

# North Liberty Ranshaw Way Underpass

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## Site Location

The underpass is located along Ranshaw Way, just north of Sara Ct. and south of Ashley Ct. This location allowed a safe tunnel crossing while traversing between the existing detention pond and building to the north. This also creates a connection to the new University of Iowa Hospital southeast of the Ranshaw Way and W. Forevergreen Road intersection. With development in the near future west of Ranshaw Way, the tunnel provides easy access for local residents.

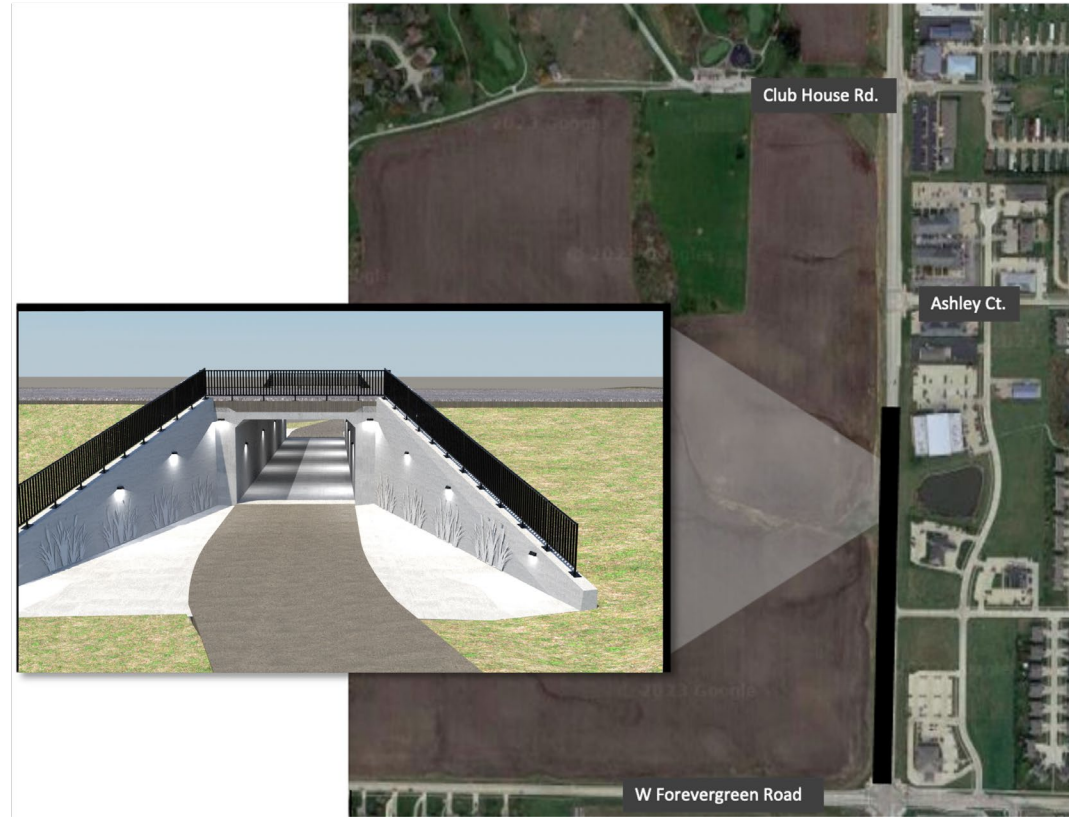


Figure 1: Location of underpass along Ranshaw Way.

## Underpass and Retaining Wall

The underpass is composed of 12' pre-cast sections and spans 113'. The tunnel opening is 9' tall and 14' wide with retaining walls 43' long. The tunnel allows for safe and convenient crossing below Ranshaw Way. The lighting was designed for safety and aesthetics. The retaining wall consists of four cast in-place concrete walls with handrails running along the top for the safety of pedestrians. A cattail aesthetic runs along the bottom of the walls.



Figure 2: Underpass rendering



Figure 3: Underpass rendering.



Figure 4: Retaining Wall and cattail aesthetics.

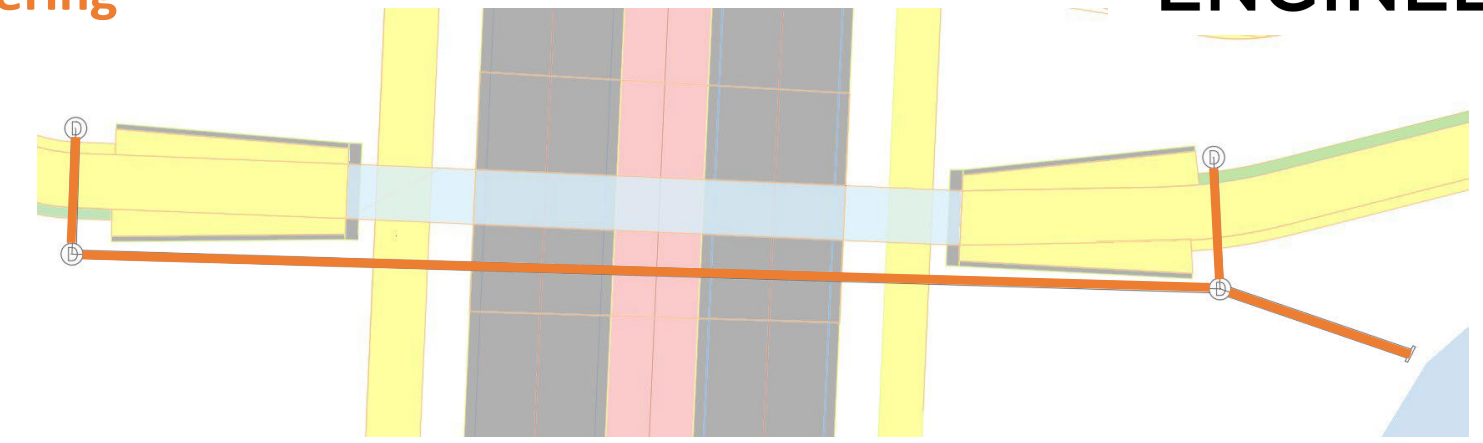


Figure 5: Storm Sewer Plan

## Storm Water Management

The site was designed to maintain the existing flow path, while channeling the storm water to the designed intakes, located on both sides of Ranshaw Way. The intakes and pipes convey the storm water from east to west and from north to south to the existing drainage pond. The storm sewer is sized to accommodate flow from the Ranshaw Way stormwater system north of the site

