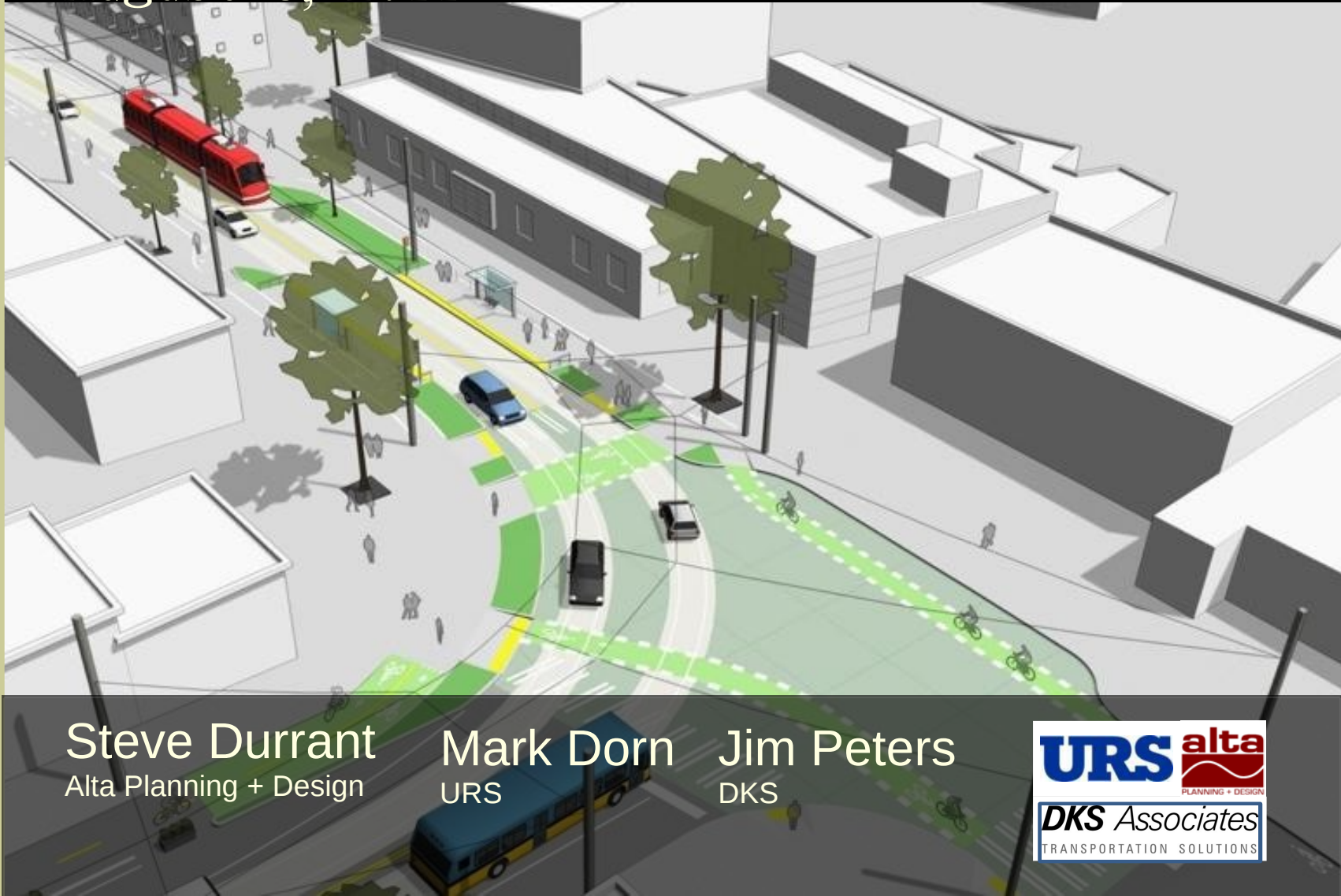


# Seattle Bicycle Advisory Board

August 3, 2011



Steve Durrant  
Alta Planning + Design

Mark Dorn  
URS

Jim Peters  
DKS





# Context

E Denny Way

Broadway

Yesler Way

14th Ave S

S Jackson Street



# Key Strategies

---

- Broadway
  - Side Platforms/Right-Side Running/Separated Bikeway (Cycle Track)
- Yesler
  - Side Platforms/Right Side Running/Bike Lane Continuous Behind Platform
- Jackson
  - Center Platforms/Left-Side Running

# Key Strategies-Broadway

---

- Capitol Hill
  - Interest in **reclaiming** the street
- Seattle's Complete Streets Policy
  - "On new City transportation improvement projects SDOT will plan for, design, and construct appropriate accommodations for pedestrians, bicyclists, transit riders, and persons of all abilities while **promoting safe operations** for all users"
- Avoid impacts to existing infrastructure
  - Water main on east side of Broadway



# Context

**Broadway Bikeway**

E Denny Way

Broadway

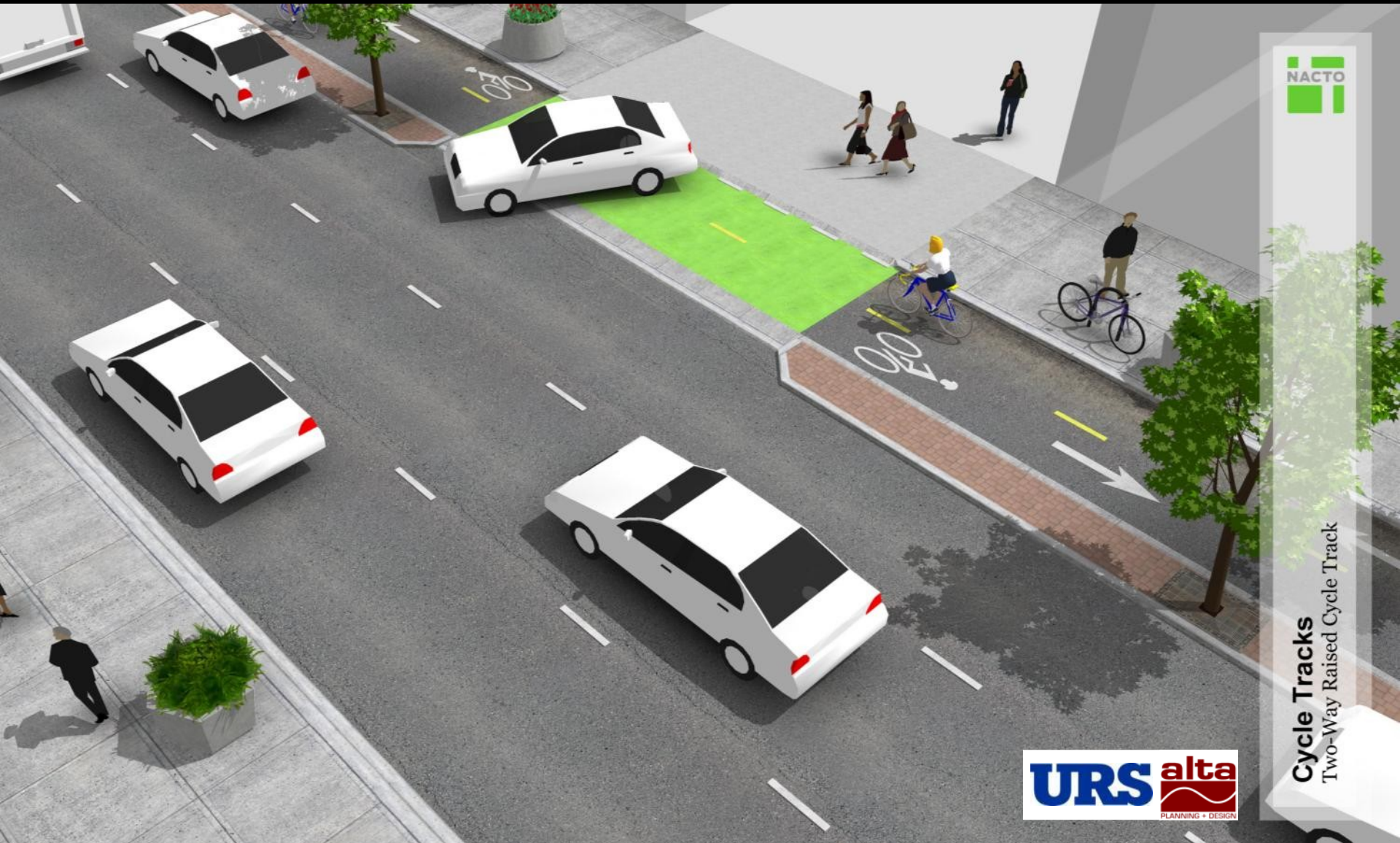
Yesler Way

14th Ave S

S Jackson Street



- A bikeway on Broadway separated from the sidewalk, traffic and streetcar lanes.
- Two-way Cycle Track

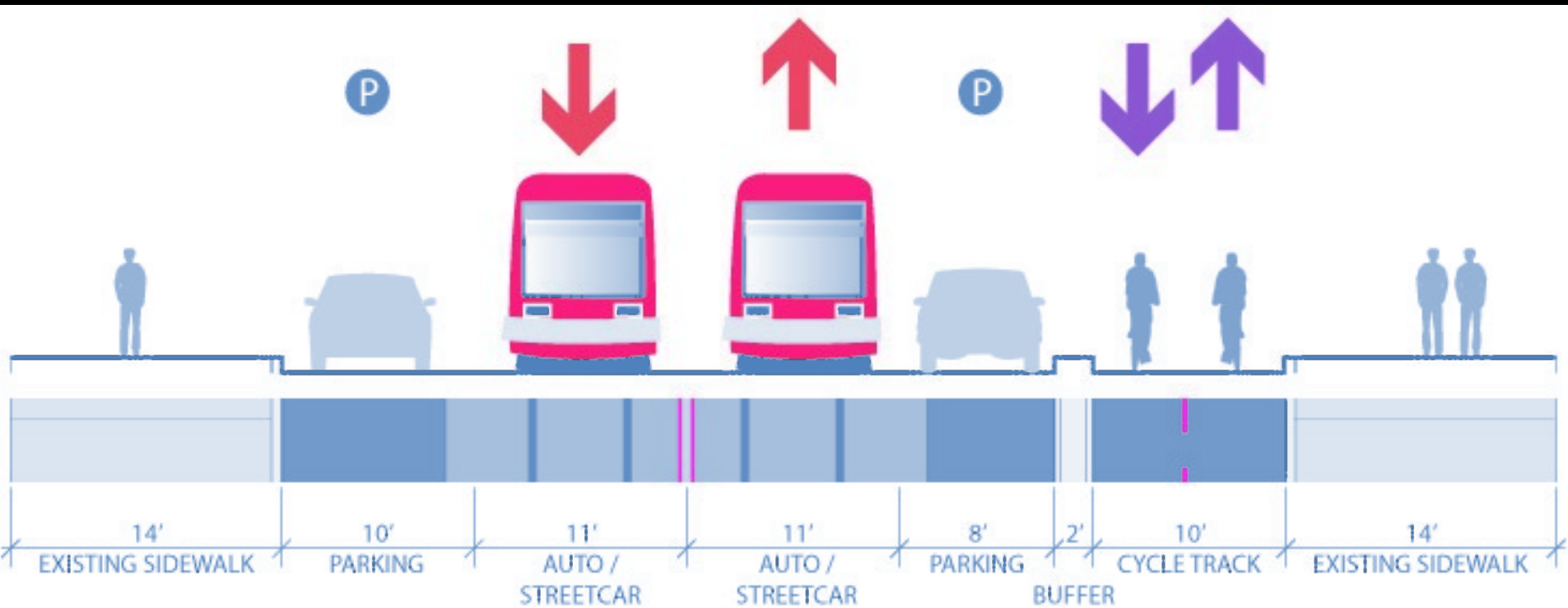


**Cycle Tracks**  
Two-Way Raised Cycle Track





# The Basic Configuration





10' cycle track

Key Features





2' Separation from  
traffic lane

The image is an aerial perspective of a city street intersection. A red tram is traveling along a street that runs diagonally from the top-left towards the bottom-right. To the right of the tram is a green-paved bike lane, separated from the traffic lane by a white dashed line. A yellow callout box with a line pointing to the gap between the tram and the bike lane contains the text '2' Separation from traffic lane'. The street has multiple lanes with white lane markings and crosswalks. Buildings, trees, and a few cars are visible on the street. A north arrow is located in the bottom right corner.

Key Features



Streetcar platform with railing

Key Features





Pedestrian crosswalks

Key Features



Bicycle signals

Key Features





Bicycle crossing & turn box

The diagram shows an aerial view of a city street intersection. A red tram is moving along a street that runs diagonally from the top left towards the bottom right. A green bicycle lane runs parallel to the tram's path. A yellow callout box with a black border points to a specific area on the bicycle lane, labeled 'Bicycle crossing & turn box'. The surrounding area includes buildings, trees, and a crosswalk. A north arrow is located in the bottom right corner.

Key Features



Driveway crossing

This is an aerial perspective illustration of a city street intersection. A red tram is traveling north on the main road. To its left is a green-paved bike lane with white dashed lines and bicycle symbols. A yellow line, labeled 'Driveway crossing', runs diagonally across the bike lane and the road. A red car is in the intersection. The street has multiple lanes with white markings, including crosswalks. Buildings and trees are visible on the sides of the street. A north arrow is in the bottom right corner.

Key Features





Right turn threat

This diagram shows an aerial view of a city intersection. A red tram is traveling north on a multi-lane road. A yellow line with a black dashed center, representing a vehicle's path, starts from a red car in the southbound lane and curves across the tram's path, illustrating a 'right turn threat'. The scene includes various urban elements: buildings, trees, a crosswalk, a green-paved bicycle lane with white directional arrows and bicycle symbols, and a north arrow pointing towards the bottom right.

