

OUTLINE - NORTHGATE PEDESTRIAN AND BICYCLE BRIDGE

Overview

Revised Alignment

Sustainability Strategy

Design Refinement

Landscape Architecture

Project Art

Summary



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OVERVIEW

OVERVIEW - DESIGN REFINEMENTS

- Slopes revised to not exceed 5% between the west landing and the Sound Transit Connection.
- Alignment refined to increase area at landings. Visual and tactile cues have been added to enhance wayfinding and safety.
- The project has undergone a rigorous sustainability evaluation of all project components and systems.
- Various design elements have been revised based on Design Commission comments and insight.



AERIAL VIEW

OVERVIEW - OPEN HOUSE FEEDBACK



“This is a much overdue necessity for N Seattle and I am thrilled for its arrival...”

“Thank you for this design!”

“Very excited for this project to be completed!”

“So happy about this bridge. I would use it every day to walk/to from home...”

“Thanks for improving our city and my neighborhood...”

“I can’t wait for this [bridge] to open!”

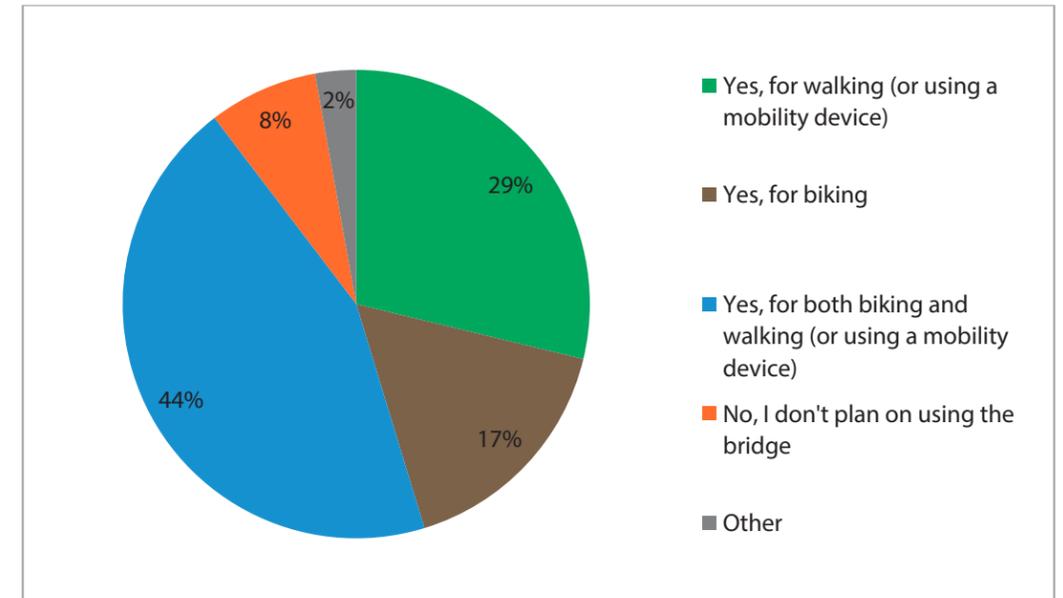
“This project is absolutely necessary for the neighborhood. I want to walk as much as I can, and being able to walk to the retail at the mall from our house would be amazing. My husband could walk to the Park & Ride instead of parking his car. We want this bridge!”

“This is a great project and I believe it is very important that the West side of I-5 has direct access to the station to maximize Link ridership.”

“The city has done a great job with the process.”

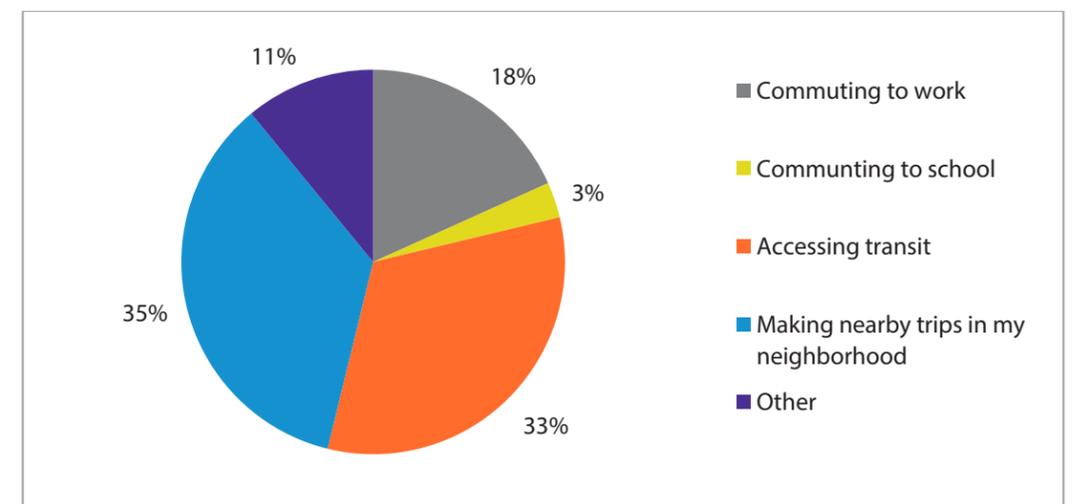
Do you plan on using the bridge?

All but 10% of participants plan to use the bridge — either by walking, by biking, by using a mobility device, or a combination. The pie chart below shows the percentages for each category.



What will you use it for?

Of those who plan on using the bridge, 35% will use it for making nearby trips in their neighborhoods, and 33% will use it for accessing transit. Participants were asked to choose all options that applied to them.



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REVISED ALIGNMENT

REVISED ALIGNMENT - SLOPE PERCENTAGE GUIDANCE

DESIGN COMMISSION MAY 18, 2017

The SDC is very concerned with the proposed 8.3% slope on the west and east approach. Commissioners agreed the proposed slope, while at the legal maximum, would limit accessibility and highly recommended the design team [provide strategies for reducing the slope percentage](#).

Apply the principles of “universal accessibility” when designing bridge elements, especially when designing for the slope of the bridge. The lack of precedent is a concern for the proposed length and degree of slope.

‘Overall, this is an impressive effort to redesign a bridge to meet a much smaller budget. But, I have not seen a precedent where using 8.3% slopes allows a bridge to function well. I would have chosen to [make a condition to design the bridge at a slope of 5%, at least on the west approach](#). I think all users will benefit from the continued study of reducing the slope.’ Ben de Rubertis

DESIGN RESPONSE

Given the concerns of the Design Commission, the design team has [modified the design to slopes that not exceed 5%](#) between the west connection and the Sound Transit Station.

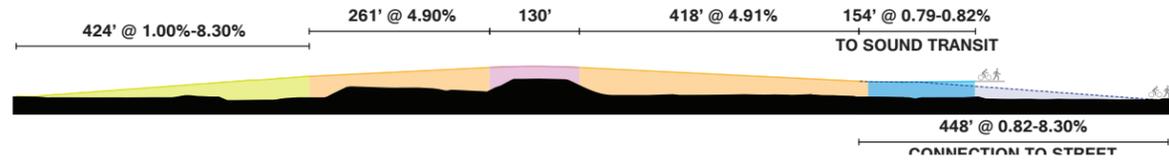


AERIAL VIEW

REVISED ALIGNMENT - SLOPE PERCENTAGE

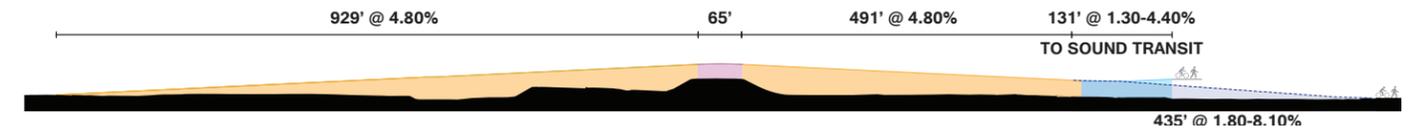
MAY 2017 SLOPES AND ALIGNMENT

- Alignment optimized for direct connection to campus.

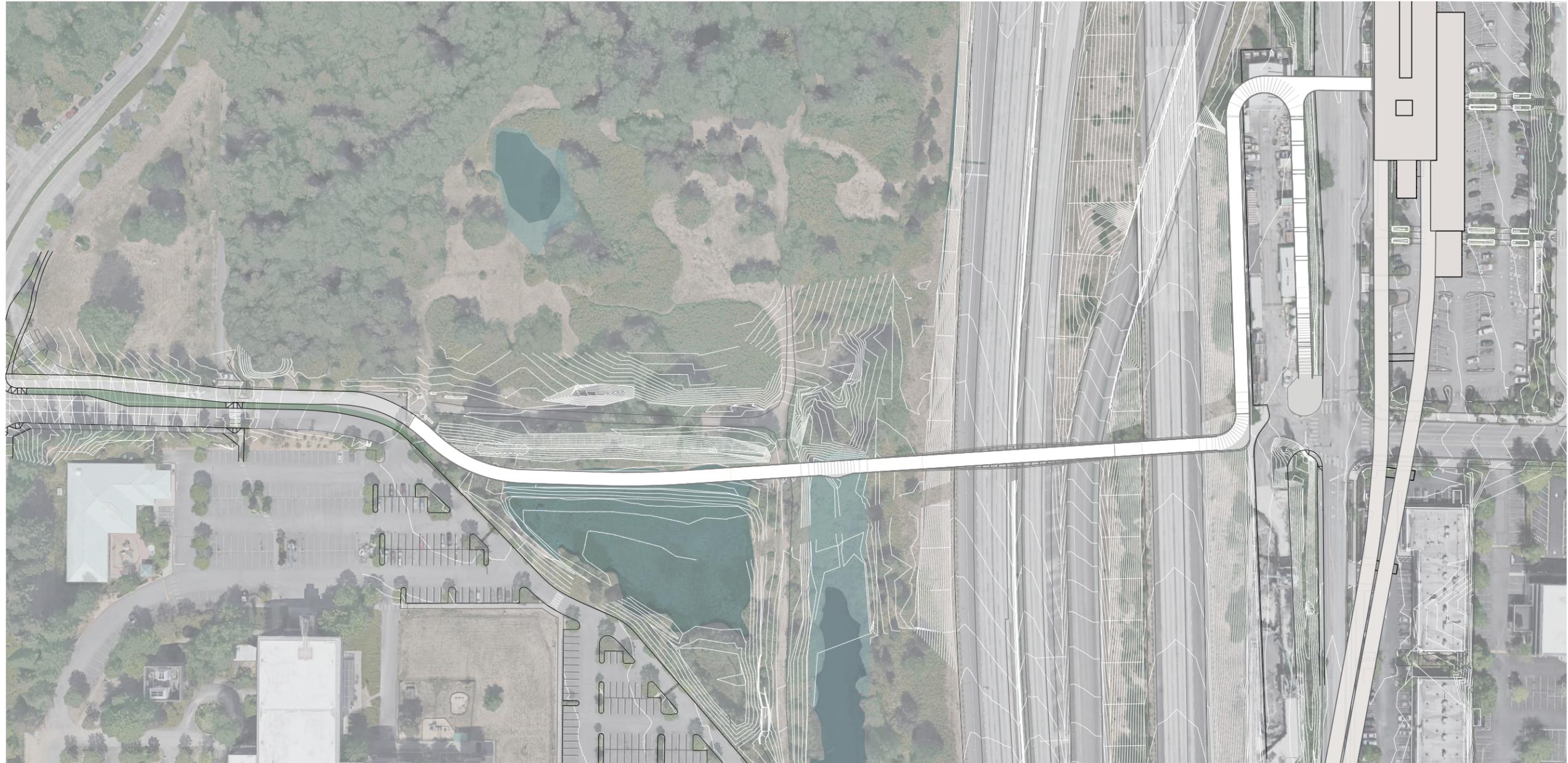


CURRENT SLOPES AND ALIGNMENT

- Alignment optimized as a neighborhood connection and impact to NSC minimized.



REVISED ALIGNMENT - SLOPE PERCENTAGE



929' @ 4.80%

65'

491' @ 4.80%

131' @ 1.30-4.40%
TO SOUND TRANSIT

435' @ 1.80-8.10%

REVISED ALIGNMENT - CIRCULATION GUIDANCE

DESIGN COMMISSION MAY 18, 2017

The commission is also concerned with potential conflicts between pedestrians and bicyclists at mixing zones at either bridge approach. Commissioners highly recommended the design team return with strategies for reducing conflicts through the use of materials and signage. The commission requested the dimension of the 1st Ave and 100th St intersection, turning radii, as well as vehicle volumes during peak hours. The commission recommended the project team provide strategies for reducing bicyclists' speed as they move through the project.

