


# Iowa 58/Viking Road Interchange Design & Construction

2021 ACEC-IA + Iowa DOT + FHWA  
Iowa Transportation Conference

Nick Humpal — Iowa DOT and Michelle Sweeney — AECOM

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# Agenda

- Corridor Development
- Traffic & Safety
- Initial Improvements
- Project Development
- Final Design & Construction

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# Corridor Development

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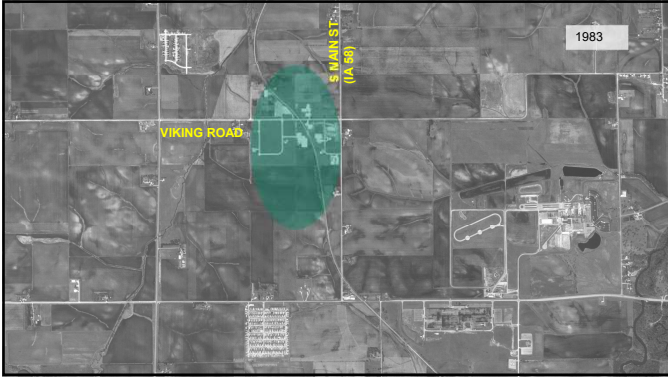
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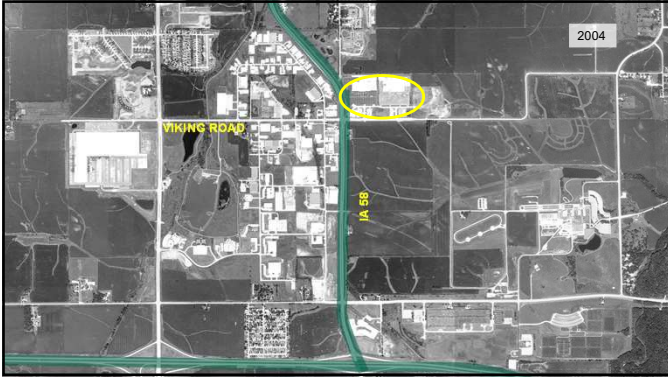
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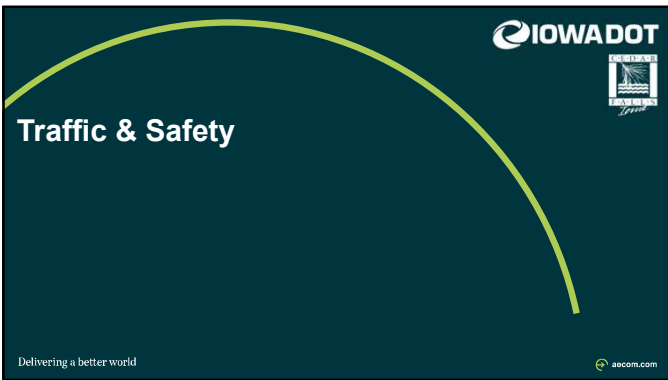
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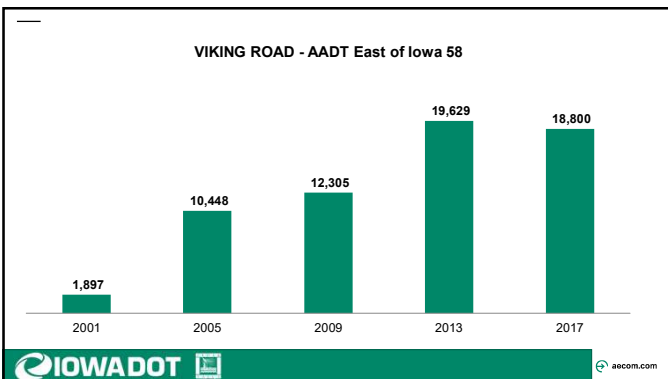
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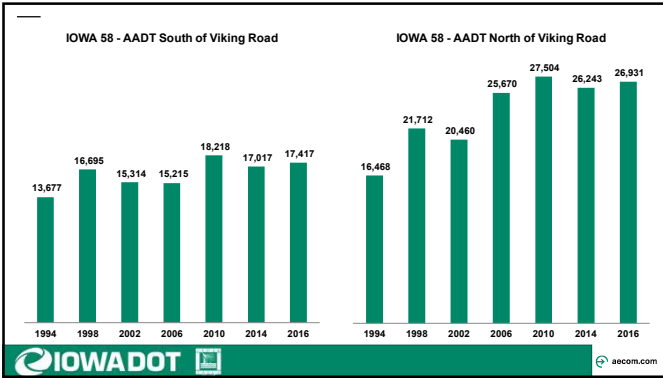
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### Another Cedar Falls 58/Viking crash injures two

CEDAR FALLS — Two people were injured in a three-vehicle accident at Iowa Highway 58 and East Viking Road Thursday afternoon, the Iowa State Patrol reported.

Transported to UnityPoint Health Allen Hospital in Waterloo with what were believed to be non-life-threatening injuries were one of the drivers, Jerry Hanson, 71, of Waterloo, and his passenger, Sheila Dall, 74, of Dike.

According to the State Patrol, their SUV was northbound on Highway 58 and stopped in traffic when their vehicle was rear-ended by a straight truck driven by Joseph J. of Elk Run Heights, which dove the Hanson vehicle into a pickup truck driven by James Flatt, 86, of Cedar Falls.