Key Features

# The Details

---





10' cycle track  
2' Separation from  
traffic lane

Key Features



10' cycle track  
2' Separation from  
traffic lane



10' cycle track  
2' Separation from  
traffic lane





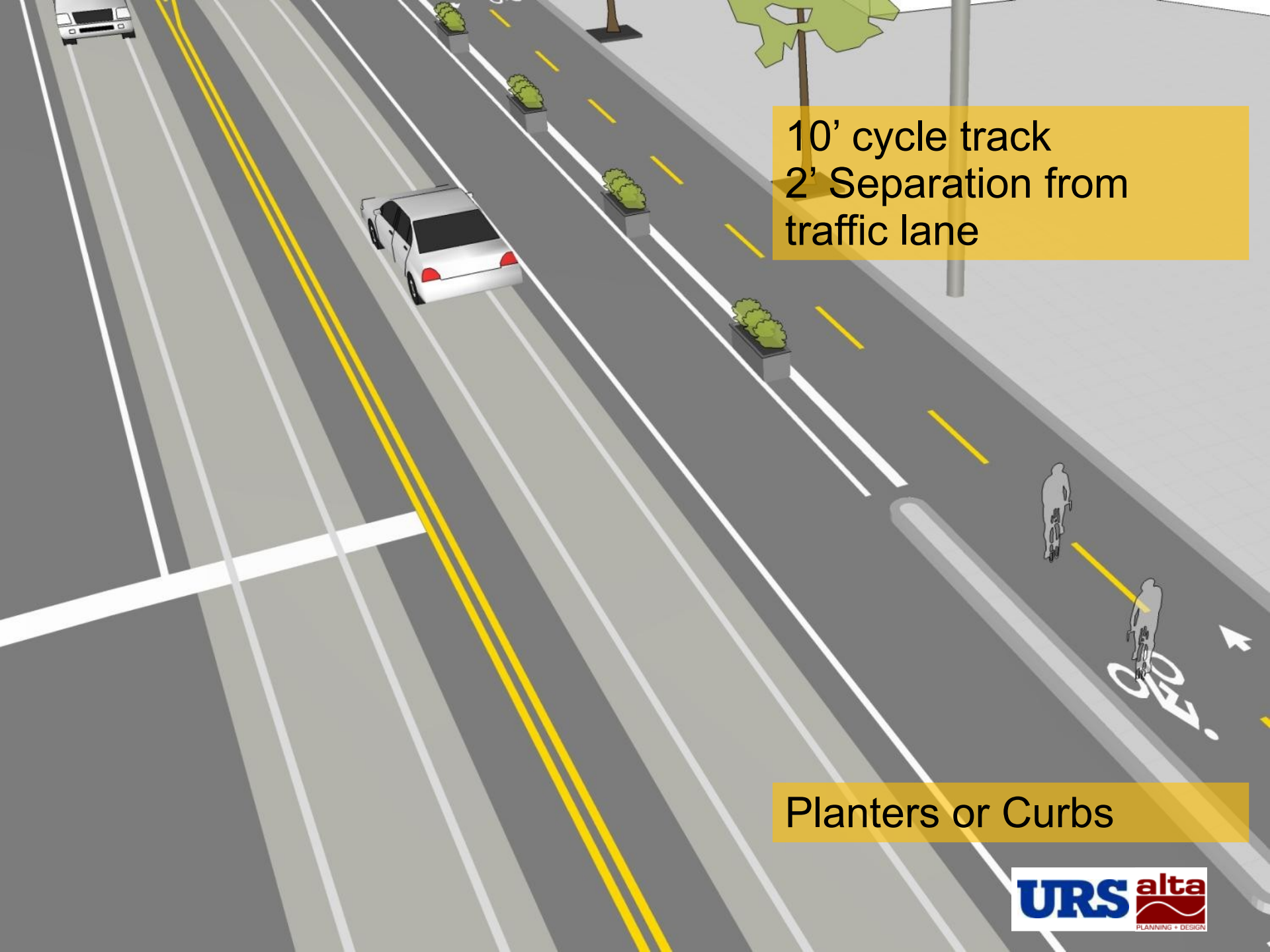


10' cycle track  
2' Separation from  
traffic lane



10' cycle track  
2' Separation from  
traffic lane





10' cycle track  
2' Separation from  
traffic lane

Planters or Curbs





10' cycle track  
2' Separation from  
traffic lane

Curbs



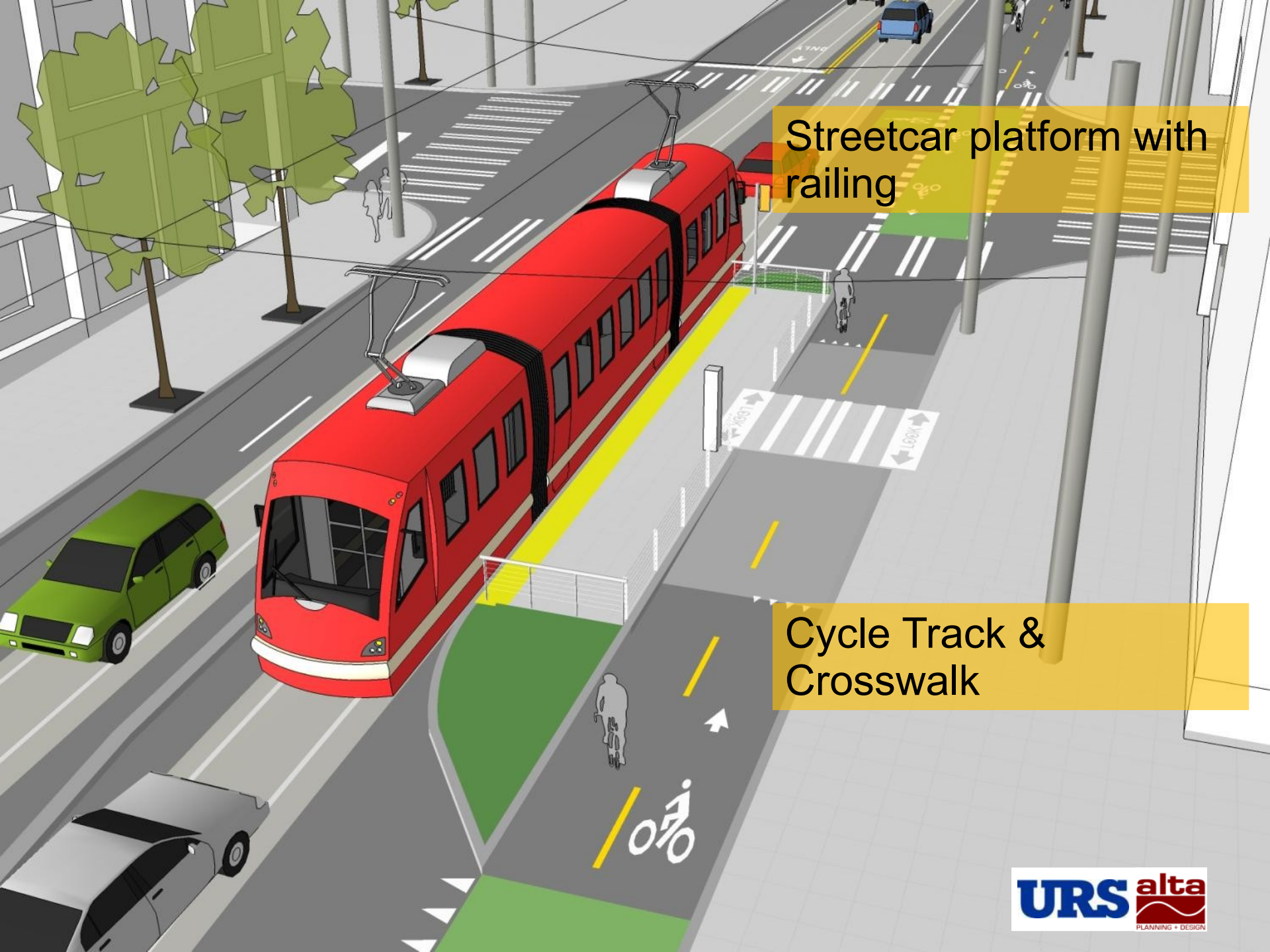
Streetcar platform with railing

Key Features



Streetcar platform with  
railing





Streetcar platform with railing

Cycle Track & Crosswalk





Streetcar platform with railing

Cycle Track & Crosswalk

Streetcar platform with  
railing

One-way Cycle Track &  
Crosswalk







Pedestrian crosswalks

This is an aerial perspective illustration of a city street intersection. A red tram is traveling along a central lane. To its left is a green-paved bicycle lane with white directional arrows and a bicycle symbol. To its right is a standard vehicle lane with a red car. Pedestrian crosswalks at the intersection are highlighted with yellow lines. The surrounding area includes buildings, trees, and streetlights. A yellow callout box points to the crosswalks.

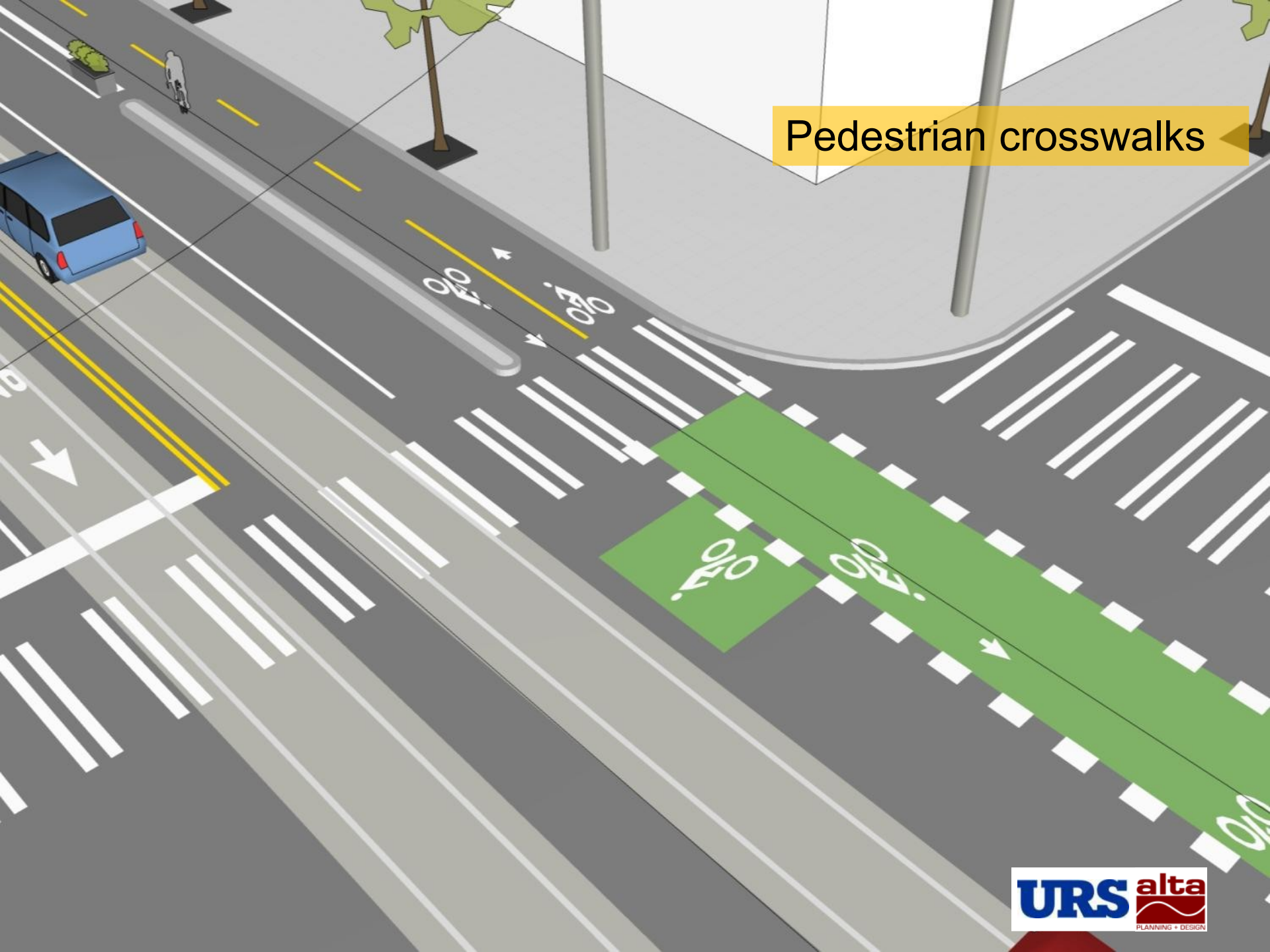
Key Features

## Pedestrian crosswalks





Pedestrian crosswalks



## Pedestrian crosswalks



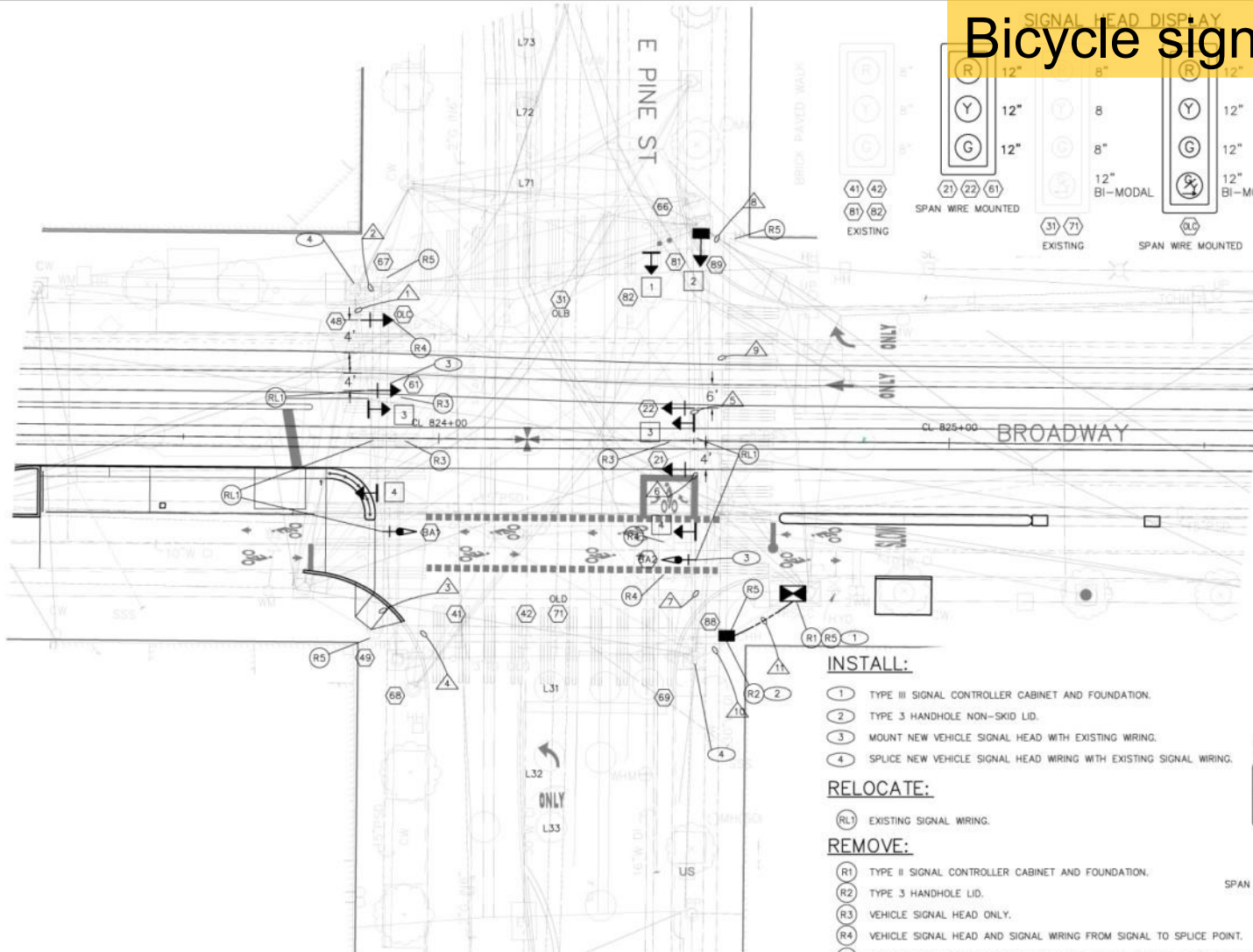




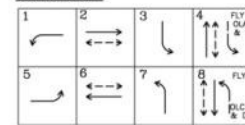
Bicycle signals

Key Features

# Bicycle signals

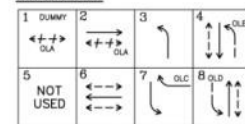


## EXISTING PHASING DIAGRAM



VEHICLE →  
PEDESTRIAN ↔

## PROPOSED PHASING DIAGRAM



VEHICLE →  
PEDESTRIAN ↔  
BIKE ↔  
NOTE: STREETCAR RUNS WITH VEHICLE PHASE 2 & 6.

## INSTALL:

- 1 TYPE III SIGNAL CONTROLLER CABINET AND FOUNDATION.
- 2 TYPE 3 HANDHOLE NON-SKID LID.
- 3 MOUNT NEW VEHICLE SIGNAL HEAD WITH EXISTING WIRING.
- 4 SPLICE NEW VEHICLE SIGNAL HEAD WIRING WITH EXISTING SIGNAL WIRING.

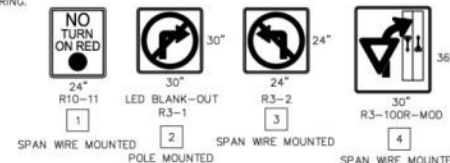
## RELOCATE:

- RL1 EXISTING SIGNAL WIRING.

## REMOVE:

- R1 TYPE II SIGNAL CONTROLLER CABINET AND FOUNDATION.  
R2 TYPE 3 HANDHOLE LID.  
R3 VEHICLE SIGNAL HEAD ONLY.  
R4 VEHICLE SIGNAL HEAD AND SIGNAL WIRING FROM SIGNAL TO SPLICE POINT.  
R5 UNUSED LOOP LEAD-IN CABLE FROM HANDHOLE TO CABINET. ABANDON ALL UNUSED DETECTOR LOOP WIRING (NBL, SBL, EBT & WBT APPROACHES).

## SIGNS



SG26  
TRAFFIC SIGNAL PLAN  
BROADWAY & E PINE ST

60% DESIGN PLANS - MAY 2011

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URS CORPORATION  
1501 4th Avenue, Suite 1400  
Seattle, Washington 98101  
(206) 464-4338  
(206) 206-4338-2888  
www.urscorp.com

**DKS Associates**  
TRANSPORTATION SOLUTIONS  
715 Second Avenue, Suite 1900  
Seattle, WA 98101  
(206) 464-4338

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.

APPROVED FOR ADVERTISING  
NANCY LOCKE  
PURCHASING AND CONTRACTING SERVICES DIVISION  
SEATTLE, WASHINGTON 20

BY: PURCHASING & CONTRACTING SERVICES DIRECTOR

NAME OR INITIALS AND DATE  
DESIGNED LMC 23/05/11  
CHECKED JMM 23/05/11  
DRAWN AMT 23/05/11  
CHECKED JMM 23/05/11

INITIALS AND DATE  
REVIEWED DKS 23/05/11  
CONTR PROD. MGR  
RECEIVED  
REVISD AS BUILT

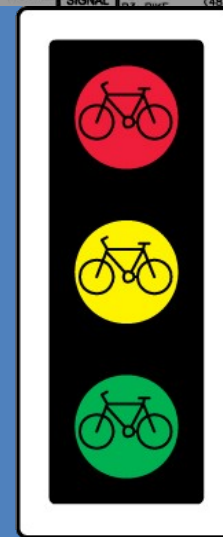
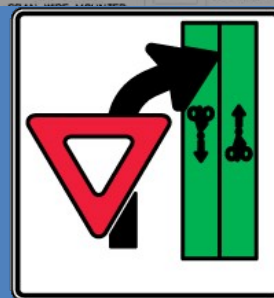
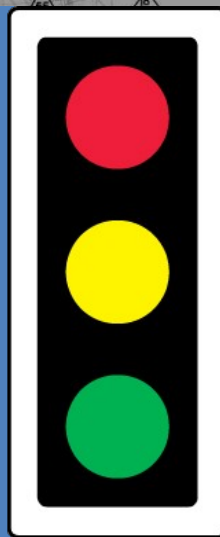
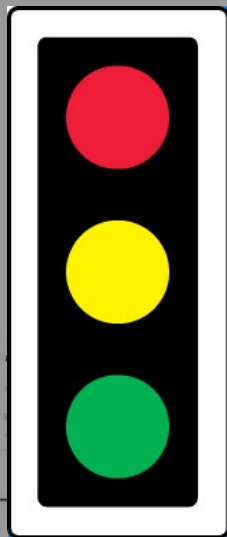
60%  
PRELIMINARY  
CONTENTS  
SUBJECT TO  
CHANGE

City of Seattle  
**Seattle Department of Transportation**  
ORDINANCE NO. \_\_\_\_\_  
FUND. \_\_\_\_\_  
SCALE: \_\_\_\_\_  
INSPECTOR'S BOOK

FIRST LANE STREETCART  
**URS** **alta**  
PLANNING + DESIGN  
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TS4580C  
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# Bicycle signals



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BY: PURCHASING & CONTRACTING SERVICES DIRECTOR

NAME OR INITIALS AND DATE  
DESIGNED LMC 23/05/11  
CHECKED JMM 23/05/11  
DRAWN JMM 23/05/11  
CHECKED JMM 23/05/11

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF SEATTLE STANDARD PLANS AND  
INTERPRETATIONS AND OTHER DOCUMENTS, EXCEPT FOR A SECTION 2-10.1 OF THE PROJECT MANUAL.

(R1) EXISTING SIGNAL WIRING.

**REMOVE:**

(R1) TYPE II SIGNAL CONTROLLER CABINET AND FOUNDATION.

(R2) TYPE 3 HANDHOLE LID.

(R3) VEHICLE SIGNAL HEAD ONLY.

(R4) VEHICLE SIGNAL HEAD AND SIGNAL WIRING FROM SIGNAL TO SPLICE POINT.

(R5) UNUSED LOOP LEAD-IN CABLE FROM HANDHOLE TO CABINET, ABANDON ALL UNUSED  
DETECTOR LOOP WIRING (NBL, SBL, EBT & WBT APPROACHES).

60%  
PRELIMINARY  
CONTENTS  
SUBJECT TO  
CHANGE

City of Seattle  
**Seattle Department  
of Transportation**

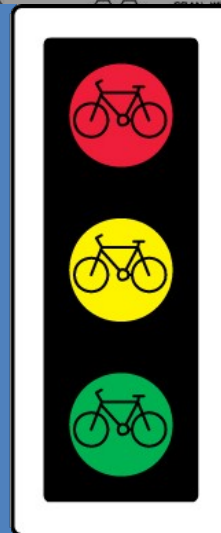
ORDINANCE NO. APPROVED  
FUND. SCALE: INSPECTOR'S BOOK.