[Address pedestrian and bicycle safety at the mixing zones](#), specifically at the east landing near 1st Ave NE and NE 100 St.

The commission mentioned the design team should distinguish the view point from the pathway through the use of different paving materials.



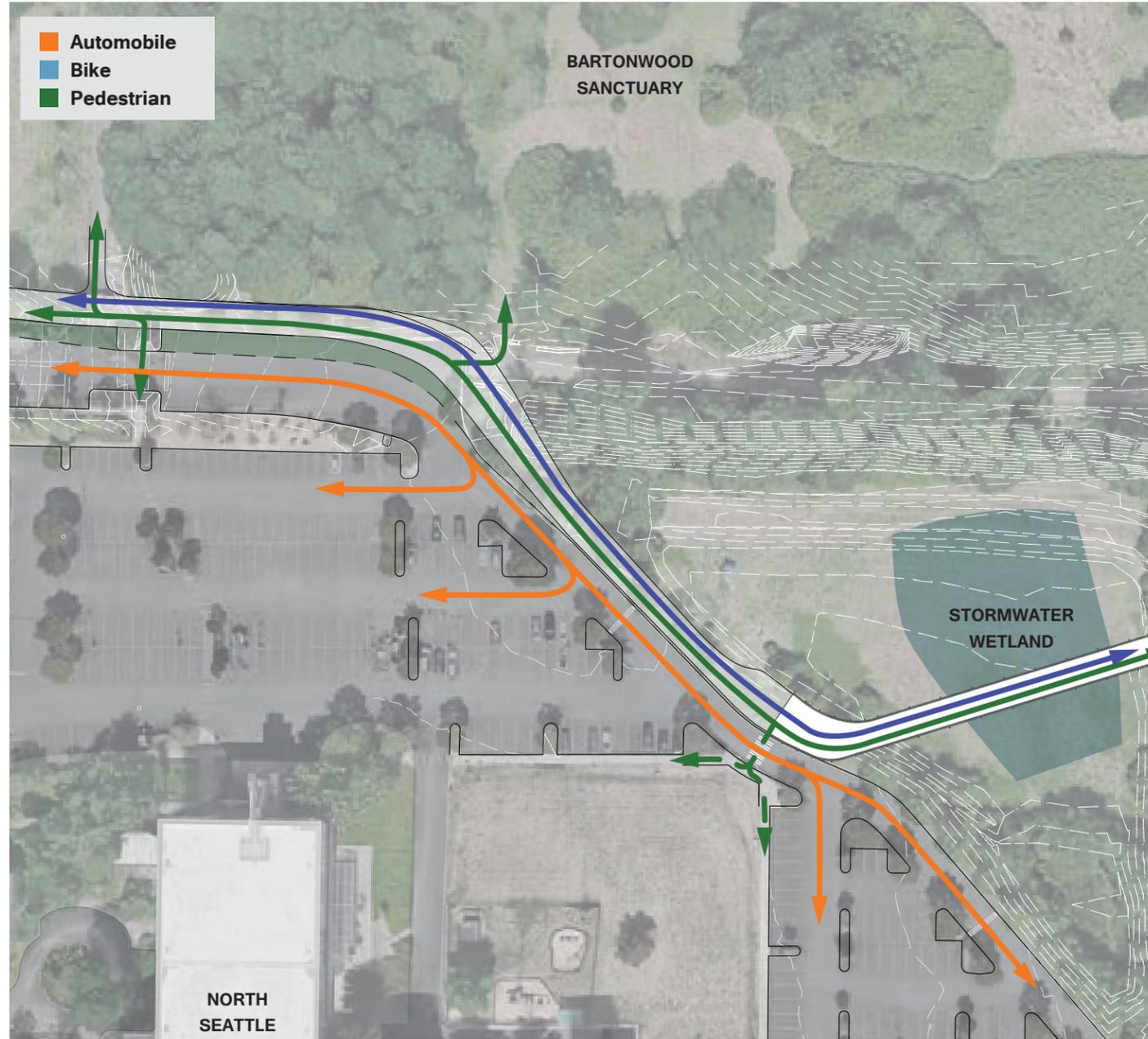
DESIGN RESPONSE

- The design team has [enlarged landing areas](#) to allow for safe circulation. Visual and tactile cues have been added to increase awareness of mixing and slow circulation areas.
- Primary and secondary [wayfinding strategies have been developed](#) for the project.

REVISED ALIGNMENT - CIRCULATION AT WEST LANDING

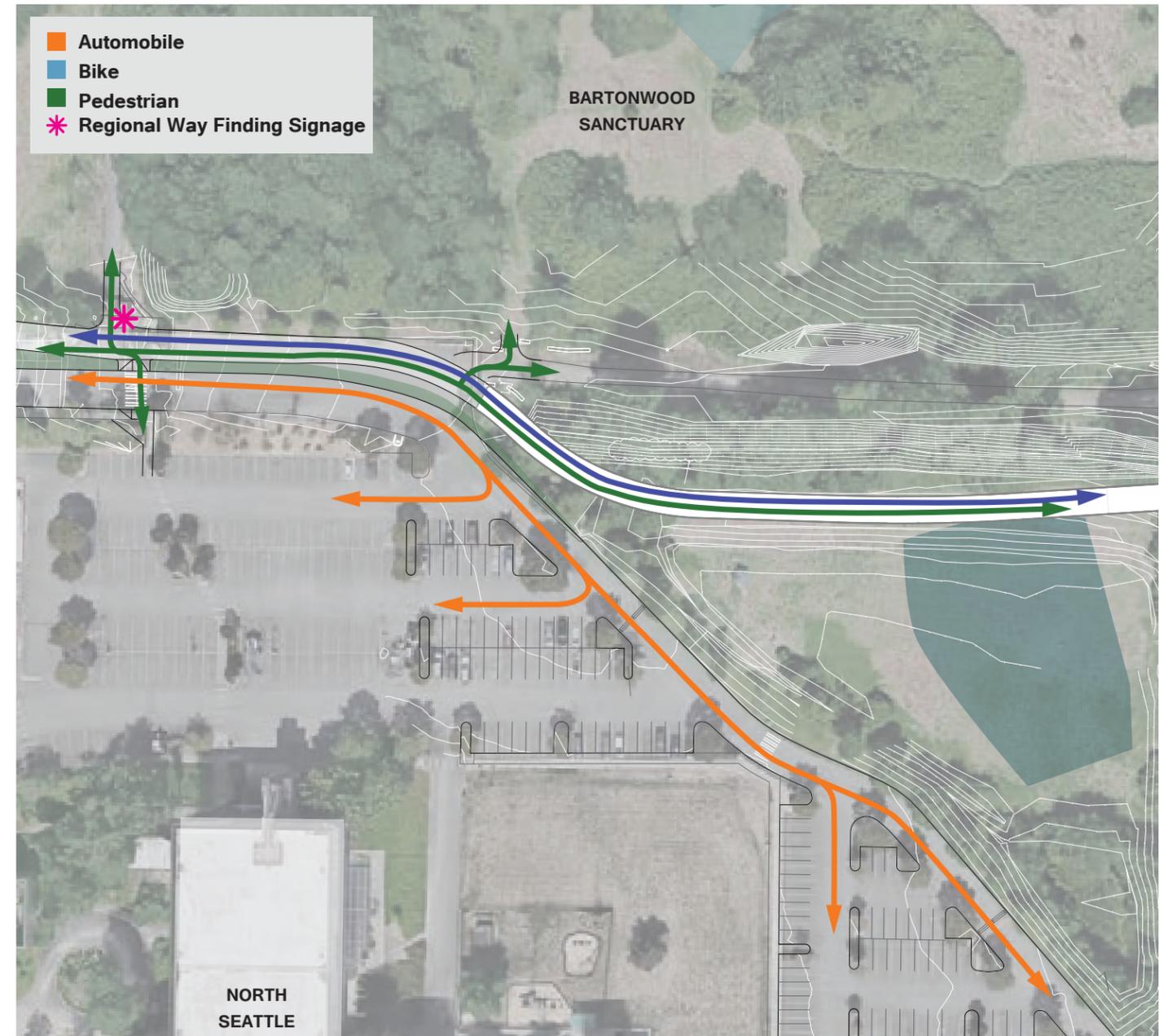
MAY 2017 CIRCULATION

- Alignment optimized for direct connection to campus.



CURRENT CIRCULATION

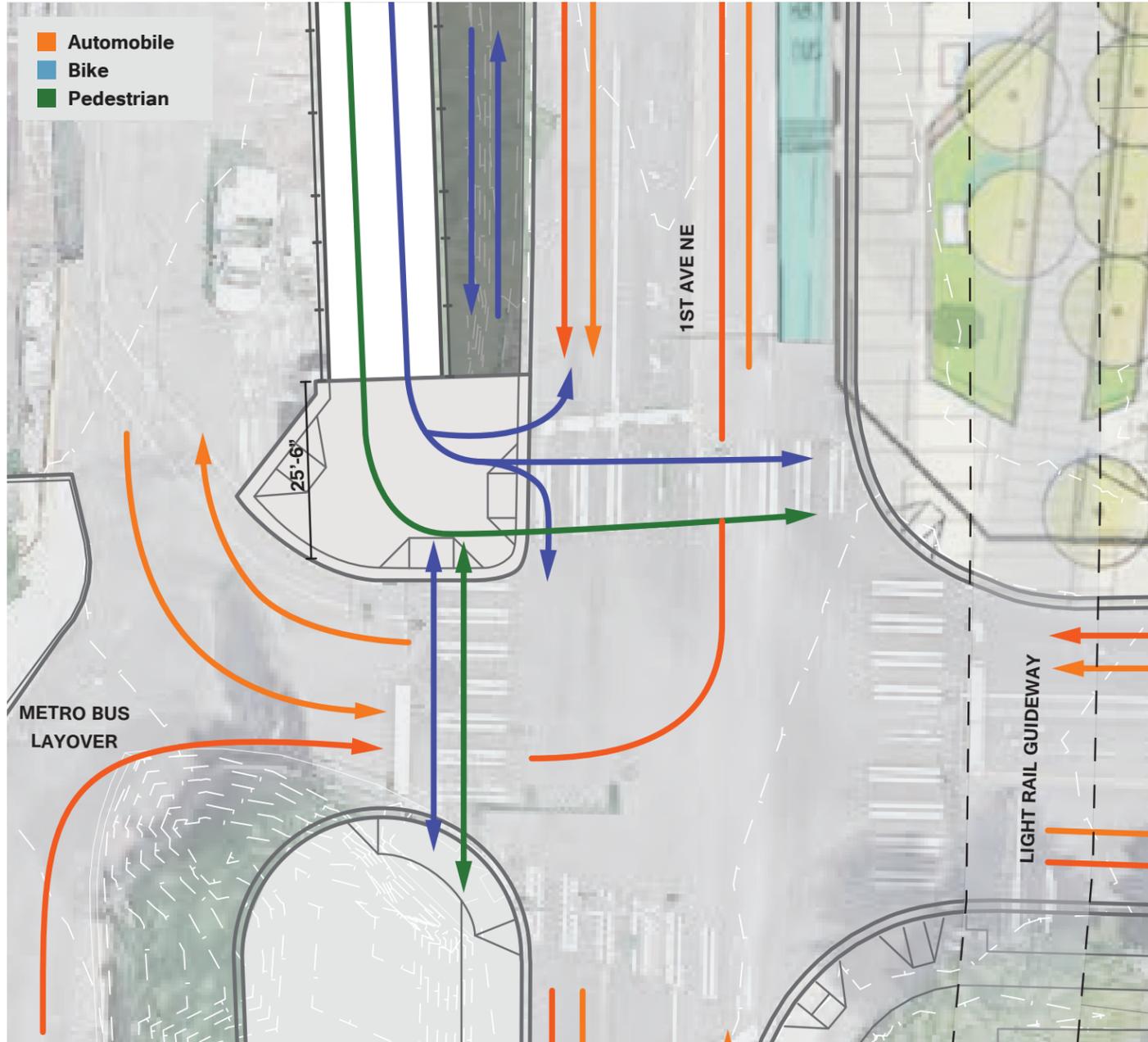
- Alignment optimized as a neighborhood connection and impact to NSC minimized.