State troopers were assisted at the scene by Cedar Falls police and firefighters.

The semi-trailer was heading northbound on Highway 58 and hit the car at the Viking Road intersection at about 4:30 p.m.

### Mayor Crews injured in Highway 58 crash

CEDAR FALLS — A female driver was killed Monday afternoon after being struck by an 18-wheeler at the intersection of Highway 58 and Viking Road in Cedar Falls.

The victim was from Cedar Rapids and was pronounced dead at the scene, according to Cedar Falls police. Her name has not been released.

Cedar Falls Police would like to caution motorists to drive with care and be prepared to stop for other motorists stopped on the roadway at any "log up time." Crews as been instructed to stay vigilant.

Southbound traffic heading at the Viking Road intersection is frequently backed up by the hundreds of feet beyond the turn lane making more motorists by expect when they find traffic stopped in their lane. This concern particularly occur on Friday, Saturday, and Sunday when traffic is heavier than other days.

Motorists should consider taking alternative routes such as Hudson Road or Cedar Heights Drive if possible.

### Police chief: Be prepared to stop on Highway 58

Police Chief Jan Owsen said that during the holiday season, motorists should be prepared to stop on Highway 58. He said that the volume of traffic is heavy and that motorists should be prepared to stop on the highway at any time.

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### Crash Statistics

- 2008-2017
- 163 Crashes
- 2 Fatalities
- 5 Major Injuries
- 17 Minor Injuries

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### Crash History

SICL No.	City	County	SICL Intersections Locations
1	Ankeny	Polk	US 69/S ANKENY BLVD/N ANKENY BLVD & W 1ST ST & E 1ST ST
2	Council Bluffs	Pottawattamie	I-29 & IA 192/S EXPRESSWAY & 30TH AVE
3	Sioux City	Woodbury	W 7TH ST & HAMILTON BLVD
4	Des Moines	Polk	DAY ST & 6TH AVE
5	Cedar Falls	Black Hawk	IA 27/IOWA 59 & VIKING RD
6		Jasper	US 65/W US 65 N & IA 117/IOWA 117 N & IA 330/IOWA 330 N
7	Des Moines	Polk	IA 163/E UNIVERSITY AVE & E 30TH ST
8	Ankeny	Polk	US 69/S ANKENY BLVD & SE MAGAZINE RD & ISU EXPERIM FARM
9	Burlington	Des Moines	US 61 & WEST AVE
10	Ankeny	Polk	US 69/S ANKENY BLVD & SW 3RD ST & SE 3RD ST




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8	Ankeny	Polk	US 69/S ANKENY BLVD & SE MAGAZINE RD & ISU EXPERIM FARM
54	Cedar Falls	Black Hawk	IA 27/IOWA 59 & GREEN HILL RD
66	Cedar Falls	Black Hawk	IA 27/IOWA 59 & W RIDGEWAY AVE




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### Congestion

- Delays of > 60 sec/veh
- Turning traffic extended beyond turn lanes
- Traffic waited through several cycles
  - Particularly during Christmas shopping season.
- Congestion between intersections on Viking Road




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**Initial Improvements**

- City required widening, turn-lanes with each development
- Added signals at Andrea Drive (Target Entrance)
- Several Traffic Studies
- Signal Timing/Coordination Plans

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**IOWADOT**

**Project Development**

- 2008 Interchange Study
- Long-Term Planning
- Iowa 58 Corridor Study - Preferred Alternatives
  - U.S. 20
  - Ridgeway
  - Greenhill Road
  - Viking Road

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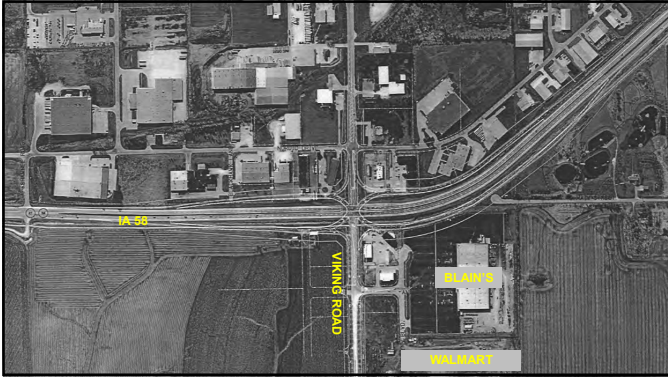
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**2008 Interchange Study**

- Proposed Interim Improvements
  - Double Left-Turn Lanes
  - Lengthen Turn Lanes
  - Signal Improvements
- Planned for construction in approximately 2014.
- > \$3 Million and 2 years to construct
- Still at LOS E/F by 2017




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**Long-Term Planning**

- DOT initiated study for the entire Iowa 58 Corridor from U.S. 20 to Greenhill Road
- Viking Road was worst, but Ridgeway and Greenhill not far behind
- Concern that fixing one problem may make the problems at the other locations worse
- Comprehensive plan was needed




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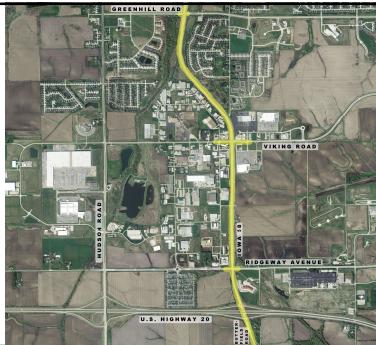
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**Iowa 58 Corridor Study from U.S. 20 to Greenhill Road**




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**Iowa 58 Corridor Study**

- Environmental Assessment and Location Study
- Partnership Between IDOT, Cedar Falls and INRCOG
- Interchange Evaluations
- Environmental Review
- Public Involvement
- Noise Issues




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**Purpose and Need Statement**

“The purpose of the Iowa 58/Viking Road Corridor improvement project is to **increase safety** for vehicles, pedestrians and bicyclists, to **improve the flow** of traffic and to **provide adequate capacity** to accommodate future traffic growth in the corridor.”



