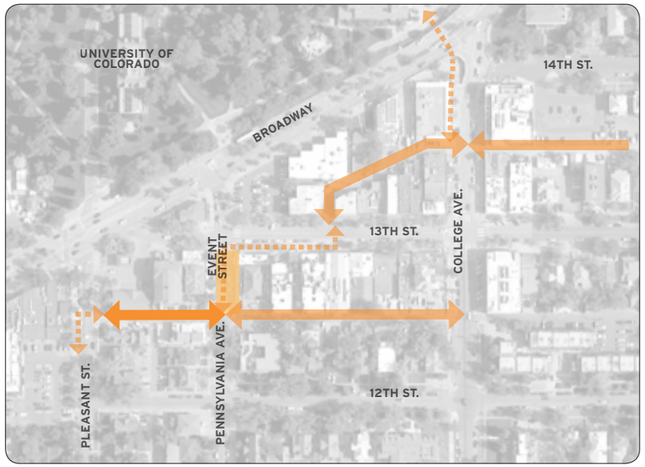
waste collection

=44

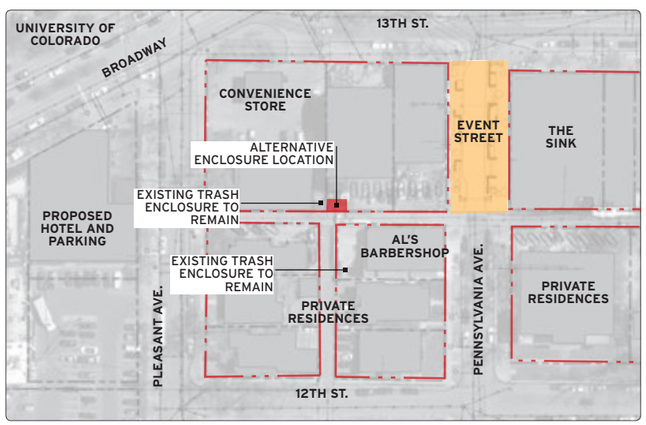
dumpsters



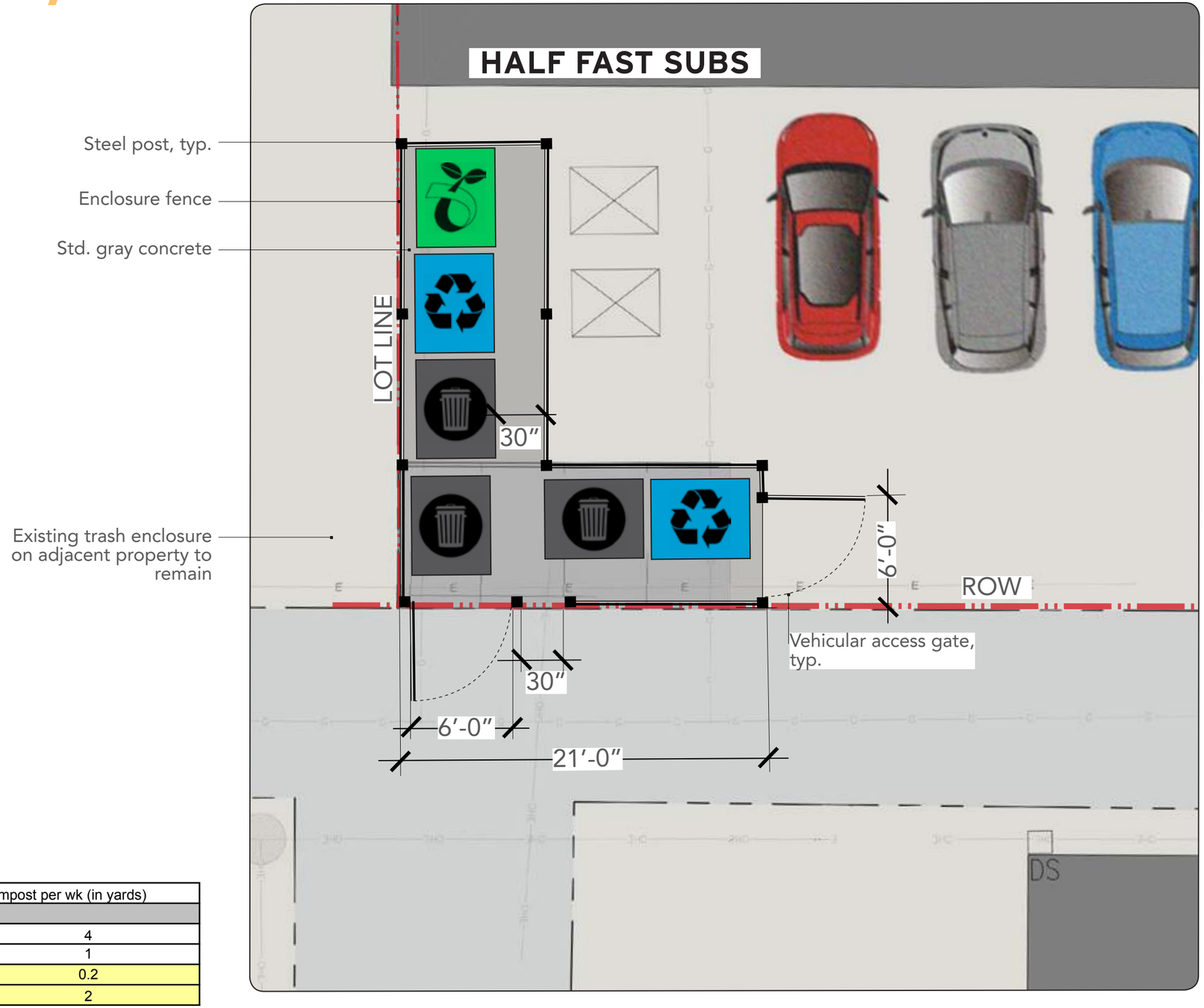
Alley A: Pleasant-Pennsylvania



Key Map



Alley A Trash Enclosure Location

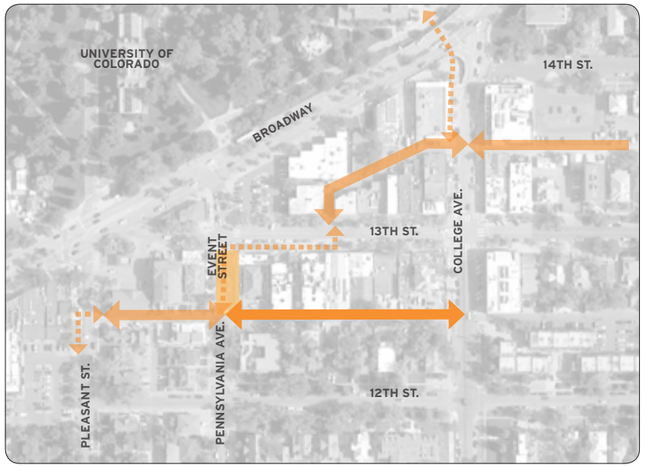


Alternative Waste Enclosure Location - Detail Plan

Alley A Trash Collection Calculations

	Trash per wk (in yards)	Recycling per wk (in yards)	Compost per wk (in yards)
Alley A (Pleasant to Pennsylvania)			
Total yds	21	24	4
Weekly pick-up (6 days)	3.5	4.0	1
Number of dumpsters (3 yd)	1	1	0.2
Number of carts (64 gal)			2

Alley B: Pennsylvania to College



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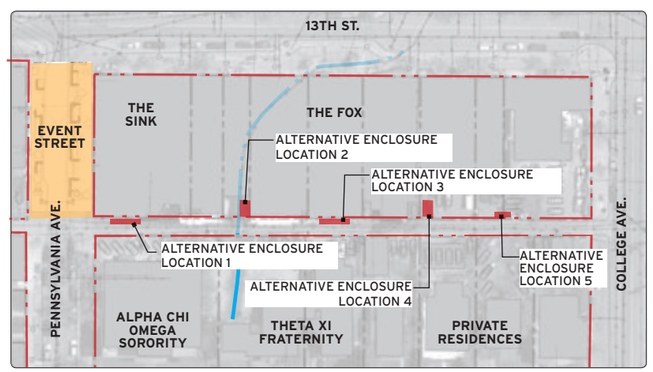
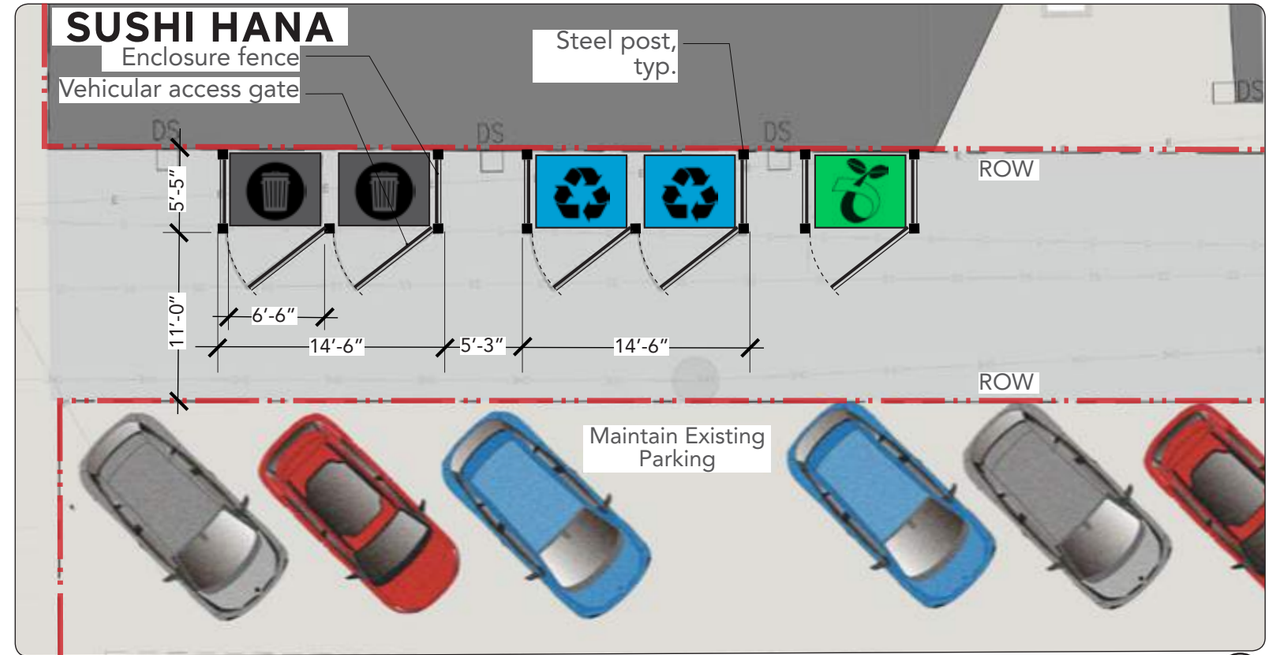


Alley B Trash Enclosure Location(s)

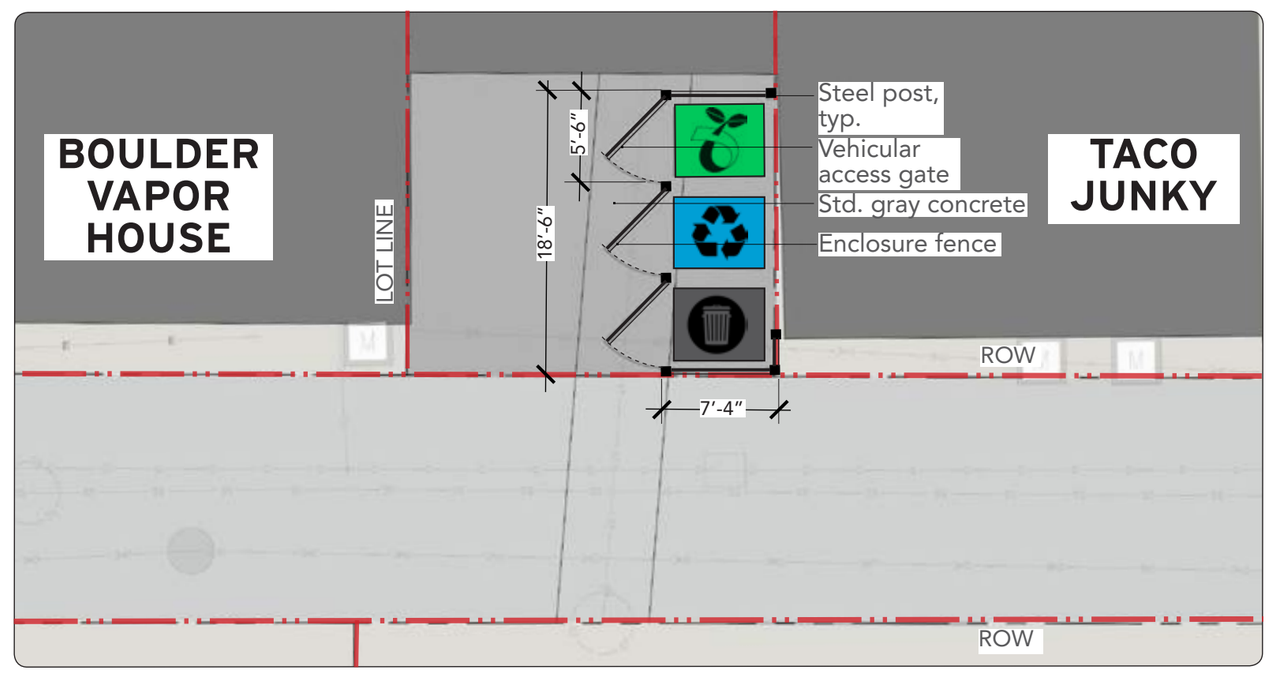
Note: A combination of two (2) enclosure locations is needed in order to accommodate the trash collection outlined below. Locations selected should be located on the north and south ends of the alley.

Alley B Trash Collection Calculations

	Trash per wk (in yards)	Recycling per wk (in yards)	Compost per wk (in yards)
Alley B (Pennsylvania to College)			
Total yds	94	55	11
Weekly pick-up (6 days)	15.7	9.2	2
Number of dumpsters (3 yd)	5	3	0.6
Number of carts (64 gal)			5

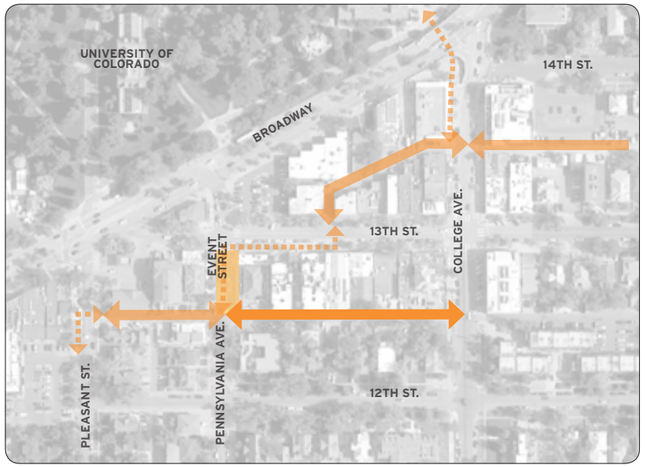


Alternative Waste Enclosure Location 1 - Detail Plan



Alternative Waste Enclosure Location 2 - Detail Plan

Alley B: Pennsylvania to College



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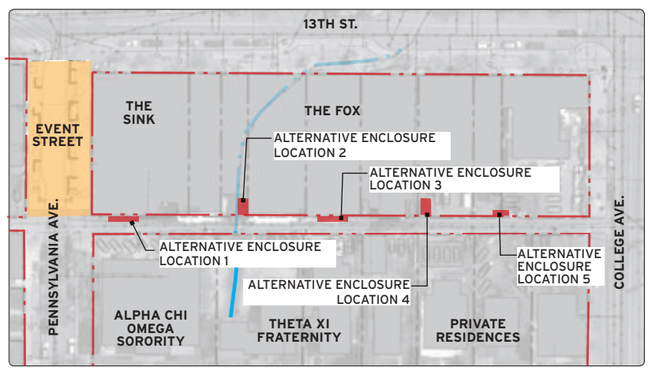

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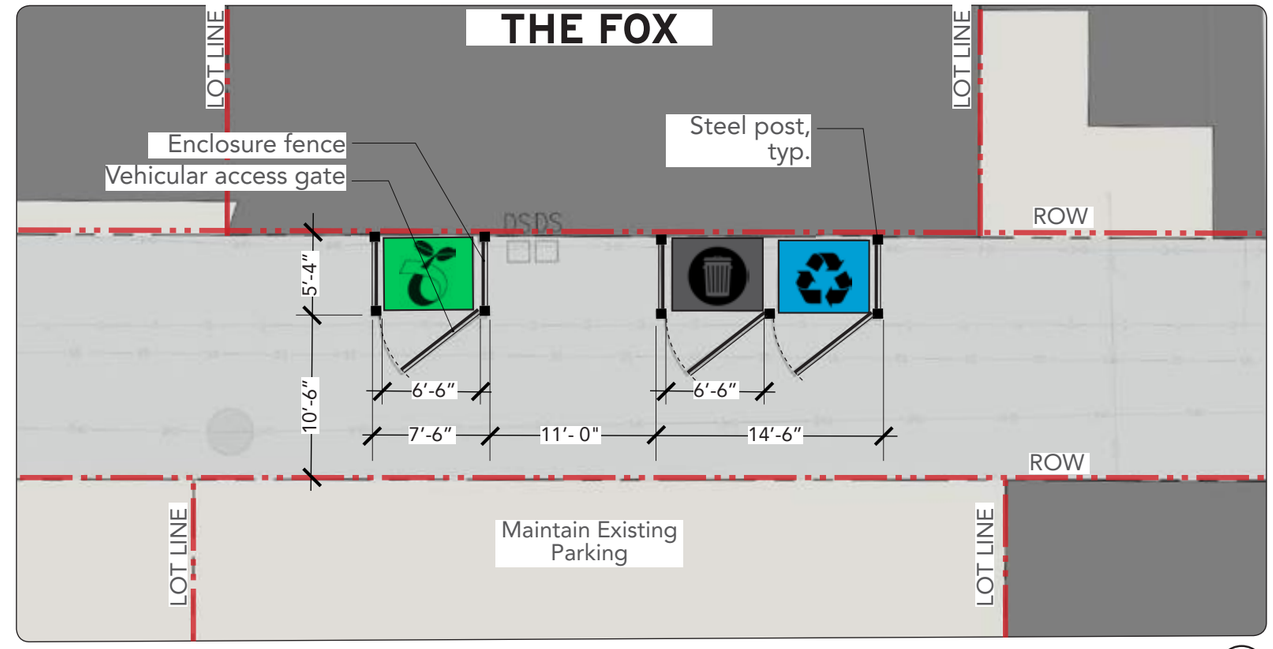
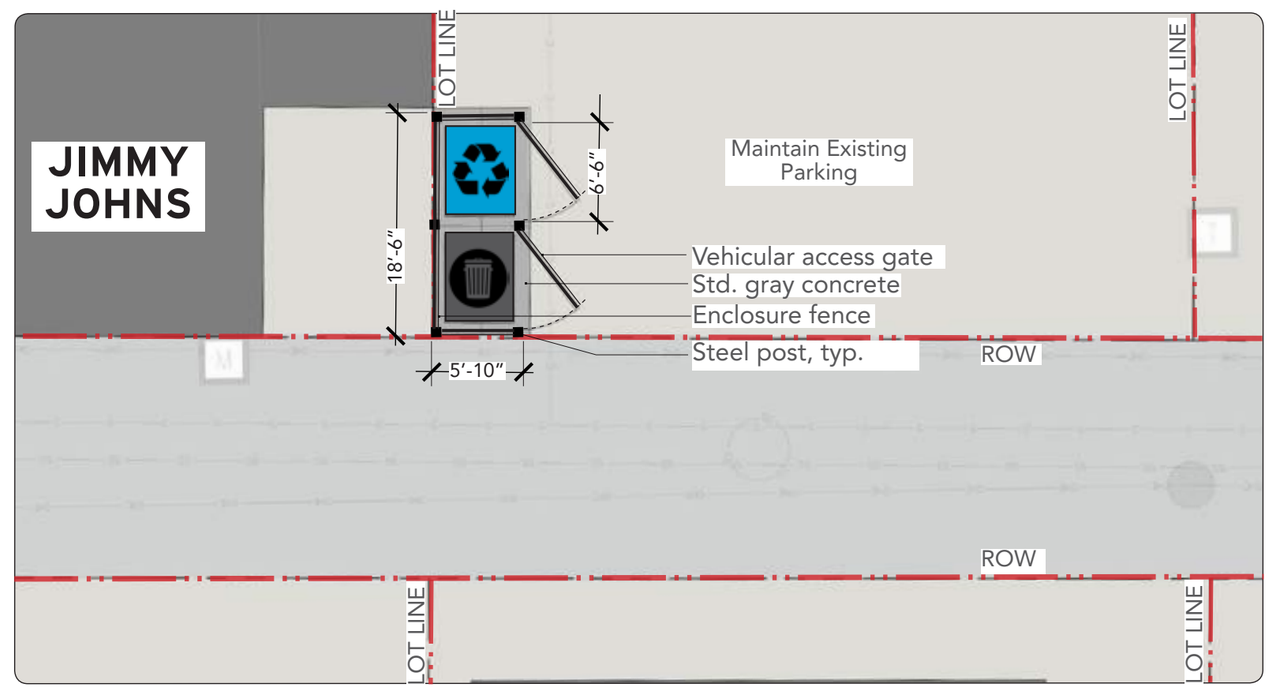
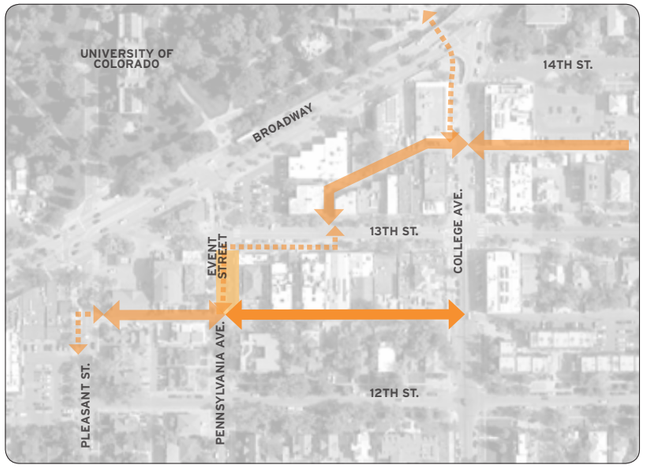