REVISED ALIGNMENT - CIRCULATION AT EAST LANDING

MAY 2017 CIRCULATION

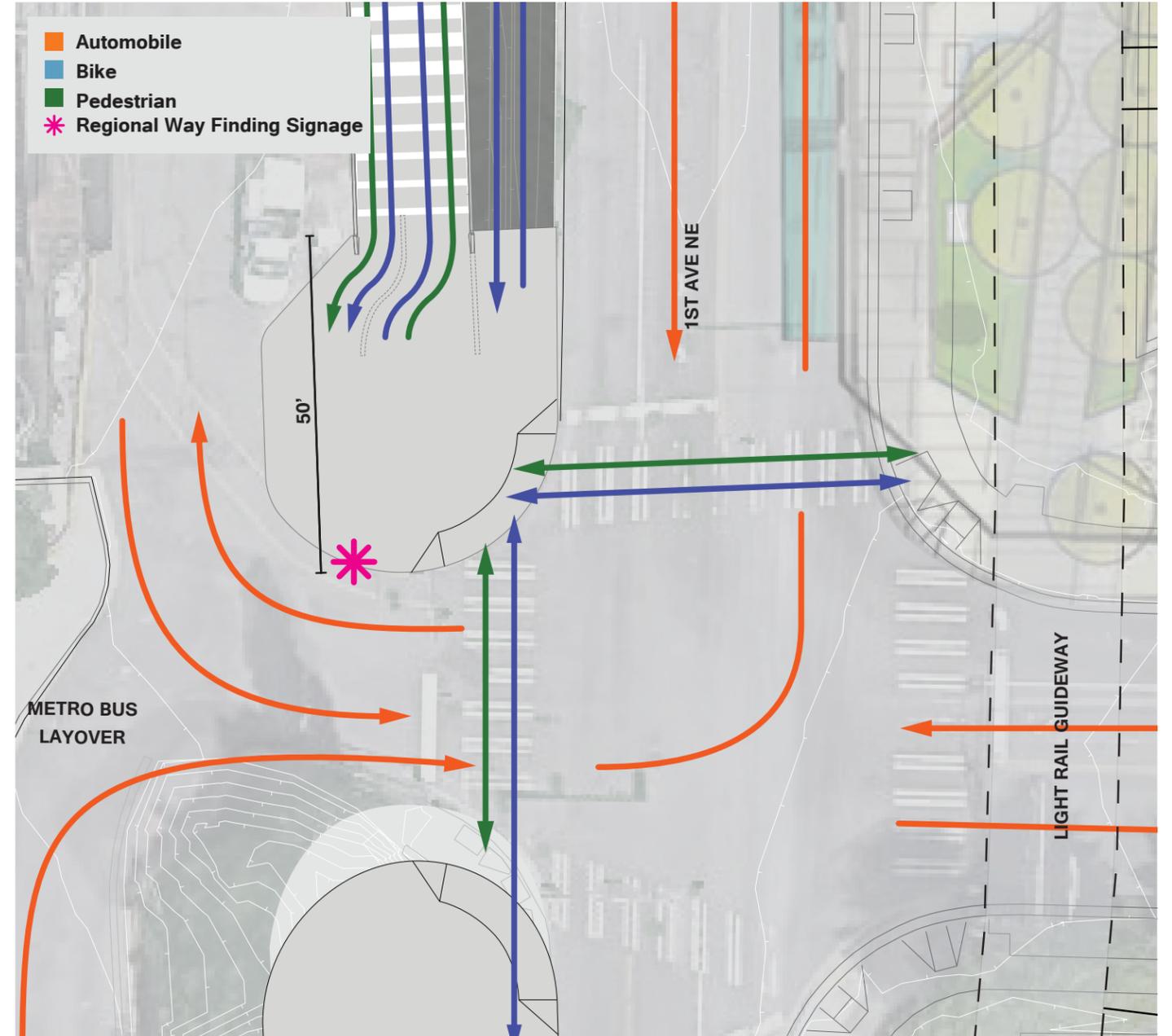
- Alignment and slopes created a constrained plaza area.



REVISED DESIGN

CURRENT CIRCULATION

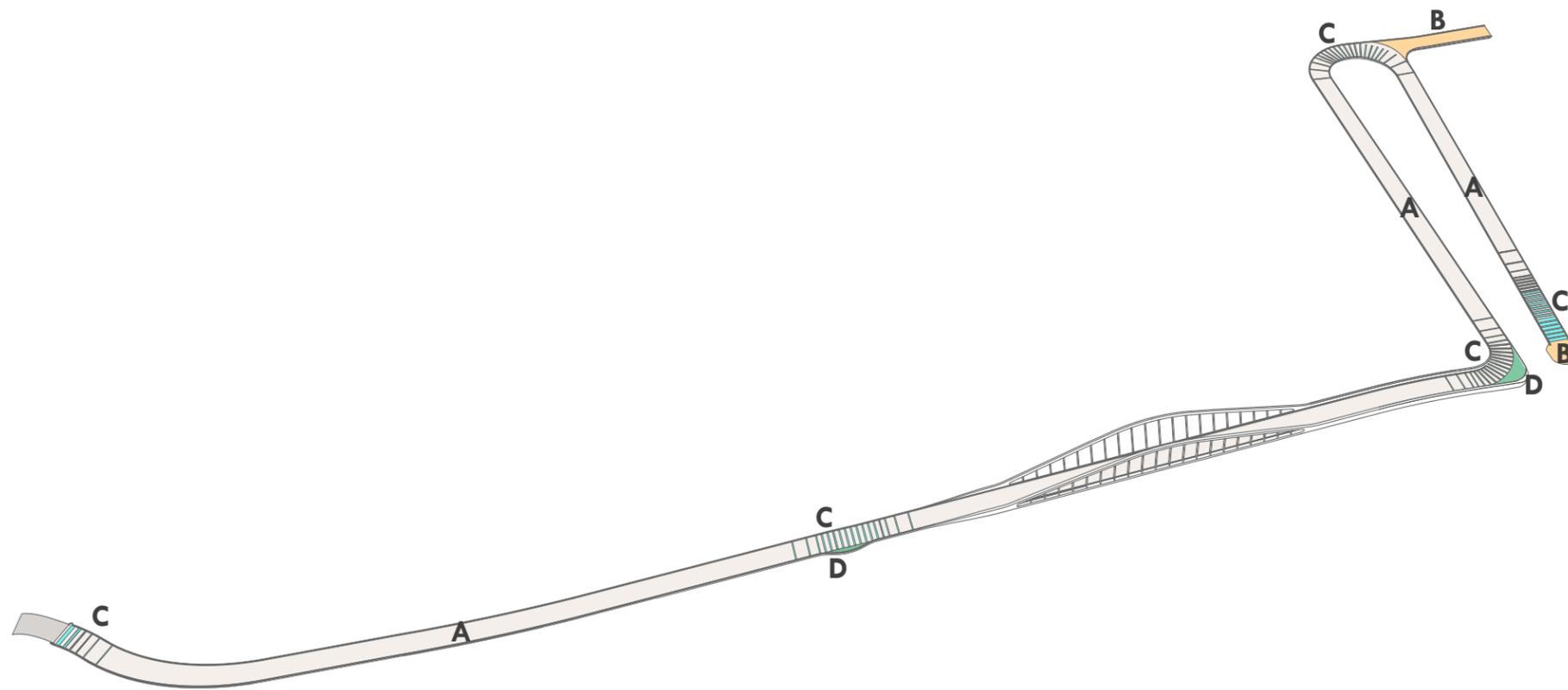
- Alignment optimized to double circulation area.
- Secondary cues added to enhance safe circulation paths.



REVISED ALIGNMENT - VISUAL AND TACTILE CUES

PAVING AND TRANSITIONS

- Paving as key intuitive wayfinding element of the main trail.
- Paving bands utilized to communicate slowing of traffic at overlooks, curves, and mixing areas and transitions.



A Main Trail

-Broom Finish Light Grey Concrete



B Mixing Zone

-Broom Finish Grey Concrete



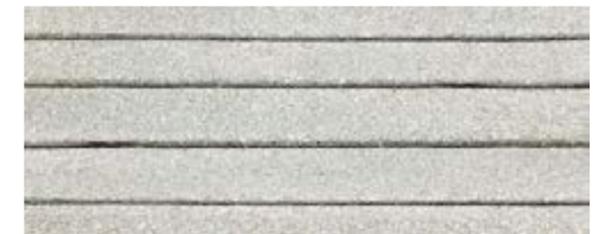
C Thermoplastic Bands

-Grey Embedded Striping



D Outlook

-Black Finish Light Grey Concrete with Score Joints



REVISED DESIGN PAVING PLAN

REVISED ALIGNMENT - VISUAL AND TACTILE CUES

MIXING AREAS

- Paving bands constitute a gradient to accentuate transitions.
- Secondary wayfinding is included in paving bands.