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**Other Criteria**

- Minimization of ROW impacts
- Aesthetics
- Maintain Traffic
- Cost



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**Alternatives Considered**

- No-Build Option
- Ridgeway/U.S. 20 – 10 Initial Alternatives
- Viking Road – 8 Initial Alternatives
  - (with additional over/under evaluations)
- Greenhill Road – 2 Initial Alternatives



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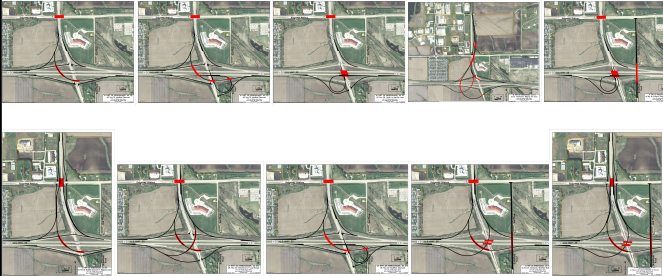
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### Ridgeway/U.S. 20 Initial Alternatives



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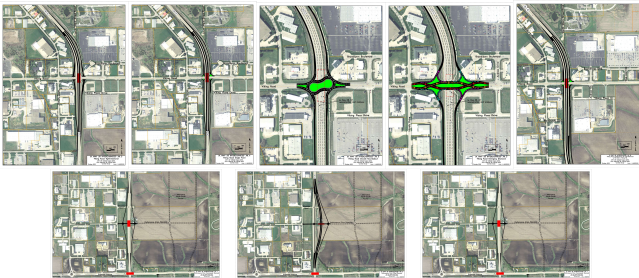
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### Viking Road Initial Alternatives



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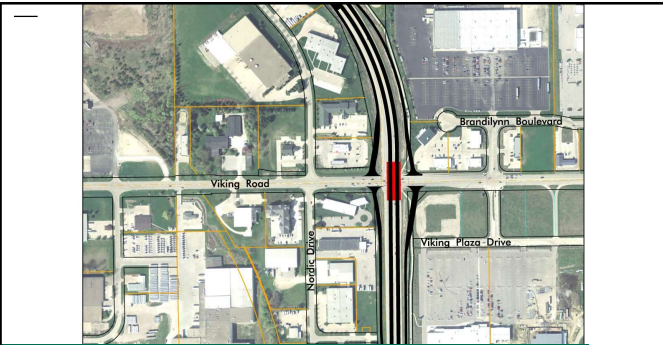
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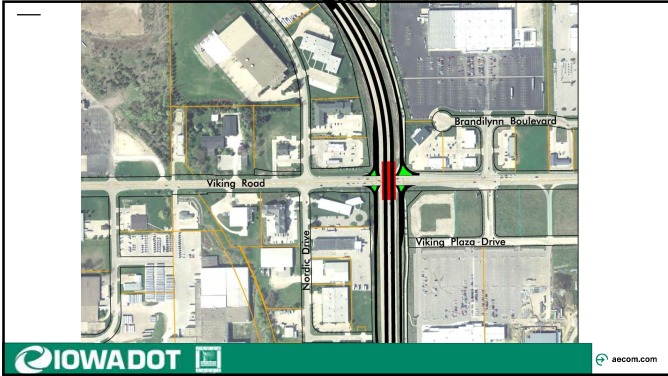
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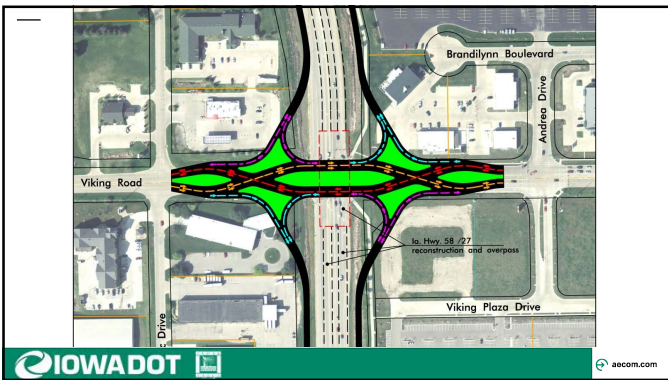
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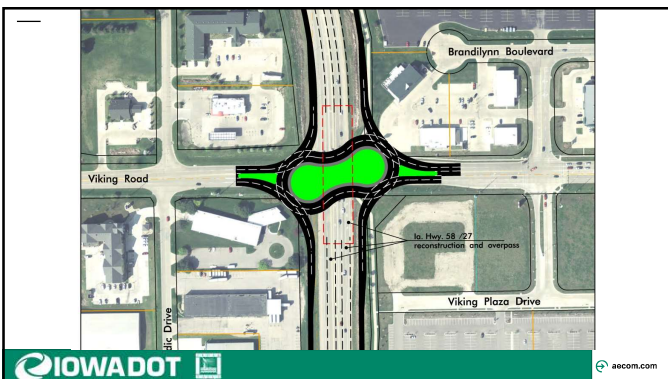
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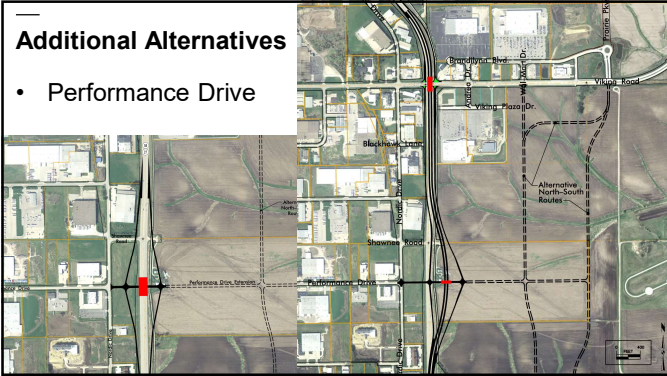
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### Additional Alternatives

