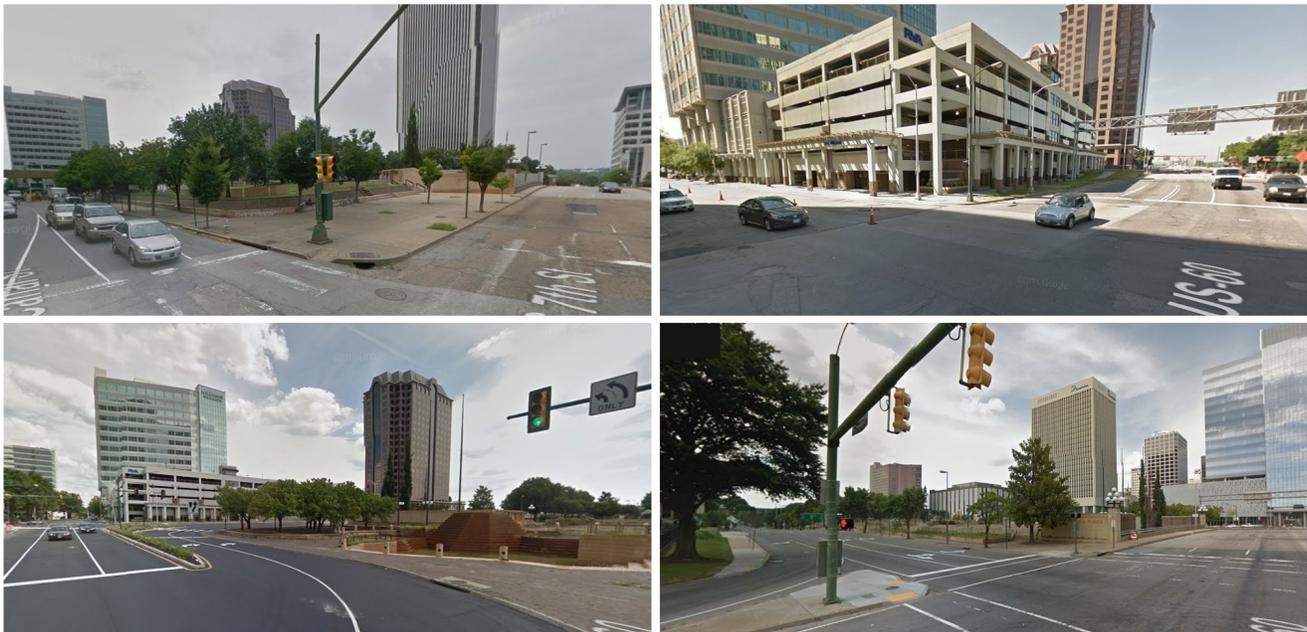


Addressing Bicycle Access and Safety for:

Kanawha Plaza

Comments on the Kanawha Plaza Pedestrian & Transportation Study



While the 2015 City of Richmond Kanawha Plaza Pedestrian and Transportation Study adequately addresses serious deficiencies in pedestrian access and amenities surrounding Kanawha Plaza (through improvements such as widened sidewalks, higher-visibility crosswalks, pedestrian-activated signals, reduced curb radii and curb bump-outs), it fails to sufficiently address bicycle safety and access to the site. To increase bicycle access and improve the safety of cyclists in the study area, the City of Richmond should consider robust bicycle facilities on all roads, especially those with identified excess capacity and proximity to walking and biking destinations.

1. Lack of Bike Access:

While the plan shows the existing bike lanes on East 9th street (a lane marked with only a painted on-road buffer), it does not consider improving that bike lane or implementing bike lanes on any other streets, including any of the east-west streets (East Canal Street and East Byrd Street). This means severely limited safe access to the park from any streets other than East 9th. Given that the plan identified excess roadway capacity on all streets surrounding the park, there should be room for bike lanes to be considered on all streets in the study area. The intersection of South 7th Street and East Canal Street presents an opportunity for both a northbound and westbound bike lane (see Figure 1).

