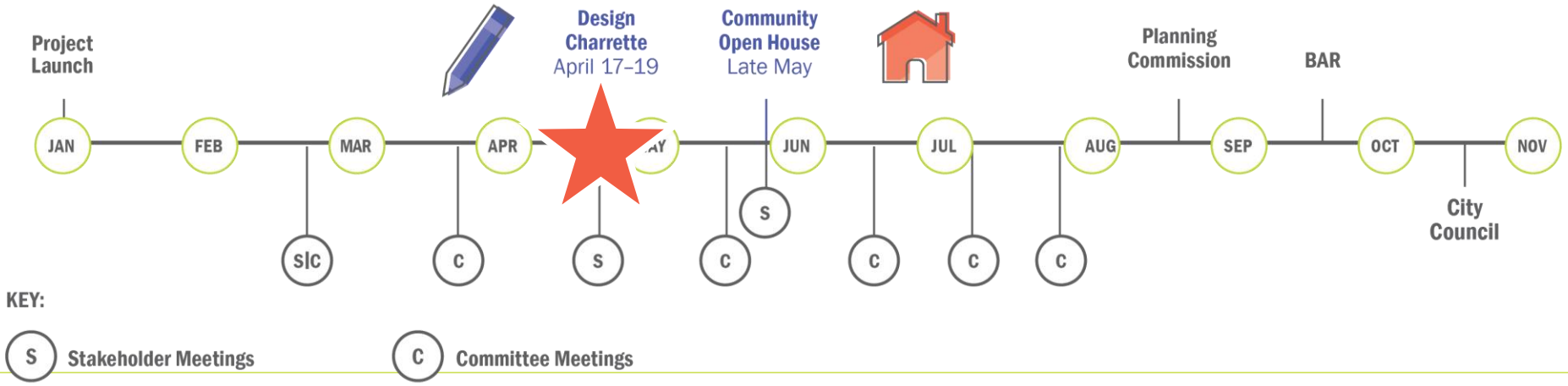
Belmont BRIDGE

Design Charrette

April 19, 2017

Process/Schedule



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Conceptual Design Phase

Community Input

↓

Constraints

↓

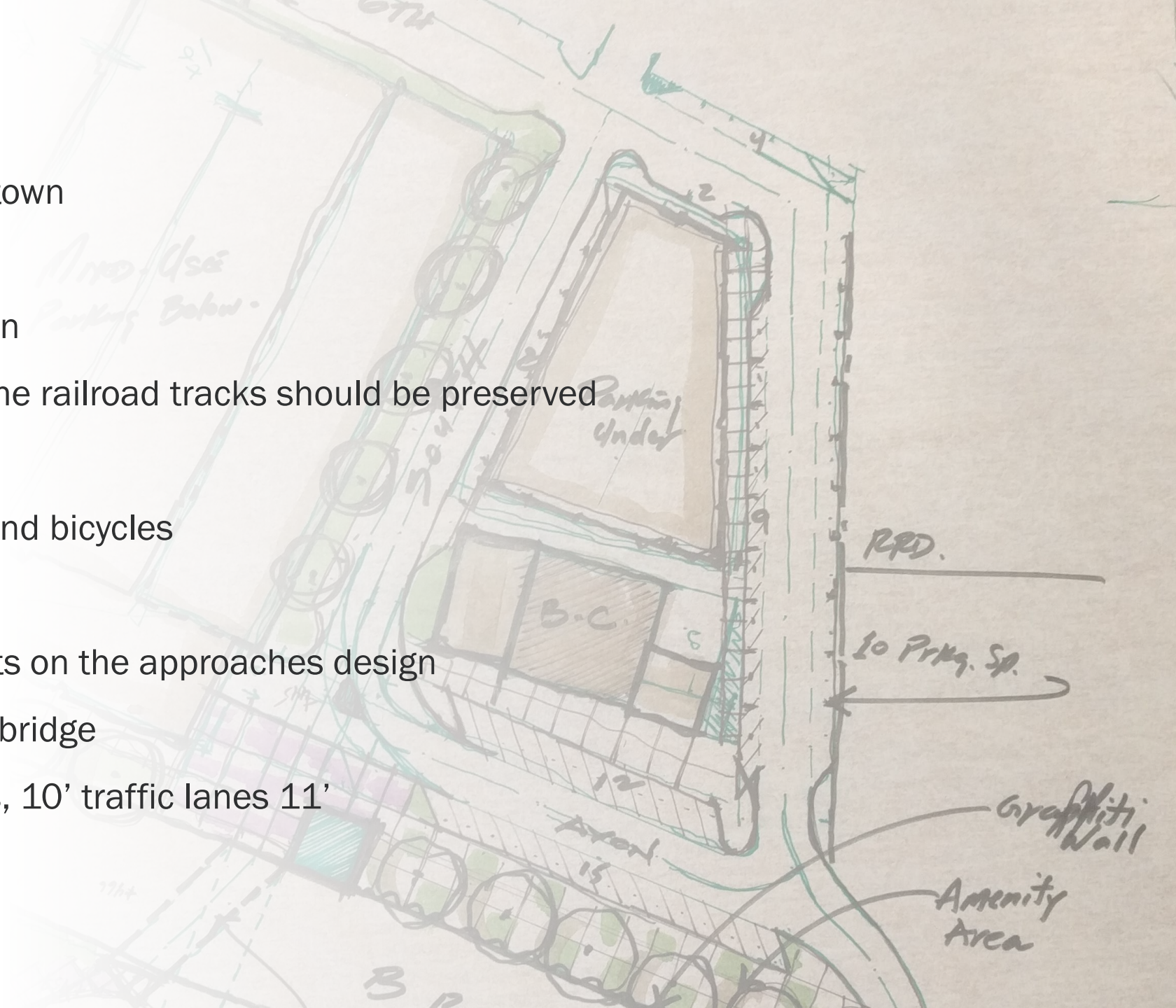
Mobility Needs

↓

Preferred Alternative

City Design Criteria

- Bridge is the gateway into downtown
- Maintain 25 MPH speed limit
- Two lanes – one in each direction
- Views to the mountains and of the railroad tracks should be preserved
- Innovated, entertaining design
- Separate pedestrian, vehicles, and bicycles
- Reduce the span
- Enhance the landscape elements on the approaches design
- Accent lighting to showcase the bridge
- Bike lanes 10’, pedestrian lanes, 10’ traffic lanes 11’



The Past 8 Weeks

- Held 7 **Committee/Small Stakeholder Group Meetings**
- Kick started coordination with **Buckingham Branch Railroad**
- Collected **traffic data** (vehicles, bikes, pedestrians)
- Launched **www.belmontbridge.org**
- Hosted the March 11th **Mobility Summit**
- Launched online engagement with **Metroquest**
  - Almost 900 participants
- Began **environmental research** and due diligence
- Began phase 1 **geotechnical work**
- Completed **field survey**

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Charlottesville Speaks

1,000	participants
30,000	individual data points
900	written comments

What We've Heard

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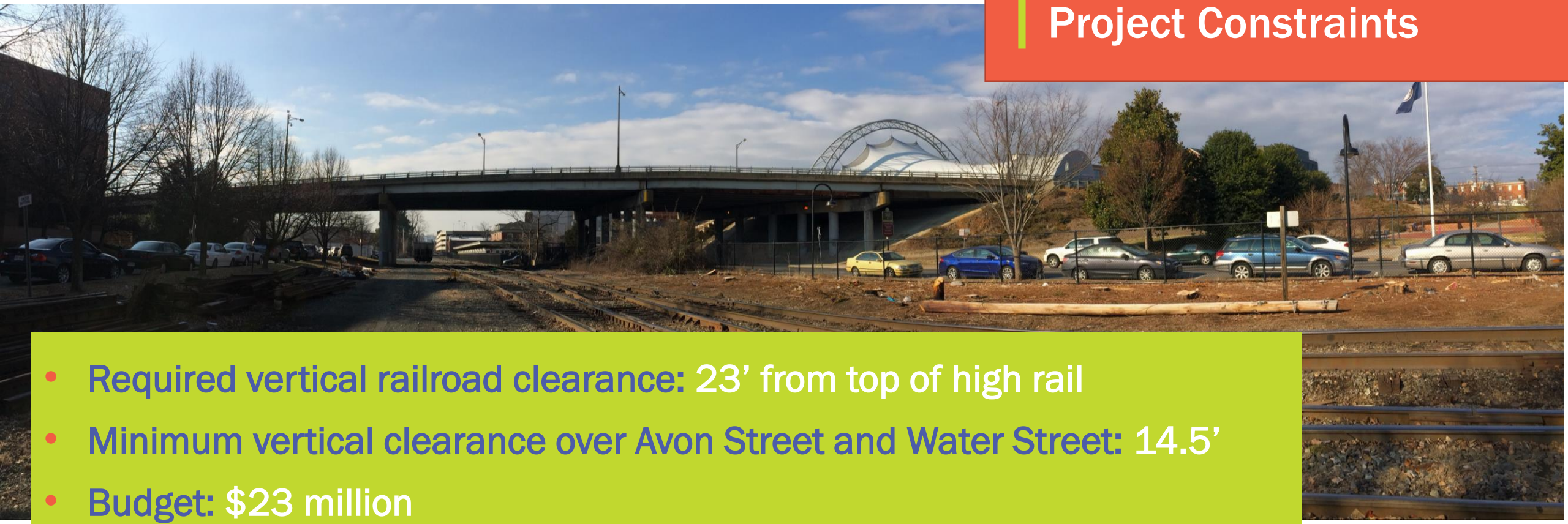
Common Themes and Key Takeaways

- Design a functional, integrated design
- Improve connectivity – emphasis on relationship between downtown and neighborhoods
- Design focus on multimodal functionality and safety
- Create safe bike and pedestrian facilities
- Include improved, safe street crossings – calm traffic to reduce travel speed
- Improve intersections and approaches (traffic functions, bike/pedestrian safety, aesthetics)
- Create safer environment under bridge
- Create opportunities for landscaping and public spaces
- Parking is a critical issue for a few people, but not the general public

Project Constraints



- Required vertical railroad clearance: 23’ from top of high rail
- Minimum vertical clearance over Avon Street and Water Street: 14.5’
- Budget: $23 million

- No piers (bridge supports) within railroad right-of-way
- Existing intersection touchpoints
- Underpass and at-grade determined not-feasible

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Steering Committee Outcomes

Parking

Interim and Long-Term

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Diversified Parking Strategy

Interim and Longer-Term

Considerations

- Parking demand in vicinity of downtown is increasing
- The agreed upon short bridge span eliminates the surface parking under the existing bridge
- Efforts are being made to increase parking supply through structured facilities (parking decks), surface lots, and on-street
- Estimates suggest that 2/3 of the parkers under the bridge are municipal employees
- Construction of the bridge will last an estimated 2-year duration creating a need for an interim parking demand strategy

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Parking Strategy - Interim

- Managing parking demand through organized participation programs (city)
  - Explore incentives to walk, ride, carpool, transit
  - Investigate the practicality of leveraging the existing municipal fleet for daily commute of employees
  - Expand parking voucher program
- Advance the development of an off-site park and ride lot
  - Coordinate with feeder bus service that increases headways during peak periods
  - Provide guaranteed ride home provisions (vouchers for taxi and share ride providers for infrequent evening activities that occur after transit service has ceased)
- Leverage existing City parking investments
  - Assuming a settlement at the Water Street deck, apportion some of the available spaces for municipal parking
- Leverage existing private surface lots
  - Inventory existing private parking facilities near downtown
  - Investigate negotiated rates for mass quantities of parking and incorporate in the existing employee voucher program
- Temporary off-site parking
  - Identify vacant lots in the nearby environs for use as temporary parking
    - Coordinate with the bridge contractor to ensure their employees are parking offsite and enforce
    - Monitor nearby neighborhoods for parking encroachment concerns during the construction period
- Communicate the diversity of options directly to employees, monitor, and amend as needed

Long-Term Strategy

- **Market Street Deck**
  - Size the future Market Street deck to accommodate increasing demand and consider apportionment for city use
  - Minimize impacts to intersection operations
    - Identify optimum ingress and egress locations and design to minimize queuing of vehicles
    - Consider optimum ways to reduce stacking at ingress locations
  - Investigate the greatest value for choice parkers in the Water Street and existing Market Street deck (@ City Hall)
- **Maximize On-Street Parking Supply**
  - The addition of on-street parking in the areas south of the railroad (with any amendments to the street network happening in conjunction with the bridge replacement as well as when incremental development occurs
- **Monitor and parking in the Belmont Neighborhood**
  - Consider district parking requirements to ensure residents maintain priority
- **Enforce parking requirements**
  - New development south of the railroad should “self-park) and include bike parking accommodations

Typical Sections

Cars, Bikes, and Pedestrians

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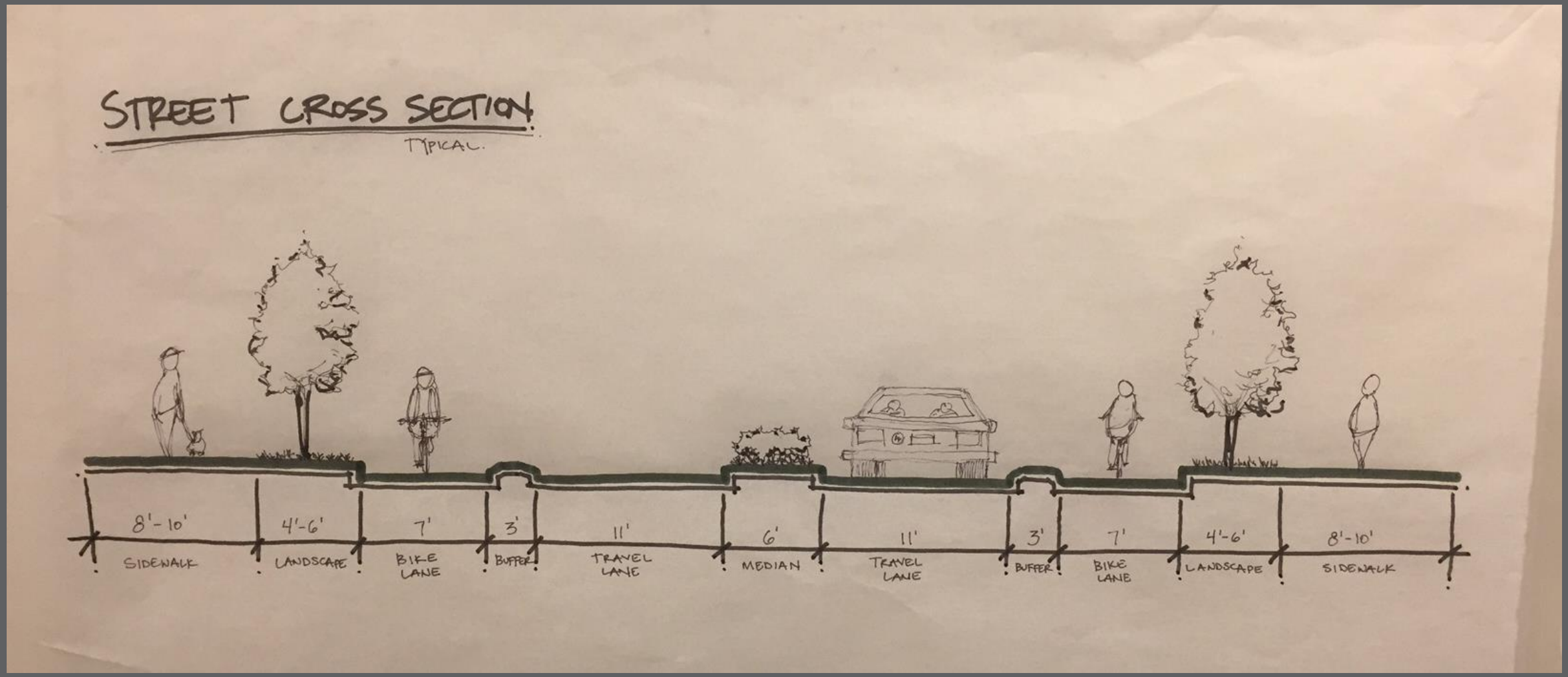