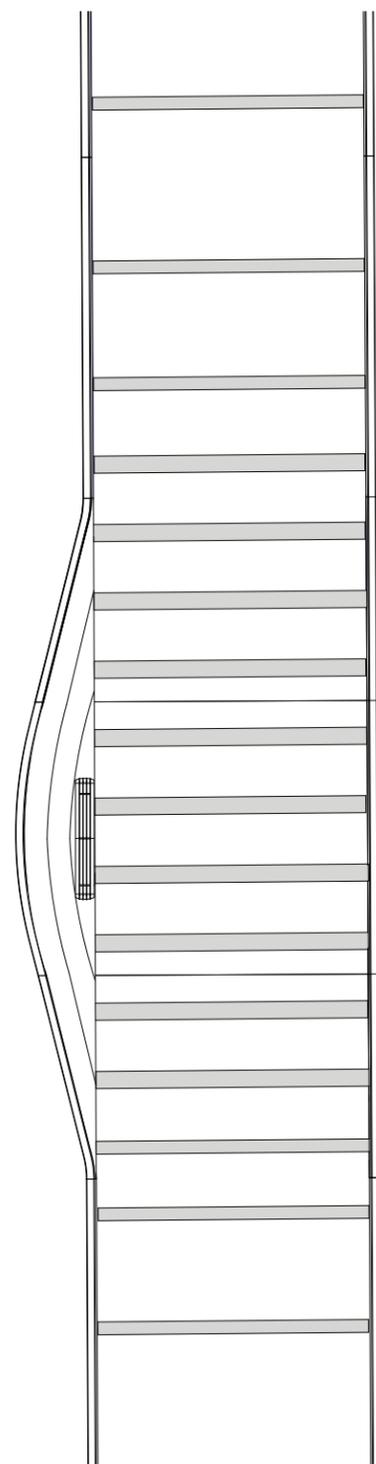
MIXING ZONE ON EAST LANDING



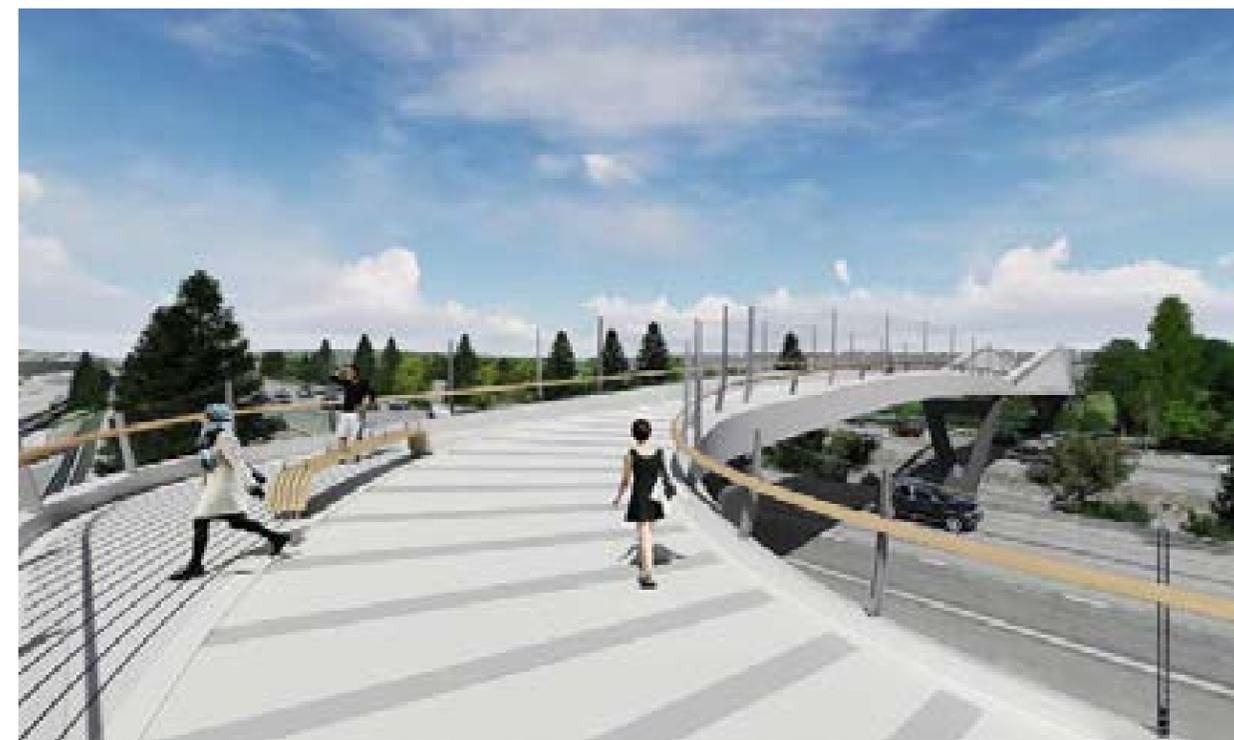
MIXING ZONE BY SOUND TRANSIT STATION

REVISED ALIGNMENT - VISUAL AND TACTILE CUES

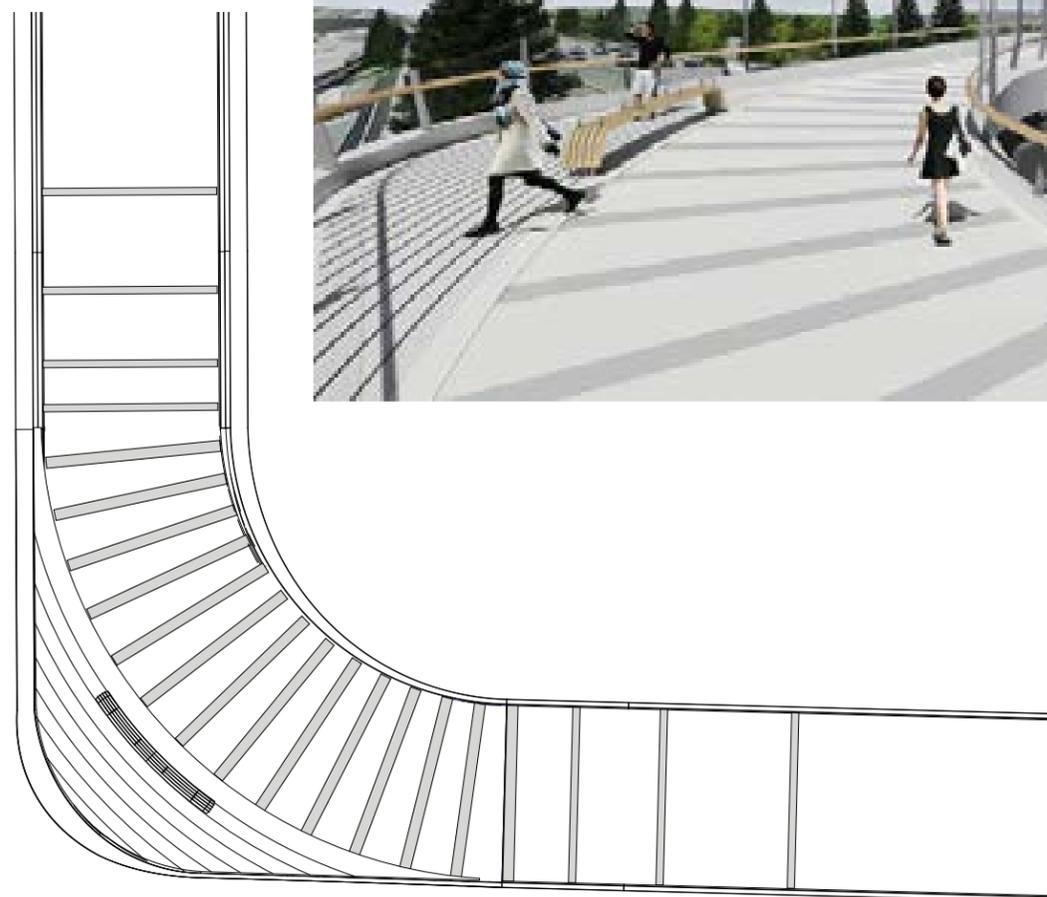
SLOW ZONES, OVERLOOKS AND CURVES



CAMPUS POND OVERLOOK



100TH STREET OVERLOOK



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SUSTAINABILITY STRATEGY

SUSTAINABILITY STRATEGY - GUIDANCE

DESIGN COMMISSION MAY 18, 2017

The SDC is very concerned with the absence of a sustainability strategy to help guide the project design. Commissioners stressed the importance of establishing sustainability goals above what is required by SDOT policies. The commission recommended the design team provide sustainability goals that at least address water treatment, drainage, and the landscape. [Articulate goals for sustainability and outline strategies to meet identified goals.](#)

‘The design team needs to show how they are incorporating sustainability strategies. I support the goals of this project. I see this project as a very important piece of infrastructure that will help a lot of people travel across I-5, which is why I want to make sure the bridge functions well for all users,’ Rachel Gleeson.

DESIGN RESPONSE

- The [design team has developed a sustainability strategy](#) for the project after evaluating a number of systems and methods.
- A series of interdisciplinary meetings have been conducted to identify opportunities and integrate strategies into the design, specifications, and construction strategies.



AERIAL VIEW

SUSTAINABILITY STRATEGY - PROJECT APPROACH

PROJECT APPROACH TOWARDS SUSTAINABILITY

- Good design is sustainable design.
- Project defines Sustainability as “triple bottom line”; incorporating elements for:
 - People:** Equitably empower the broader community
 - Planet:** Environmental resources provided by the Earth
 - Prosperity:** Financial resources of the agency and community



People. Planet. Prosperity.

- Project team held a number of meetings to develop a methodology for documenting our rigor in applying sustainability measures.
- Commitment to incorporating sustainability into final design documents and specifications.

SUSTAINABILITY STRATEGY - METHODOLOGY

OUR METHODOLOGY

Project team held a number of project meetings to develop a methodology for documenting our rigor in applying sustainability measures.

Use of SDOT standard practices for sustainability while considering project-specific design decisions.

Development of specific design documents and specifications to ensure we meet sustainability objectives;

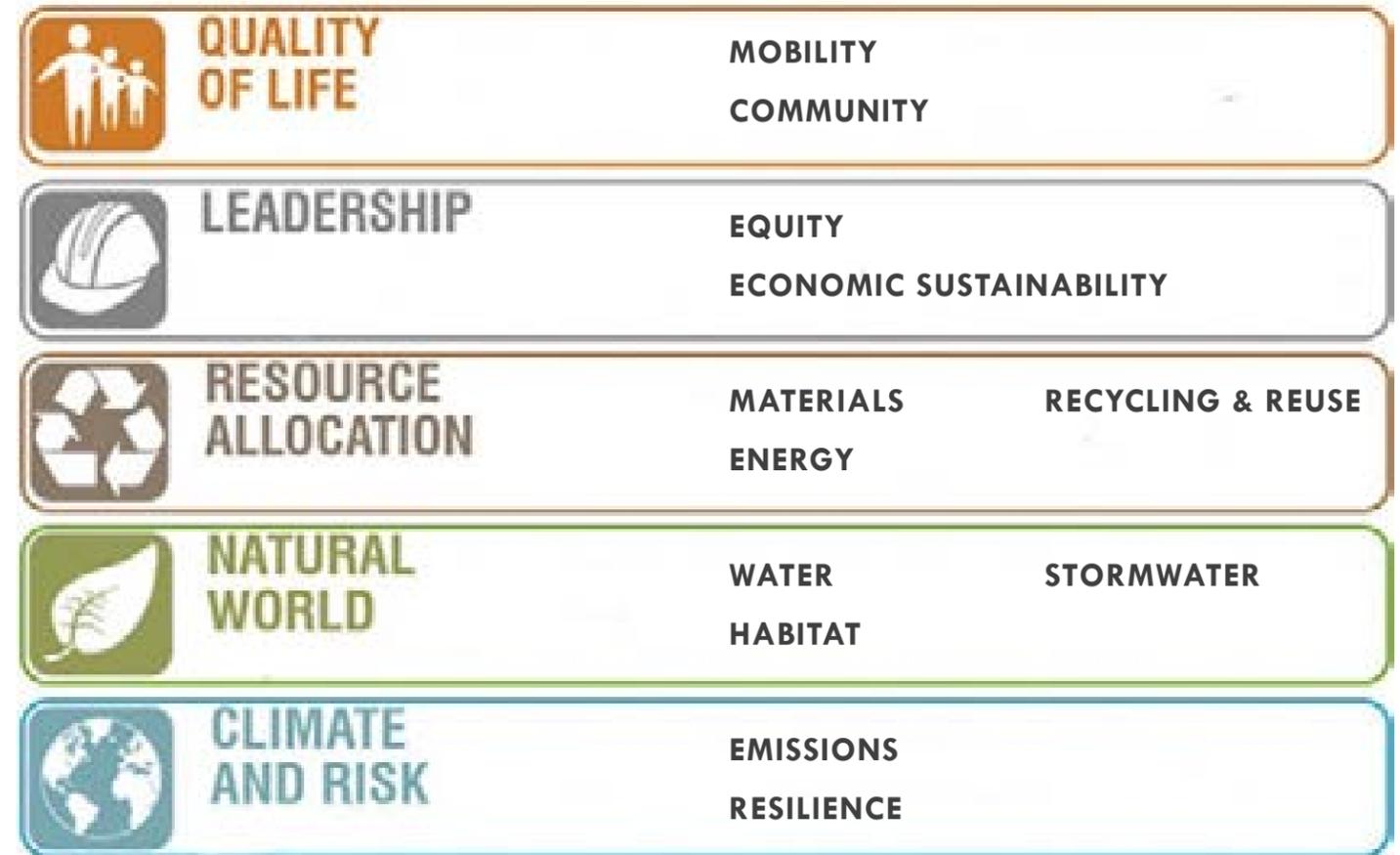
Mobility: Provides connections to education, employment, affordable housing, and medical opportunities, to LRT and other investments in high-capacity transit, to regional bicycle network infrastructure, and to pedestrian infrastructure. The bridge alignment was modified to reduce walking distances.

Community: Involved community in soliciting input and discussing alternate design decisions with community groups and leaders. The design includes educational wayfinding that narrate important watershed features, natural features, and area resources.

Equity: Improves access to parks and open spaces, job center and employment services, retail businesses, and health and fitness opportunities on both sides of I-5. Meets environmental justice goals and RSJI goals including translation during outreach efforts.

Materials: Off the shelf materials are integrated in a custom design that reduces overall material usage while maximizing constructability, including pozzolans for concrete structural elements and sidewalks.

Energy: Uses LED downlighting that minimizes lighting to environmentally sensitive areas.



Recycling & Reuse: Project follows SDOT standard practice for stockpiling elements for reuse, clearing and composting of woody debris, and recycling of demolished concrete and metal debris.

Stormwater: Detention system captures all project stormwater and minimizes impacts to area's floodplain function.

Habitat: Alignment was modified to minimize impacts to wetlands and avoid steep slopes and streambanks, and provide fish & wildlife enhancements.

Resilience: Open truss design provides simpler inspection and maintenance access that supports project life span.

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DESIGN REFINEMENT

DESIGN REFINEMENT - GUIDANCE

DESIGN COMMISSION MAY 18, 2017

The commission questioned the length and façade treatment proposal for the wall on the west side of the bridge. Commissioners are concerned with the potential long term maintenance issues associated with using plants on the wall façade. The Commission highly recommended the project team **reduce the length of the proposed wall on the west side of the bridge** in order to reduce potential long term maintenance issues and to increase visibility. Explore minimizing the length of the wall on the west side in order to improve stormwater flow, enhance views, and to minimize the bulkiness of the bridge design.

The SDC encouraged the design team to use durable materials. The commission specifically recommended the design team **refine and develop materials for the proposed handrails and mesh throw barrier**. Commissioners also recommended the design team **consider the scale and connection of materials**.

The SDC also recommended the further integration of the mesh throw barrier with the steel truss system, specifically where the mesh throw barrier crosses the edges and joints of the truss system.

DESIGN RESPONSE

- The design have been revised to **diminish the length and height of the MSE wall** structures.
- A number of refinements have been made the bridge architecture elements based on Commissioner comments.



