

# Chichaqua Valley Trail Redesign, Food Truck Park, & Lincoln St. Extension

Teddy Kaepfel, Jordan Utesch, Bradley Beadle, Jacob Peterson  
Civil & Environmental Engineering  
The University of Iowa

## Project Background

Four Civil Engineering students at the University of Iowa were tasked to redesign a trail by the City of Bondurant. The trail was redesigned in two locations - West Site and East Site. The West Site had agricultural services located near the downtown district that ceased operations. This has created a great opportunity for redevelopment. As part of this redevelopment, the West Site includes a plaza with the capability to hold community events, an arboretum, a trailhead parking lot, and an extension of Lincoln St. The East Site creates a new trail that reroutes away from Highway 65 and gives a more direct route. There is also a connection of the bike trail to the future civic campus. The East Site also requires removal and replacement of the bridge over Santiago Creek.



Figure 1. Rendering of the Proposed Plaza

## The Plaza

The plaza and the surrounding area are designed to be a versatile community space to accommodate a variety of events. There are areas for picnic tables and food trucks, along with parking that can serve the building or events. Also, a space has been set aside east of the building for a multi-purpose sports court.

## The Bridge

A new prefabricated bridge will replace the old railroad bridge at the East Site to accommodate pedestrians, bicyclists, and maintenance vehicles. This bridge will be a single span of 45 feet with a width of 14 feet. The decking is to be 6" thick concrete that will require less maintenance and improve traction for trail users. The bridge will be constructed with Corten steel to minimize maintenance.

EAST SITE



Figure 4. Rendering of the Proposed Bridge  
NE 78TH ST



Figure 3. Rendering of the Proposed Arboretum

## The Trail Arboretum

A collection of native Iowa trees will encase the new bike trail through the West Site to provide a scenic route of ornamental and overstory trees. It will create a park atmosphere around the plaza and allow for decorative lighting. The trees selected for this arboretum include White Oaks, Black Oaks, Sycamores, Shagbark Hickorys, Eastern Redbuds, and Prairie Crabapples.

