



# SANTA MONICA PIER BRIDGE CONCEPTUAL DESIGN

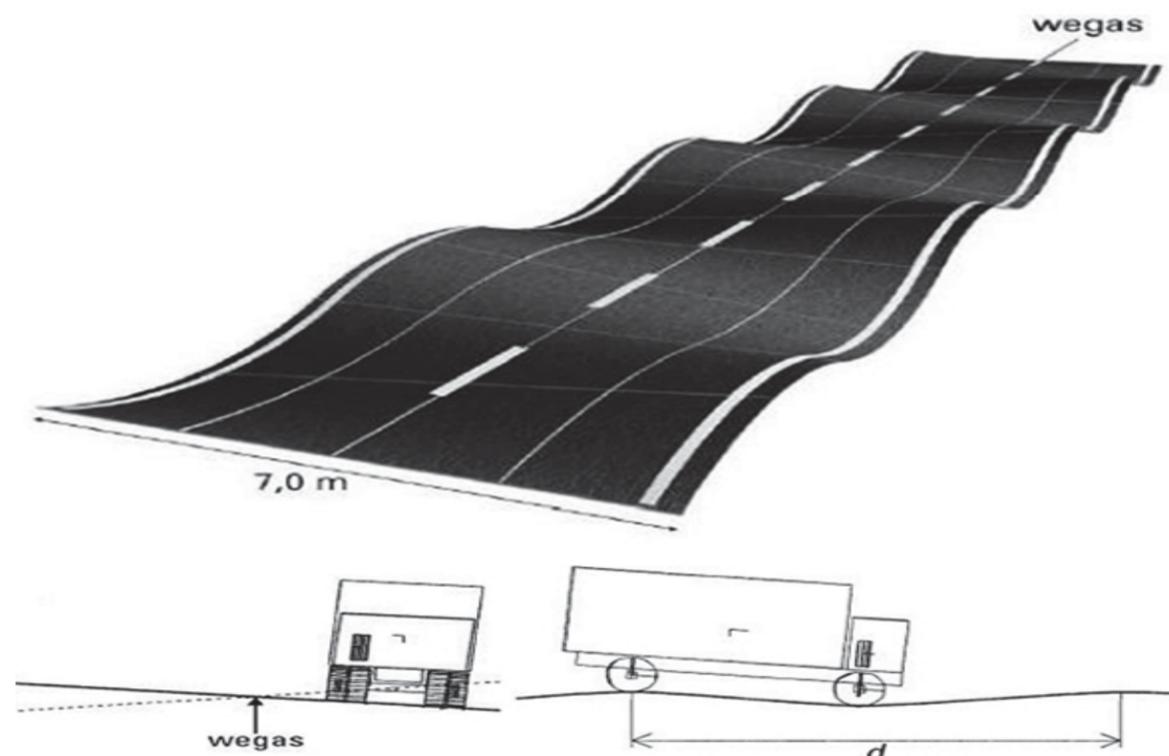
TO OVERSEE AN INTEGRATED APPROACH  
TO T.Y. LIN INTERNATIONAL'S PIER BRIDGE  
PRELIMINARY STUDY

- PIER ENHANCEMENT
- COORDINATION OF PIER BRIDGE
- ESTABLISH FRONT DOOR TO PIER
- RESOLVE PEDESTRIAN vs.  
VEHICLE CONFLICT











- 1. Pier Bridge
- 2. Parking Area
- 3. Beach Access to Pier
- 4. Market Kiosks
- 5. Iconic Marker





# SANTA MONICA PIER BRIDGE CONCEPTUAL DESIGN

- **PROJECT PURPOSE**

- **SITE ANALYSIS**

- EXISTING CONDITIONS
  - IMPROVEMENT OPPORTUNITIES

- **ROADWAY CLEARANCE**

- MINIMUM ADA RAMP LENGTHS

- **CONFIGURATION CONCEPTS A-F**

- PLAN & ELEVATION
  - PERSPECTIVE & SECTION

- **DESIGN ALTERNATIVES 1-4**

- AERIAL VIEW
  - PERSPECTIVE VIEW

- **STAGING**

- SHORT BRIDGE
  - LONG BRIDGE
  - ADA RAMP
  - STAIR INTEGRATION

- **PRECEDENTS**

- ARCHITECTURAL
  - SUSTAINABLE TECHNOLOGY

- **FUNDING**

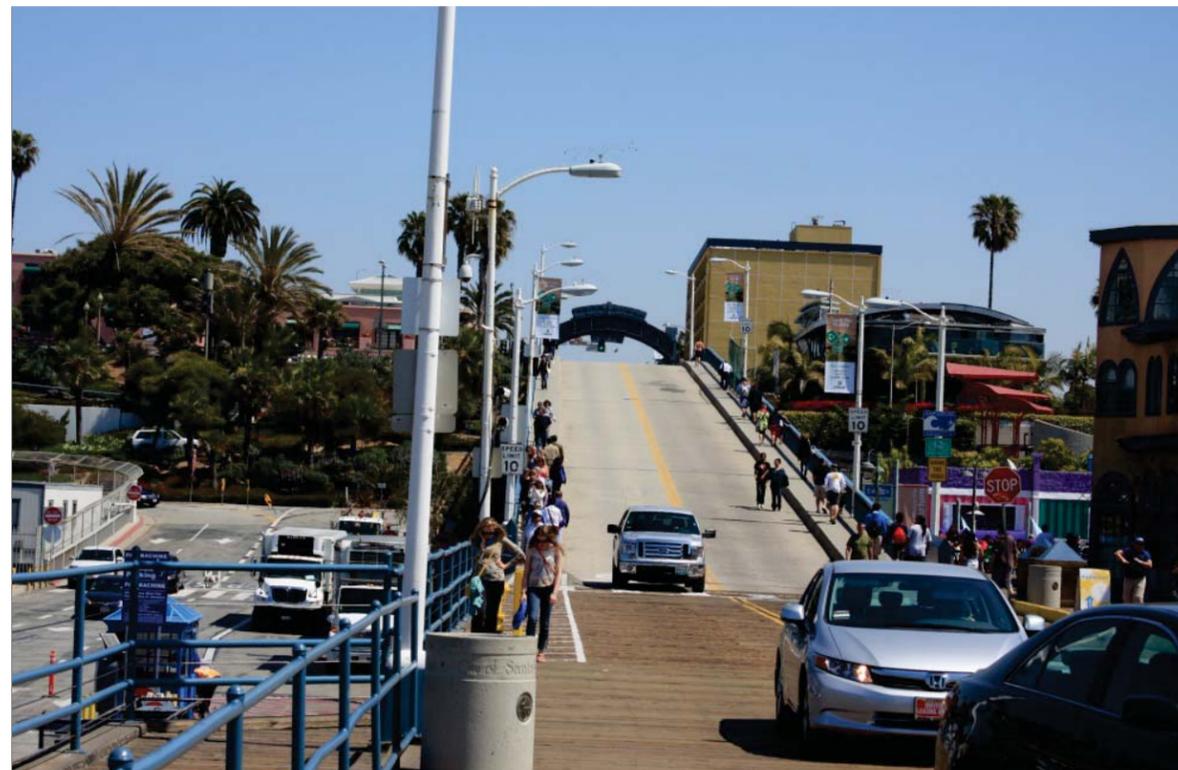
- EXAMPLE WEIGHTING CRITERIA
  - TEMPLATE
  - EXAMPLE
  - MATRIX

• **REPLACEMENT**

EXISTING VEHICULAR BRIDGE IS STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE

• **DESIGN**

NEW BRIDGE SHALL ACCOMMODATE STANDARD LOADINGS AND CURRENT SEISMIC DESIGN CRITERIA AS ESTABLISHED BY CALTRANS



• **ADA**

PROVIDE ACCESS FROM OCEAN TO PIER

• **PEDESTRIAN, BIKE, & VEHICLE**

PROVIDE STANDARD TRAFFIC LANES/SHOULDERS

INCLUDE BIKE LANES

WIDEN SIDEWALKS





- **BRIDGE REPLACEMENT & LIMITED APPROACH ROADWAY**
- **APPROVED ENVIRONMENTAL DOCUMENT**  
PRIOR TO FINAL DESIGN
- **100% FUNDED**  
TOLL CREDITS
- **CONSTRUCTION FUNDS**  
PROGRAMMED FOR FY 2015/2016
- **ARCHITECTURAL ENHANCEMENTS**  
TYPICALLY LIMITED TO 5% OF PROJECT COST

- MAXIMIZE FEDERAL FUNDING PARTICIPATION
- CONTEXT SENSITIVE DESIGN
- ALTERNATIVE SELECTION PROCESS

• **EARLY PUBLIC INVOLVEMENT**

PIER BOARD

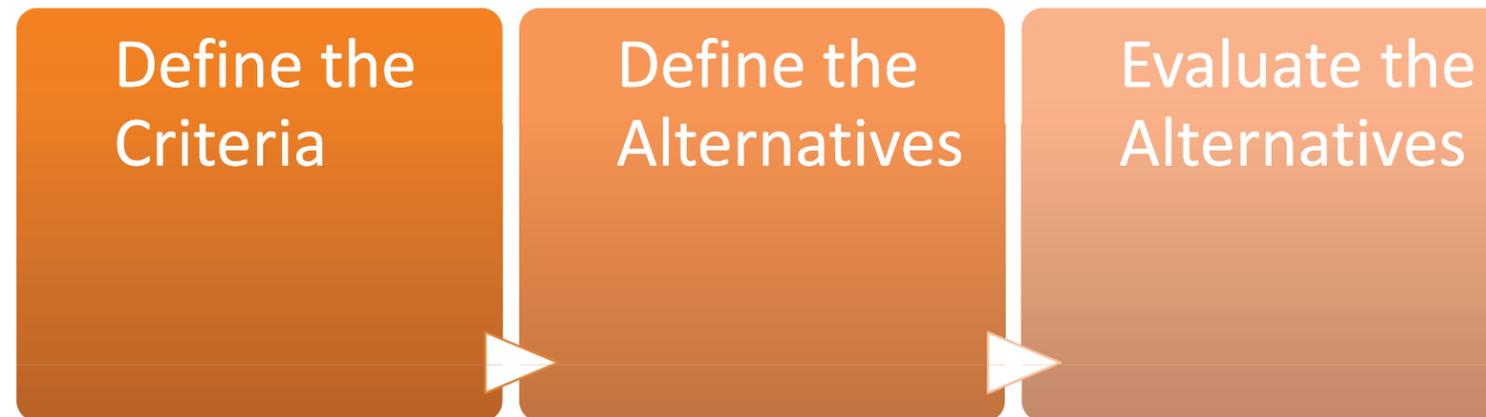
LANDMARKS COMMISSION

COMMUNITY STAKEHOLDERS

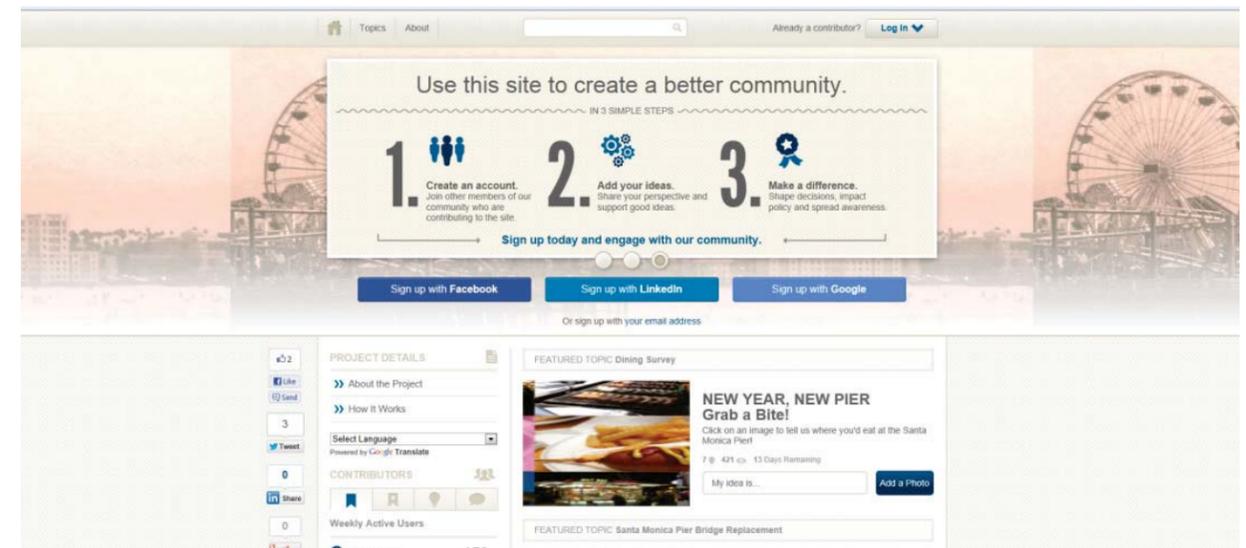
• **ONLINE AND ON SITE SURVEYS**

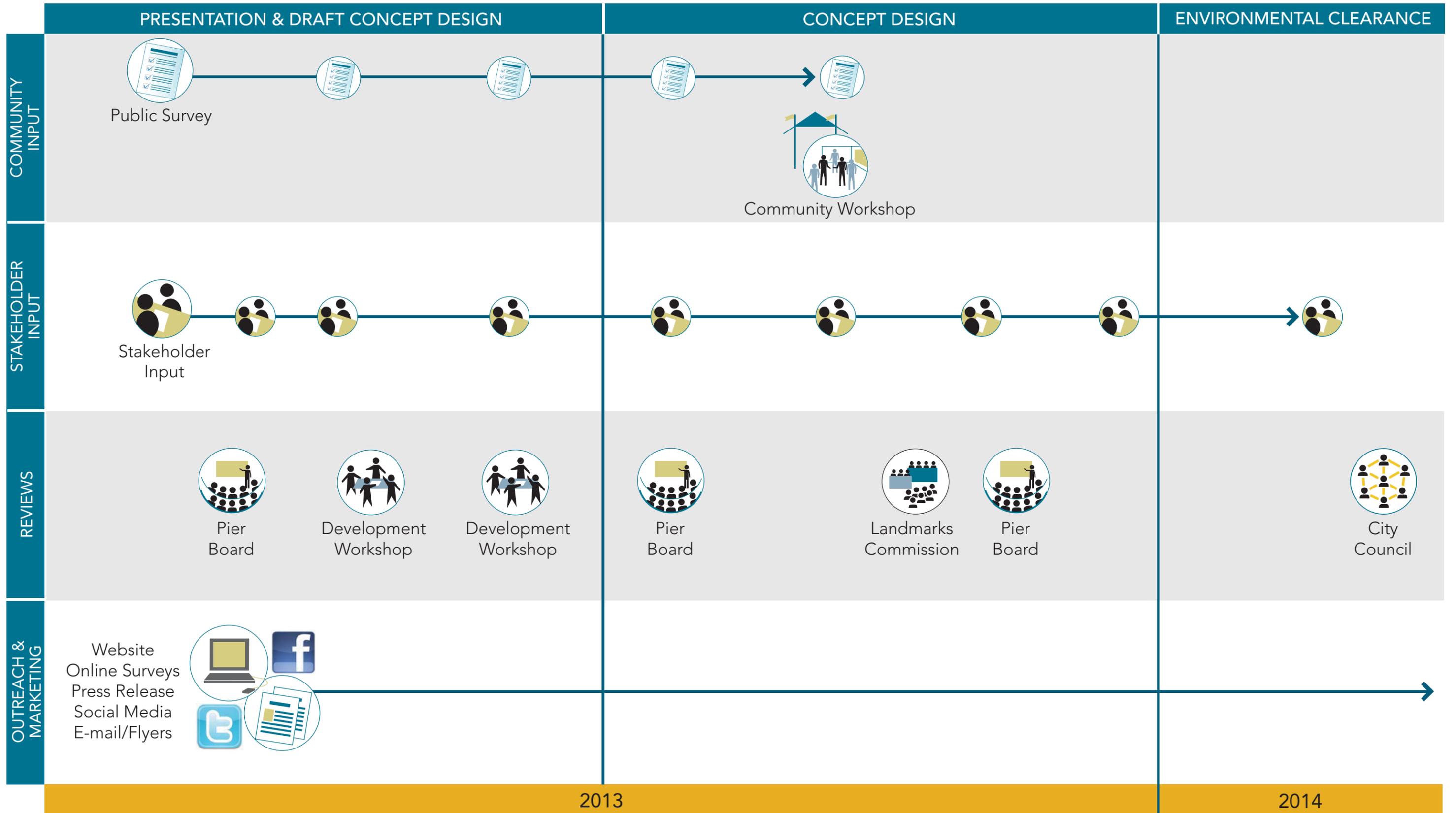
• **PUBLIC WORKSHOPS & MEETINGS**

- **INNOVATIVE TECHNIQUE TO EXPEDITE CONSENSUS**
- **DOCUMENTS DECISIONS/ BACKUP FOR HBP JUSTIFICATION**
- **ALLOWS FOR COMPREHENSIVE AND BALANCED SOLUTION**
- **PROVEN ON RECENT PROJECTS**



- [WWW.SMCONSTRUCTS.ORG/SMPIERBRIDGE](http://WWW.SMCONSTRUCTS.ORG/SMPIERBRIDGE)
- [WWW.FACEBOOK.COM/SMCONSTRUCTS](http://WWW.FACEBOOK.COM/SMCONSTRUCTS)
- [WWW.TWITTER.COM/SMCONSTRUCTS](http://WWW.TWITTER.COM/SMCONSTRUCTS)
- [HTTP://PIER.SANTAMONICATOWNHALL.ORG/](http://PIER.SANTAMONICATOWNHALL.ORG/)





**CITY REVIEW COMMISSIONS**

PIER BOARD

**OTHER COMMISSIONS**

DISABILITIES COMMISSION

**BUSINESS ORGANIZATIONS**

SM PIER LESSEES' ASSOCIATION

SM CONVENTION AND VISITORS BUREAU

DOWNTOWN SANTA MONICA, INC.

SM CHAMBER OF COMMERCE

**NEIGHBORHOOD ASSOCIATIONS**

OCEAN PARK ASSOCIATION\*

WILSHIRE/ MONTANA NEIGHBORHOOD

NORTHEAST NEIGHBORS

MID-CITY NEIGHBORS

PICO NEIGHBORHOOD ASSOCIATION

NORTH OF MONTANA ASSOCIATION\*

FRIENDS OF SUNSET PARK\*

**COMMUNITY ORGANIZATIONS**

SM SPOKE, BIKE COMMUNITY

**SPECIFIC BUSINESSES**

PACIFIC PARK

LOBSTER

SANTA MONICA AQUARIUM (HEAL THE BAY)

BUBBA GUMP

**OTHER BUSINESSES**

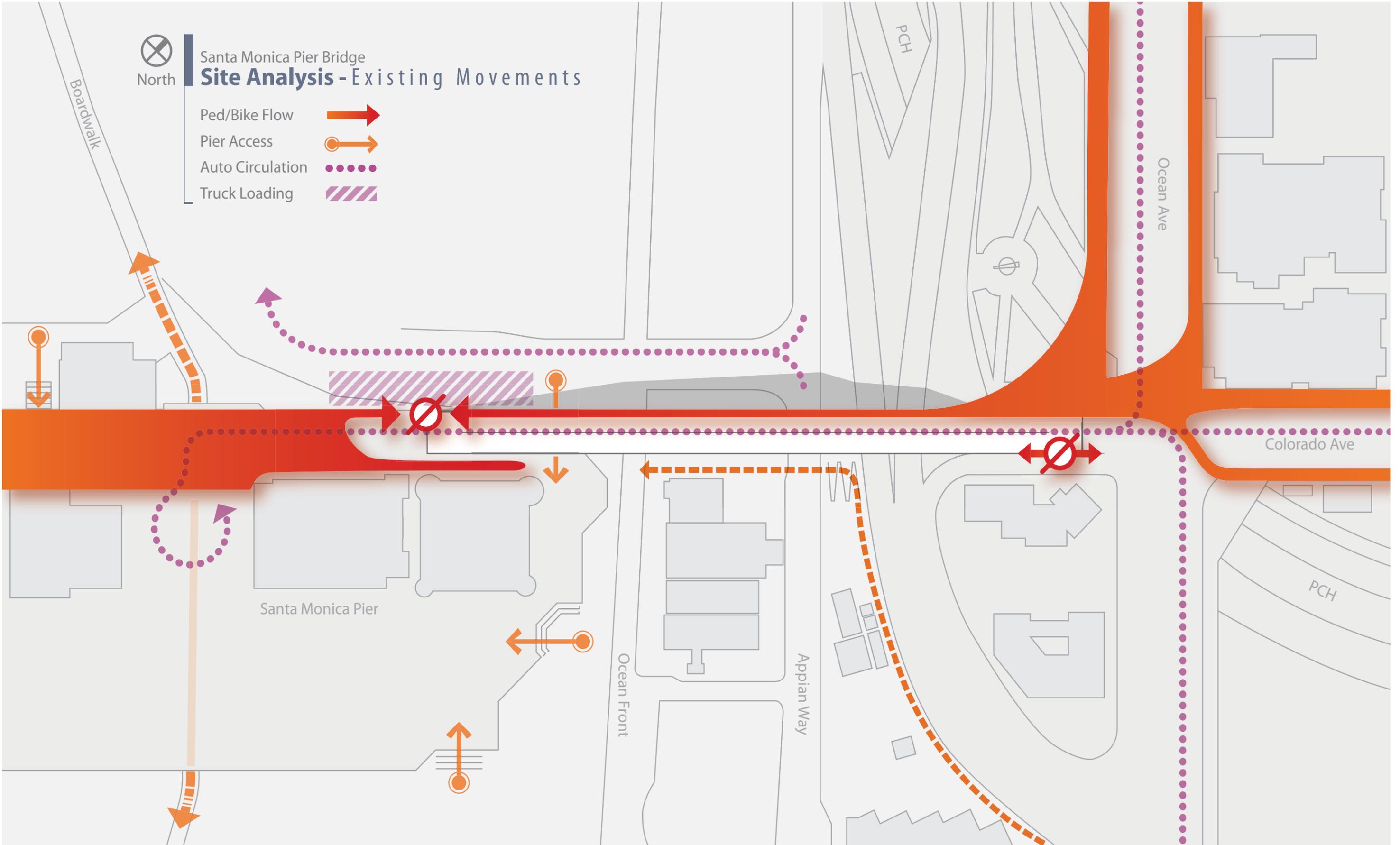
ALL PIER BUSINESSES!