**URS** **alta**  
PLANNING + DESIGN

SG26  
TRAFFIC SIGNAL PLAN  
BROADWAY & E PINE ST

PC TS4580A  
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CD TS4580C  
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# Bicycle signals And detection



BIKE  
SIGNAL



60% DESIGN PLANS - MAY 2011

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RECEIVED  
RECEIVED AS BUILT  
REVISOR: JMM 23/05/11

60%  
PRELIMINARY  
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CHANGE

City of Seattle  
**Seattle Department  
of Transportation**  
ORDINANCE NO. \_\_\_\_\_  
FUND. \_\_\_\_\_  
SCALE: \_\_\_\_\_  
APPROVED: \_\_\_\_\_  
INSPECTOR'S BOOK: \_\_\_\_\_

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TRAFFIC SIGNAL PLAN  
BROADWAY & E PINE ST  
PC TS4580A  
R/W TS4580B  
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SHEET OF



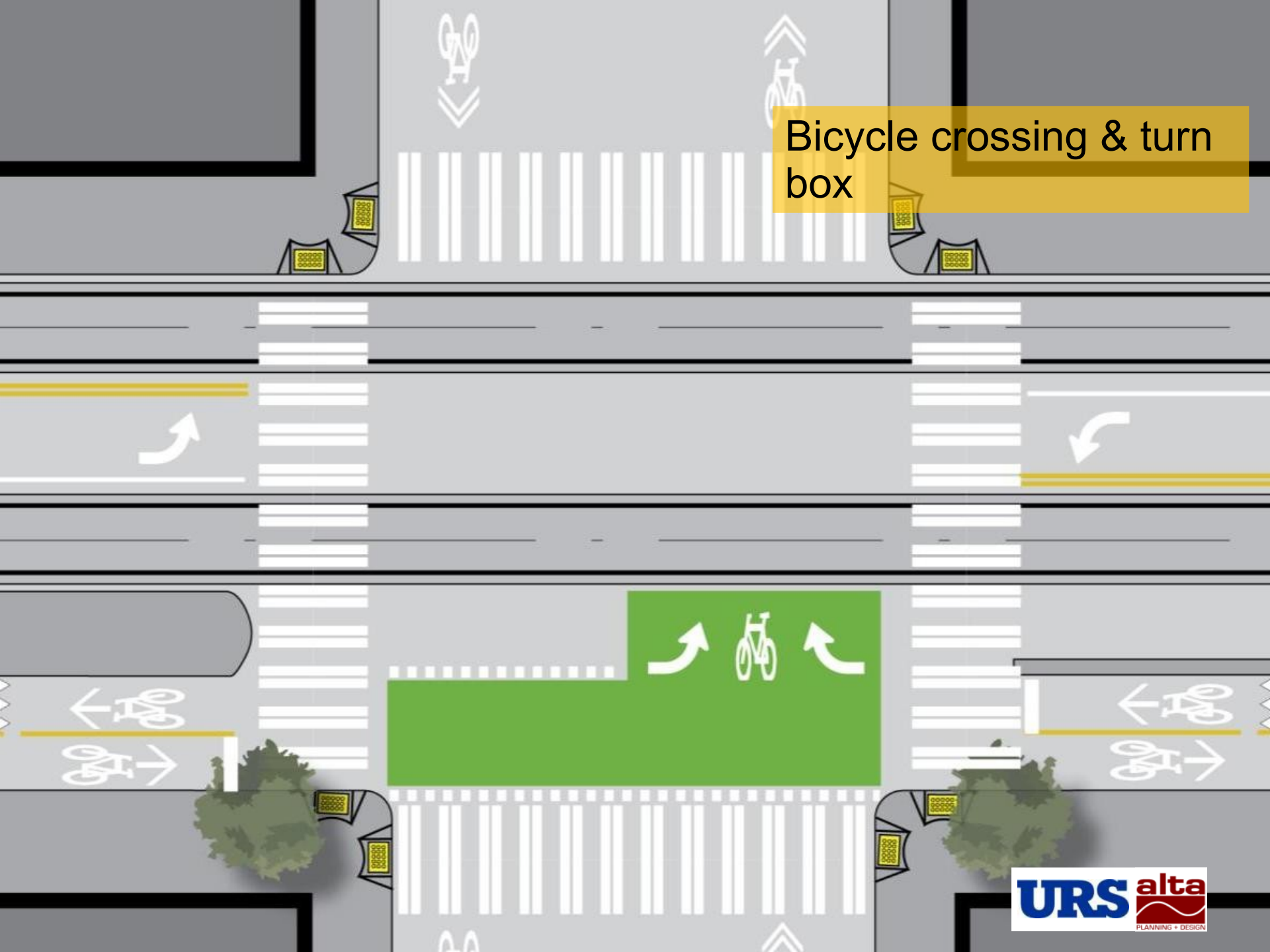


Bicycle crossing & turn box

The diagram shows a street intersection from an aerial view. A red tram is moving along a street that runs diagonally from the top-left towards the bottom-right. A green bicycle lane runs parallel to the tram's path. A yellow callout box with a black border points to a specific area on the bicycle lane, labeled 'Bicycle crossing & turn box'. The surrounding area includes buildings, trees, and a crosswalk. A north arrow is located in the bottom right corner.

Key Features

# Bicycle crossing & turn box





An aerial perspective of a street intersection. A blue car is in the left lane, moving towards the intersection. A pedestrian is walking on the sidewalk. The road has yellow dashed lines for lane separation and white solid lines for the crosswalk. A green rectangular area, labeled as a 'turn box', is located in the intersection. This area contains a white bicycle symbol and a white arrow pointing right. The text 'Bicycle crossing & turn box' is overlaid in a yellow box in the upper right. The text 'Turn box sheltered by parking lane' is overlaid in a yellow box in the lower right. The URS and alta logos are in the bottom right corner.

Bicycle crossing & turn box

Turn box sheltered by parking lane



# Bicycle crossing & turn box



Portland

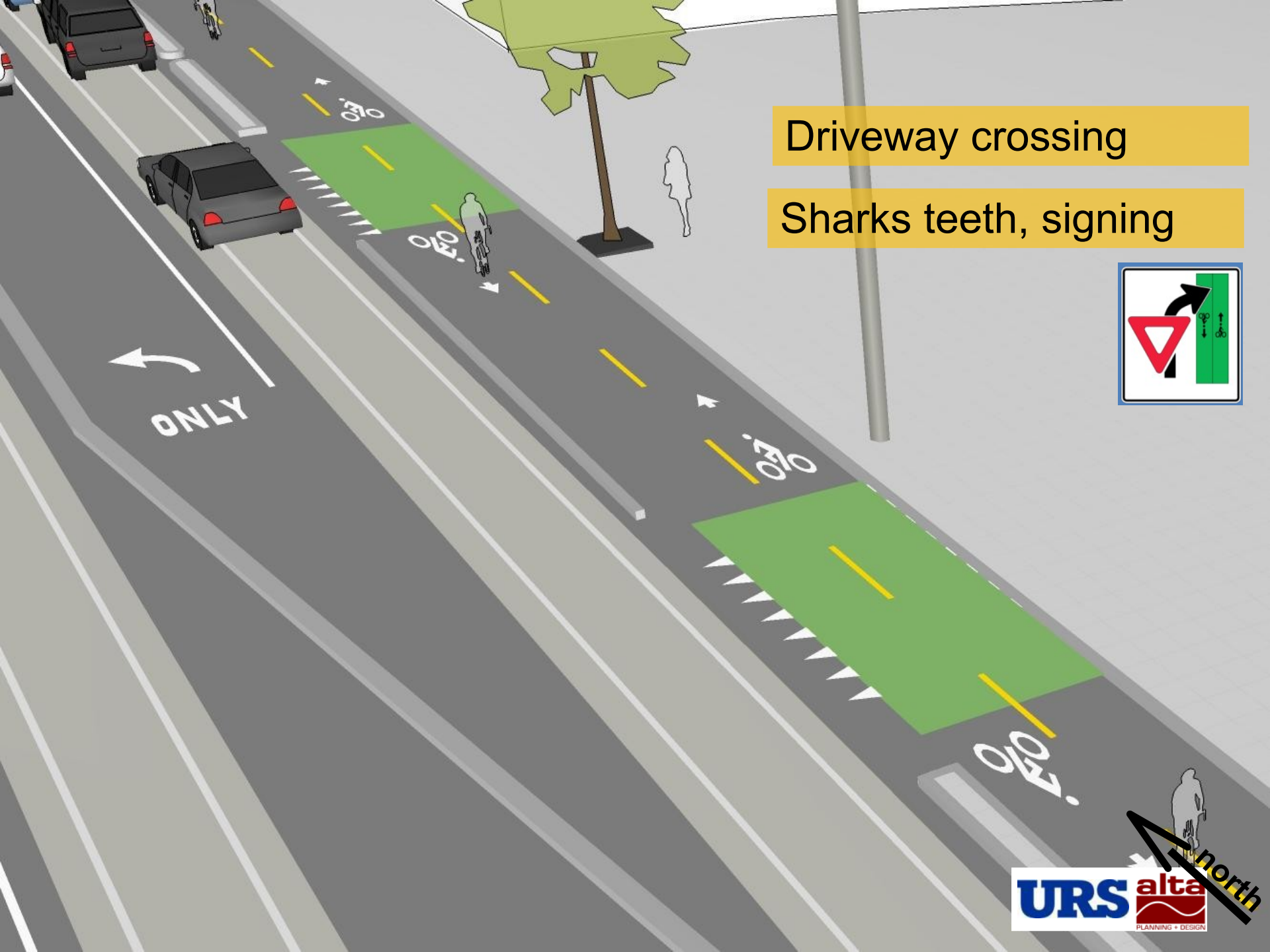




Driveway crossing

This is an aerial perspective illustration of a city street intersection. A red tram is traveling north on a multi-lane road. To the left of the tram is a green-paved bike lane with white dashed lines and bicycle symbols. A yellow line, labeled 'Driveway crossing', runs diagonally across the top of the image, intersecting the tram's path. A red car is visible in the lower right quadrant. The street is flanked by buildings, trees, and streetlights. A north arrow is located in the bottom right corner.

Key Features



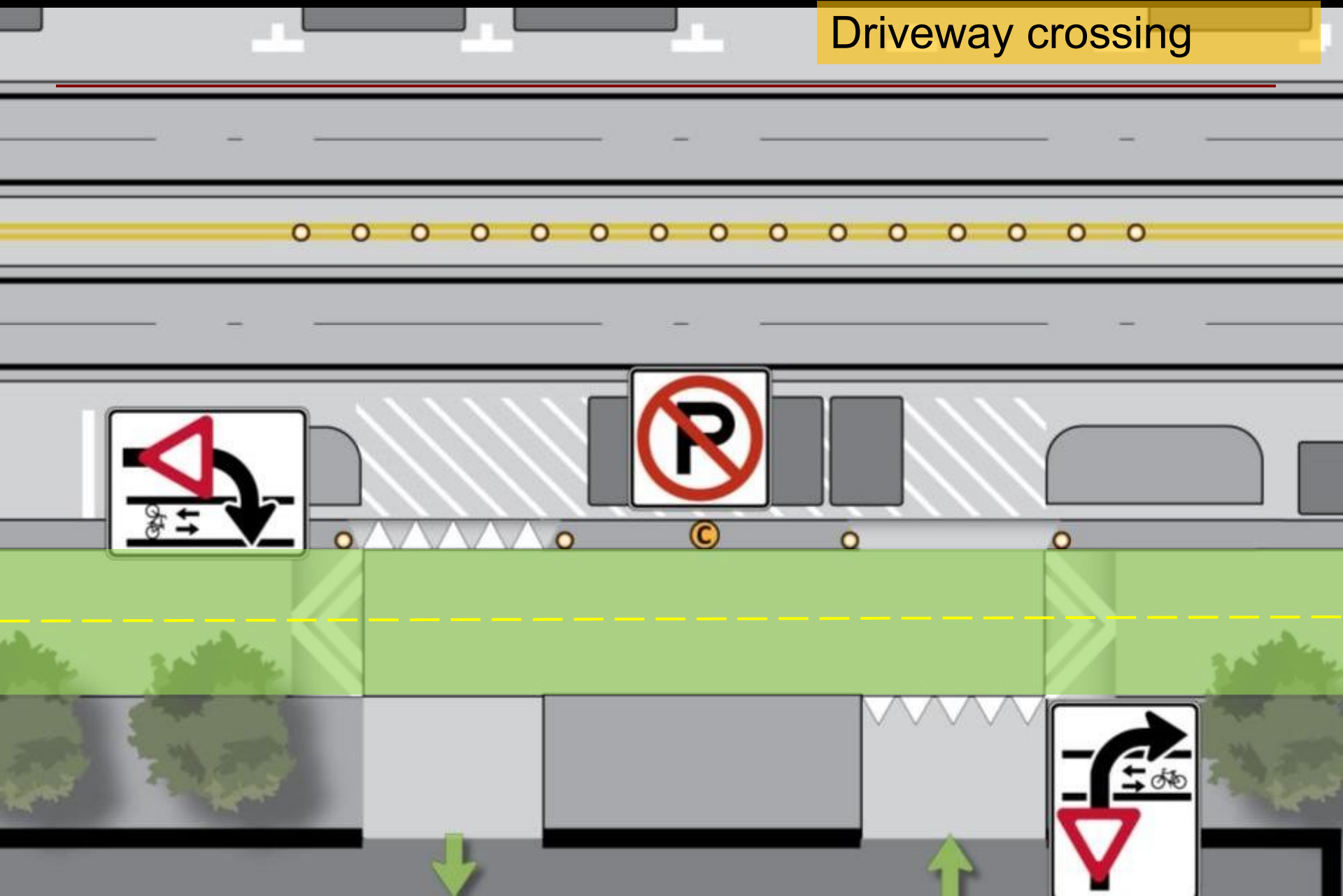
Driveway crossing

Sharks teeth, signing





# Driveway crossing



## Driveway crossing







Right turn threat

This diagram shows an aerial view of a city intersection. A red tram is traveling north on a multi-lane road. A yellow line with a black dashed center, representing a vehicle's path, starts from a red car in the southbound lane and curves across the tram's path, illustrating a 'right turn threat'. The scene includes various urban elements: buildings, trees, a crosswalk, a green-paved bicycle lane with white directional arrows and bicycle symbols, and a north arrow pointing towards the bottom right.

Key Features

Right turn threat



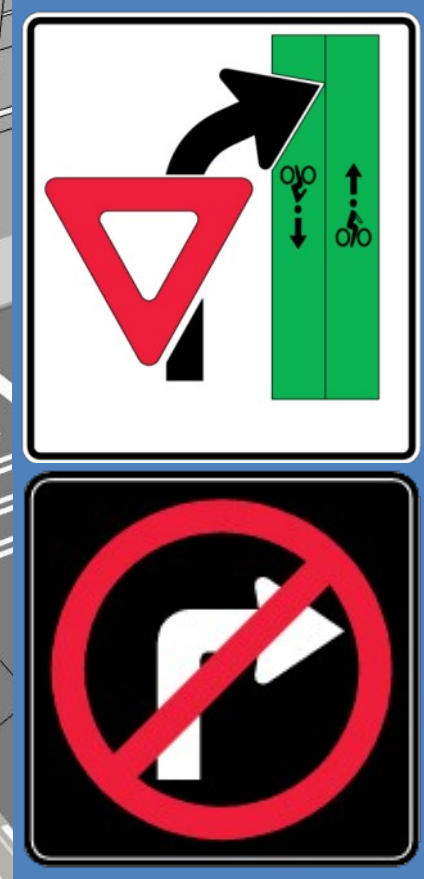
Key Features

north



Right turn threat

Active LED  
when  
cyclist is  
present



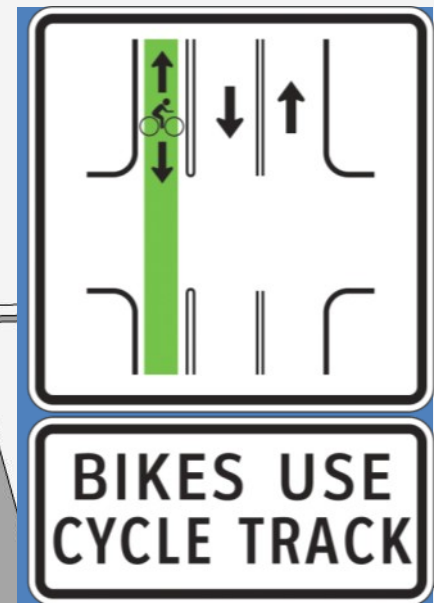
Key Features

# The Transitions

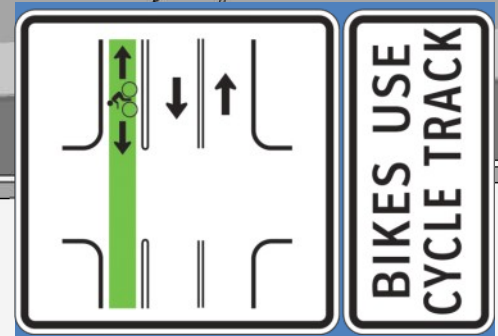
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# Transition: Denny