Figure 1: South 7th Street and East Canal Street



2. Unpredictable Protection:

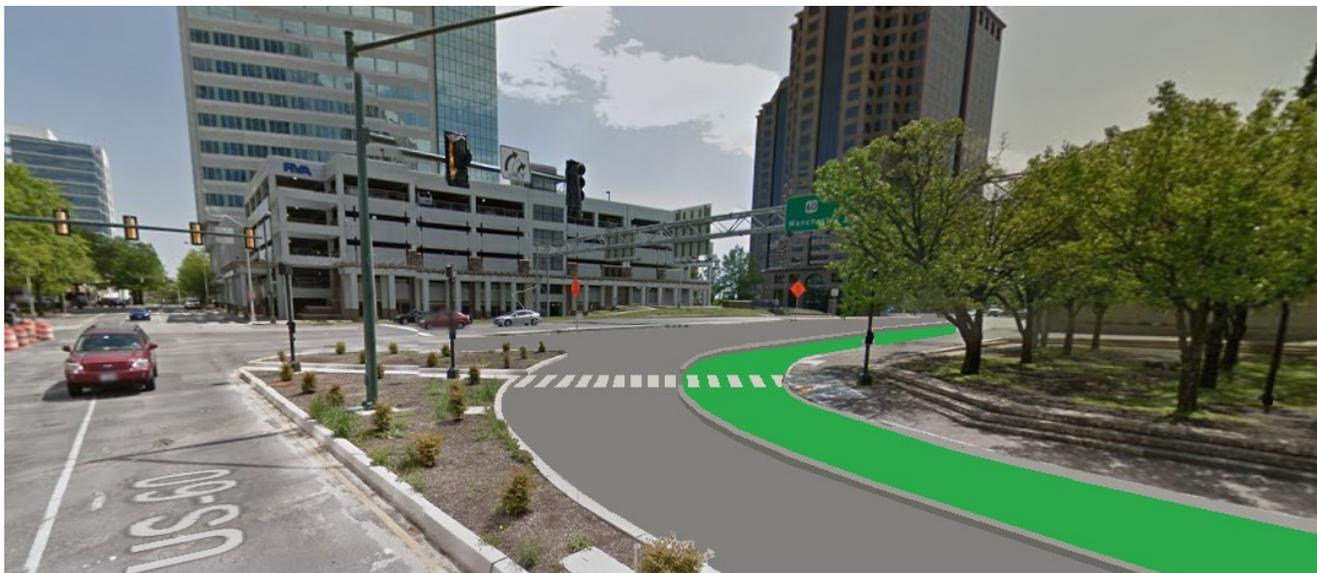
Because planning for bicycle safety and access should have the most vulnerable road users in mind, bike access should be safe, consistent and predictable. Just like it would be unacceptable for roads to abruptly stop or start, so it should be unacceptable for bike lanes to abruptly start or stop. This plan should do more to insure continuous protection for cyclists and reduce vehicle conflicts.

On South 9th Street, the plan recommends that a two-lane channelized turning system for vehicles (designed to give vehicles two lanes for uninterrupted turning movement) from East Canal Street flow directly into a painted bike lane. Vehicles making speedy, smooth right turns will likely not be expecting the start of a bike lane (nor have time to react to cyclists if they are traveling quickly) (see Figure 2a). A protected bike lane occupying one of these vehicle turn lanes or a protective curb separating the South 9th Street bike lane from traffic would improve bicycle safety here (see Figure 2b).

