Connecting Communities:
The Olentangy Trail/Bethel Road Connector

Project Narrative

Project Overview

The Olentangy Trail is a heavily used pedestrian and bike trail that runs through central Ohio, connecting Worthington Hills Park in Worthington to the beginning of the Scioto Trail at Confluence Park in downtown Columbus. The portion of the trail from State Route (SR) 161 to Henderson Road was one of the first sections to be constructed over 30 years ago. Since that time, trail use has increased to an estimated 300,000 combined bicycle and pedestrian users per year.

The City of Columbus Recreation and Parks Department sought to improve connectivity between Anheuser Busch Sports Park and the Olentangy Trail, reduce congestion and improve safety along the trail segment south of Antrim Park to a proposed trailhead at Anheuser Busch Sports Park. The Olentangy Trail/Bethel Road Connector project included the design and construction of the new trailhead, a shared-use path as an off-street trail connector and widening of a portion of the existing trail from 9 feet to 12 feet.

The project began in 2016 with a preliminary engineering study led by Burgess & Niple (B&N). B&N worked closely with the Columbus Recreation and Parks Department and the Ohio Department of Transportation (ODOT) District 6 to develop a preferred alternative to be carried to final design and construction. The final design included a northern alignment that crosses the SR 315 southbound to the Bethel Road exit ramp and loops around the infield area between SR 315 northbound and the Bethel Road to SR 315 northbound entrance ramp, passing under the northbound ramp and connecting to the existing trail via a pre-cast concrete tunnel.

Benefits to the Public

The Olentangy Trail/Bethel Road Connector enhances connectivity and accessibility within the community and to the surrounding areas. The new trailhead decreases the distance between access points to the trail for nearly 30,000 people in the Bethel Road corridor and reduces the distance users must travel on a shared roadway before reaching the trail. It also allows trail users to take a break, exit the trail and patronize the local restaurants and businesses in the corridor.

By connecting the Bethel Road corridor with the trail, people in the area now have improved access to surrounding commercial developments and neighborhoods, including 13 different parks, downtown Columbus, the Ohio State University campus, and the City of Worthington. To further enhance accessibility, ADA-compliant curb ramps that are the width of the trail were installed with the new shared-use path.

The trail widening reduces congestion along the trail, increasing usability for pedestrians and cyclists. Before the project, the existing trail was typically 9 feet wide between Antrim Park and Bethel Road. Based on trail usage and recommendations from the AASHTO Guide

for the Development of Bicycle Facilities, the preferred width was 12 feet. The insufficient and narrow width of the trail was known to create congestion during peak hours for trail users.

Complexity

Due to the project's location over and around SR 315, a limited access facility owned by ODOT, significant coordination with the state agency was required to land on an acceptable alternative. This presented a significant challenge during the preliminary engineering stage of the project, during which multiple alternatives were considered.

One proposed alternative utilized the south side of the Bethel Road bridge and interchange. However, it lacked adequate clear distance around SR 315 and protection from the existing bridge substructures was not available. Another proposed alternative used land east of the northbound SR 315 on- and off-ramps, but posed an issue with floodplain encroachment.

User safety was a major concern. The design had to accommodate moving trail system users through the SR 315/Bethel Road interchange safely, which was accomplished by a grade-separated tunnel under the freeway on-ramp. This required detailing the pre-cast box and wingwalls so that the contractor could limit the ramp closure to no more than 30 days, as mandated by the contract. At the SR 315 southbound to Bethel Road off-ramp crossing, a Rapid Rectangular Flashing Beacon was added for enhanced trail user visibility and safety, in lieu of another tunnel, which was not feasible due to adjacent wetlands that could not be disturbed.

The design was further complicated by the project's location within the 100-year floodplain. A hydraulic report was prepared based on existing Federal Emergency Management Agency (FEMA) data and results from developed HEC-RAS models. To avoid adversely impacting the floodplain, which would require a FEMA Letter of Map Revision and would add cost and time to the project, the existing path profile was closely maintained with any additional embankment nullified with compensatory excavation.