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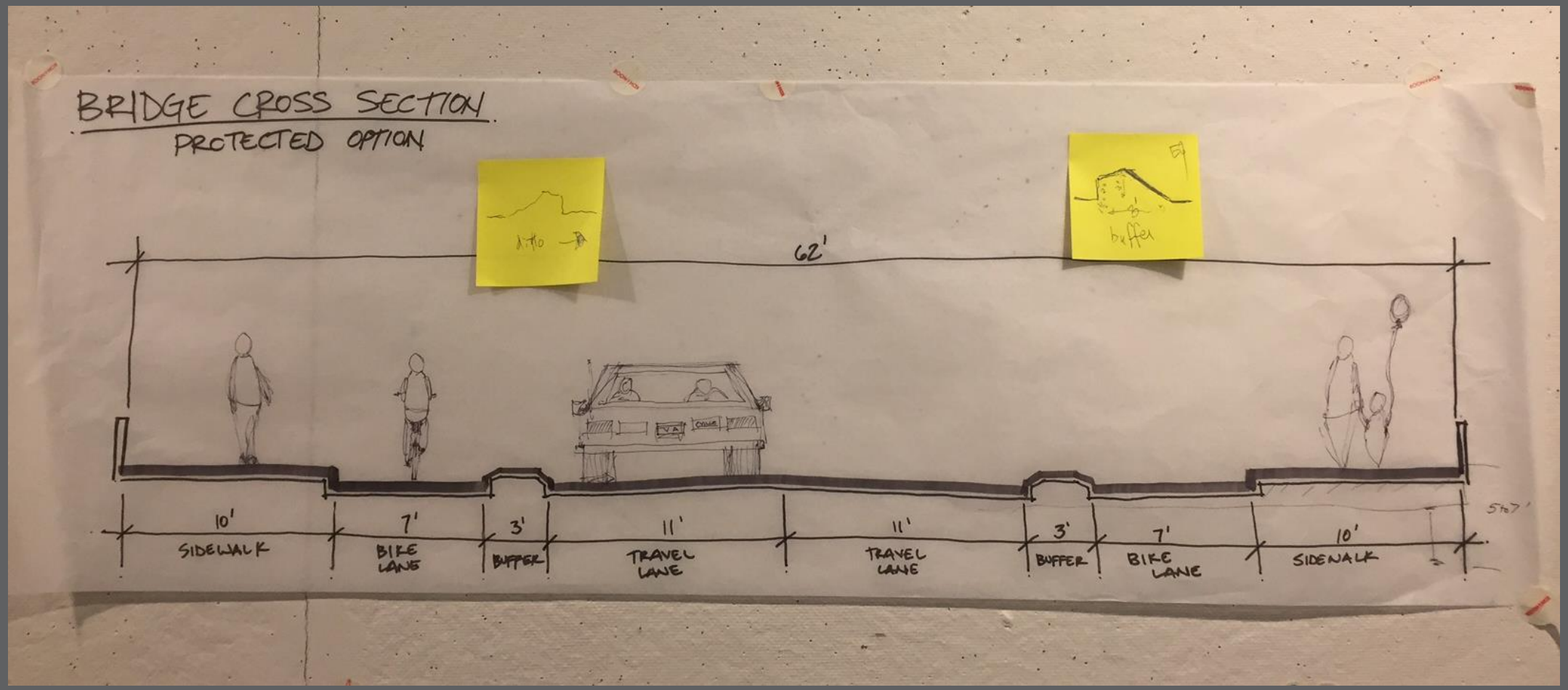

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Intersections

Traffic, Safety, Bikes, and Pedestrians

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Performance Measures

Vehicle Delay

This measure reflects intersection performance based on **how long it takes** an approaching vehicle to enter and pass through the intersection or turn onto another route.

Vehicle Stacking

This measure reflects intersection performance based on the **length of vehicle queues** as vehicles wait to enter and exit an intersection.

Bicycle

This measure accounts for the **comfort, safety, and efficiency** of entering and passing through the intersection or turning onto another route **by an average bicyclist**.

Pedestrian

This measure accounts for the **comfort, safety, and efficiency** of entering and passing through the intersection or turning onto another route as a pedestrian, **regardless of physical ability**.

9th Street @ Garrett Street

9th Street @ Garrett Street

1A The southbound includes a left turn lane and a through-right. The bike lane is to the right of the through-right lane.

Report Card

★★

★

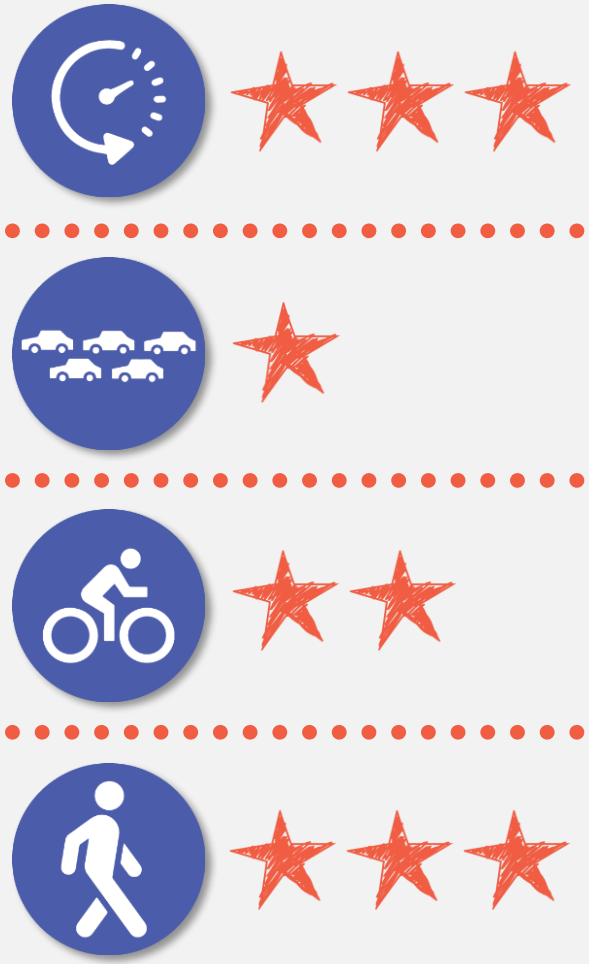
★★★

★★★★

9th Street @ Garrett Street

2A The southbound approach includes dedicated lanes for left turns, through movement, and right turns. The bike lane is to the left of the right turn lane.

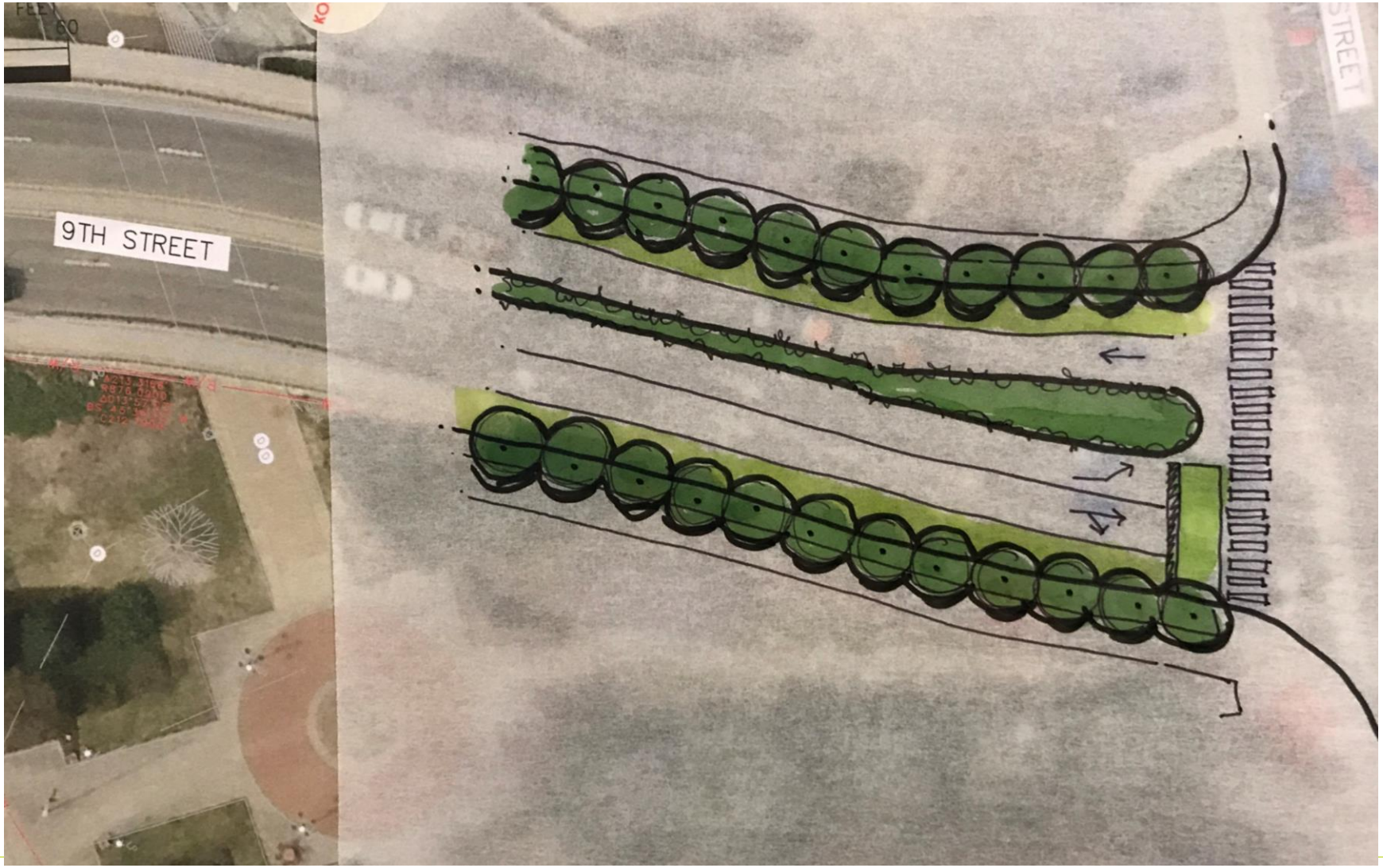
Report Card



9th Street @ Market Street

9th Street @ Market Street

1A The northbound approach includes a dedicated left turn lane and a through-right lane. The bike lane is to the right of the through-right lane.



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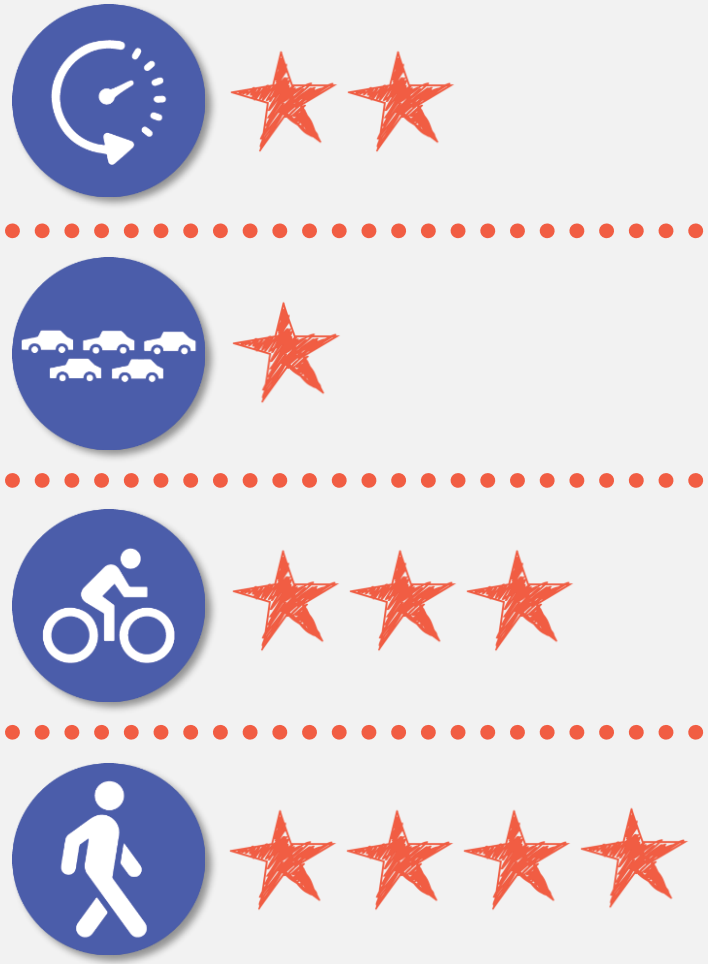