- Performance Drive



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### Greenhill Road Initial Alternatives



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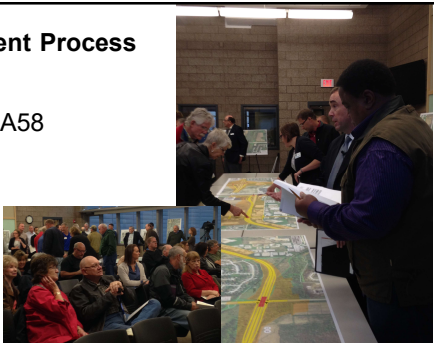
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### Public Involvement Process

- Alternatives Presented for IA58 Corridor Study
- Stakeholder Meetings
- One-on-one
- Large Group Presentation



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**Preferred Alternatives**

- U.S. 20 and Ridgeway Avenue
  - System Interchange
    - Continuous traffic flow for Iowa 58/U.S. 20 movements
    - Butterfield Road remains connected
    - Ridgeway Avenue remains connected
      - Public meetings stressed the importance of this connection
      - John Deere
      - Kwik Star



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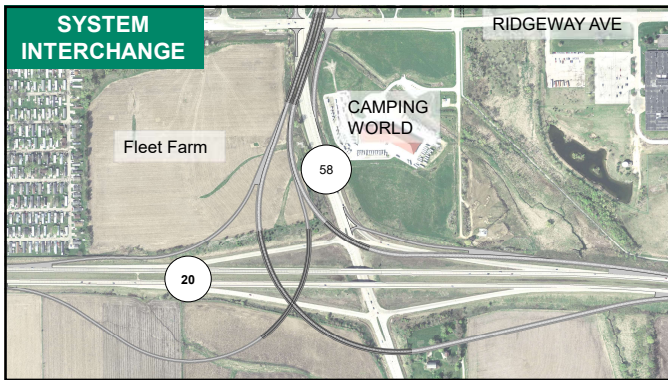
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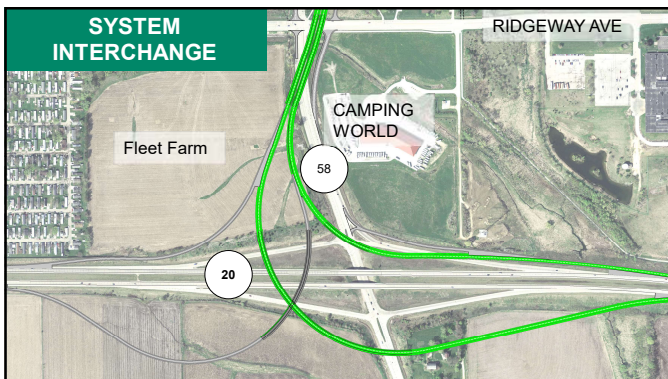
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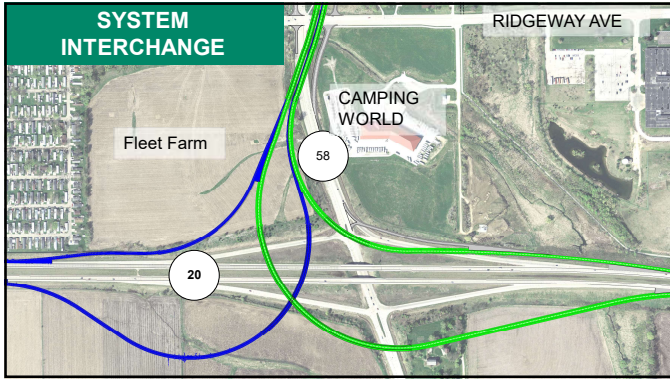
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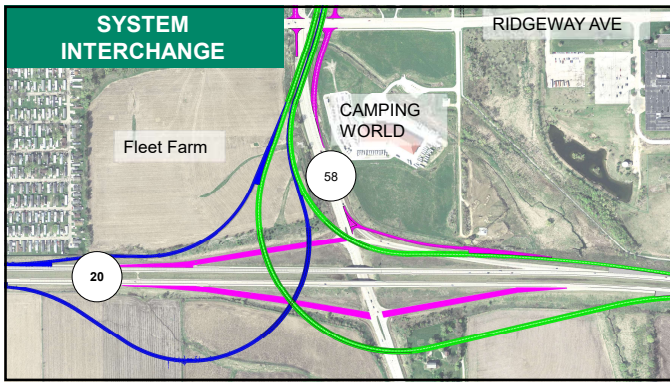
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**Preferred Alternatives**