An additional concern was the 12-inch sludge pipeline that extends east and west along the north side of Bethel Road through the limits of the project. Because the sludge line carries wastewater to the Hap Cremean Wastewater Treatment Plant, which is the largest water treatment facility serving metropolitan Columbus, avoiding disruptions to service was a top priority. This was accomplished through close coordination with the City during the design and construction phase.

Innovative and Unique Features

There was consensus among project stakeholders that widening the bridge would not be a cost-effective solution. To avoid any bridge widening, the final design repurposed the width of the existing structure over SR 315. The existing median between the eastbound and westbound travel lanes was narrowed to create enough space on the existing structure to incorporate a 12-foot shared-use path and new adjacent barriers: one added along the bridge fascia to support a new fence and one added between the shared-use path and vehicle travel lane to enhance safety. A micro-silica concrete deck overlay was added between the new barriers to improve drainage and rideability along the shared-use path. This solution required structural calculations and an updated bridge load rating analysis to

ensure the structure could support the additional barrier weight, but ultimately resulted in significant cost savings.

The unused SR 315 infield area was innovatively used for the trail ramp. This was accomplished by elevating the ramp using embankment, safely maintaining all proposed work outside of the SR 315 clear-zone, and shielding it using the existing Bethel Road bridge forward abutment.

Aesthetics and Sustainable Features

The Olentangy Trail is a community connector that allows for a more sustainable alternate means of transportation. By establishing a new access point and trailhead, the connector project provides better trail access and encourages biking or walking over driving, vehicle emission reduction, and more sustainable and healthy lifestyles.

With the addition of the shared-use path along the bridge fascia, current ODOT policy required the installation of a vandal protection fence. Since this fence is viewed by the SR 315 southbound traffic, rather than utilizing the ODOT standard drawings for this detail, the City opted for a more aesthetic and unique tilted-panel frame design.

Project Completion

The Olentangy Trail/Bethel Road Connector was substantially completed in 2019. By working closely with the City's Recreation and Parks Department and ODOT, the design successfully met the project goals and needs of improving accessibility, reducing congestion and improving safety.

Funded by both the City of Columbus and the Mid-Ohio Regional Planning Commission, the total construction cost amounted to $3,245,000, within 5.5% of the original cost estimate. The design cost of the project stayed within the $897,500 budget.