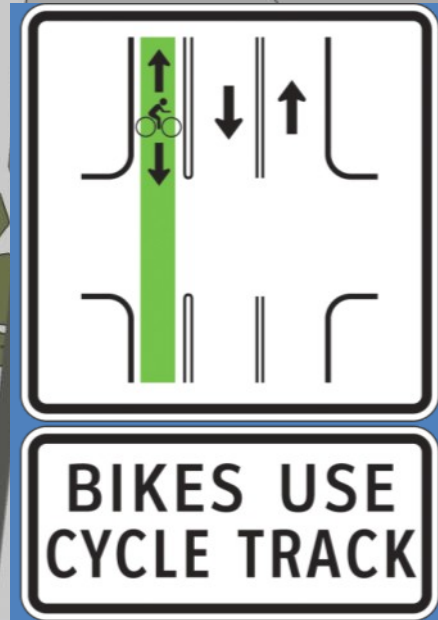


# Transition: Denny



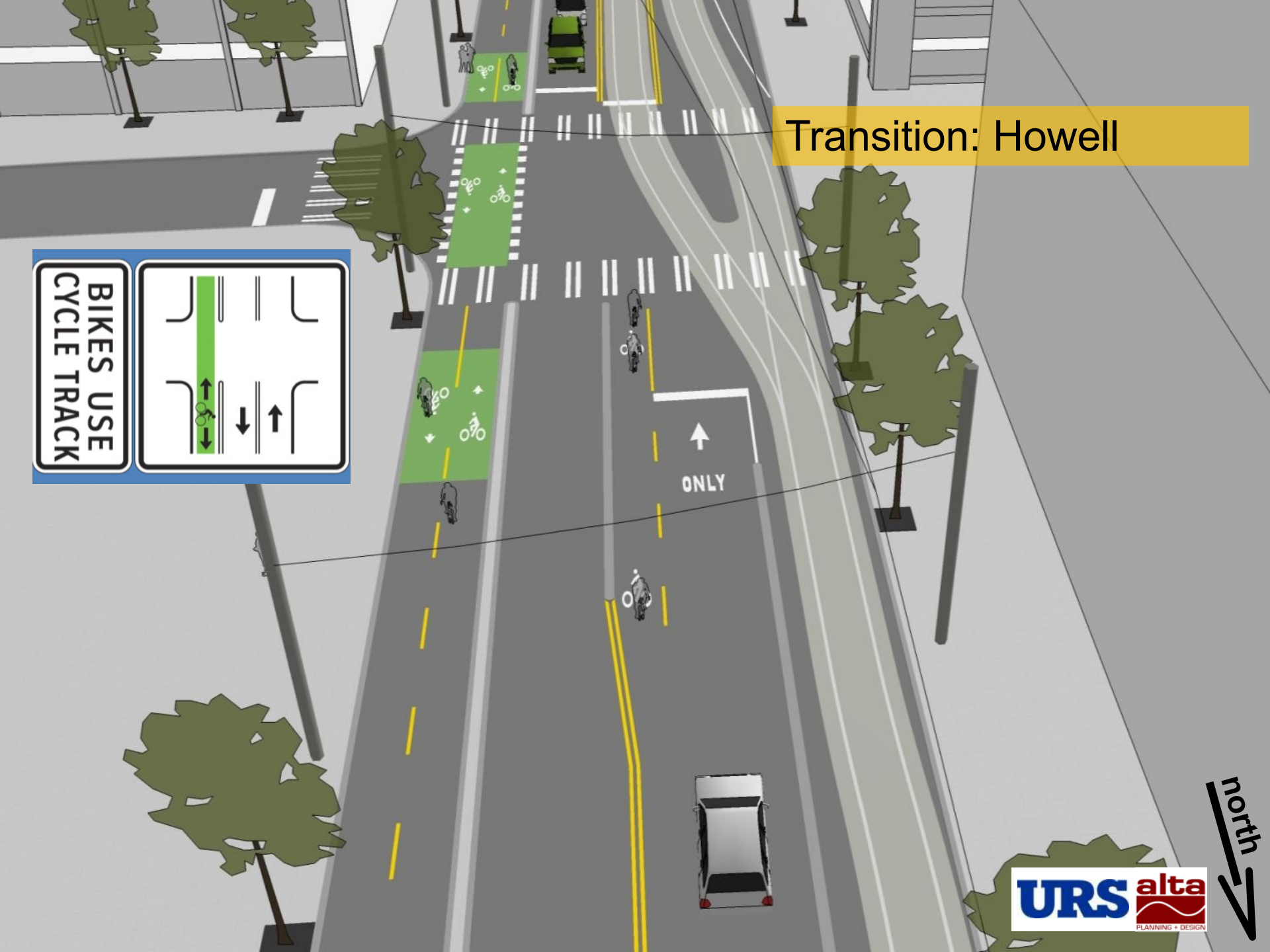
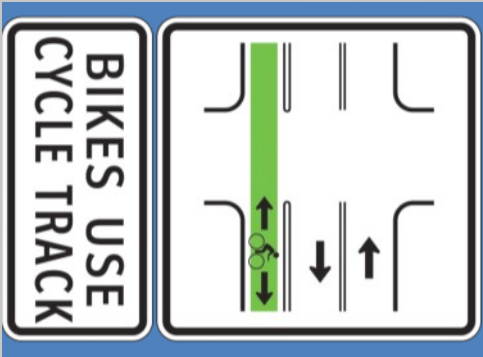


## Transition: Howell



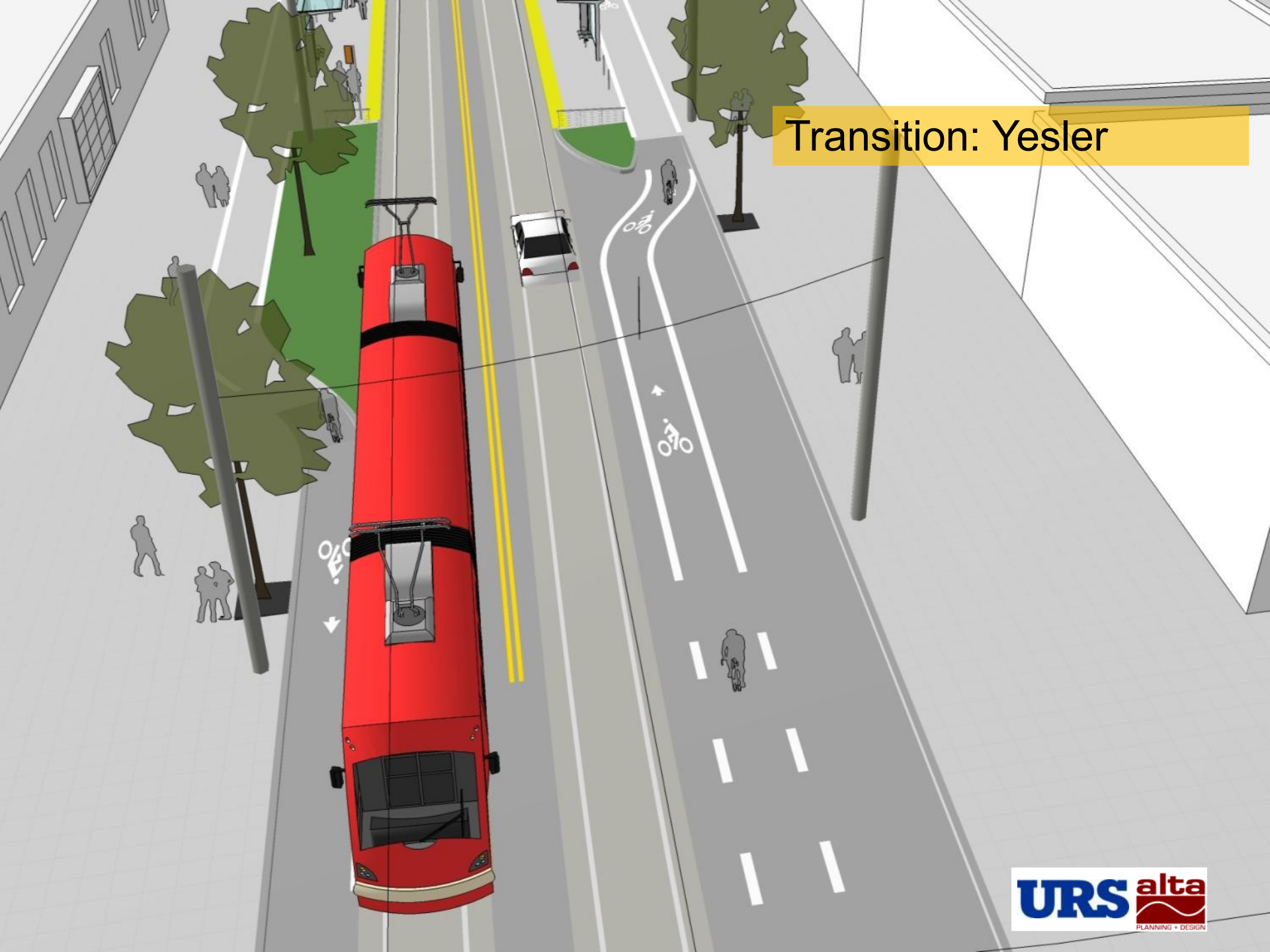
north  
→

## Transition: Howell

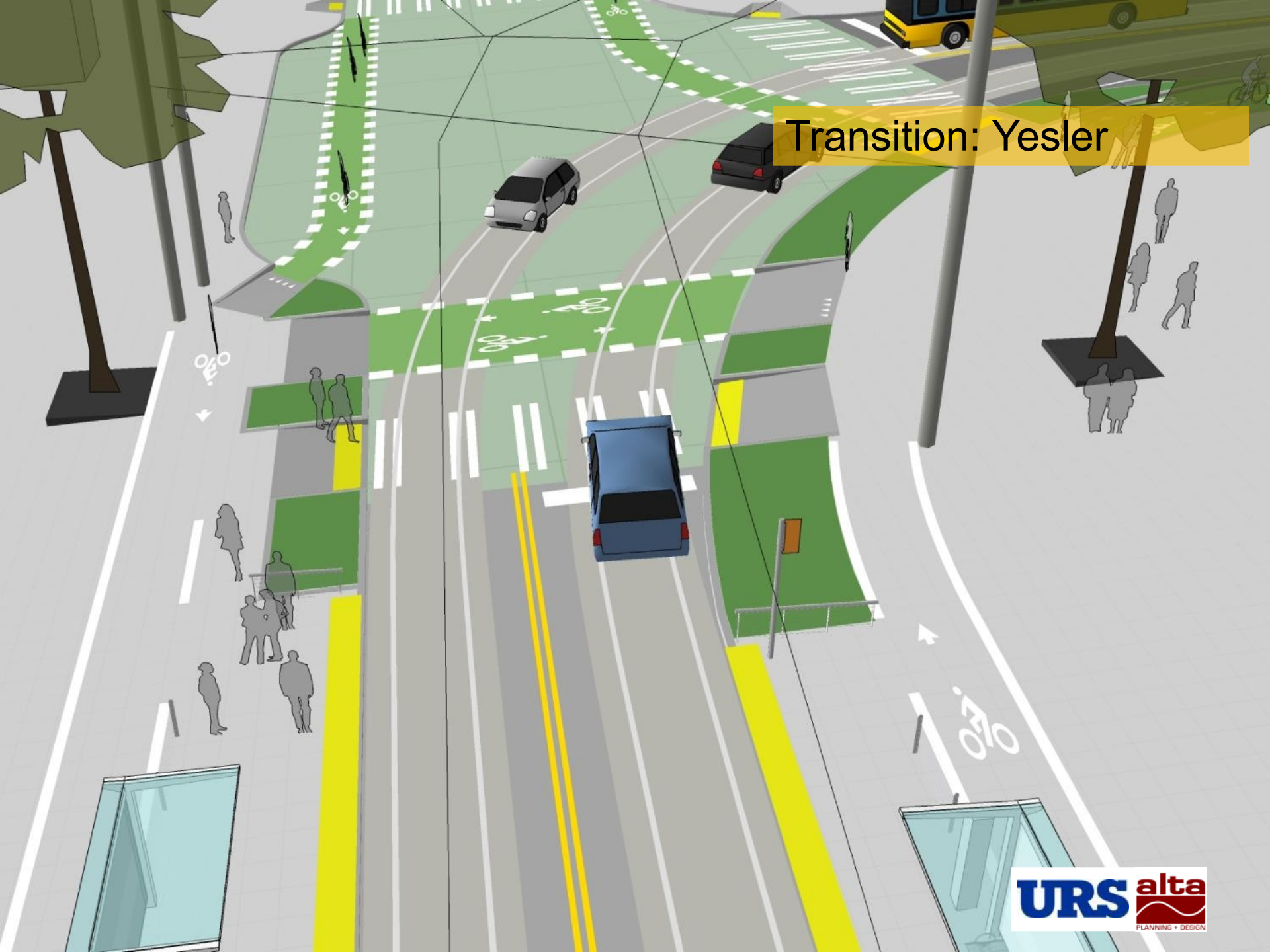




Transition: Yesler

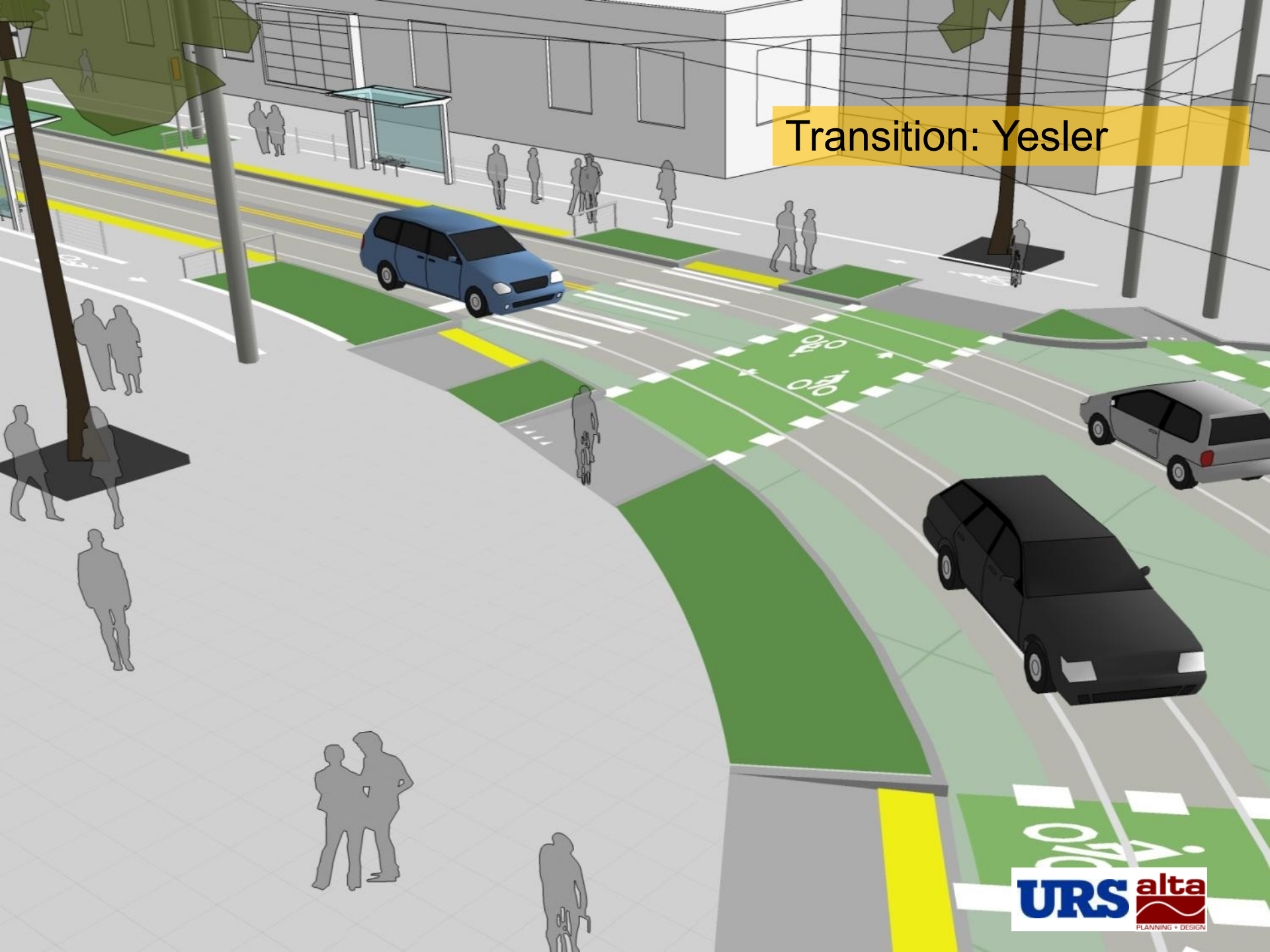


# Transition: Yesler

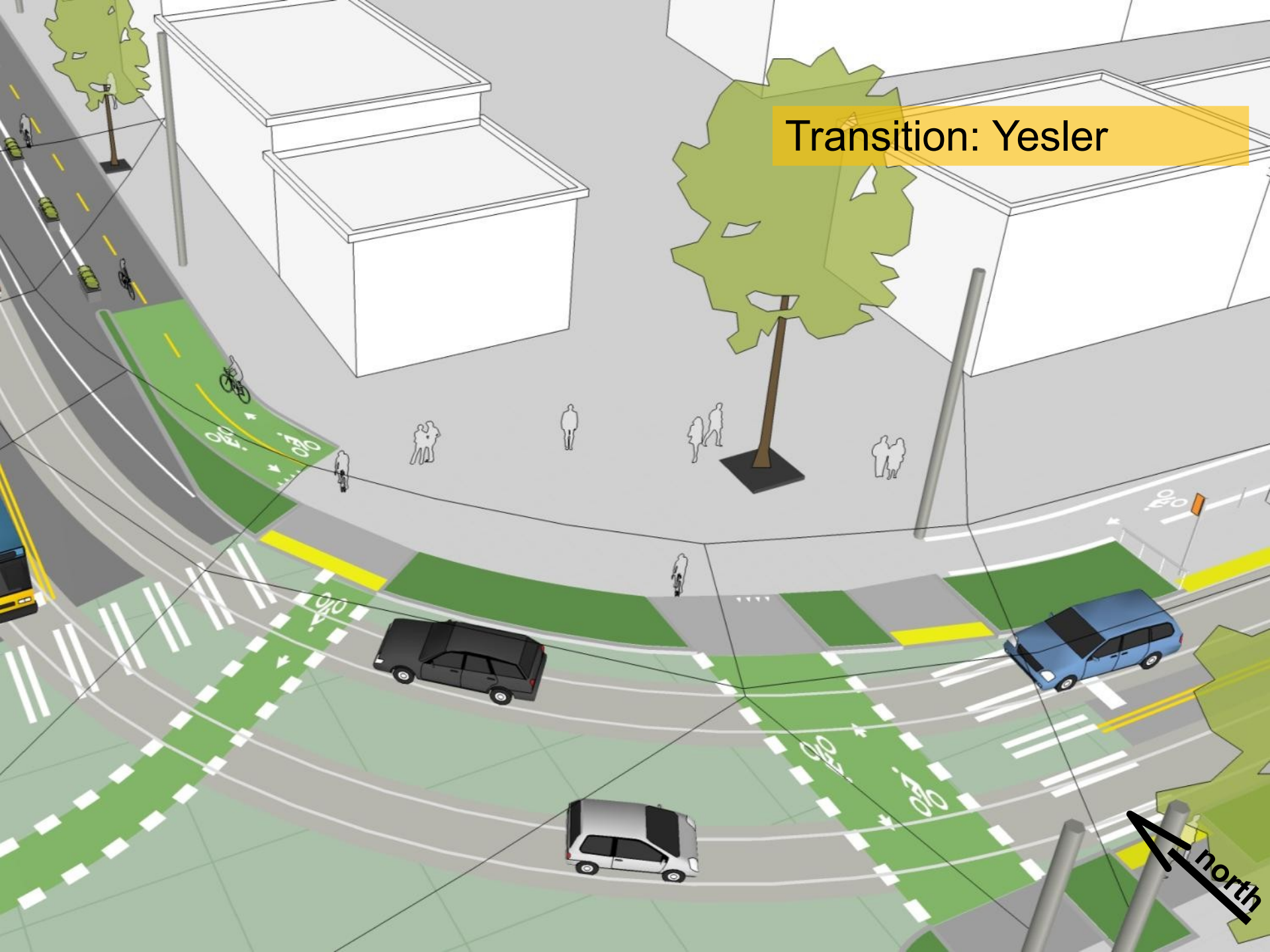




## Transition: Yesler



## Transition: Yesler





Transition: Yesler



## Transition: Yesler





Transition: Yesler



# Broadway Cycle Track

---

- Expect questions regarding:
  - **Why here:** many destinations on Broadway, transit supportive and many trips by bike.
  - **Driveway access:** some left turns in and out will be limited.
  - **Safety of a cycle-track:** current studies show reduced collisions. Special attention required at intersections and driveways.
  - **Pedestrian conflicts:** channelization and signing at intersections, loading zones and platforms.