Figure 2a: Proposed Configuration for South 9th Street and East Canal Street



Figure 2b: Safer Configuration for South 9th Street and East Canal Street

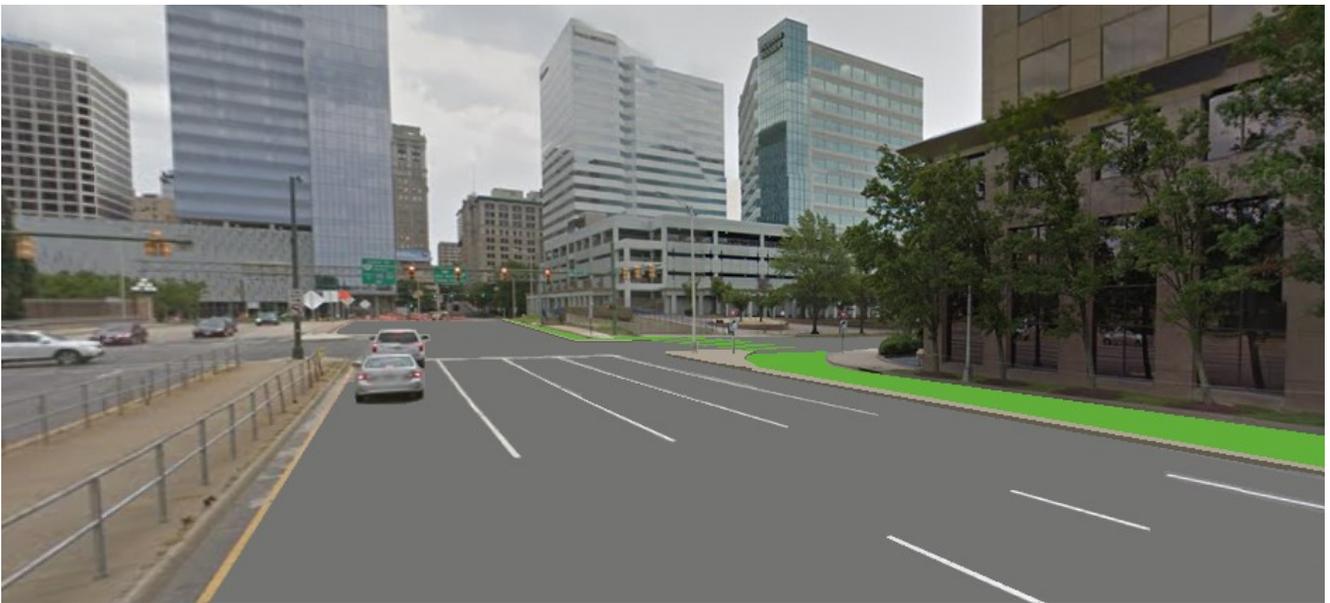


Further, the proposed “mixing zone” (also sometimes called a “transition zone”) recommended for the northbound South 9th Street bike lane creates unnecessary conflicts between vehicle (See Figure 2c). Currently, a curb channelizes a 20-foot wide right-turn lane for vehicle traffic. While a painted bike lane has been added, vehicles are allowed to cross the painted bike lane at any point along South 9th Street before the triangular curb begins. This creates a lengthy conflict zone and increases risks for both cyclists and pedestrians (because it is difficult to check for and spot cyclists over a driver's right shoulder, at high speeds, before merging into the right-turn lane). A safer configuration would place the bike lane on the far side of the roadway, next to the sidewalk (See Figure 2d), and address vehicle conflicts at the intersection (where turning vehicles can spot cyclists head-on rather than over their shoulder).

Figure 2c: Proposed and Safer Configuration for South 9th Street and East Byrd Street



Figure 2d: South 9th Street and East Byrd Street



3. Lack of Protection:

While this plan identifies existing bike lanes, it does not identify opportunities for improving existing bike lanes through increased protection. Painted bike lanes (even with a buffer) aren't as safe and don't feel as safe as bike lanes with physical barriers between vehicle travel lanes. Unprotected bike lanes create opportunities for vehicles to park or idle in bike lanes. This creates hazards for cyclists and pushes them into fast-moving vehicle traffic. Other cities who have implemented unprotected bike lanes have faced this challenge with everything from delivery vehicles to police vehicles parked in bike lanes.

Protected bike lanes can utilize a variety of barriers including curbs, planters and bollards. Investing in protected bike lanes make both biking and walking safer.¹ Protected bike lanes increase comfort for drivers and reduce cycling on sidewalks as well as reducing road injuries for all users (drivers, pedestrians and cyclists).^{2 3 4} Further, the average protected bike lane sees bike counts increase 75% in its first year alone.⁵ Protected bike lanes (referred to as "cycle tracks" in the 2015 Bicycle Master Plan) with bollards are a fairly cheap option (at only \$5.00/linear foot with bollards placed every 10 feet) and would go a long way to increasing both actual and perceived safety.⁶ Given the numerous benefits of protected bike lanes and the relative affordability of building them, the City of Richmond should strongly consider investing in protected bike lanes.