PHOTO 1: Pre-Cast Concrete Tunnel

PHOTO 2: Shared-Use Path

PHOTO 3: Rapid Rectangular Flashing Beacon

PHOTO 4: Trail Connector

PHOTO 5: Trail Widening

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Photo Captions

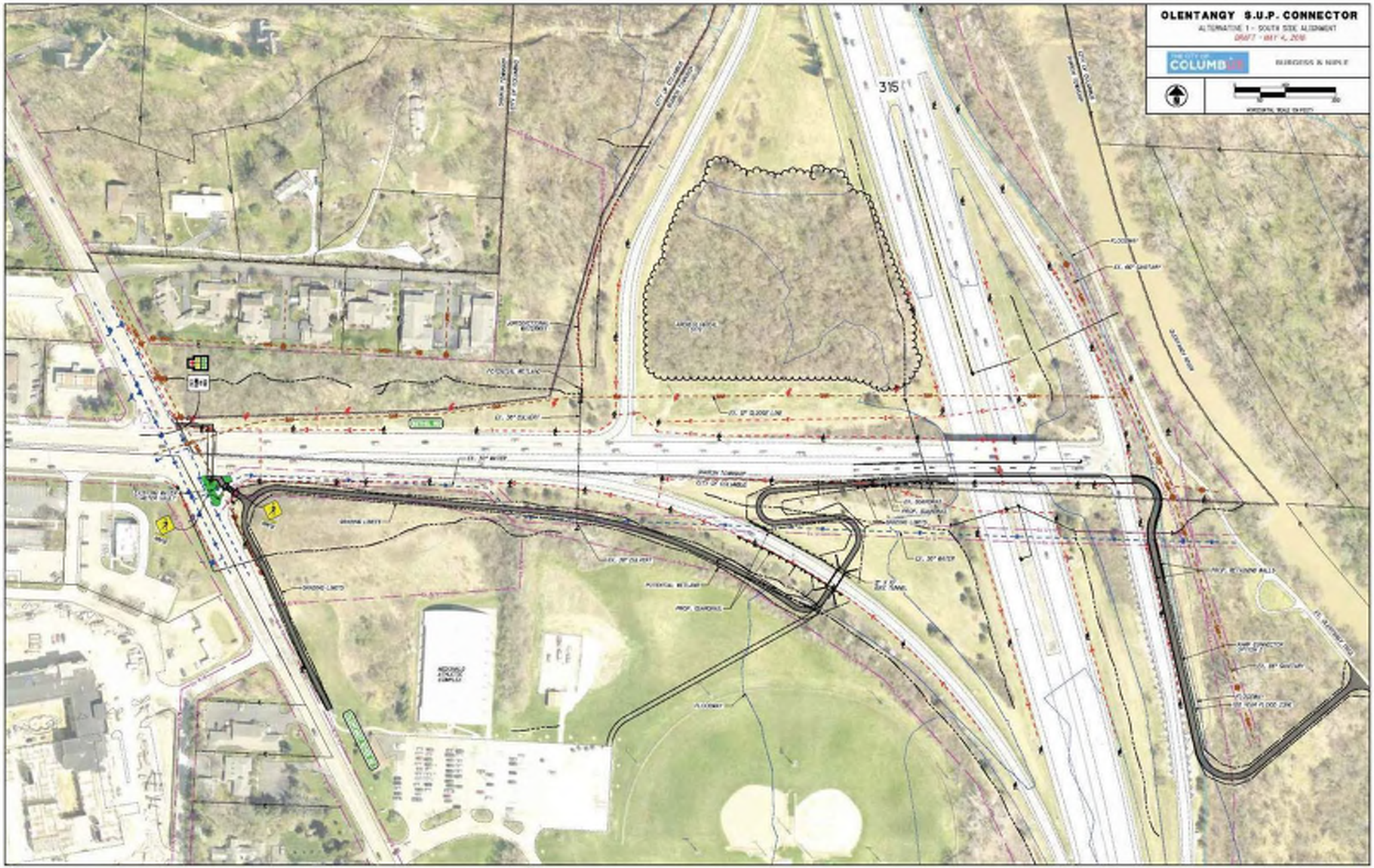
PHOTO 1: Pre-Cast Concrete Tunnel
The pre-cast concrete tunnel safely connects the new trailhead to the Olentangy Trail, allowing trail users to avoid directly crossing traffic on the State Route (SR) 315 on-ramp.

PHOTO 2: Shared-Use Path
To avoid widening the bridge over SR 315, the median was narrowed to create space for the shared-use path.

