University Avenue Reconstruction, Waterloo
2022 Municipal Streets Seminar
November 15, 2022
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AECOM Senior Project Manager

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

Corridor History
Transfer of Jurisdiction
Historic Photos
Hanna Family Monument

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

Iowa 934 Designation – In 1998, US Highway 218 was transferred off University Avenue with the construction of the Leo P. Rooff Expressway.
Corridor History – Timeline

Waterloo Greenhill Road Aerial Photo 1970

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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Delivering a better world

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

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
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.

Design Alternatives – Evaluation

- 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
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

<table>
<thead>
<tr>
<th>Level of Service/Delay</th>
<th>ROW Impact</th>
<th>Access Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midway Drive</td>
<td>B/10.2</td>
<td>B/12.7</td>
</tr>
<tr>
<td>Progress Drive</td>
<td>C/26.4</td>
<td>C/17.0</td>
</tr>
<tr>
<td>Tunis Drive</td>
<td>B/18.7</td>
<td>C/17.0</td>
</tr>
<tr>
<td>Greenhill West Ramp</td>
<td>N/A</td>
<td>B/11.5</td>
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<tr>
<td>Greenhill East Ramp</td>
<td>N/A</td>
<td>B/11.3</td>
</tr>
<tr>
<td>Casey/Blocks</td>
<td>A/7.0</td>
<td>C/15.3</td>
</tr>
<tr>
<td>Folks Avenue</td>
<td>B/18.7</td>
<td>C/21.1</td>
</tr>
<tr>
<td>Sager Avenue</td>
<td>A/7.2</td>
<td>B/12.0</td>
</tr>
<tr>
<td>Ansbrough Avenue</td>
<td>C/26.9</td>
<td>C/23.4*</td>
</tr>
<tr>
<td>Fletcher Avenue</td>
<td>B/18.7</td>
<td>C/18.6</td>
</tr>
</tbody>
</table>

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.

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

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
Design Alternatives – Enhancements

Design Alternatives – Enhancements

Design Alternatives – Enhancements

Design Alternatives – Enhancements Median Plantings
Design Alternatives – Enhancements

Design Alternatives – Enhancements Selected University Bridge at Greenhill
Design Alternatives – Enhancements Selected Pedestrian Box Culvert and Trail Head

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

Construction – Stampable Overlay on Existing Retaining Wall
Construction – Traffic Control and Staging Plan Complexities

- Sustainable/Recycling
- Increase Safety by Reducing Truck Traffic

Crushing Pile

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

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.

Axsborough Ave – Quarter Intersection Staging Plan and 68x106” RCP Storm Sewer Modifications

Midway Ave - Half Intersection Staging Plan

Phases 1 and 2 – Weekly Traffic Update Posted to Facebook and E-mailed to Stakeholders
Construction – Traffic Control & Staging Plan Complexities

Phase 1 – Ansborough Ave Staging Plan

Phase 2 – Storm Sewer Staging Plan and Notes

- 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.

Construction – Traffic Control and Staging Plan Complexities

Phase 2 – Paving Recreational Trail

Construction – Traffic Control and Staging Plan Complexities

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Construction – Traffic Control and Staging Plan Complexities

Phase 2 – Paving Recreational Trail

Construction – Traffic Control and Staging Plan Complexities

Bridge Demolition

Pedestrian Box Culvert
**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.

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**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

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**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

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**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@waterloois.org
- Postcard Notices and Letters

Funding & Economic Benefits

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
Economic Benefits

- Redevelopment Sites
  - Papa John’s and Family Dollar
  - Tommy’s Car Wash

- New Developable Sites (12 acres)
- Tax Increment Financing (TIF) District

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

Thank you.

University Avenue Reconstruction, Waterloo, Iowa

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