DESIGN REFINEMENT - MSE WALL STRUCTURE TREATMENTS

MSE WALL AT THE WEST END

- The shifted alignment of the bridge structure allows the wall height to be reduced as the structure is integrated into the existing berm along the 100th Street corridor. With this shift, the overall wall length has been reduced.
- Plantings will be utilized along the south face of the wall to soften the wall and reduce its scale, while still allowing for ease of maintenance and inspection of the structure.
- Form liners will add a secondary patternization to the structure.



FORM LINER TEXTURED FINISH



MAY 2017 VIEW OF TEXTURED MSE WALL WITH PLANTINGS



CURRENT DESIGN

DESIGN REFINEMENT - MSE WALL STRUCTURE TREATMENTS

MSE WALL AT THE EAST END

- The alignment and slope reconfiguration has allowed for the reduction in length and height of this wall structure.
- Plantings will be utilized along the south face of the wall to soften the wall and reduce its scale, while still allowing for ease of maintenance and inspection of the structure.
- Form liners will add a secondary patternization to the structure.



FORM LINER TEXTURED FINISH

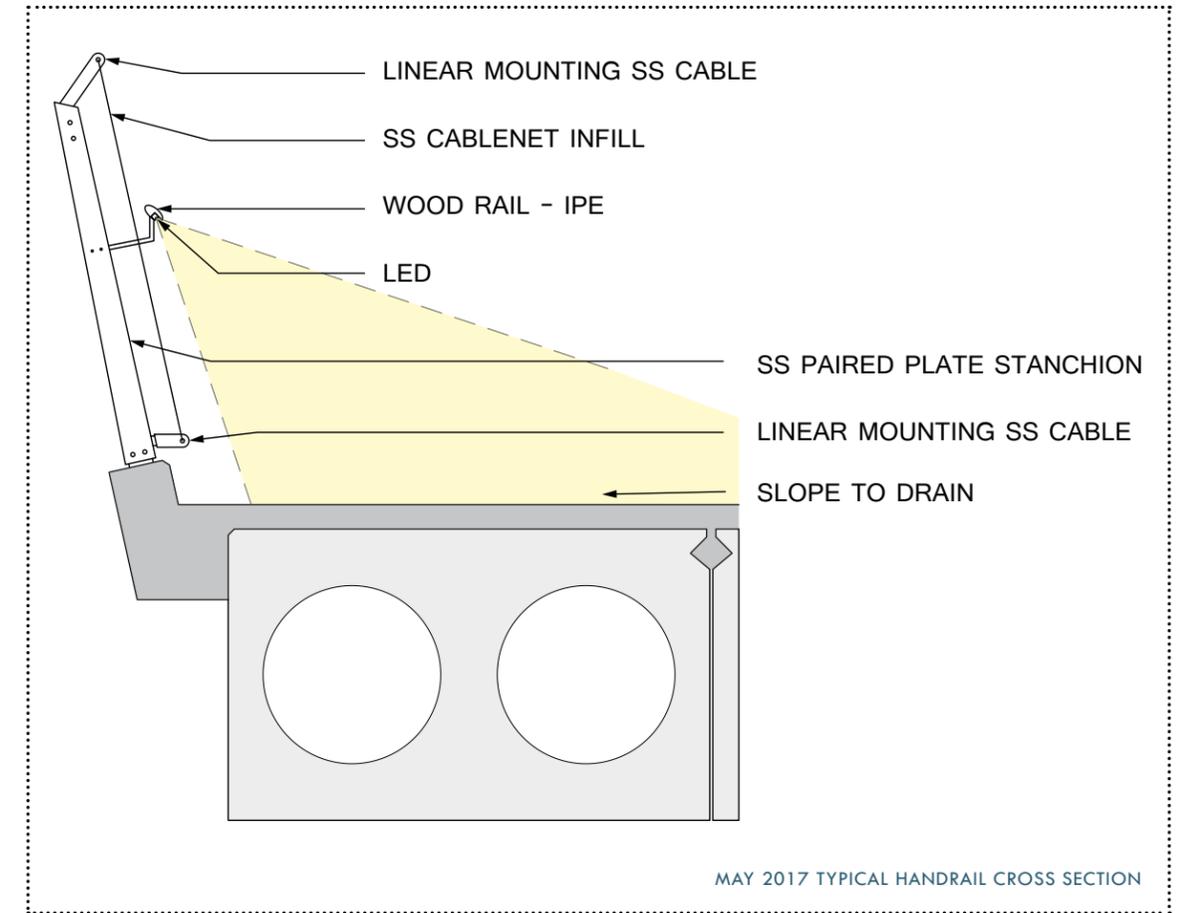
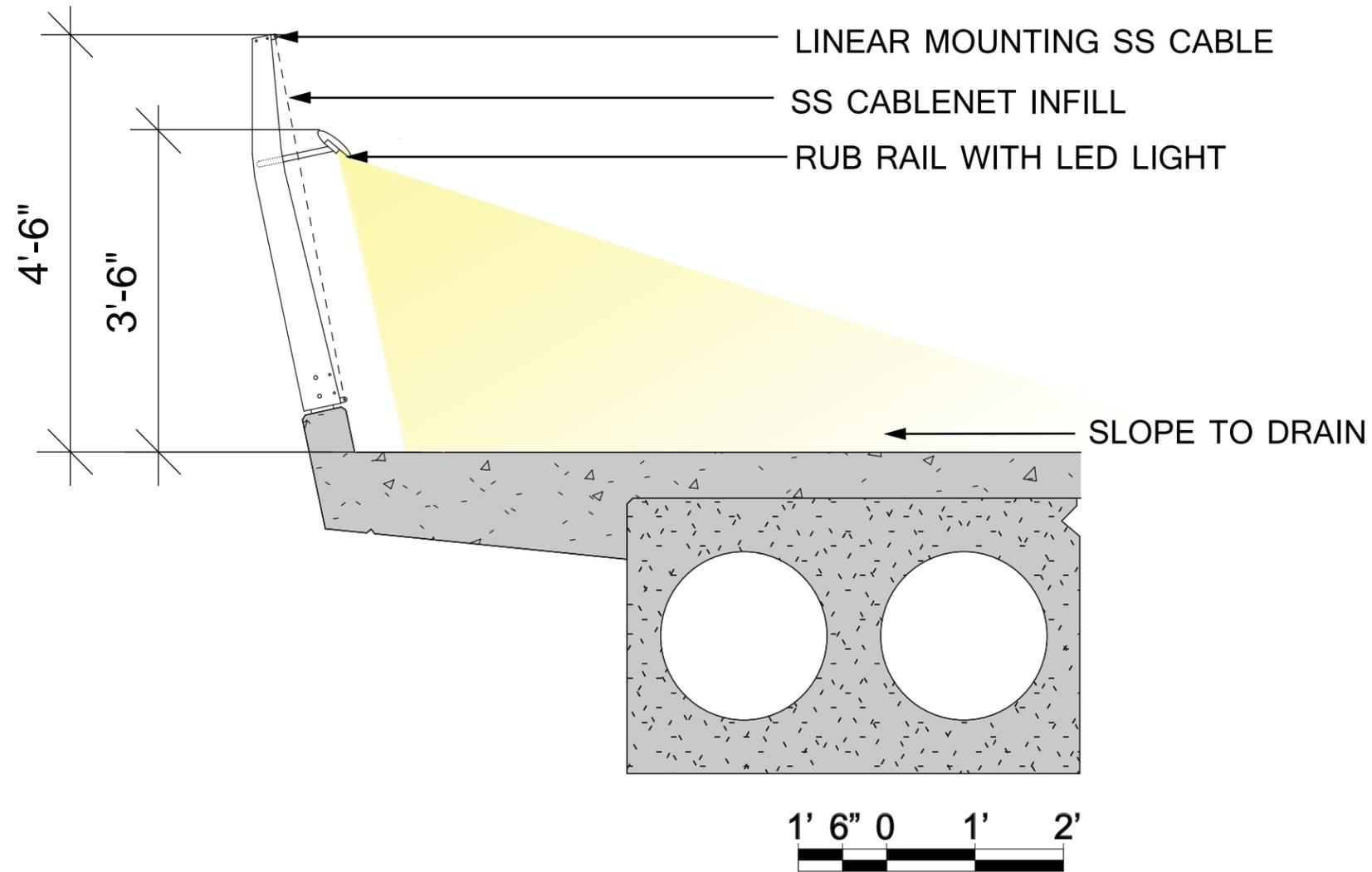


MAY 2017 VIEW OF TEXTURED MSE WALL WITH PLANTINGS



CURRENT DESIGN

DESIGN REFINEMENT - TYPICAL GUARDRAIL

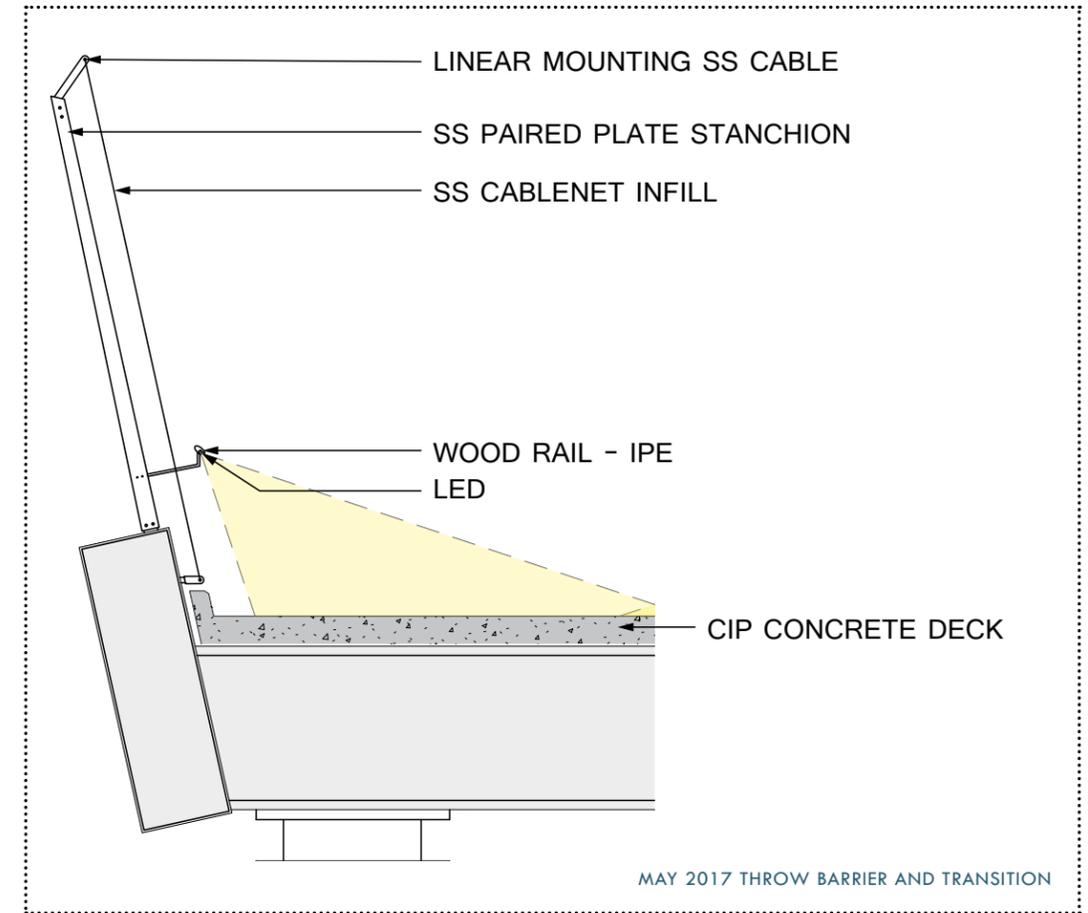
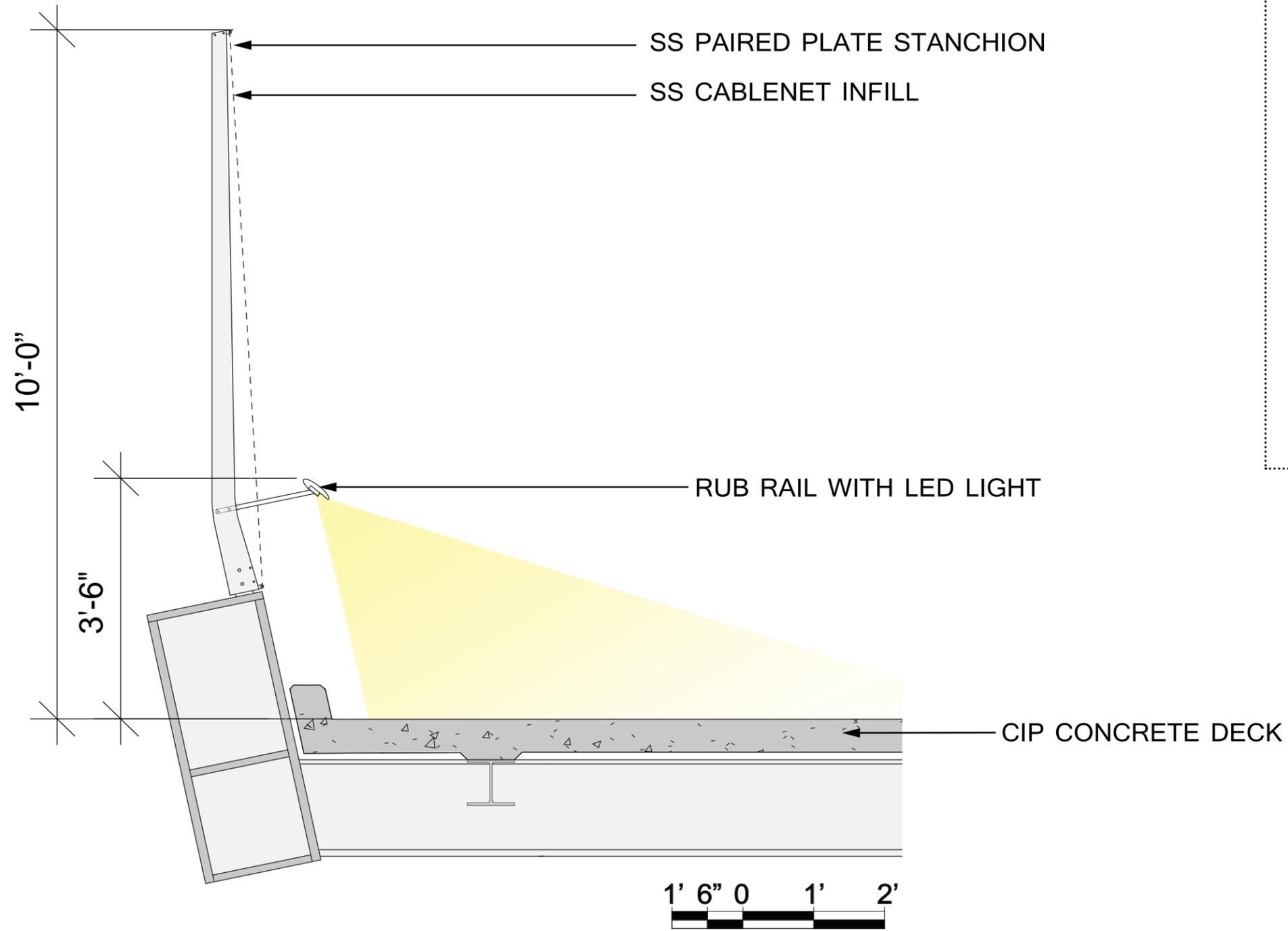