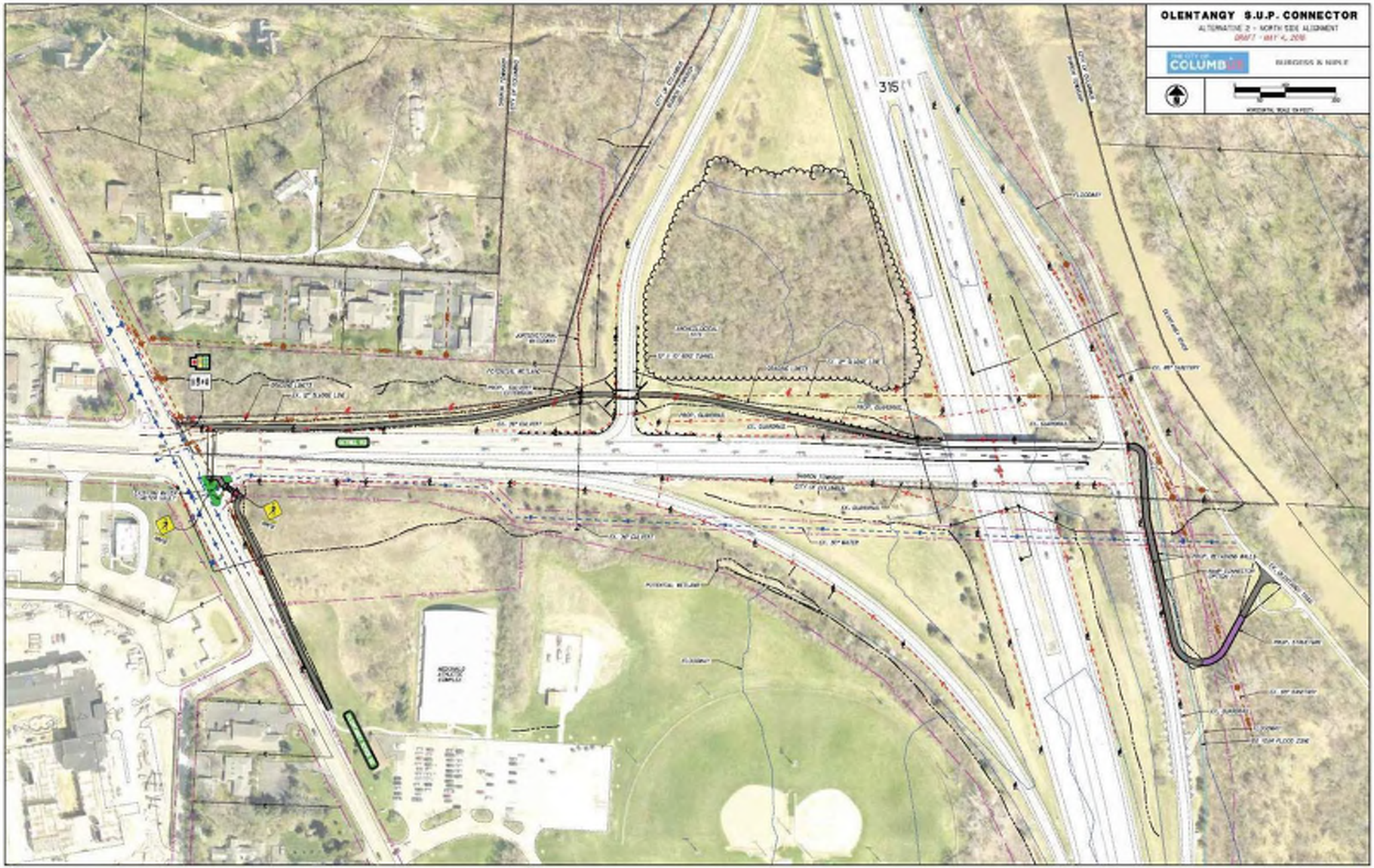
PHOTO 3: Rapid Rectangular Flashing Beacon
A Rapid Rectangular Flashing Beacon was added at the SR 315 southbound to Bethel Road off-ramp crossing for enhanced trail user visibility and safety in lieu of another tunnel.

PHOTO 4: Trail Connector
Utilizing the space between SR 315 and the SR 315 on-ramp allows trail users to safely avoid traffic while connecting to the existing trail.

PHOTO 5: Trail Widening
The 12-foot-wide trail now better accommodates both cyclists and pedestrians while combating congestion along the trail segment.



