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# University Avenue Reconstruction, Waterloo

2022 Municipal Streets Seminar  
November 15, 2022

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AECOM Senior Project Manager



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# Agenda


- Corridor History
- Project Goals & Overview
- Design Alternatives
- Construction
- Enhancements
- Public Engagement
- Funding & Economic Benefits
- Project Awards & Ribbon Cutting




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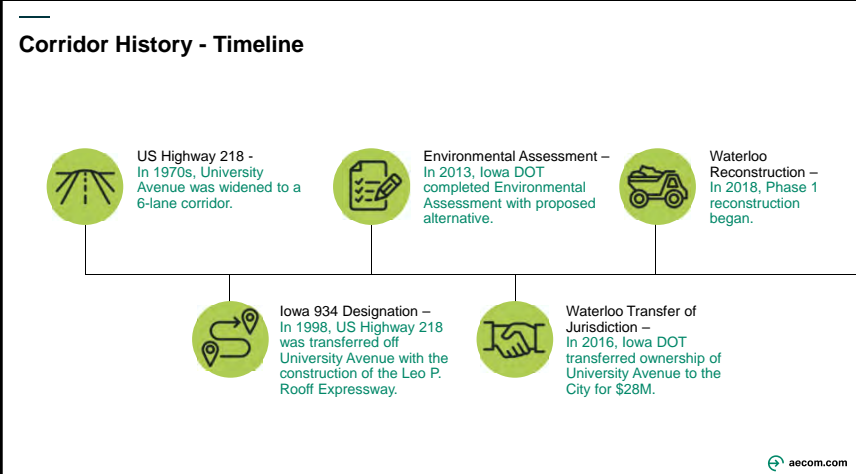
# Corridor History


- Transfer of Jurisdiction
- Historic Photos
- Hanna Family Monument


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### Corridor History - Timeline




- 


**US Highway 218 -**  
In 1970s, University Avenue was widened to a 6-lane corridor.
- 

**Environmental Assessment -**  
In 2013, Iowa DOT completed Environmental Assessment with proposed alternative.
- 

**Waterloo Reconstruction -**  
In 2018, Phase 1 reconstruction began.
- 

**Iowa 934 Designation -**  
In 1998, US Highway 218 was transferred off University Avenue with the construction of the Leo P. Roof Expressway.
- 

**Waterloo Transfer of Jurisdiction -**  
In 2016, Iowa DOT transferred ownership of University Avenue to the City for \$28M.

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**Corridor History - Timeline**



**Corridor History – Hanna Family Monument**

The Hanna Family was the first to make Waterloo their permanent home. They built a log cabin near present day University Avenue. This history is marked with a Prairie Pathways Kiosk along the new recreational trail.



# Project Goals & Overview

- Goals
- Overview
- Phase Limits

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**Project Goals**

- Reconstruct University Avenue.
- Optimize corridor operations to move people across and through the area safely and efficiently.
- Develop a Complete Street corridor that is functional and appealing for non-motorists and motorists alike.
  - Road diet – Create space for all users.
  - Met Transit accommodations – Bus stops and turn-outs.
- Provide opportunities for aesthetic enhancements.
- Support growth and revitalization.




**Project Overview**



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**Project Overview – Phase 2 (West)**



University Avenue - Midway Drive (West City Limits) to Greenhill Road

**Project Overview – Phase 1 (Middle)**



University Avenue - Greenhill Road to Ansborough Avenue

**Project Overview – Phase 3 (East)**



University Avenue - Ansborough Avenue to US Highway 62

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# Design Alternatives

Typical Cross Section  
Intersection Analysis & Impact Review  
Speed  
Enhancement

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## Design Alternatives – Typical Cross Section


- Typical 4-Lane Cross Section - Replaced 6-Lane
- Met the current and projected traffic volumes. (Traffic volumes ranged from 7,000 to 22,000 veh/day.)
- Created space for complete street and streetscape improvements.
- Reduced ROW acquisition
- Reduced cost for construction, operations, and maintenance for the facility.
- Bus Turnouts and Bus Stops :
  - North Star Community Services
  - Exceptional Persons, Inc.
  - Falls Avenue – Existing Bus Shelters
  - Ansborough Avenue



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## Design Alternatives – Typical Cross Section


- 5-Lane Typical Cross-Section:
  - Two-Way-Left-Turn-Lane (TWLTL).
  - Operates well with low design speeds and high driveway densities.
  - Increases business access.
  - Potential of increasing number of crashes.