# Yesler Context

E Denny Way

Yesler  
Broadway

**Yesler One-way Cycle  
Track and Bike Lanes**

Yesler Way

14th Ave S

S Jackson Street

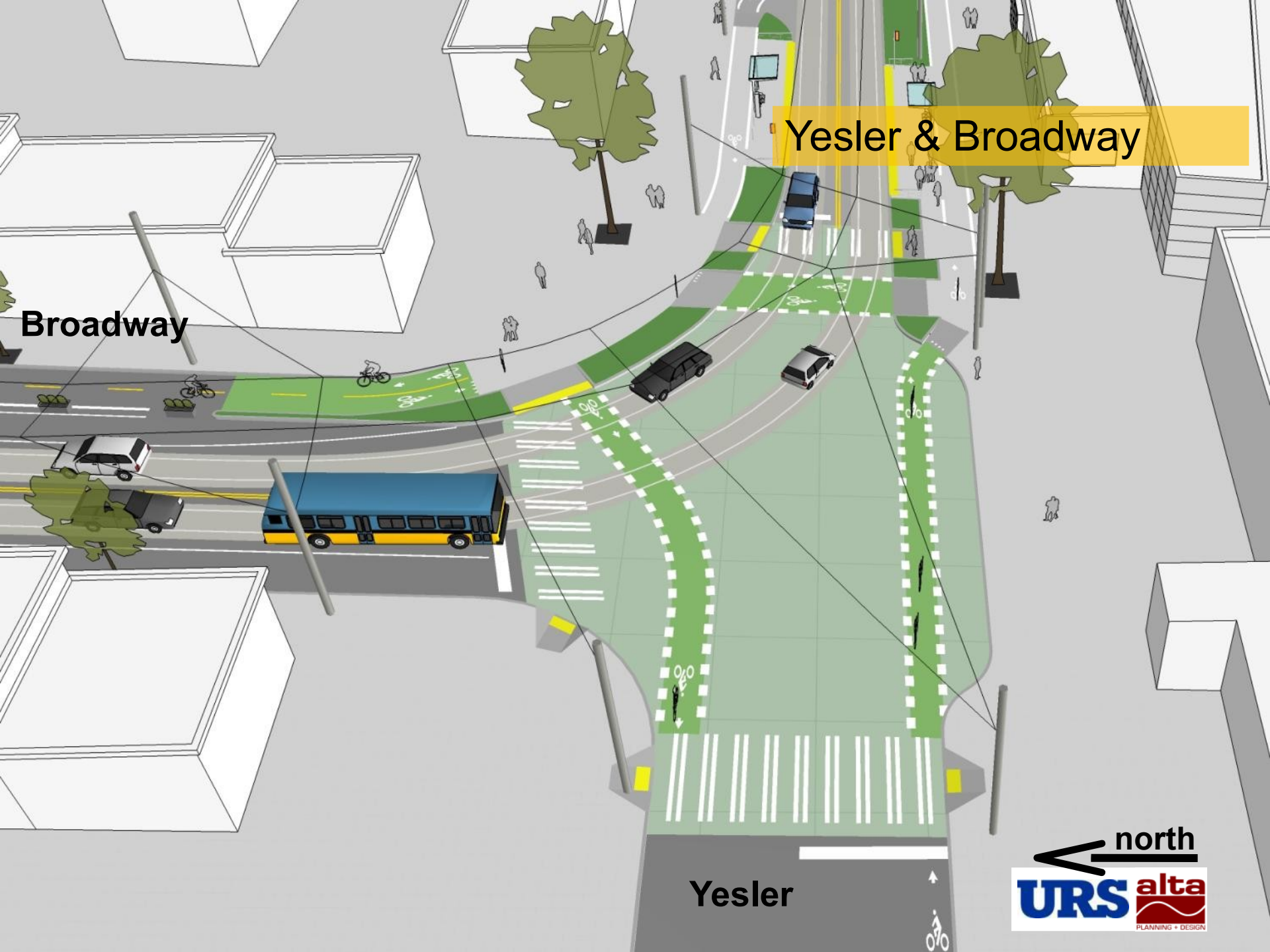


# Yesler & Broadway

Broadway

Yesler

← north



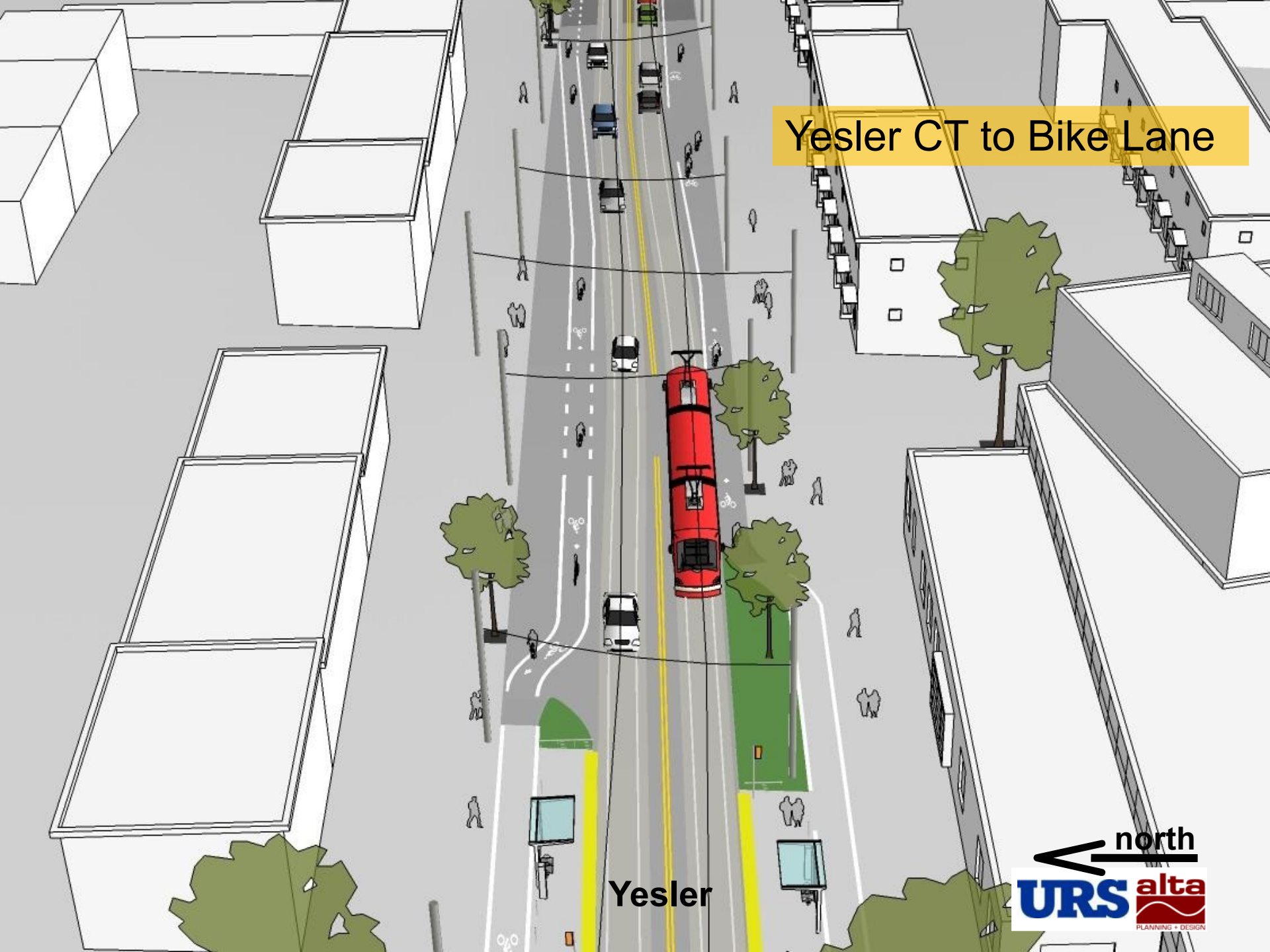


An aerial perspective illustration of a city street intersection. The street runs vertically, with a red bus and a white car at the top. A blue car is in the middle of the intersection. A black car and a silver car are at the bottom. The intersection features a green-painted crosswalk area with white dashed lines and bicycle symbols. Yellow highlighted areas on the sidewalks are labeled 'Yesler Platforms'. Pedestrians are shown walking on the sidewalks. Trees and buildings are also visible. Lines connect the 'Yesler Platforms' text to the yellow highlighted areas.