Proposed Trail

Proposed Bridge

WEST SITE

Proposed Trail

PROPOSED LINCOLN ST

EXISTING MAIN ST

PROPOSED FOOD TRUCK PARK, PLAZA, & BUSINESS PARKING

PROPOSED TRAILHEAD PARKING

FUTURE CIVIC CAMPUS

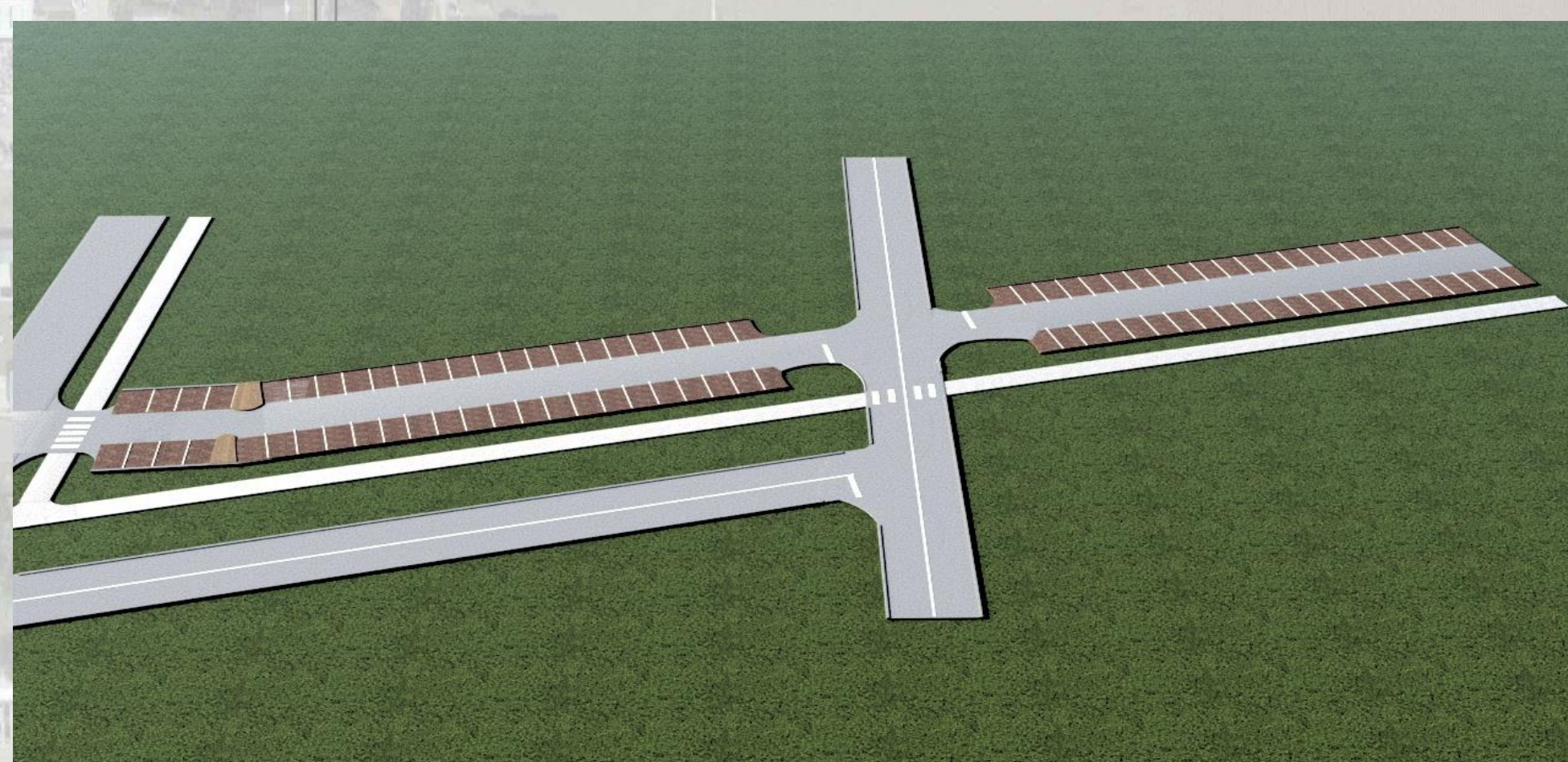


Figure 2. Rendering of Proposed Trailhead Parking

## The Trailhead Parking

Trailhead parking adds more parking for pedestrians and bicyclists to use the Chichaqua Valley Trail. The western parking has 48 parking spaces, and the eastern parking has 43 parking spaces.

## Construction Cost Estimate

The estimated cost of the project will be as follows:  
(all unit prices include product and installation costs)

Preliminary Opinion of Probable Cost	
Chichaqua Valley Trail Redesign, Food Truck Park, & Lincoln St Extension	
Bondurant, Iowa	
WEST SITE	
ROAD PAVING	\$ 500,000.00
BIKE TRAIL PAVING	\$ 458,000.00
PARKING LOT	\$ 678,000.00
STORM SEWER SYSTEM	\$ 118,000.00
ARBORETUM COST	\$ 20,000.00
10% CONTINGENCY (WEST SITE)	\$ 177,000.00
<b>WEST SITE SUBTOTAL</b>	<b>\$1,951,000.00</b>
EAST SITE	
BIKE TRAIL PAVING	\$ 394,000.00
BRIDGE & ABUTMENTS	\$ 391,000.00
STORM SYSTEM	\$ 11,000.00
10% CONTINGENCY (EAST SITE)	\$ 80,000.00
<b>EAST SITE SUBTOTAL</b>	<b>\$ 876,000.00</b>
<b>TOTAL PROJECT COST</b>	<b>\$2,827,000.00</b>