

Driveway Treatments

Slide 1 – Intro

In this presentation, we will introduce several driveway design treatments used to call attention to bicyclists on the Union Street Protected Bike Lane.

Bicyclists are more likely to be seriously injured in the event of a crash. Driveway treatments are used to make bicyclists more visible and to emphasize their right-of-way. These treatments are especially important when a two-way bike lane is on a one-way street, like Union Street.

On the left, we have an example of green colored pavement, and on the right, we have an example of a raised driveway. We will discuss both treatments in more detail in this presentation.

Slide 2: Background

For a quick refresher, the Union Street Protected Bikeway Project is a two-way protected bike lane project that runs along East Union Street from South Arroyo Parkway to North Hill Avenue. The design process is in its final stages and construction is anticipated to be complete by spring 2022. More information on the project as a whole can be found in the first video of this series. This video will discuss driveway design treatments.

Slide 3 – Driveway Treatments

Green colored pavement is the most common driveway treatment along this corridor. In this figure, you'll see that the green pavement extends across both lanes of the protected bike lane for the entire width of each driveway. There is no centerline marking across the green pavement, but there are bicycle lane symbols in each direction.

This green pavement marking helps to draw attention that a driver is entering a bike lane, and helps bicyclists become more aware that they're crossing into a space that may conflict with motor vehicles.

The use of bicycle lane symbols facing both directions on the green driveway treatments indicates bi-directional bike traffic, encouraging drivers to look for cyclists in both directions.

Slide 4 – Green Colored Pavement

Green colored pavement is used nationally to indicate bicycle conflict zones and emphasize bicycle priority. On Union Street, the green colored pavement also indicates that drivers need to cross the bike lane and the concrete islands to turn into the vehicle lane. Green colored pavement helps reinforce that a space is prioritized for bicyclists.

Slide 5 – Raised Driveway Crossings

Another driveway treatment along Union Street is a raised driveway crossing. This example shows a raised driveway crossing on 2nd Avenue in Seattle, Washington, where a concrete ramp raises the bike lane almost up to sidewalk level across a driveway.

This ramp is marked with a white chevron, or arrow, which follows the rise of the bike lane to the level of the sidewalk as it approaches the driveway, and then ramps back down after the driveway. This

makes the driveway crossing feel like a speed table, which emphasizes to drivers that they should expect and yield to cyclists and pedestrians. The change in bike lane elevation also helps cyclists more aware of drivers entering or exiting the driveway.

In this image, the raised driveway crossing also uses green colored pavement for the width of the driveway itself, which is how the raised driveways will look along the Union Street Bikeway corridor as well.

Slide 6 – Raised Driveway Locations

This map shows the locations of the five raised driveway crossings along the project corridor. The project extents are marked with dotted lines, while the raised driveway crossings are marked with stars. The raised driveways are located between Los Robles Avenue and Oakland Avenue, between Madison Avenue and El Molino Avenue, between El Molino Avenue and Catalina Avenue, between Oak Knoll Avenue and Hudson Avenue, and between Hudson Avenue and Lake Avenue.

Slide 7 – Signs at Driveways

Signs are used to communicate right-of-way or provide conflict warnings at driveways. On the left, the diamond-shaped Bicycle Warning sign is used at driveway exits to alert drivers to the presence of bicyclists. This sign is typically supplemented with a double-sided arrow plaque to communicate that drivers should look for cyclists in both directions.

The image on the right is the Turning Vehicles Yield to Bikes sign. This sign is used at intersections to communicate that bicyclists have the right-of-way and turning drivers should yield to bicyclists in the adjacent bikeway.

Slide 8 – Daylighting Driveways

“Daylighting” driveways is a technique in which vertical obstructions in the approach to the driveway are removed.

Along Union Street, this occurs in the form of restricting parking upstream of driveways. This image shows a driveway crossing at a portion of the bike lane buffered by both a striped buffer and an on-street parking lane. The driver’s field of vision is shown with a blue triangle. As the motorist approaches the driveway, parking is restricted to allow the driver to check for bicyclists in the bike lane at enough of a distance to stop at the driveway entrance and yield to bicyclists if needed.

Daylighting driveways also helps drivers see oncoming bicyclists.

Slide 9 – Thank you

There are four other public information videos as part of the Union Street Protected Bikeway series that provide more details about each these design features:

1. **General Overview**
2. **Parking and Passenger Loading Zone**
3. **Two-Stage Turn Queue Boxes**

4. Transition to and from the Bikeway at Arroyo

Thank you so much for taking the time to watch this video.

For more information related to this project, watch the rest of the videos in the series, and check out the project website at saferstreets.cityofpasadena.net