DRAWING 1: Alternative 1



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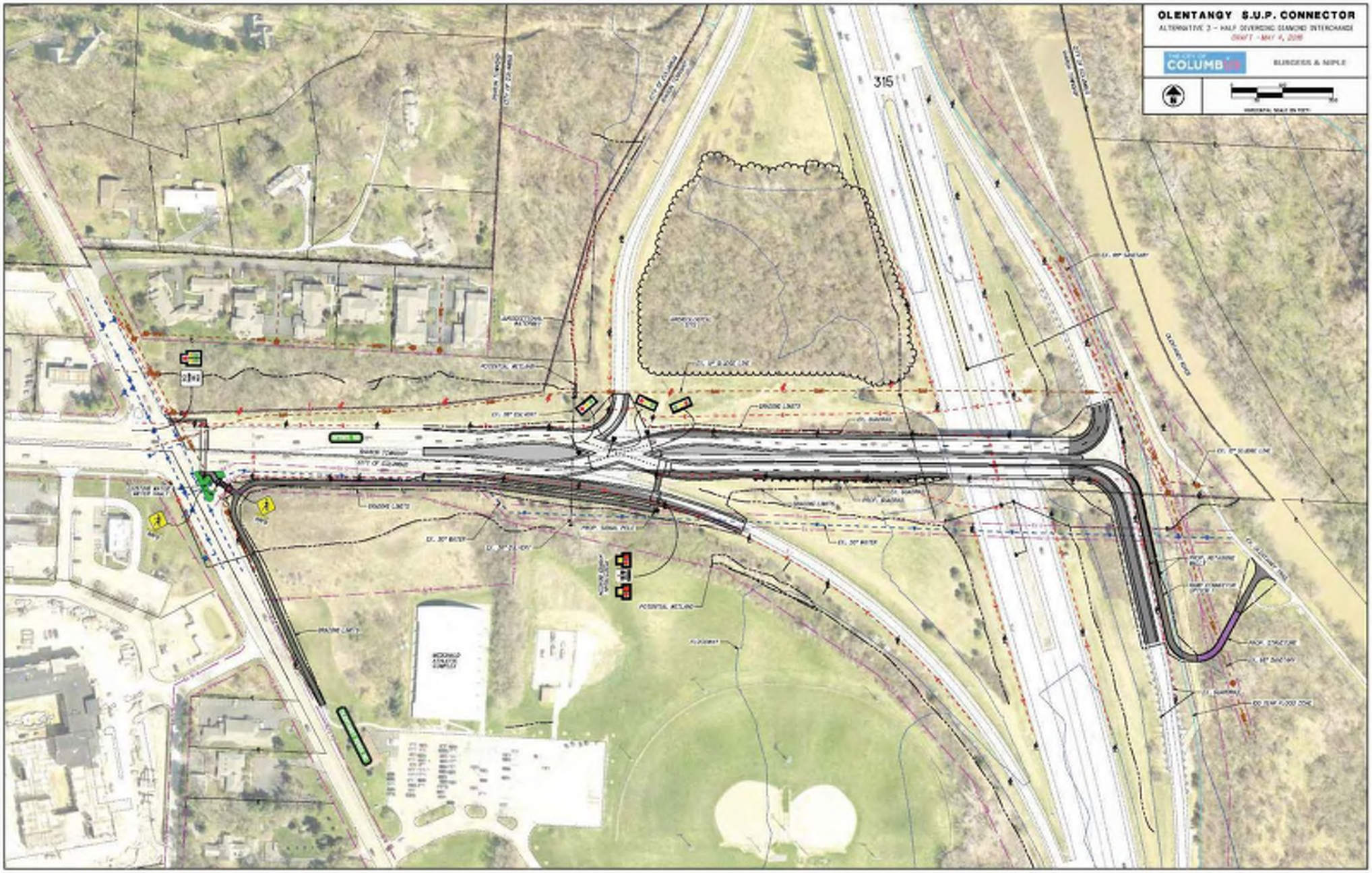