- U.S. 20 and Ridgeway Avenue
  - System Interchange
    - No stop movements for Iowa 58/U.S. 20 movements
    - Butterfield Road remains connected
    - Ridgeway Avenue remains connected
  - Interim Improvements
    - Additional Turn Lanes
    - Ramp Improvements



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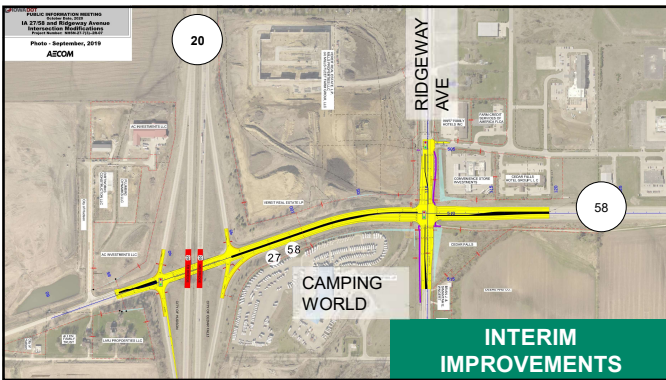
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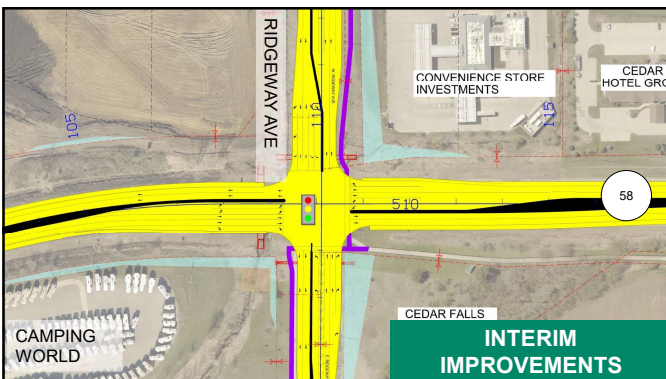
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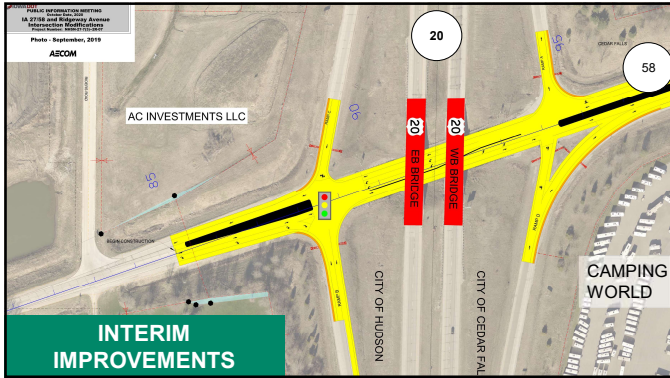
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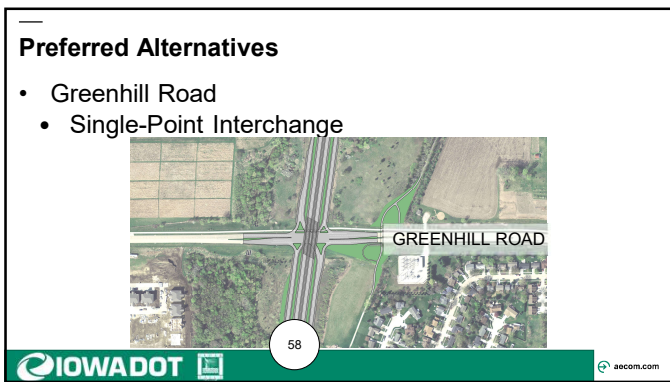
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**Preferred Alternatives**

- Viking Road
  - Single-Point Interchange
    - Compact interchange design
    - One signalized intersection for ramps at Viking Road
    - Performs well with large left-turn movements
    - Common design in other areas of the country
      - Mills Civic Parkway at I-35 in West Des Moines was first in Iowa
      - Iowa 100 at Edgewood Road in Cedar Rapids



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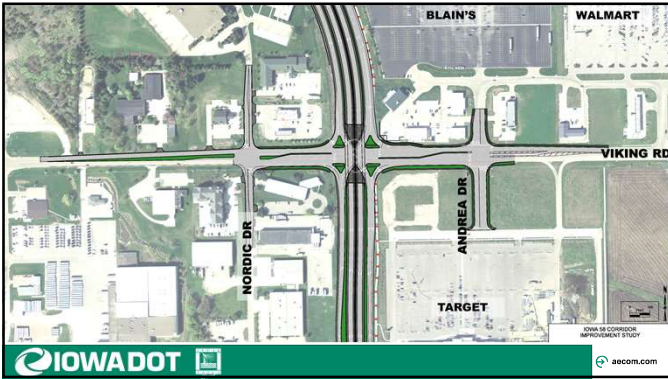
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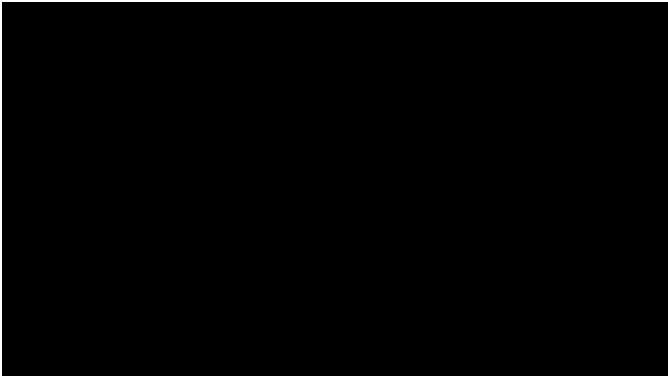
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**Preferred Alternatives**