- MEET WITH STAKEHOLDERS & COMMUNITY GROUPS
- HOLD PUBLIC WORKSHOP (JUNE 2013)
- EVALUATE INPUT FROM COMMUNITY
- REFINE BRIDGE CONCEPTS



# Santa Monica Pier Bridge Site Analysis - Existing Movements

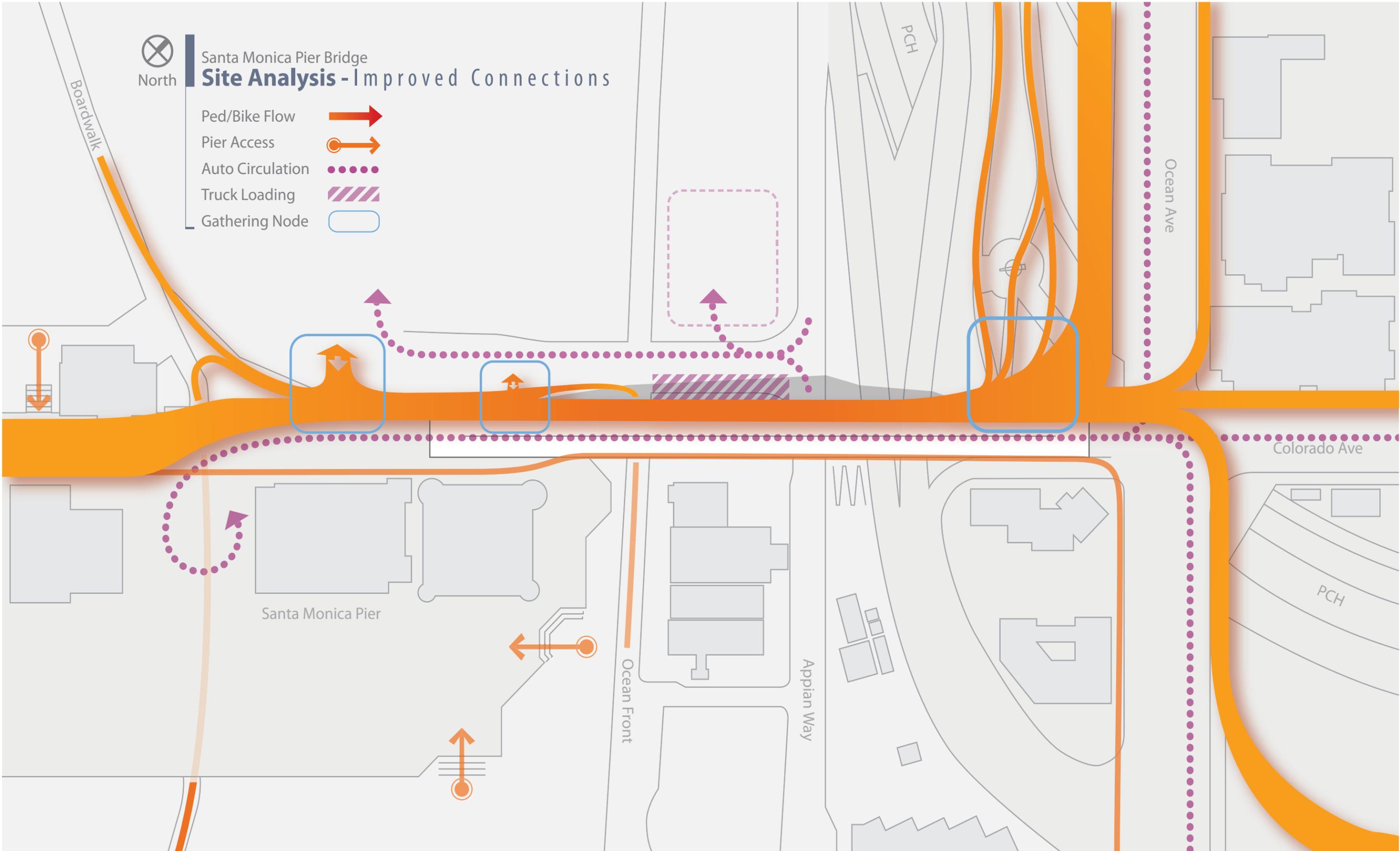
- Ped/Bike Flow
- Pier Access
- Auto Circulation
- Truck Loading

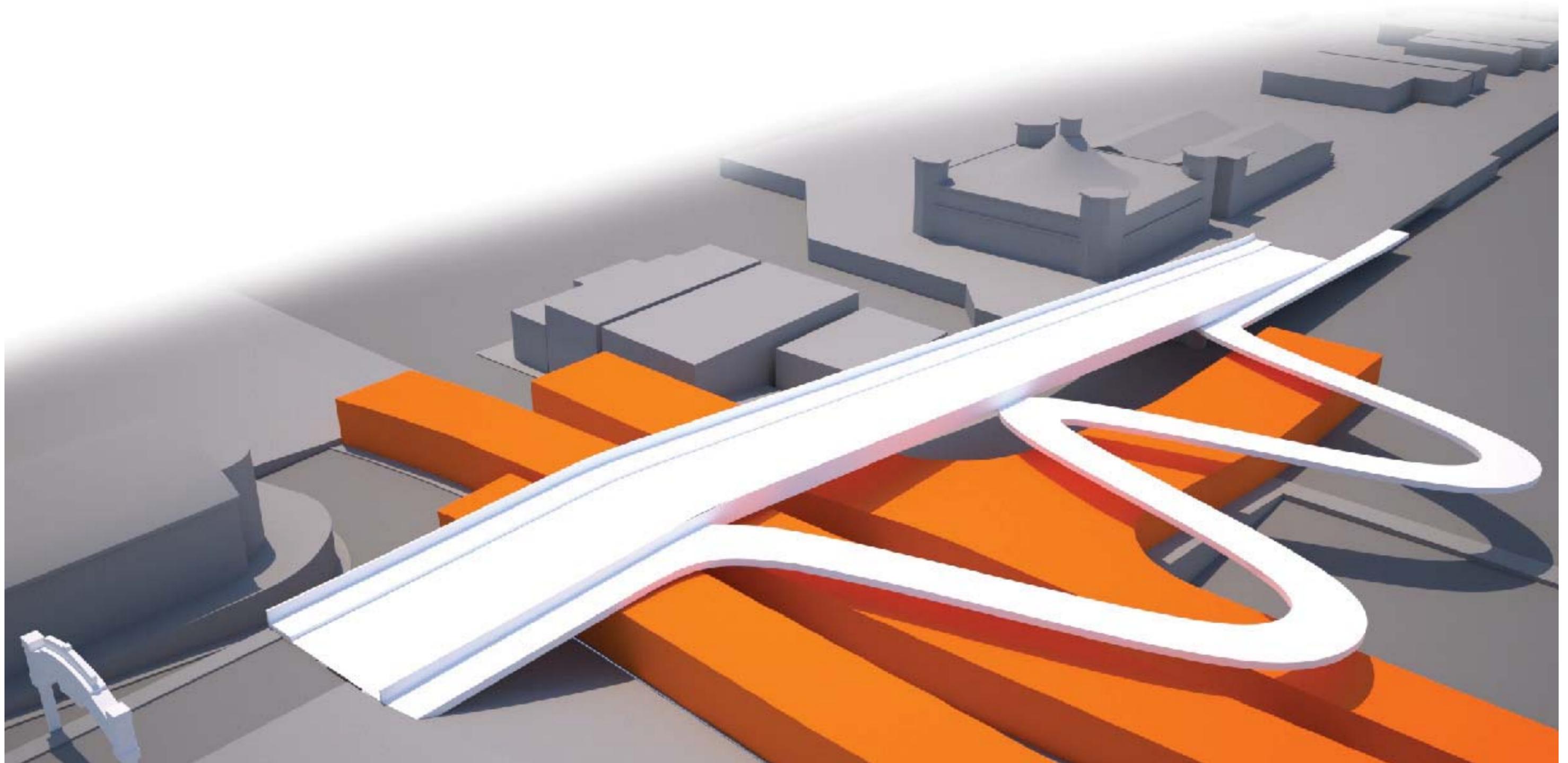




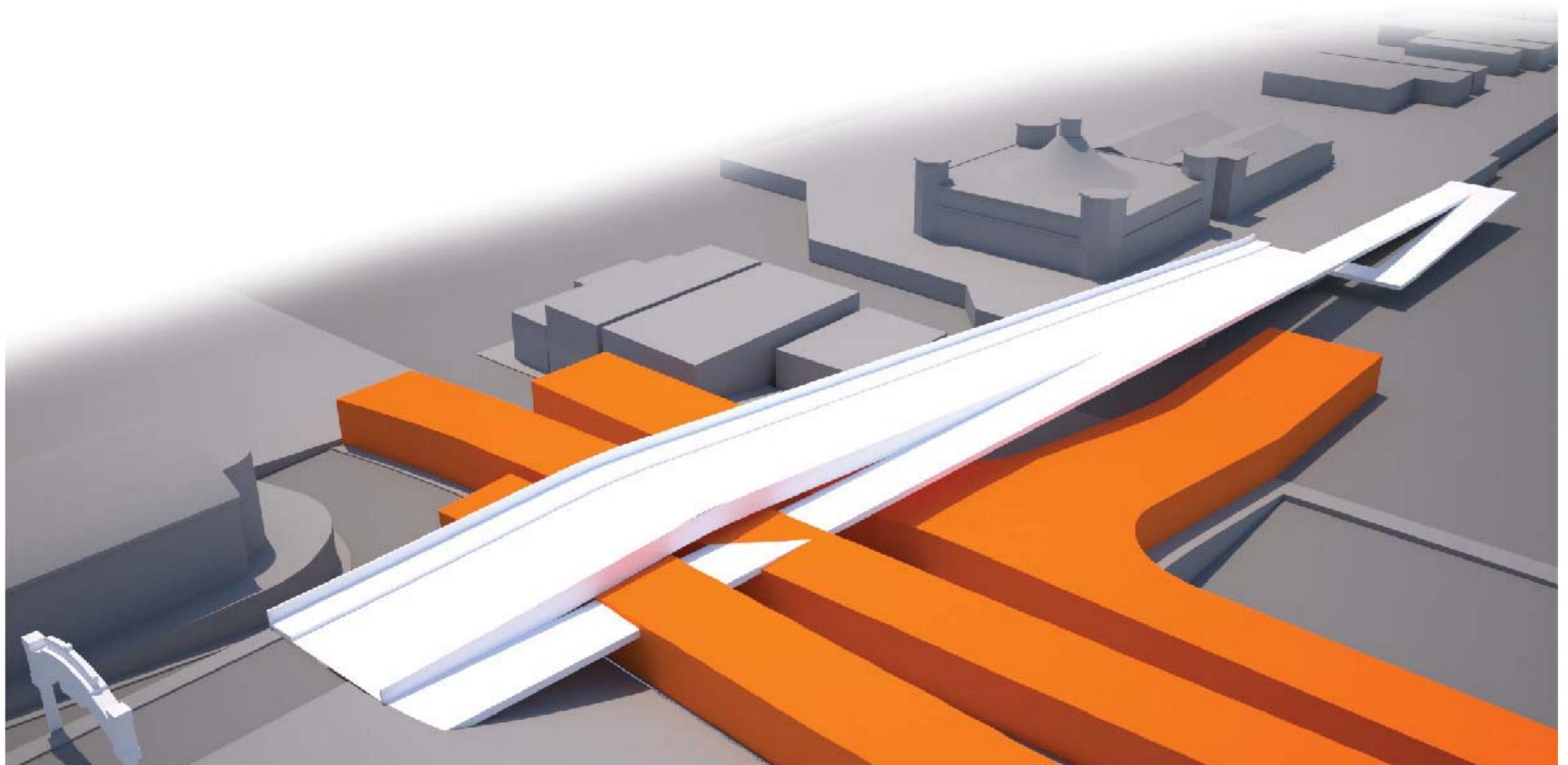
# Santa Monica Pier Bridge Site Analysis - Improved Connections

- Ped/Bike Flow
- Pier Access
- Auto Circulation
- Truck Loading
- Gathering Node

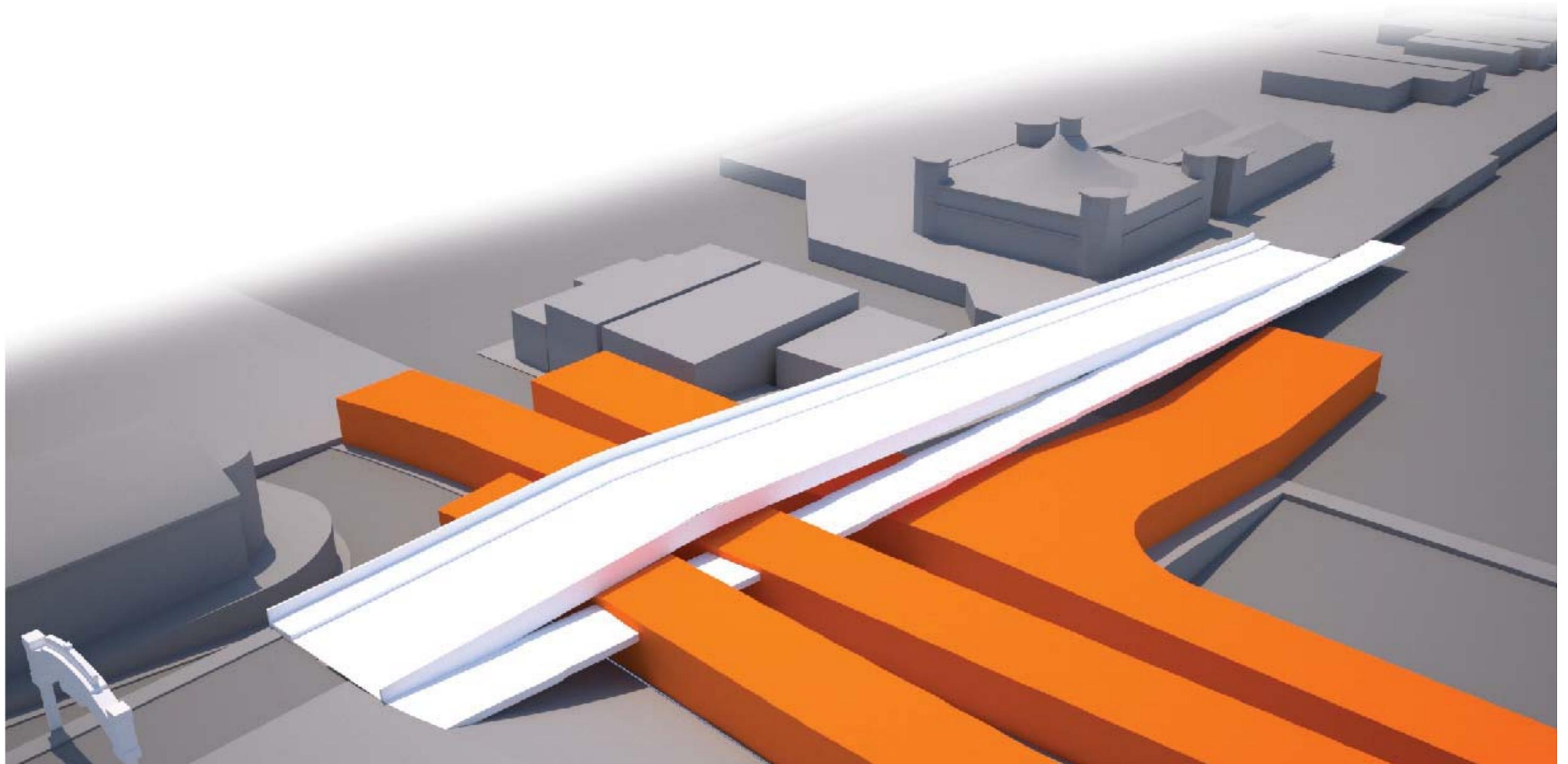




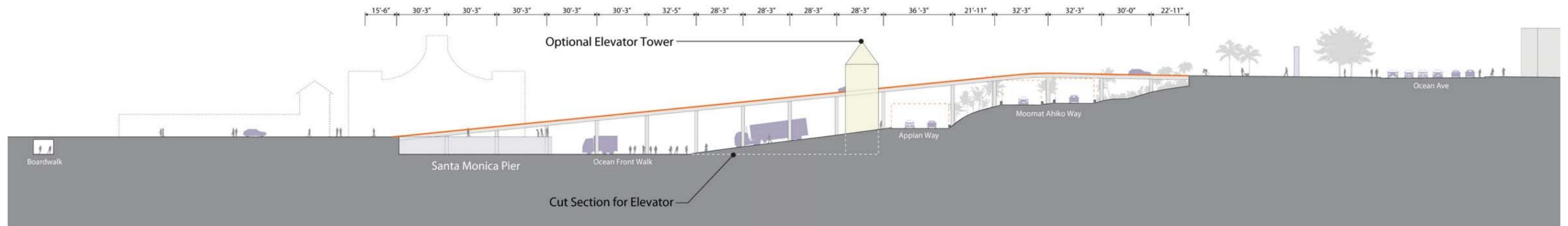
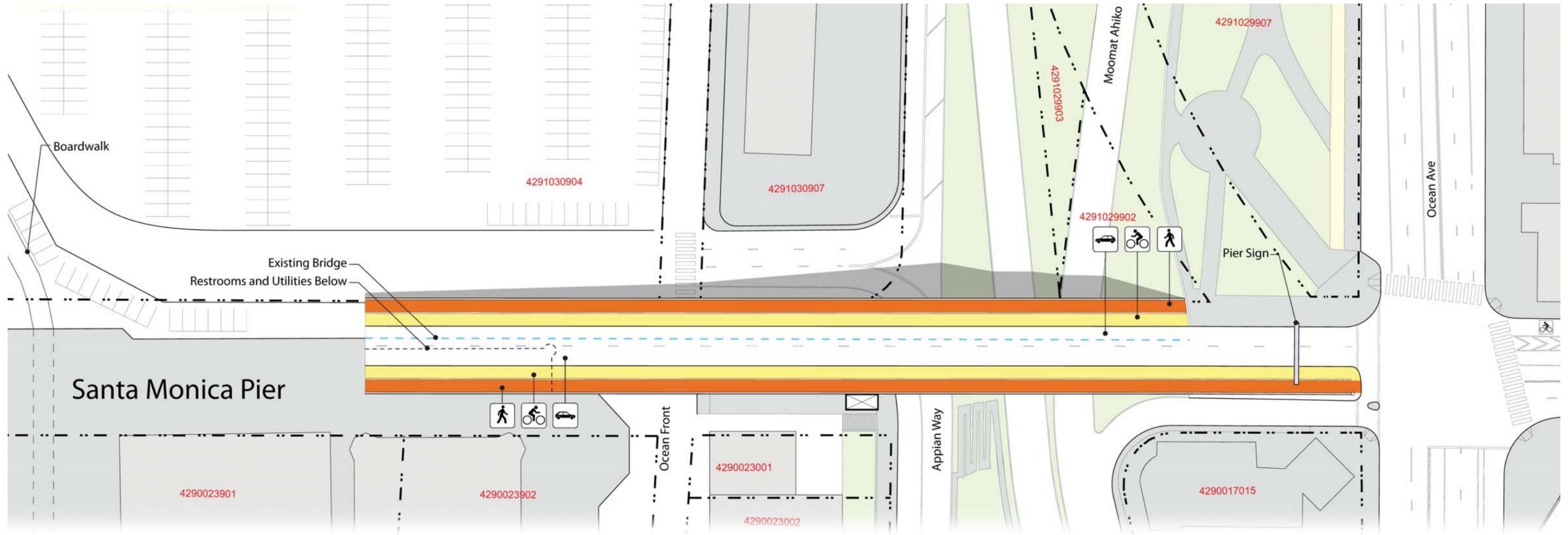
RAMP SLOPE		5%
ADA RAMP LENGTH		814'-0"

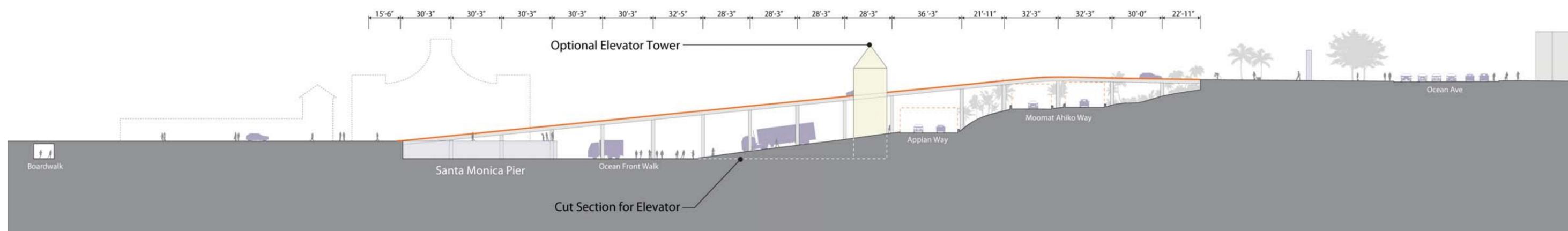
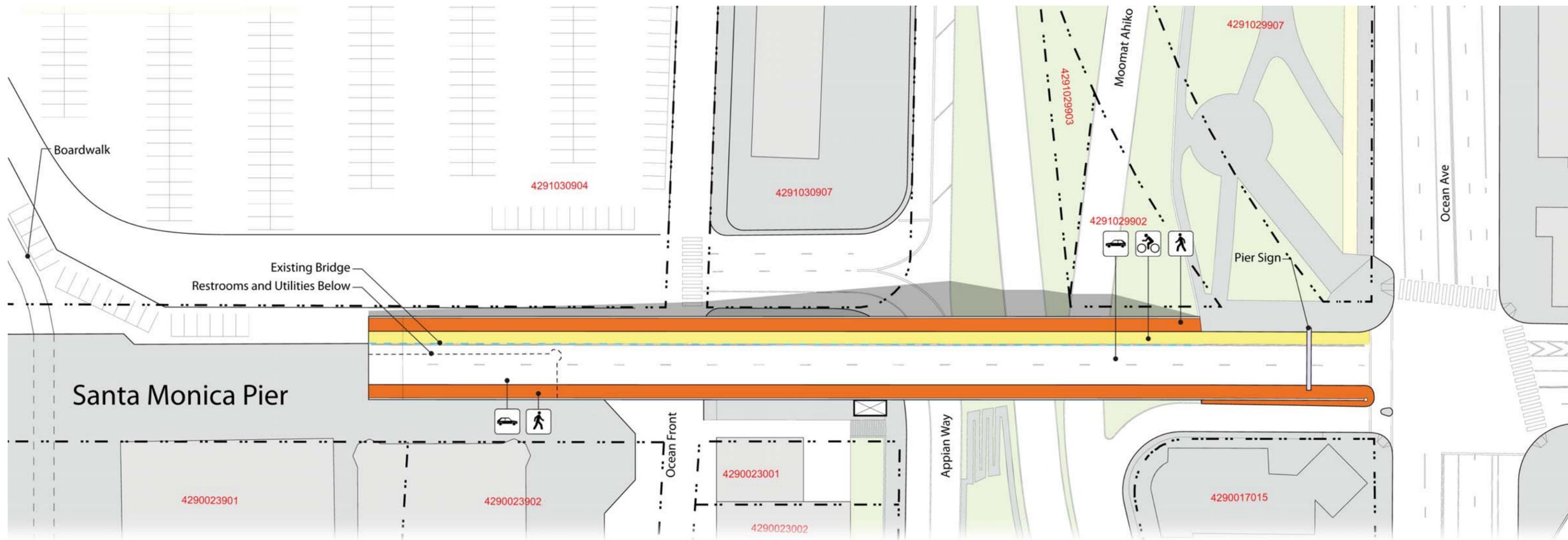


RAMP SLOPE | 8.33%  
ADA RAMP LENGTH | 537'-0"

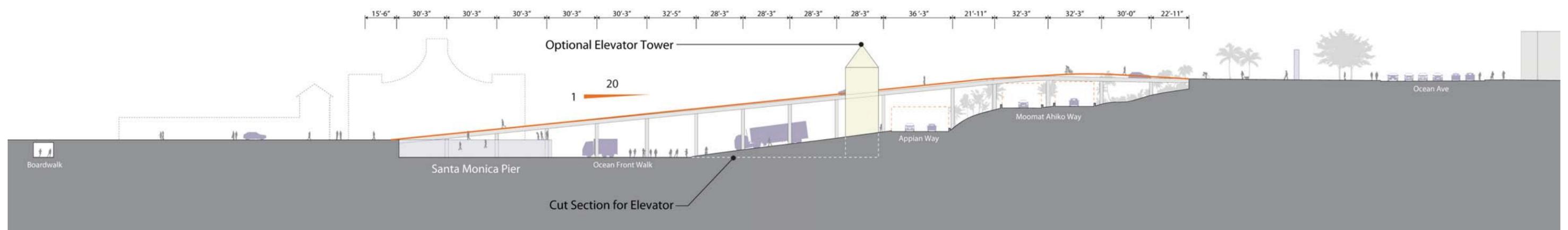
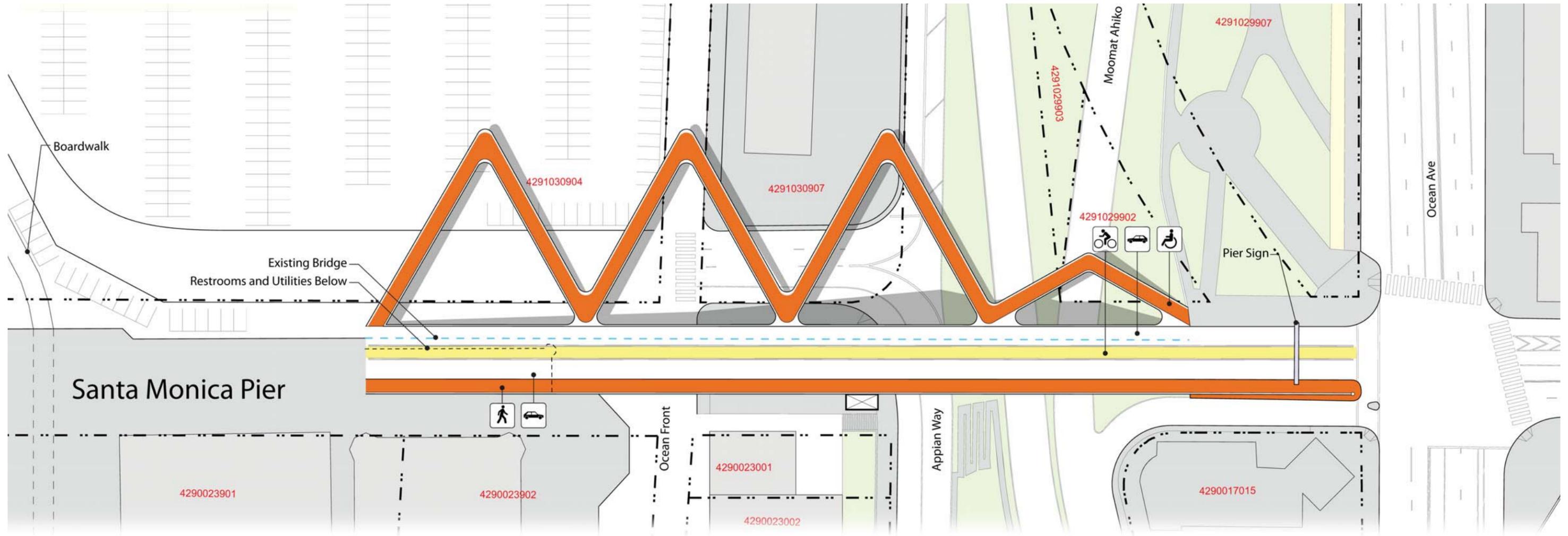