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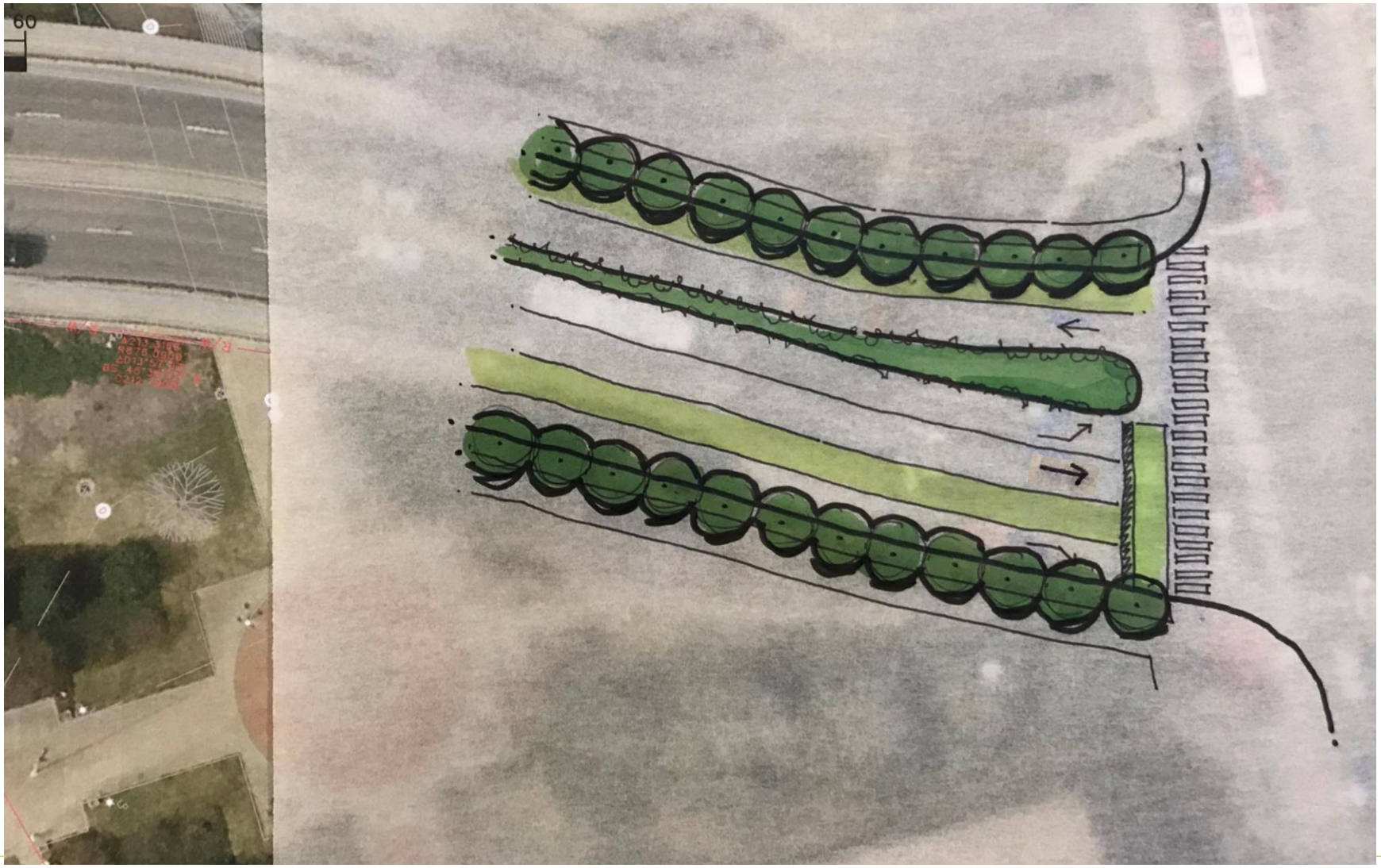

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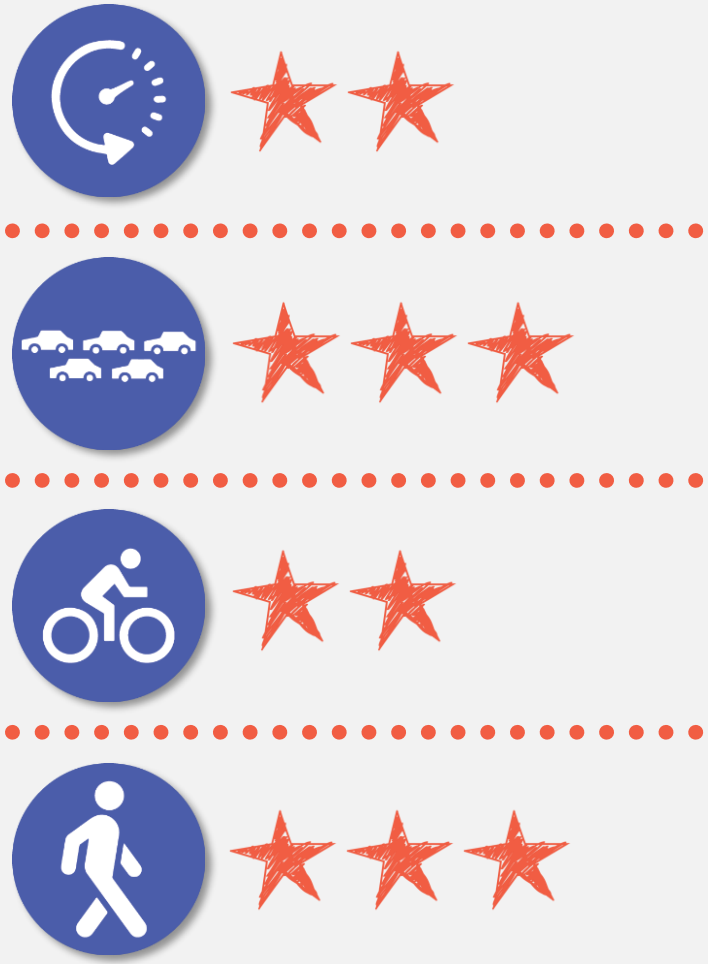
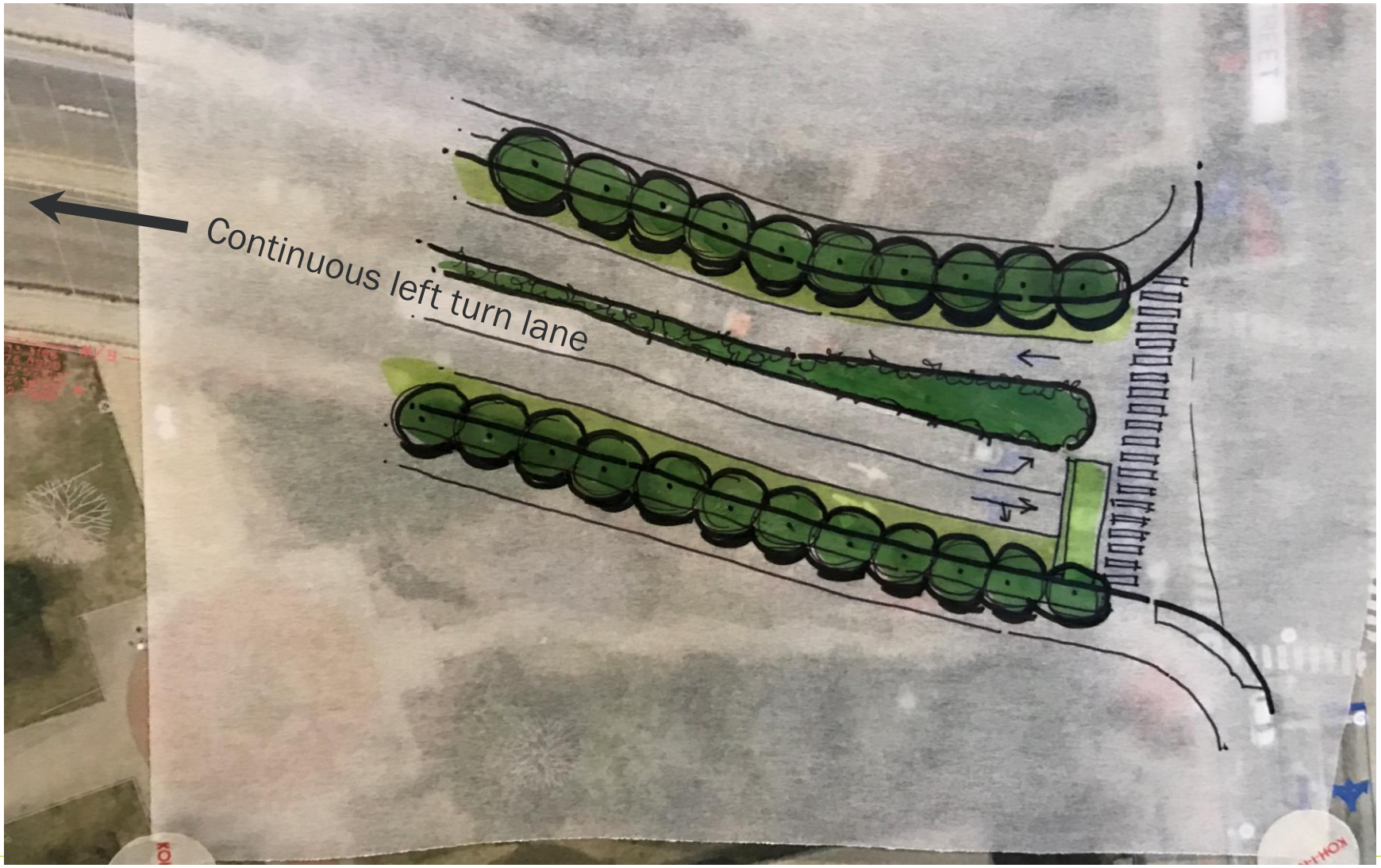


9th Street @ Market Street

3A

The northbound approach includes a continuous left turn lane.



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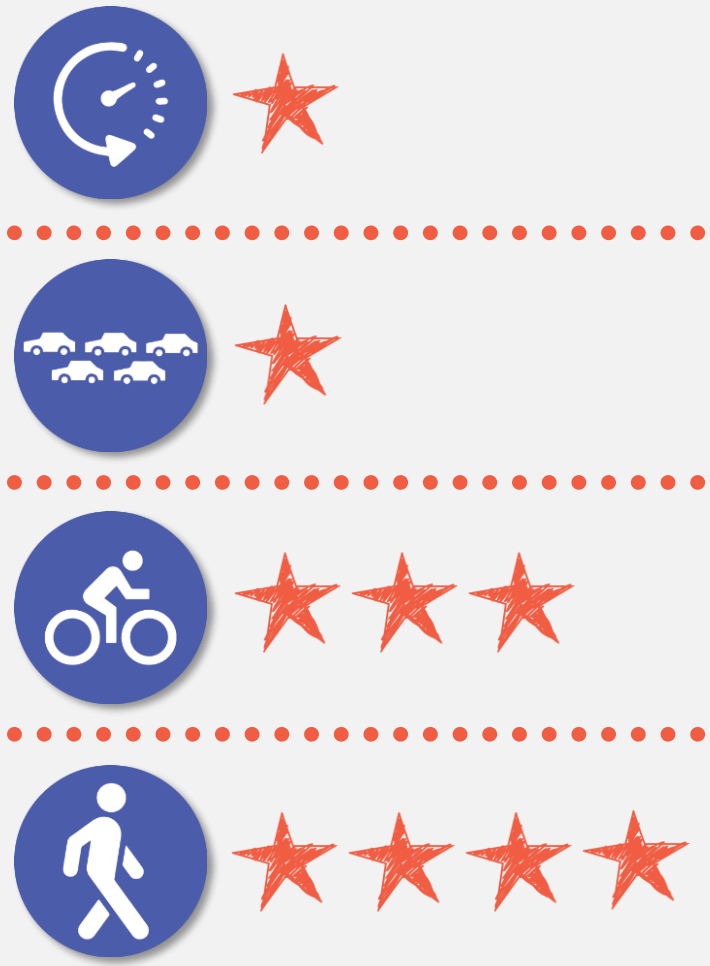

Design Framework

Opportunities, Partnerships, Complementary Design

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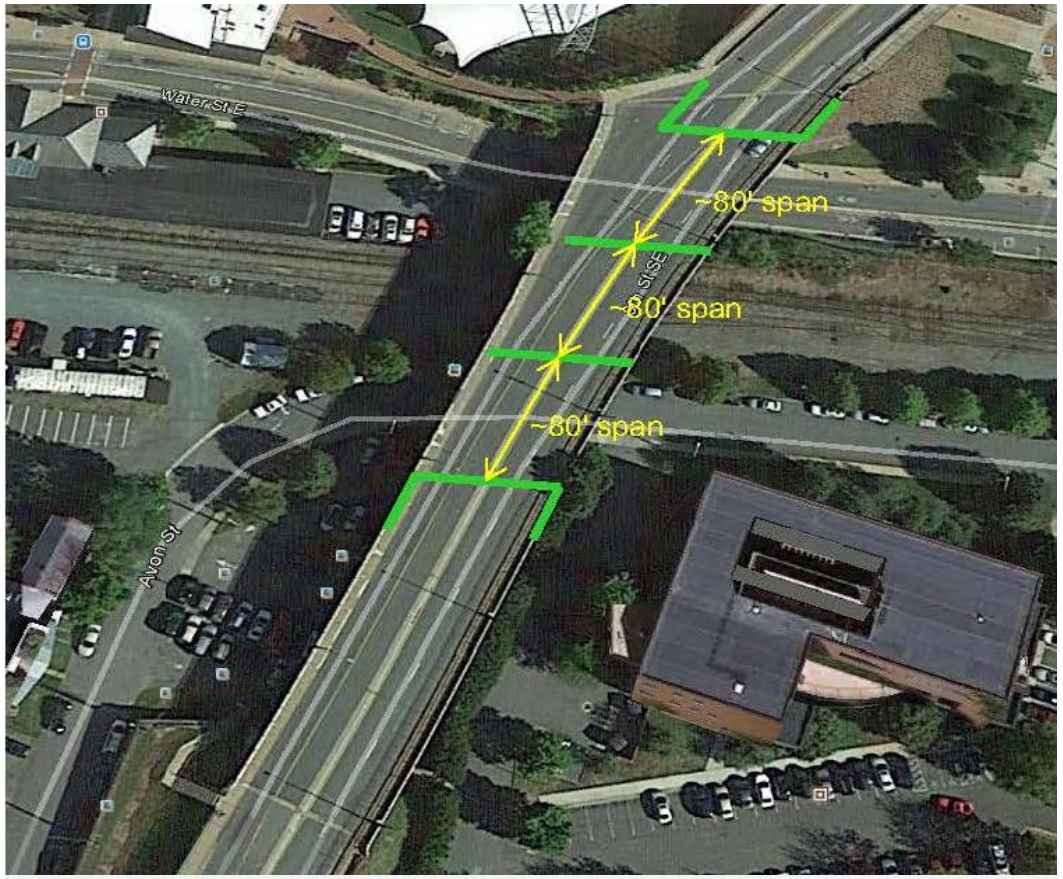
Steering Committee Vote

- In March, the Steering Committee voted to proceed with a short span option
- Charrette will seek ways to mitigate the loss of 53 parking spaces.
- Charrette explored multiple options based on the short span option



Short Length

- 3 spans (~80 feet)
- Most cost effective
- Parking below the bridge would be removed