Alternative Waste Enclosure Location 3 - Detail Plan



Alternative Waste Enclosure Location 4 - Detail Plan

Alley B: Pennsylvania to College



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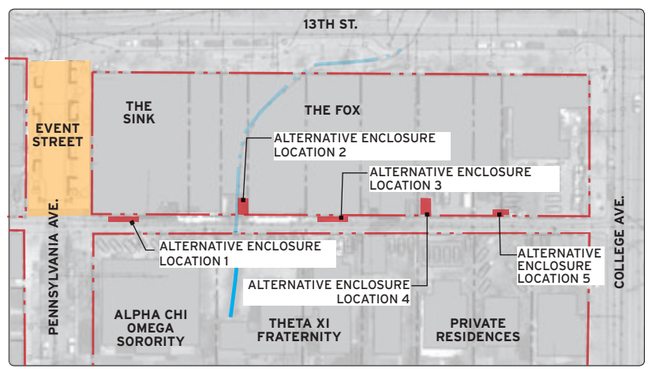

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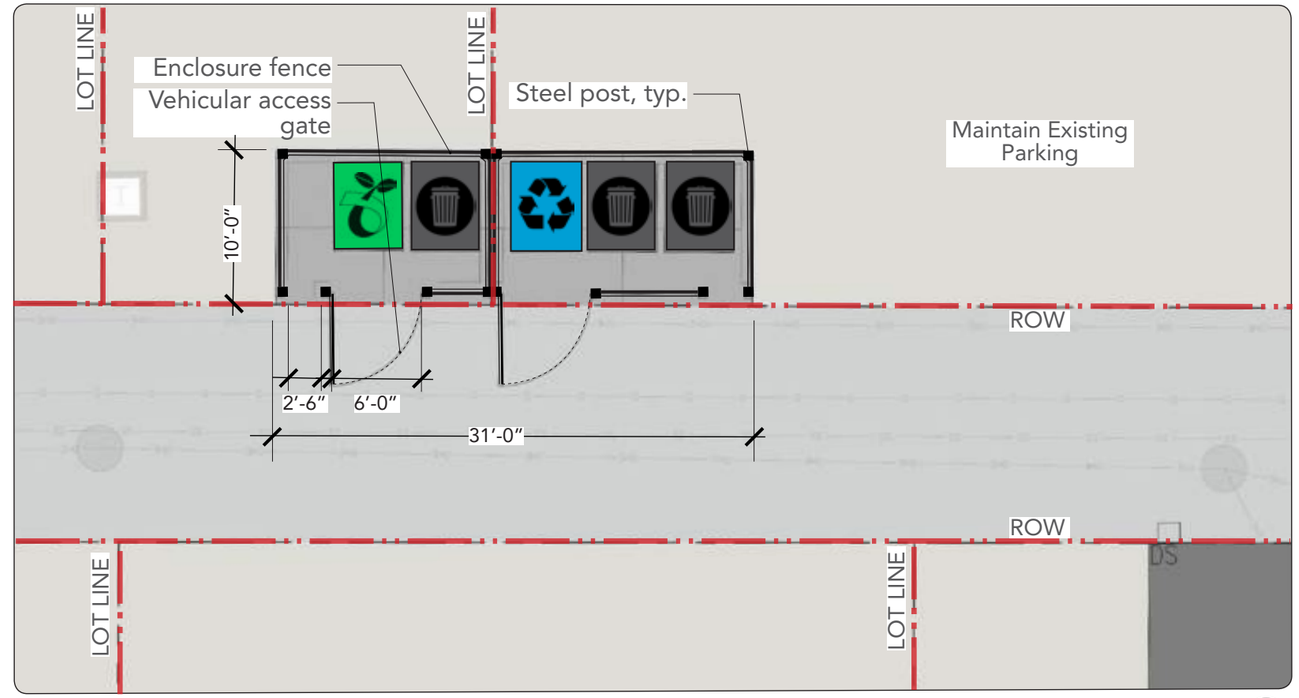
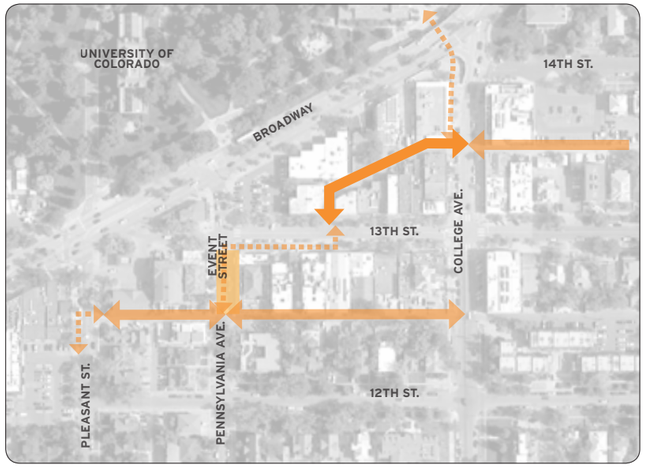


Alternative Waste Enclosure Location 5 - Detail Plan

Alley C: College to 13th



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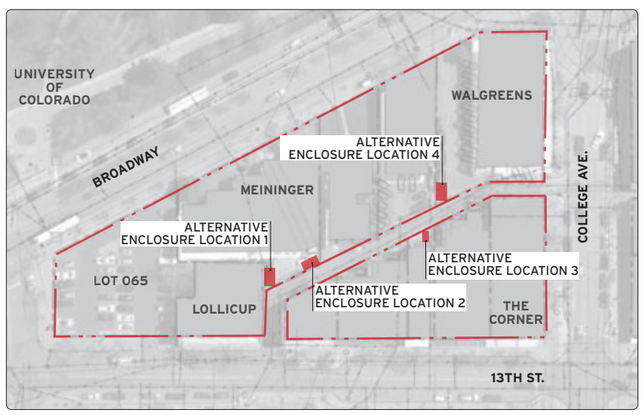
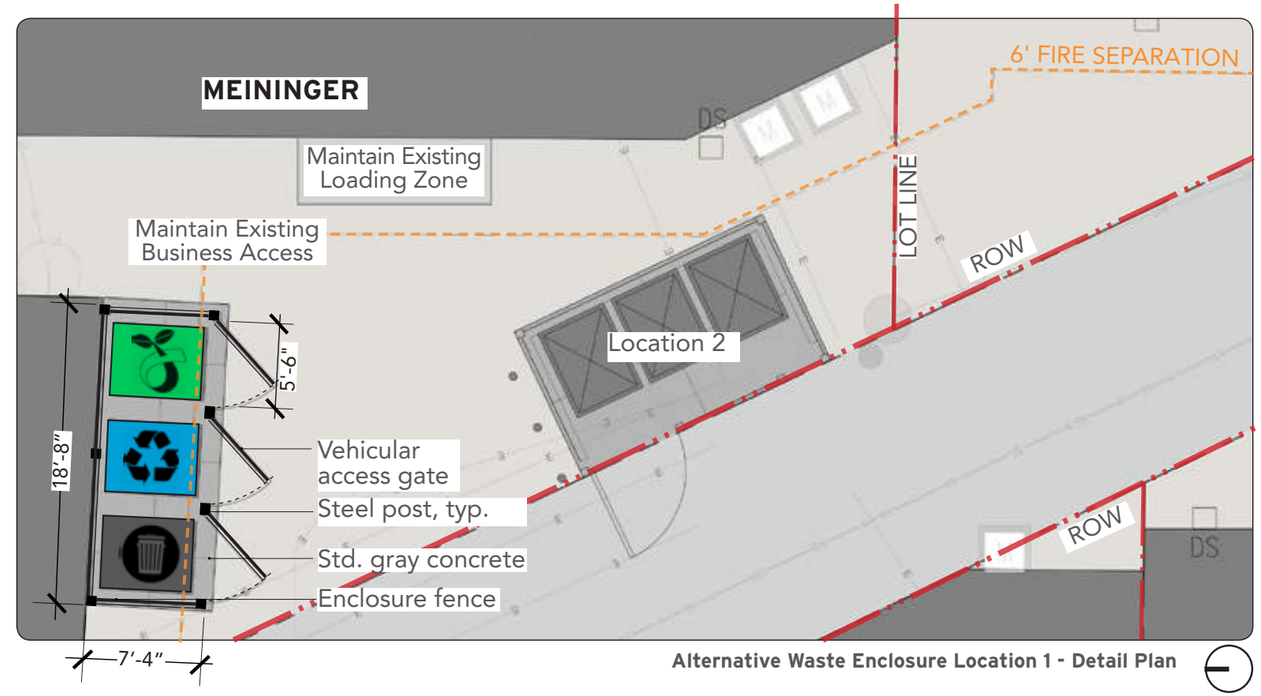


Alley E Trash Enclosure Location(s)

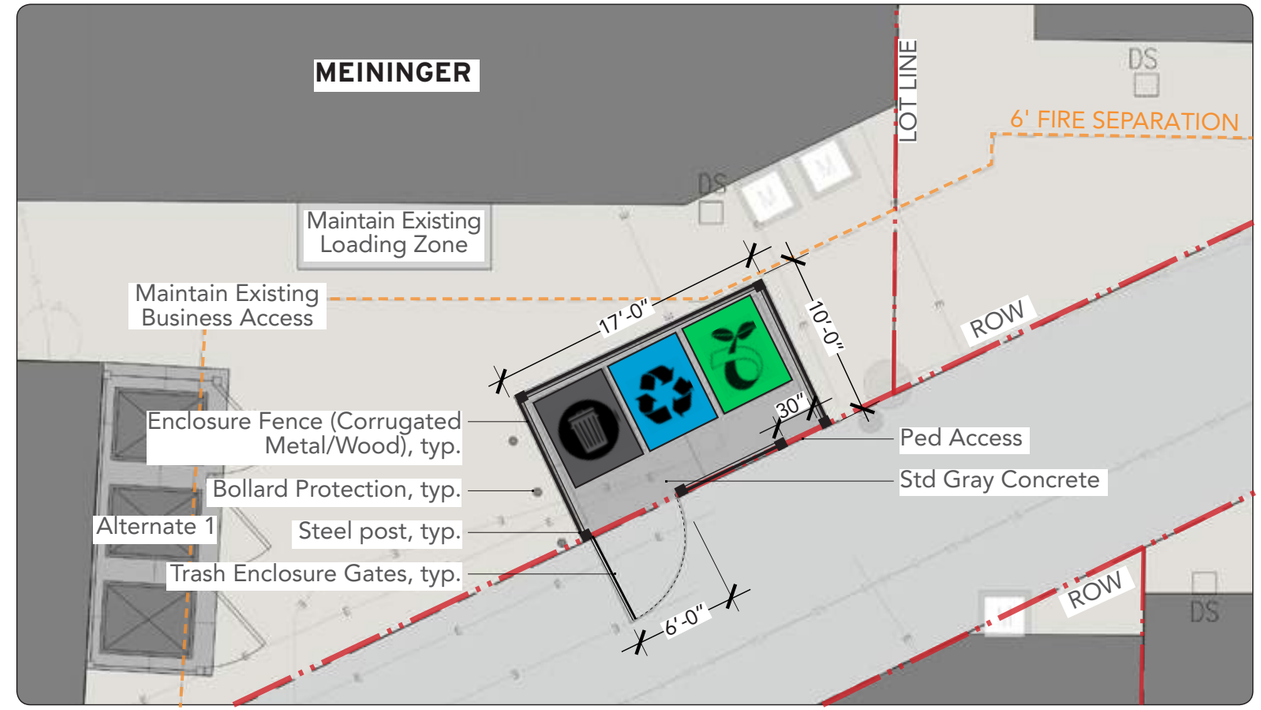
Note: A combination of two (2) enclosure locations is needed in order to accommodate the trash collection outlined below. Locations selected should be located on the north and south ends of the alley.

Alley E Trash Collection Calculations

	Trash per wk (in yards)	Recycling per wk (in yards)	Compost per wk (in yards)
Alley E (College to 13th)			
Total yds	60	41	18
Weekly pick-up (6 days)	10.0	6.8	3.00
Number of dumpsters (3 yd)	3	2	1.0
Number of carts (64 gal)			8

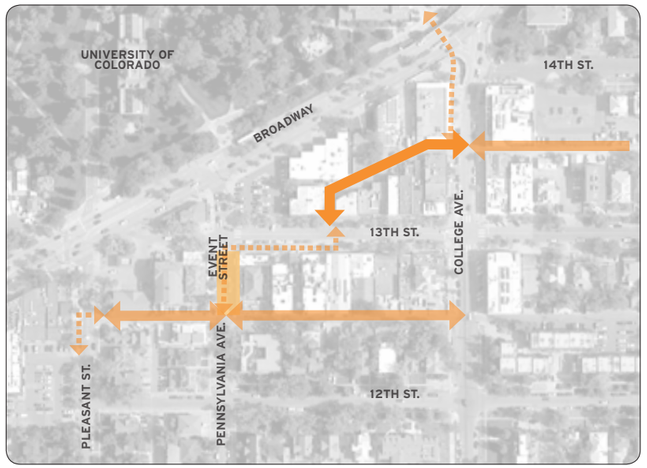


Alternative Waste Enclosure Location 1 - Detail Plan



Alternative Waste Enclosure Enclosure Location 2 - Detail Plan

Alley C: College to 13th



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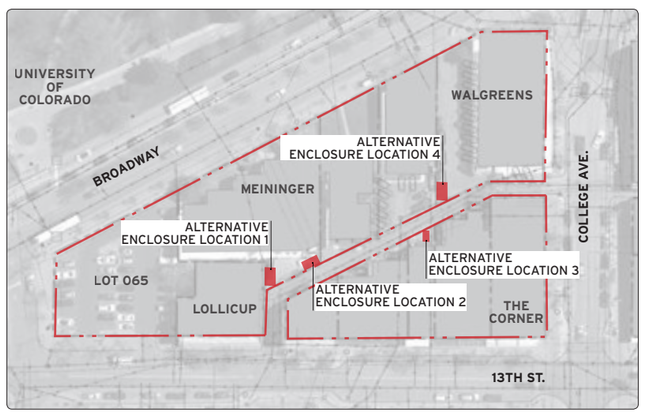

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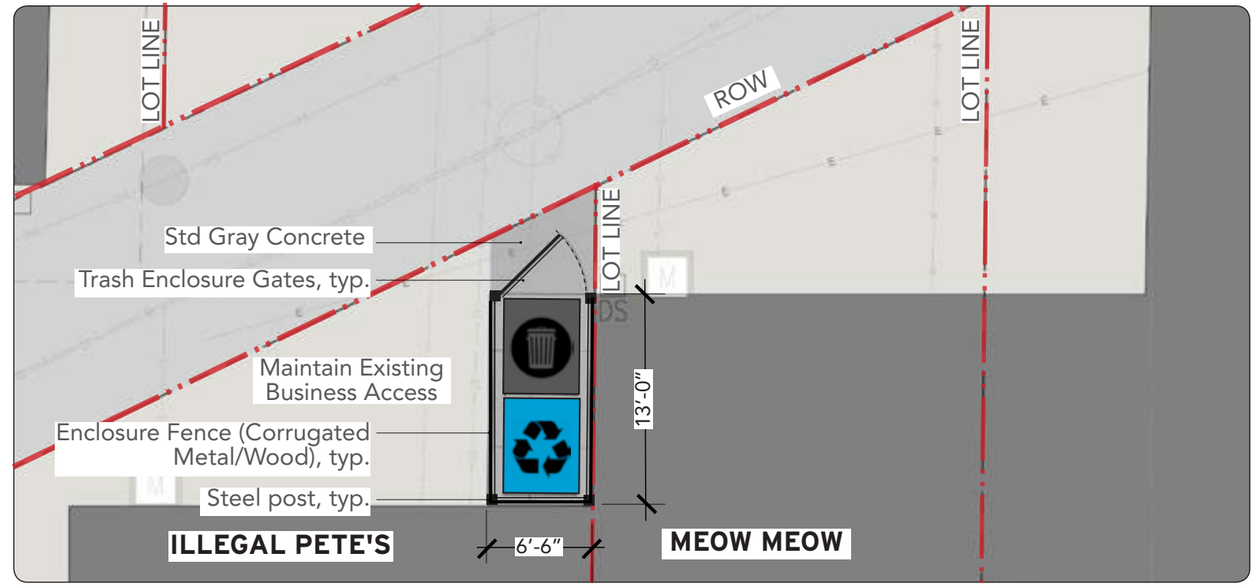
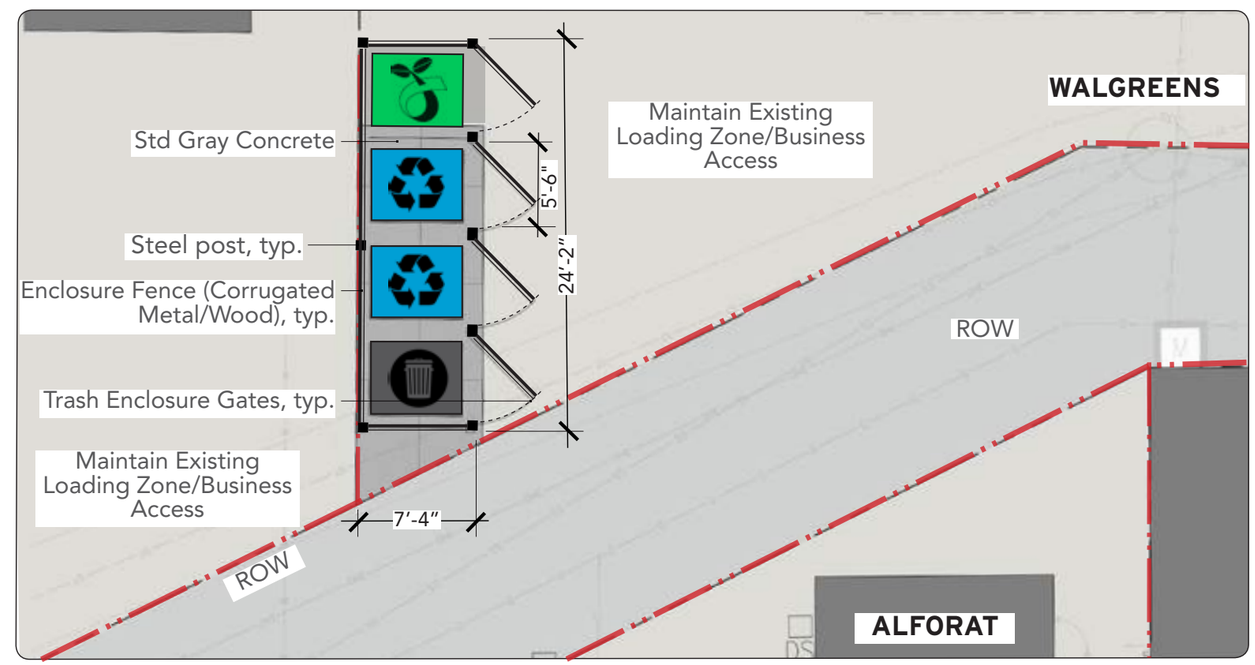
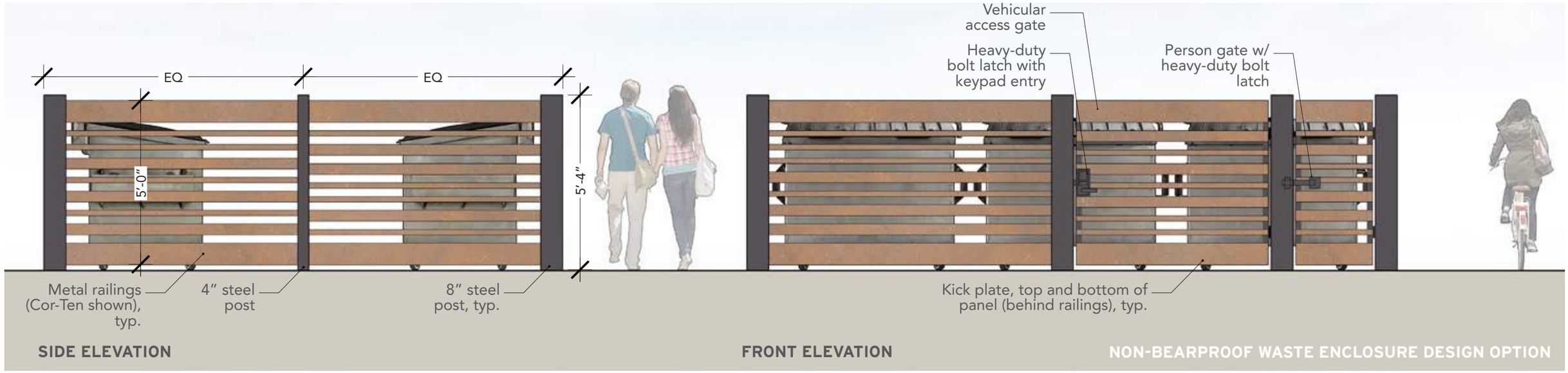