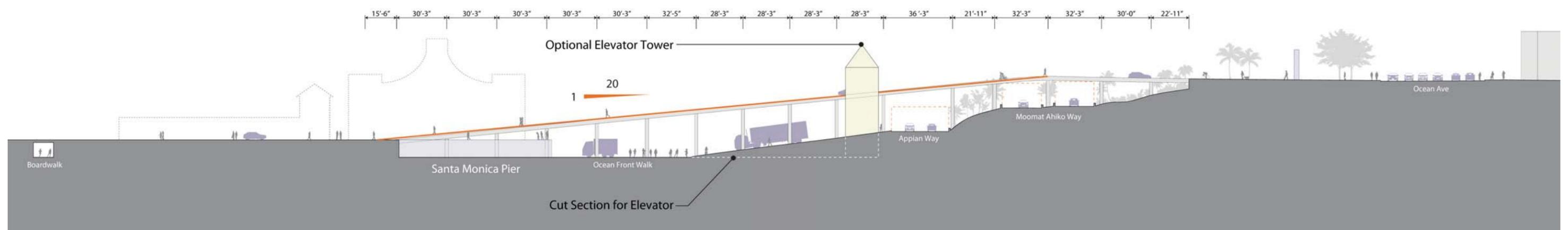
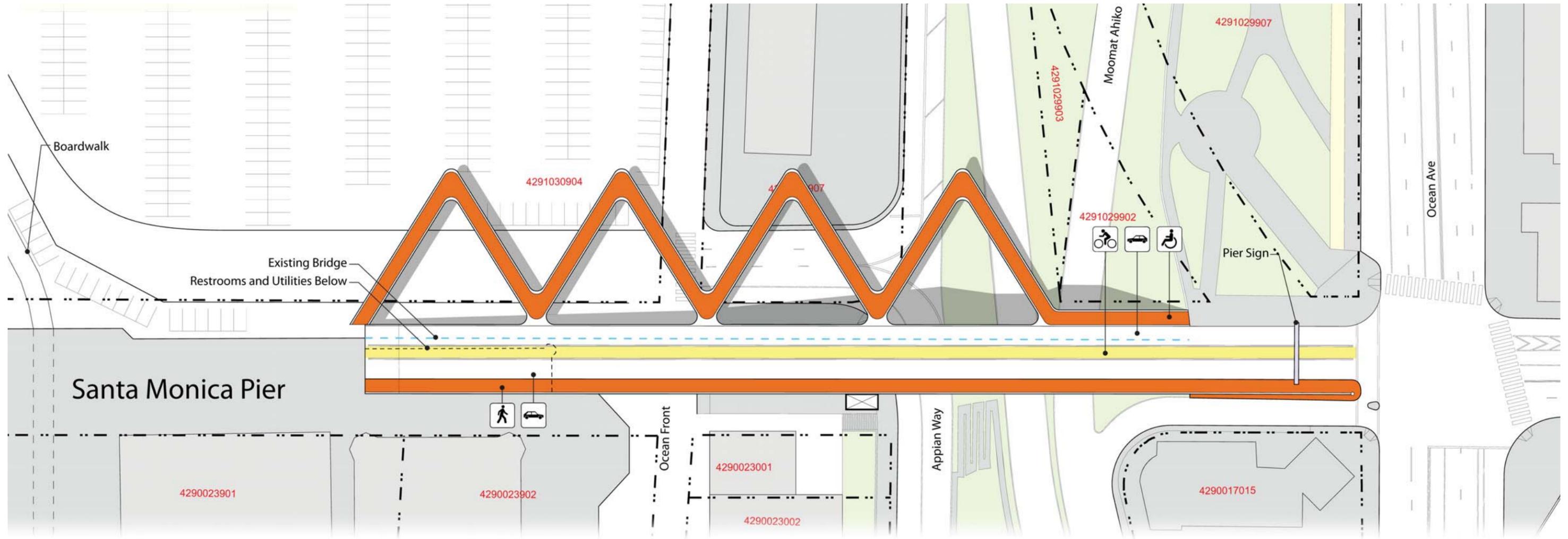
**CONFIGURATION CONCEPT A** | PLAN & ELEVATION



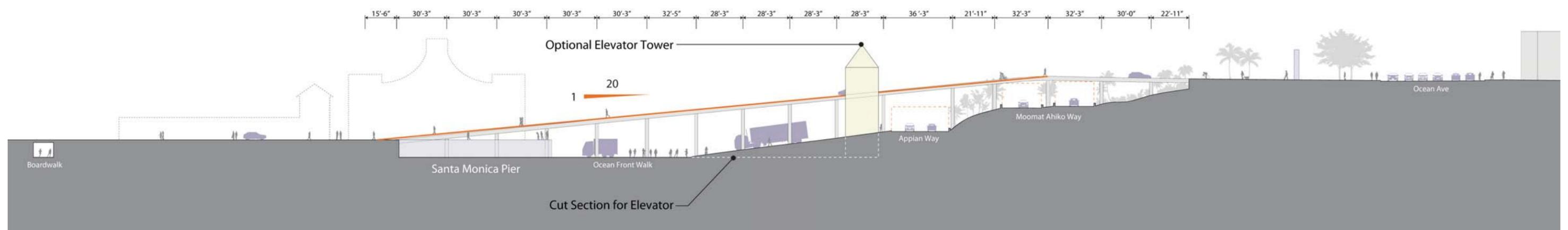
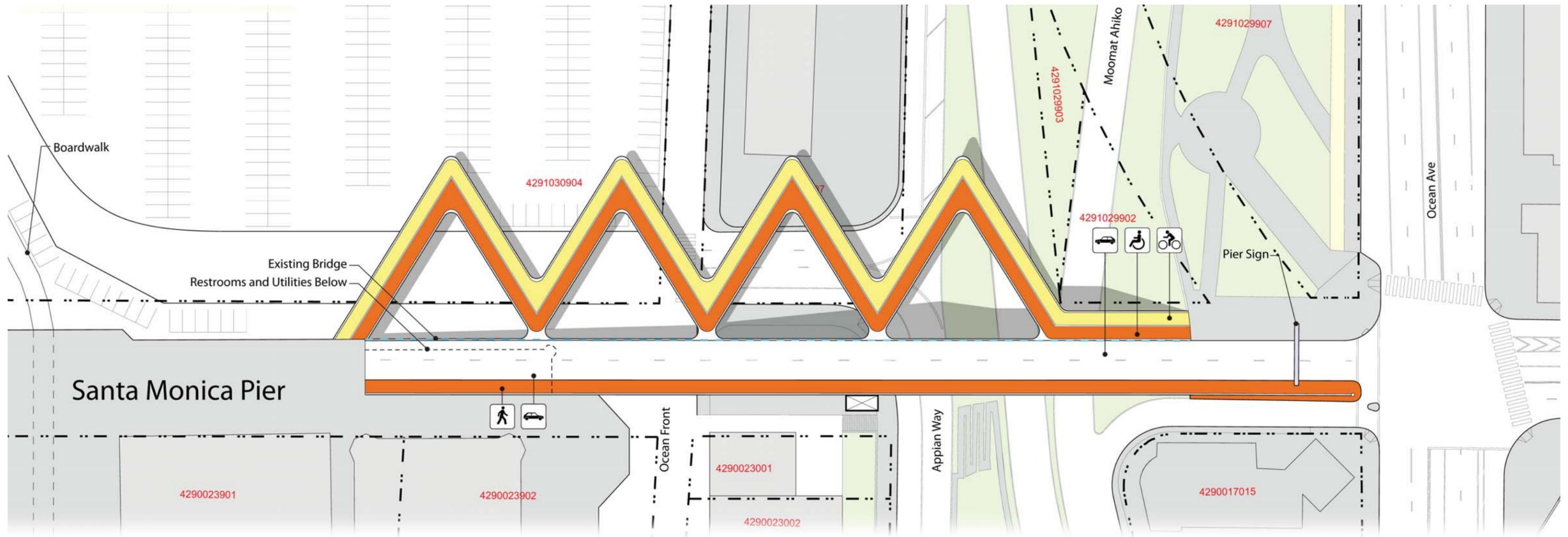


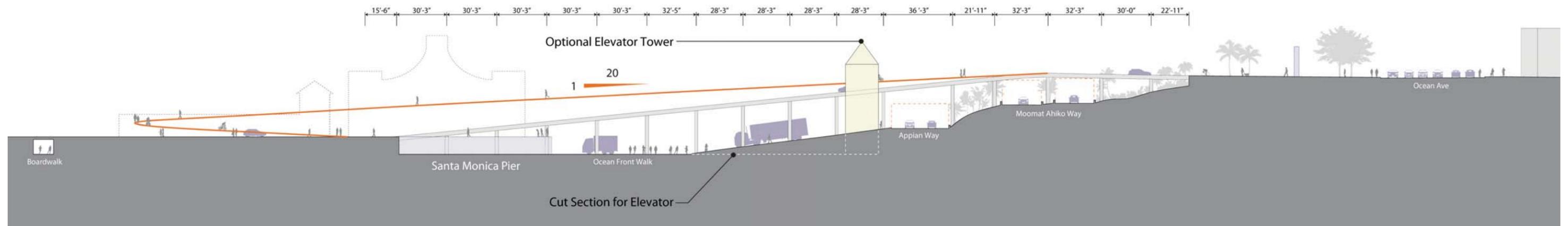
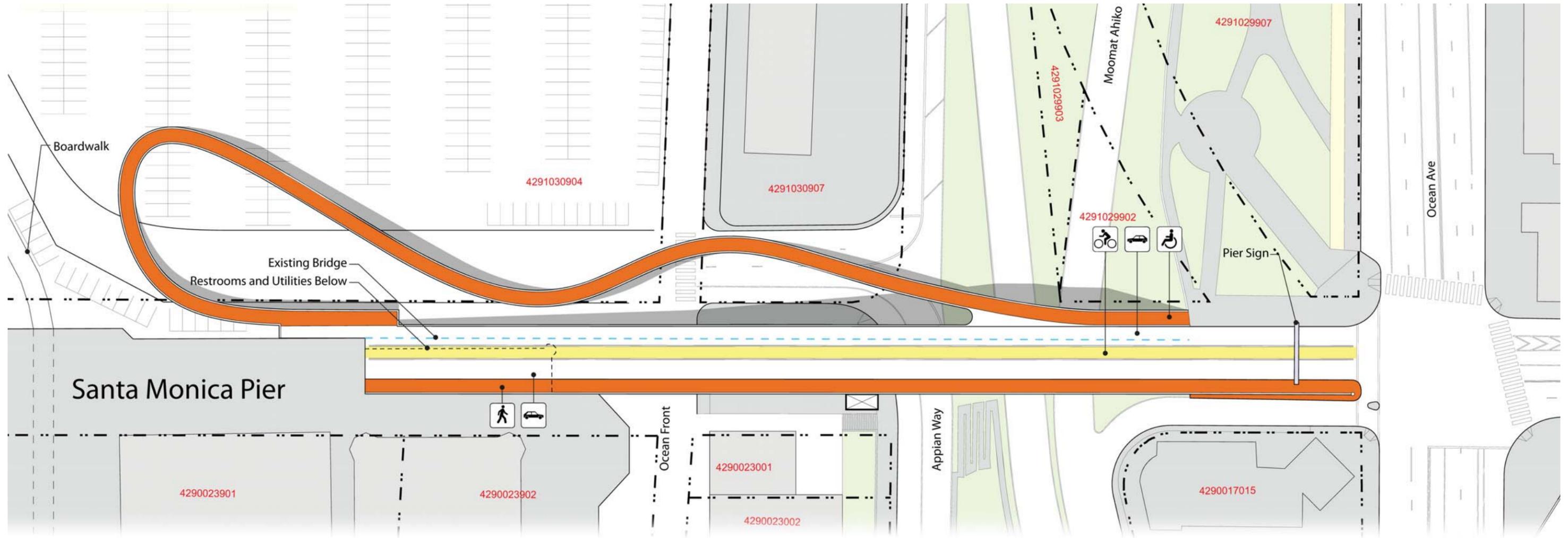
**CONFIGURATION CONCEPT B | PLAN & ELEVATION**

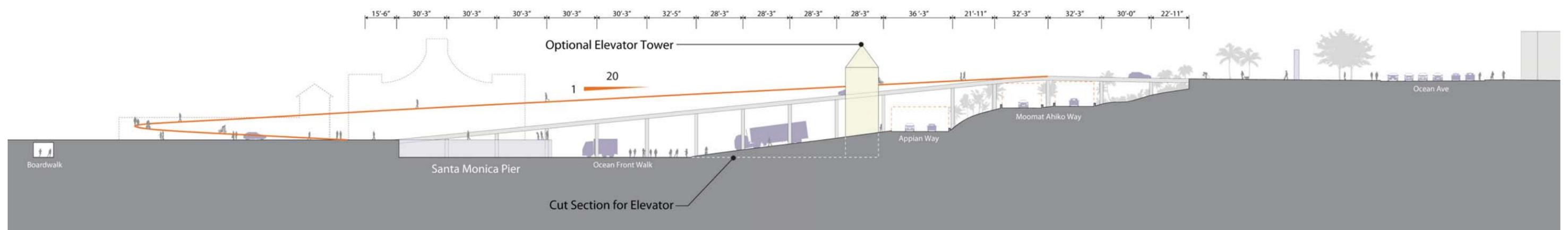
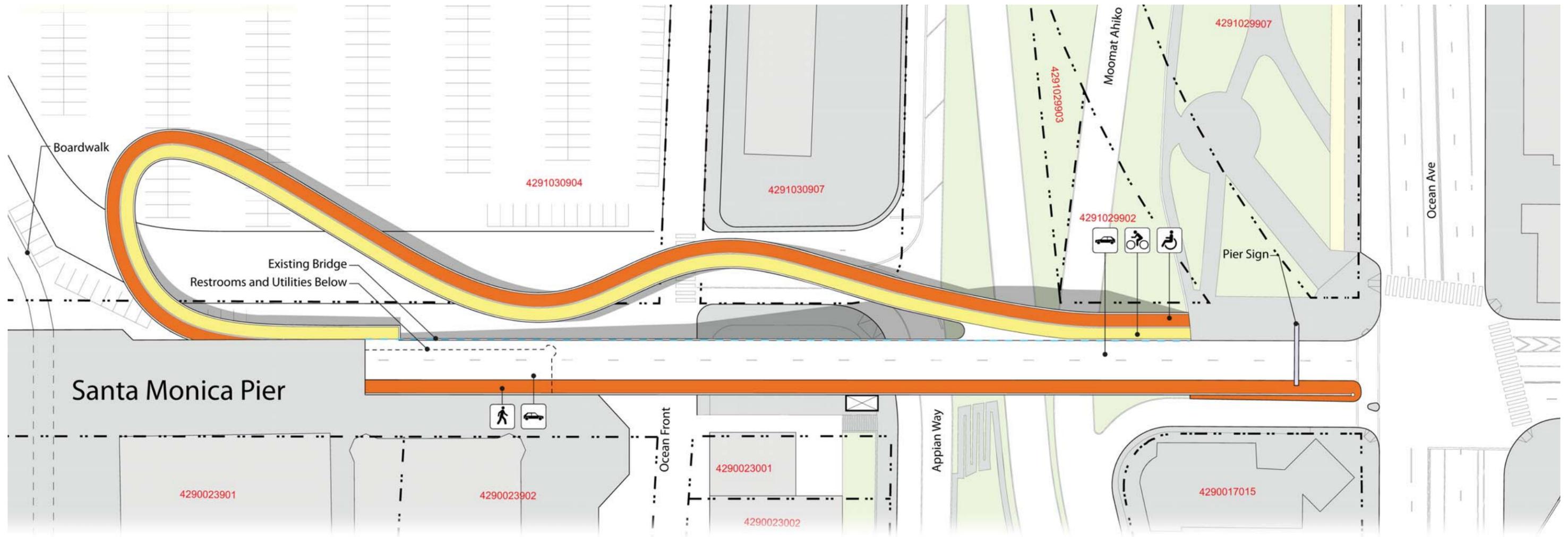


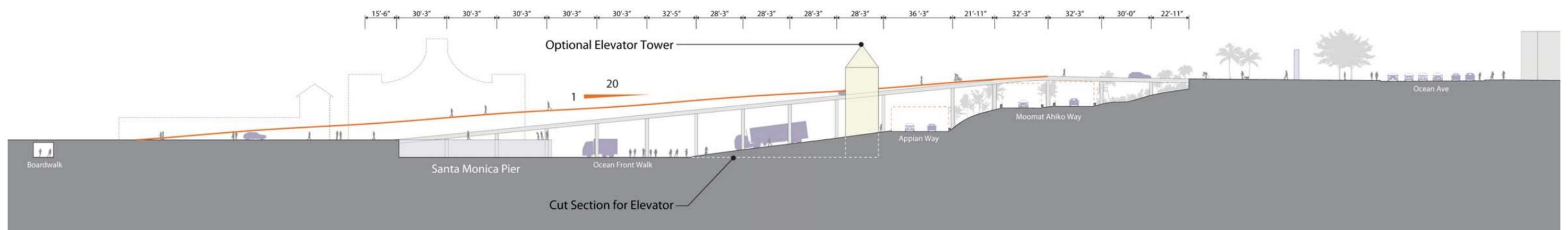
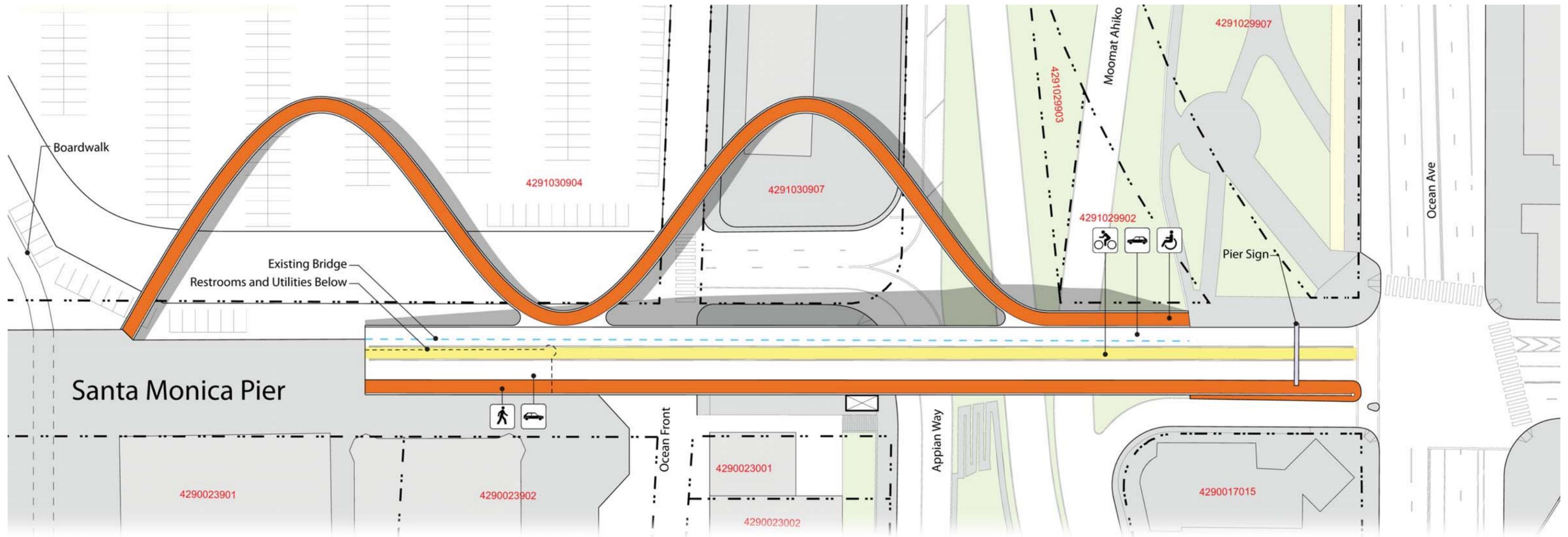


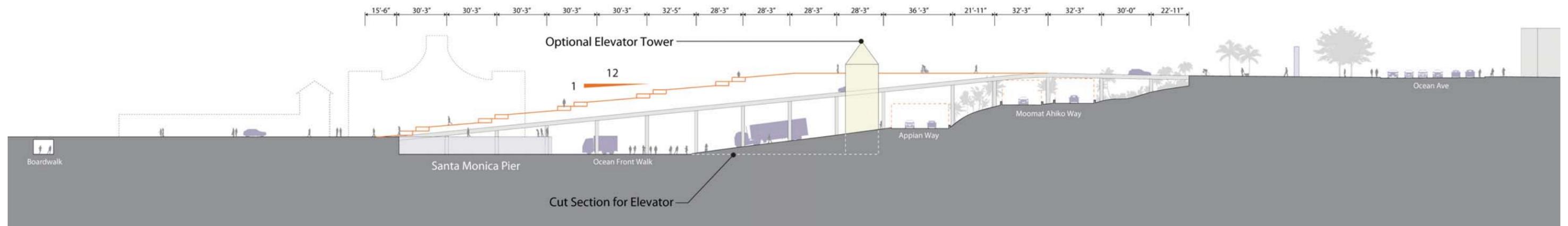
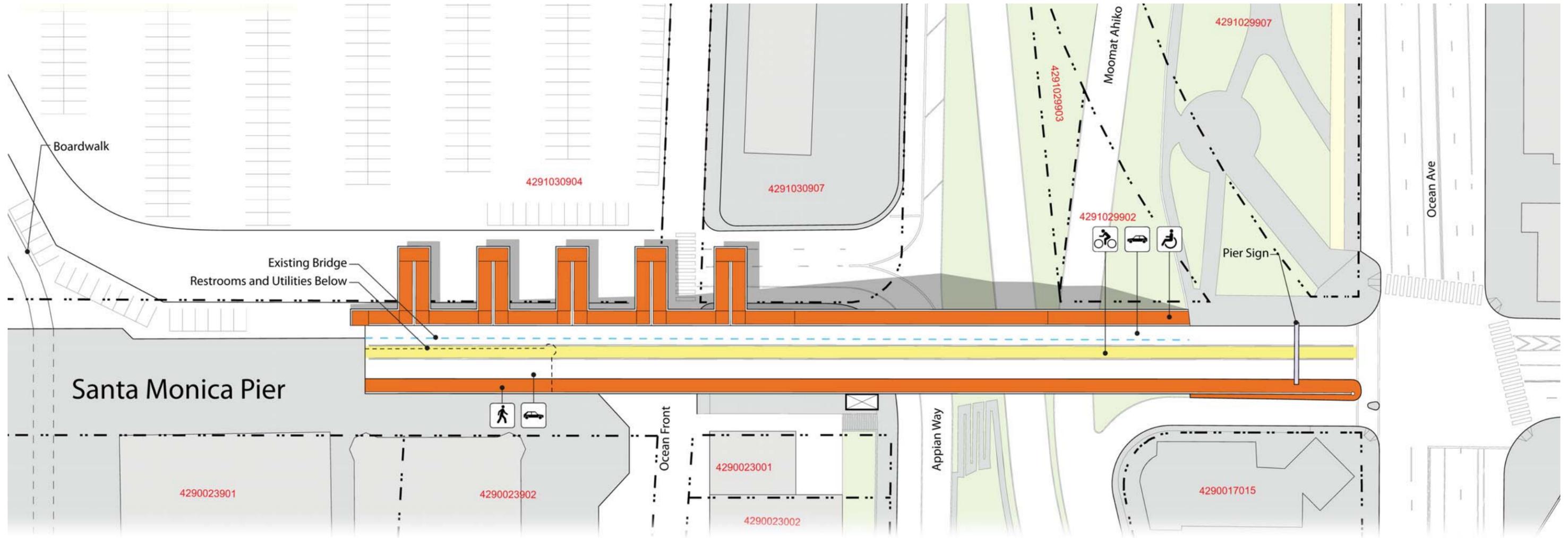
CONFIGURATION CONCEPT C2 | PLAN & ELEVATION