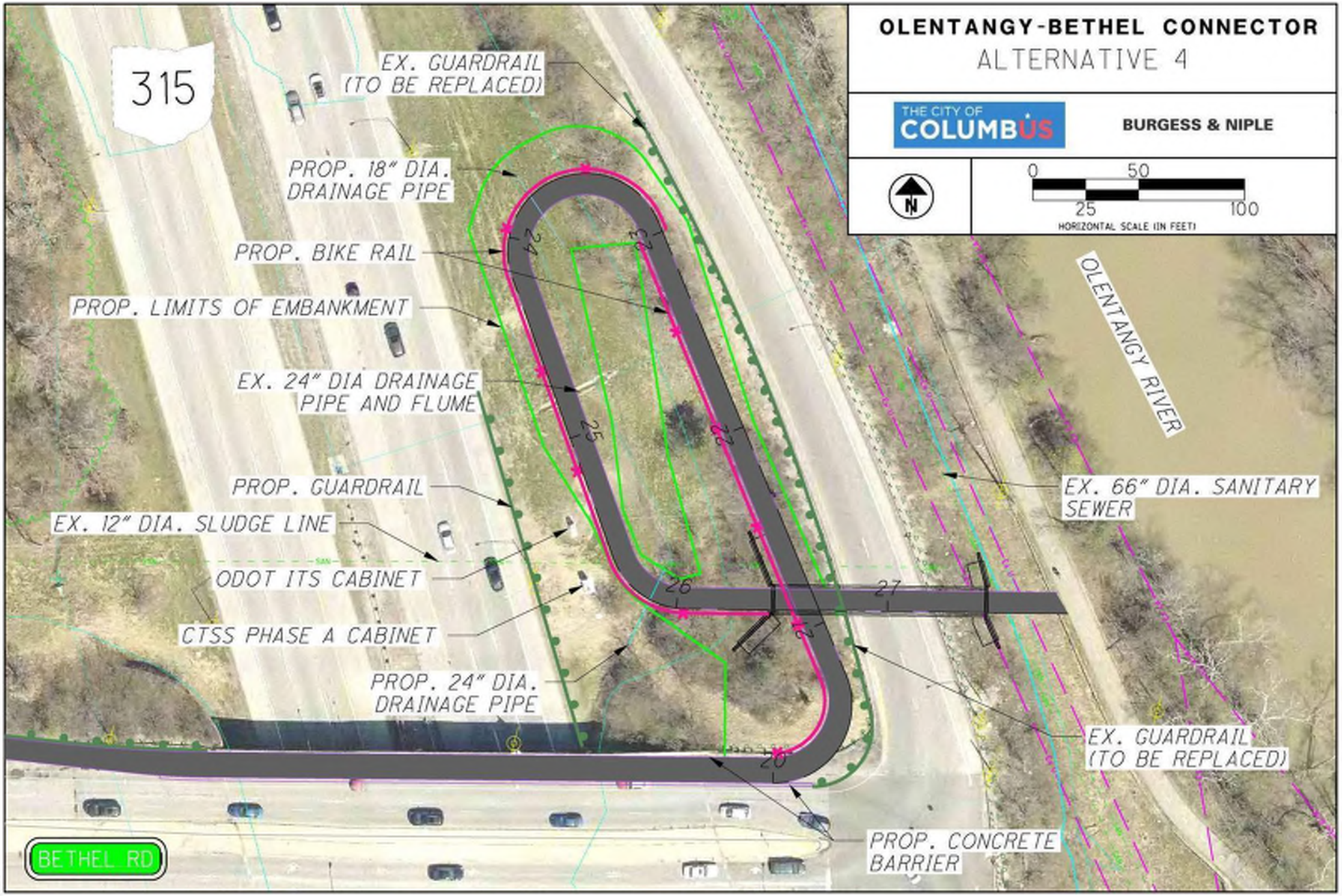


DRAWING 3: Alternative 3

DRAWING 4: Alternative 4



DRAWING 4: Alternative 4