1 Andersen, Michael. "It Turns out That Protected Bike Lanes Are Fantastic for Walking Safety, Too." *People for Bikes*. 14 Nov. 2014. Web. 7 Jan. 2016. <<http://www.peopleforbikes.org/blog/entry/it-turns-out-that-protected-bike-lanes-are-fantastic-for-walking-safety-too>>.

2 "Car Users Would Prefer Separated Bike Lanes Too, Study Finds." *People for Bikes*. 19 July 2013. Web. 7 Jan. 2016. <<http://www.peopleforbikes.org/blog/entry/car-users-would-prefer-separated-bike-lanes-too-study-finds>>.

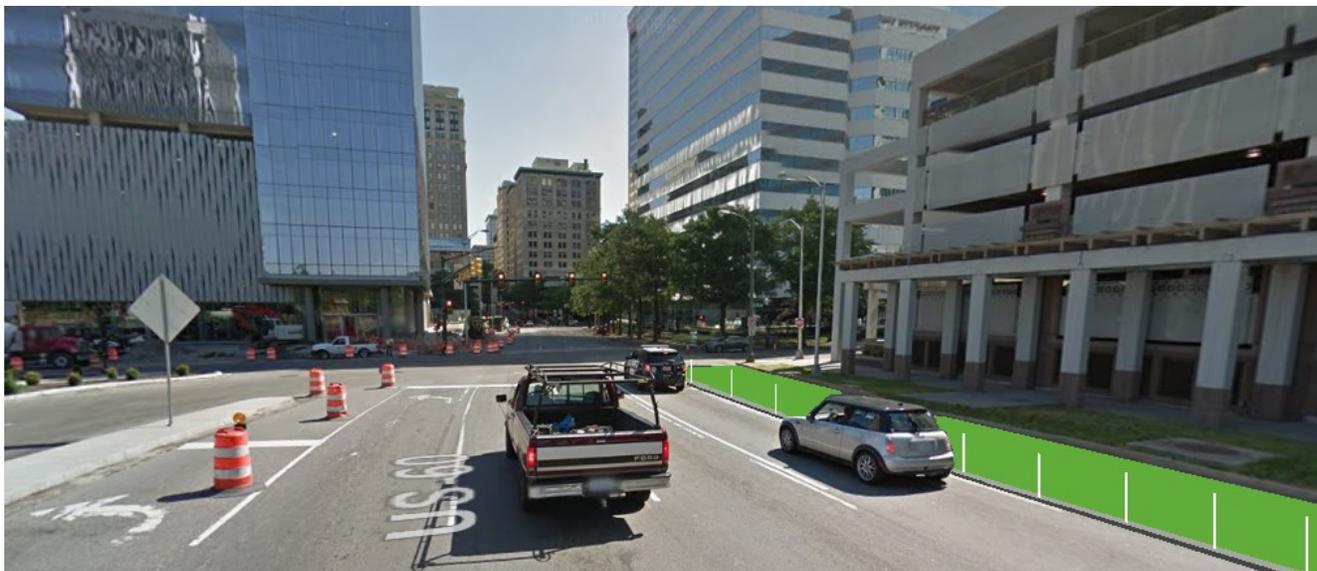
3 Jaffe, Eric. "Tired of Cyclists Riding on the Sidewalk? Build More Bike Lanes." *CityLab*. 14 Aug. 2014. Web. 8 Jan. 2016. <<http://www.citylab.com/cityfixer/2014/08/tired-of-cyclists-riding-on-the-sidewalk-build-more-bike-lanes/375984/>>.

4 Wolfson, Howard. "Memorandum: Bike Lanes." The City Of New York Office Of The Mayor, 21 Mar. 2011. Web. 7 Jan. 2016. <http://www.nyc.gov/html/om/pdf/bike_lanes_memo.pdf>.

5 Monsere, C., et al., 2014. Lessons from the Green Lanes. National Institute for Transportation and Communities. http://bikeportland.org/wp-content/uploads/2014/06/NITC-RR-583_ProtectedLanes_FinalReportb.pdf

6 "Richmond Bicycle Master Plan." *City of Richmond*. 2015. Web. 7 Jan. 2016. <<http://www.richmondgov.com/bikeped/>>.