4:1 Max ...

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## Design Alternatives – Evaluation



5-Lane Typical Cross Section Alternative Review Exhibit

Roundabout Alternative Review Exhibit

### Design Alternatives – Speed

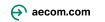
- Existing corridor had below-average crash rates at 45 mph.
  - University Avenue 258/HMVMT
  - Statewide City Street Average 453/HMVMT
- With the proposed 5-lane typical cross section and direct access, University Avenue from Midway Drive to Tunis Drive would benefit from slower speeds. This also provided a logical transition to Cedar Falls.
- University Avenue from Tunis Drive to Highway 63 has controlled access and frontage roads for the majority of this section.
- Recommendation
  - University Avenue from Midway Drive to Tunis Drive is recommended to have a posted speed limit of 35 mph.
  - University Avenue from Tunis Drive to Highway 63 is recommended to have a posted speed limit of 45 mph.



### Design Alternatives – Intersection Evaluation

	Level of Service/Delay		ROW Impact		Access Impact	
	Signals	Roundabout	Signals	Roundabout	Signals	Roundabout
Midway Drive	B/10.2	B/12.7	Minimal	Severe	None	Severe
Progress Drive	C/26.5	C/23.7	Minimal	Severe	None	Minimal
Tunis Drive	B/13.2	C/17.0	Minimal	Severe	None	Moderate
Greenhill West Ramp	N/A	B/11.5	Minimal	Minimal	None	Improved
Greenhill East Ramp	N/A	B/11.3	Minimal	Severe	None	Moderate
Casey's/Becks	A/6.0	C/15.3	Minimal	Severe	None	Severe
Falls Avenue	B/16.7	C/21.1	Minimal	Severe	None	Severe
Sager Avenue	A/7.3	B/12.0	Minimal	Minimal	None	Severe
Ansborough Avenue	C/36.9	C/23.4*	Minimal	Moderate	None	Minimal
Fletcher Avenue	B/19.7	C/16.6	Minimal	Minimal	None	None

Source: 2011 Traffic Study \*Required a 3-lane roundabout.

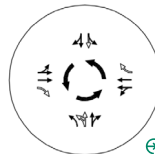


### Design Alternatives – Intersection Evaluation



- Due to substantial ROW impacts for Progress Drive, a roundabout was not recommended.
- Ansborough Avenue would have required a 3-lane roundabout due to large volume of left-turn traffic. At this time, Waterloo did not have a multilane roundabout, and a 3-lane roundabout was not recommended.

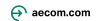
Ansborough Avenue & University Avenue



### Design Alternatives – Intersection Evaluation



- Fletcher Avenue had a higher-than-average crash rate, so a roundabout was recommended as a safety improvement.
  - Minimal ROW Impacts
  - Minimal Access Impacts
  - Crash Rate Reduction of 64%



**Design Alternatives – Intersection Evaluation**

- Recommendation:
  - The intersection design recommendation for University Avenue (with the exception of Fletcher Avenue) was the coordinated traffic signal alternative. The traffic signal system constructed is an adaptive system and connected to Waterloo’s Traffic Management Center.
- Coordinated Traffic Signals
  - Lower Overall Costs
  - Reduction in Overall Travel Time and Delay
  - Reduced Fuel Consumption and Air Pollution
  - Less Impact on Adjacent Businesses



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**Design Alternatives – Enhancements**

- Public Engagement was utilized for the selection of the various enhancements.
  - Colored and Textured Concrete
  - Street Trees
  - Plantings
  - Backlit Street Names on Mast Arms
  - Intersection Markers
  - Gateway Features
  - Bridge Monuments
  - Bridge Railing Enhancements