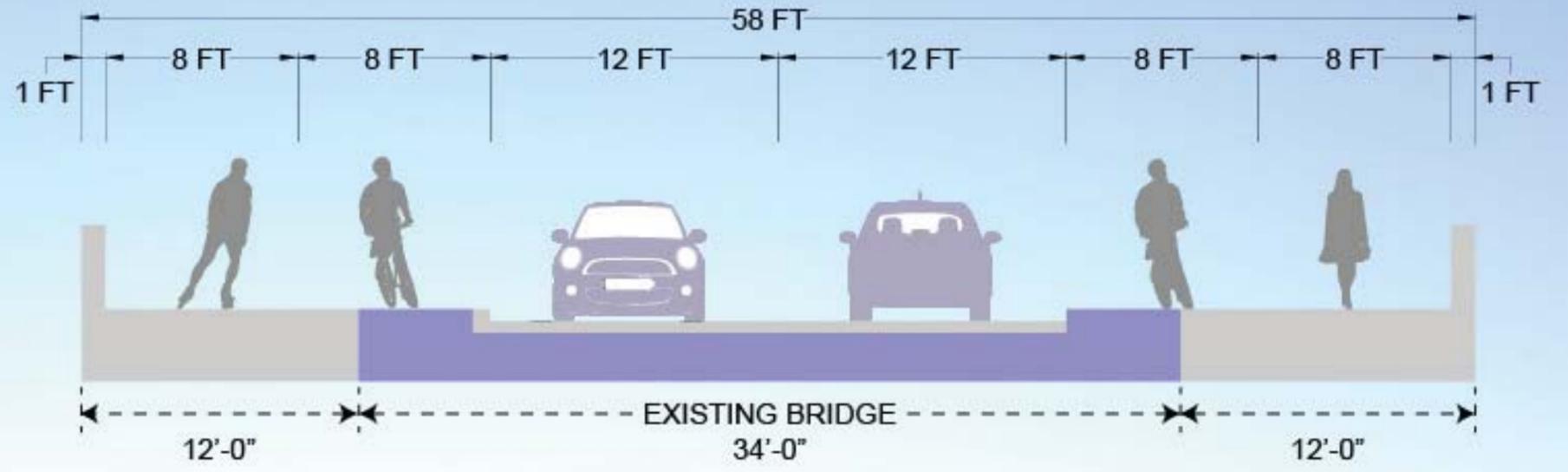




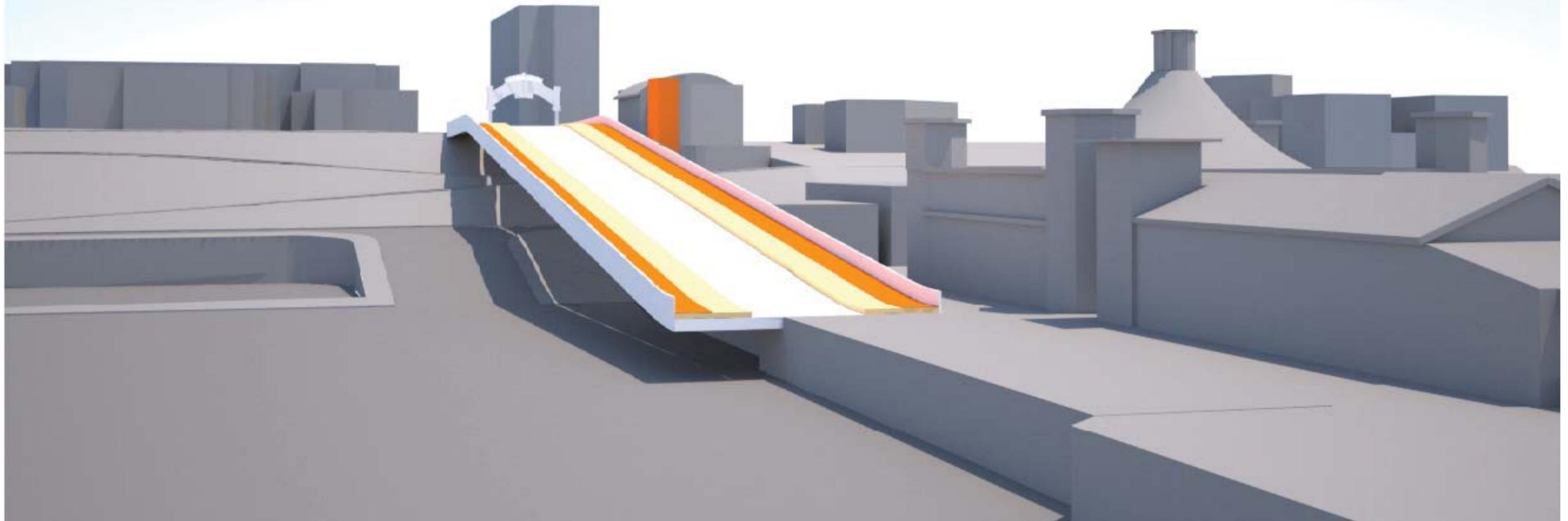




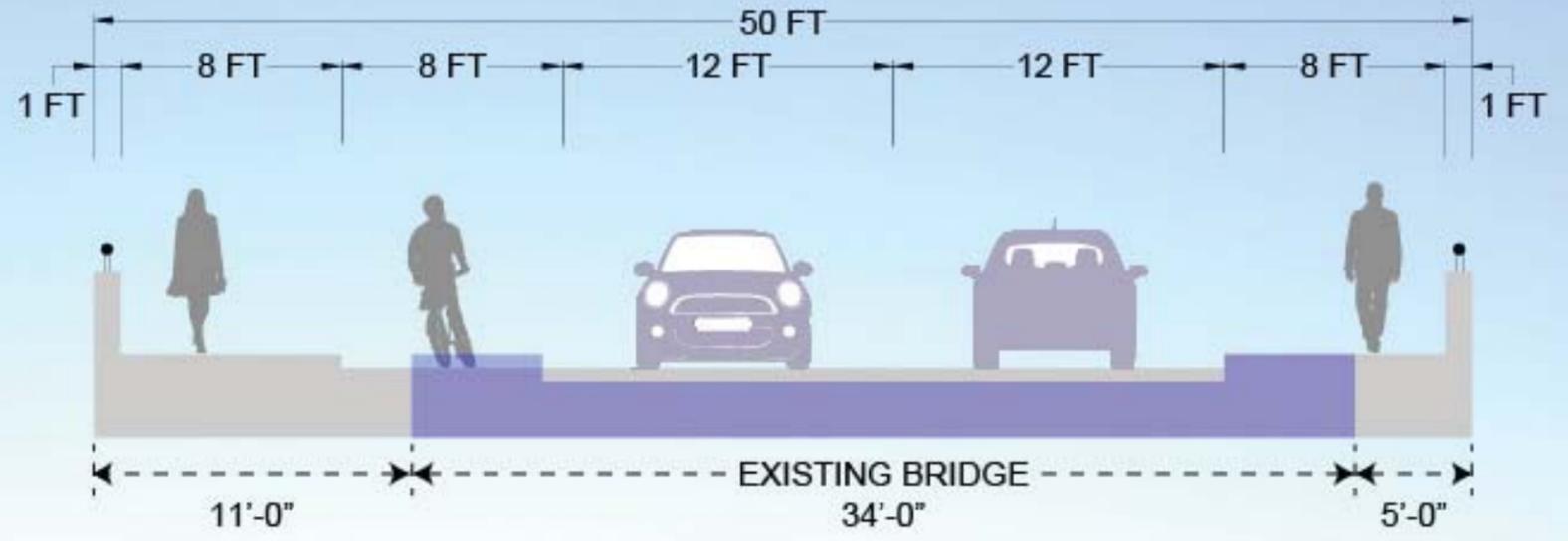
WIDTH DIFFERENCE | 24'-0"



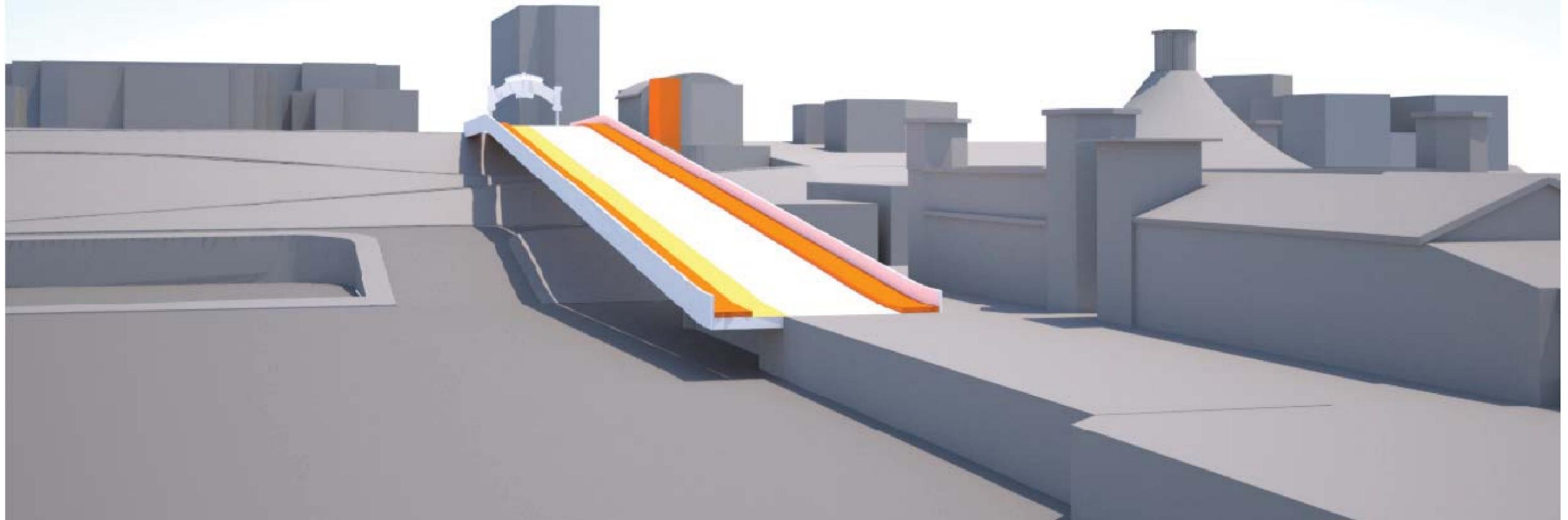
SECTION



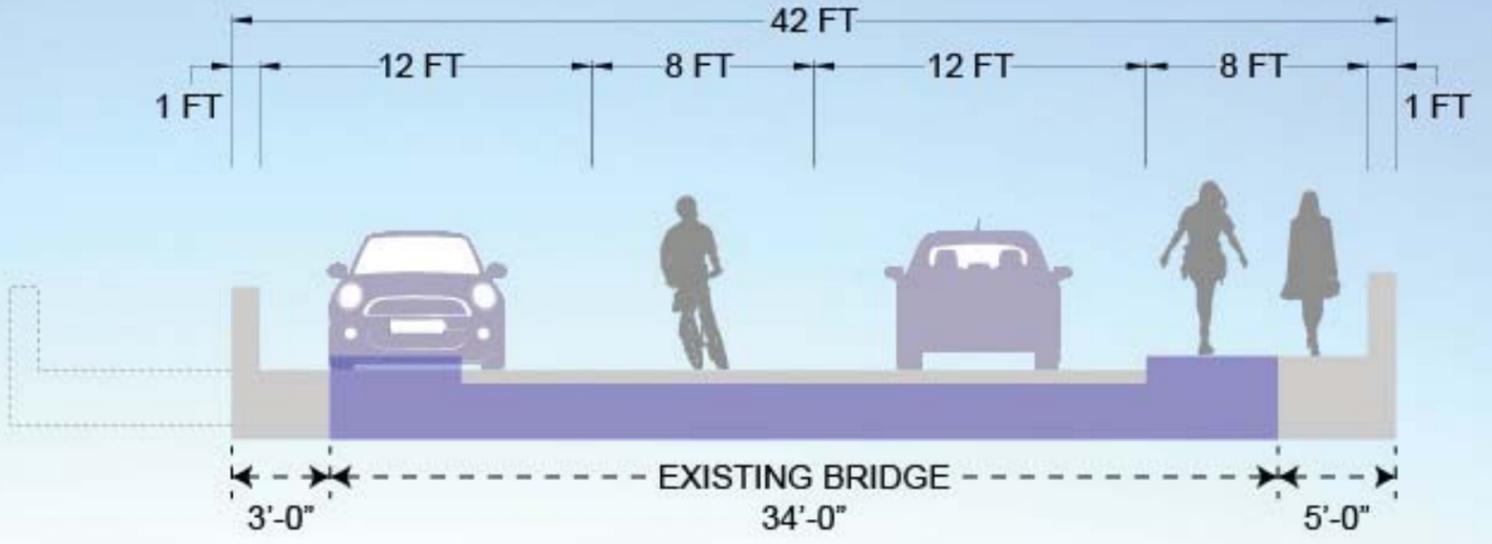
WIDTH DIFFERENCE | 16'-0"



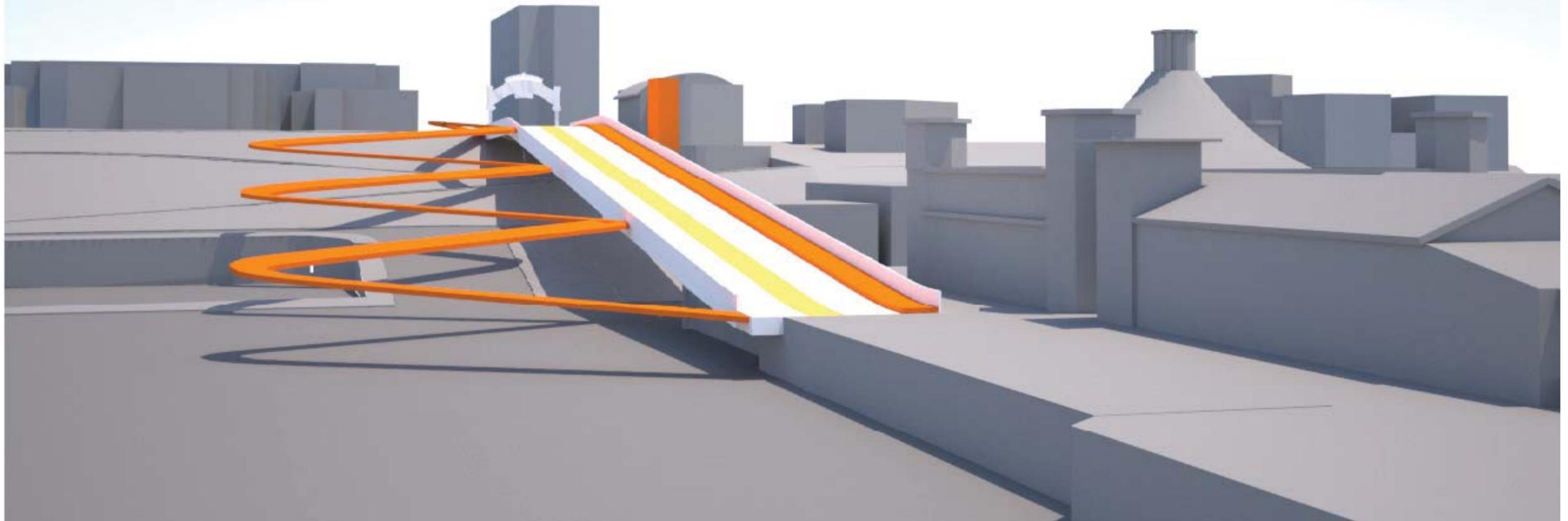
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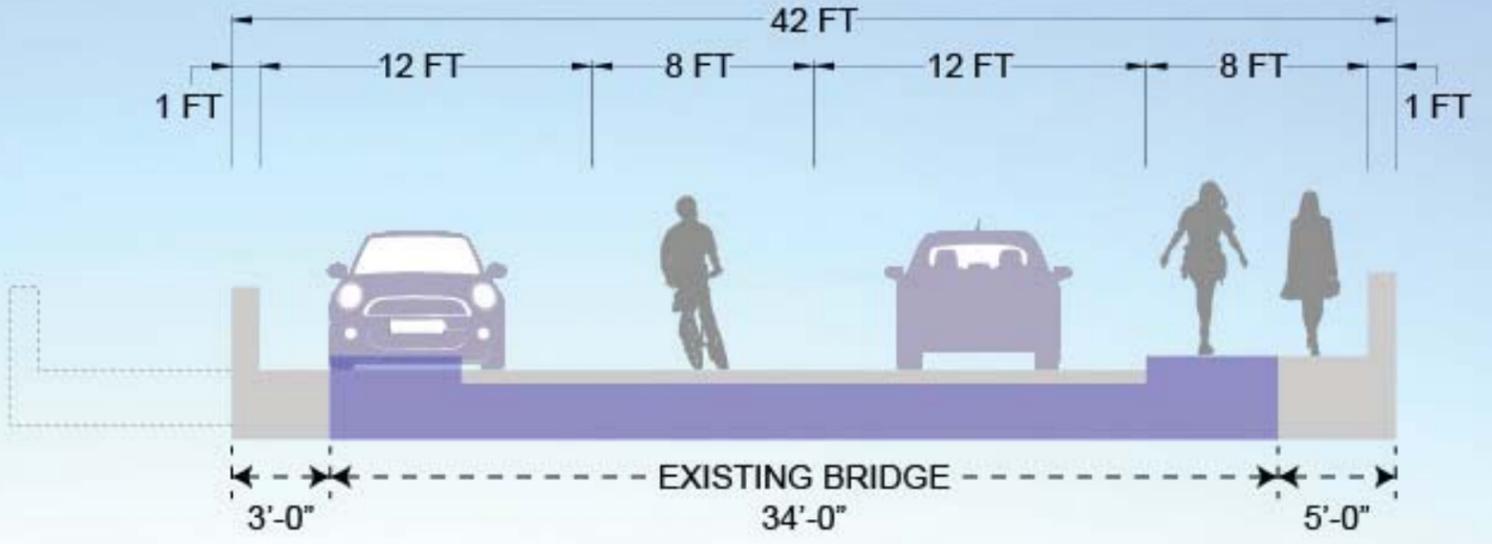
WIDTH DIFFERENCE | 8'-0"  
 ADA RAMP LENGTH | 840'-0"



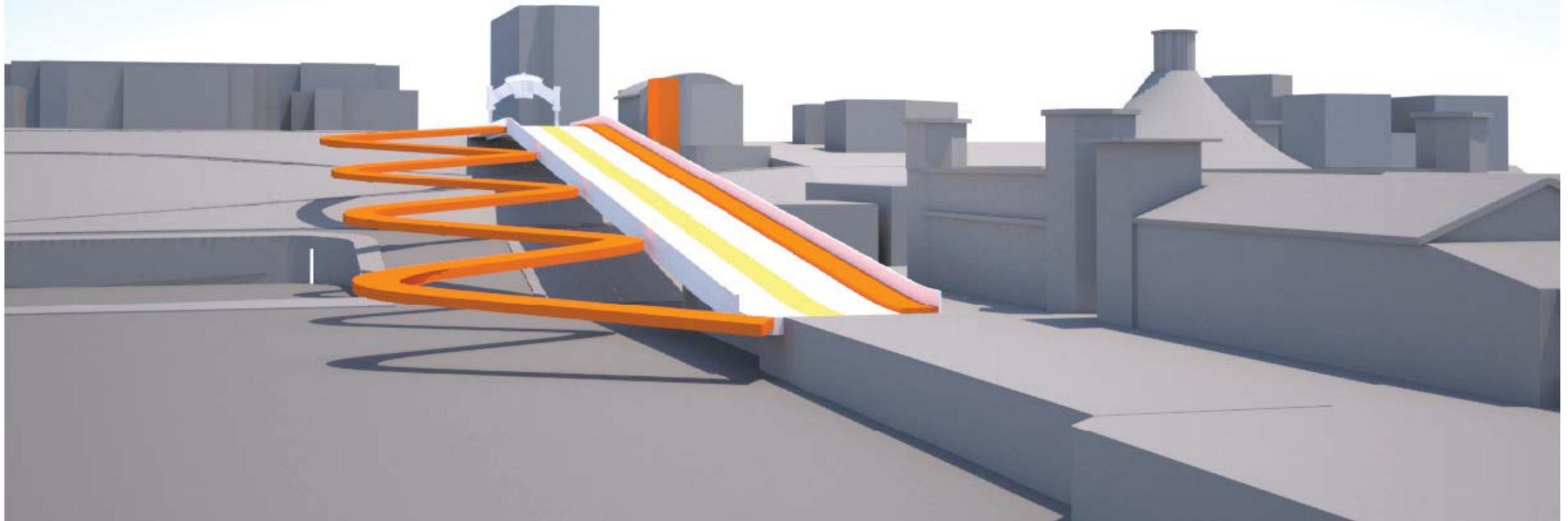
**SECTION**



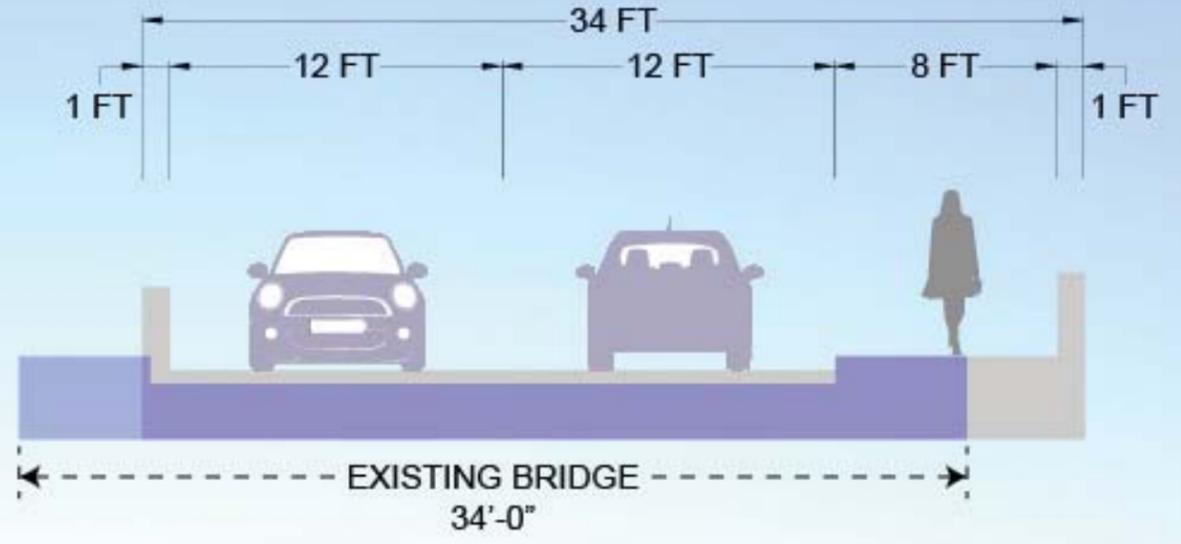
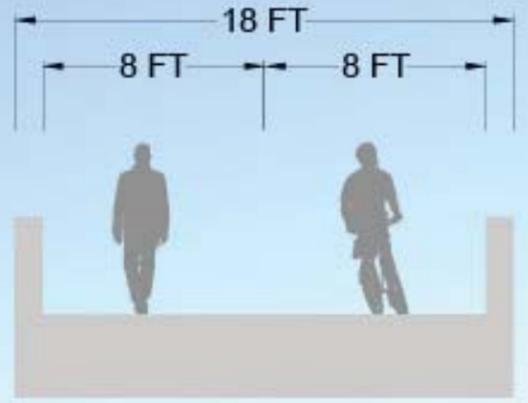
WIDTH DIFFERENCE | 8'-0"  
 ADA RAMP LENGTH | 780'-6"



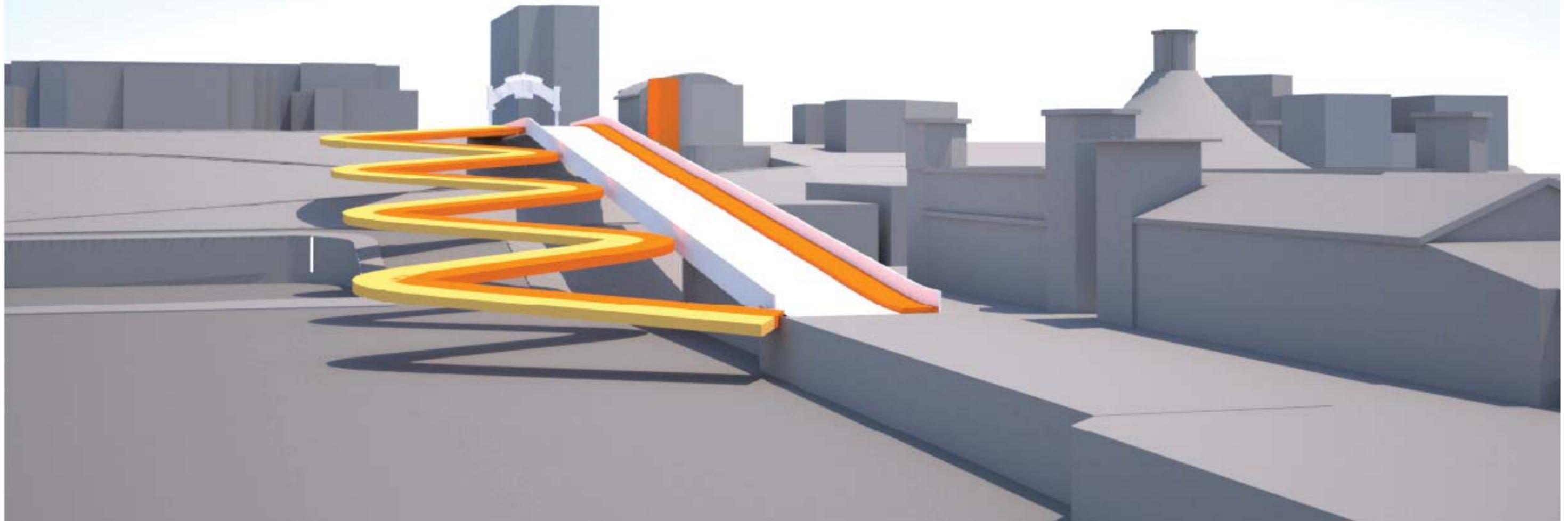
**SECTION**



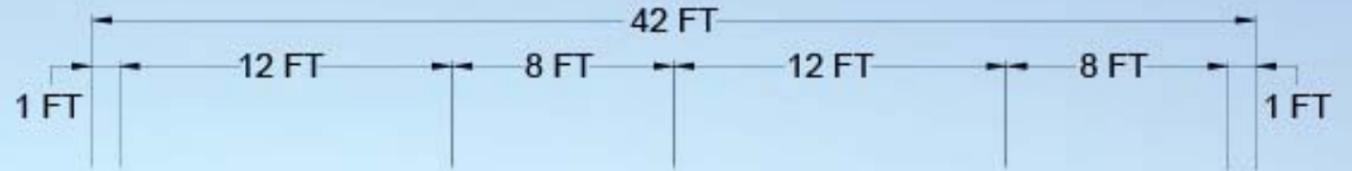
WIDTH DIFFERENCE | 0'-0"  
ADA RAMP LENGTH | 780'-6"