Alternative Waste Enclosure Enclosure Location 3 - Detail Plan

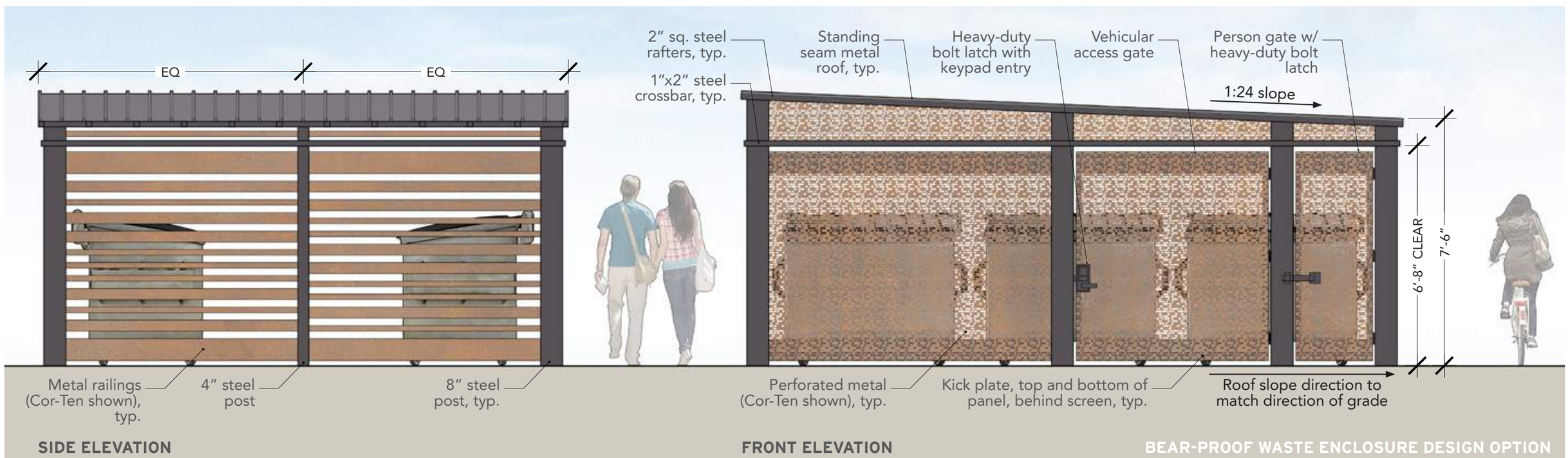


Alternative Waste Enclosure Location 4 - Detail Plan

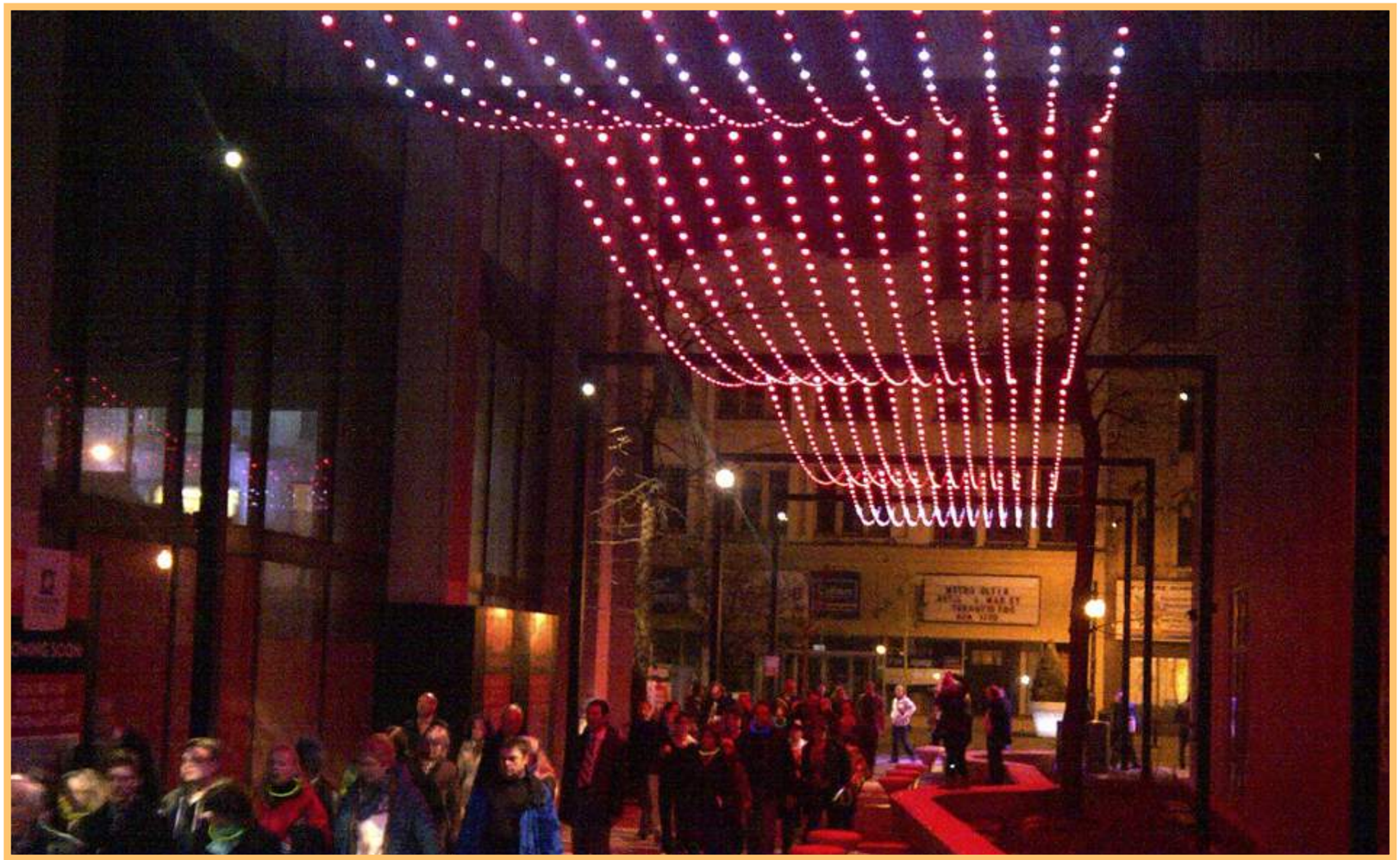
Trash Enclosure Design Options



SIDE ELEVATION **FRONT ELEVATION** **NON-BEARPROOF WASTE ENCLOSURE DESIGN OPTION**



SIDE ELEVATION **FRONT ELEVATION** **BEAR-PROOF WASTE ENCLOSURE DESIGN OPTION**



Lighting Strategy

Lighting Strategy

Background

Improvements to overall alley safety and lighting conditions were key priorities expressed by stakeholders and are expressed within the goals and objectives for the project. The narrow alley Right-of-Way conditions and multiple existing utilities also make it difficult to place pedestrian pole mounted lights within the alley Right-of-Way. An option for building mounted lighting was explored as an efficient means of providing this safety improvement.

Approach

Building mounted lighting options were explored and a low-cost option that provides an even footcandle distribution was selected (shown below) to create the safest condition possible and optimize lighting levels. Selected fixtures shown are LED, low wattage luminaires to maximize installation potential with existing power supplies and reduce maintenance requirements. The fixtures are dimmable as well in order to assist with mitigating light spillage onto adjacent properties.

Fixtures were placed at even intervals and a photometric analysis was completed for each alley segment. Fixtures were placed only on commercial building facades and reviewed by stakeholders and property owners in a workshop setting. Some gaps exist within the alley segments where buildings are at too great a distance from the Right-of-Way to be effective. These gaps could be addressed through pedestrian pole lighting options where feasible.

Regulatory and Code Compliance Requirements

Building mounted lighting is typically permitted only above building entries and a variance is required to permit lighting within the alley Right-of-Way provided that lighting levels do not exceed .2 footcandles at any adjacent residential property line. In addition lighting levels shall comply with a standard of 1 footcandle or less at edges of Rights-of-Way. Photometric analyses depicted on the following pages illustrate how these requirements are met within the overall lighting strategy.

Implementation

In order to incentivize lighting improvements, fixtures can be provided at no cost, by the City of Boulder. Installation and associated costs will be required by property owners.

Maintenance

All maintenance and operational requirements are to be provided by property owners for the fixtures shown on plans. The LED fixtures shown are typically low in maintenance and operational costs compared to traditional metal-halide or other light fixtures.

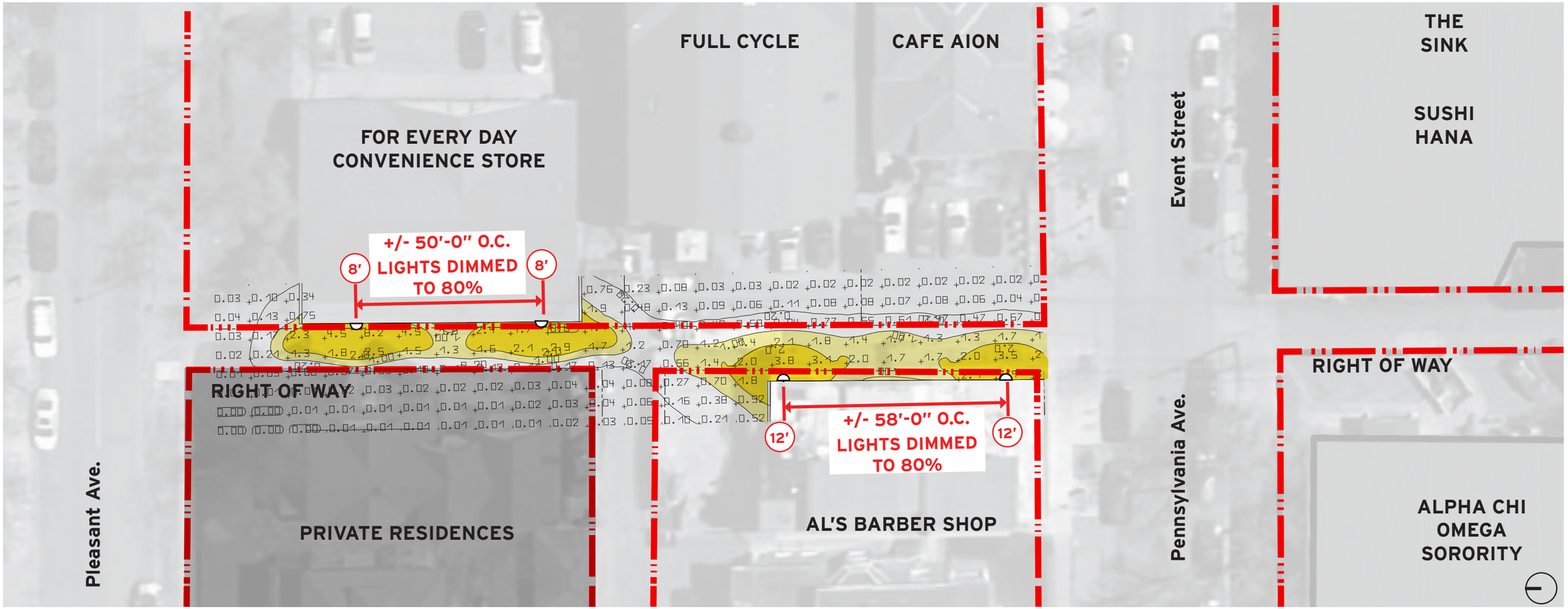
Alley Lighting Fixture Evaluation

Fixture	Cost*	Quantity	Spacing	Mounting Height	Required Foot-Candles (fc)
Lithonia WSR WSR LED 2 10A700/40K SR2 MVOLT (5262 LUMENS, 47W)	$ 535.19 each	See Plans Per block. 26 total	Varies see plans	Varies 8'-12' See plans	Minimum 1 fc Maximum 3 fc .2 fc at property line