- Over/Under Discussion
  - Iowa 58 proposed to go under Viking Road
  - Viking Road stayed at essentially the same elevation



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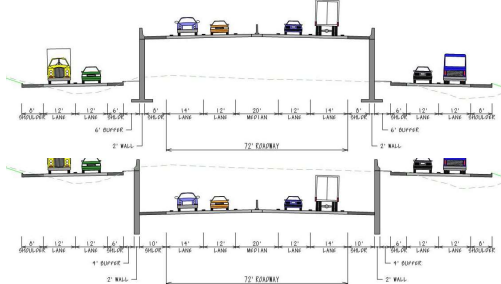
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**Preferred Alternatives**



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View Looking Southeast from SB to EB Ramp



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View Looking Southeast from SB to EB Ramp



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View Looking North from NB Off Ramp



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View Looking North from NB Off Ramp



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View Looking West Along Viking Road



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Aerial View Looking Northwest to Southeast



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Aerial View Looking Northwest to Southeast



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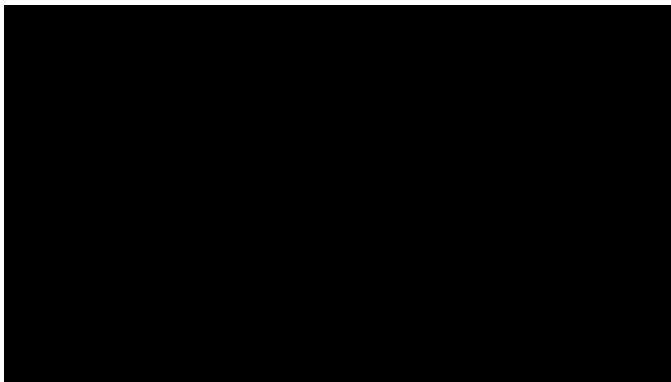
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**Final Design & Construction**

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**Project Limits**

- Iowa 58 & Viking Road Interchange
- Shawnee Road to Mayors Bridge
- Plans accommodate future construction of Greenhill Road and Ridgeway Avenue/US 20 Interchanges

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**Public Involvement Process**

- Roadway Design
- ROW Impacts
- Enhancements
  - Retaining Walls
  - Bridge Railing
  - Columns
  - Gore Area
  - Landscaping

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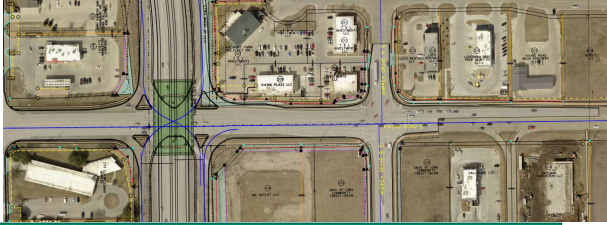
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### Right-of-Way Acquisition

- 37 Property Owners
- Majority of impacts were minor fee acquisitions & TE.



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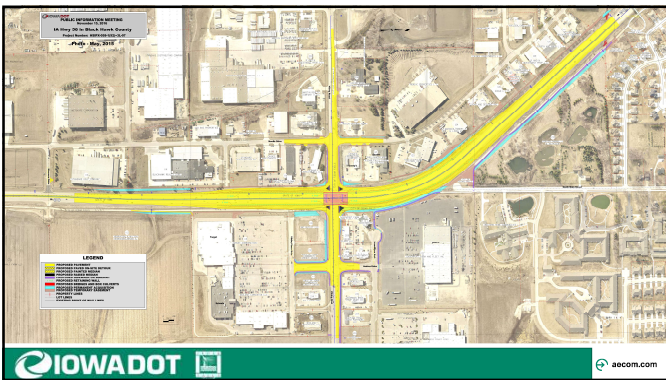
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### Bridge Plans

- 115'x228' PPCBB
- Built in Stages & Under Traffic
- Enhancements
  - Barrier Rail
  - Outside Beam
  - Pavers/Gore Area



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**Bridge Plans**

- Coordination with:
  - Tunnel Lighting
  - Signals Footing
  - Bridge Approach
  - Traffic Control
  - Abutment Piling
  - Wall Construction Below




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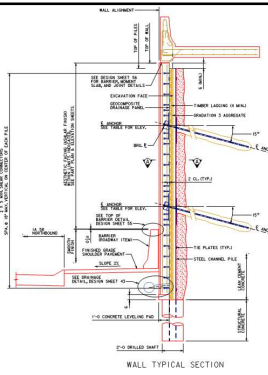
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**Retaining Wall Plans**