## Yesler Platforms

Yesler

# Yesler CT to Bike Lane

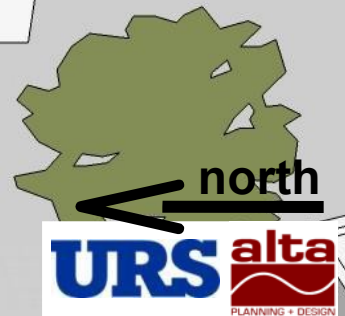


Yesler



# Yesler Bike Lanes

Yesler



Yesler & Boren

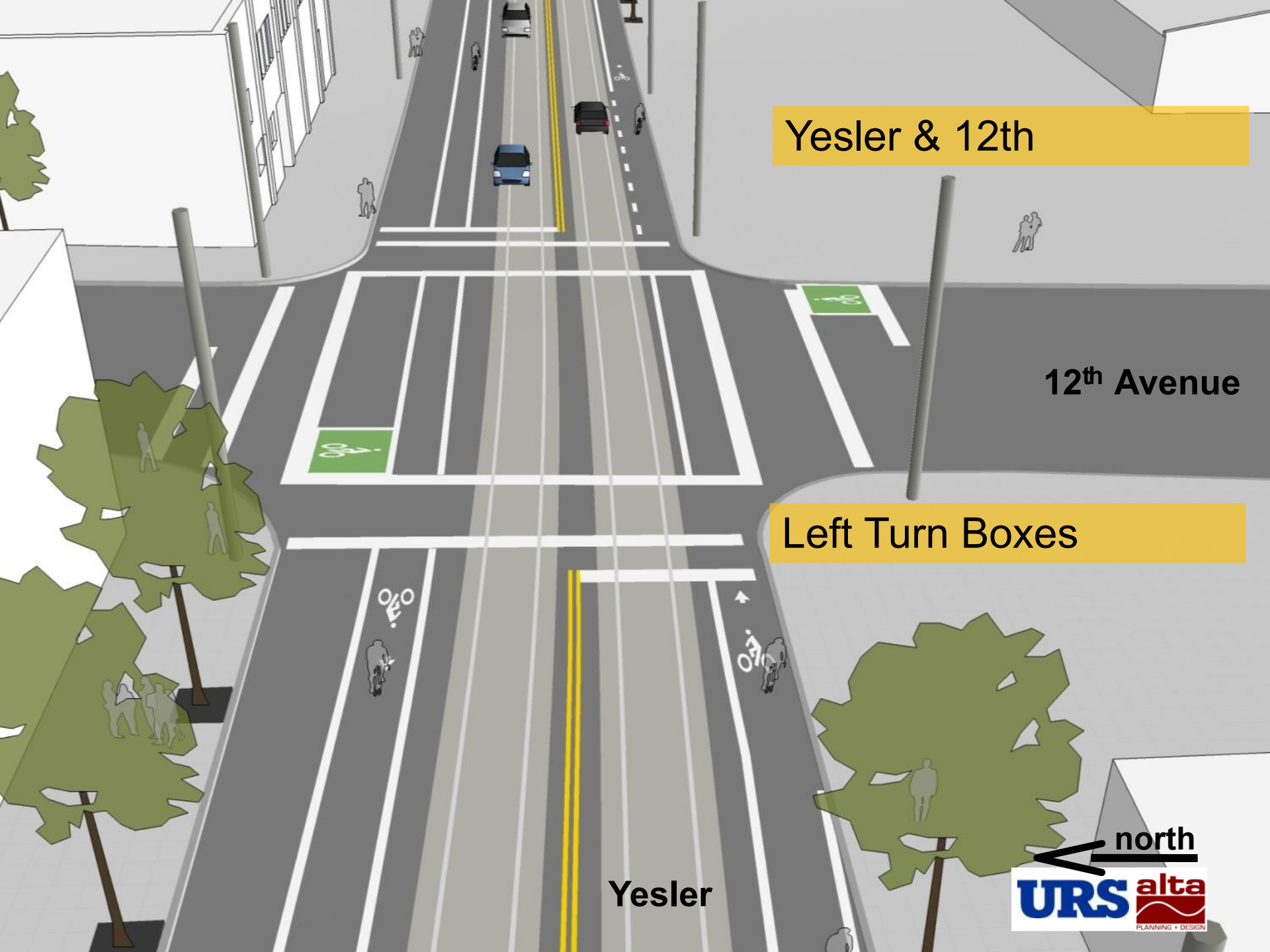
Boren

RT/SLM

Yesler







Yesler & 12th

12<sup>th</sup> Avenue

Left Turn Boxes

Yesler

north



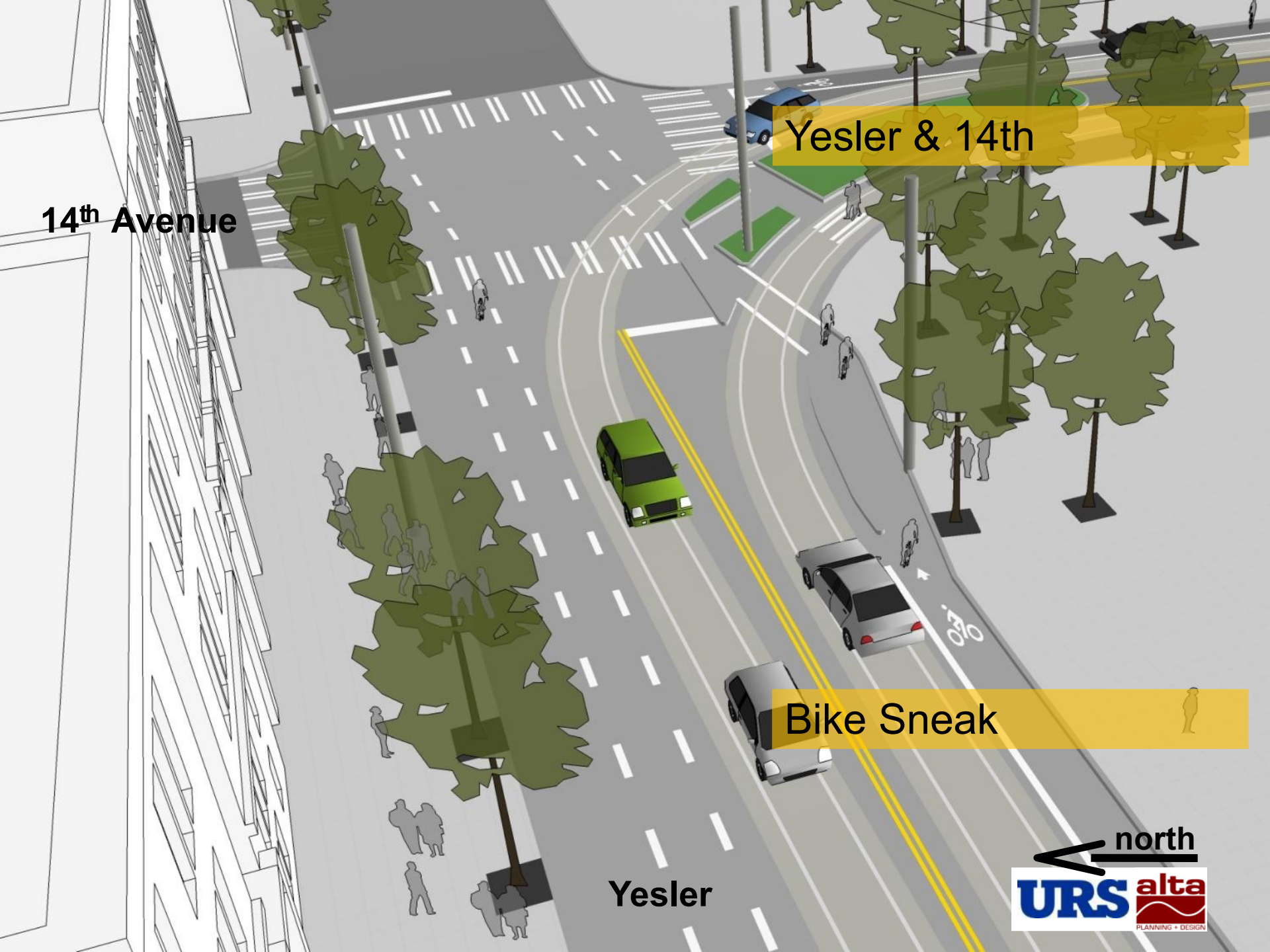
14<sup>th</sup> Avenue

Yesler & 14th

Bike Sneak

Yesler

← north





# Context

E Denny Way

Yesler  
Broadway

14<sup>th</sup> NB only

Yesler Way

S Jackson Street

14<sup>th</sup> Ave S



14<sup>th</sup> & Yesler

Yesler

14<sup>th</sup> Avenue

NB only on 14th



14<sup>th</sup> & Yesler

Yesler

NB only on 14th

14<sup>th</sup> Avenue



14<sup>th</sup> & Washington

Washington

NB only on 14th

14<sup>th</sup> Avenue



14<sup>th</sup> / Boren / Jackson

Rainier

Jackson

Boren

14<sup>th</sup> Avenue





# Context

E Denny Way

Broadway

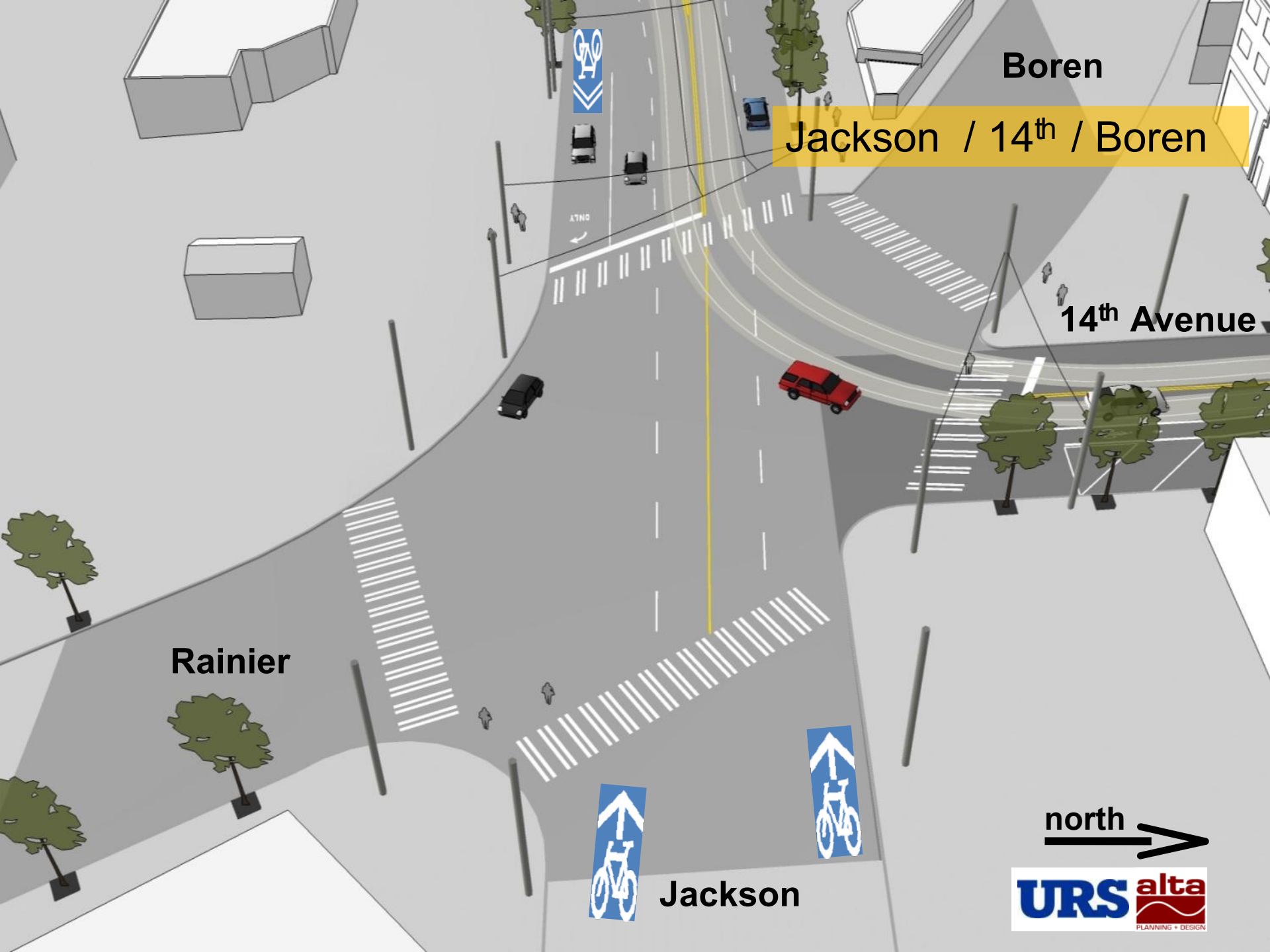
**Jackson Bike Lanes  
and Shared Lane  
Marking**

Yesler Way

S Jackson Street

14th Ave S





Boren

Jackson / 14<sup>th</sup> / Boren

14<sup>th</sup> Avenue

Rainier

Jackson

north



Boren

Jackson / 14<sup>th</sup> / Boren



14<sup>th</sup> Avenue

Rainier



Jackson





Boren

Jackson / 14<sup>th</sup> / Boren



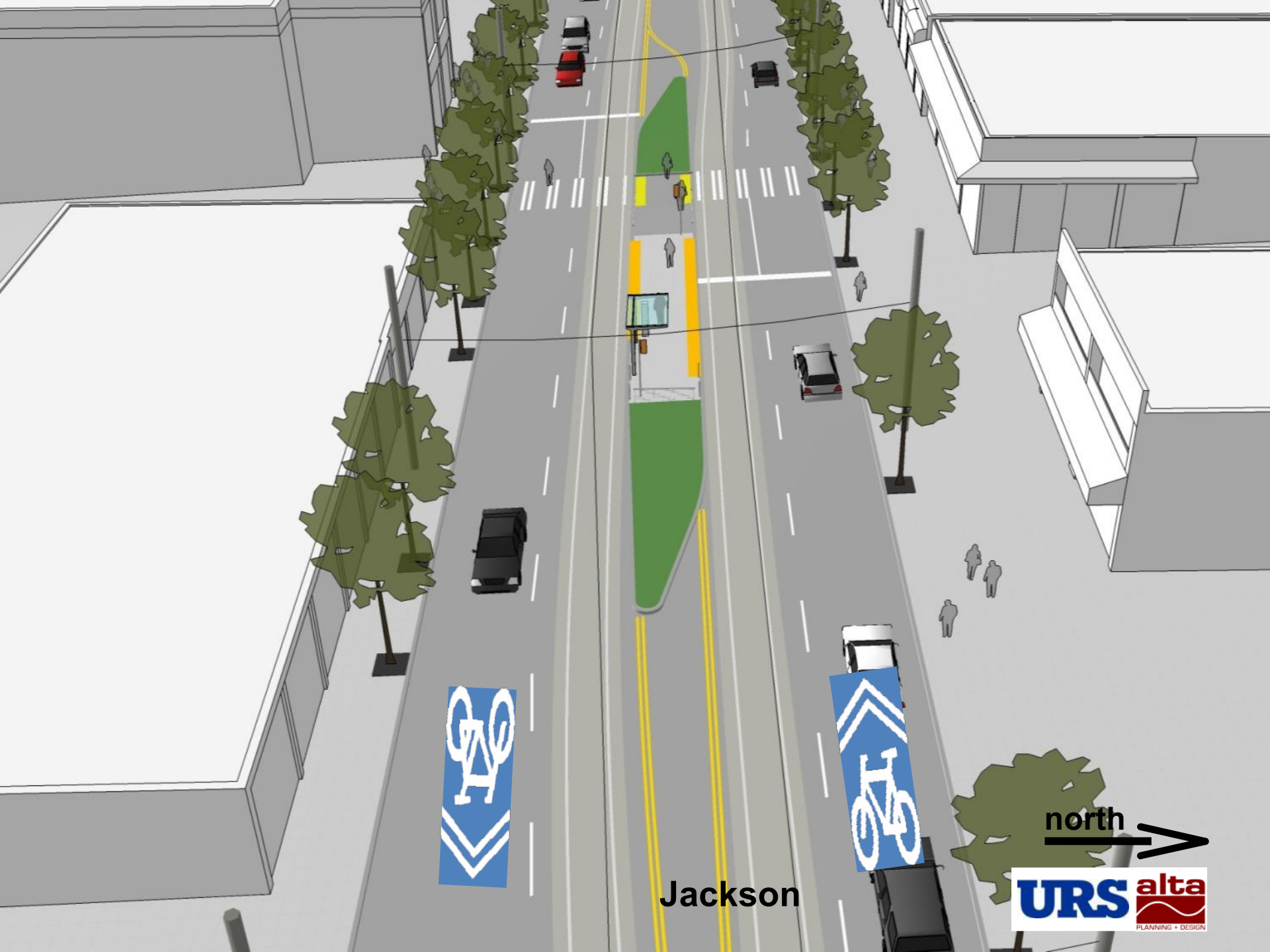
14<sup>th</sup> Avenue

Rainier



Jackson





Jackson





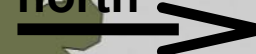
Left Turn Boxes



12<sup>th</sup> Avenue

Jackson

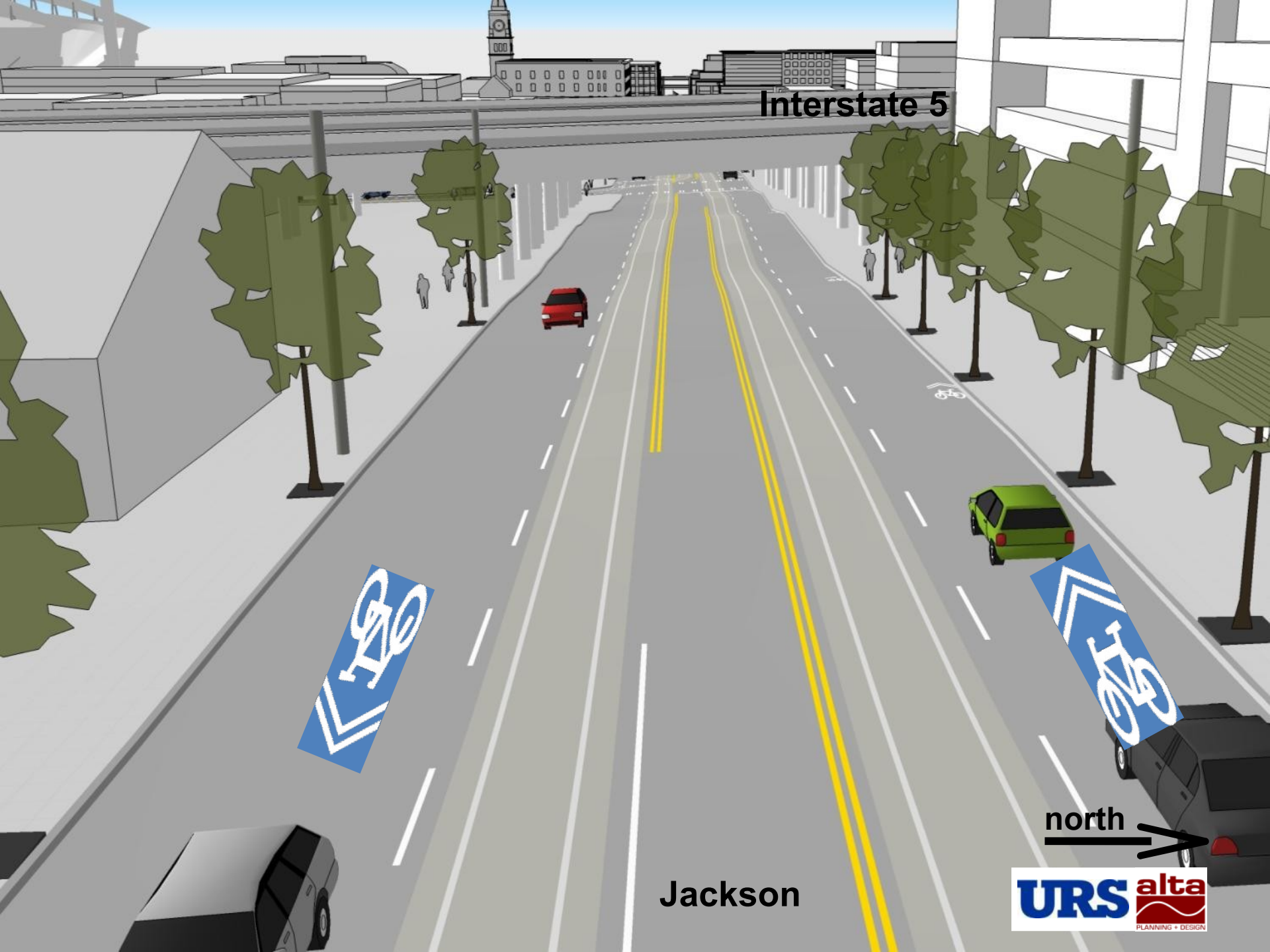
north



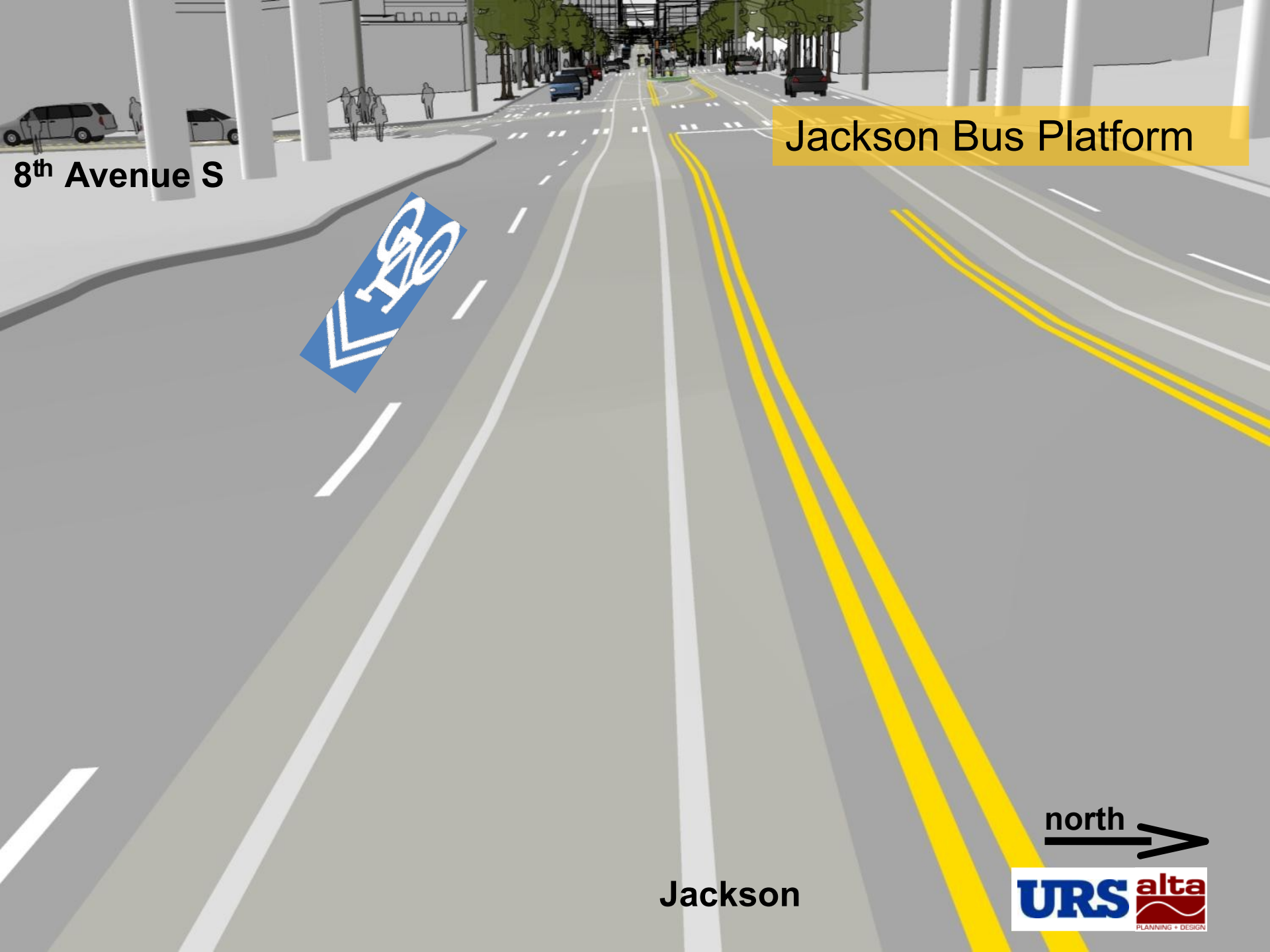
Interstate 5

Jackson

north



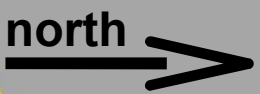




8<sup>th</sup> Avenue S

Jackson Bus Platform

Jackson



## Jackson Bus Platform

Jackson




## Jackson Bus Platform





# Jackson Bus Platform

8th Avenue S

**Inter\*Im**  
Parking Services

TAX INCLUDED IN ALL PRICES

0-2 Hours	3.00
EACH ADDED Hour	1.00
DAYTIME 6AM - 6PM	7.00
NIGHTTIME 6PM - 6AM	2.00

MON-FRI  
DAYTIME  
SPECIAL  
6AM-6PM

**\$5.00** TAX INCL.

OPERATED BY  
**Inter\*Im**  
Parking Services  
708-604-1999





# Jackson Bus Platform

8th Avenue S

**Inter\*Im**  
Parking Services

TAX INCLUDED IN ALL PRICES

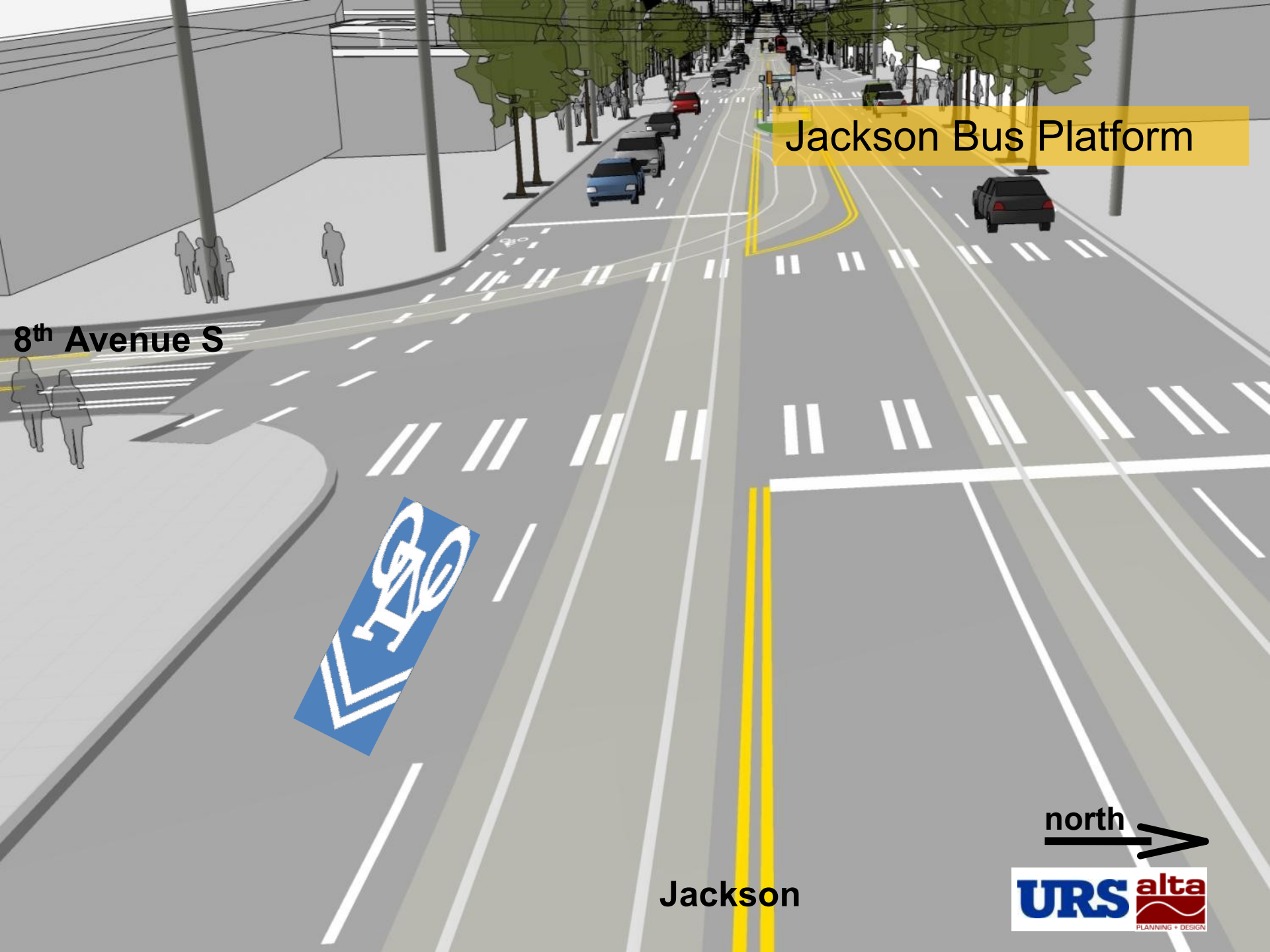
0-2 Hours	3.00
EACH ADDED Hour	1.00
DAYTIME 6AM - 6PM	7.00
NIGHTTIME 6PM - 6AM	2.00

MON-FRI  
DAYTIME  
SPECIAL  
6AM-6PM  
**\$5.00** TAX INCL.