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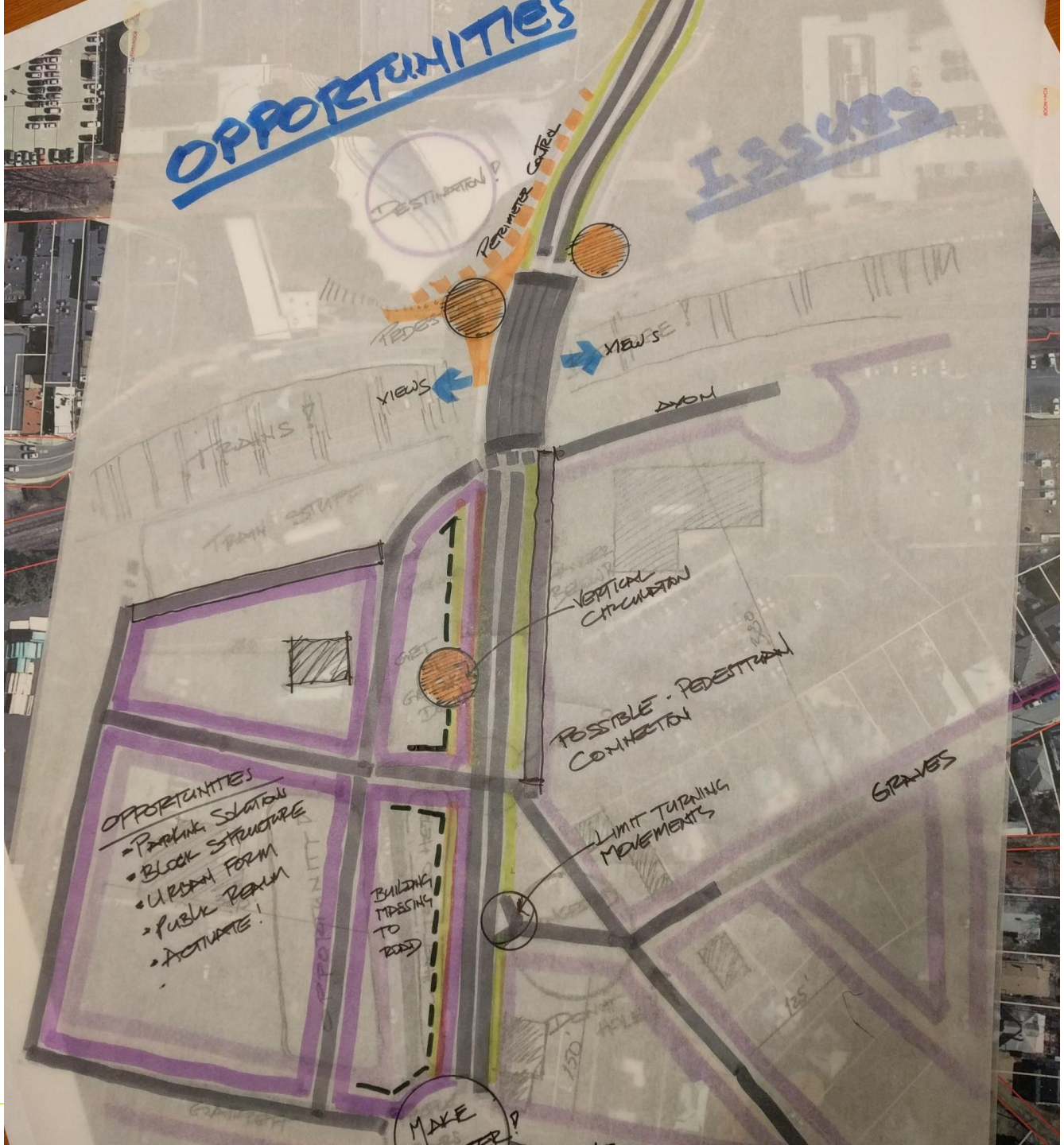
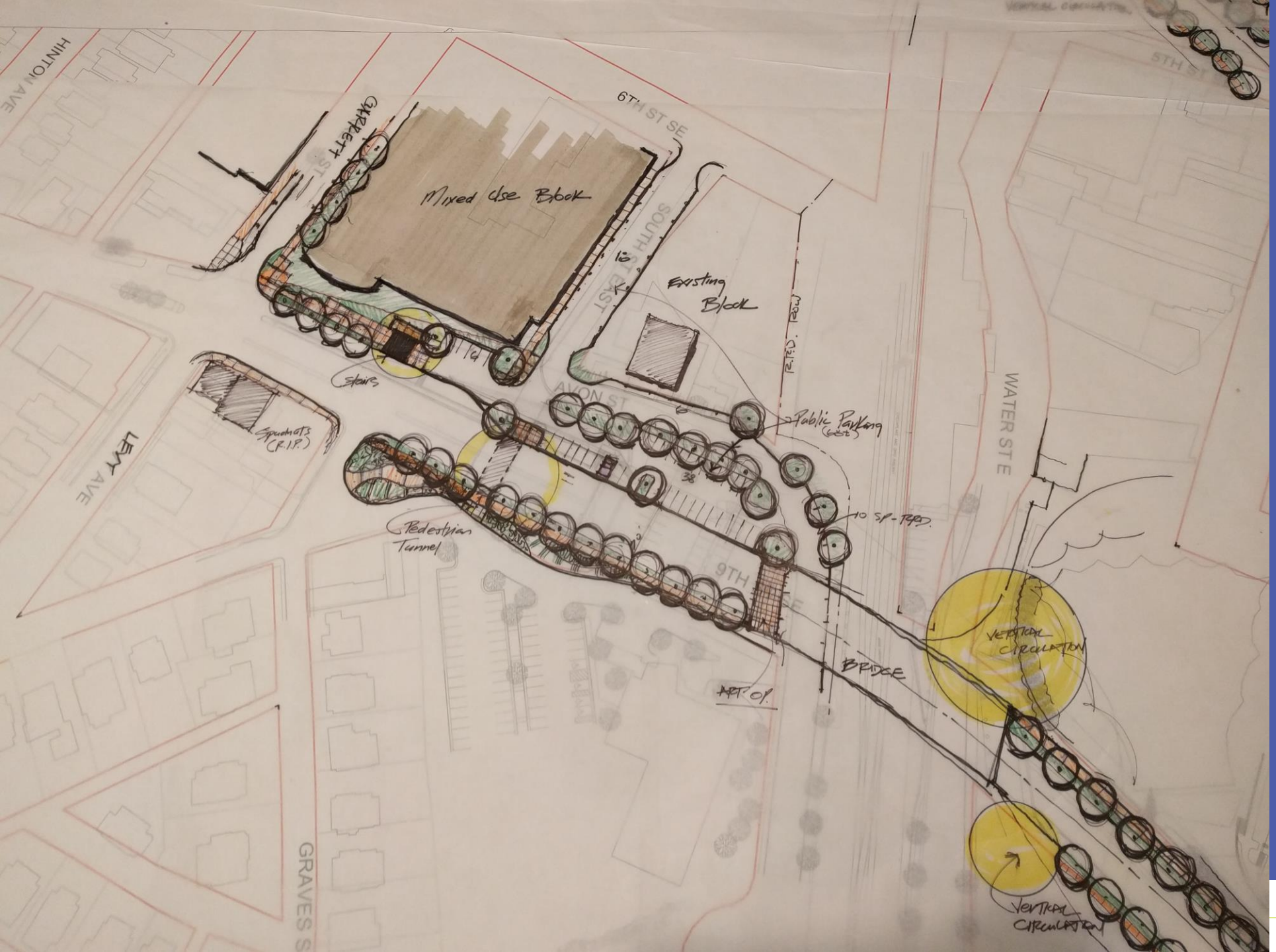
Issues


DESTINATION?
PEDESTRIANS?
BRIDGE!
TRAINS!
TRAIN STUFF
PUBLIC PARKING
DANGER BELOW!
GET UP GET DOWN
CONNECT?
OPPORTUNITY
WHAT TO DO HERE?
CONGESTED
DONUT HOLE?
PEOPLE VS. CARS VS. BIKES?
GARRETT
LEXY
GRAVES
BELMONT
220'
300'
125'
150'
180'

Opportunities





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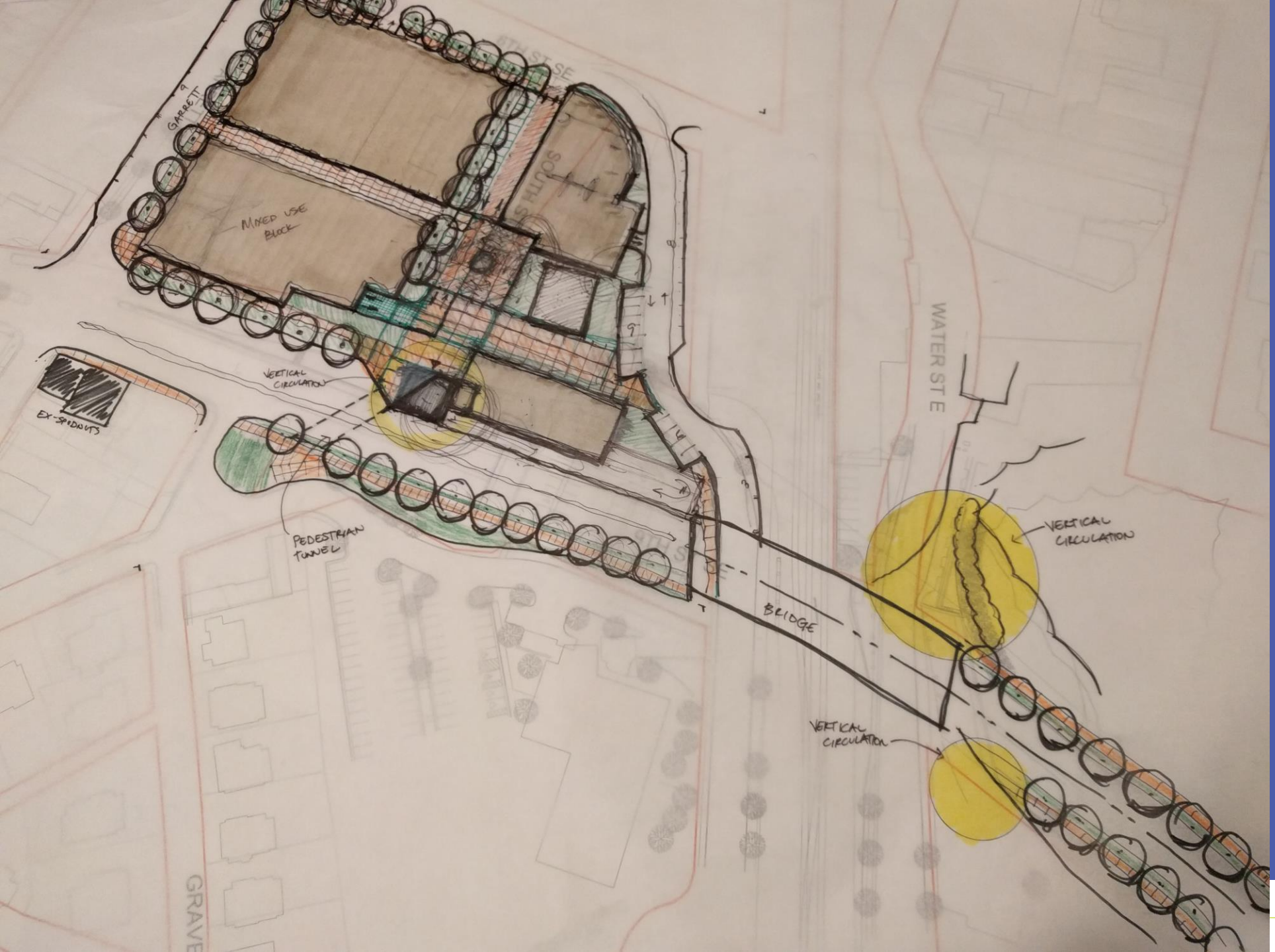

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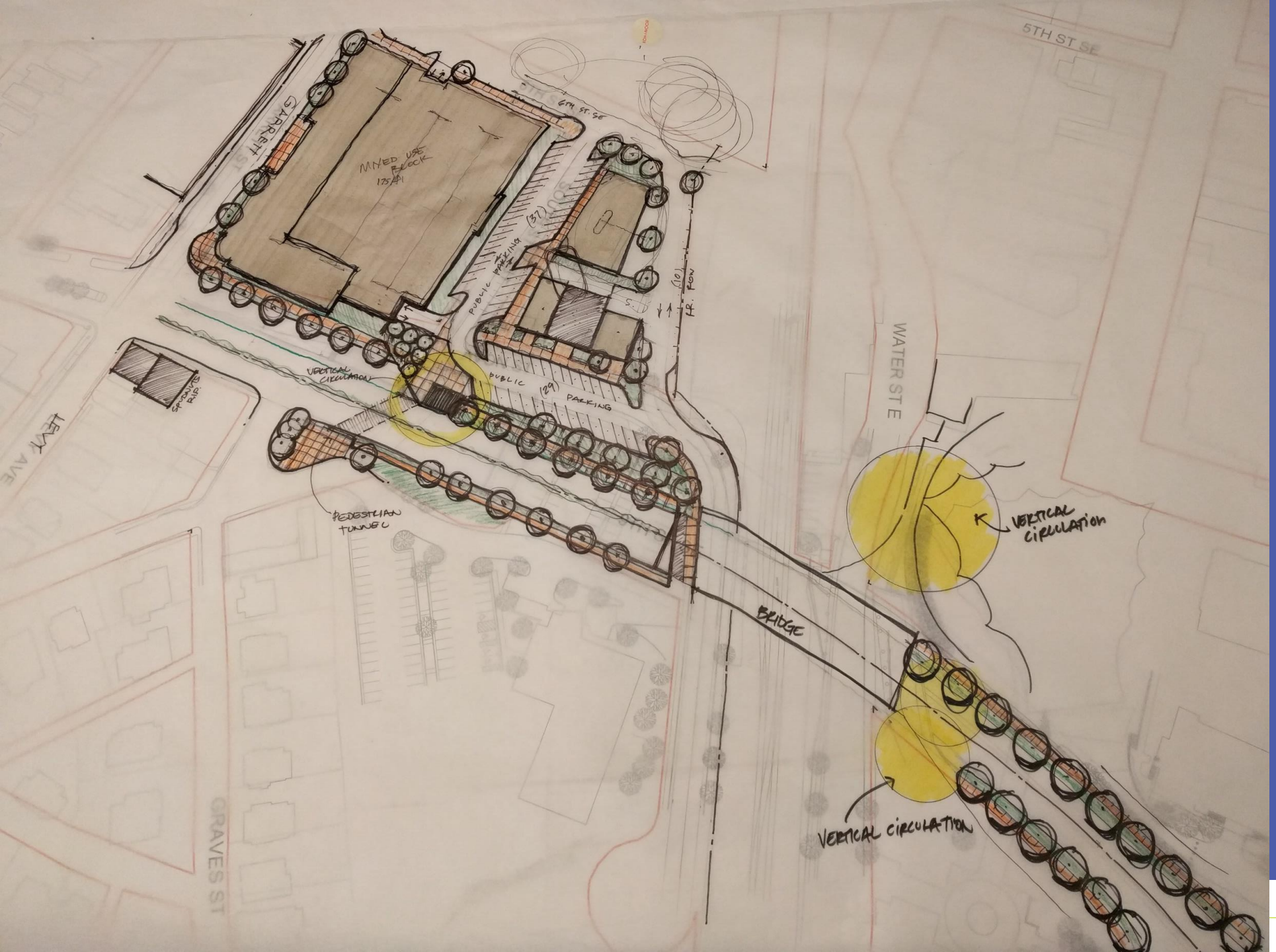

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Garrett Street Intersection

A glimpse into the future

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Design Themes and Architecture