*** Price reduction for large quantity orders, price shown as one fixture per order.**

Lithonia - WSR

Alley A: Pleasant-Pennsylvania

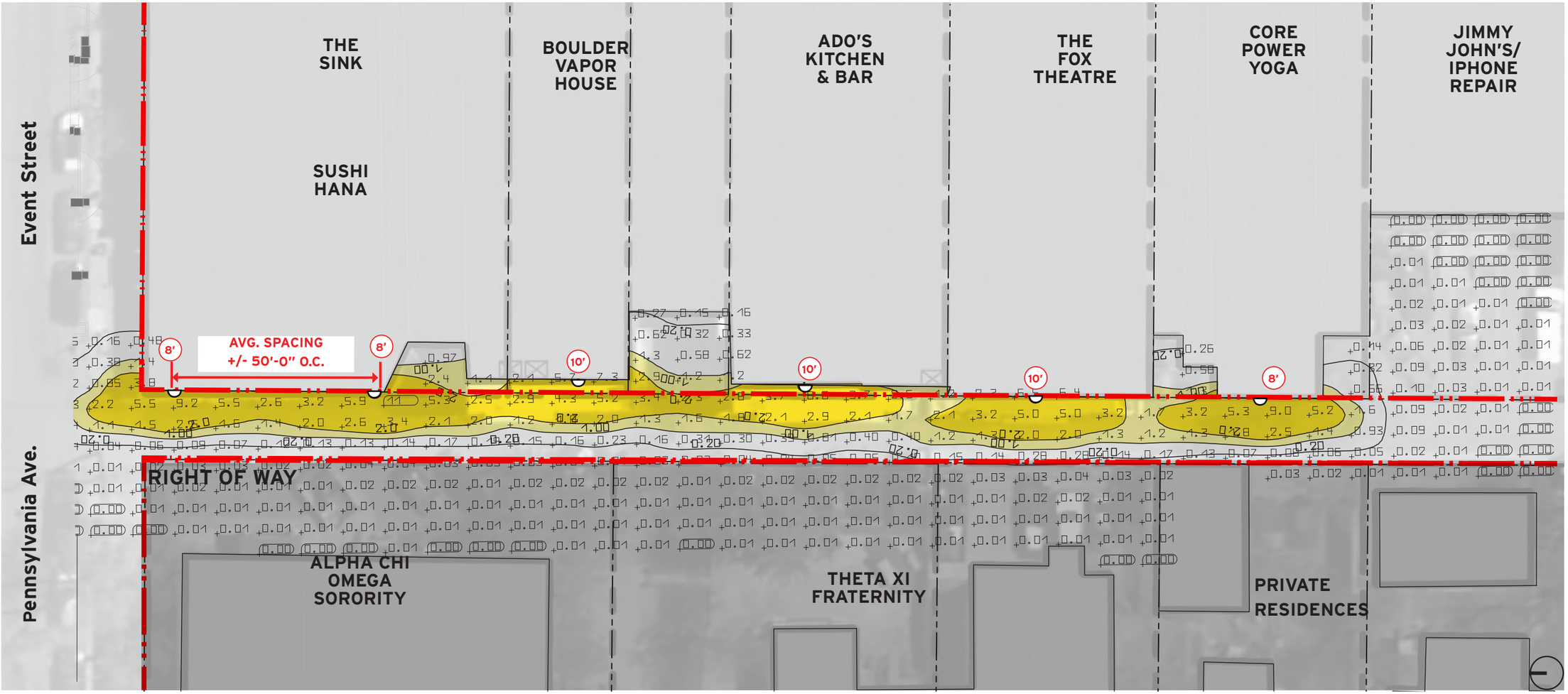


LITHONIA - WSR

LEGEND

- 1 FOOT-CANDLE
- 2+ FOOT-CANDLE
- Residential property

Alley B: Pennsylvania to College

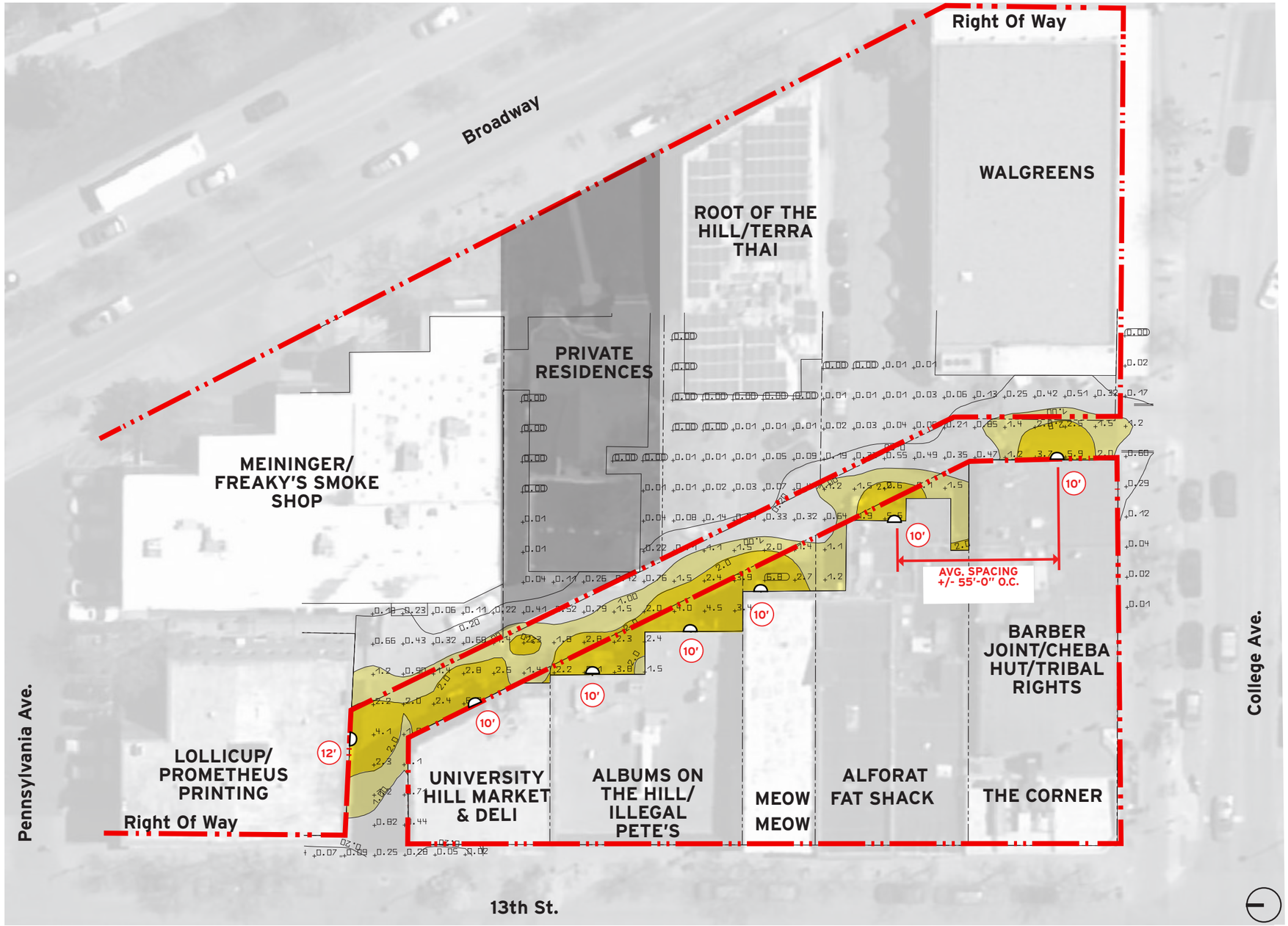


LITHONIA - WSR

LEGEND

- 1 FOOT-CANDLE
- 2+ FOOT-CANDLE
- Residential property

Alley C: College to 13th

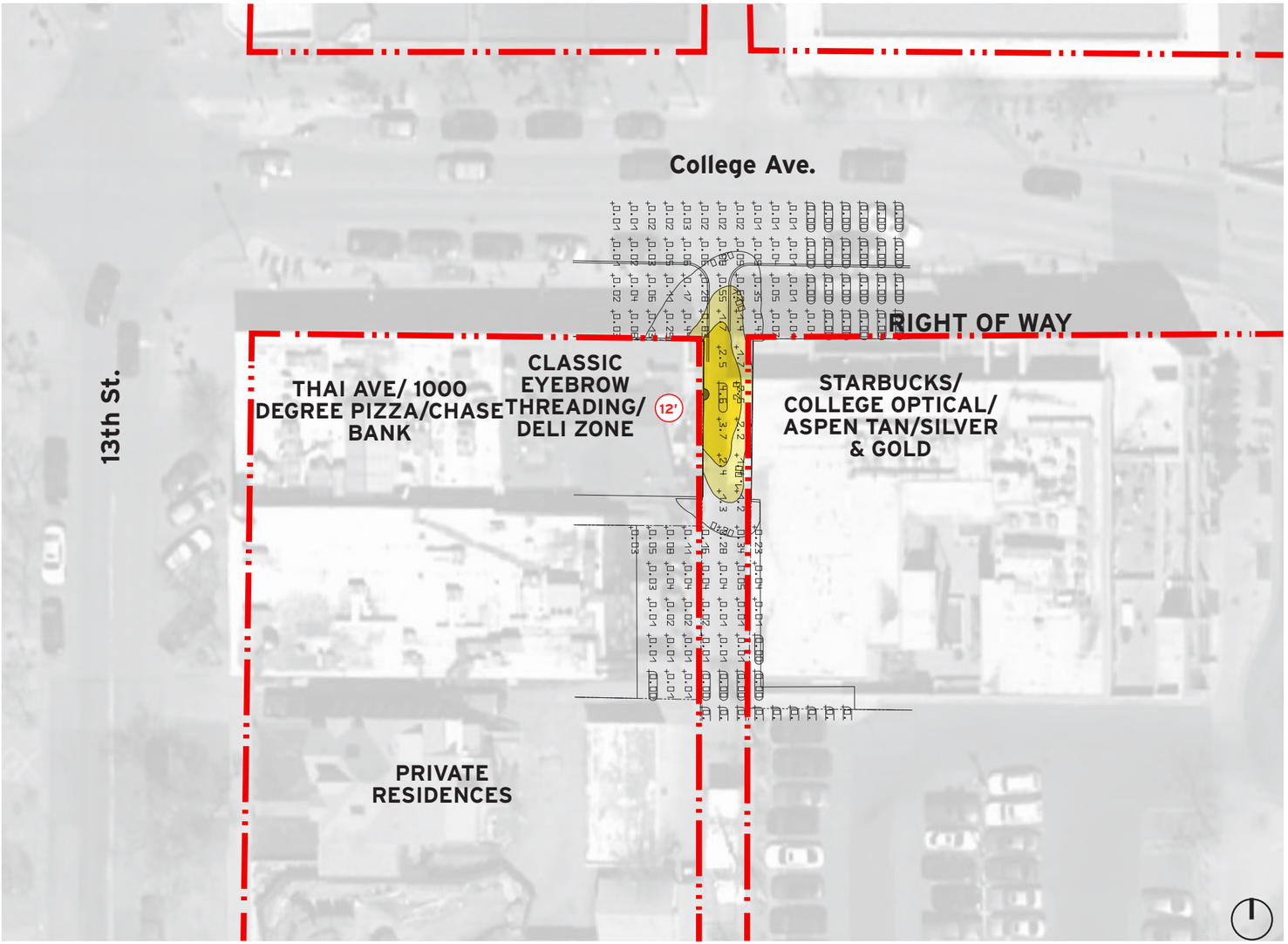


LITHONIA - WSR

LEGEND

- 1 FOOT-CANDLE
- 2+ FOOT-CANDLE
- Residential property

Alley D: College Southeast



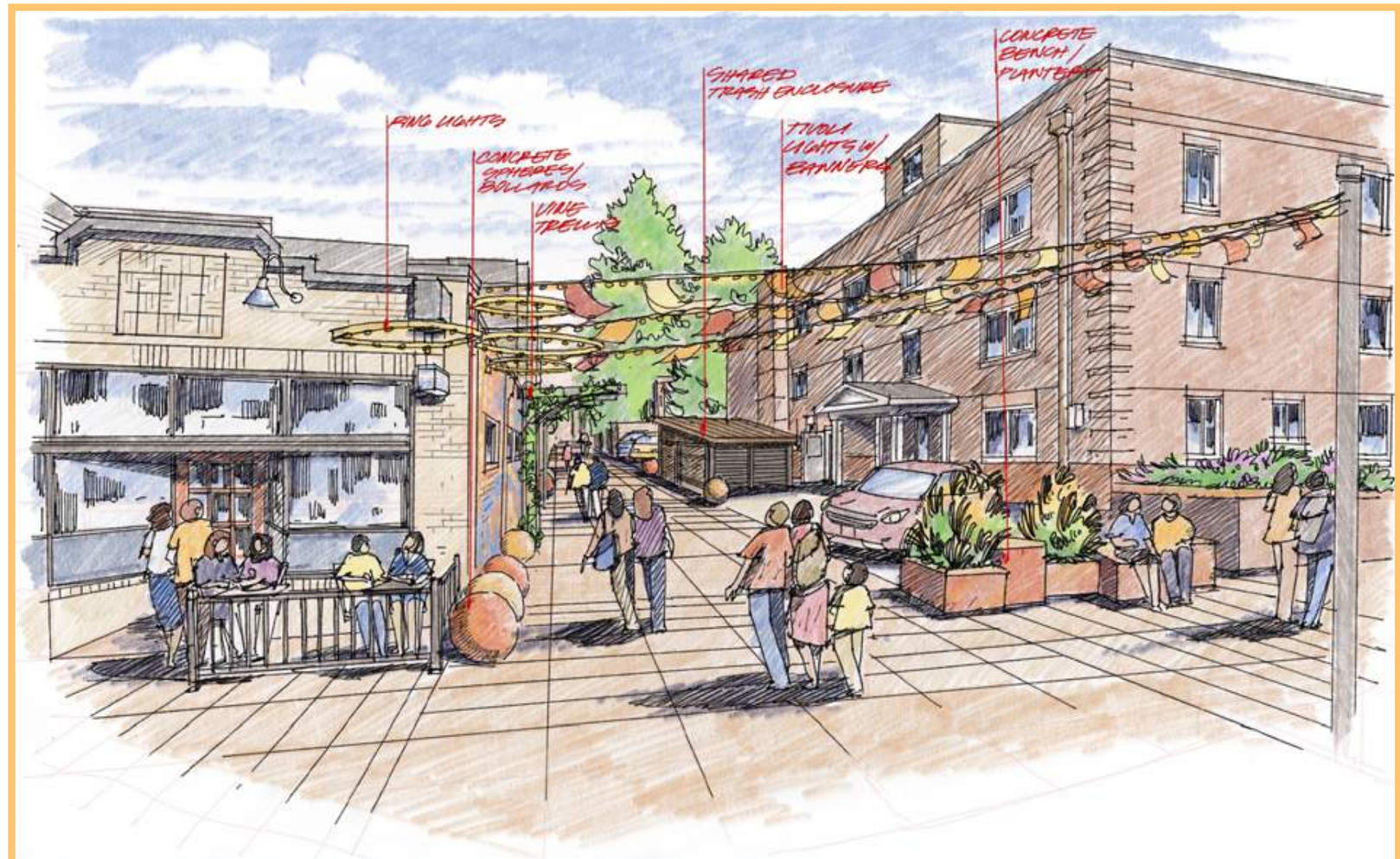
LITHONIA - WSR

LEGEND

1 FOOT-CANDLE

2+ FOOT-CANDLE

Residential property



Enhancement Concepts

Pleasant to Pennsylvania Concept

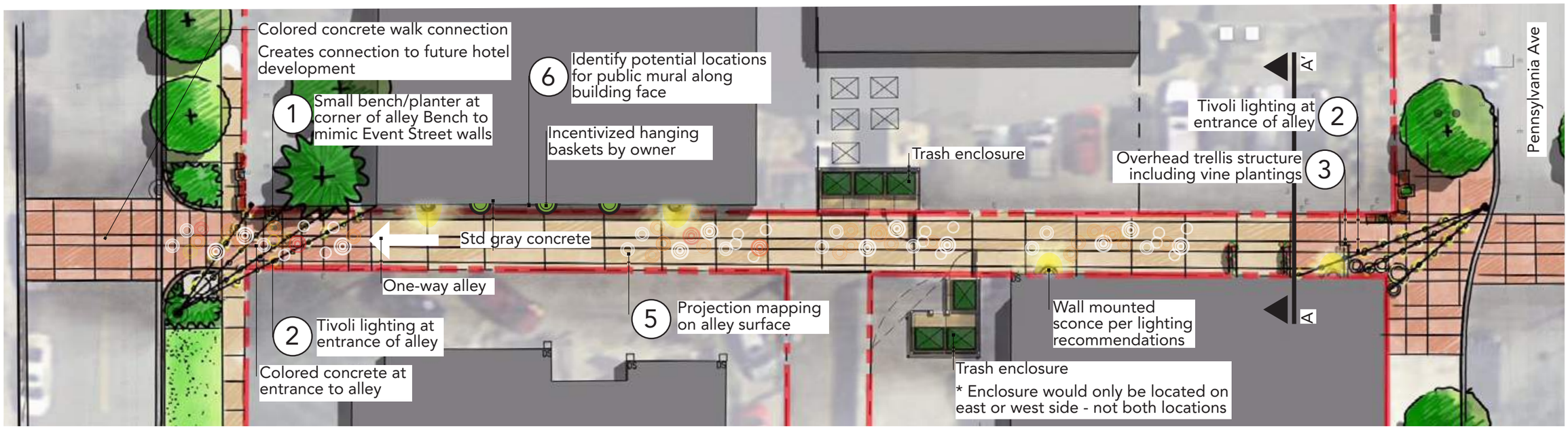
1

2

3

4

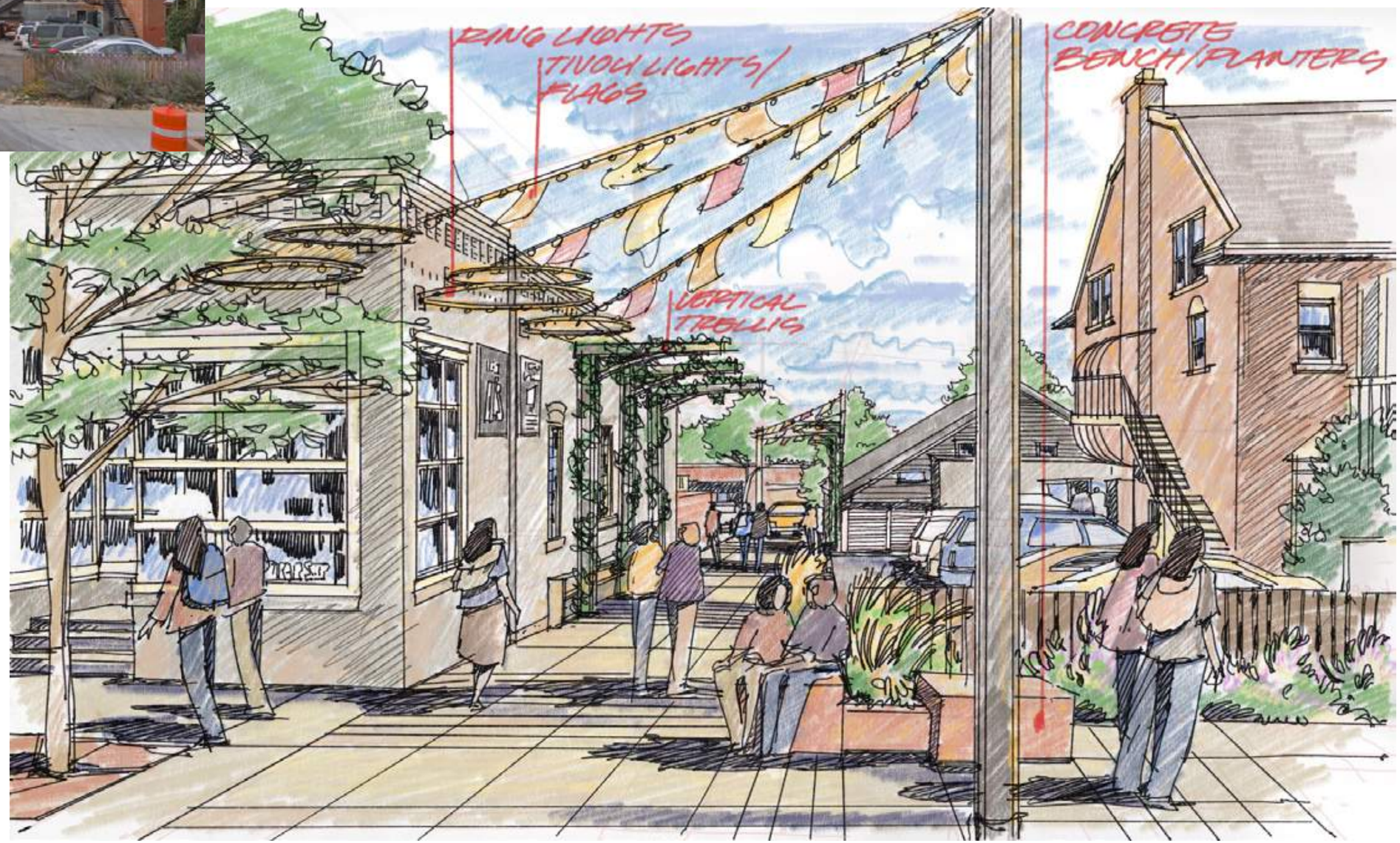
5



6

View Looking North at Pennsylvania

Existing conditions



Pennsylvania to College Concept

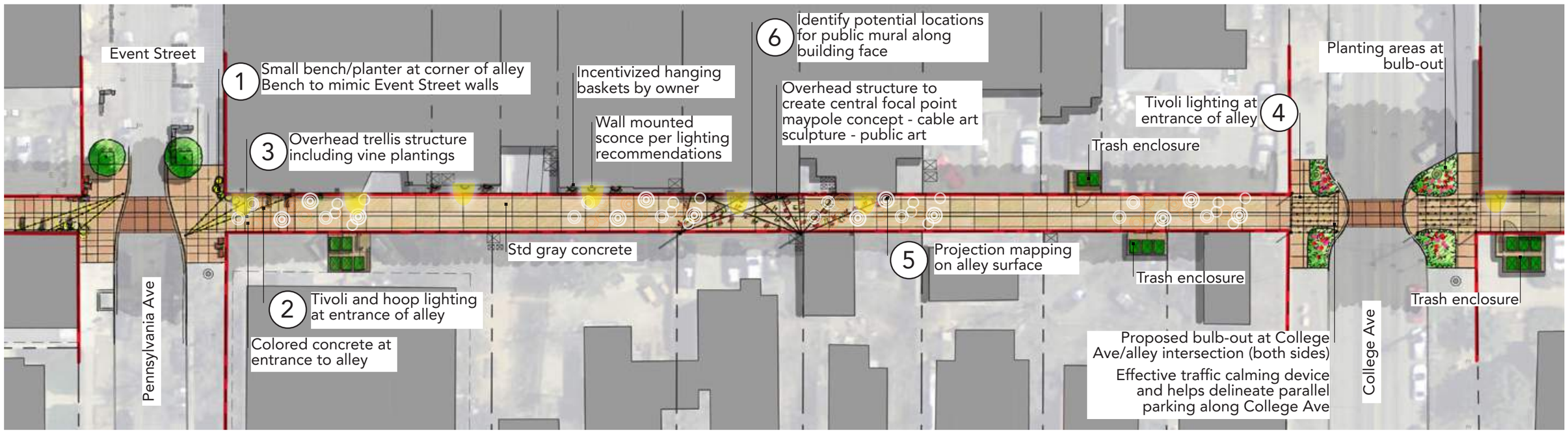
1

2

3

4

5



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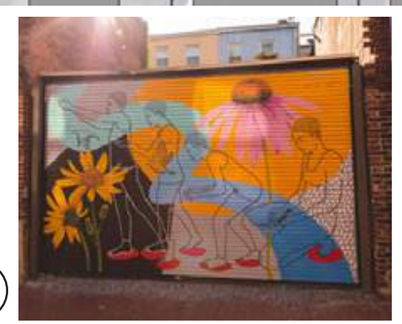
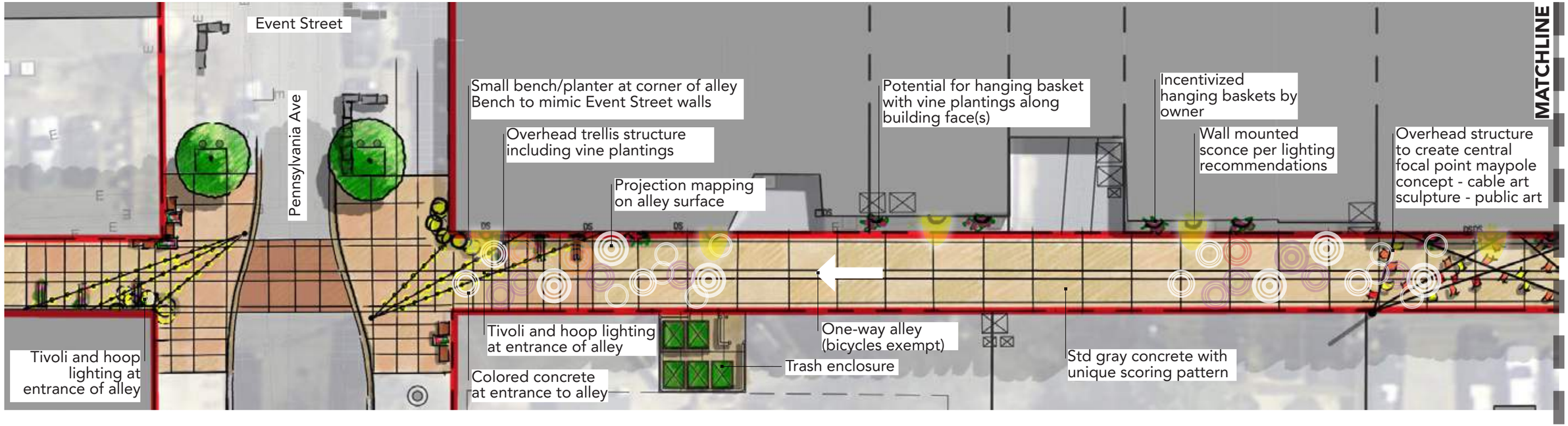
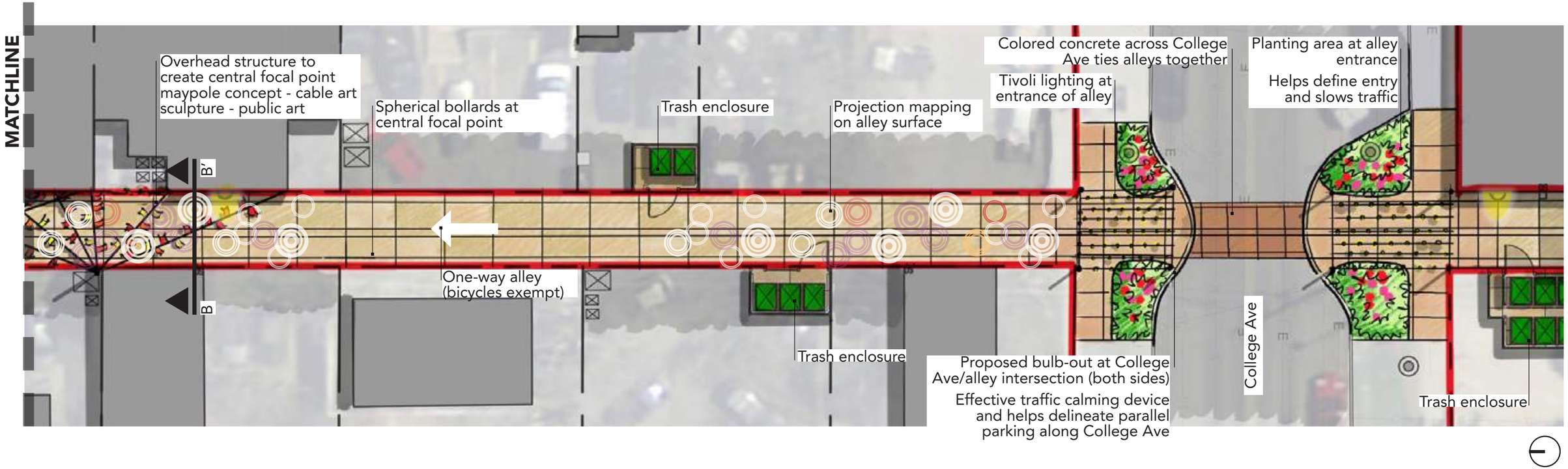


6

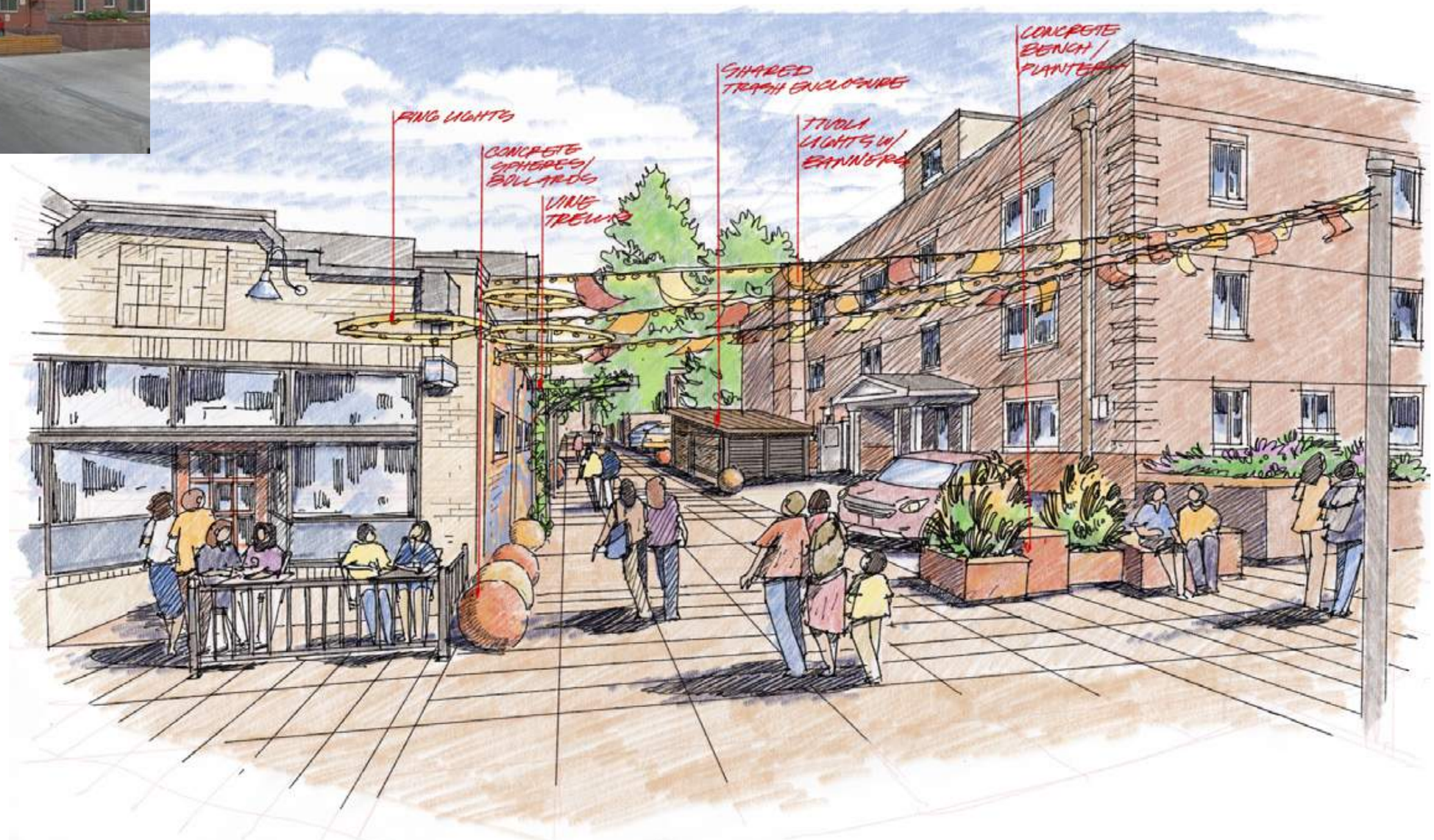
Pennsylvania to College Enlargement





View Looking South at Pennsylvania

Existing conditions



View Looking North mid block of alley

Existing conditions

College to 13th Street Concept

Trash enclosure

Incentivized hanging baskets by owner

Trash enclosure

One-way alley (bicycles exempt)