Figure 3: South 9th Street and East Canal Street



4. Unsafe Positioning:

The current plan calls for painted bike lanes to be located between vehicle travel lanes and on-street parking lanes. However, other cities have begun to realize the benefits of using parked cars as a protective barrier between fast-moving vehicle traffic and bike lanes. Protected bike lanes have been shown to attract “interested but concerned” potential-cyclists and parked cars are a cheap protective barrier (and can even generate revenue for cities where on-street parking is metered). Many U.S. cities have implemented bike lanes protected by a lane of parked cars. South 9th Street north of East Canal Street would be an ideal location for a protected bike lane between a parking lane and the sidewalk (see Figures 4a and 4b).

“In situations where on-street parking is allowed, cycle tracks shall be located between the parking lane and the sidewalk.”

-Bicycle Master Plan, 2015

Figure 4a: Proposed and Safer Configuration for South 9th Street and East Canal Street
Proposed Bicycle Configurations: **Safer Bicycle Configuration:**



Figure 4b: Existing Bike Lane in Chicago Protected by Parked Vehicles



It is important to note that drivers who park on-street already face the risk of vehicle traffic when exiting their vehicle. This risk would not be increased if parking were moved to protect bicycle lanes. Further, note that curb bump-outs are still a crucial part of protected bike lane design and create shorter pedestrian crossing distances. However, bump-outs in intersections designed for both cyclists and pedestrians feature cut-outs for protected bicycle movements (see Figure 4c).

Figure 4c: The Role of Bump-Outs in Safer Configuration of South 9th Street and East Canal Street



5. Unprotected Intersections:

While protected bike lanes have immense social, safety, comfort and economic benefits, those benefits often disappear at dangerous, stressful, unprotected intersections. A simple “protected intersection” design, which has been part of European roadways for decades has just recently been implemented in the U.S. (in cities such as Boston and Salt Lake City). The City of Richmond should consider this simple, safe design for intersections all over the city but specifically in a busy, active corridor with potentially high rates of pedestrian

"It doesn't matter how safe and protected your bike lane is if intersections are risky, stressful experiences."

-Nick Falbo, professional bike planner

and cycling usage. Nick Falbo, a professional bike planner, produced a [short video explaining protected intersections](#). The protected intersection design has four main components^{7 8}: a corner refuge island (to prevent right-turning cars from colliding with people on bikes), a forward stop line for bikes (shortening crossing distance), set-back bike and pedestrian crossings (to shorten pedestrian and bike crossing distances, improve sight-lines and give cars space to react to conflicts) and bicycle-friendly signal phasing.

The channelized right-turn lane on northbound South 9th Street and the unique geometry of the intersection with East Byrd Street make it an ideal location for a protected intersection (see Figures 5a and 5b). Here, there are four travel lanes west of South 9th Street on East Byrd Street but only two lanes continue to the other side of the intersection (the other two lanes are right and left turn lanes). This means excess roadway capacity which could be used for protected bike space. Also, it means that curbs on the east side of the intersection can be enlarged and bumped-out to protect cyclists. Cars turning right onto East Byrd Street from South 9th Street are also forced to reduce their speed and turn around the extended curb. This allows drivers at this junction to see bikes and pedestrians straight-on (rather than over their right shoulder as in the current arrangement).

7 Protected Intersection Design. Cameron Rian Hays. <http://www.protectedintersection.com/>

8 "Dear City Hall: Please Consult This Checklist before Building Your next Intersection. Thanks." People for Bikes. 18 Feb. 2014. Web. 7 Jan. 2016. <<http://www.peopleforbikes.org/blog/entry/video-argues-that-protected-bike-lanes-need-protected-intersections>>.