Bridge Design Detail Options

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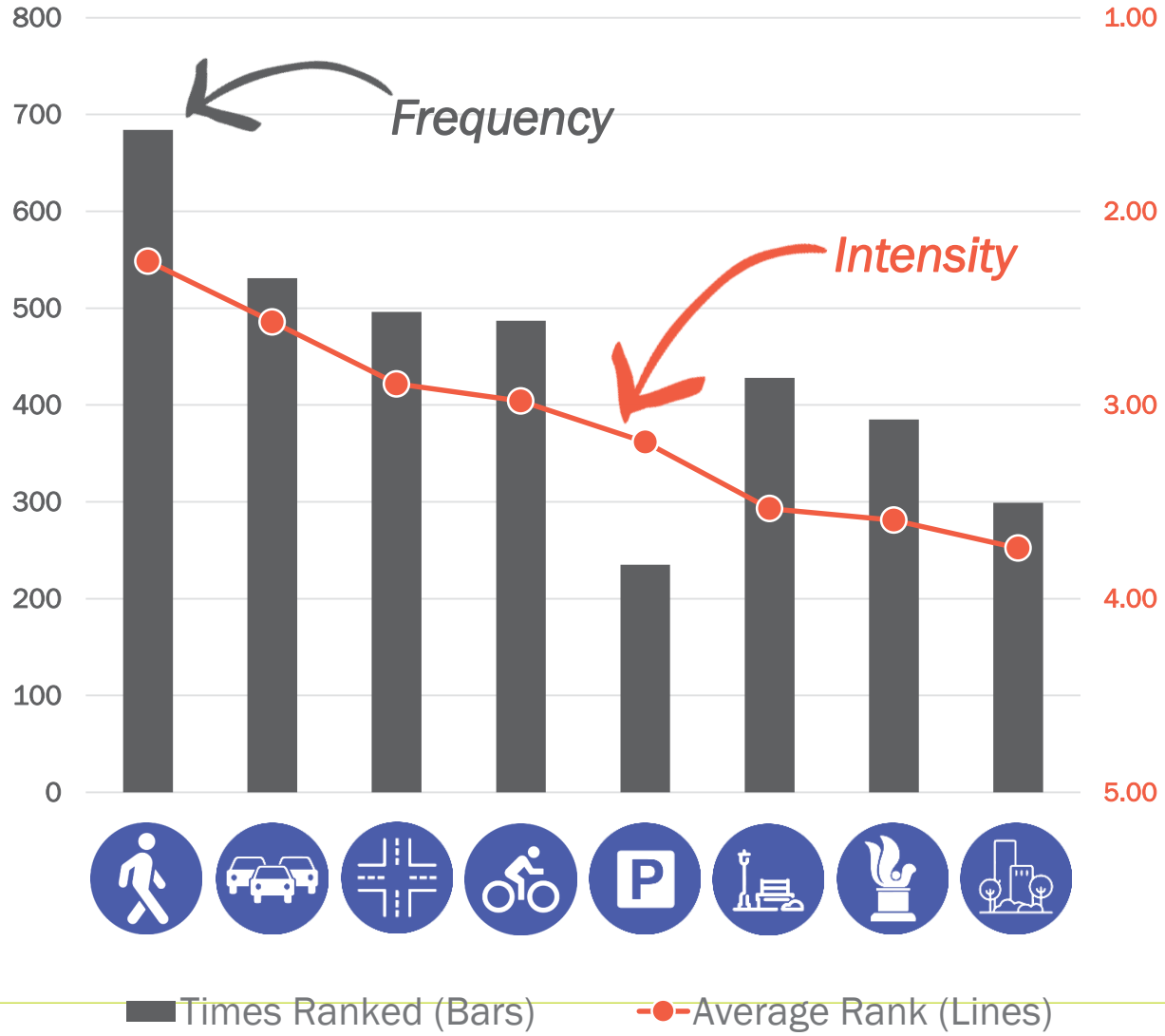
Priority Ranking

Constraints such as time, space, and money will require us to make informed decisions during the design process. Participants were asked to identify which design elements were important to them.



1. Pedestrian Facilities
2. Traffic and Travel Speeds
3. Intersections and Approaches
4. Bicycle Facilities
5. Parking
6. Landscaping and Public Spaces
7. Aesthetics
8. Scenic Viewsheds

- **Pedestrian Facilities**: most frequently ranked and highest average ranking
- **Intersections and Approaches** and **Bicycle Facilities**: ranked a similar number of times but Intersections and Approaches usually ranked slightly higher
- **Parking**: gap between the intensity and frequency shows that while not everyone sees it as an important consideration, those that do think it's very important

Comment Notes

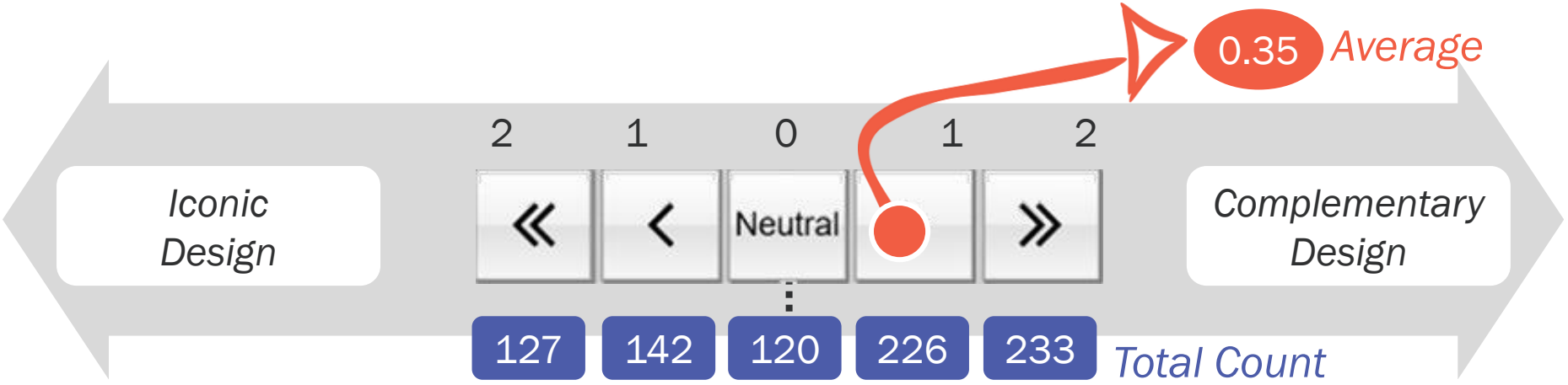
- Many comments suggested a simple design with a focus on functionality for all travel modes, now and in the future.

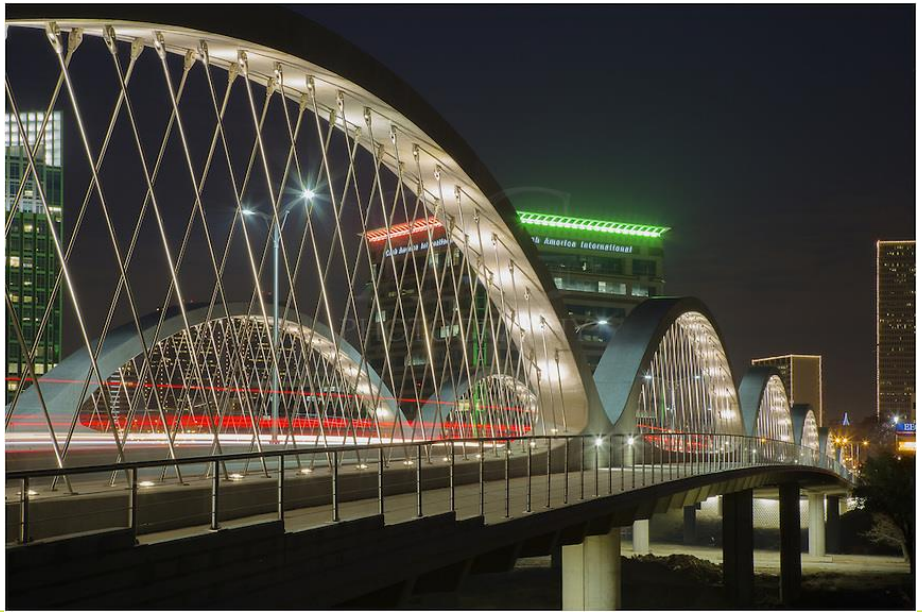
Tradeoffs

DESIGN

Ultimately, the design process will require thoughtful consideration of various tradeoffs. Participants were asked to choose between two tradeoffs.

Stand Out OR **Blend In**





Should look good but the connection is more important.

Space under the bridge should be safe

Budget constraints likely will prevent an iconic design

Iconic doesn't need to be highly visible

Complement the existing aesthetics

Aesthetically pleasing can occur with materials and attention to detail

Complement rather than compete

Compatibility Index

Helps determine which area (or features) of Charlottesville the bridge should be designed to be compatible with. Participants were asked to place a dot on the area from that they would like to see the bridge draw inspiration from.

Most participants placed their dots on the line between Downtown and the Surrounding Neighborhoods.

84% of the dots were placed on Downtown, Surrounding Neighborhoods, or on the line separating these areas.

Clearly indicates a preference for the design to serve as an aesthetic link between the two areas and draw inspiration from each side.

Design Elements

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Skirting | Railings | Fencing | Vertical Circulation | Piers | Lighting | Walls

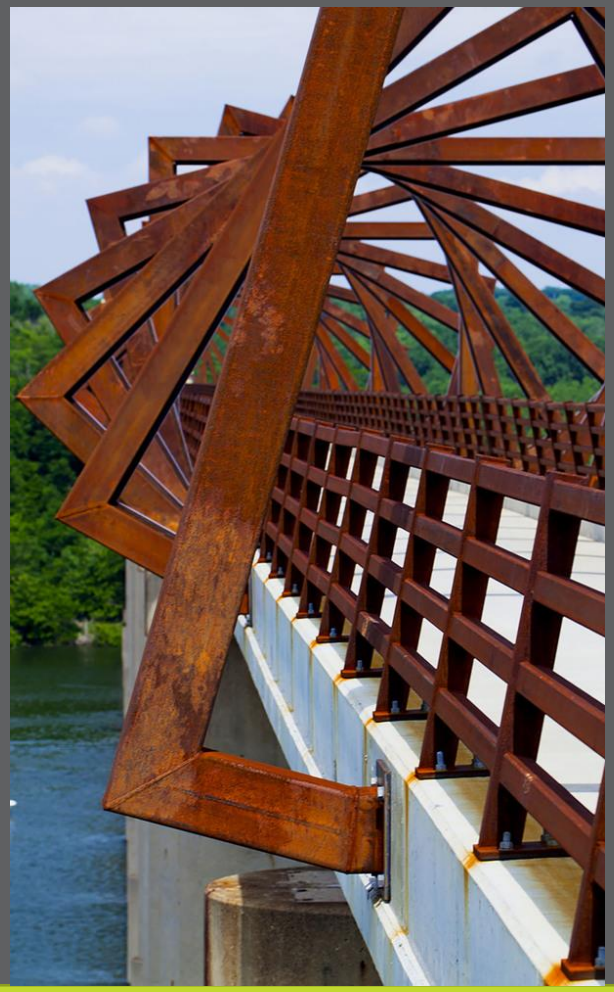
Design Themes

Endless Options Abound… Where do you fall?

Traditional

Unique

Modern



Funky

Skirting

A design cladding that conceals the plan supports and acts as a façade for the bridge…don’t you wish the existing bridge had some?

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Skirting

Endless Options Abound… Where do you fall?

Traditional

Vintage

Modern

Funky

Railings

Railings are required and can be decorative, functional or both

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Railings

Endless Options Abound… Where do you fall?

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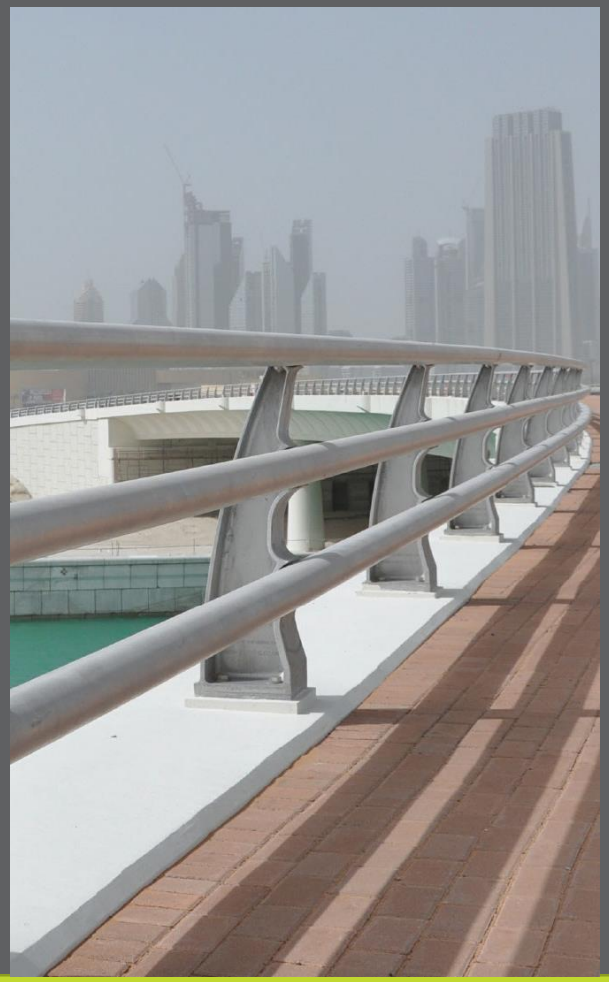
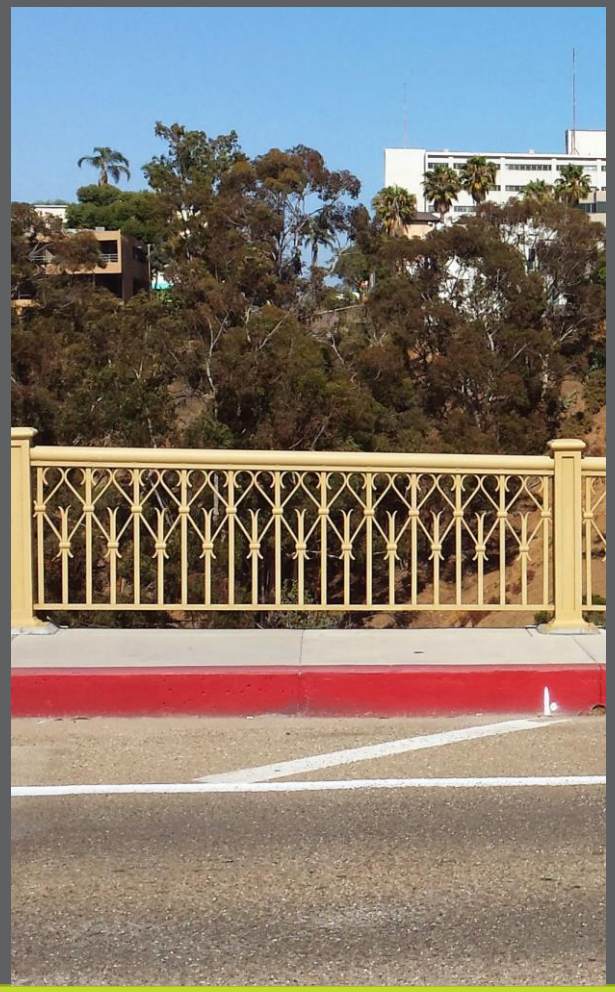


Traditional



Vintage

Modern

Funky

Fencing

Railroad requirements suggest protection fencing *may* be required

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Fencing Designs

Endless Options Abound… Where do you fall?