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**Design Alternatives – Enhancements**



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**Design Alternatives – Enhancements**



Design Alternatives – Enhancements



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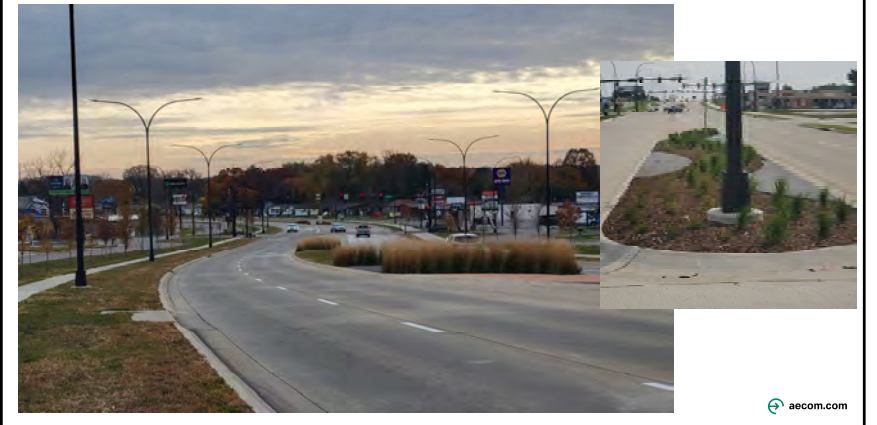
Design Alternatives – Enhancements



Design Alternatives – Enhancements

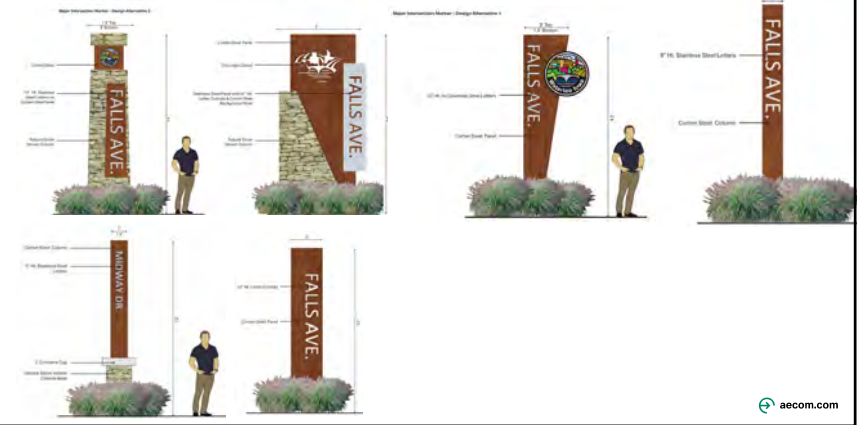


Design Alternatives – Enhancements Median Plantings



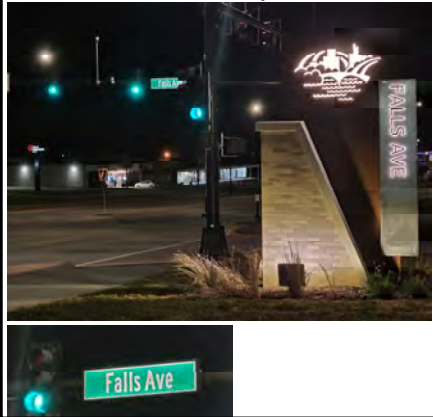
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### Design Alternatives – Enhancements



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### Design Alternatives – Enhancements Selected Intersection Marker & Gateway Features