Figure 5a: South 9th Street and East Byrd Street

Proposed Bicycle Configurations:



Safer Bicycle Configuration:



Figure 5b: South 9th Street and East Byrd Street

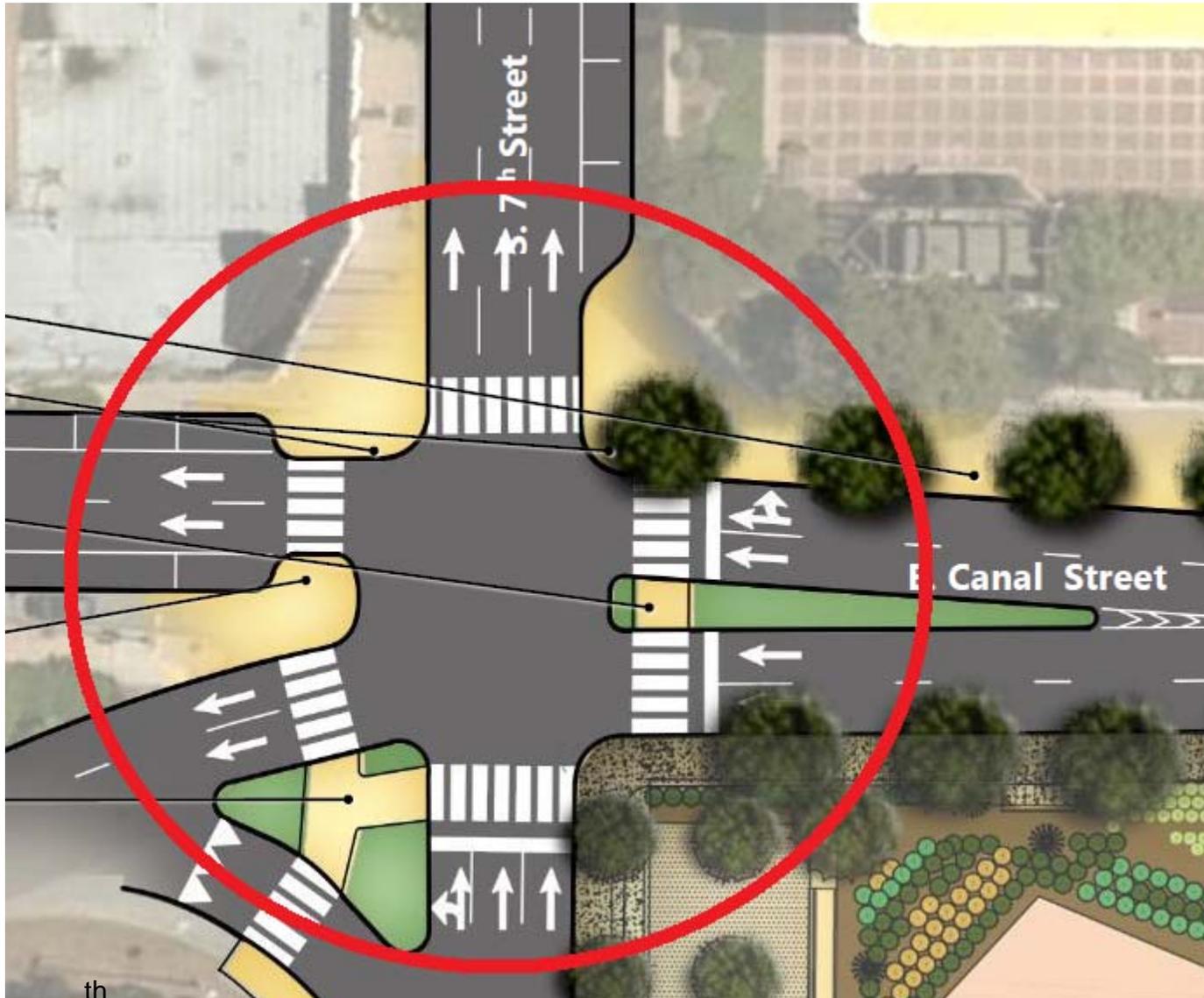


The Kanawha Plaza

Transportation & Pedestrian Study

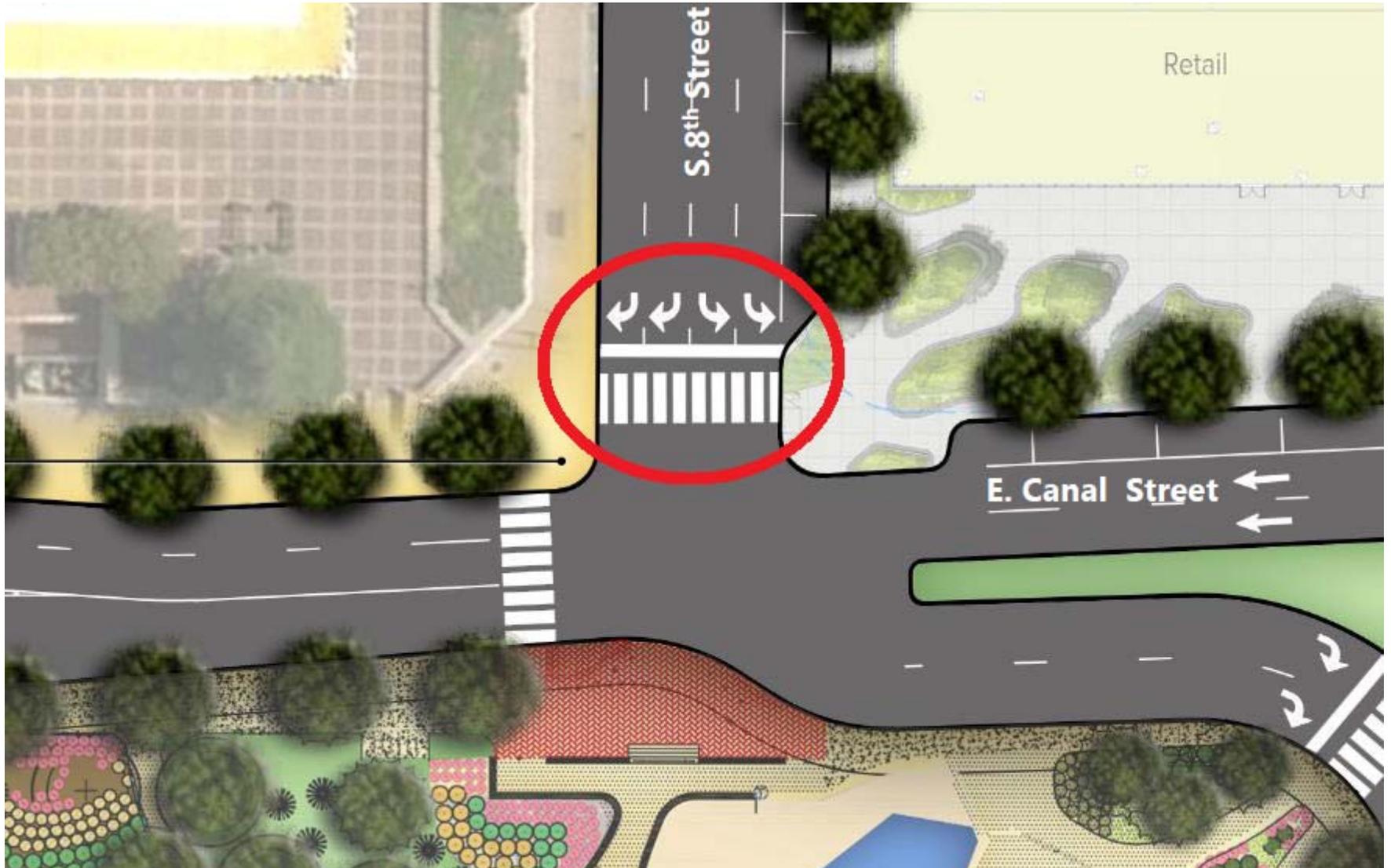


#1: No Bike Access



S. 7th & E. Canal Street

#1: No Bike Access



S. 8th & E. Canal Street

#2: Unpredictable Protection



S. 9th & E. Canal Street

#2: Unpredictable Protection



th
S. 9 & E. Byrd Street

#3: Lack of Protection



S. 9th & E. Canal Street

#3: Lack of Protection



Alternative: Protected Bike Lane

(like this one in DC)



#4: Unsafe Positioning



S. 9 & E. Canal Street

#4: Unsafe Positioning

The Risk of “Dooring”



From the Bicycle Master Plan

“In situations where on-street parking is allowed, cycle tracks shall be located between the parking lane and the sidewalk.”

-Bicycle Master Plan, 2015



Let's build bike lanes like this:



And like this one in Chicago:



Or this one in St. Louis



#5: Intersections



S. 9th & E. Byrd Street

The Perfect Place for... A Protected Intersection!