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Traditional

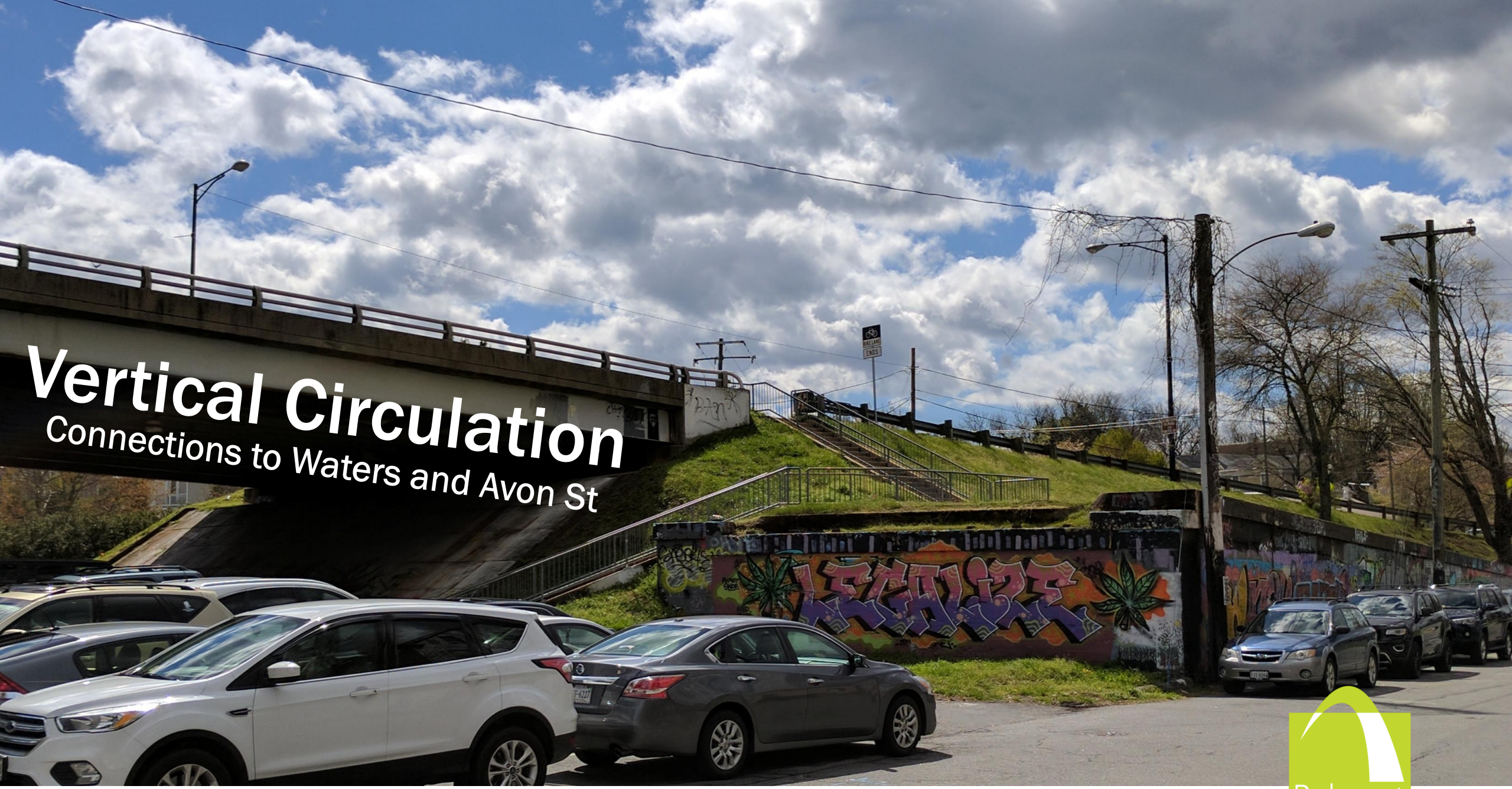
Vintage

Modern

Funky

Vertical Circulation

Connections to Waters and Avon St



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Vertical Circulation

Finite options…which do you prefer?

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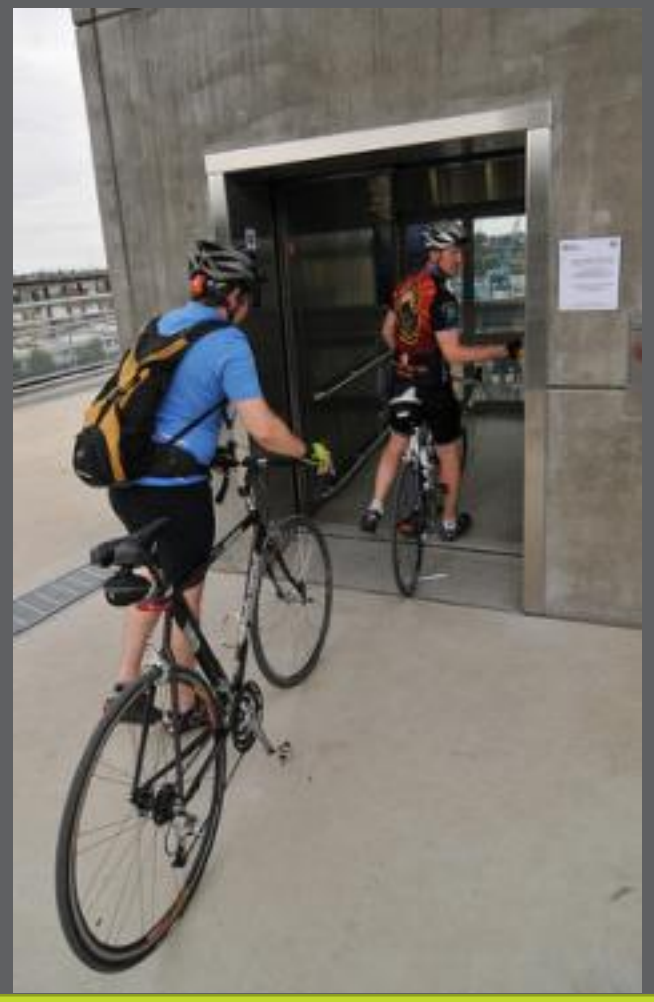
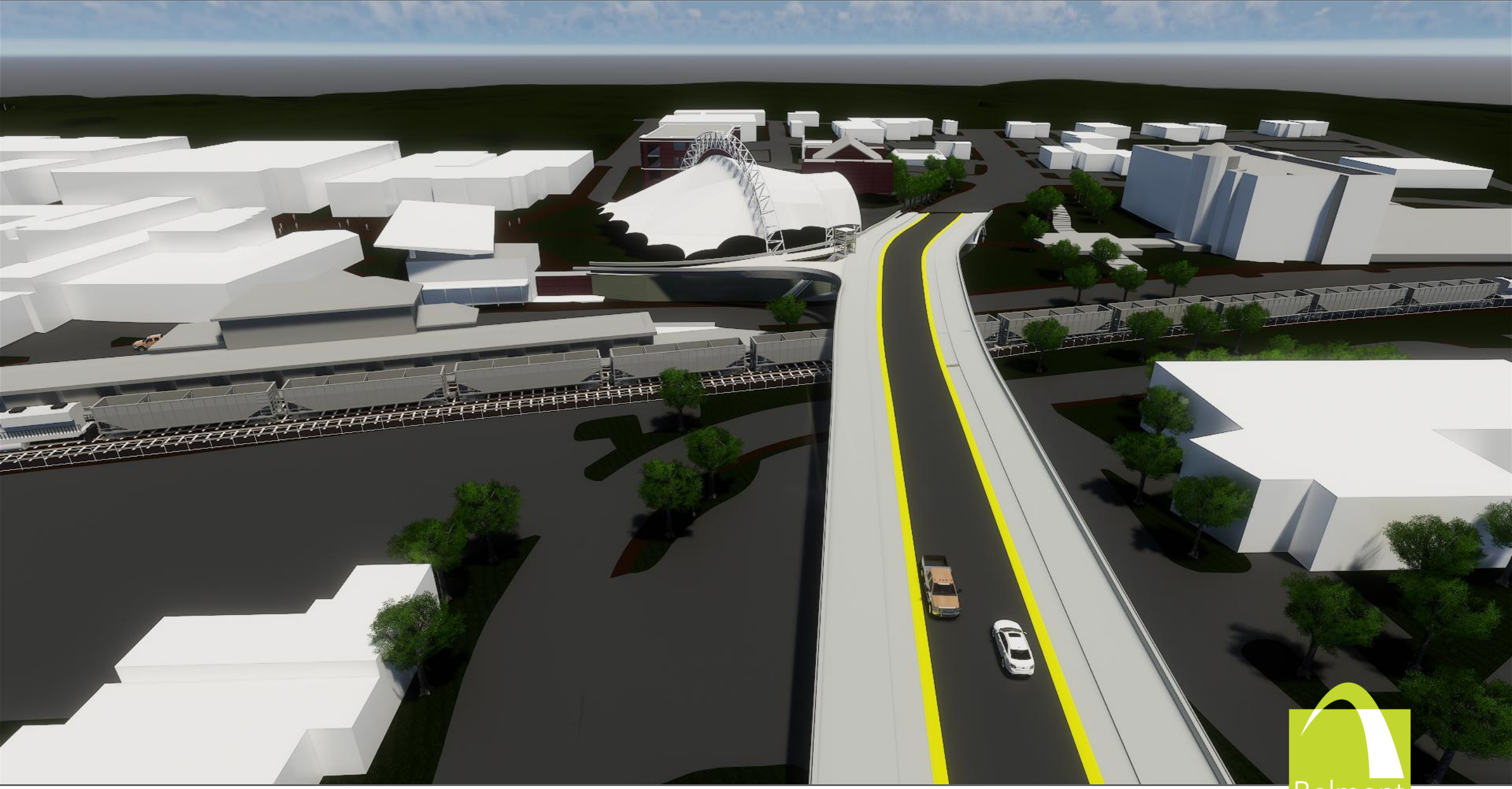
Stairs

Ramps



Elevators

Combination



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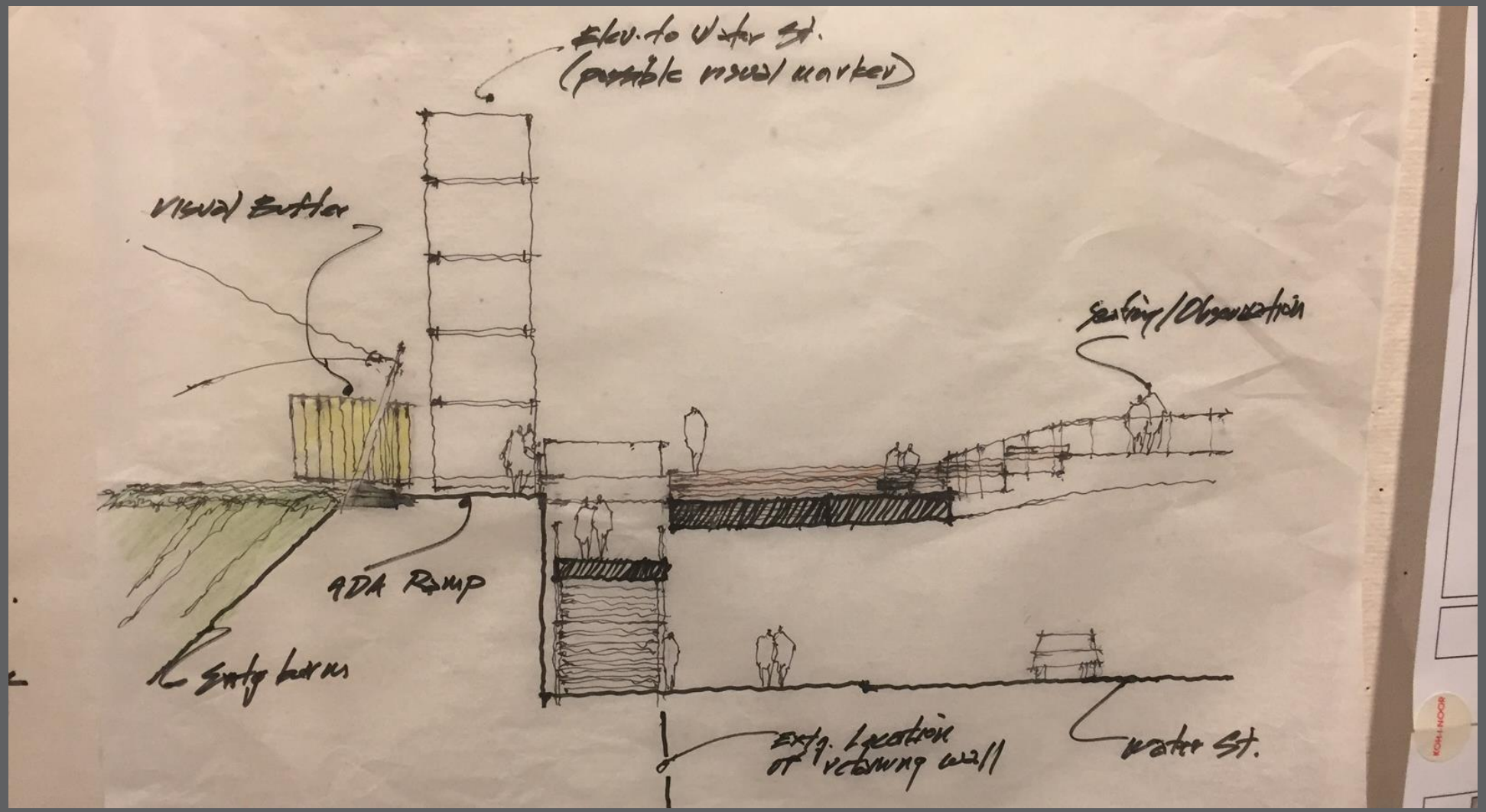