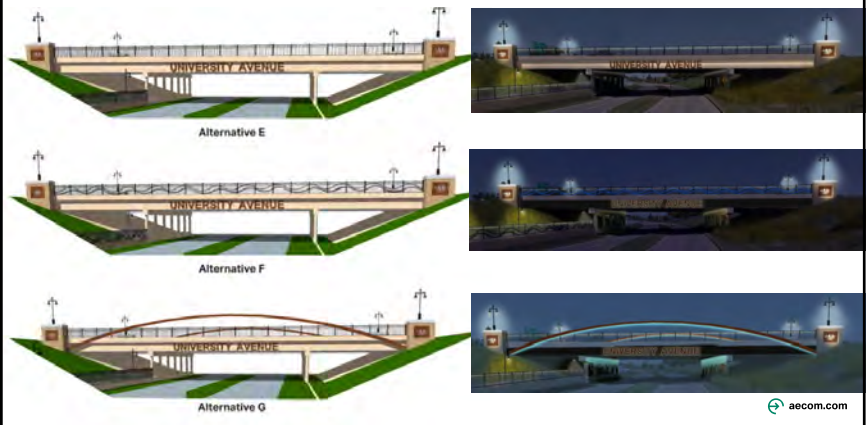


### Design Alternatives – Enhancements



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### Design Alternatives – Enhancements



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Design Alternatives – Enhancements

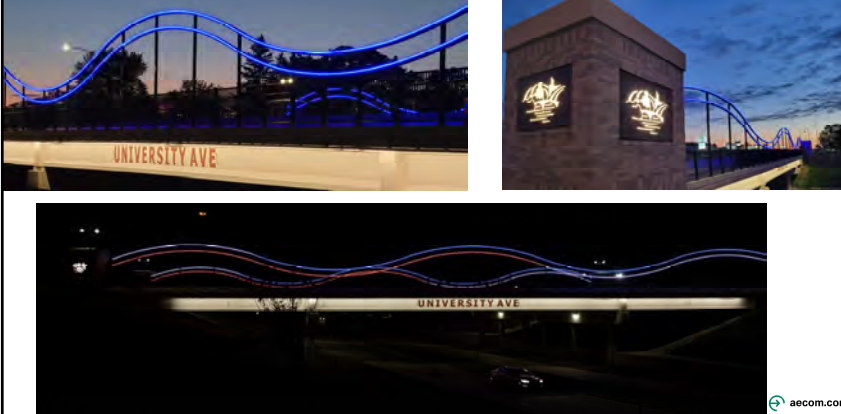


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Design Alternatives – Enhancements Selected University Bridge at Greenhill



Design Alternatives – Enhancements Selected University Bridge at Greenhill



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Design Alternatives – Enhancements Selected University Bridge at Greenhill



Design Alternatives – Enhancements Selected University Bridge at Greenhill



Design Alternatives – Enhancements Selected University Bridge at Greenhill



Design Alternatives – Enhancements



Design Alternatives – Enhancements Selected Fletcher Roundabout



**Design Alternatives – Enhancements Selected Pedestrian Box Culvert and Trail Head**



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# Construction

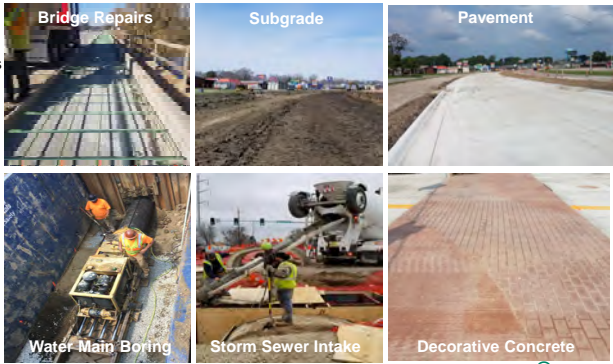
- Construction Overview
- Traffic Control and Staging Plan
- Wettest Year
- Flooding
- Utility Coordination

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**Construction Overview**

- Pavement
- Intersections
- Met Transit / Pedestrian / Bicyclist Accommodations
- Enhancements
- Storm Sewer
- Sanitary Sewer
- Water Main
- 3 Bridge Repairs & Modifications and 1 Demolition
- Streetlights
- Utility Relocations and Coordination
- Contaminated Soils
- Levee & Floodgates



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**Construction – Stampable Overlay on Existing Retaining Wall**



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**Construction – Traffic Control and Staging Plan Complexities**

- Sustainable/Recycling
- Increase Safety by Reducing Truck Traffic



Crushing Pile

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**Construction – Traffic Control & Staging Complexities**

- Phases 1 and 2
  - Head-to-Head Traffic
  - Maintained Access to Adjacent Properties/Businesses
  - Tight ROW
  - Maintained Utilities
    - Storm Sewer
    - Sanitary Sewer
    - Water Main

The best staging plans maximize contractor work zone while minimizing impacts to property owners and public.