DESIGN REFINEMENT - TYPICAL GUARDRAIL



MAY 2017 THROW BARRIER AND TRANSITION

DESIGN REFINEMENT - THROW BARRIER AND TRANSITION



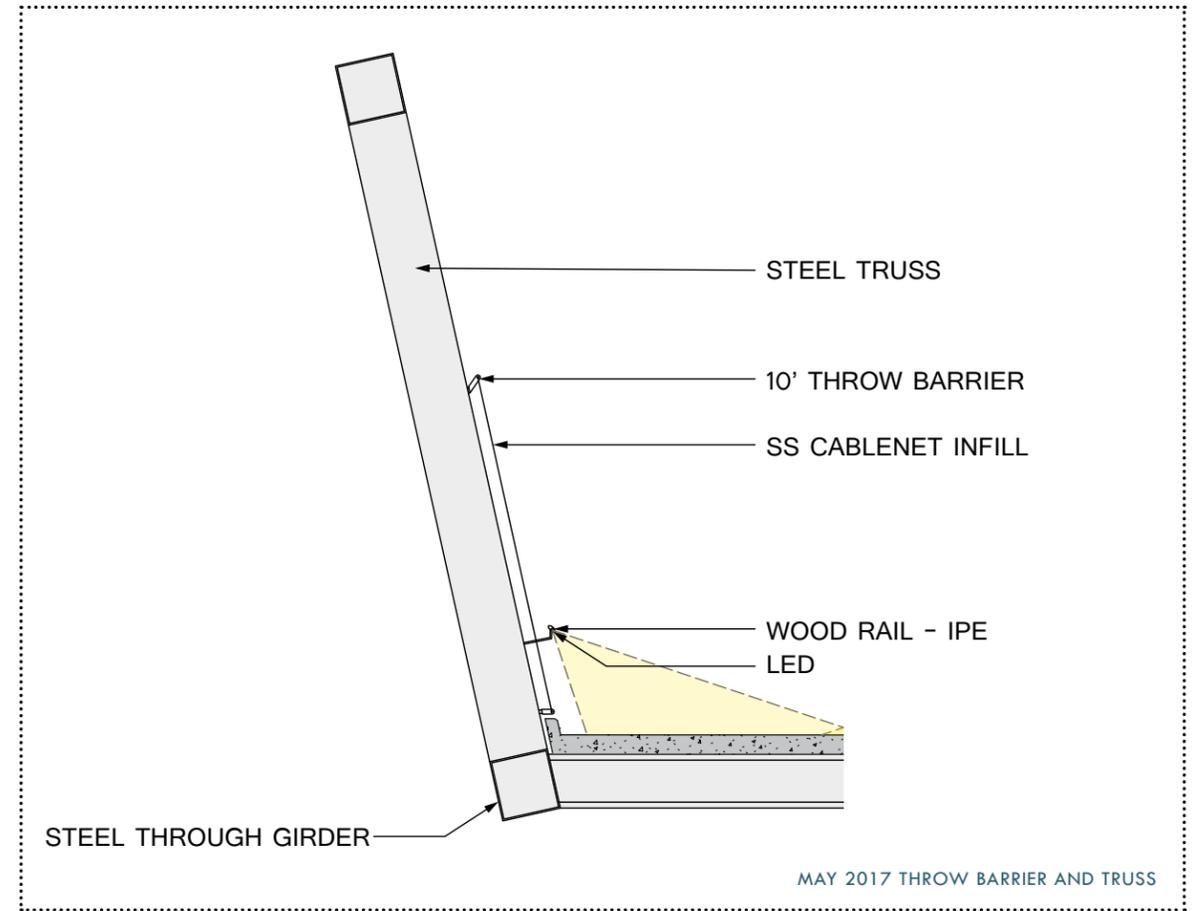
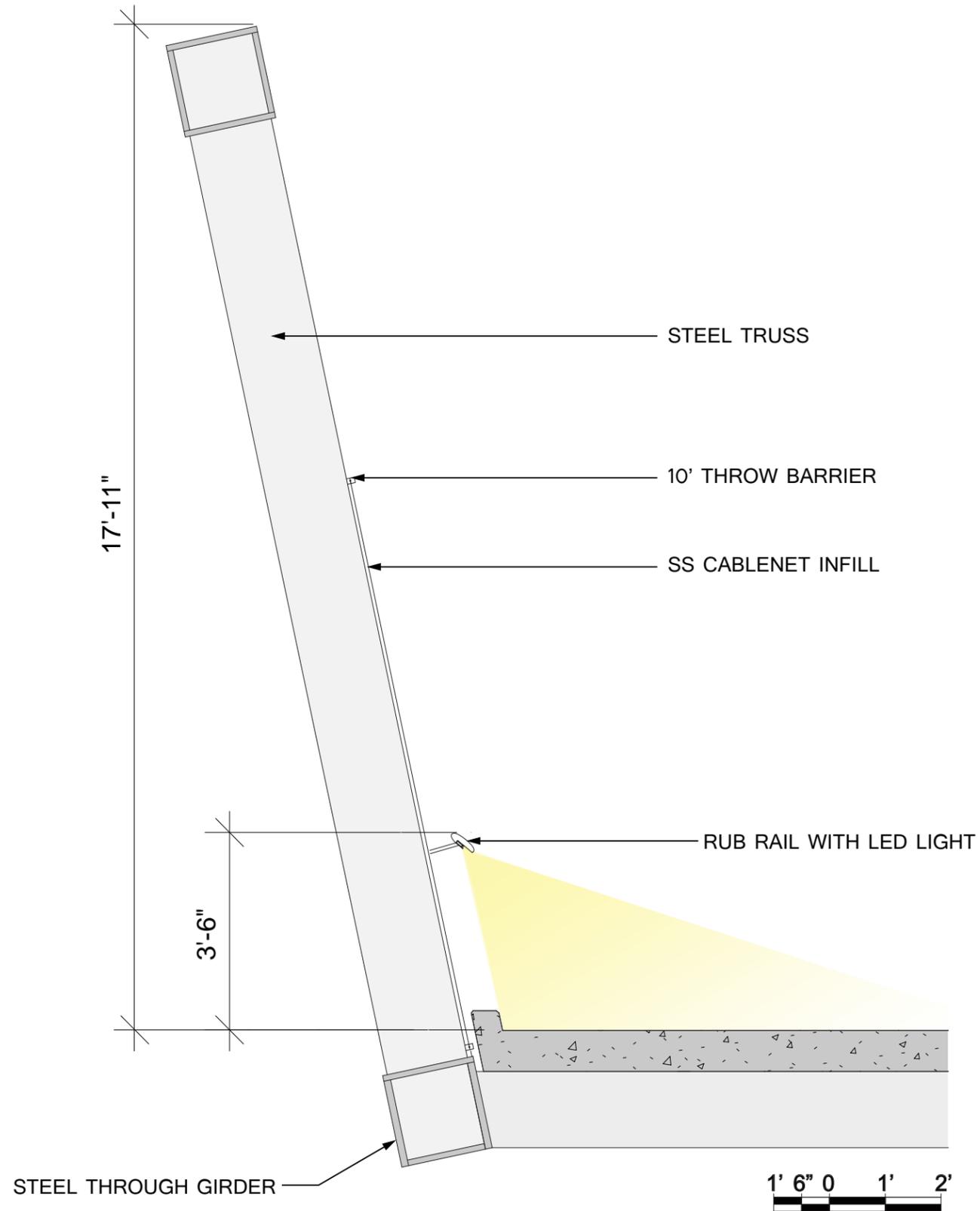
REVISED RAILING SECTION