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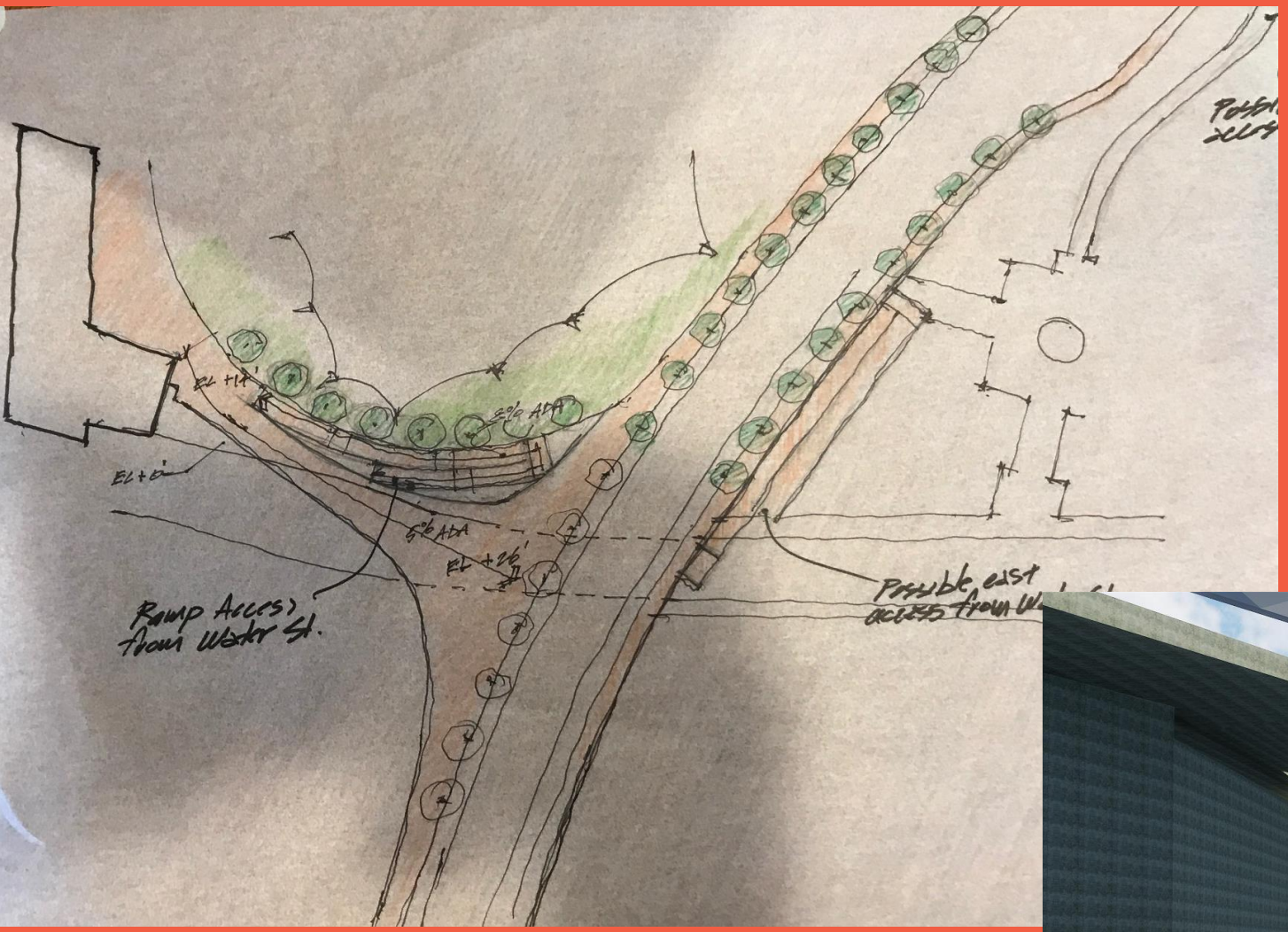
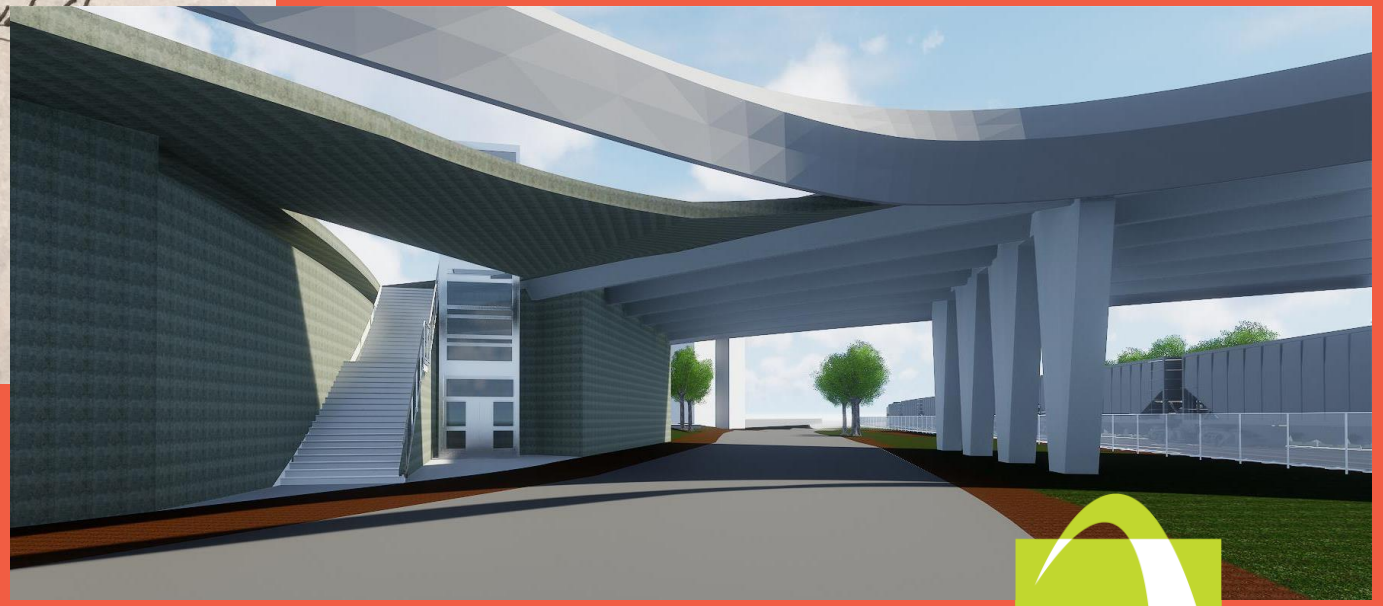


- Cost per Ramp Approximately $170,000 to 250,000 per Each
- Cost for Plaza Approximately $600,000 to $1,000,0000
- Cost per Stair Approximately $85,000 to $125,000
- Cost per Elevator Approximately $150,000 to $300,000



Vertical Circulation

**The installation of a ramp eliminates the need for an elevator*

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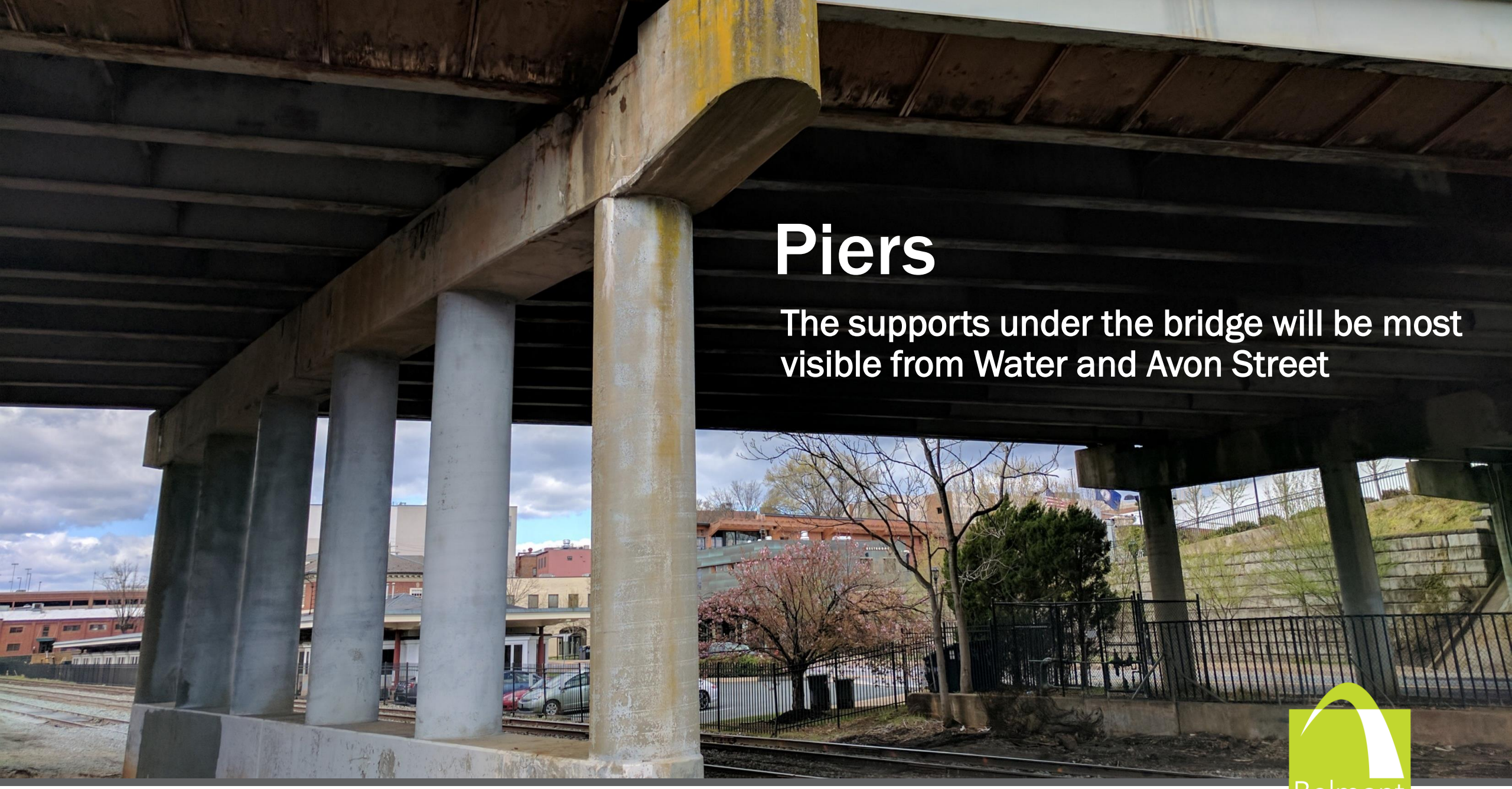

Piers

The supports under the bridge will be most visible from Water and Avon Street

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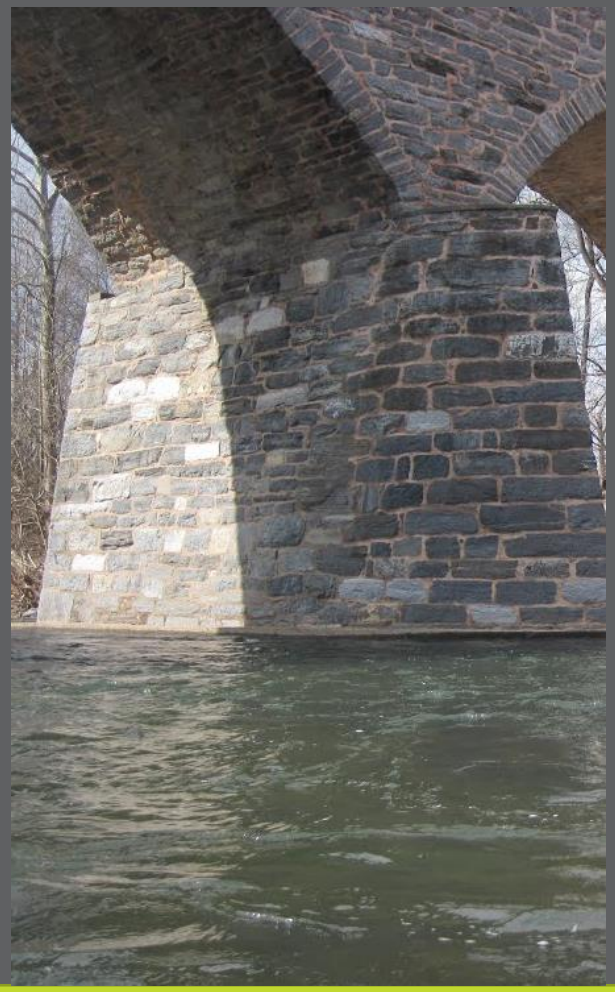
Piers

Endless Options Abound… Where do you fall?

Traditional



Vintage

Modern

Funky

Lighting

The bridge can include bridge deck lighting as well as decorative lighting if desired

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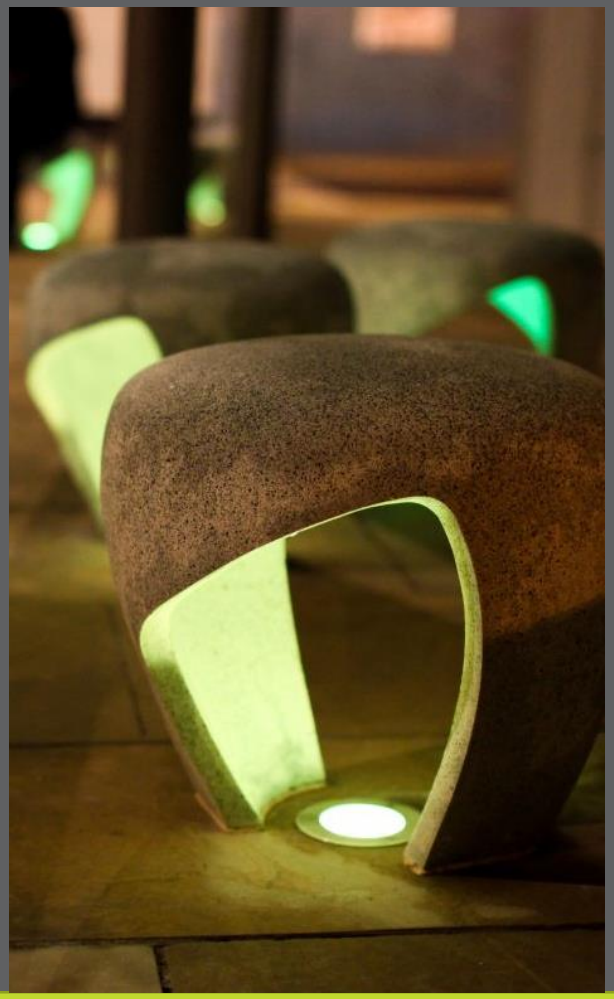
Lighting

Endless Options Abound… Where do you fall?

Traditional

Vintage

Modern



Funky

Walls

The areas on either side of the bridge will be vertically retained with structural walls

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Wall Designs

Endless Options Abound… Where do you fall?