3 Trellis structure including vine plantings

4 Overhead structure to create central focal point - cable art sculpture - public art

5 Identify potential locations for public mural along building face

College Ave

Wall mounted sconce per lighting recommendations

One-way alley (bicycles exempt)

2 Tivoli lighting at entrance of alley

Colored concrete at entrance to alley

1 Small bench/planter at corner of alley Bench to mimic Event Street walls

13th Street

Bulb-out with planting at alley entry

New concrete across 13th Street

1

2

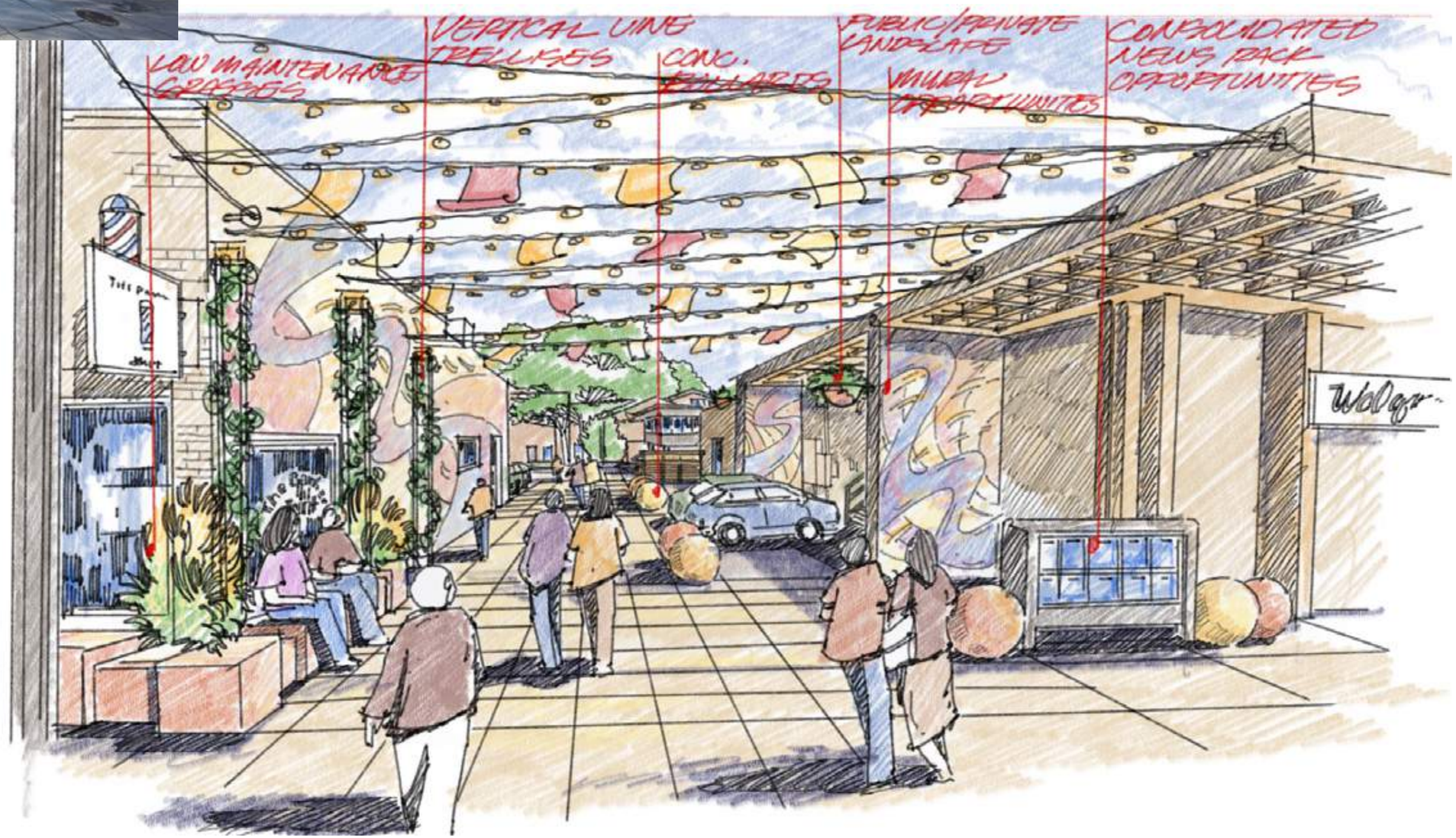
3

4

5

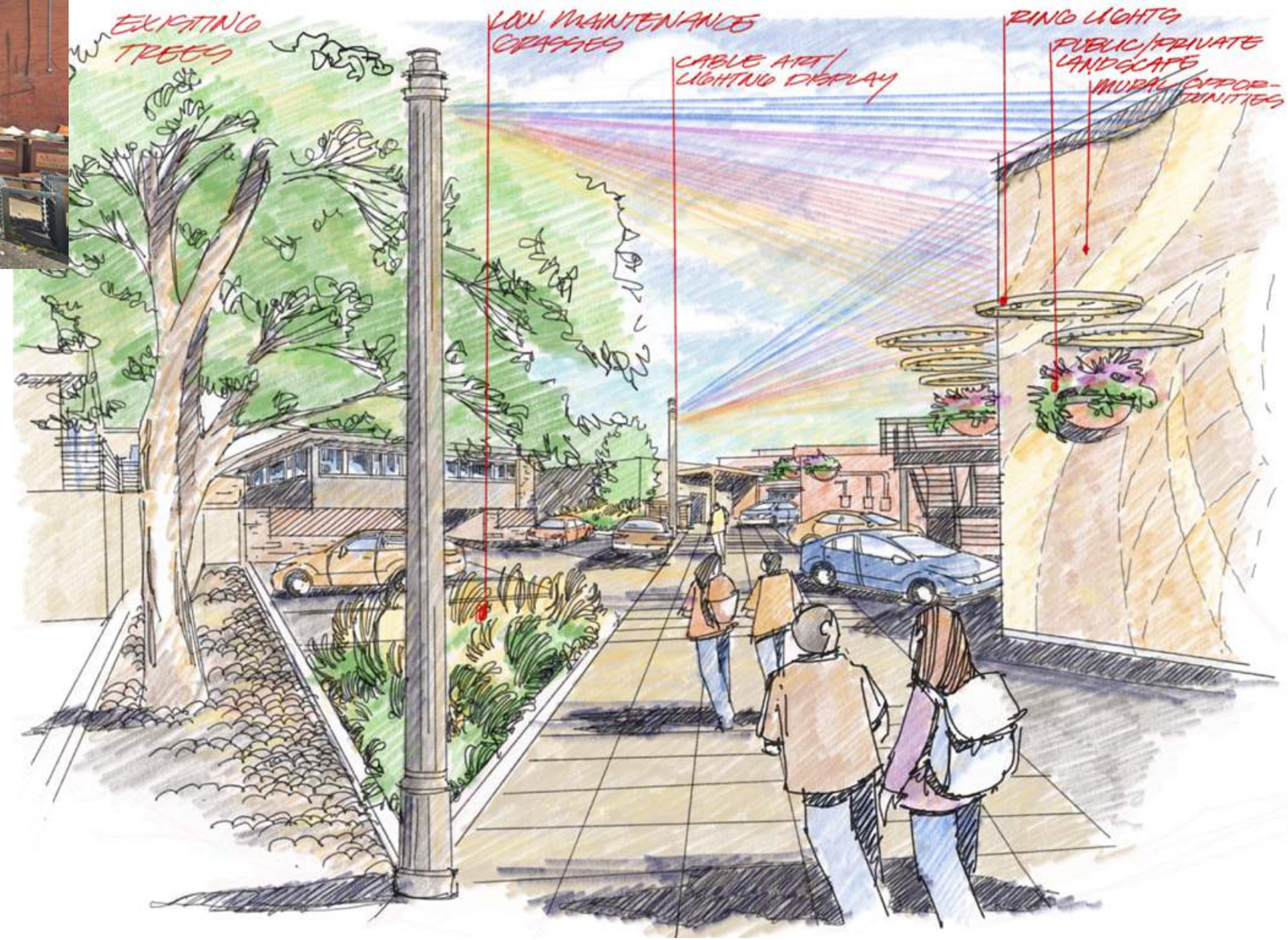
View Looking North at College Ave

Existing conditions

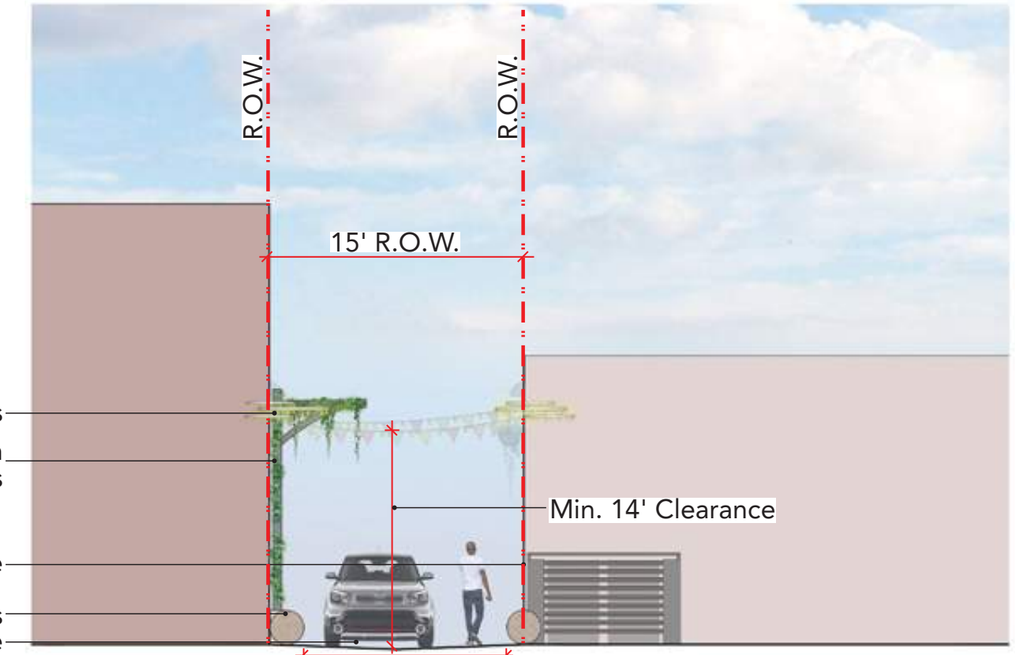


View Looking North at College Ave

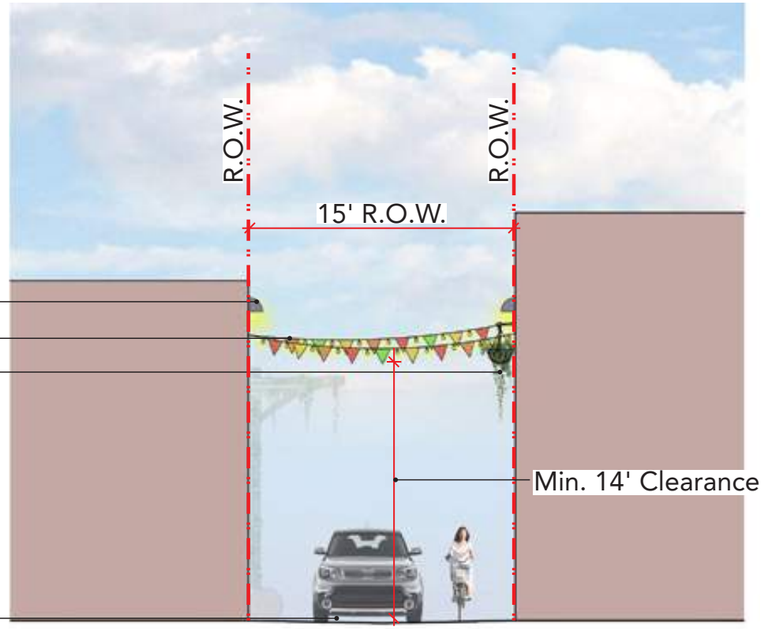
Existing conditions



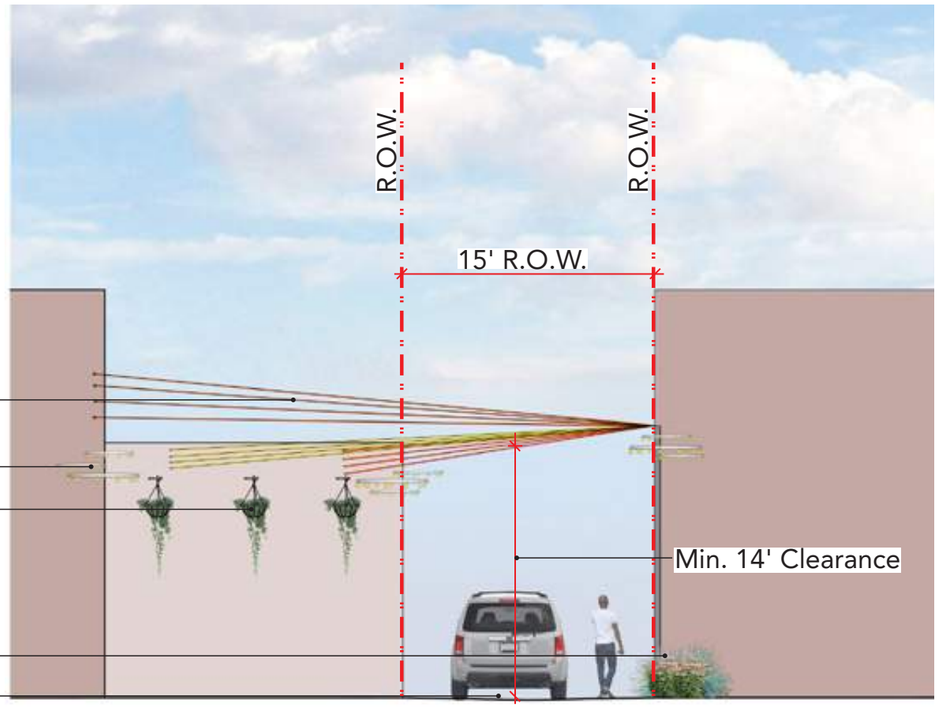
Concept Sections



Section A-A'



Section B-B'



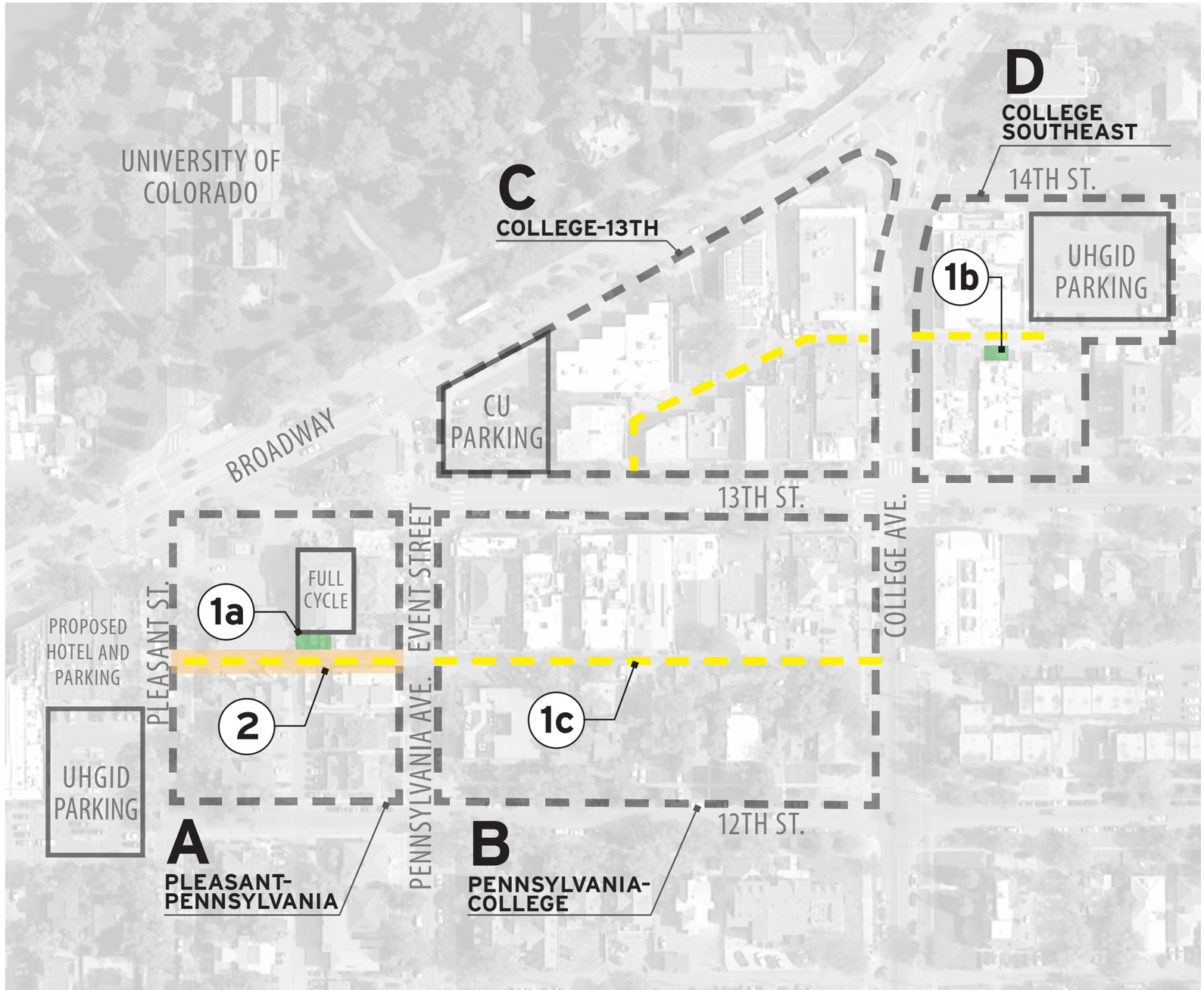
Section C-C'

Prioritization and Phasing of Enhancements

Prioritization and Phasing Strategy

Phase	Timeline	Component	Location
Phase 1	2019	Waste Consolidation-Pilot	Alley A,D
	2019	Safety Lighting	All Alleys
Phase 2	2020	Resurfacing	Alley A
	2020	Decorative Lighting	Alley A
	2020	Art	Alley A
Phase 3	2021	Waste Consolidation	Alleys B,C
Phase 4	2022+ As Funding Allows	Resurfacing	Alleys B,C,D
	2022+ As Funding Allows	Decorative Lighting	Alleys B,C,D
	2022+ As Funding Allows	Art	Alleys B,C,D

Phase 1 & 2 - Near-Term Improvements



2019

Phase 1 - Pilot Trash Enclosure & Safety Lighting

1a Pilot Trash Enclosure - Alley A (behind Full Cycle)

With roof	$	29,600
Without roof	$	17,600

1b Pilot Trash Enclosure - Alley D

No cost - existing enclosure	$	0

1c Safety Lighting (by property owners)