- Over 5,000 LF
- Built Top Down
  - Piles/Tie-Backs
  - Timber Lagging
  - Concrete Facing
- Enhancements
  - Form Liner
  - Colored Walls




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**Retaining Wall Plans**

- Over 5,000 LF
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**Roadway Plans**

- Excavation
- Water Main
- Storm Sewer
- Side Road Paving
- Street Lighting
- Recreational Trail
- Traffic Signals
- Viking & Nordic
- Viking & Andrea
- Viking & IA 58
- Iowa 58/Ramp Paving
- Complex Staging




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**Project Schedule**

- Final Design Started - April 2016
- Public Meeting - Nov. 2016
- ROW Began - April 2017
- Utility Coordination - Throughout Project
- Pre-Bid Meeting – Jan. 2018
- Bid Letting - Feb. 2018
- Construction - 2018 - 2020




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**Project Costs**

- Engineer's Estimate – \$39.0 Million
- Total Bid – \$36.9 Million
  - Roadway – \$23.0 Million
  - Bridge – \$ 2.7 Million
  - Retaining Walls – \$11.2 Million




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### Construction

- Traffic Control
  - Reduced Iowa 58 to 1-lane each direction
  - Viking Road reduced to 1-lane each direction
  - Sideroad closures or constructed intersections in quarters.
  - DOT & City utilized numerous alternate route signs, changeable message signs, and 511 System
  - Drivers avoided area
  - Some traffic issues on alternate routes



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### Construction Staging

- Staging Requirements
  - Maintain Traffic on IA58 & Viking Road
  - Maintain Business Access
  - Bridge Construction Coordination
    - 3 Bridge Deck Pours



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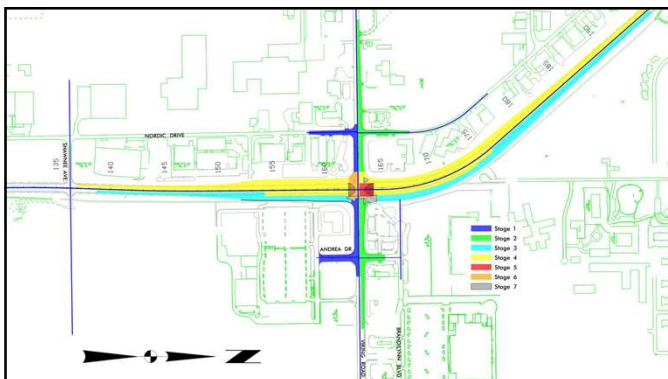
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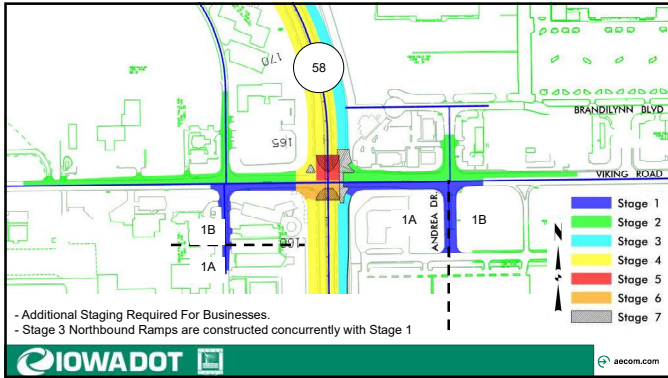
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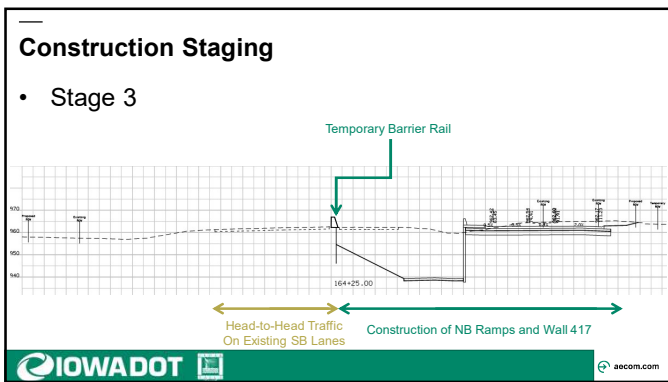
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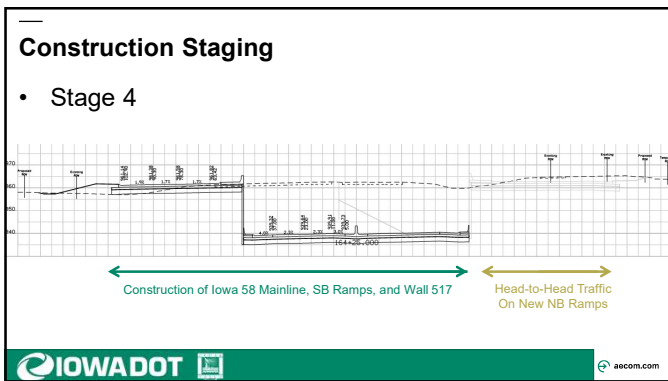
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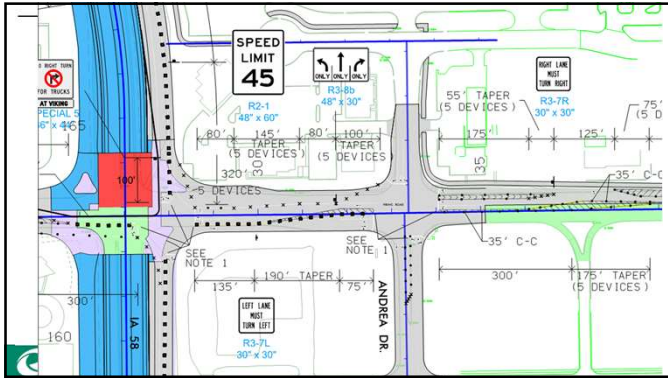
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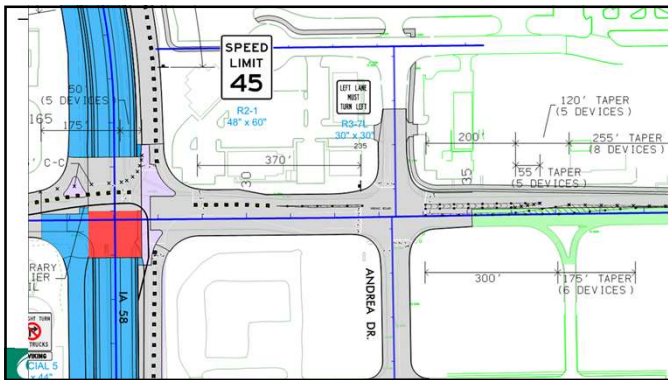
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**Construction Access**