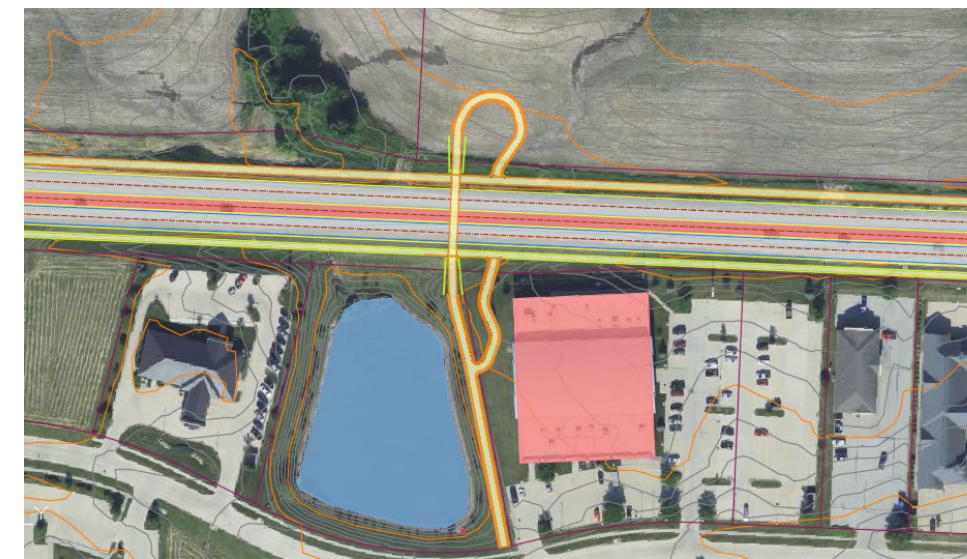


Figure 6: Overview of trail design.

## Recommendations and Cost Estimate

We recommend that the tunnel be built in conjunction with the road improvements to Ranshaw Way. These improvements include widening the road with a center median as well as adding a sidewalk parallel to the road on either side. This would minimize road closure by reducing construction time and allow for the roadway sidewalk to be built simultaneously, so no temporary sidewalks are necessary. The final construction cost for the North Liberty Ranshaw Way Underpass includes just the underpass and supporting trail system and is \$1,100,000.00.

## Trail Design

Our project includes a multi-use recreational trail that allows pedestrians to walk, run, or enjoy a bike ride on it. The total length of the system is 762'. The trail is 10' wide with 6" PCC pavement. The shoulders are 2' wide turf except in areas where there are railings. Concrete is used in those areas for ease of maintenance. There is 778' of railing to ensure pedestrian safety where steep slopes coming off the trail exist. The trail is designed to connect to the existing trail system located on the east, as well as connect to the proposed trails that run parallel to Ranshaw Way. The west portion of the trail is also intended to aid in future expansion as land development continues.

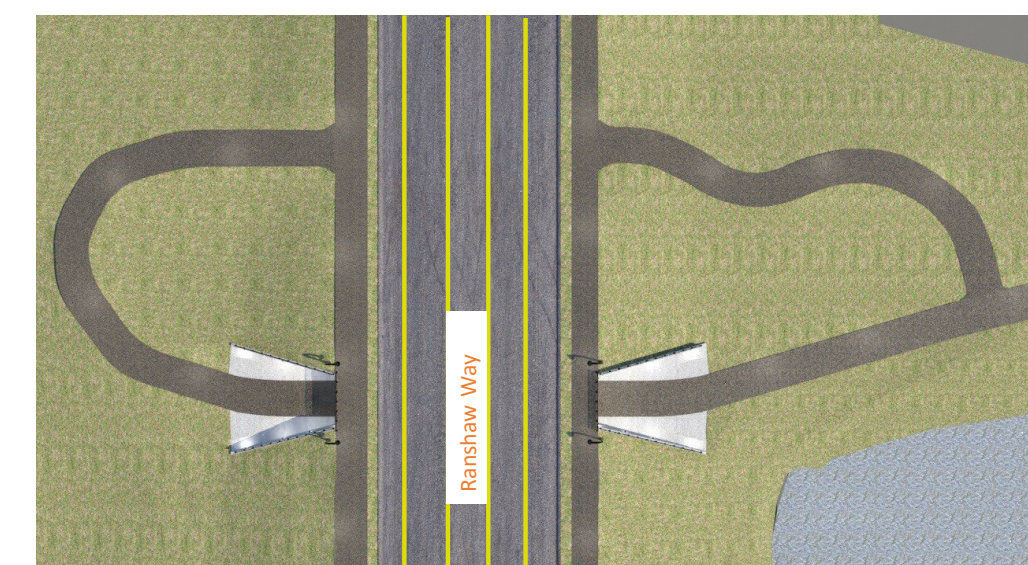


Figure 7: Rendering of trail design.