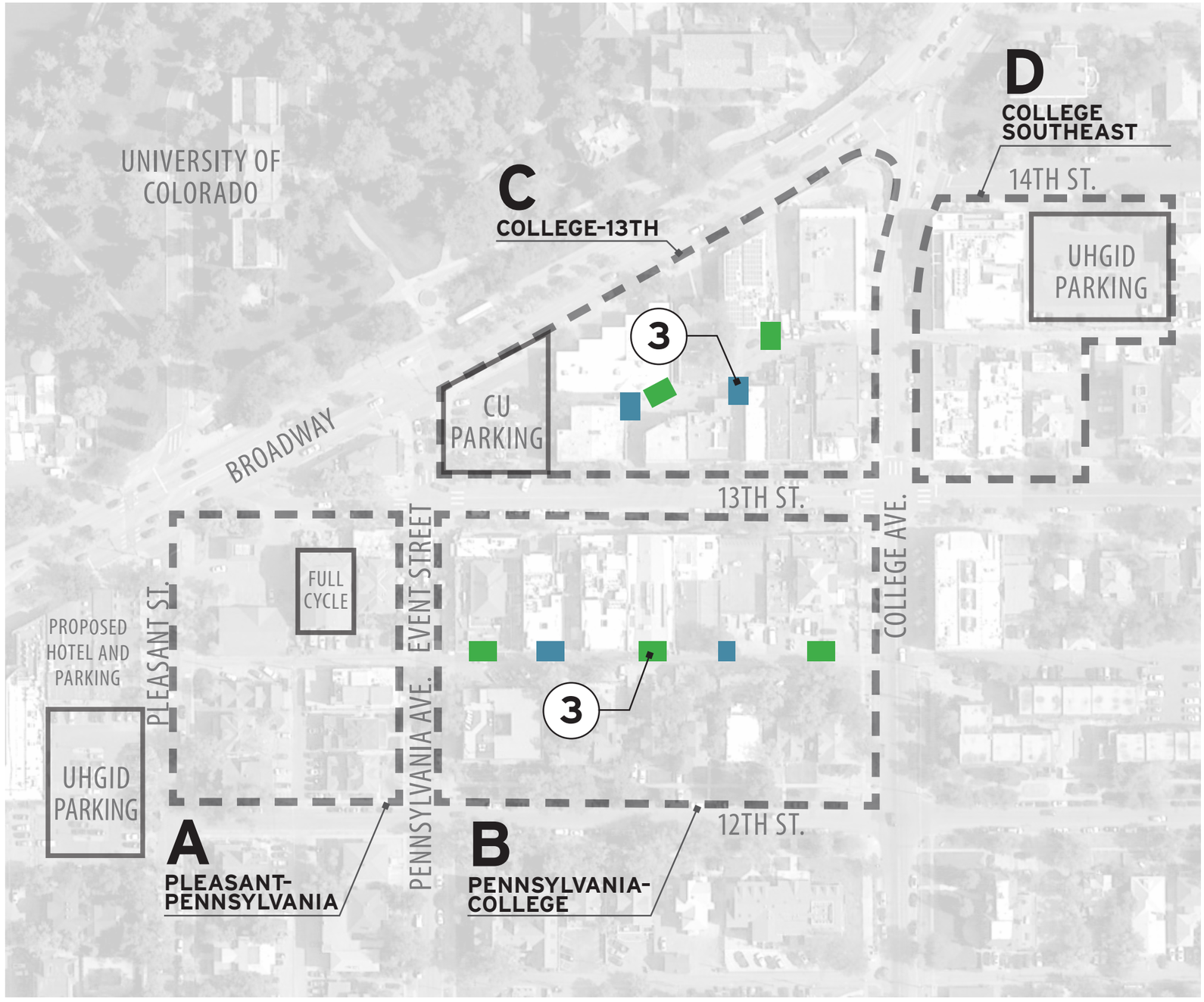
2020

Phase 2 - Alley A Improvements

2

Alley A Improvements	**$**	**258,360**
• Alley Resurfacing (Std Gray Concrete)	$	181,210
• Decorative Lighting	$	77,150
Underground Utilities	**$**	**102,000**

Phase 3 - Alley B & C Waste Consolidation



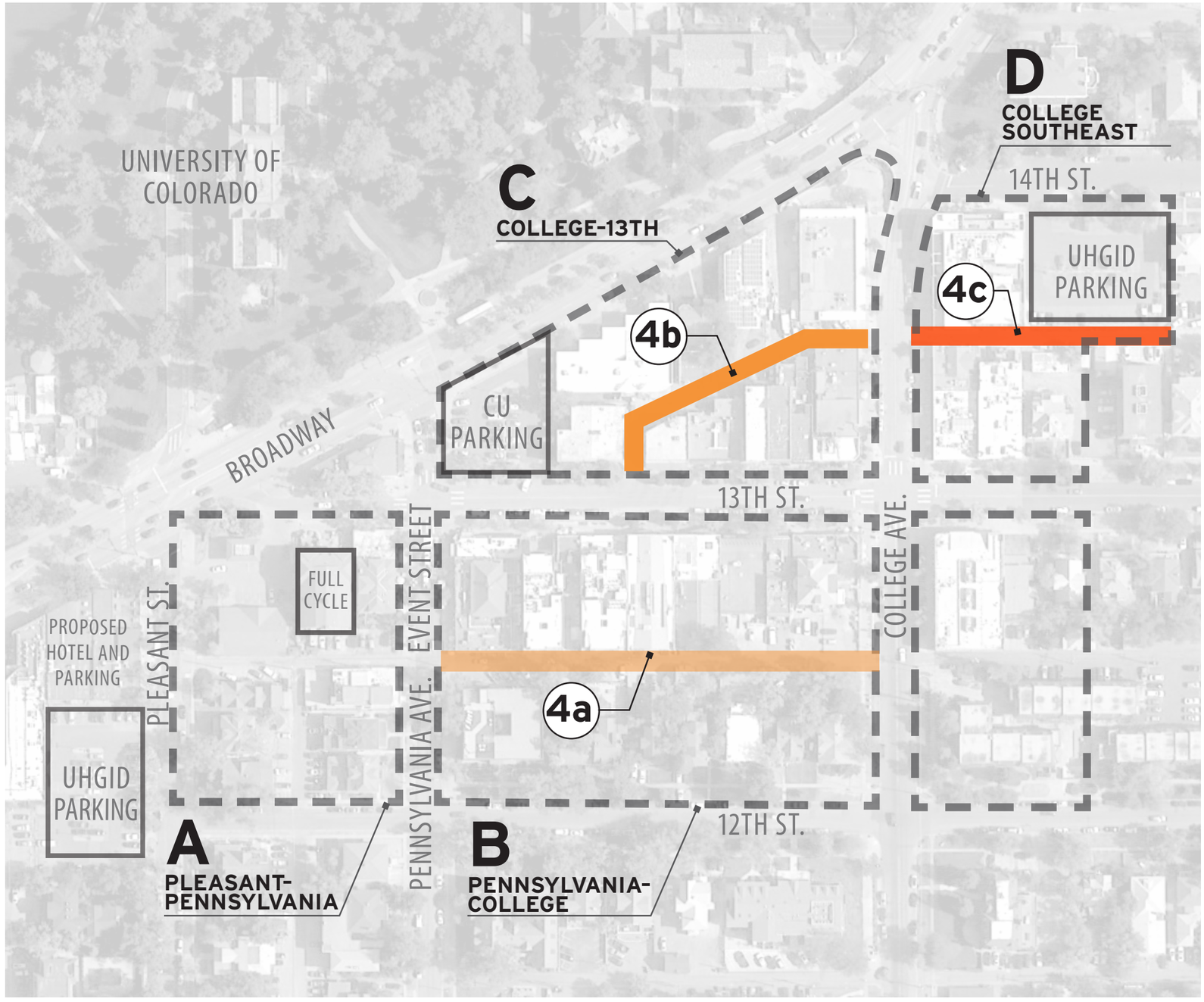
2021
Phase 3 - Alley B Waste Consolidation

3	Alley B Trash Enclosure(s) Preferred Location(s)	$	56,050
	Alternate Location(s)	$	26,550

2021
Phase 3 - Alley C Waste Consolidation

3	Alley C Trash Enclosure(s) Preferred Location(s)	$	30,450
	Alternate Location(s)	$	22,750

Phase 4 - Future Alley Improvements



2022+ - As Funding Allows
Phase 4 - Alley B

4a

Alley B Improvements	**$ 360,290**
• Alley Resurfacing	$ 254,790
• Decorative Lighting	$ 105,500
Underground Utilities	**$ 202,000**

2022+ - As Funding Allows
Phase 4 - Alley C

4b

Alley C Improvements	**$ 360,140**
• Alley Resurfacing	$ 241,290
• Decorative Lighting	$ 118,850
Underground Utilities	**$ 72,000**

2022+ - As Funding Allows
Phase 4 - Alley D

4c

Alley D Improvements	**$ 373,000**
• Alley Resurfacing	$ 225,000
• Decorative Lighting	$ 100,000
Underground Utilities	**$ 84,000**

Implementation Strategy

Program Element	Applicability	Responsible Parties	Obligations	Owner	Notes
Waste Consolidation	Condition A:	Property owner can meet Zero Waste requirements on their own land. Eligible for public incentive to enclose waste facilities.	No participation required. Owner may opt to host shared consolidated facility.	Private facility	Owned and maintained on private property by private agreement among participating owners. City will provide optional template for cooperative agreement.
	Condition B:	Property owner is unable to meet Zero Waste requirements - dumpster is illegally occupying the public ROW.	Participation required. Must pay to meet requirements in public *or* private facility.	Public facility	Owned and maintained by UHGID in public ROW. Participants must contribute to O&M costs.
Safety Lighting	Eligible properties identified on the Hill Commercial Alley Enhancement lighting plan.	Owners install (at their cost) a lighting fixture provided by the City of Boulder (value: $535) to the specifications of the lighting plan, which may vary from City Code if certain conditions are met. Fixtures that light the public ROW are otherwise not permitted.	No participation required. Maximum public safety improvements will be achieved, however, if eligible property owners agree to participate.	Private fixtures	Once installed, the fixtures are the property of the eligible owner.
Resurfacing	Public ROW.	TBD - it is not yet clear whether resurfacing will require shared participation among adjacent properties.	TBD.	City of Boulder	
Decorative Lighting	Public ROW, with anchor points on private property or posts in ROW.	City of Boulder will fund and install lighting fixtures, and coordinate with adjacent property owners to host anchor points.	No participation required. Maximum lighting enhancements will be achieved, however, if adjacent property owners agree to participate.	UHGID	Owned and maintained by UHGID in the public ROW.
Public Art	Private property, e.g. murals on walls, sculptures in landscaped areas adjacent to the alleys, or installations on utility poles.	City of Boulder Arts + Culture will work with property owners to locate and select art that meets the goals of the Hill Commercial Alley Enhancements plan.	No participation required.	City of Boulder Arts + Culture	Owned and maintained by the city's public art program by mutual agreement with participating property owners.
Landscaping	Private property.	Property owners are encouraged to seek opportunities for 'greening' the alleyways, e.g. trellis vines, beds at alley entrances, hanging flower pots.	No participation required.	Private property owners.	Owned and maintained by individual private property owners.

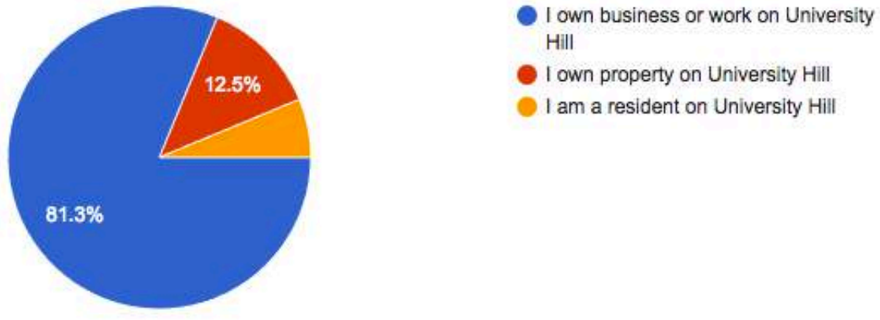
*** Guidelines will be developed to ensure access to all existing utilities is maintained.**

Appendix

Stakeholder Survey

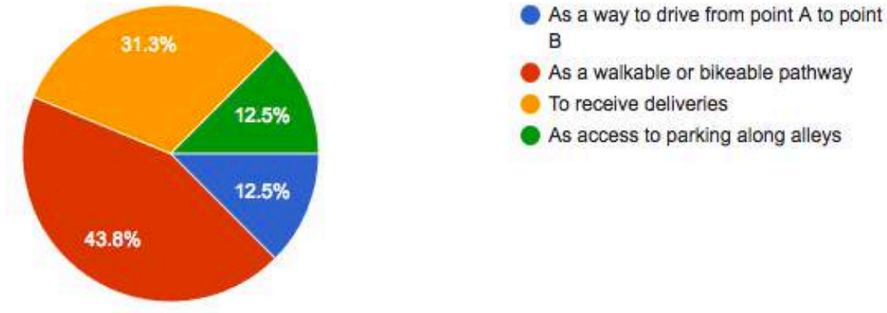
What is your main interest in the University Hill Alley Enhancements Project?

16 responses



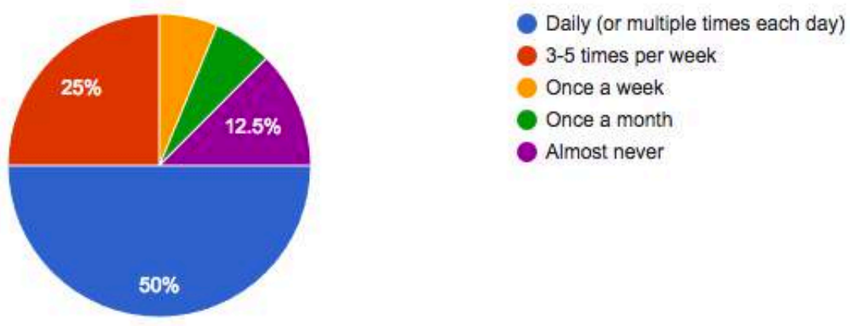
For what purpose do you currently use the University Hill alleys?

16 responses



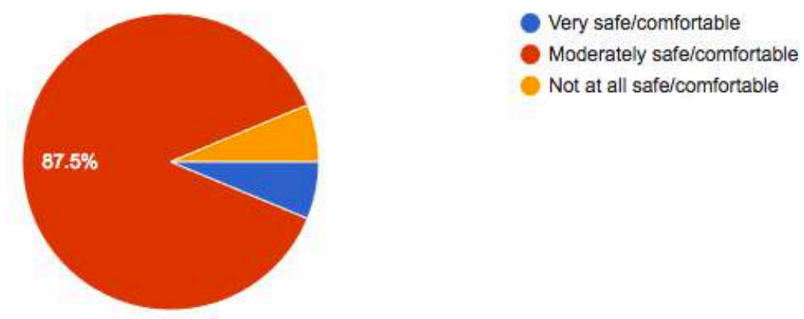
How often do you currently use the University Hill alleys?

16 responses



How safe/comfortable do you feel when walking through the University Hill Alleys?

16 responses



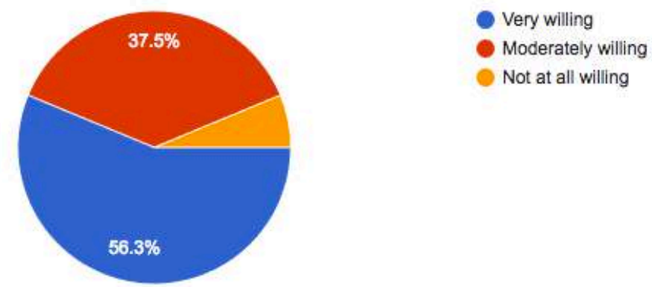
Stakeholder Survey

How important is it to provide additional lighting and safety measures in the University Hill alleys?

16 responses

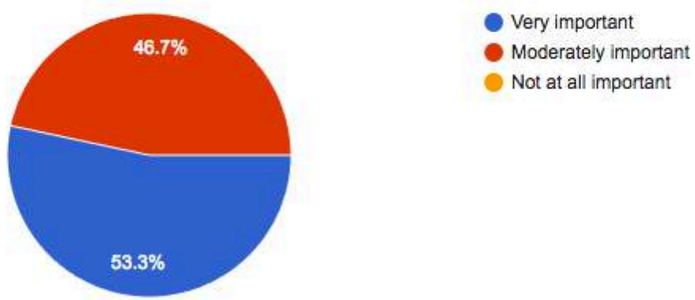
How willing would you be to participate in a consolidated trash enclosure arrangement whereby individually provided dumpsters are replaced with a set of enclosed dumpsters in a centralized location, maintaining individual billing procedures by waste management providers?

16 responses



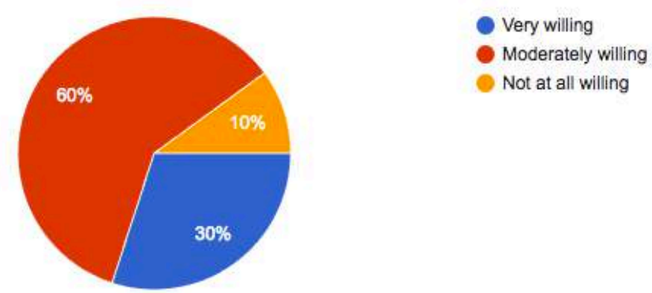
How important is it to underground existing overhead electrical and communications utilities?

15 responses



If you are a property owner, how willing would you be to make upgrades to your property such as upgraded utility connections, repaving, painting or minor drainage repairs in conjunction with City funded improvements in alley right -of-way?

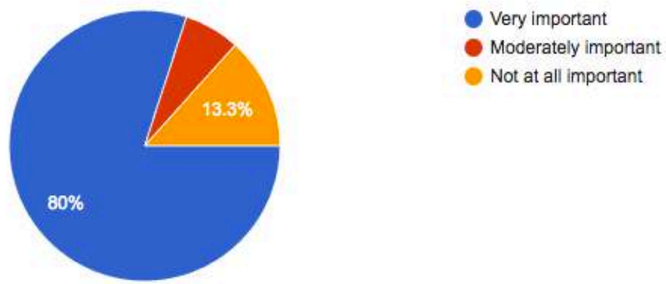
10 responses



Stakeholder Survey

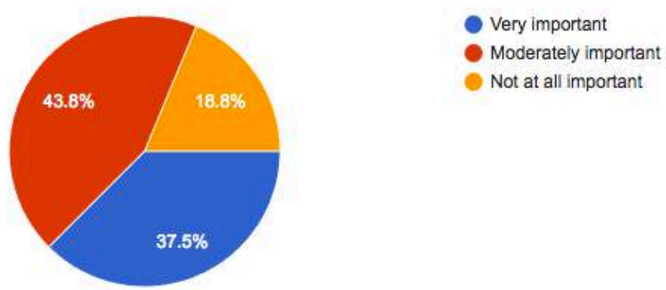
If you are a business or resident, how important is it for property owners to provide you with alley access?

15 responses



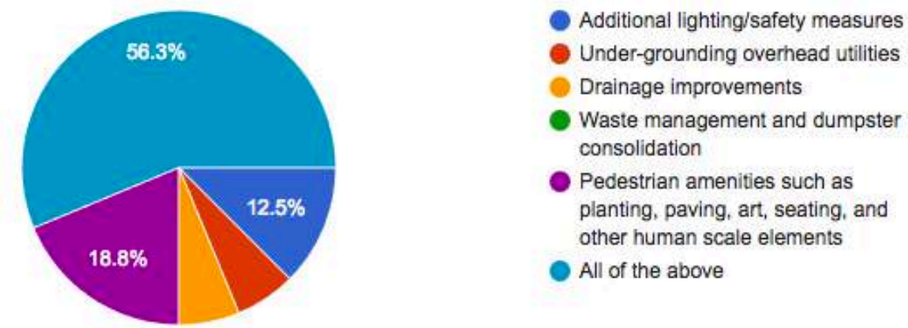
How important is it to provide pedestrian amenities such as planting, paving, art, seating and other human scale elements in the University Hill alleys?

16 responses



Which of the following is most important to you when considering design concepts for the University Hill Alleys?