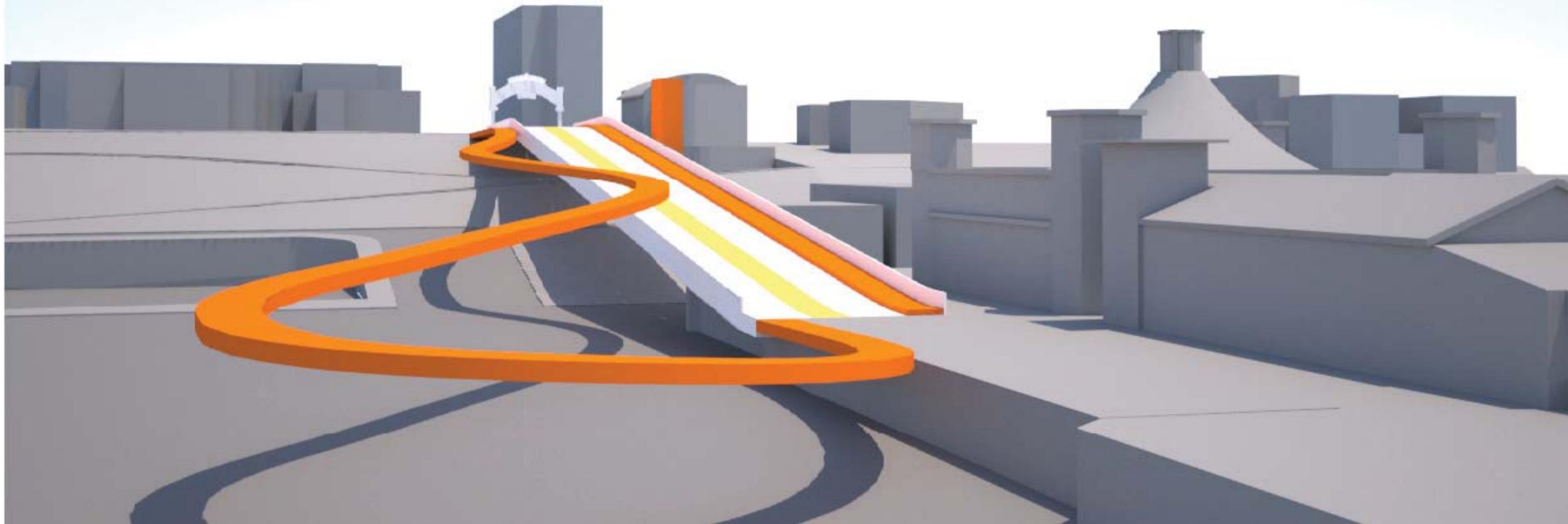
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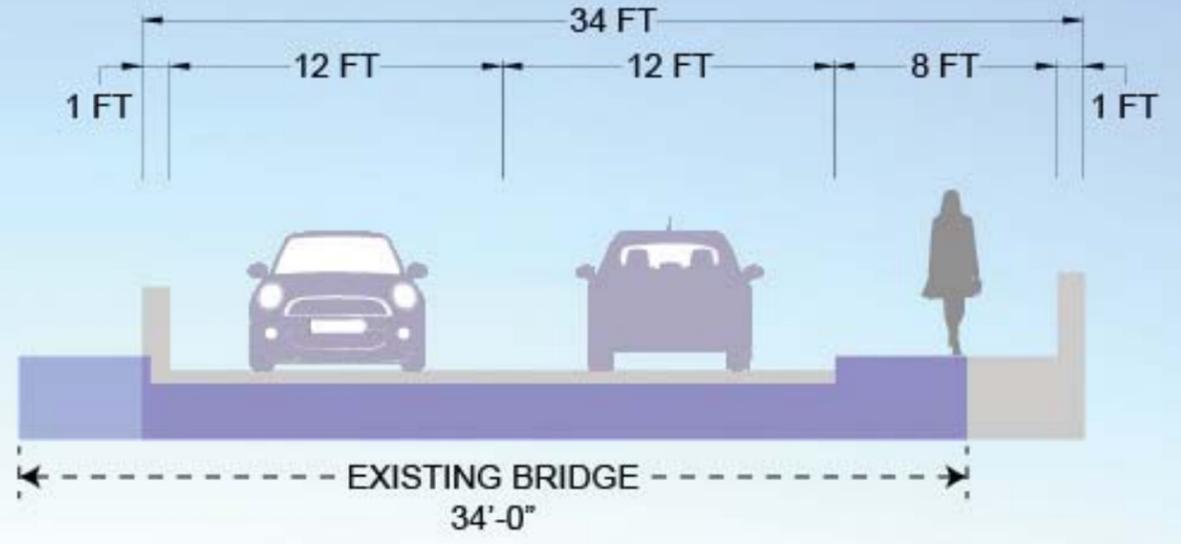
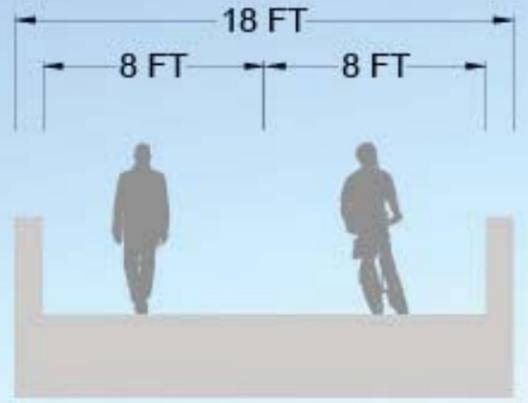
WIDTH DIFFERENCE | 8'-0"  
 ADA RAMP LENGTH | 883'-9"



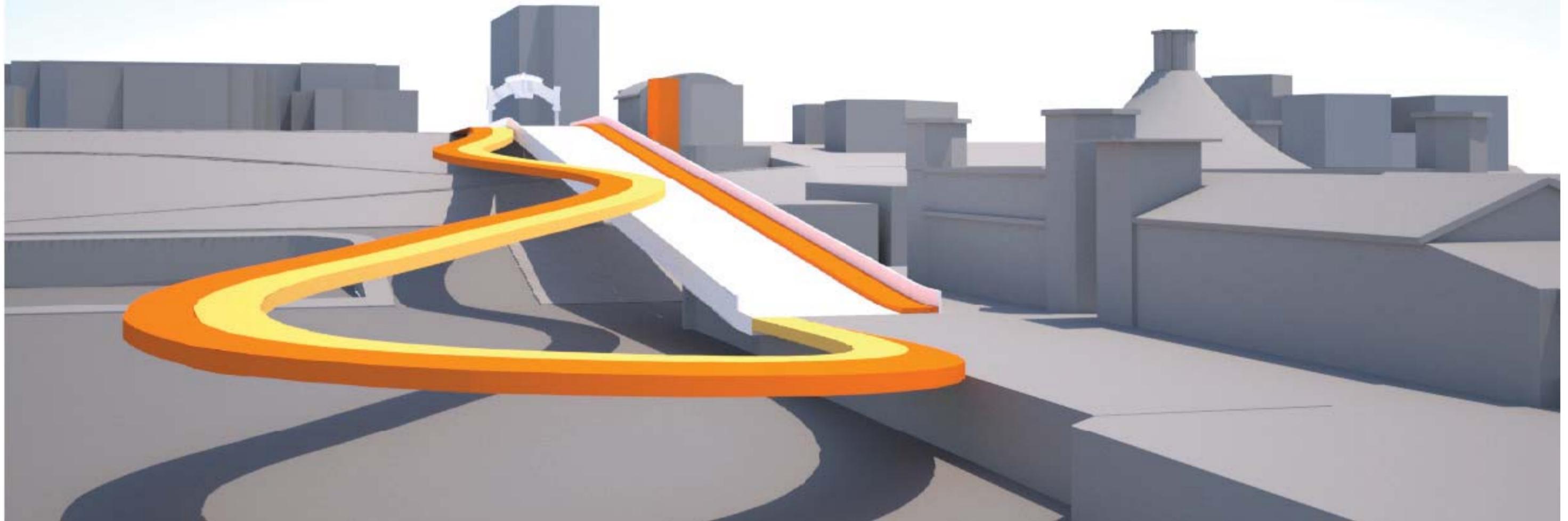
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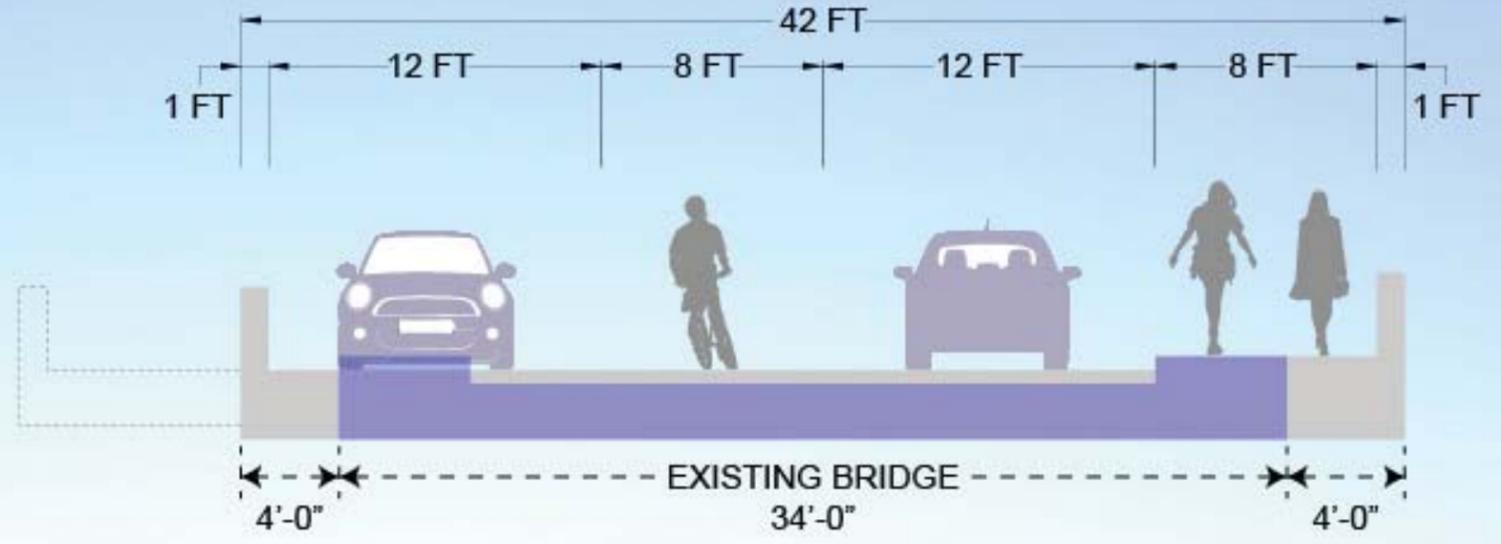
WIDTH DIFFERENCE | 0'-0"  
ADA RAMP LENGTH | 883'-9"



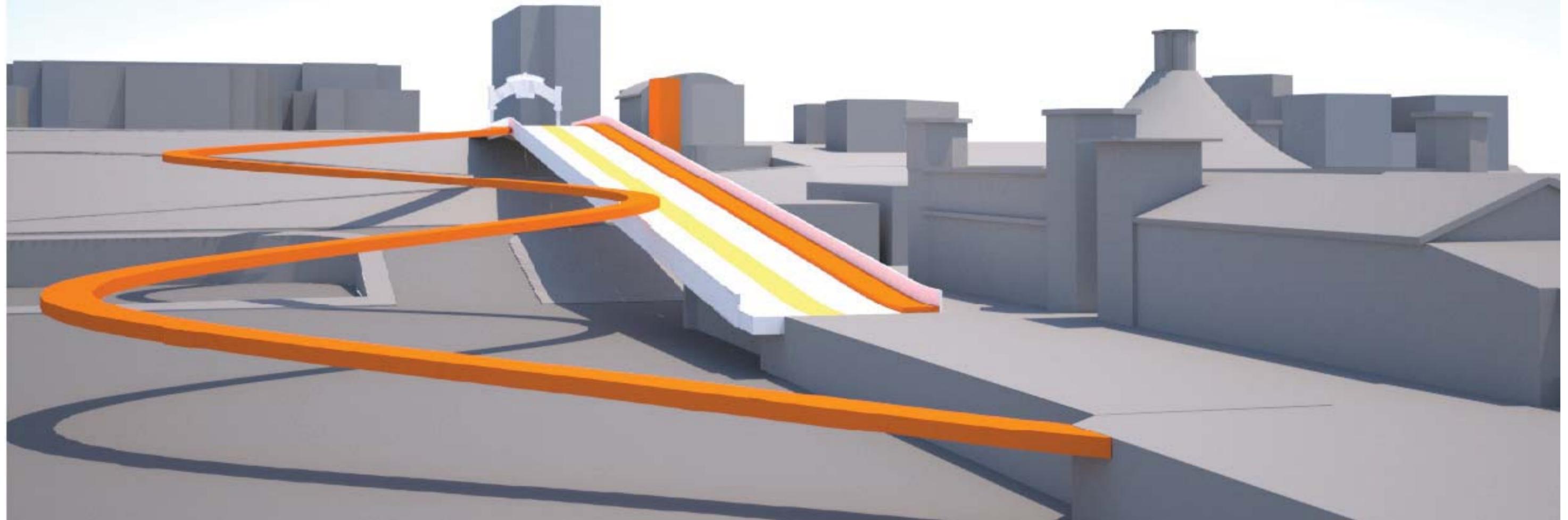
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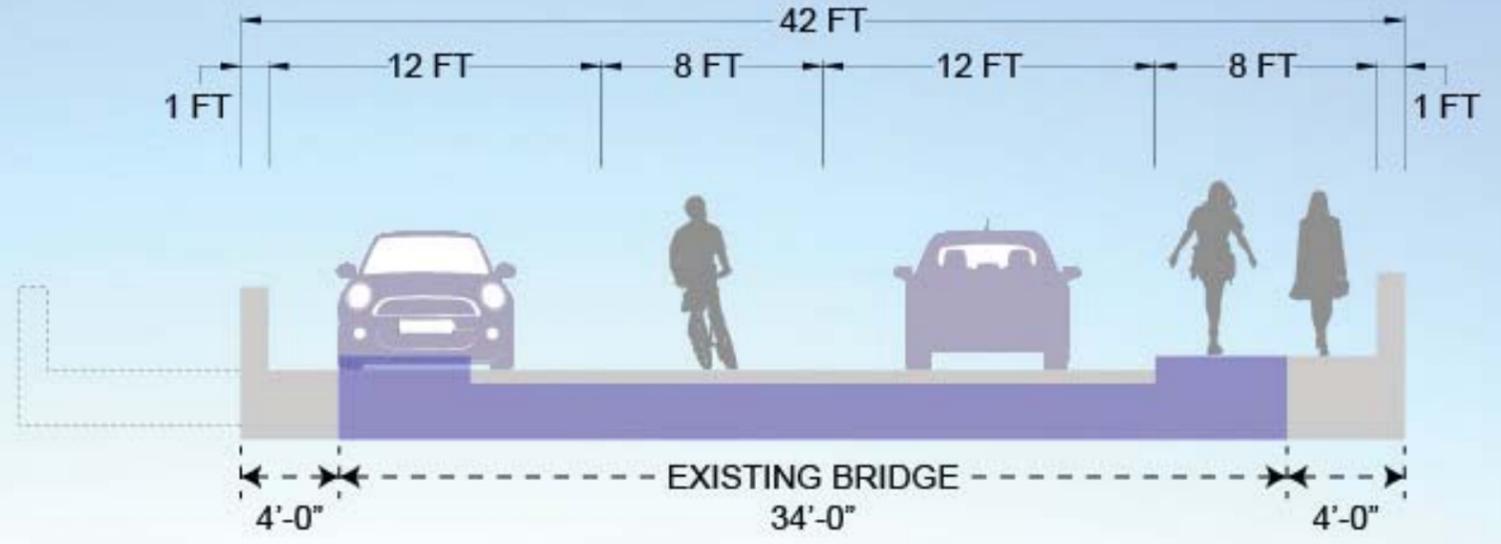
WIDTH DIFFERENCE | 8'-0"  
 ADA RAMP LENGTH | 867'-6"



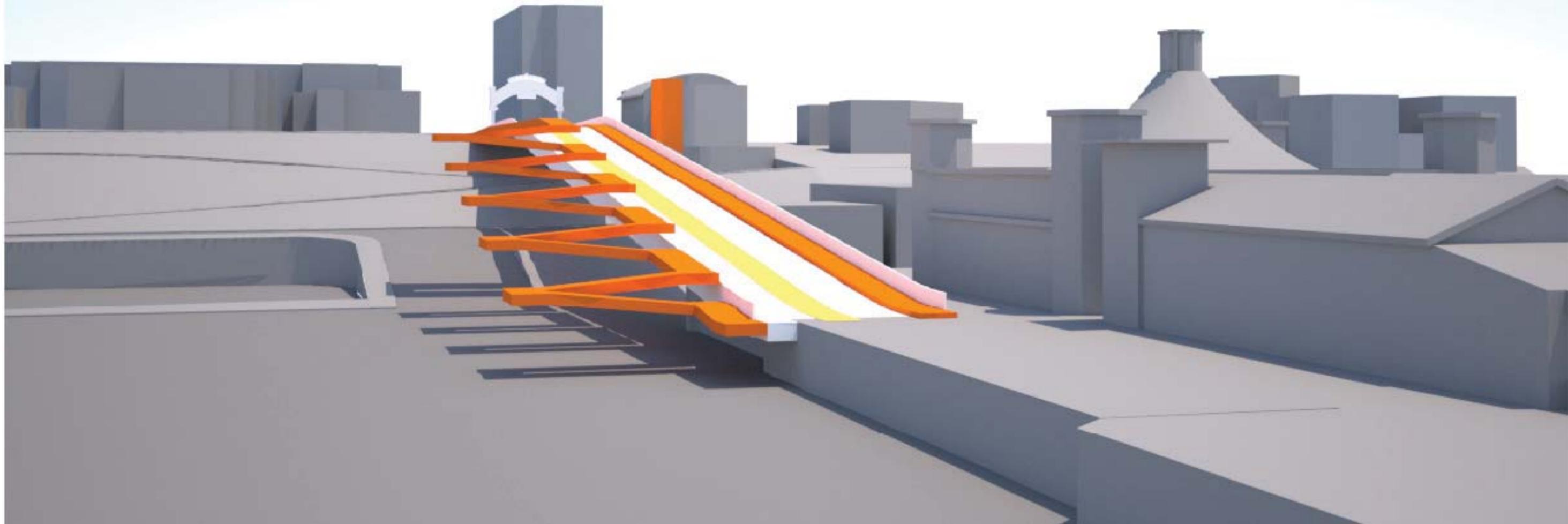
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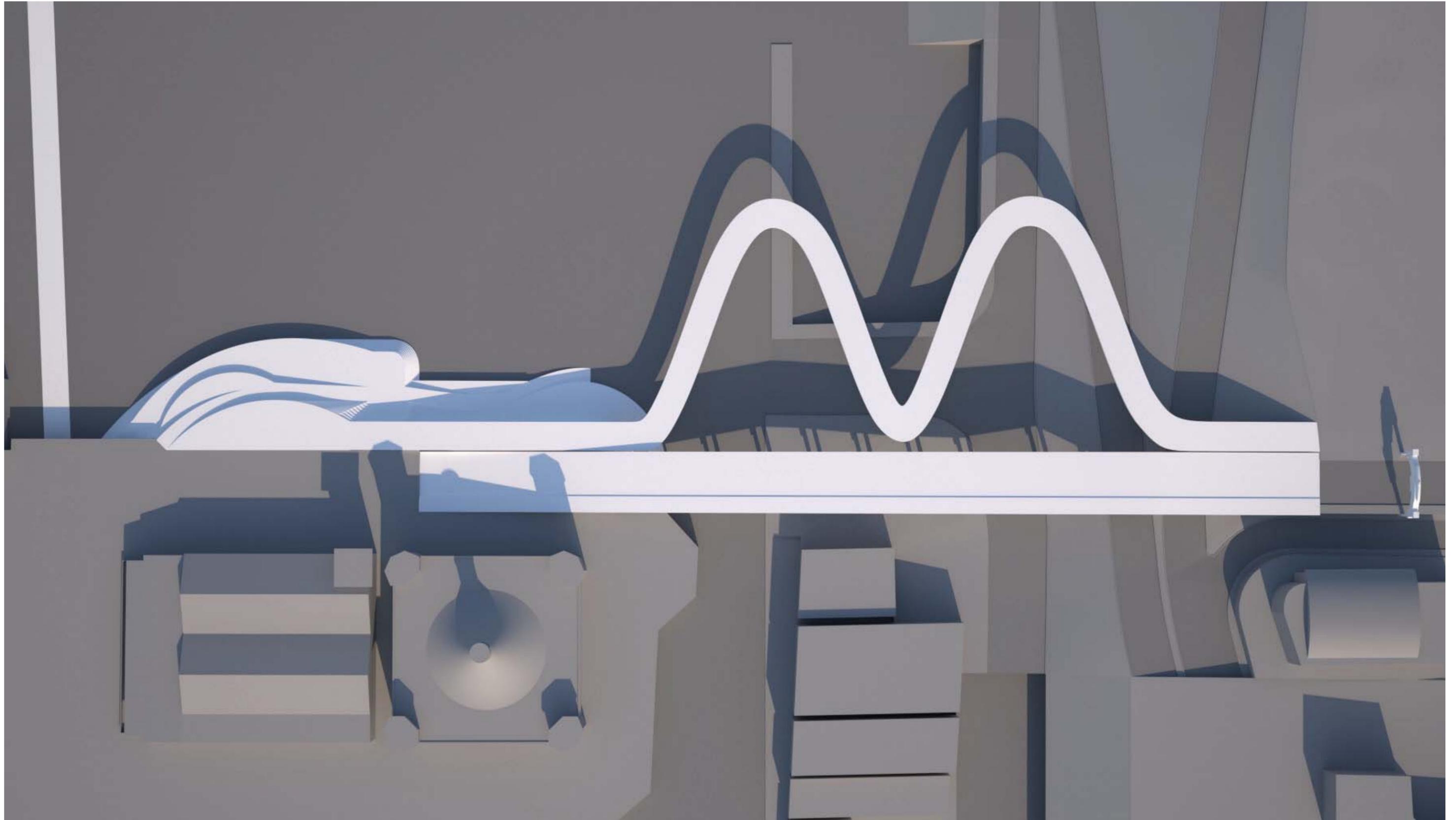


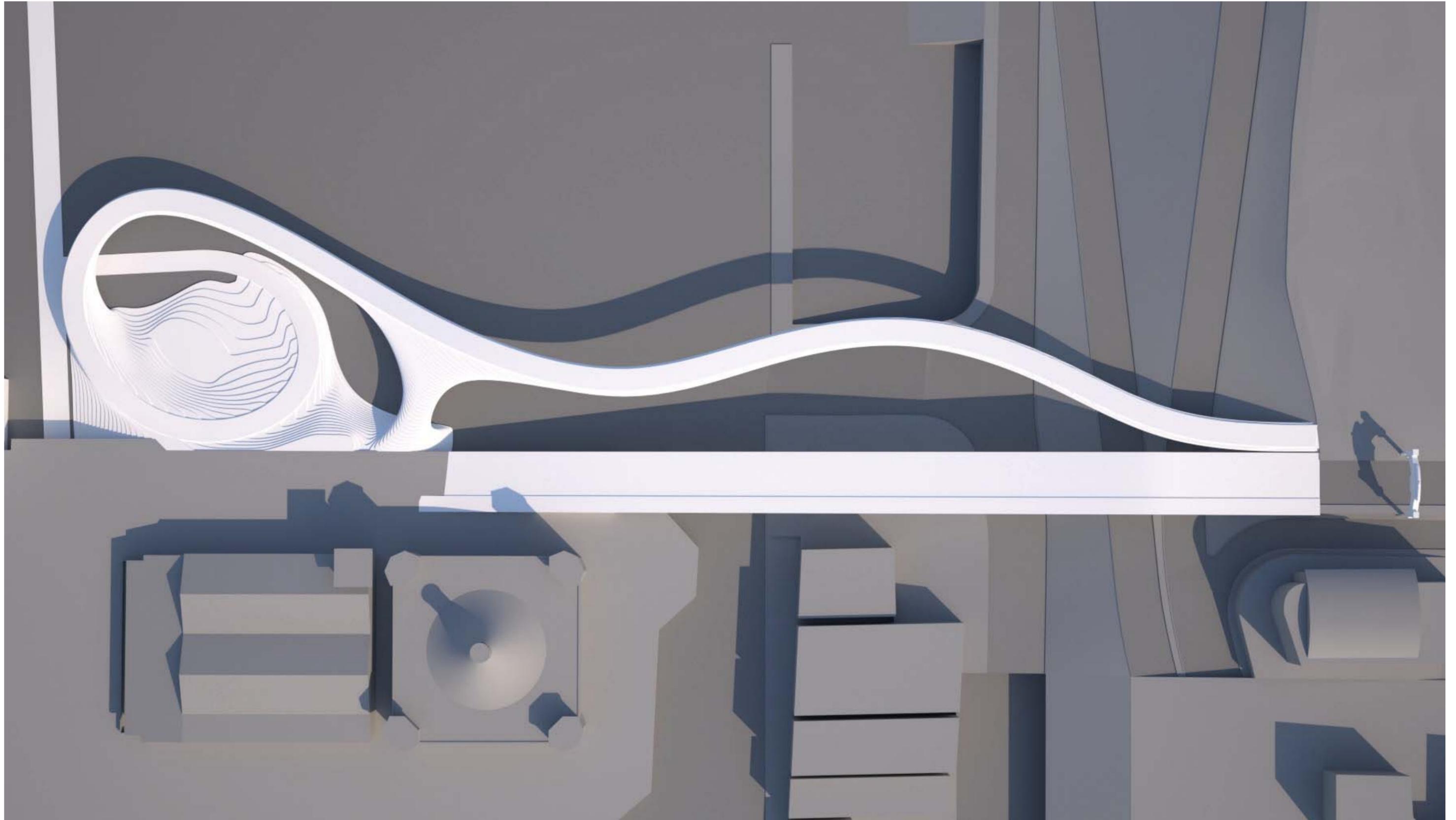
WIDTH DIFFERENCE | 8'-0"  
ADA RAMP LENGTH | 896'-3"