Traditional

Vintage

Modern

Funky

Issues


DESTINATION?
PEDESTRIANS?
BRIDGE!
TRAINS!
TRAIN STUFF
PUBLIC PARKING
DANGER BELOW!
GET UP GET DOWN
CONNECT?
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220'
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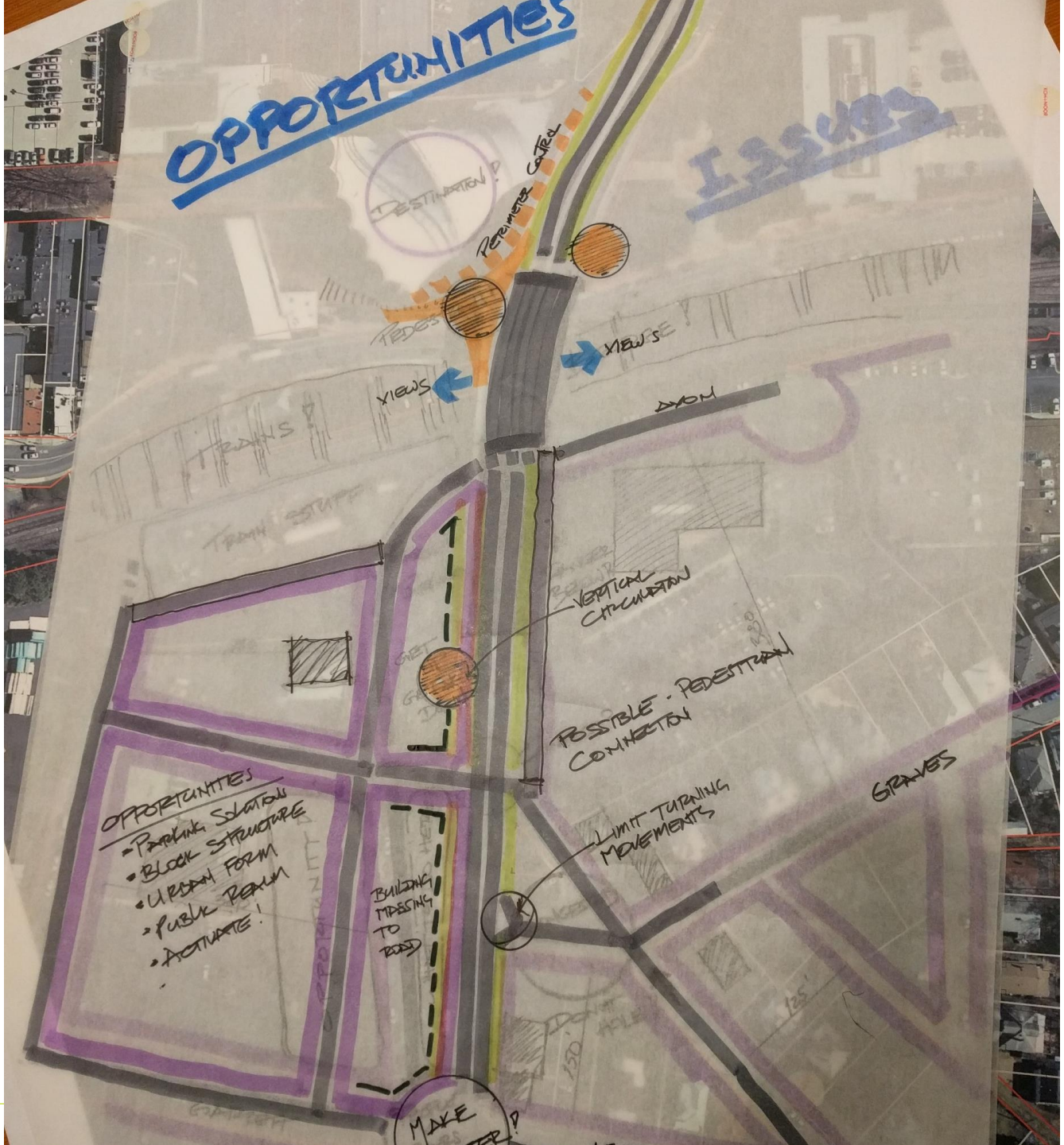
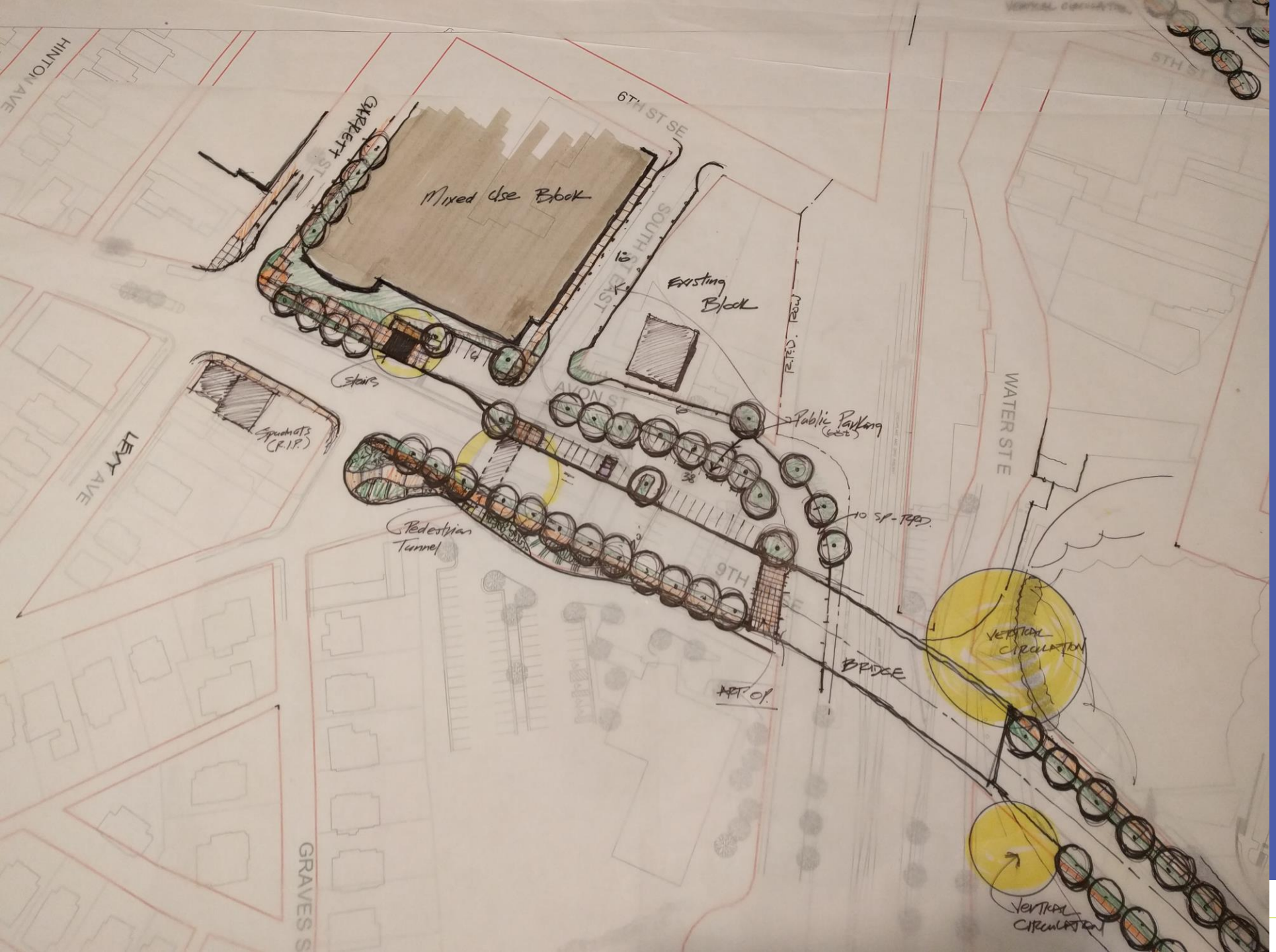
Opportunities





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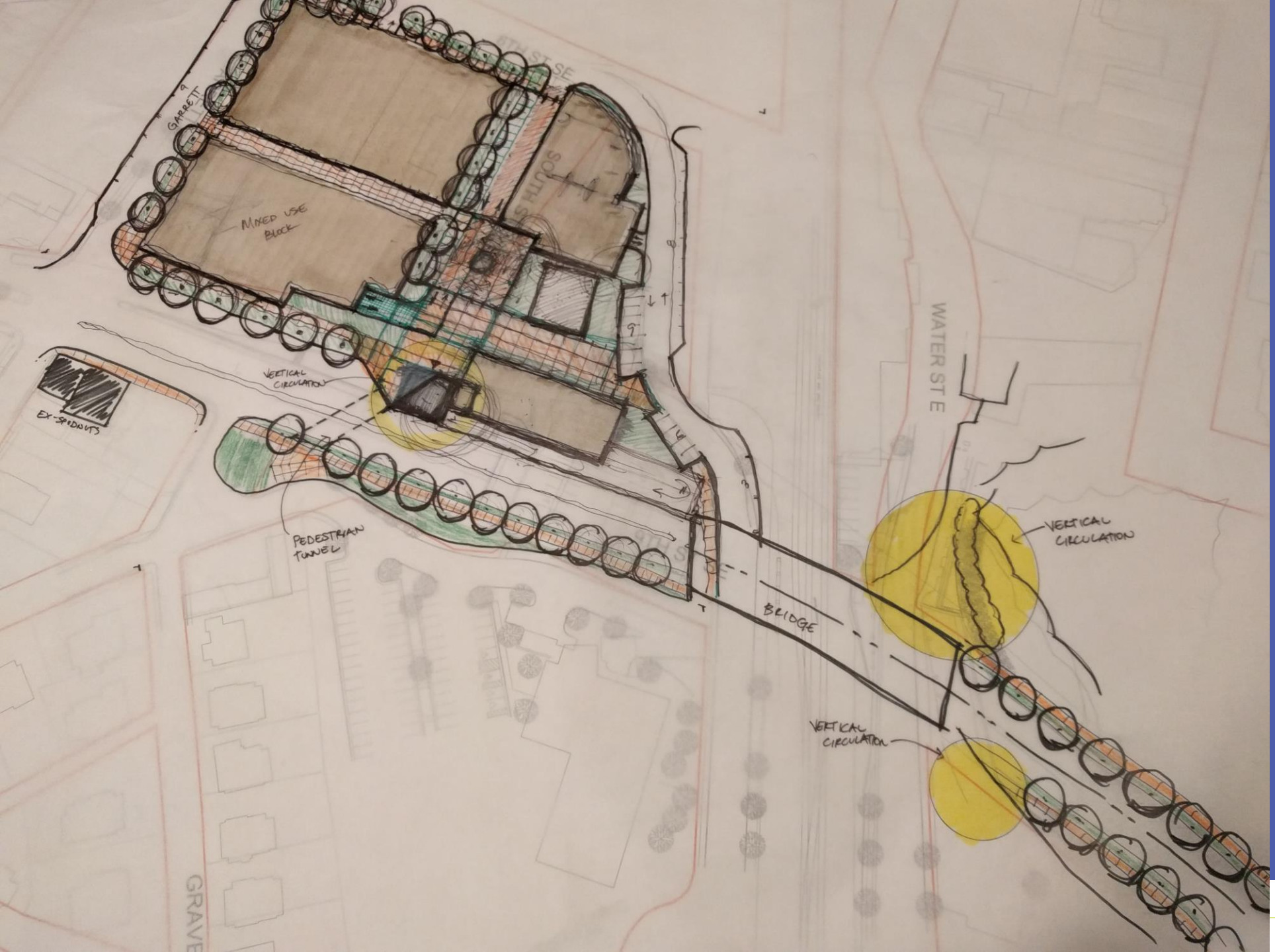

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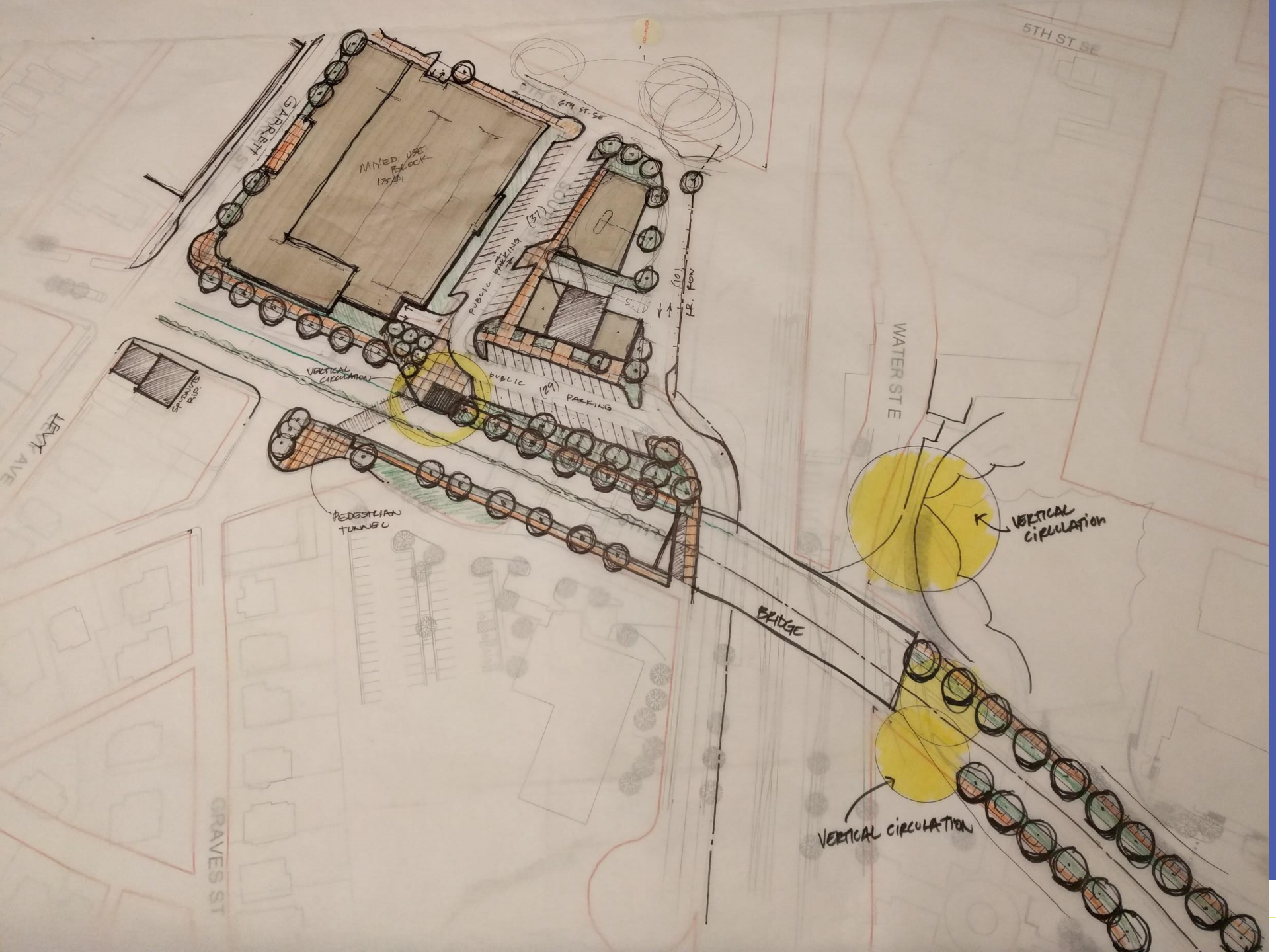

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Discussion & Next Steps

Opportunity to look in more detail…

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