16 responses



Inventory of Utilities

main line

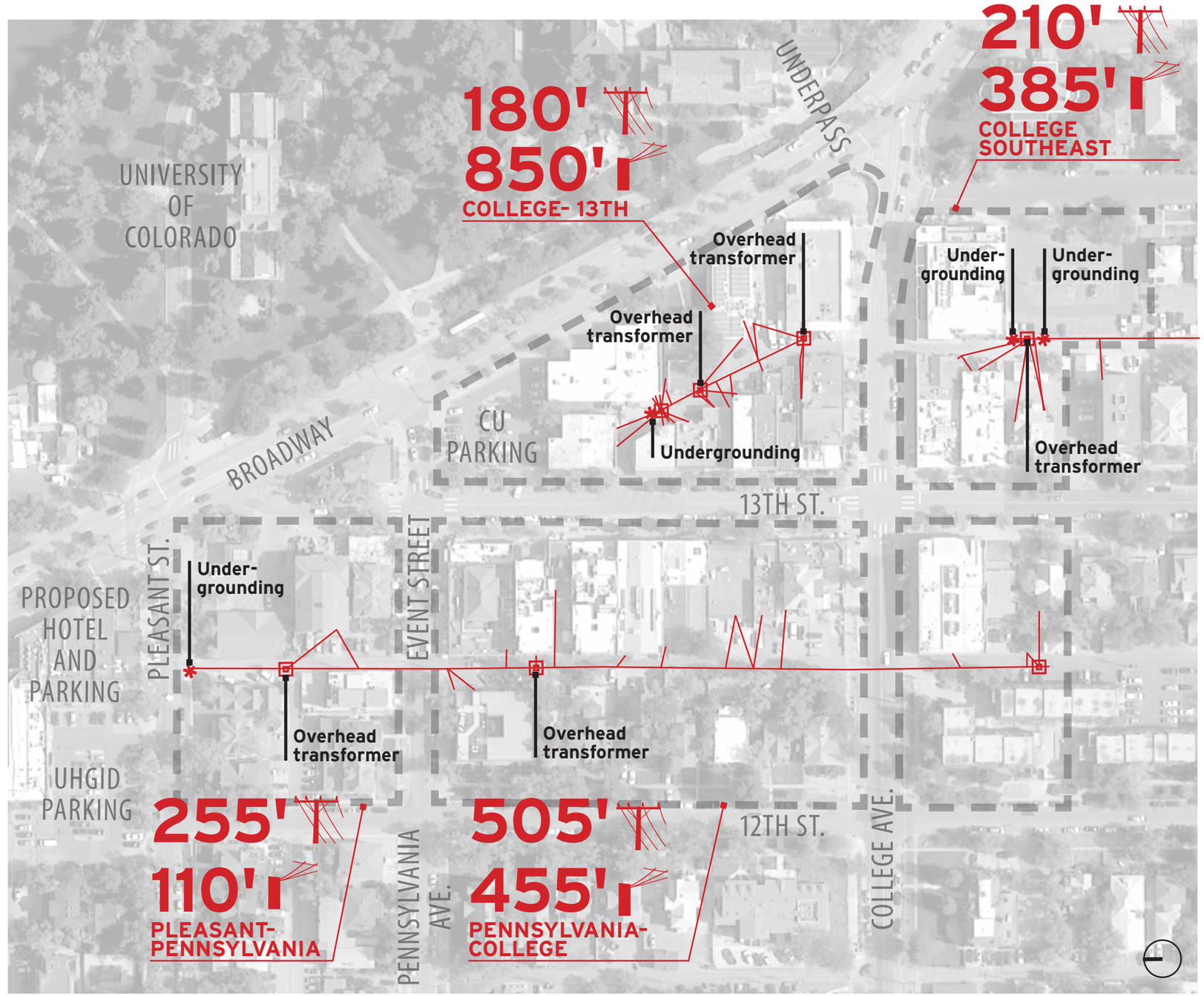
=1,150

linear feet

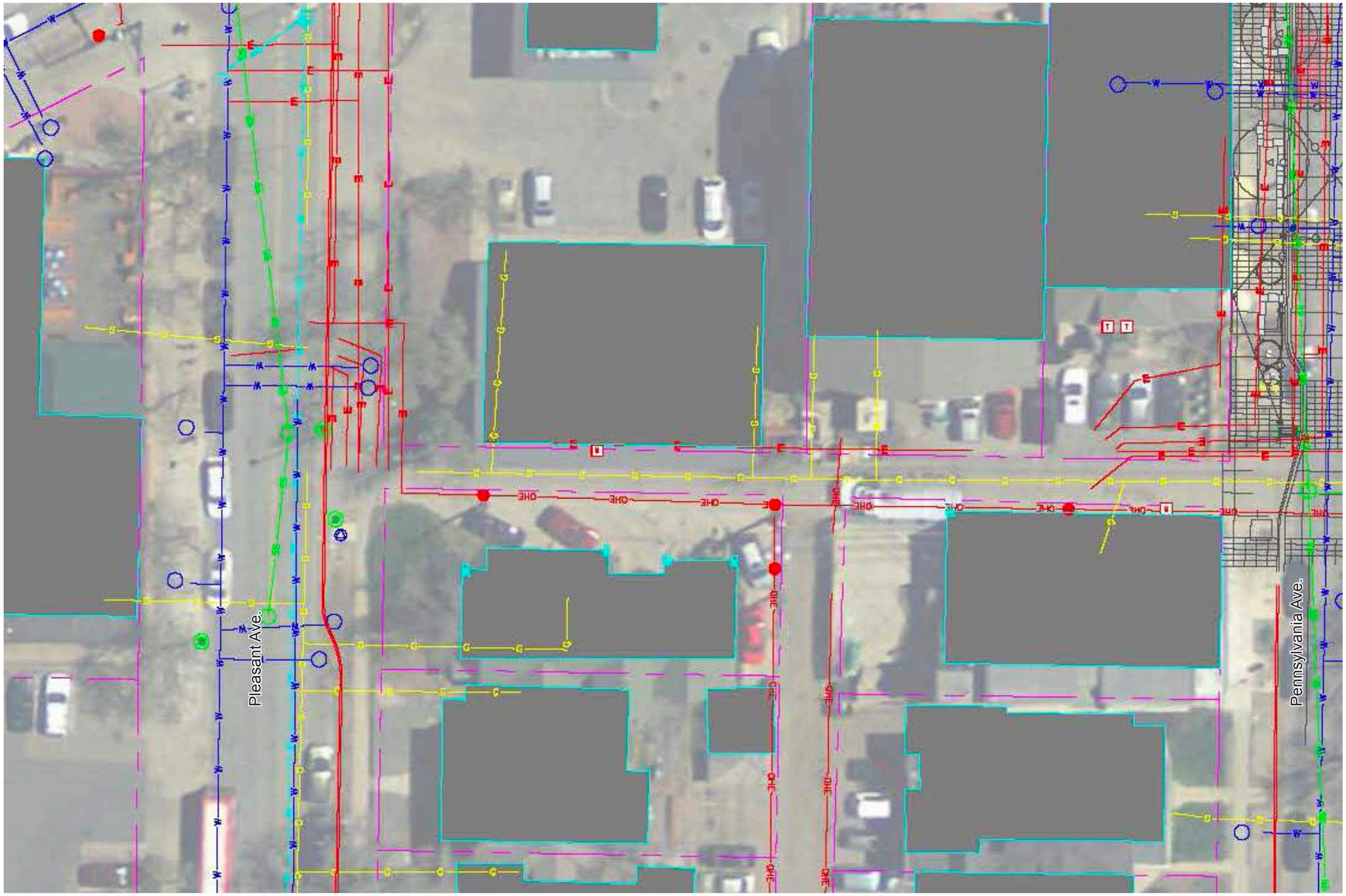
service line

=1,800

linear feet



Inventory of Utilities

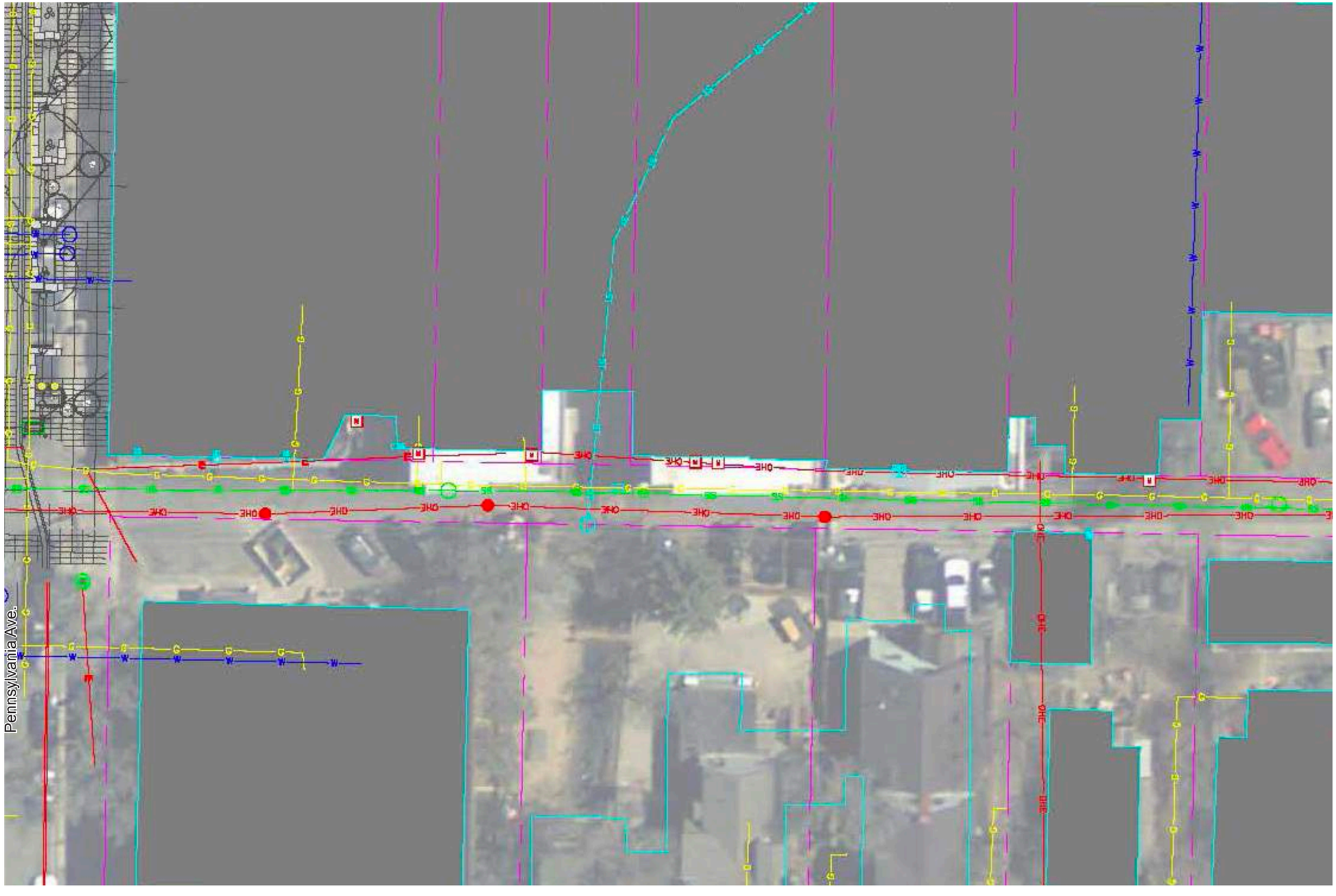


SYMBOL LEGEND:

- TRANSFORMER
- UTILITY METER
- STREET LIGHT
- UTILITY POLE
- STORM INLET
- WATER MANHOLE
- SANITARY SEWER MANHOLE
- DOWNSPOUT
- TRASH/RECYCLING DUMPSTER
- TRASH/RECYCLING BIN
- MONITORING WELL

0 10 20' 40'

Inventory of Utilities

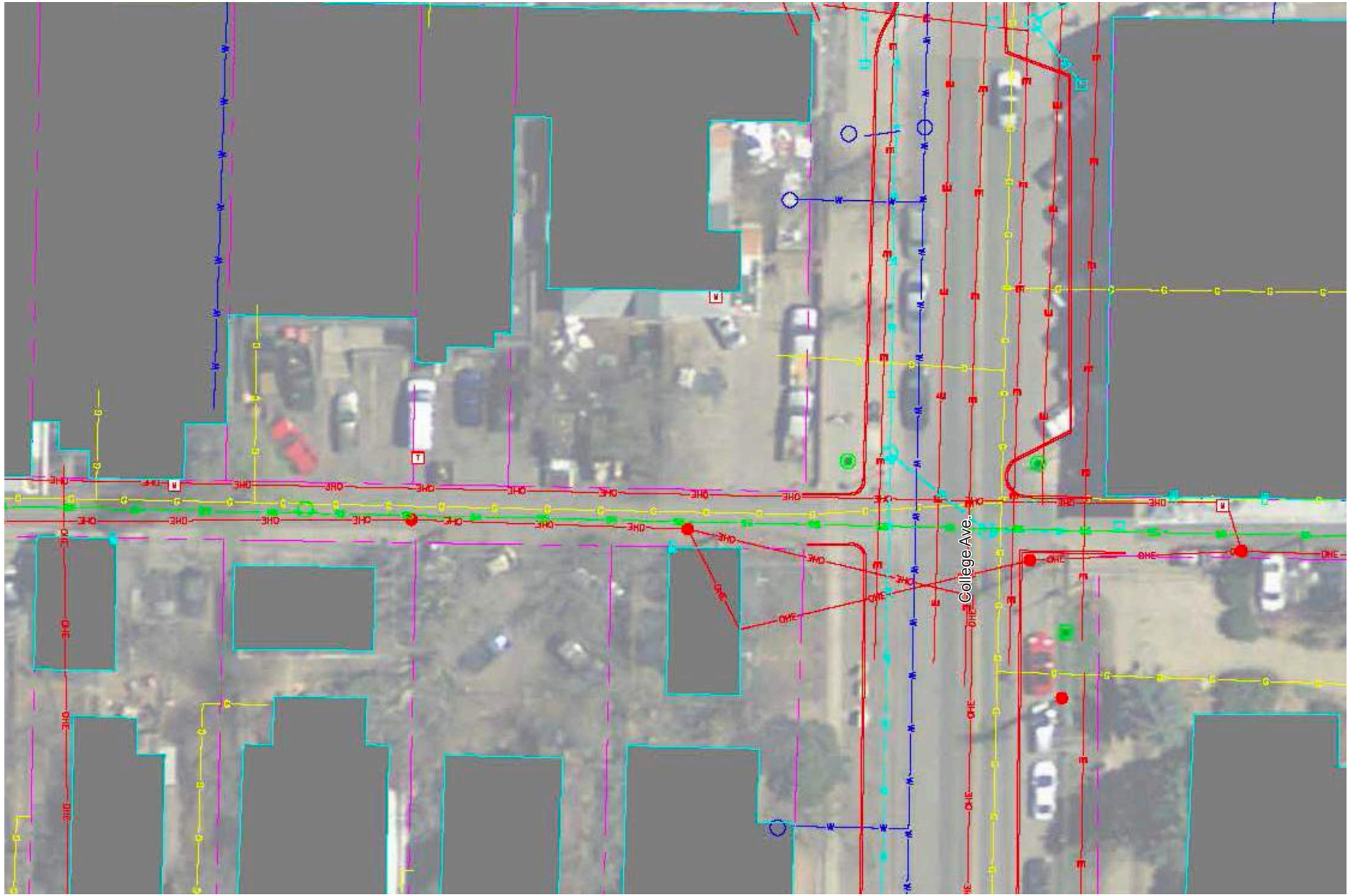


SYMBOL LEGEND:

- T — TRANSFORMER
- M — UTILITY METER
- STREET LIGHT
- UTILITY POLE
- STORM INLET
- WATER MANHOLE
- SANITARY SEWER MANHOLE
- DS — DOWNSPOUT
- TRASH/RECYCLING DUMPSTER
- TRASH/RECYCLING BIN
- MONITORING WELL

0 10 20' 40'

Inventory of Utilities



SYMBOL LEGEND:

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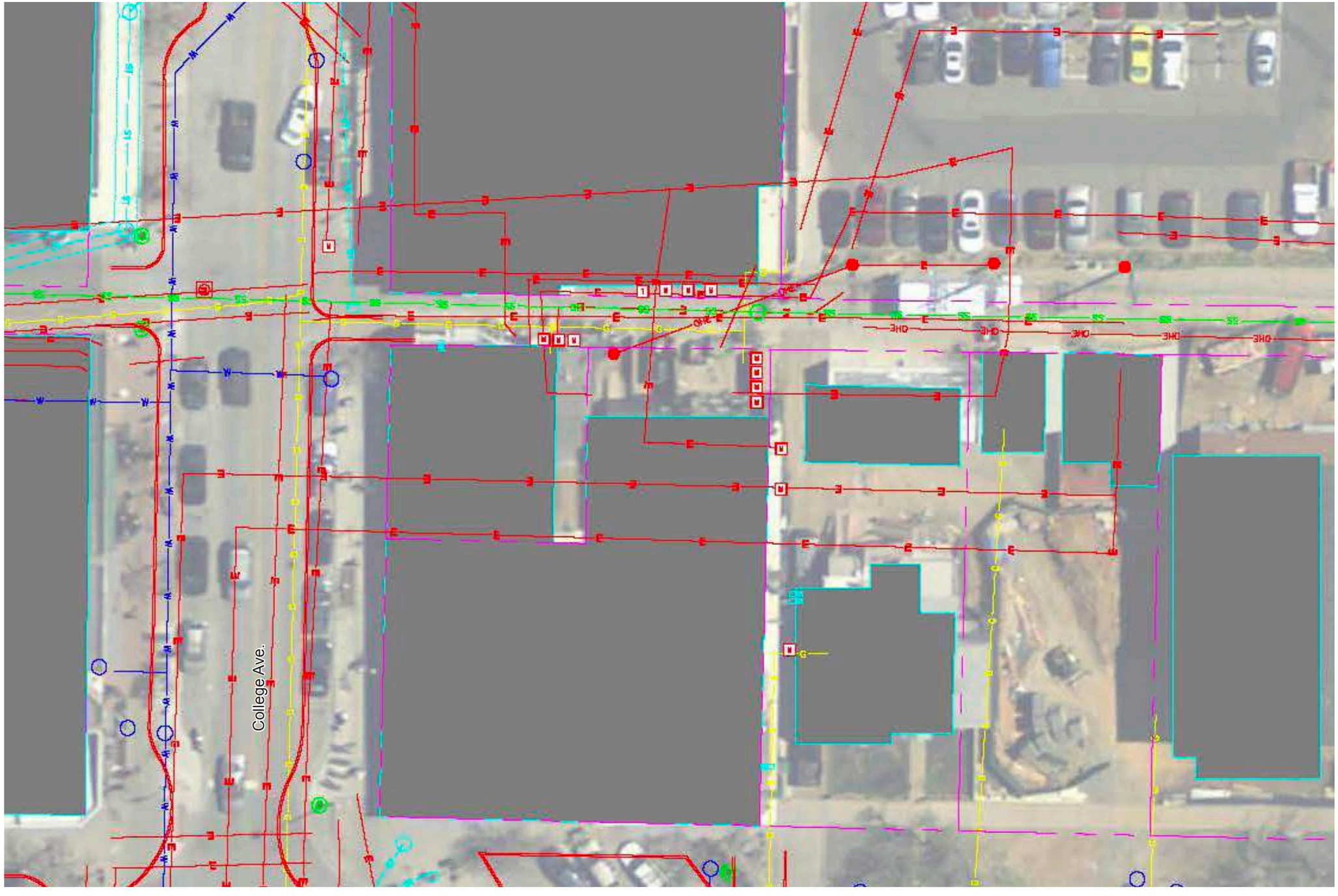
0 10 20' 40'

Inventory of Utilities



SYMBOL LEGEND:

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- M — UTILITY METER
- STREET LIGHT
- UTILITY POLE
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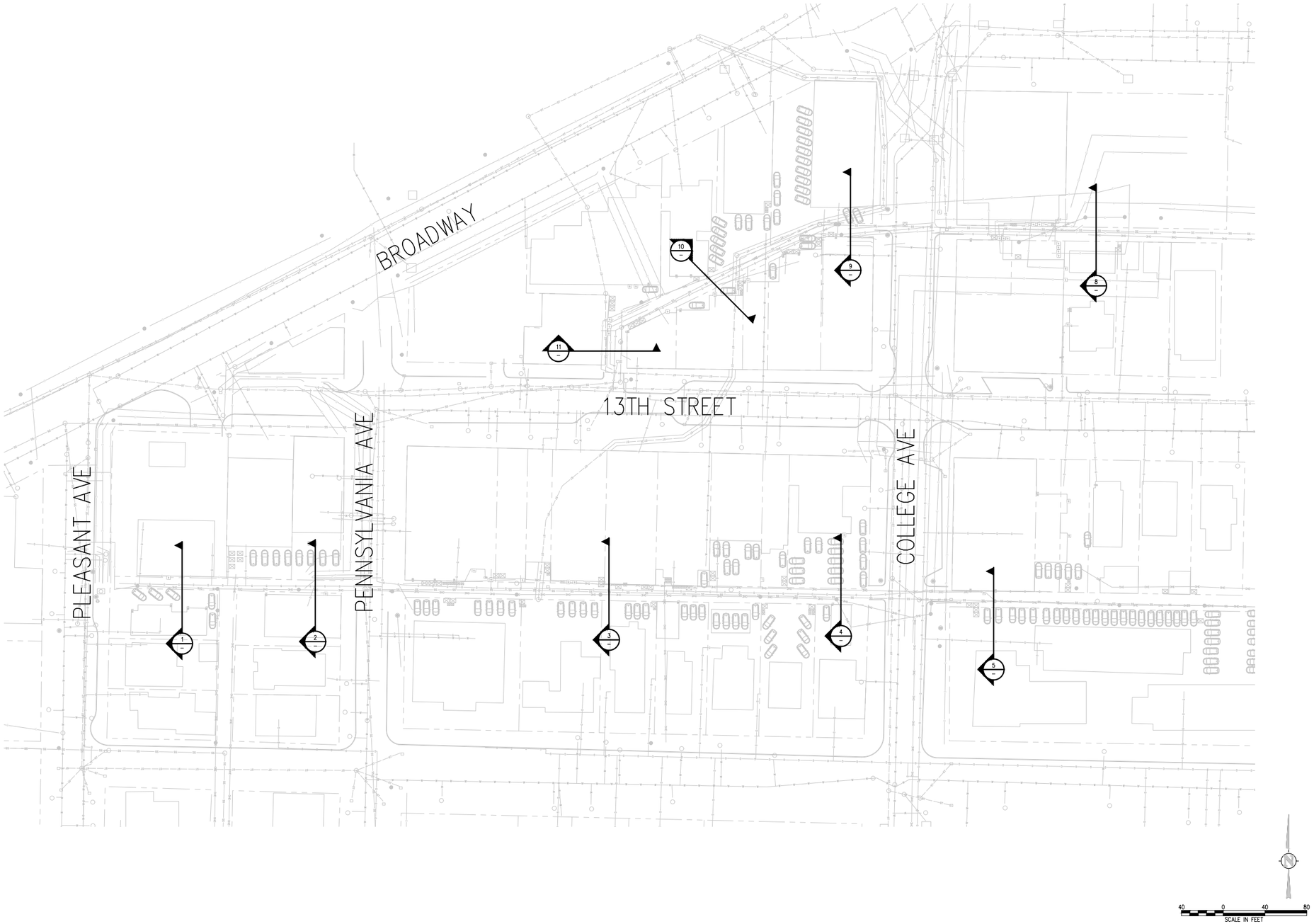
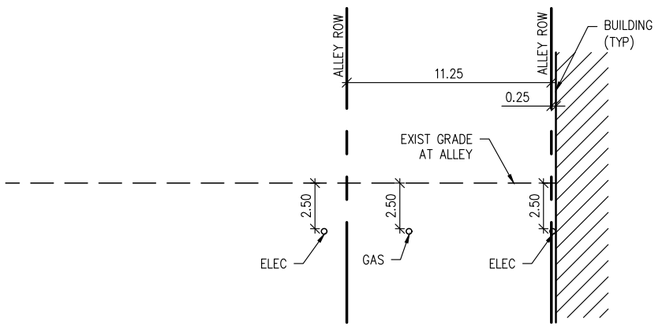
- WATER MANHOLE
- SANITARY SEWER MANHOLE
- DS — DOWNSPOUT
- TRASH/RECYCLING DUMPSTER
- TRASH/RECYCLING BIN
- MONITORING WELL