DESIGN REFINEMENT - THROW BARRIER AND TRANSITION



MAY 2017 THROW BARRIER AND TRANSITION

DESIGN REFINEMENT - THROW BARRIER AND TRUSS

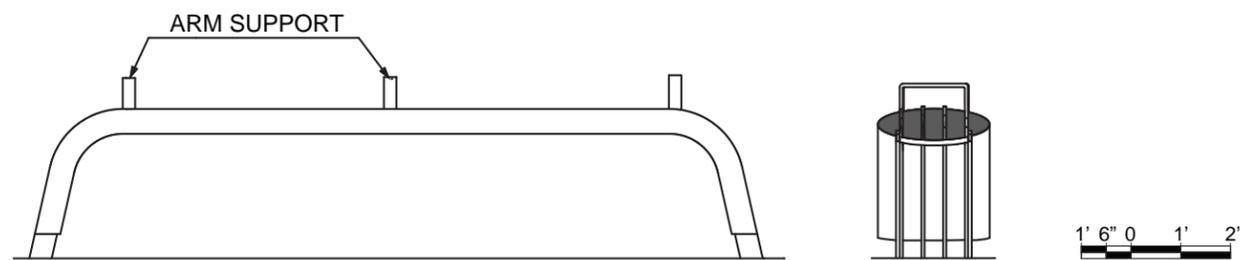


REVISED RAILING SECTION

DESIGN REFINEMENT - THROW BARRIER AND TRUSS



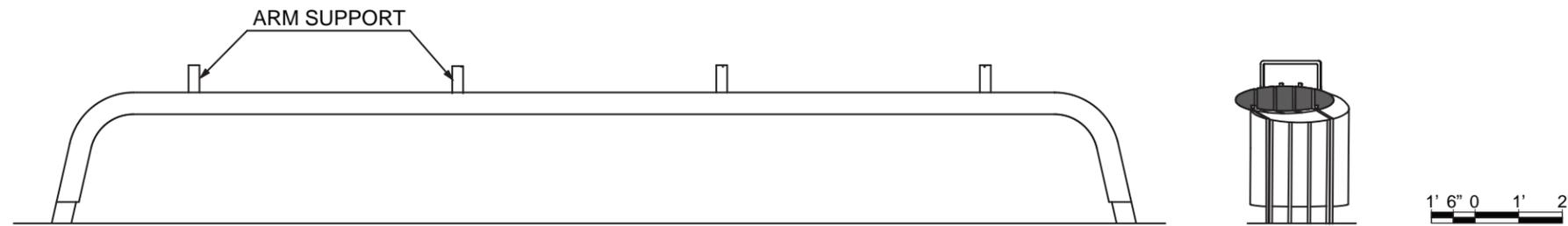
DESIGN REFINEMENT - SEATING ELEMENTS



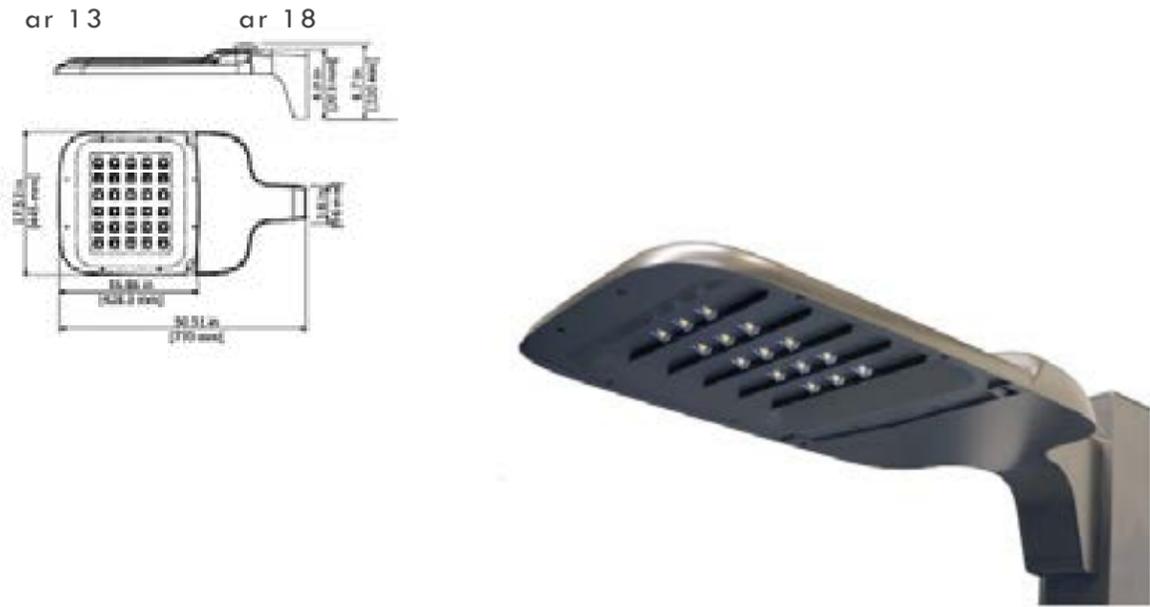
MAY 2017 WEST SEATING ELEMENT



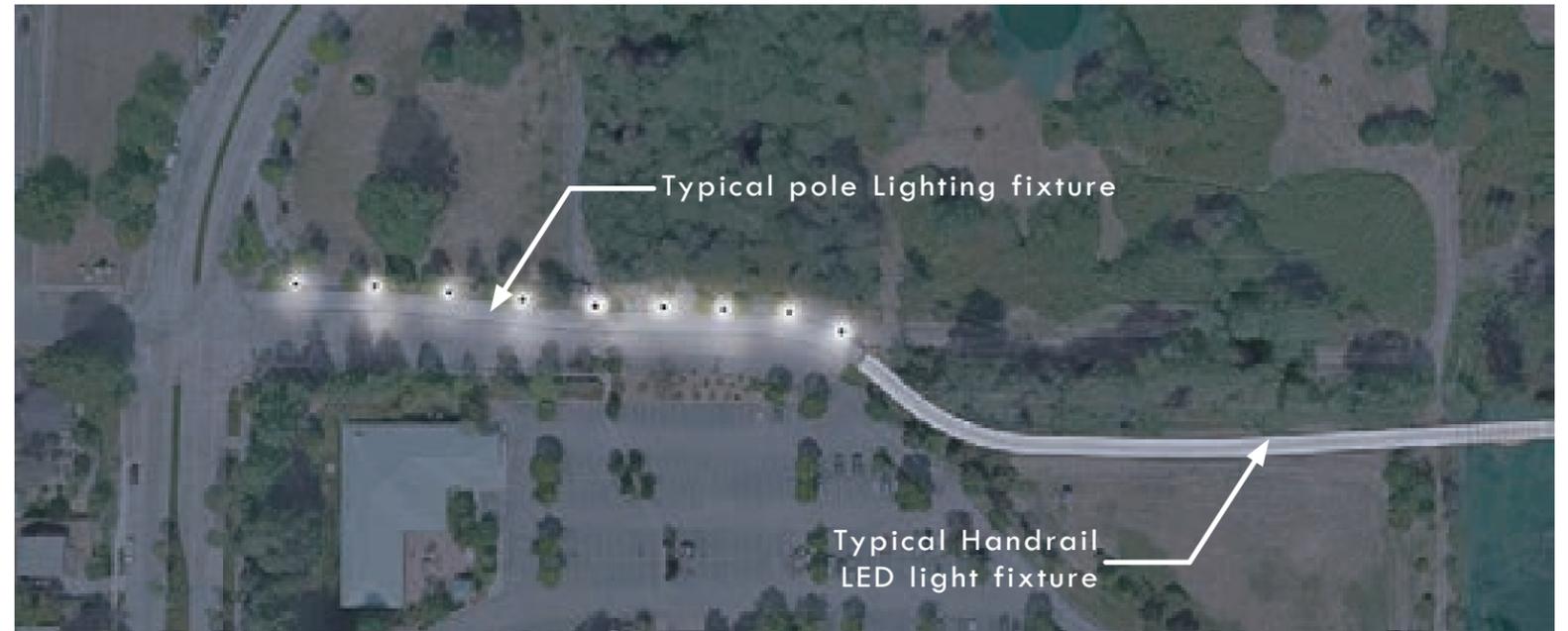
DESIGN REFINEMENT - SEATING ELEMENTS



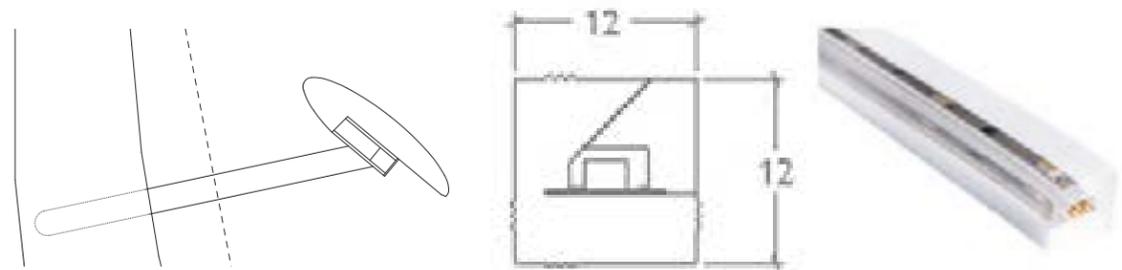
DESIGN REFINEMENT - PROJECT LIGHTING



POLE MOUNTED LED FIXTURE



CONCEPTUAL LIGHTING PLAN



LED FIXTURE TO BE INSTALLED IN HANDRAIL EXTRUSION



LIGHTING CROSS SECTION

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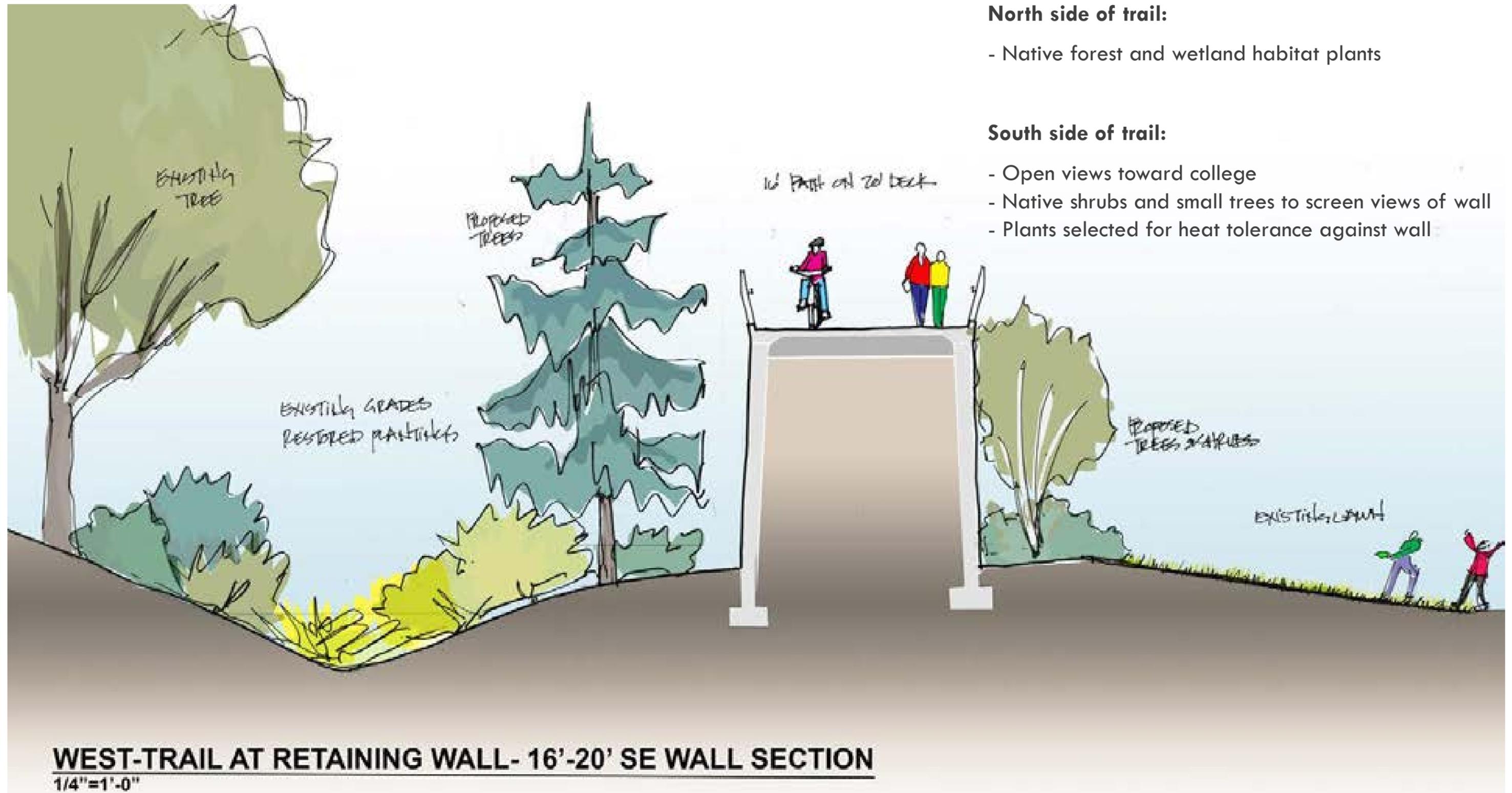
Landscape Architecture

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LANDSCAPE ARCHITECTURE

LANDSCAPE ARCHITECTURE - TRAIL EXPERIENCE ALONG WEST END



LANDSCAPE ARCHITECTURE - EAST END AND PBL

Both sides:

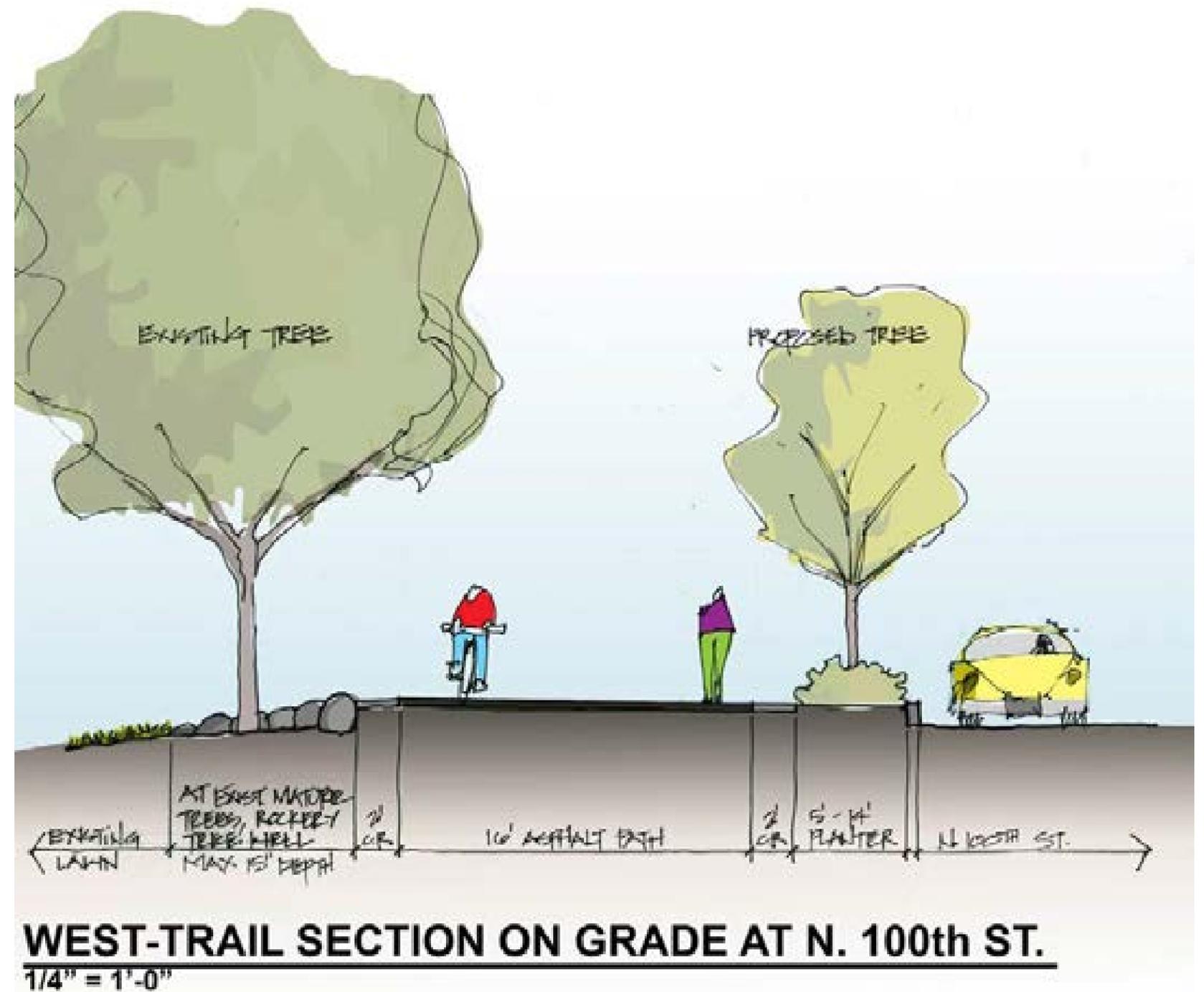
- Open views to both sides

North side of trail:

- Blend in to existing park-like landscape of grass and trees
- Preserve existing large trees where possible, protect with low rockeries as needed

South side of trail (planting strip):

- Native or adapted groundcovers
- Shade trees, complementary to existing



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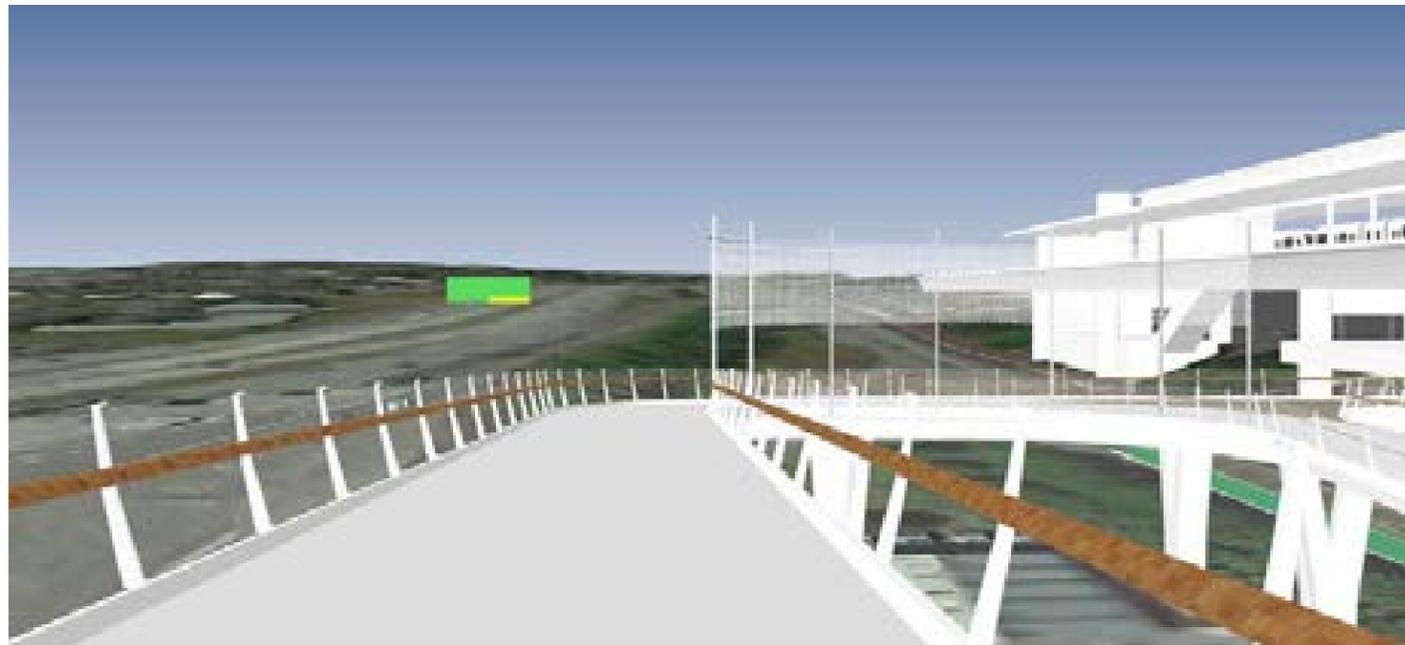
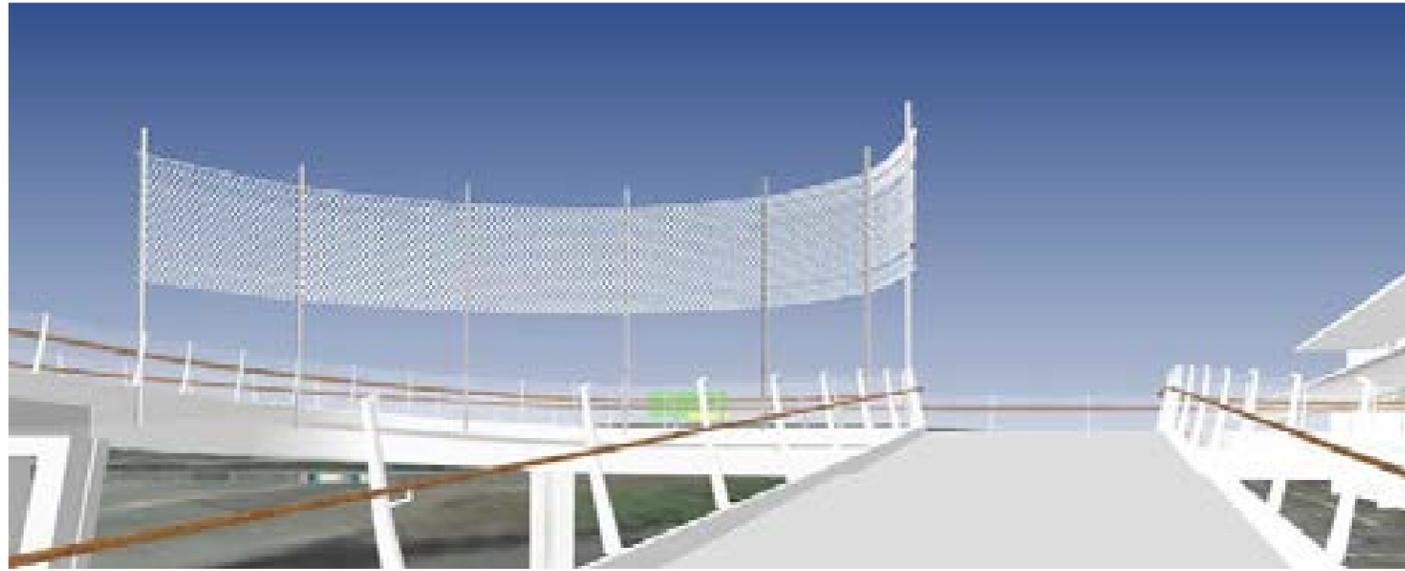
Summary

PROJECT ART

PROJECT ART - DYNAMIC INSTALLATION AT THE HAIRPIN

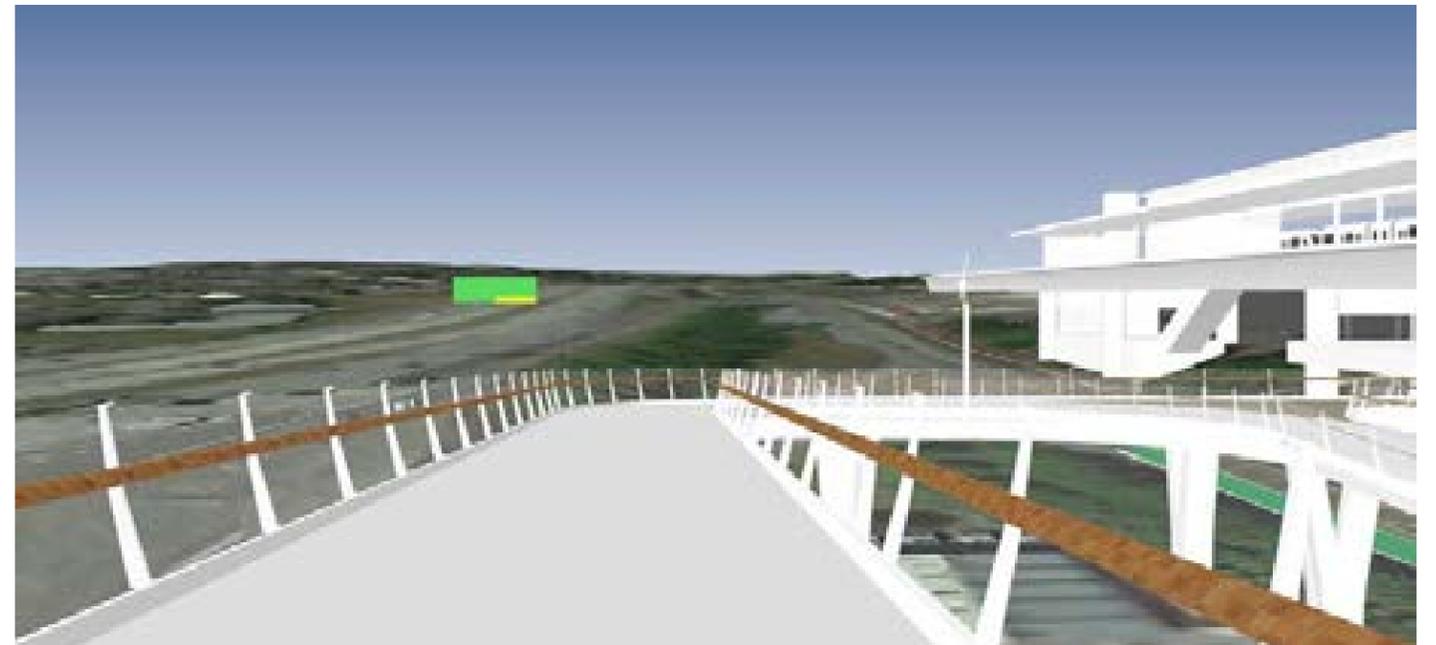
WIND PIXELS, A KINETIC INSTALLATION

- A visual field of airfoil sections mounted on a tensile grid.
- Each airfoil constitutes a pixel that creates a dynamic effect in the air and on the bridge deck in shadow.



SUN POINTER

- A sun pointer that always points to the sun, day and night, cloudy or sunny.
- A simple pole with a moving pointer, incorporating a means for recording sunshine, possibly by engraving lines around the pole when there is sun.



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- The overall design quality has been enhanced by the Design Commission direction.
- Circulation, wayfinding, and safety have been improved through a number of design modifications.
- The recommendation to adopt a sustainability strategy has been embraced by the team and thoroughly integrated into the project.



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THANK YOU