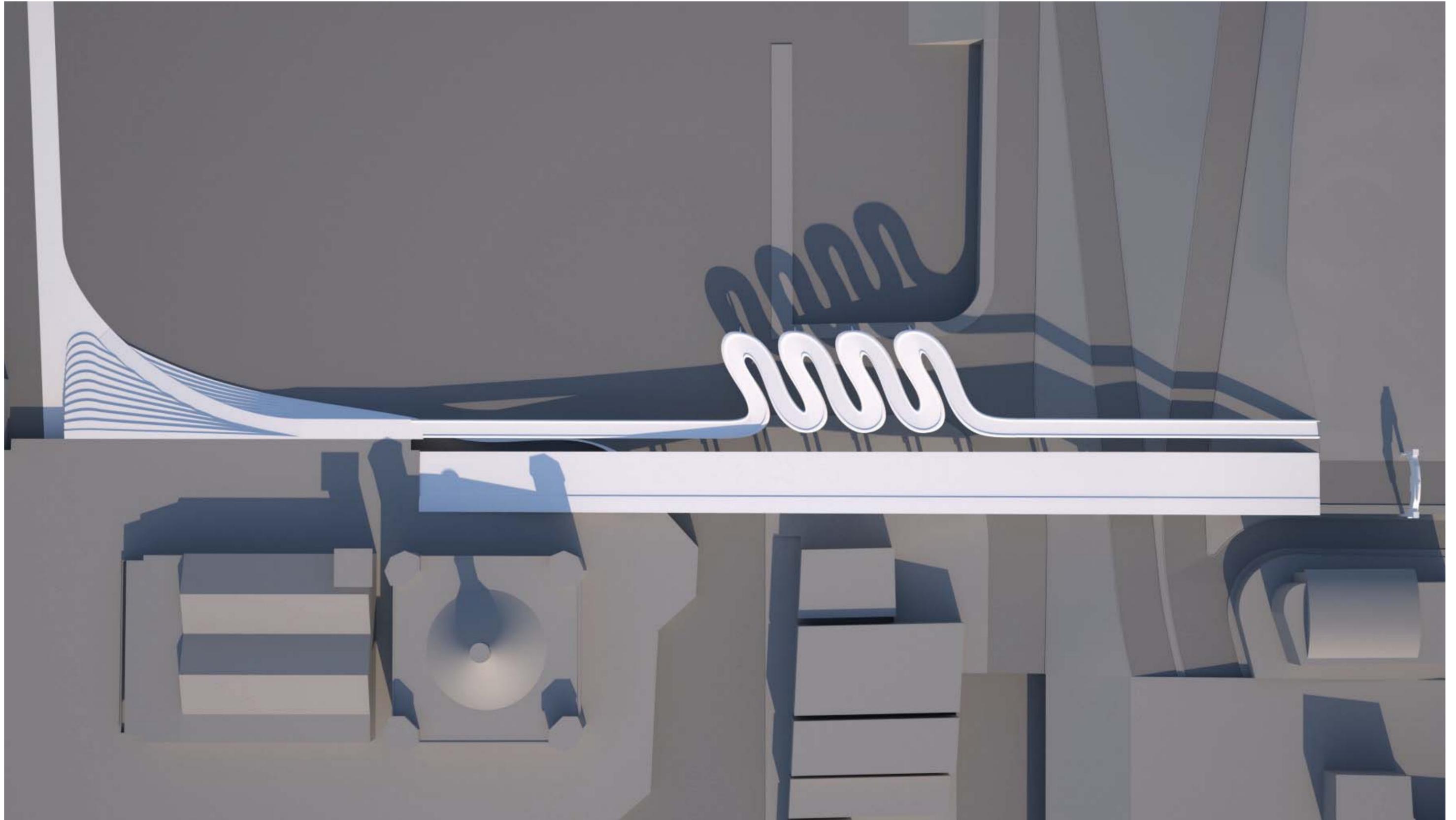


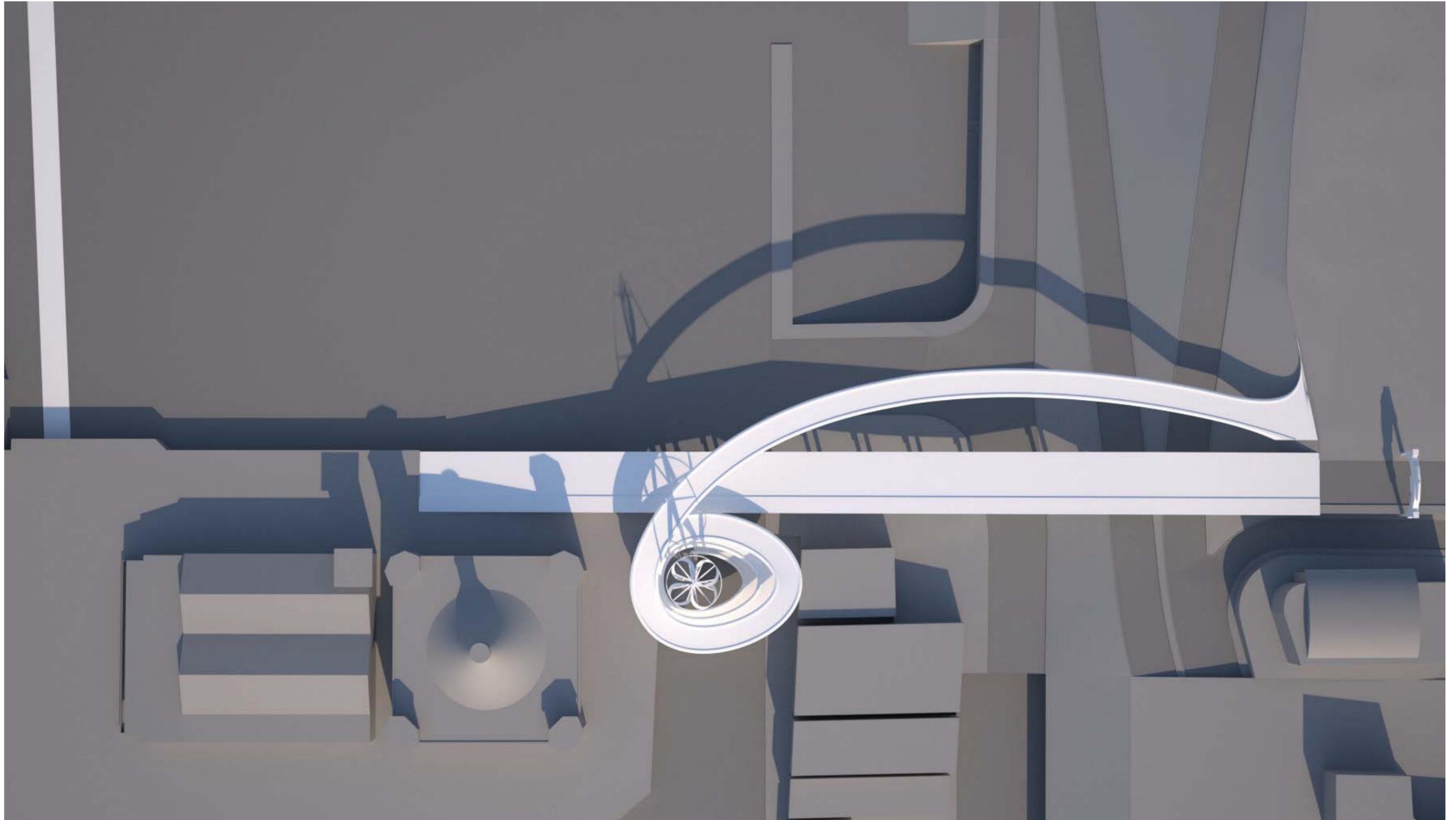
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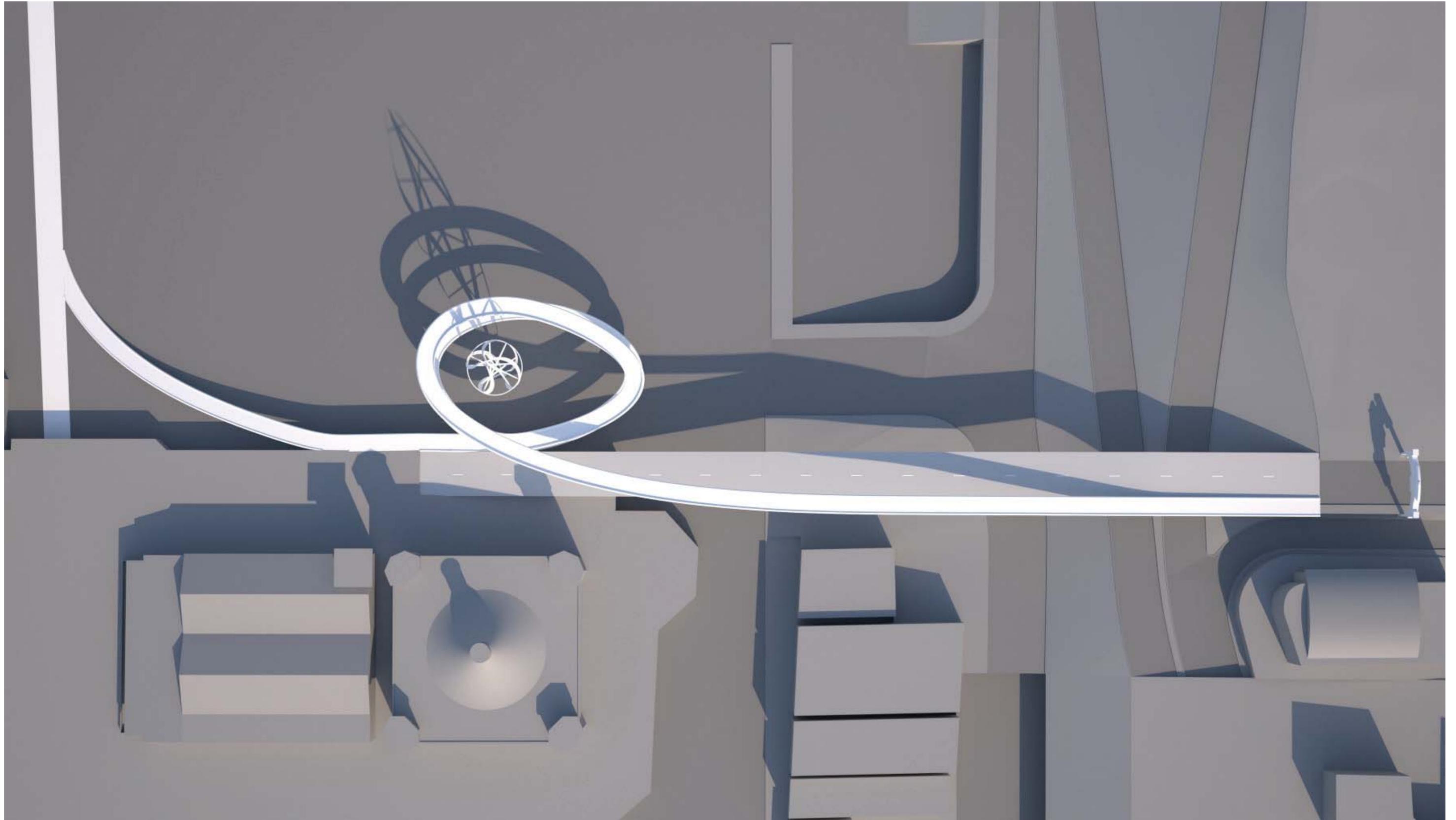