0 10 20' 40'

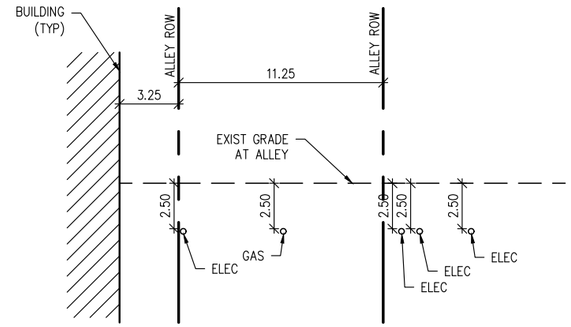
Inventory of Utilities



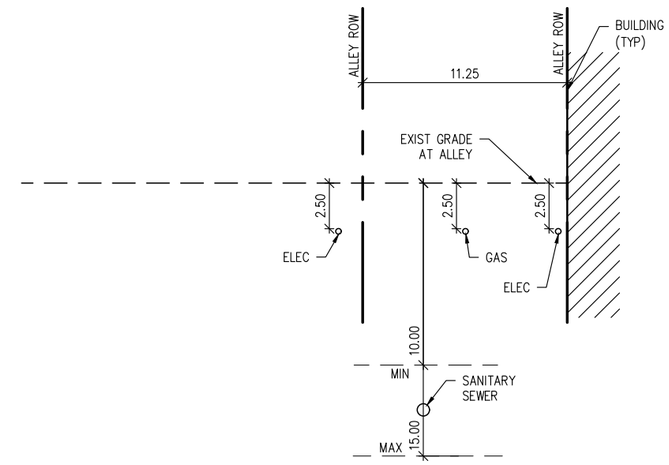
Inventory of Utilities



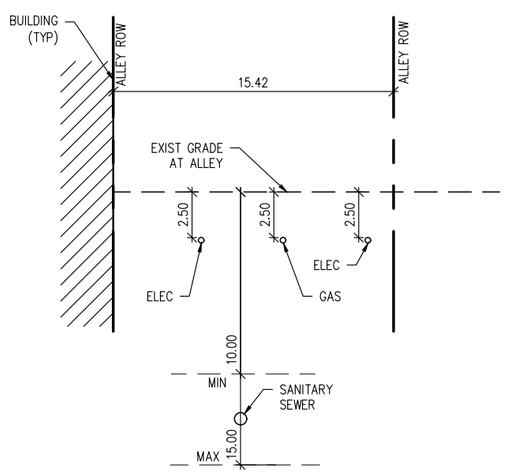
TYPICAL ALLEY SECTION – 1 (1 / –)
SCALE: NTS



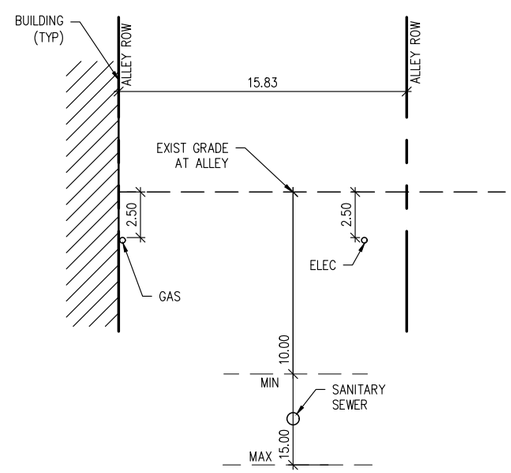
TYPICAL ALLEY SECTION – 2 (2 / –)
SCALE: NTS



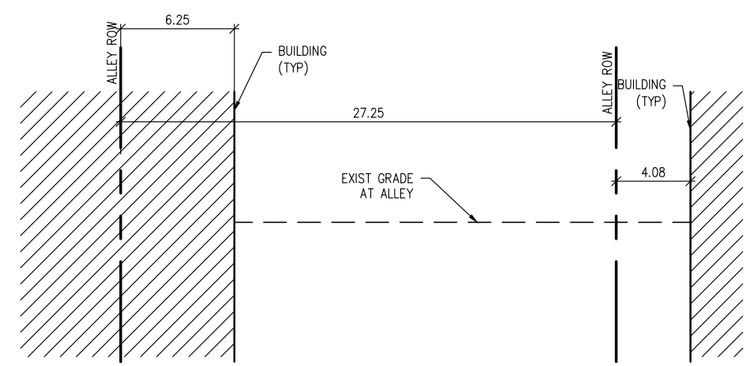
TYPICAL ALLEY SECTION – 3 (3 / –)
SCALE: NTS



TYPICAL ALLEY SECTION – 4 (4 / –)
SCALE: NTS

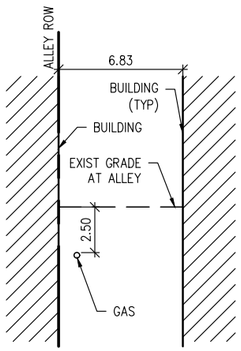


TYPICAL ALLEY SECTION – 5 (5 / –)
SCALE: NTS

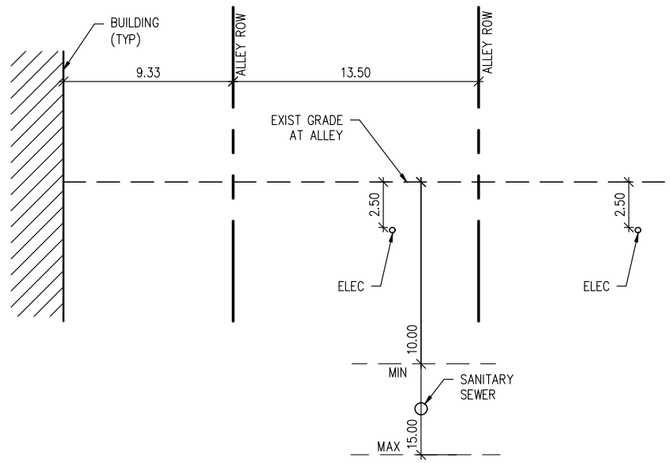


TYPICAL ALLEY SECTION – 6 (6 / –)
SCALE: NTS

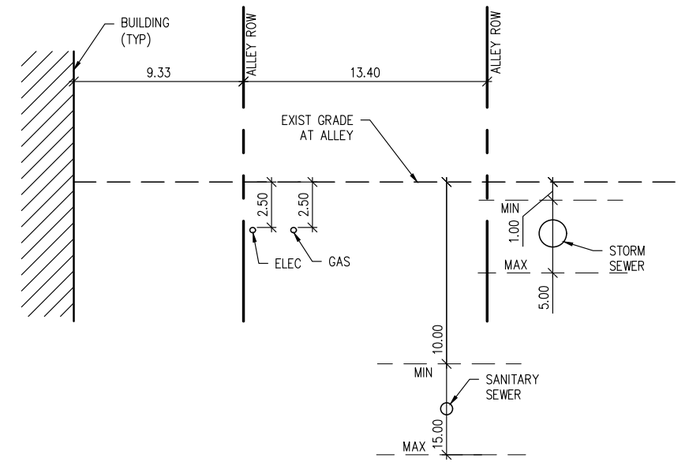
Inventory of Utilities



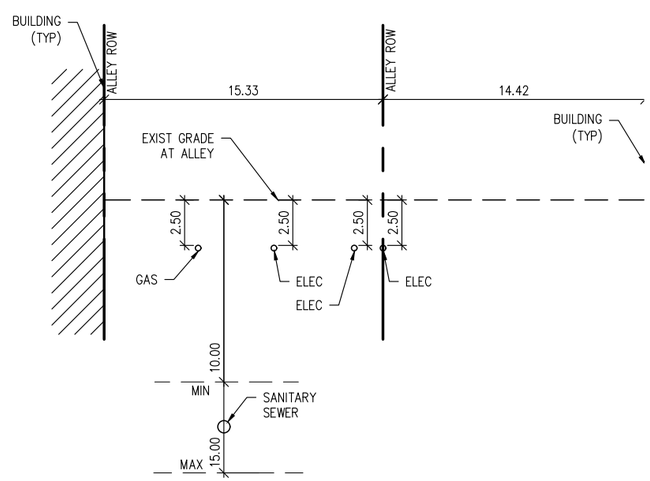
TYPICAL ALLEY SECTION – 7 (7 / –)
SCALE: NTS



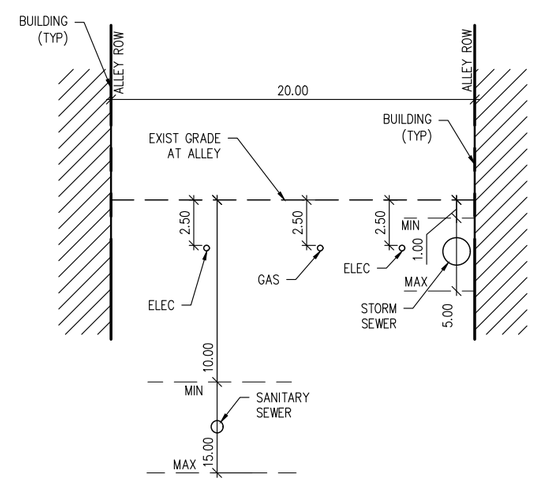
TYPICAL ALLEY SECTION – 8 (8 / –)
SCALE: NTS



TYPICAL ALLEY SECTION – 9 (9 / –)
SCALE: NTS



TYPICAL ALLEY SECTION – 10 (10 / –)
SCALE: NTS



TYPICAL ALLEY SECTION – 11 (11 / –)
SCALE: NTS

Cost Estimates

University Hill Alley Master Plan - Alley A (Pleasant St to Penn Ave Alley)

Estimate of Probable Costs

Plan Date: August 2018

Prepared by: Russell + Mills Studios

ITEM	UNIT	UNIT COST	QTY.	EXTENDED COST	NOTES
CONSTRUCTION					
General Conditions	ALLOW	$20,000.00	1	$20,000	
Traffic Control	ALLOW	$10,000.00	1	$35,000	Cost per month = $5,500
Property Owner/Tenant Coordination/Communication	ALLOW	$10,000.00	1	$10,000	
Erosion Control	ALLOW	$5,000.00	1	$5,000	
Construction Surveying	ALLOW	$10,000.00	1	$10,000	
	CATEGORY SUBTOTAL			**$80,000**	
DEMOLITION					
Saw Cut	L.F.	$3.50	660	$2,310	
Misc. Demolition	ALLOW	$5,000.00	1	$5,000	
Remove Existing Concrete and Asphalt	S.F.	$2.00	4,120	$8,240	
Remove Curb/Gutter	L.F.	$10.00	45	$450	
Protection of Existing Site Features	L.S.	$2,500.00	1	$2,500	
	CATEGORY SUBTOTAL			**$18,500**	
UTILITIES					
Irrigation Connection	L.S.	$10,000.00	1	$10,000	
Undergrouding utilities	L.F.	$400.00	255	$102,000	
Misc. Utiltiy work	ALLOW	$5,000.00	1	$5,000	Additional minor utility relocations or upgrades as required
	CATEGORY SUBTOTAL			**$117,000**	
EARTHWORK					
Recondition Subbase to 95% SPD	S.Y.	$4.50	2,000	$9,000	
Import and place Topsoil	ALLOW	$1,500.00	1	$1,500	
	CATEGORY SUBTOTAL			**$10,500**	
SITE LIGHTING AND ELECTRICAL					
Wall Sconce	EA.	$500.00	4	$2,000	
Tivoli String Lighting	L.F.	$60.00	255	$15,300	Includes bldg mount and cable
Tivoli Light Pole	EA.	$5,500.00	3	$16,500	Decorative Pole, string light mount, approx. 17' height
Tivoli String Light Building Attachment	EA.	$850.00	1	$850	
Hoop Light Install	EA.	$500.00	5	$2,500	
Lighting Control Center	ALLOW	$25,000.00	1	$25,000	
Electrical Conduit	ALLOW	$15,000.00	1	$15,000	
	CATEGORY SUBTOTAL			**$77,150**	
SITE WORK					
Curb and Gutter	L.F.	$35.00	120	$4,200	
Concrete Pavement - Std Gray	S.F.	$13.50	4,325	$58,388	6" thick std gray conc
Asphalt Patch	TON	$210.00	31	$6,510	850 * 0.5 FT of asphalt =
Concrete Patch	ALLOW	$2,500.00	1	$2,500	
Seatwall Bench	L.F.	$275.00	40	$11,000	
Vine Trellis Structure	EA.	$5,000.00	3	$15,000	
	CATEGORY SUBTOTAL			**$97,598**	
LANDSCAPE					
Soil Prep - Compost and fertilizer as required	C.Y.	$25.00	5	$125	All planted areas - 6" depth
Cobble Mulch	C.Y.	$45.00	3	$135	3" depth
Planting Beds	S.F.	$6.00	250	$1,500	Shrubs/Grasses/Perennials
	CATEGORY SUBTOTAL			**$1,760**	
IRRIGATION					
Irrigation System	ALLOW	$20,000.00	1	$10,000	Full system including controller
	CATEGORY SUBTOTAL			**$10,000**	
			SUBTOTAL	**$412,508**	
		20% Design Contingency		$82,502	
		10% Escalation per Year		$82,502	Based on 2020 Implementation
			TOTAL	**$577,511**	

University Hill Alley Master Plan - Alley B (Penn Ave to College Ave Alley)

Estimate of Probable Costs

Plan Date: August 2018

Prepared by: Russell + Mills Studios

ITEM	UNIT	UNIT COST	QTY.	EXTENDED COST	NOTES
CONSTRUCTION					
General Conditions	ALLOW	$20,000.00	1	$20,000	
Traffic Control	ALLOW	$35,000.00	1	$35,000	Cost per month = $5,500
Property Owner/Tenant Coordination/Communication	ALLOW	$10,000.00	1	$10,000	
Erosion Control	ALLOW	$5,000.00	1	$5,000	
Construction Surveying	ALLOW	$10,000.00	1	$10,000	
	CATEGORY SUBTOTAL			**$80,000**	
DEMOLITION					
Saw Cut	L.F.	$3.50	1,100	$3,850	
Misc. Demolition	ALLOW	$5,000.00	1	$5,000	
Remove Existing Concrete and Asphalt	S.F.	$2.00	10,510	$21,020	
Remove Curb/Gutter	L.F.	$10.00	45	$450	
Protection of Existing Site Features	L.S.	$2,500.00	1	$2,500	
	CATEGORY SUBTOTAL			**$32,820**	
UTILITIES					
Irrigation Connection	L.S.	$10,000.00	1	$10,000	
Undergrouding utilities	L.F.	$400.00	505	$202,000	
Misc. Utiltiy work	ALLOW	$5,000.00	1	$5,000	Additional minor utility relocations or upgrades as required
	CATEGORY SUBTOTAL			**$217,000**	
EARTHWORK					
Recondition Subbase to 95% SPD	S.Y.	$4.50	1,168	$5,256	1168 sy = 10,510 sf
Import and place Topsoil	ALLOW	$1,500.00	1	$1,500	
	CATEGORY SUBTOTAL			**$6,756**	
SITE LIGHTING AND ELECTRICAL					
Wall Sconce	EA.	$500.00	6	$3,000	
Tivoli String Lighting	L.F.	$60.00	245	$14,700	Includes bldg mount and cable
Tivoli Light Pole	EA.	$5,500.00	7	$38,500	Decorative Pole, string light mount, approx. 17' height
Tivoli String Light Building Attachment	EA.	$850.00	8	$6,800	
Hoop Light Install	EA.	$500.00	5	$2,500	
Lighting Control Center	ALLOW	$25,000.00	1	$25,000	
Electrical Conduit	ALLOW	$15,000.00	1	$15,000	
	CATEGORY SUBTOTAL			**$105,500**	
SITE WORK					
Curb and Gutter	L.F.	$35.00	50	$1,750	
Concrete Pavement - Std Gray	S.F.	$13.50	8,565	$115,628	6" thick std gray conc
Asphalt Patch	TON	$210.00	73	$15,330	2060 sf * 0.5' = 73 tons
Concrete Patch	ALLOW	$2,500.00	1	$2,500	
Seatwall Bench	L.F.	$275.00	20	$5,500	
Vine Trellis Structure	EA.	$5,000.00	3	$15,000	
	CATEGORY SUBTOTAL			**$155,708**	
LANDSCAPE					
Soil Prep - Compost and fertilizer as required	C.Y.	$25.00	4	$100	All planted areas - 6" depth
Cobble Mulch	C.Y.	$45.00	2	$90	3" depth
Planting Beds	S.F.	$6.00	200	$1,200	Shrubs/Grasses/Perennials
	CATEGORY SUBTOTAL			**$1,390**	
IRRIGATION					
Irrigation System	ALLOW	$20,000.00	1	$10,000	Full system including controller
	CATEGORY SUBTOTAL			**$10,000**	
			SUBTOTAL	**$609,174**	
		20% Design Contingency		$121,835	
		10% Escalation per Year		$243,669	Based on 2022 Implementation
			TOTAL	**$974,678**	

*** Highlighted portions of cost estimate reflect projected initial improvements as outlined on pages 48-50**

Cost Estimates

University Hill Alley Master Plan - Alley C (College to 13th)					
Estimate of Probable Costs					
Plan Date: August 2018					
Prepared by: Russell + Mills Studios					
ITEM	UNIT	UNIT COST	QTY.	EXTENDED COST	NOTES
CONSTRUCTION					
General Conditions	ALLOW	$20,000.00	1	$20,000	
Traffic Control	ALLOW	$35,000.00	1	$35,000	Cost per month = $5,500
Property Owner/Tenant Coordination/Communication	ALLOW	$10,000.00	1	$10,000	
Erosion Control	ALLOW	$5,000.00	1	$5,000	
Construction Surveying	ALLOW	$10,000.00	1	$10,000	
	CATEGORY SUBTOTAL			**$80,000**	
DEMOLITION					
Saw Cut	L.F.	$3.50	1,000	$3,500	
Misc. Demolition	ALLOW	$5,000.00	1	$5,000	
Remove Existing Concrete and Asphalt	S.F.	$2.00	10,280	$20,560	
Remove Curb/Gutter	L.F.	$10.00	150	$1,500	
Protection of Existing Site Features	L.S.	$2,500.00	1	$2,500	
	CATEGORY SUBTOTAL			**$33,060**	
UTILITIES					
Irrigation Connection	L.S.	$10,000.00	1	$10,000	
Undergrouding utilities	L.F.	$400.00	180	$72,000	
Misc. Utiltiy work	ALLOW	$5,000.00	1	$5,000	Additional minor utility relocations or upgrades as required
	CATEGORY SUBTOTAL			**$87,000**	
EARTHWORK					
Recondition Subbase to 95% SPD	S.Y.	$4.50	1,142	$5,139	1142 sy = 10,280 sf
Import and place Topsoil	ALLOW	$1,500.00	1	$1,500	
	CATEGORY SUBTOTAL			**$6,639**	
SITE LIGHTING AND ELECTRICAL					
Wall Sconce	EA.	$500.00	7	$3,500	
Tivoli String Lighting	L.F.	$60.00	515	$30,900	Includes bldg mount and cable
Tivoli Light Pole	EA.	$5,500.00	5	$27,500	Decorative Pole, string light mount, approx. 17' height
Tivoli String Light Building Attachment	EA.	$850.00	17	$14,450	
Hoop Light Install	EA.	$500.00	5	$2,500	
Lighting Control Center	ALLOW	$25,000.00	1	$25,000	
Electrical Conduit	ALLOW	$15,000.00	1	$15,000	
	CATEGORY SUBTOTAL			**$118,850**	
SITE WORK					
Curb and Gutter	L.F.	$35.00	150	$5,250	
Concrete Pavement - Std Gray	S.F.	$13.50	7,905	$106,718	6" thick std gray conc
Asphalt Patch	TON	$210.00	37	$7,770	1000 sf * 0.5' = 37 tons
Concrete Patch	ALLOW	$2,500.00	1	$2,500	
Seatwall Bench	L.F.	$275.00	30	$8,250	
Concrete Ball Sculptures	EA.	$500.00	12	$6,000	
Vine Trellis Structure	EA.	$5,000.00	3	$15,000	
Cable Art Structure	ALLOW	$50,000.00	1	$50,000	
	CATEGORY SUBTOTAL			**$201,488**	
LANDSCAPE					
Soil Prep - Compost and fertilizer as required	C.Y.	$25.00	10	$250	All planted areas - 6" depth
Cobble Mulch	C.Y.	$45.00	5	$225	3" depth
Planting Beds	S.F.	$6.00	550	$3,300	Shrubs/Grasses/Perennials
	CATEGORY SUBTOTAL			**$3,775**	
IRRIGATION					
Irrigation System	ALLOW	$20,000.00	1	$10,000	Full system including controller
	CATEGORY SUBTOTAL			$10,000	
			SUBTOTAL	**$540,812**	
		20% Design Contingency		$108,162	
		10% Escalation per Year		$216,325	Based on 2022 Implementation
			TOTAL	**$865,298**	

*** Highlighted portions of cost estimate reflect projected initial improvements as outlined on pages 48-50**