Phase 2 – Storm Sewer Construction

**Construction – Traffic Control and Staging Plan Complexities**



Ansborough Ave – Quarter Intersection Staging Plan and 68x106" RCP Storm Sewer Modifications



Midway Ave - Half Intersection Staging Plan

**Construction – Traffic Control and Staging Plan Complexities**

- Phasing coordination when multiple stages and phases were under construction.
- Coordination with multiple jurisdictions.
- Coordination with public and adjacent businesses on traffic changes.

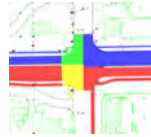


Phases 1 and 2 – Weekly Traffic Update Posted to Facebook and E-mailed to Stakeholders

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**Construction – Traffic Control & Staging Plan Complexities**

Phase 2 – Staging Plan



Phase 1 – Ansborough Ave Staging Plan

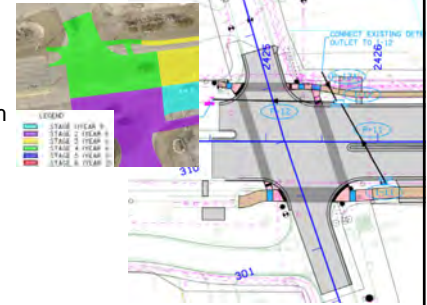
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**Construction – Traffic Control and Staging Plan Complexities**

Phase 2 – Storm Sewer Staging Plan and Notes

The throat of 1-11 shall be blocked allowing flow to bypass the intake during stages 1 and 2.

- Storm Sewer Construction
  - Complex staging plan required the intake to be constructed with no outlet.
  - Staging plan also required new storm sewer system to be installed at a lower elevation than the existing outlet, and temporary connections required head pressure to drain the new system until the outlet could be constructed.

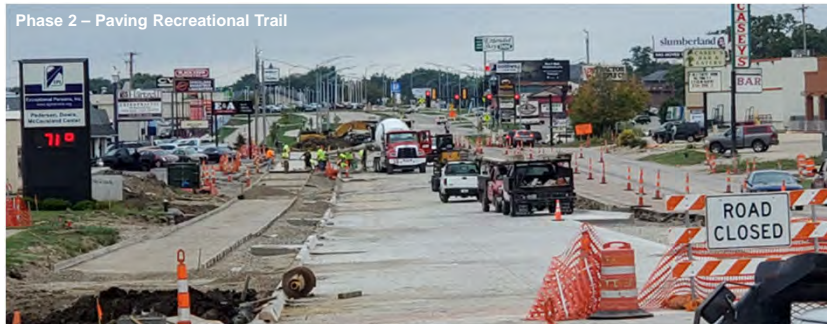


\*These do not work in sump locations where the overflow is not adequate or over winter.

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**Construction – Traffic Control and Staging Plan Complexities**

Phase 2 – Paving Recreational Trail



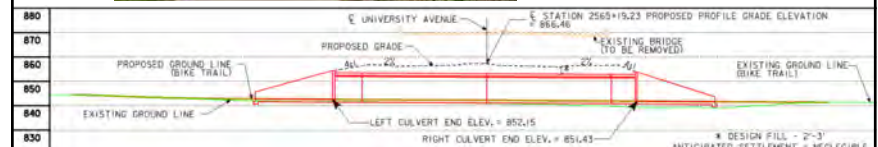
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**Construction – Traffic Control and Staging Plan Complexities**

Bridge Demolition



Pedestrian Box Culvert



### Construction – Wettest Year



### Construction – Flooding



Fletcher Floodgate and Bridge Repair during Black Hawk Creek Flooding

### Construction – Utility Coordination



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# Public Engagement

- Public Engagement Benefits
- Public Information Meetings
- Stakeholder Groups
- Public Engagement Tools

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**Public Engagement Benefits**

- Public concern with accessibility during construction for individuals with disabilities.
- Maintaining access for adjacent property owners during construction.
- Minimizing ROW impacts and acquisitions.
- Support for enhancements to assist with revitalization of the corridor.
- Public understanding and buy-in on the corridor.