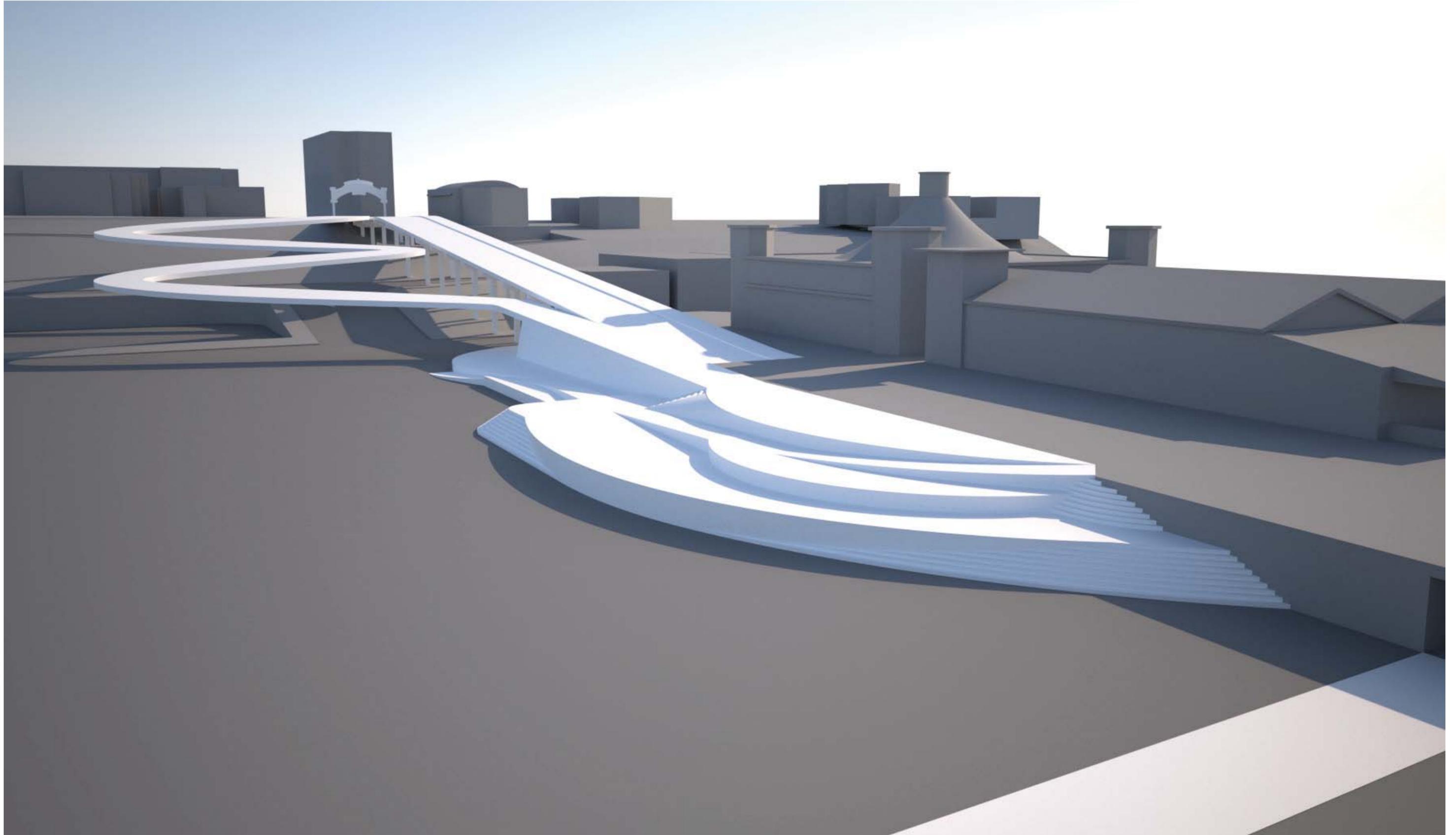


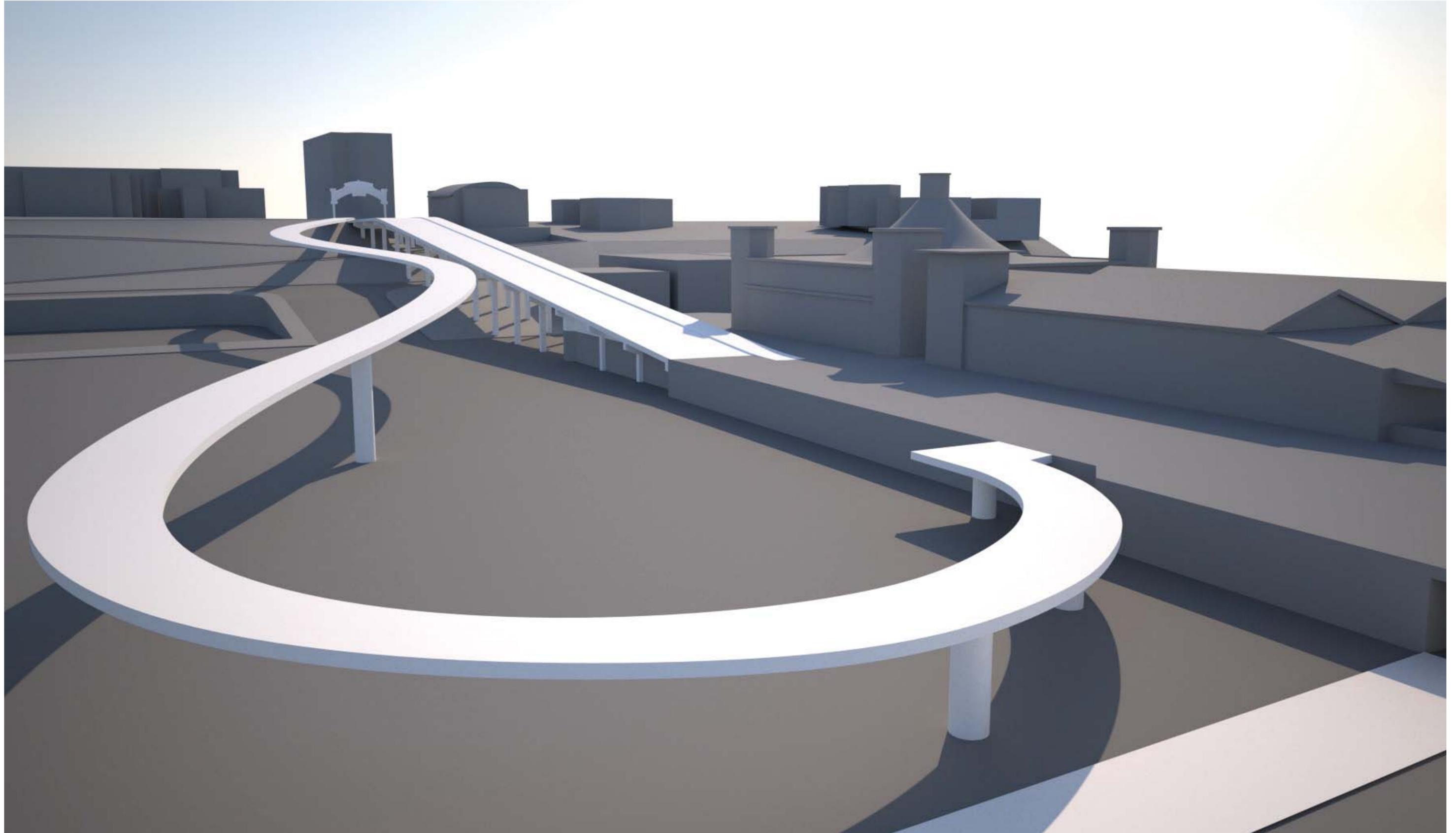


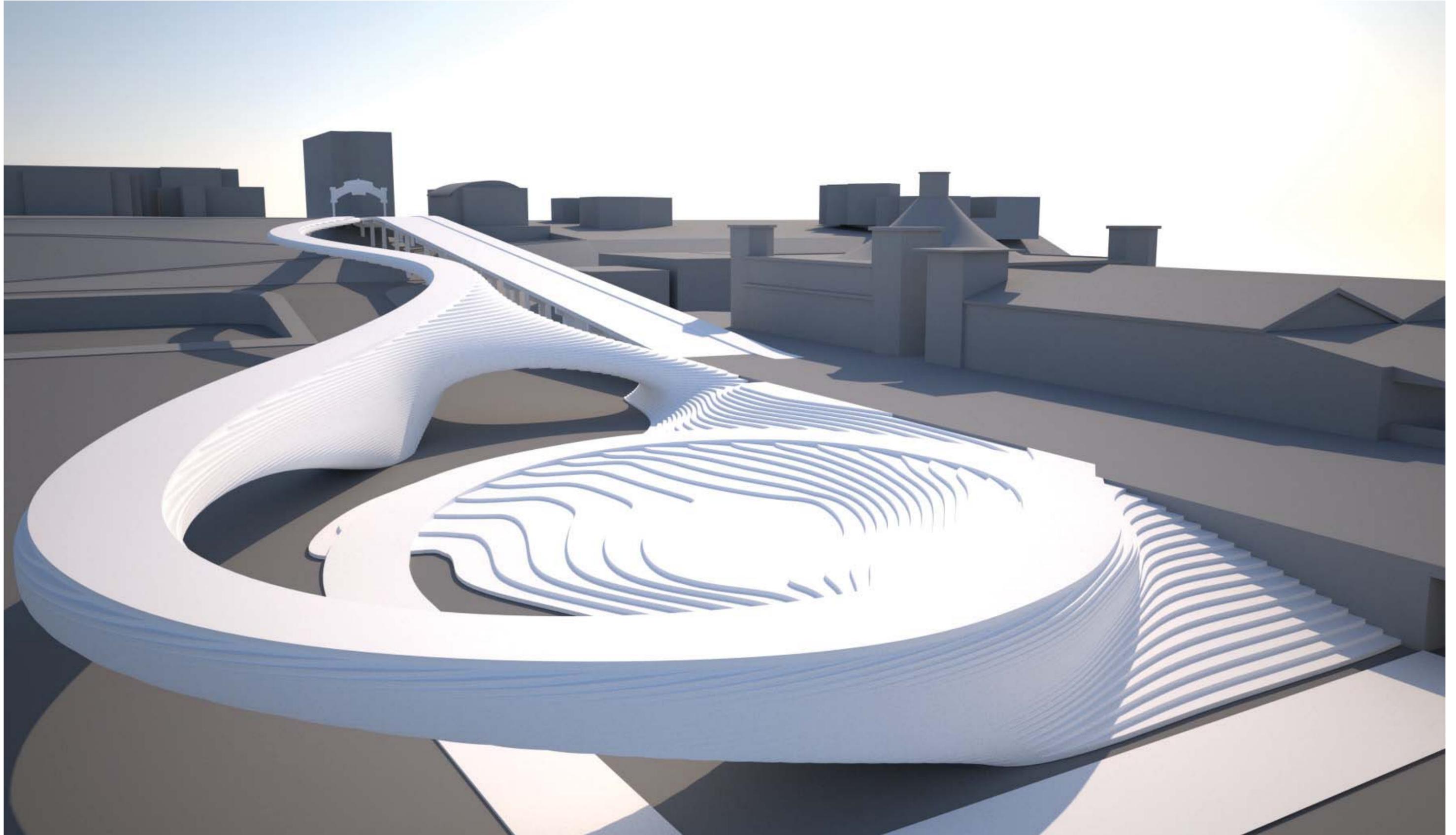


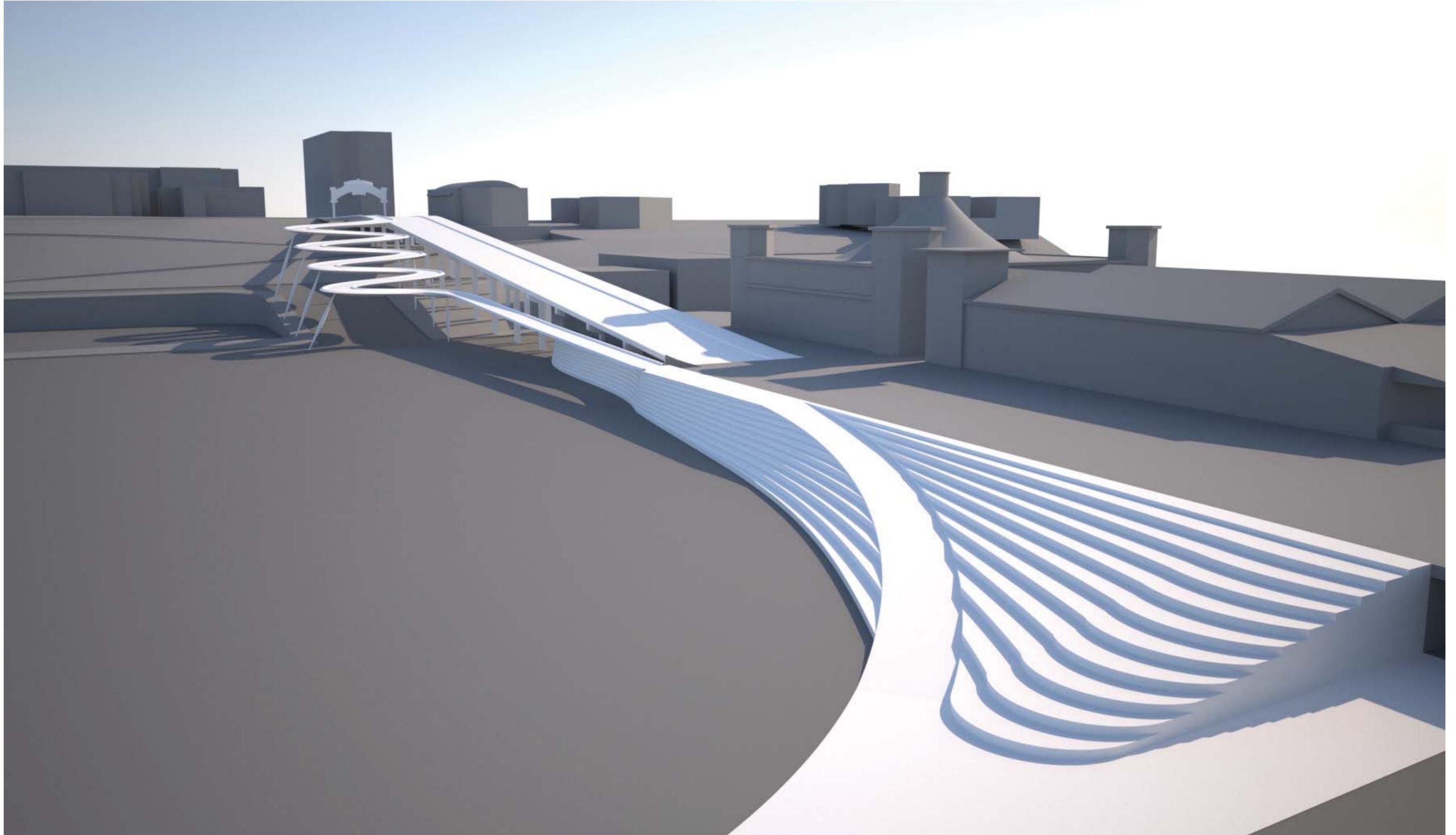


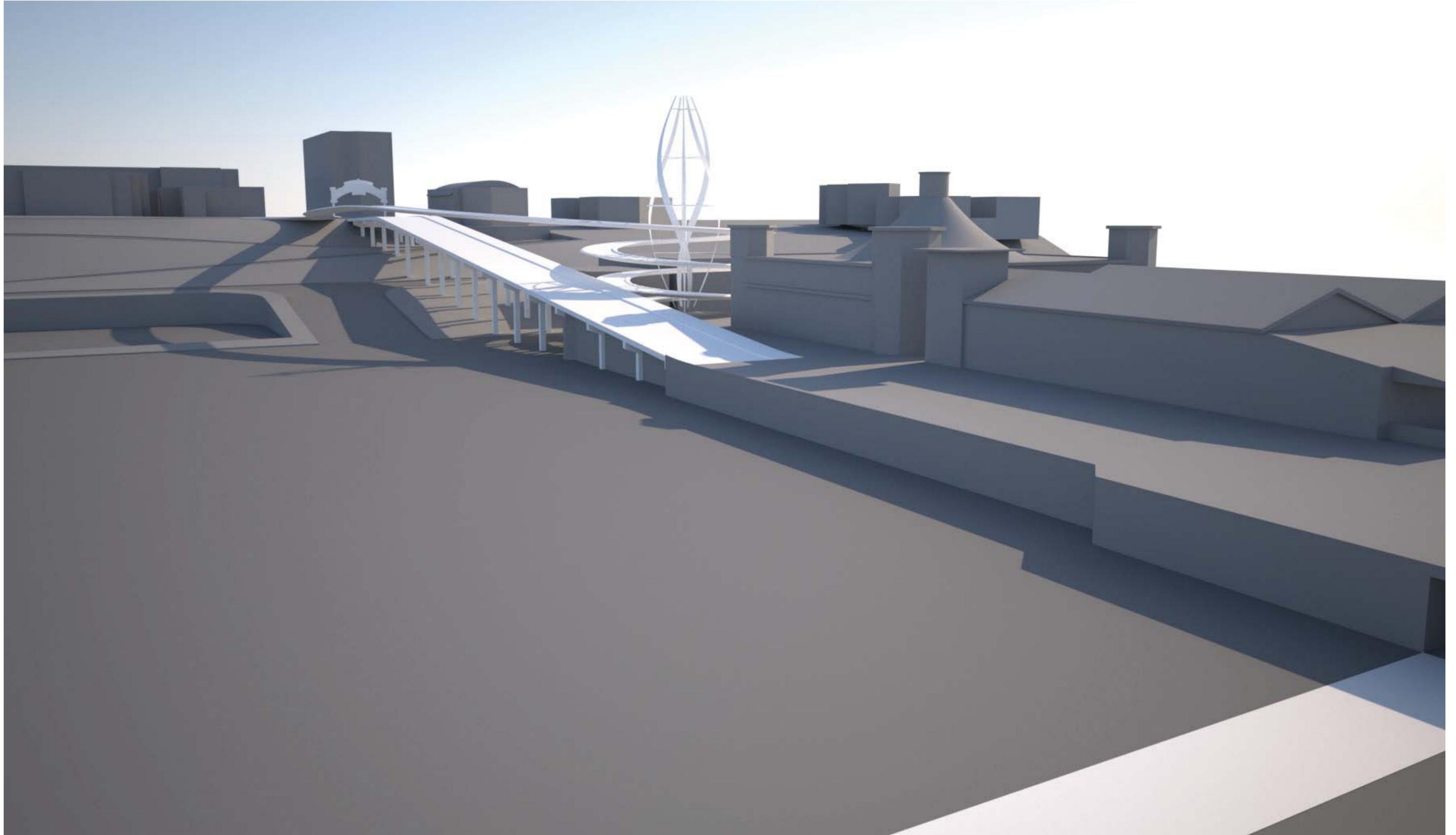


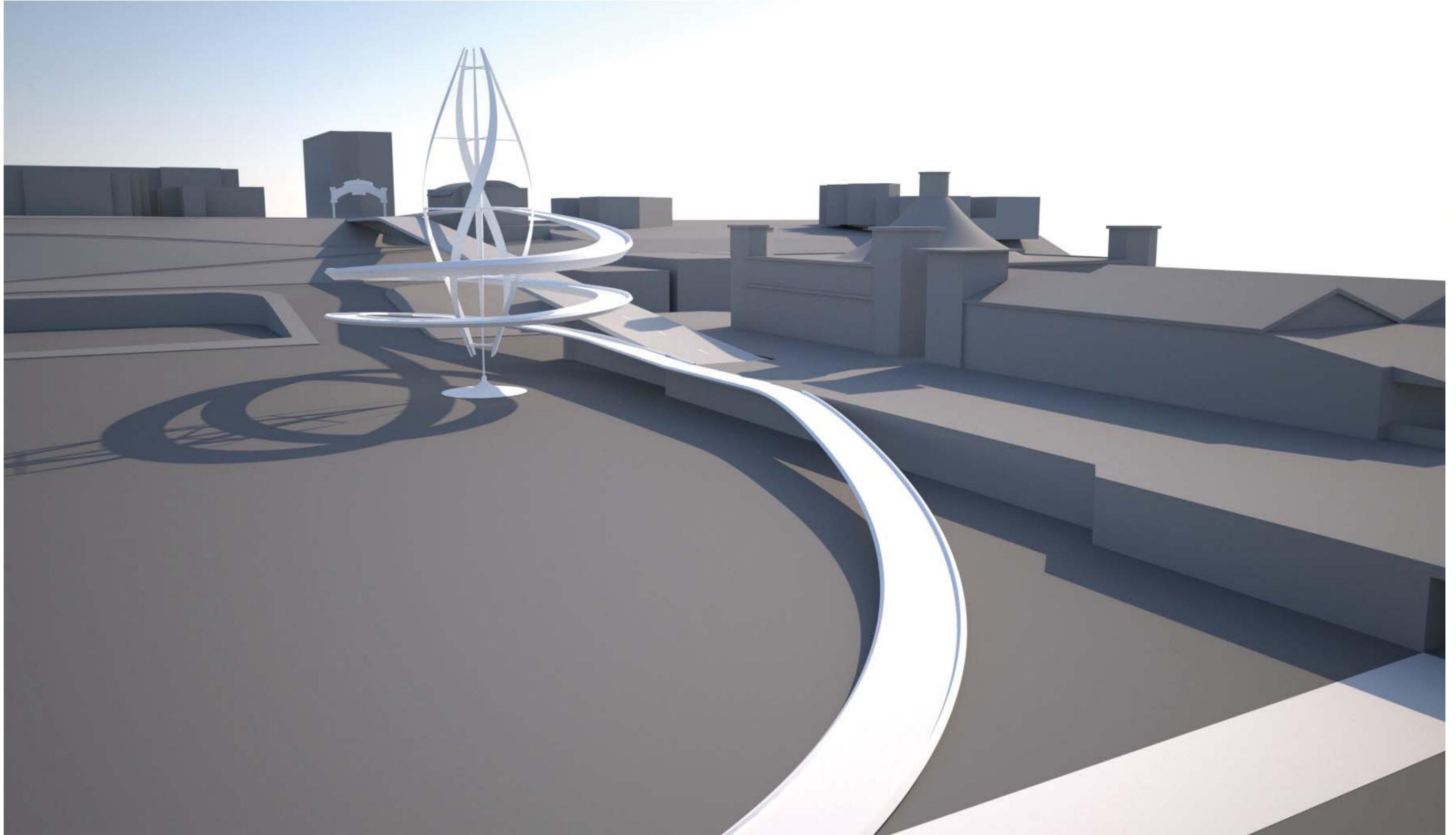


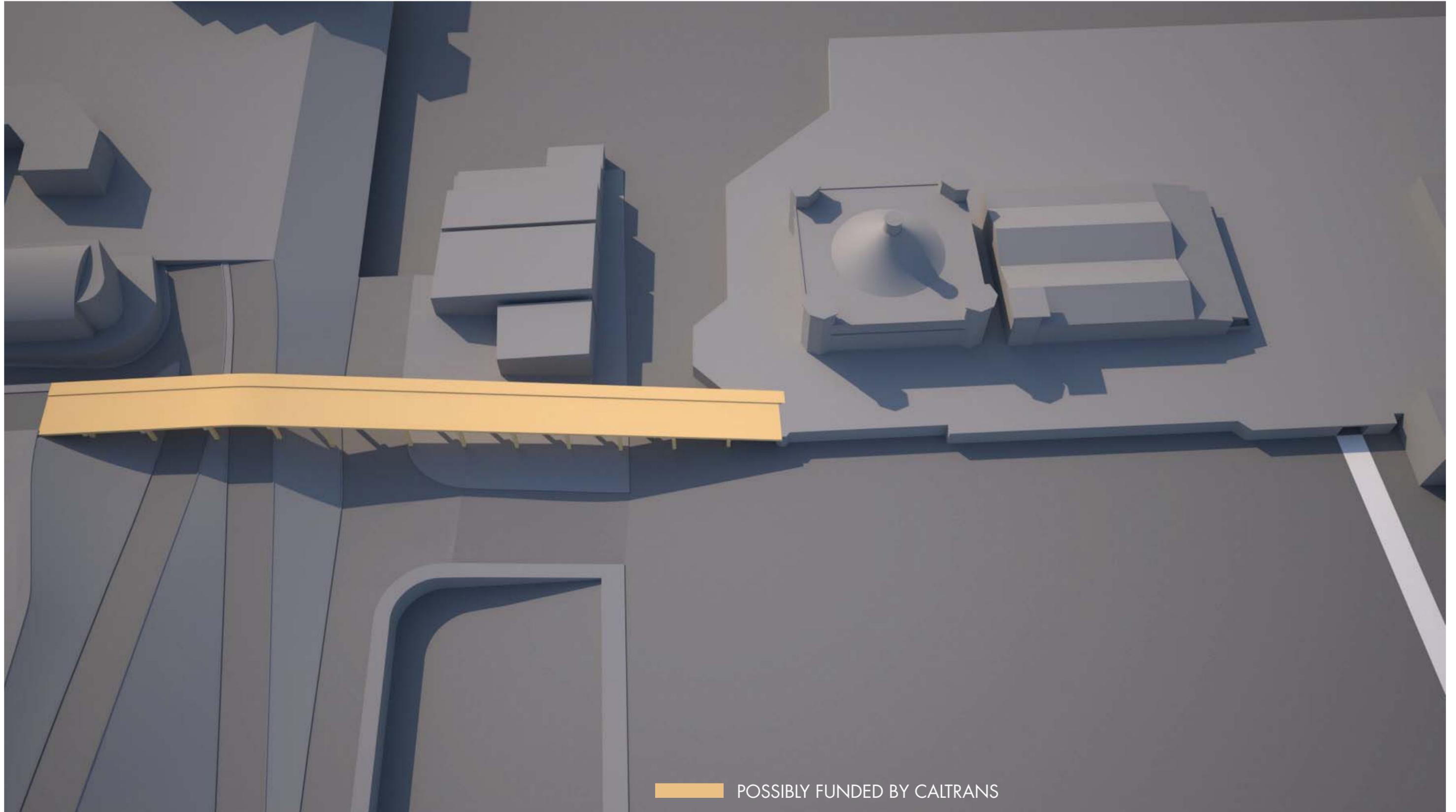




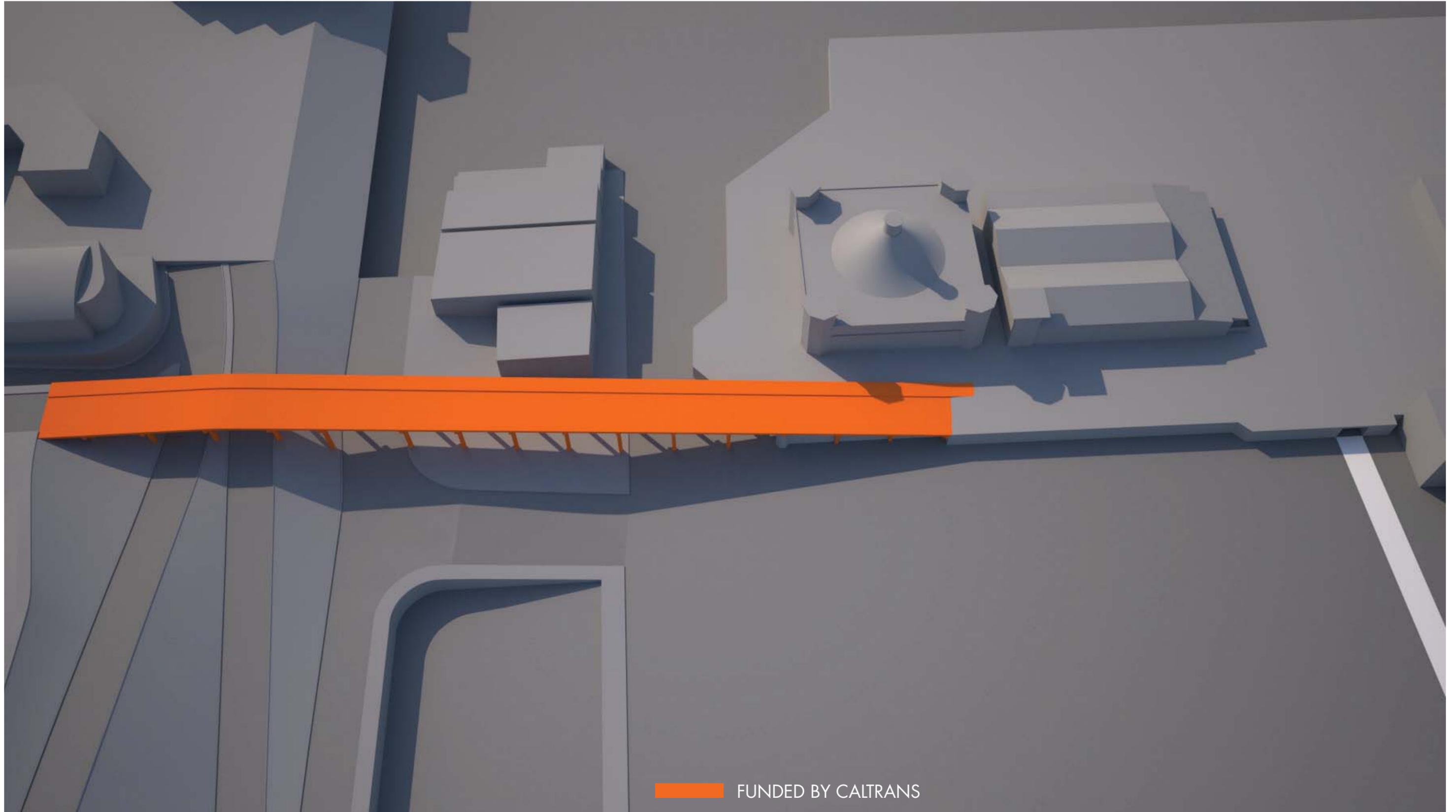




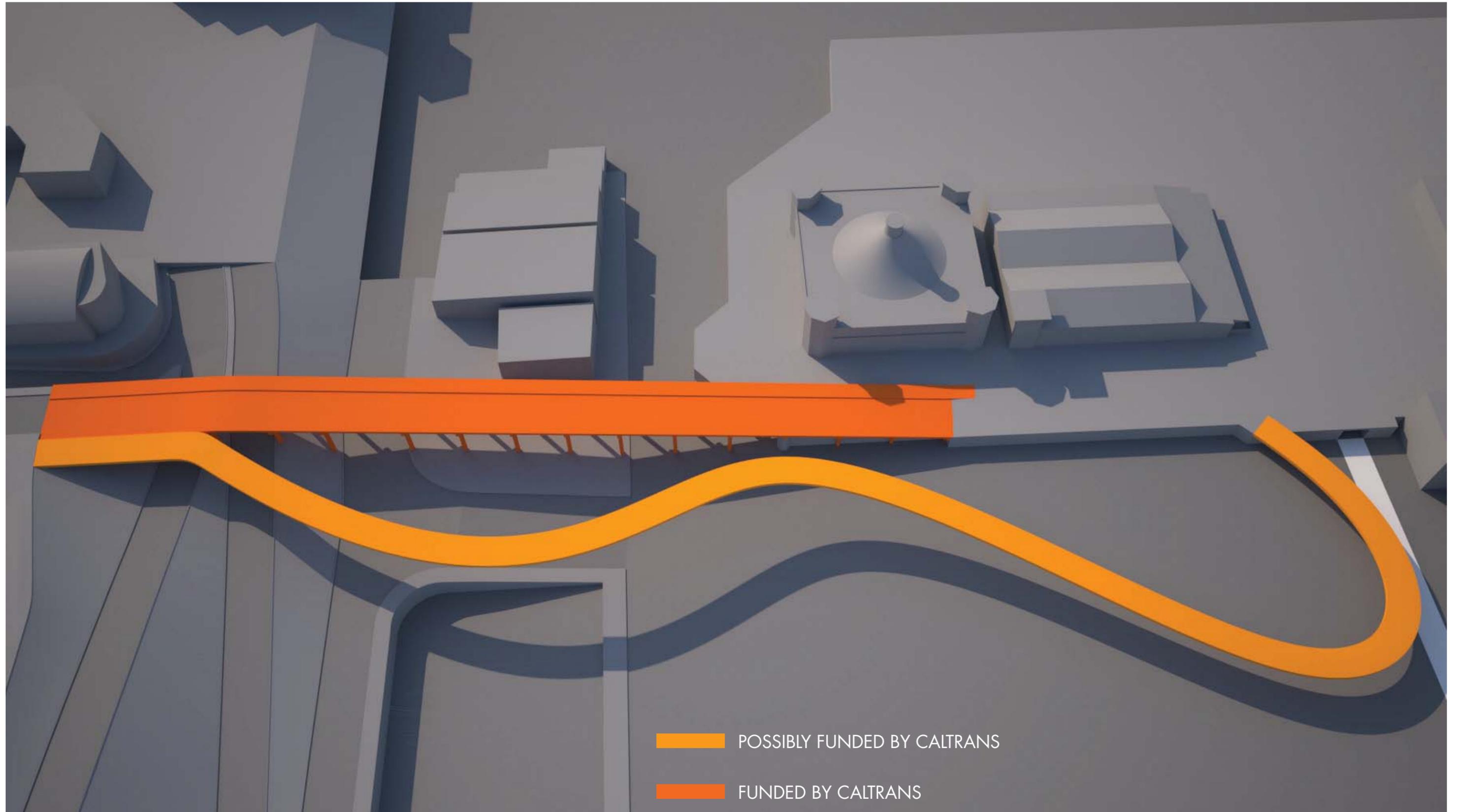




POSSIBLY FUNDED BY CALTRANS

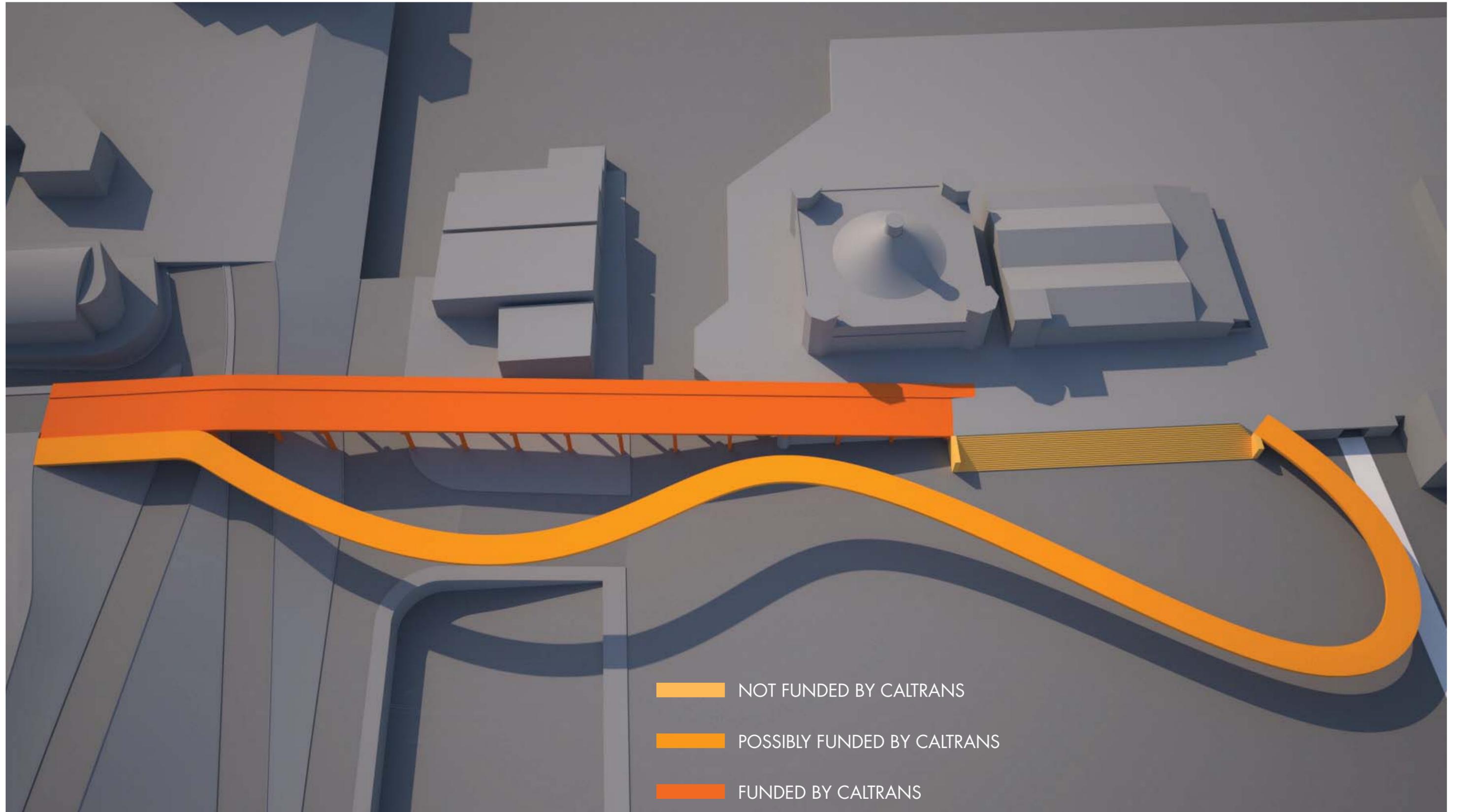


 FUNDED BY CALTRANS



POSSIBLY FUNDED BY CALTRANS

FUNDED BY CALTRANS





COUNTURED WOOD BRIDGE CONCEPT, VIENNA



COUNTURED WOOD BRIDGE CONCEPT, VIENNA



ONE MAIN STREET, BELLEVUE CONDOS



SIMCOE WAVEDECK, TORONTO



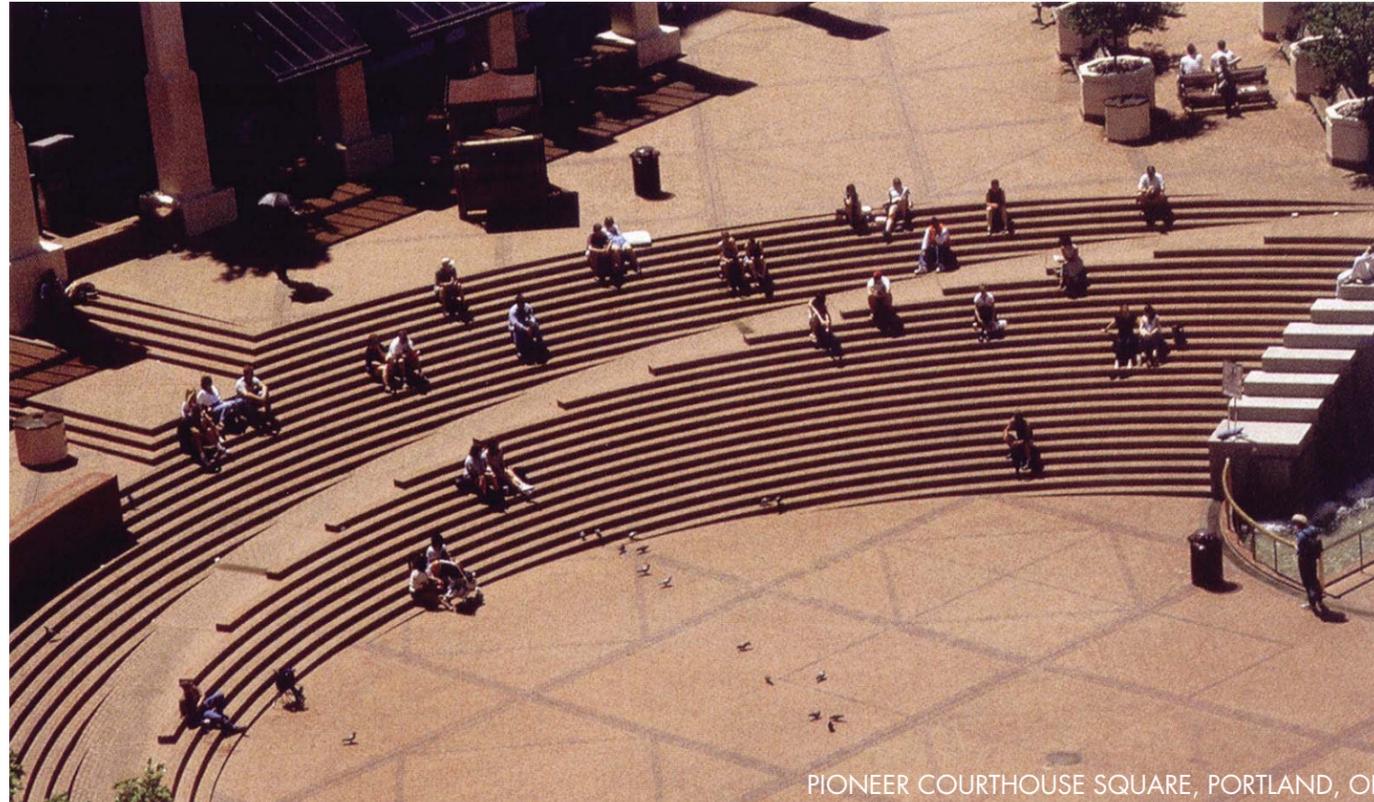
SIMCOE WAVEDECK, TORONTO



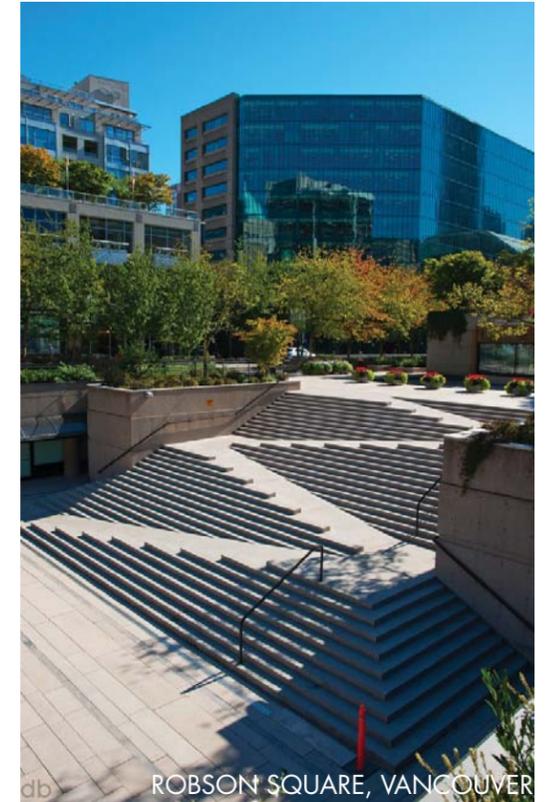
WILD REINDEER REFUGE, NORWAY



AACHEN MUNCHENER HQ, GERMANY



PIONEER COURTHOUSE SQUARE, PORTLAND, OR



ROBSON SQUARE, VANCOUVER



AACHEN MUNCHENER HQ, GERMANY



PIONEER COURTHOUSE SQUARE, PORTLAND, OR



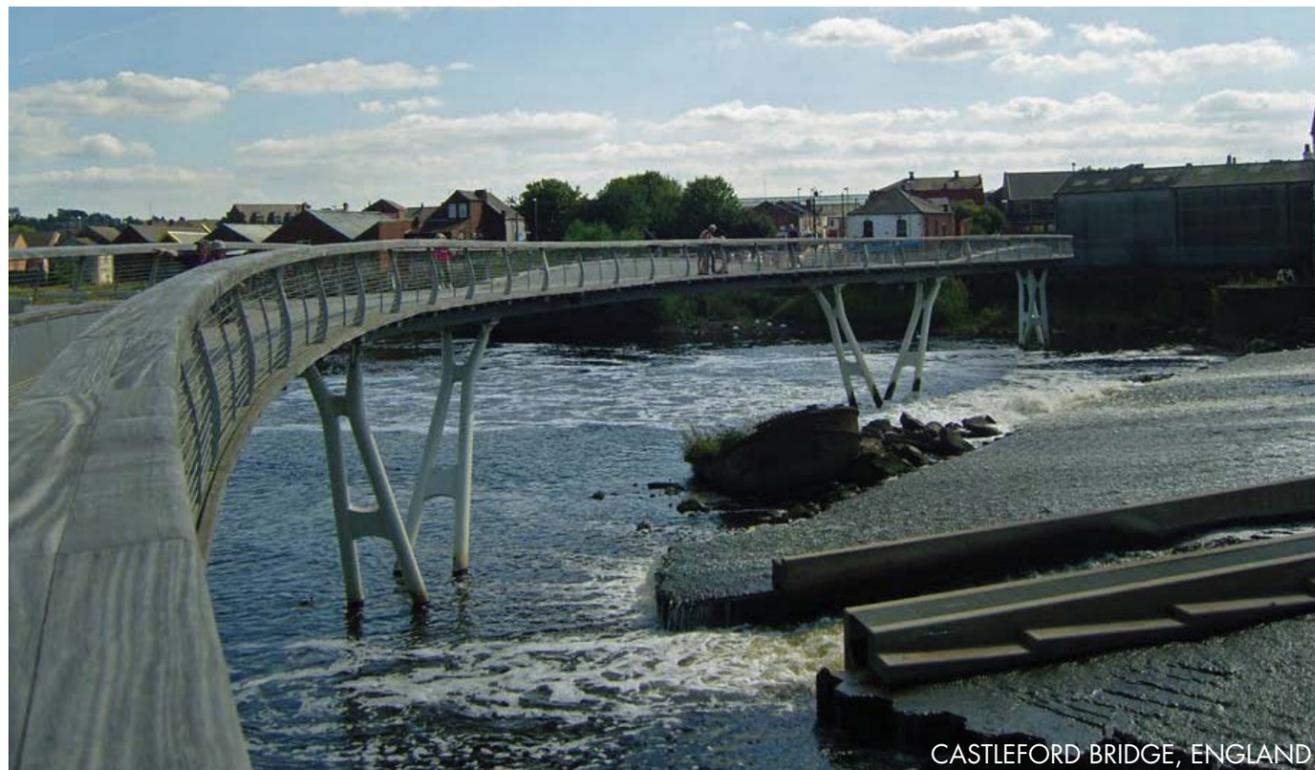
ROBSON SQUARE, VANCOUVER



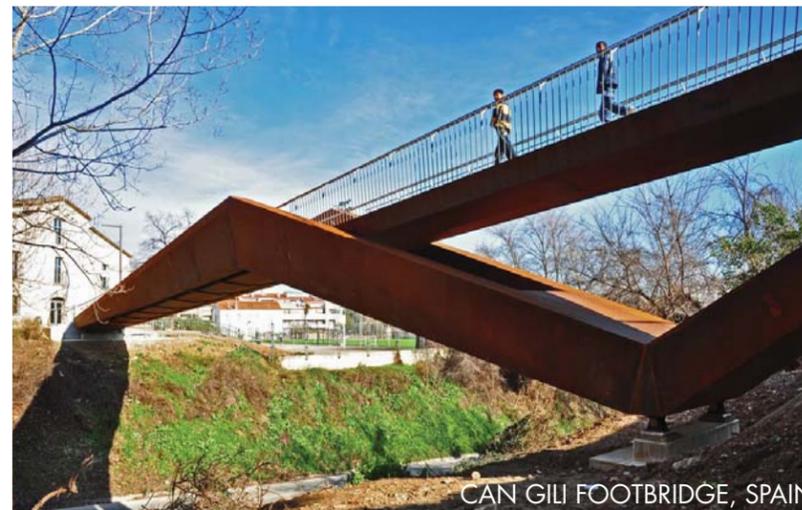
CASTLEFORD BRIDGE, ENGLAND



SASSNITZ FOOTBRIDGE, GERMANY



CASTLEFORD BRIDGE, ENGLAND



CAN GILI FOOTBRIDGE, SPAIN





KENT MESSENGER BRIDGE, ENGLAND



YORK MILLENIUM BRIDGE, ENGLAND



BORREGAS PEDESTRIAN BRIDGE, CALIFORNIA



MUSEUM PARK FOOTBRIDGE, NETHERLANDS



YORK MILLENIUM BRIDGE, ENGLAND



ROYAL VICTORIA DOCK BRIDGE, ENGLAND



WIND TURBINE BRIDGE, ITALY



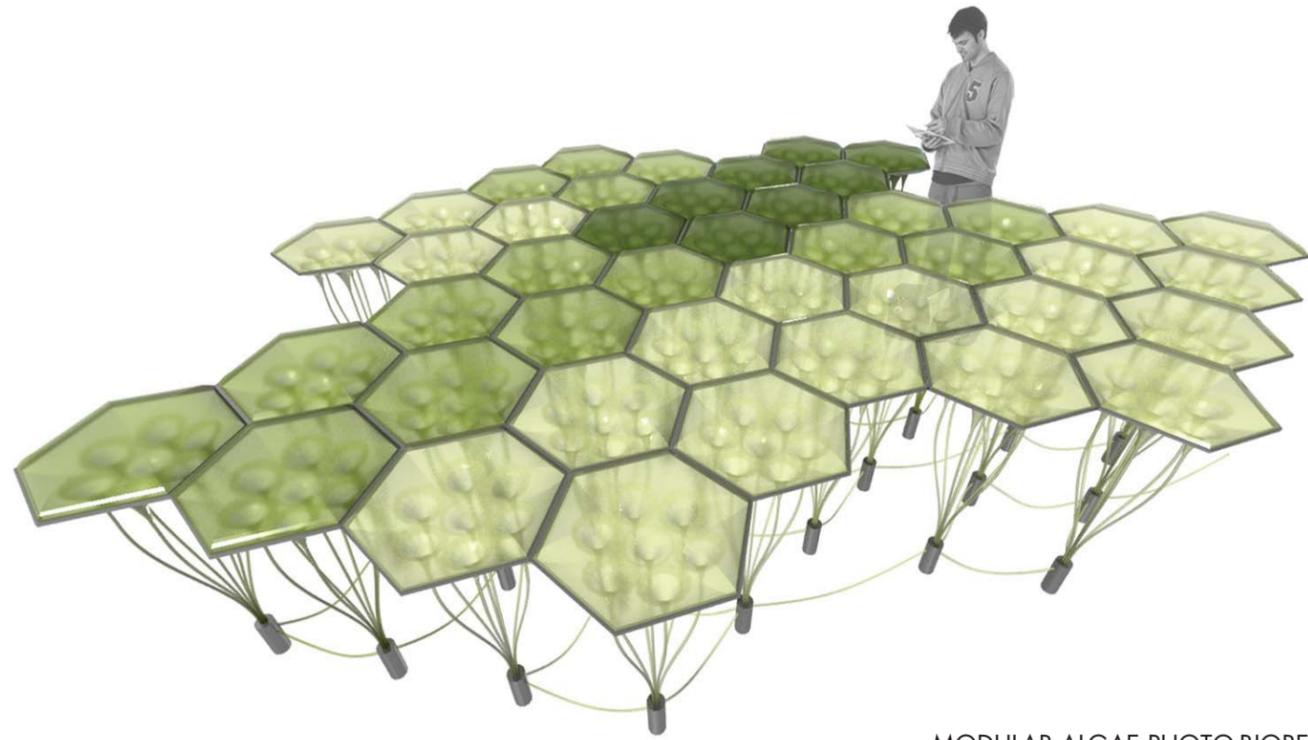
KURILPA BRIDGE, AUSTRALIA



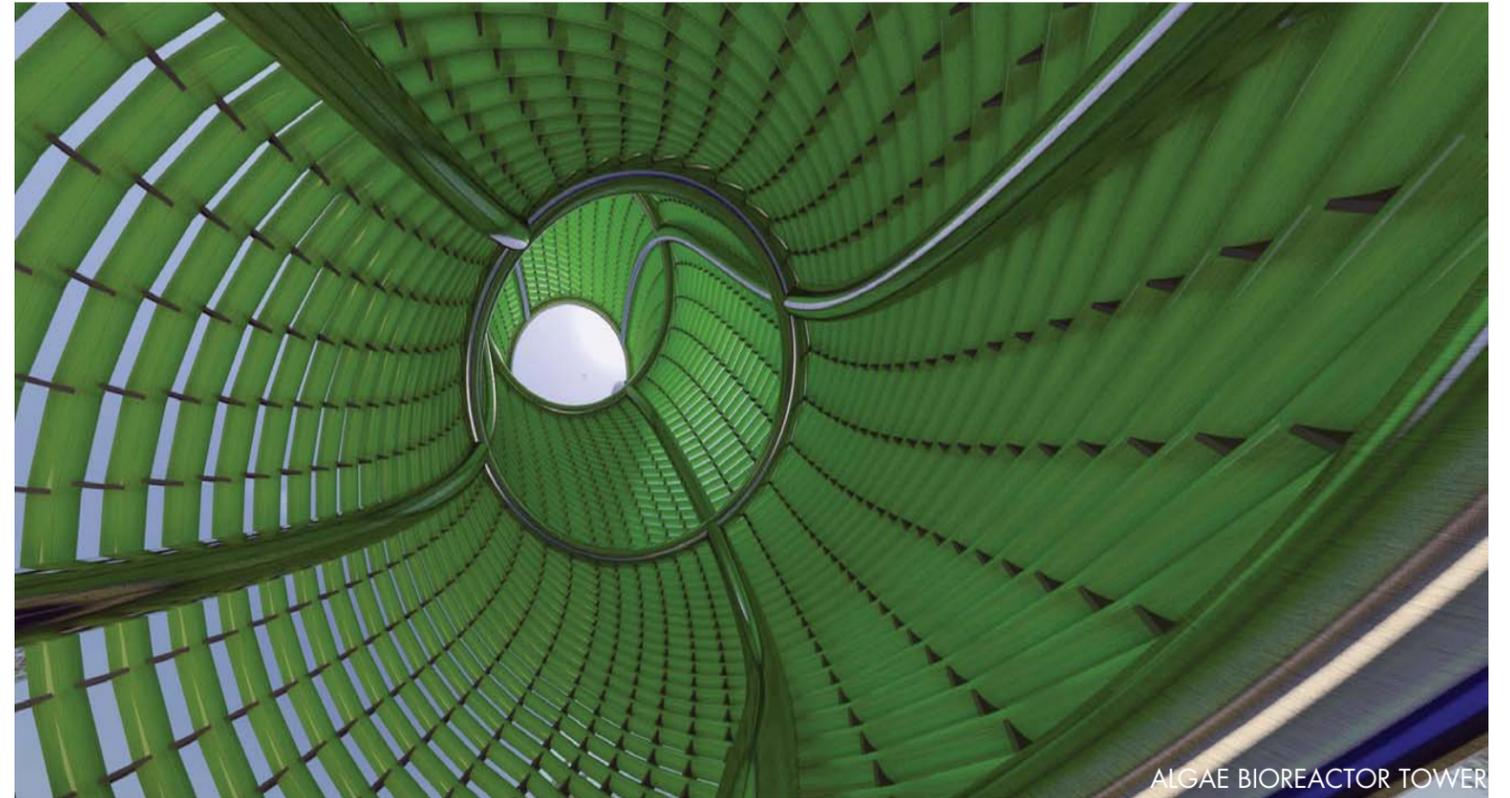
PERTH HYDRO-BIOREACTOR INSTALLATION, AUSTRALIA



PAVEGEN FLOOR TILES, ENGLAND



MODULAR ALGAE PHOTO-BIOREACTOR



ALGAE BIOREACTOR TOWER



CELLULAR SOLAR TOWER, ITALY



ROOF TOP WIND FARM, OKLAHOMA

## EXAMPLE RATING CRITERIA

	PRIMARY CRITERIA	ISSUES INCLUDED
<b>A</b>	CONSTRUCTABILITY	<ul style="list-style-type: none"> <li>○ Minimize construction duration</li> <li>○ Minimize traffic impacts</li> <li>○ Maximize sustainability</li> </ul>
<b>B</b>	ADA COMPLIANCE	<ul style="list-style-type: none"> <li>○ Accessibility meeting RFP objectives (full compliance)</li> <li>○ Pedestrian safety enhancements</li> </ul>
<b>C</b>	FEDERAL FUNDING	<ul style="list-style-type: none"> <li>○ Comply with federal program guidelines</li> <li>○ Maximize federal funding participation for non-standard items</li> </ul>
<b>D</b>	ENVIRONMENTAL IMPACTS	<ul style="list-style-type: none"> <li>○ Palisades Park</li> <li>○ Visual</li> <li>○ Historic Resources (Hippodrome, Pier Sign)</li> <li>○ Approval schedule</li> </ul>
<b>E</b>	RIGHT-OF-WAY IMPACTS	<ul style="list-style-type: none"> <li>○ Minimize impacts to the Aquarium</li> <li>○ Minimize ROW takes</li> </ul>
<b>F</b>	UTILITY IMPACTS	<ul style="list-style-type: none"> <li>○ Minimize impacts to the Aquarium Generator</li> <li>○ Utility relocations</li> </ul>
<b>G</b>	CONSISTENCY WITH ADJACENT IMPROVEMENTS	<ul style="list-style-type: none"> <li>○ Improves ped/bike connectivity</li> <li>○ Aligns with Colorado Esplanade</li> <li>○ Pier Visioning (doesn't preclude future improvements)</li> </ul>
<b>H</b>	LONG-TERM MAINTENANCE	<ul style="list-style-type: none"> <li>○ Minimize modifications to existing utilities (new power sources, facilities)</li> <li>○ Service cost for elevator/machinery</li> <li>○ Cleaning, painting, etc.</li> </ul>
<b>I</b>	TRAFFIC IMPACTS	<ul style="list-style-type: none"> <li>○ Maintain access to the Pier at all times</li> <li>○ Ability to mitigate for temporary traffic closures</li> <li>○ Minimize traffic delays/impacts</li> </ul>