OPERATED BY  **Inter\*Im**  
Parking Services  
200-450-1000







Jackson Bus Platform

8th Avenue S

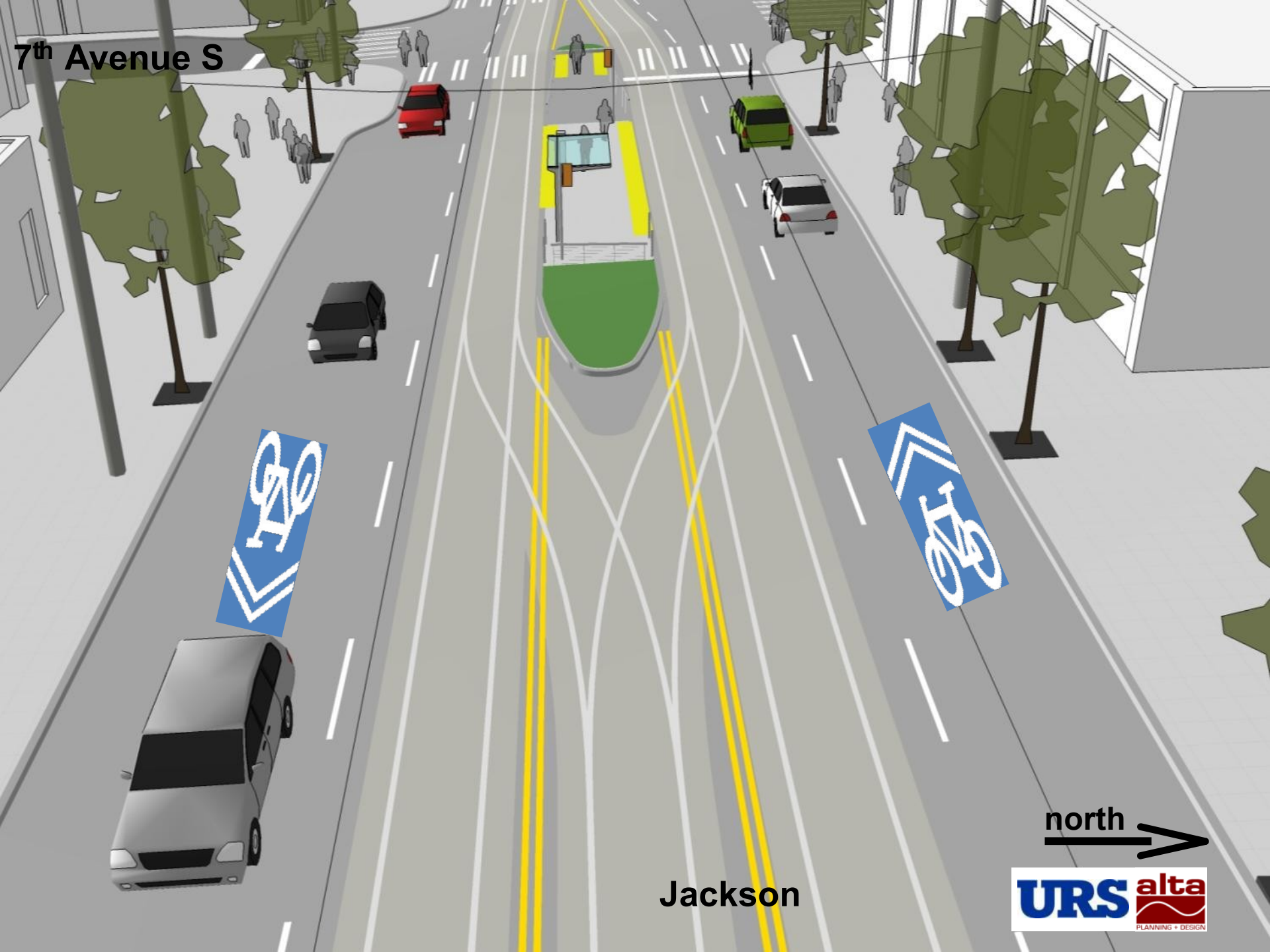


Jackson





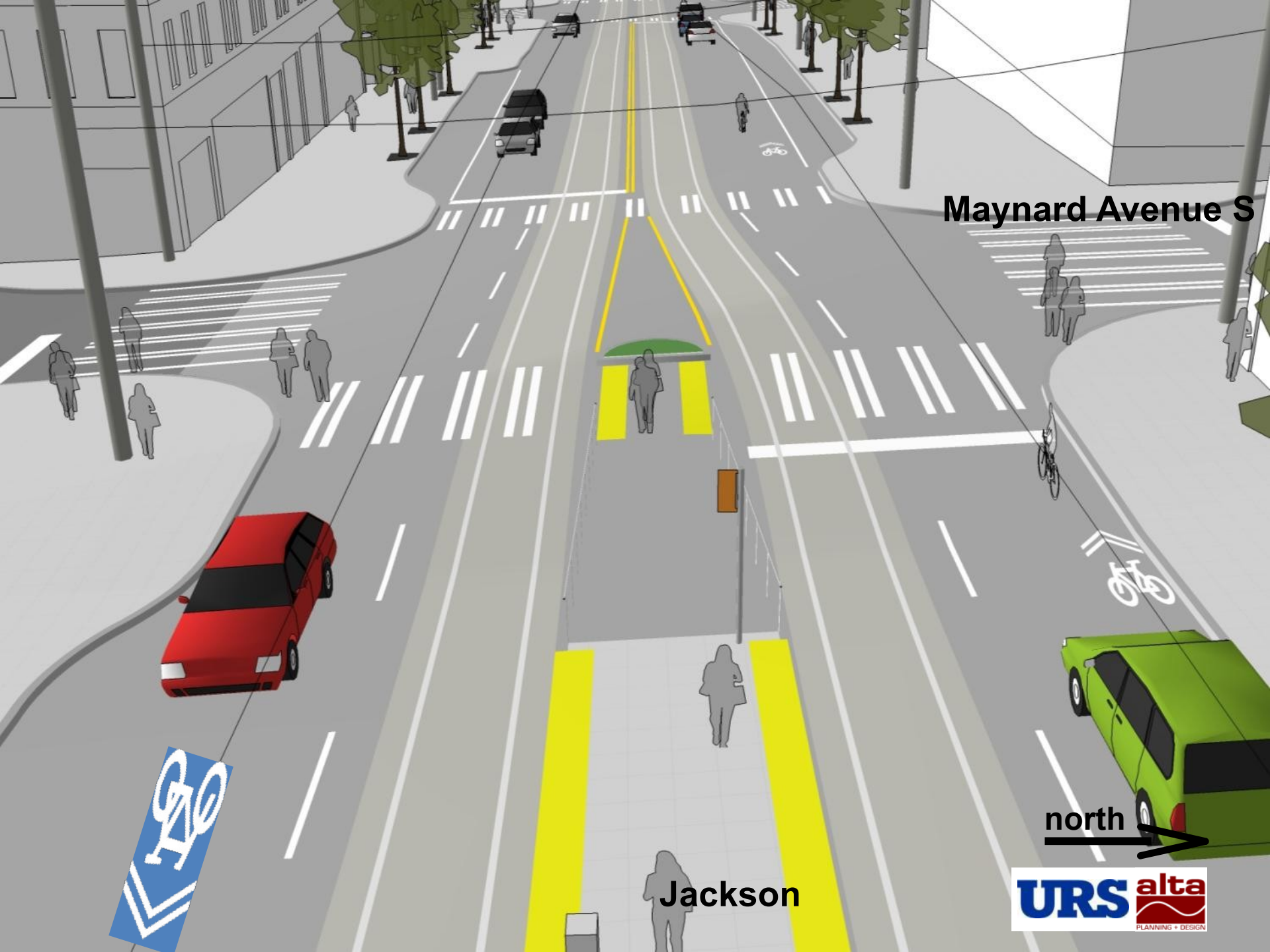
7<sup>th</sup> Avenue S



north  
↓

Jackson



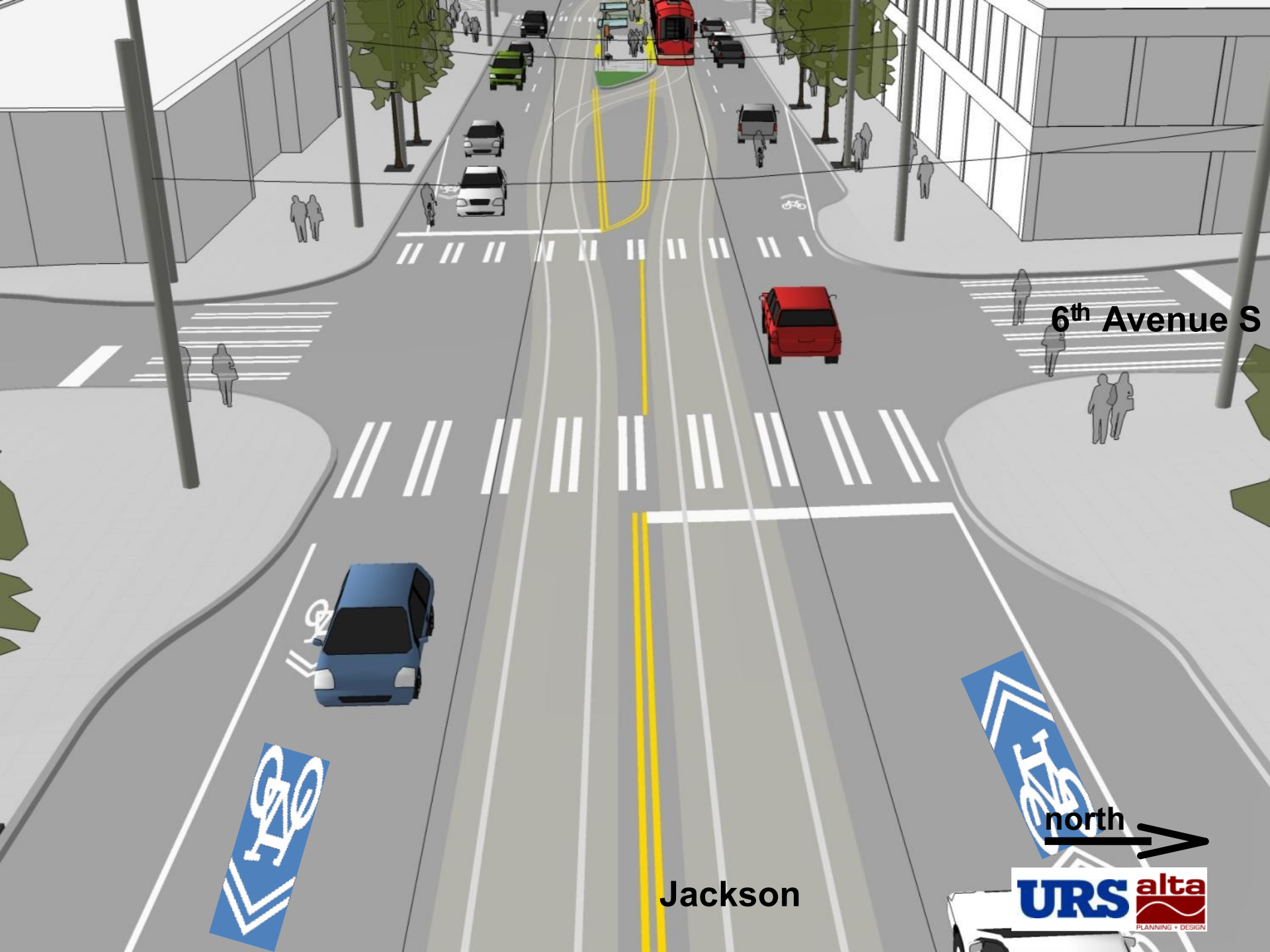


Maynard Avenue S

Jackson

north  
→





6<sup>th</sup> Avenue S

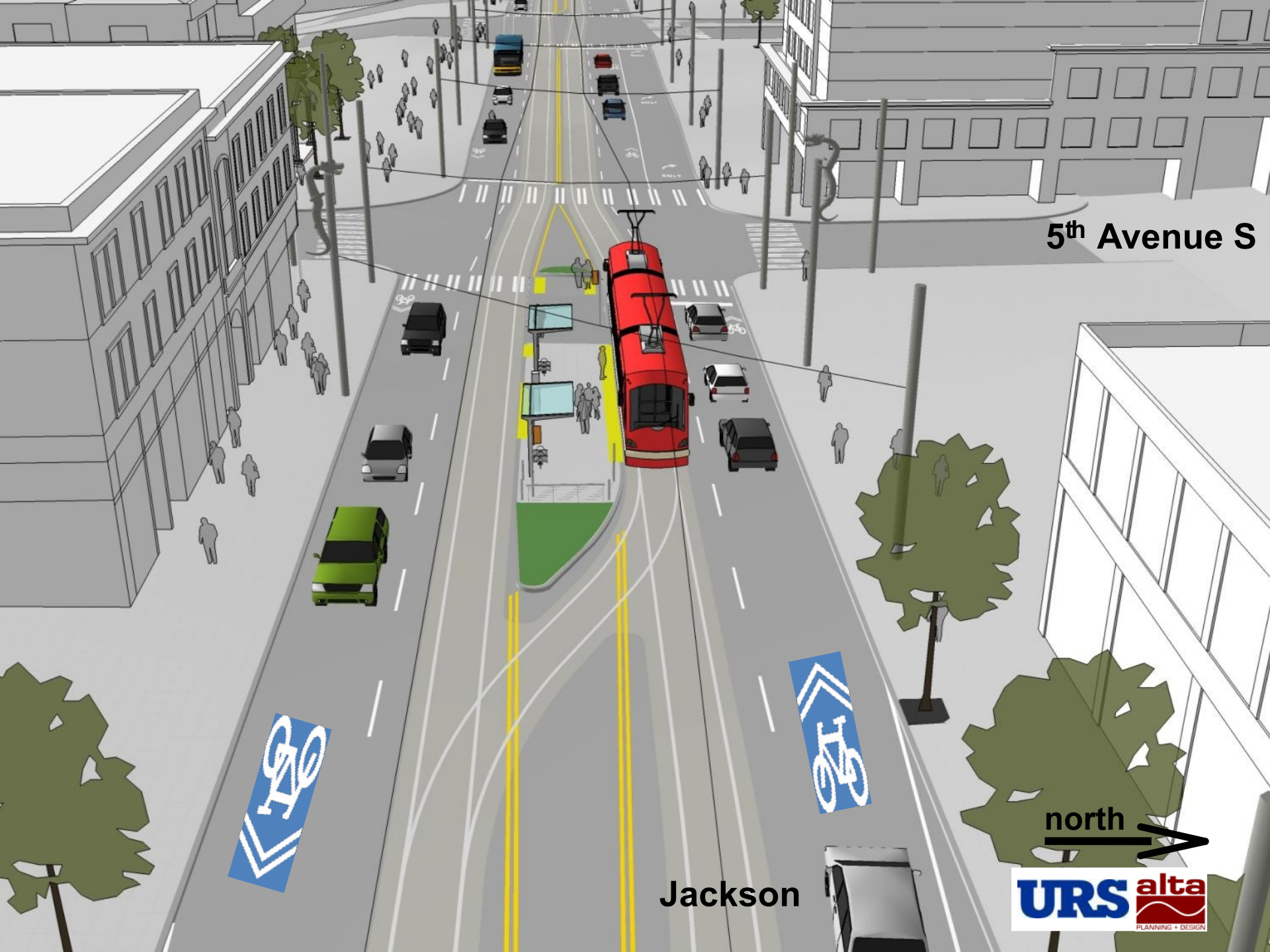
Jackson



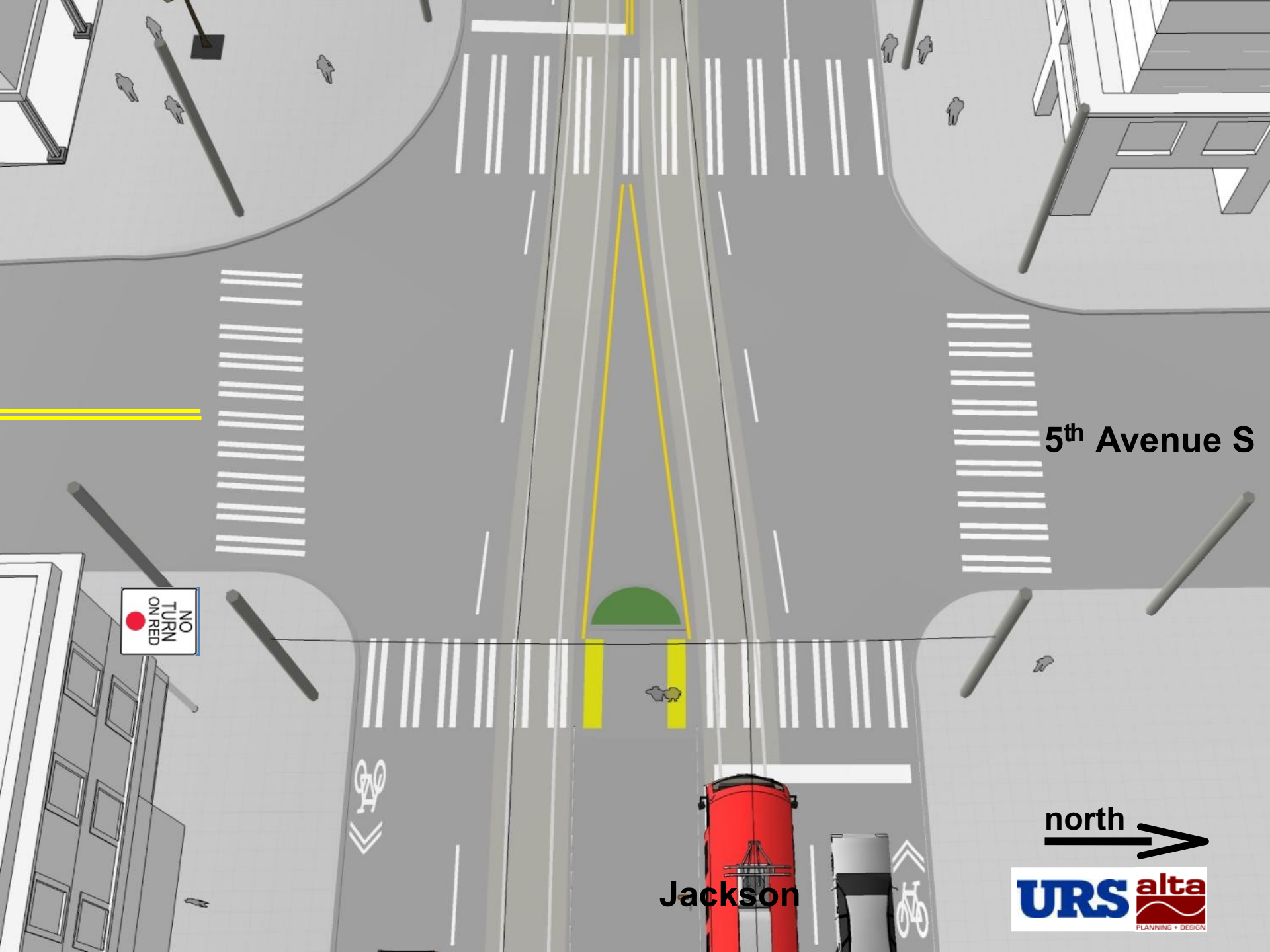
5<sup>th</sup> Avenue S

Jackson

north  
→



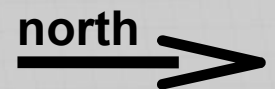