University Avenue Median Looking Towards Falls Avenue



**Public Engagement**

Public Information Meetings, City Council Work Sessions and Public Hearings

- Gather Feedback
  - Existing Issues
  - Project Goals
  - Design Review Comments
  - Enhancement Alternatives
- Inform
  - Design Progression
  - Project Schedule
  - ROW Acquisition
  - Construction Progress



**Public Engagement**

Stakeholder Groups

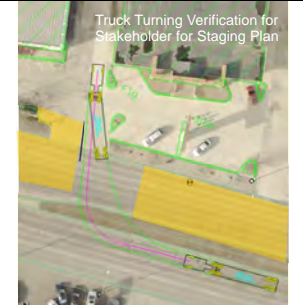
- Various Corridor Businesses
  - Fast Food – McDonalds and Burger King
  - Gas Stations – Hy-Vee and Casey's
  - Non-Profits – YMCA and EPI
  - Stores – Tractor Supply
- Residential Property Owners
- Council Members
- KWWL News and Courier
- Complete Streets Advisory Committee
- City of Cedar Falls



**Public Engagement**

Stakeholder Meetings

- Small Group Meetings
- Preconstruction Meeting for Each Phase
- Individual One-on-One Meetings
- Periodic Scheduled and Unscheduled Construction Site Visits
- E-mail Weekly Construction Updates



**Public Engagement Tools**

- Renderings
  - Typical Cross Section
  - Bird's Eye
  - Street View
  - Mockups of Alternatives
- Drone Videos
- Facebook.com/UniversityAveWaterloo/
- City Website
- Project E-mail: [university.avenue@waterloo-ia.org](mailto:university.avenue@waterloo-ia.org)
- Postcard Notices and Letters



**Public Engagement Tools**



## Funding & Economic Benefits

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**Funding**

Funding Sources for the \$38M Project Included:

- Transfer of Jurisdiction (TOJ) Funding (+Interest) - +\$28M
- Black Hawk County Gaming Association Grant - \$750K
- City of Waterloo
  - Sanitary Sewer Funding
  - Local Option Sales Tax
  - Storm Water Funds
  - Bond Funds
- Waterloo Water Works



**WATERLOO WATER WORKS**

BLACK HAWK COUNTY  
**GAMING ASSOCIATION**  
HELPING THE CEDAR VALLEY PROSPER

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**Economic Benefits**

- Redevelopment Sites
  - Papa John's and Family Dollar
  - Tommy's Car Wash
- New Developable Sites (12 acres)
  - Tax Increment Financing (TIF) District



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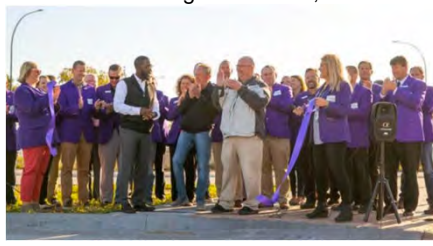
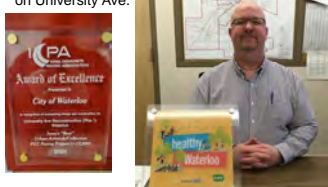


# Project Awards & Ribbon Cutting

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**Project Awards & Ribbon Cutting**

- Iowa Concrete Paving Association
  - 2020 Portland Cement Concrete Paving Award
  - 2021 Portland Cement Concrete Paving Award
- 2021 Healthy Hometown Powered by Wellmark Community Award
  - The award recognizes Waterloo for its accomplishments in health improvement initiatives within the community, including the added trails on University Ave.
- Ribbon Cutting October 20, 2021



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# Thank you.

University Avenue Reconstruction,  
Waterloo, Iowa

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