- Iowa 58
  - Right-in/right-out via shoulders
- Stage 3 – South Main Street Rd, Viking Plaza Dr, Viking Rd
- Stage 4 – Blackhawk Ln, Shawnee Ave, Viking Rd
- Viking Rd
  - Right-in/right-out only

Map showing construction access points with colored arrows. The map includes a legend with colored squares: red, yellow, green, blue, and purple. The map shows a road network with arrows indicating access directions. The IOWADOT logo is in the bottom left corner.

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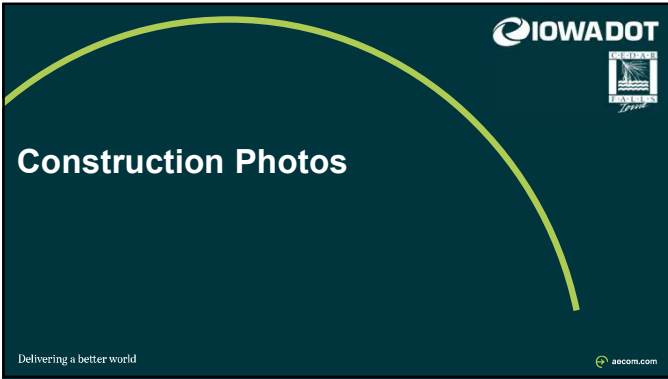
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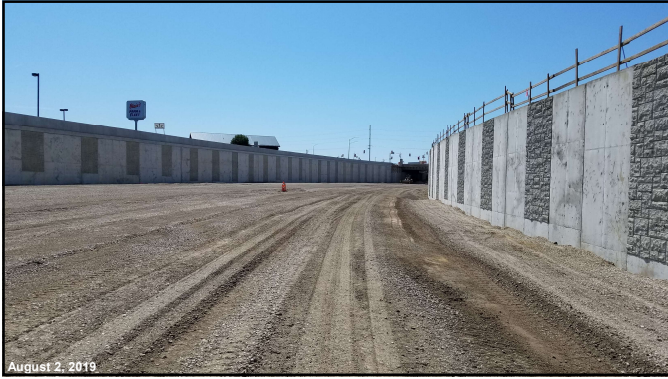
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**IOWADOT**  
IOWA  
DEPARTMENT OF  
TRANSPORTATION  
1900

# Project Completion

Delivering a better world 

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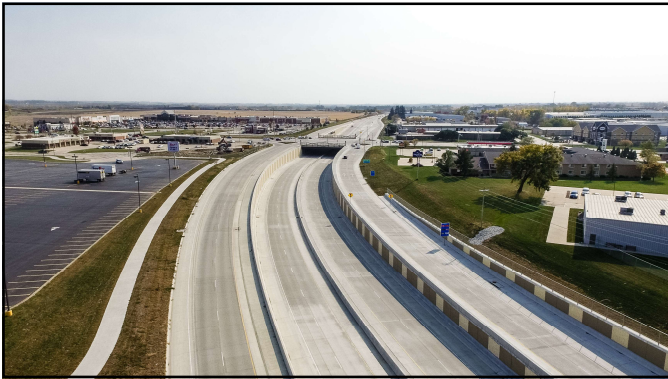
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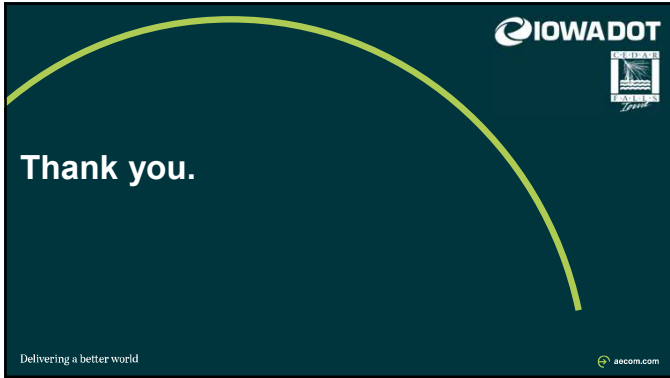
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