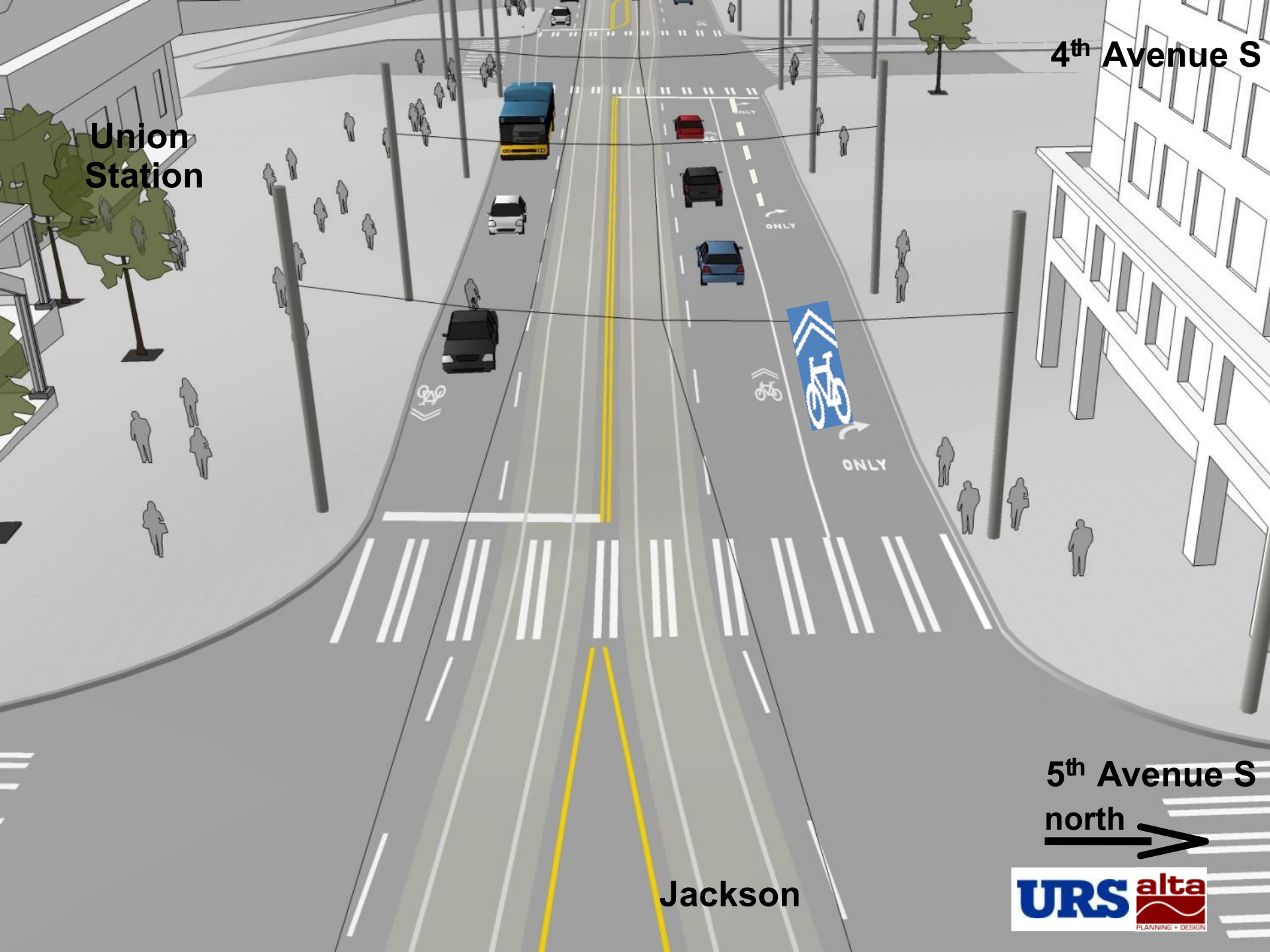


5<sup>th</sup> Avenue S



Jackson





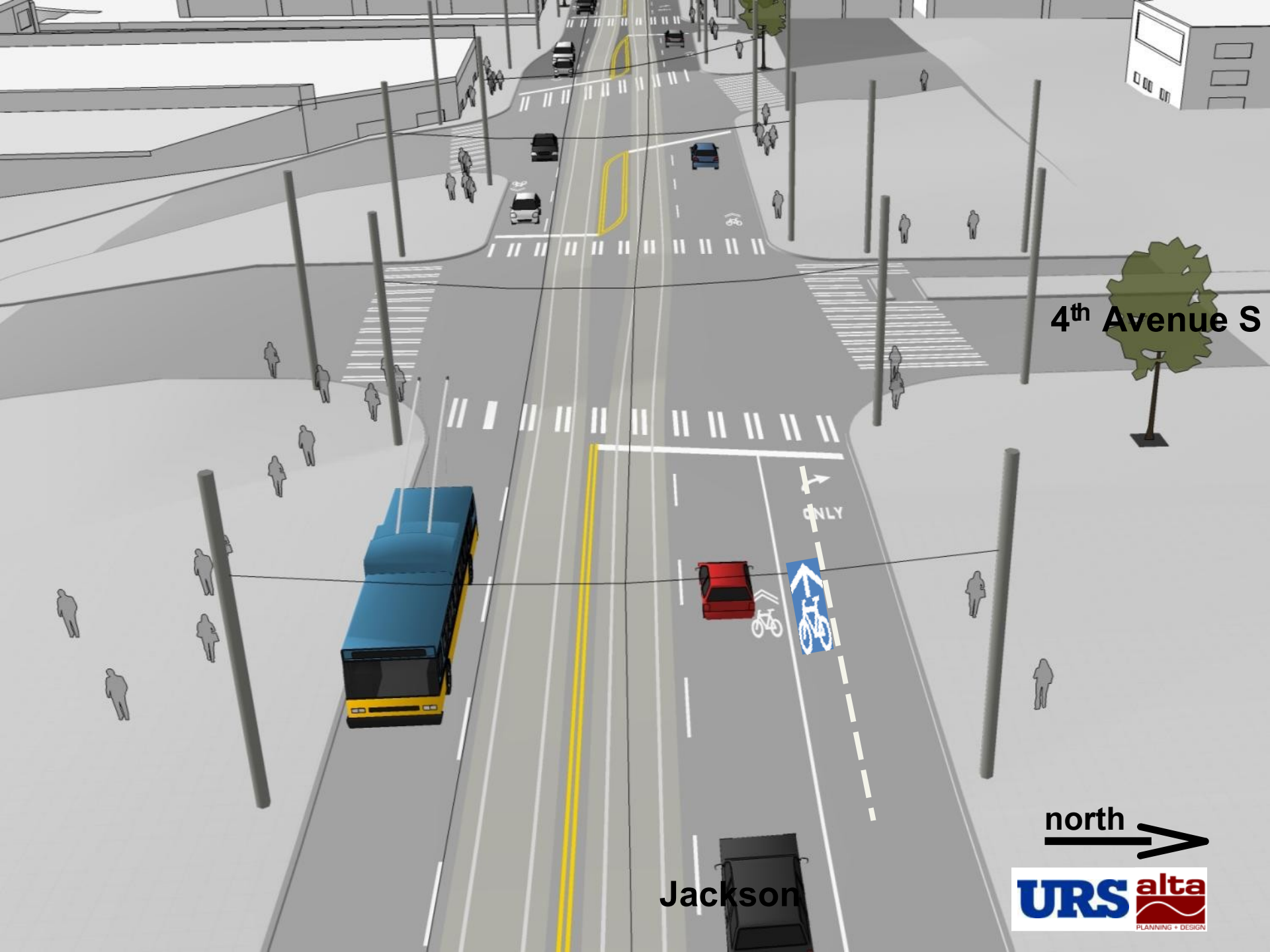
**Union  
Station**

**4<sup>th</sup> Avenue S**

**5<sup>th</sup> Avenue S  
north**

**Jackson**





4<sup>th</sup> Avenue S

Jackson

north  
→

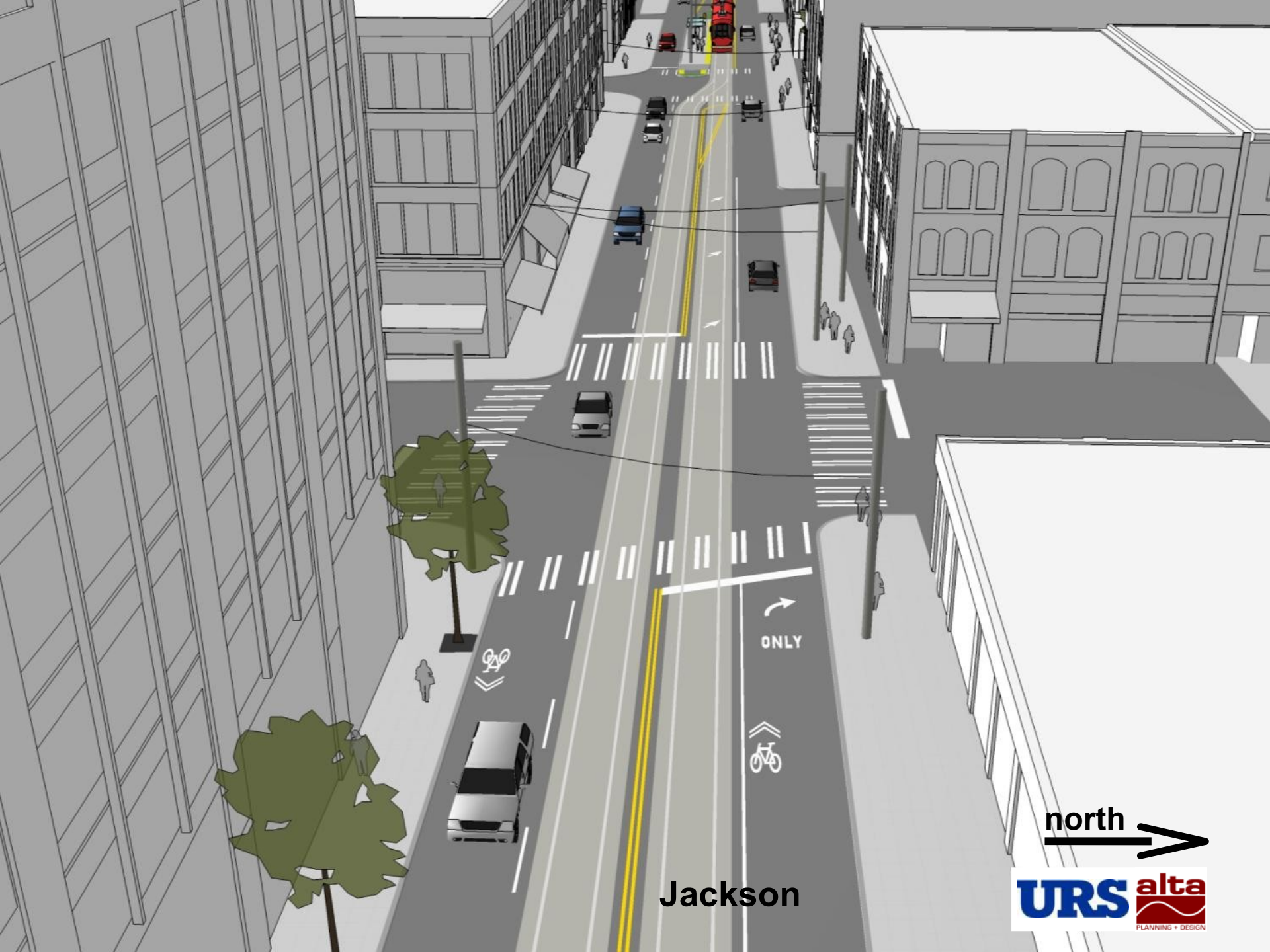




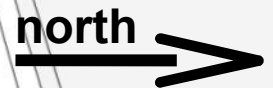
Jackson

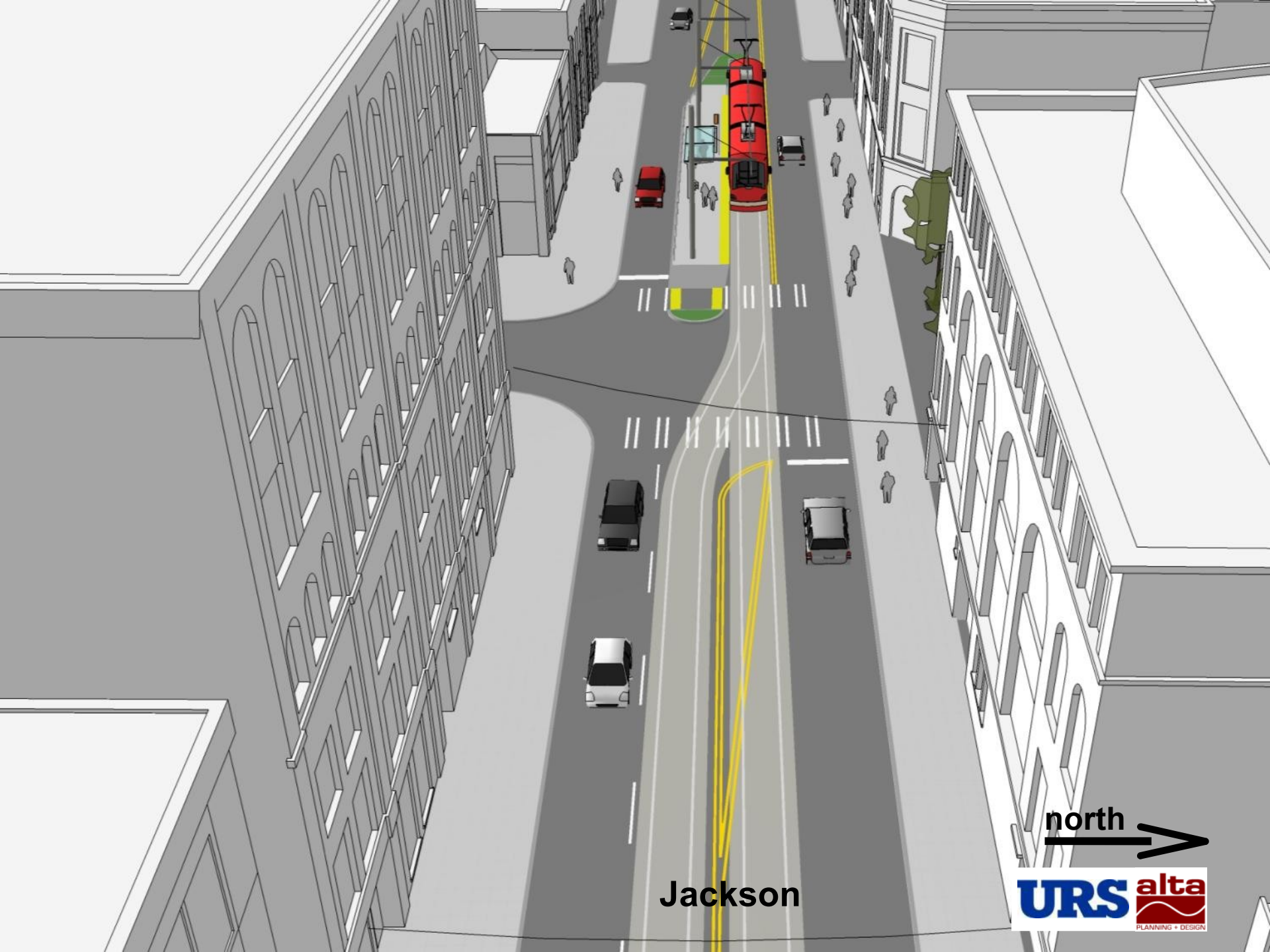






Jackson





Jackson

north





# First Hill Streetcar and Broadway Bikeway

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**Not used**



