<b>J</b>	PIER BUSINESS IMPACTS	<ul style="list-style-type: none"> <li>○ Maximize access to Pier businesses</li> <li>○ Minimize impacts to Pier business</li> </ul>
<b>P/F</b>	COMMUNITY ACCEPTANCE (PASS/FAIL)	<ul style="list-style-type: none"> <li>○ Consistent with majority of community/stakeholder goals</li> <li>○ Consistent with outreach findings</li> </ul>

CRITERIA	A	B	C	D	E	F	G	H	I	J
A		A vs. B	A vs. C	A vs. D	A vs. E					
B			B vs. C	B vs. D	B vs. E					
C				C vs. D	C vs. E					
D					D vs. E					
E										
F										
G										
H										
I										
J										

CRITERIA	TOTAL	CRITERIA WEIGHT (%)
A		
B		
C		
D		
E		
F		
G		
H		
I		
J		
	0	0

**NOTES:**

1. Criteria A-J are compared in the table above. Compare criteria in each row with the criteria in each column.  
Example: Cell location (1,1) compares criteria A with criteria B.
2. "TOTAL" column sums up the number of occurrences of each criteria.
3. "CRITERIA WEIGHT (%)" column determines the percent of occurrences of each criteria by taking the number of occurrences of each criteria and dividing by the total number of occurrences of all criteria.

CRITERIA	A	B	C	D	E	F	G	H	I	J
A		A	C	D	A	A	A	A	I	J
B			B	B	B	F	G	H	B	B
C				D	E	F	G	C	C	J
D					E	F	G	D	I	D
E						F	E	E	I	J
F							G	H	F	F
G								H	G	G
H									I	J
I										J
J										

CRITERIA	TOTAL	CRITERIA WEIGHT (%)
A	5	11
B	5	11
C	3	7
D	4	9
E	4	9
F	6	13
G	6	13
H	3	7
I	4	9
J	5	11
	<b>45</b>	<b>100</b>

# RANKING CRITERIA MATRIX

CRITERIA WEIGHT (%)	CRITERIA	BRIDGE ALTERNATIVE																	
		No Project		1		2		3		4		5		6		7		8	
		Evaluation	Weighted Score	Evaluation	Weighted Score	Evaluation	Weighted Score	Evaluation	Weighted Score	Evaluation	Weighted Score	Evaluation	Weighted Score	Evaluation	Weighted Score	Evaluation	Weighted Score	Evaluation	Weighted Score
11	CONSTRUCTABILITY		0	6	67		0		0		0		0		0		0		0
11	ADA COMPLIANCE		0	5	56		0		0		0		0		0		0		0
7	FEDERAL FUNDING		0	4	27		0		0		0		0		0		0		0
9	ENVIRONMENTAL IMPACTS		0	3	27		0		0		0		0		0		0		0
9	MINIMIZE RIGHT-OF-WAY IMPACTS		0	2	18		0		0		0		0		0		0		0
13	MINIMIZE UTILITY IMPACTS		0	1	13		0		0		0		0		0		0		0
13	CONSISTENCY WITH ADJACENT IMPROVEMENTS		0	9	120		0		0		0		0		0		0		0
7	LONG-TERM MAINTENANCE		0	4	27		0		0		0		0		0		0		0
9	MINIMIZE TRAFFIC IMPACTS		0	6	53		0		0		0		0		0		0		0
11	MINIMIZE PIER BUSINESS IMPACTS		0	5	56		0		0		0		0		0		0		0
TOTAL WEIGHTED SCORE		0		462		0		0		0		0		0		0		0	
COMMUNITY ACCEPTANCE (PASS/FAIL)																			
COST																			
SCORE/COST		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!	

Bridge Alternative	Description
1	A Two bike/pedestrian lanes, car lane center
2	A2 One bike, two pedestrian lanes, car lane center
3	B Bike lane center with cars on either side, pedestrian
4	C Similat to Alt B, but different ADA ramp
5	C2 Similar to Alt C, but with bike lane on outside of ADA
6	D Similar to Alt B, but curved ADA ramp
7	D2 Similar to Alt D, but with bike lane on inside of ADA
8	- Future alternative

### Evaluation:

10	Best, satisfies the criteria very well
9	Closely satisfies the criteria
8	Good, satisfies the criteria comfortably
7	Adequately satisfies the criteria
6	Good, but there is more room to satisfy the criteria
5	Neither best nor least
4	Somewhat satisfies the criteria
3	Minimally satisfies the criteria
2	Attempts to satisfy the criteria
1	Least, does not satisfy the criteria or criteria doesn't apply

### Notes:

1. Alternatives are ranked from 1 (least) to 10 (best) in each criteria.
2. Criteria weight determined based on its importance relative to other criteria