

 
Building Communities.
Empowering Lives.

SW I-35 / I-80 / I-235 System Interchange

Southwest Mixmaster (SWMM)

Polk County, Iowa

September 24, 2024 1

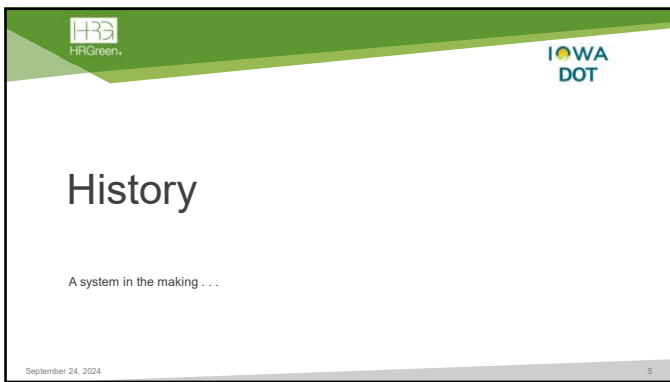


 SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa 



September 24, 2024 3







HRGreen, SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT




1966




Southwest Mixmaster

September 24, 2024 7

HRGreen, SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT



1967



1969

September 24, 2024 8

HRGreen, SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT



1980 University Ave



Westown Pkwy 1997

September 24, 2024 9

HRGreen
SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa

IOWA DOT



2000 60th St I-80



50th St I-235 2002

September 24, 2024 10

HRGreen
SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa

IOWA DOT



University Ave I-35 I-80 2005



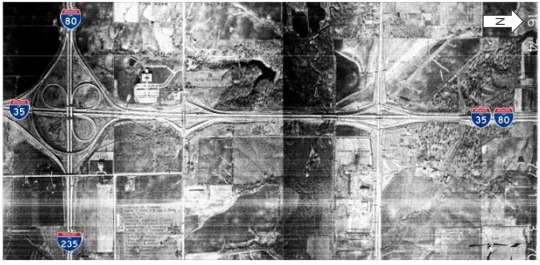
I-235

September 24, 2024 11

HRGreen
SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa

IOWA DOT

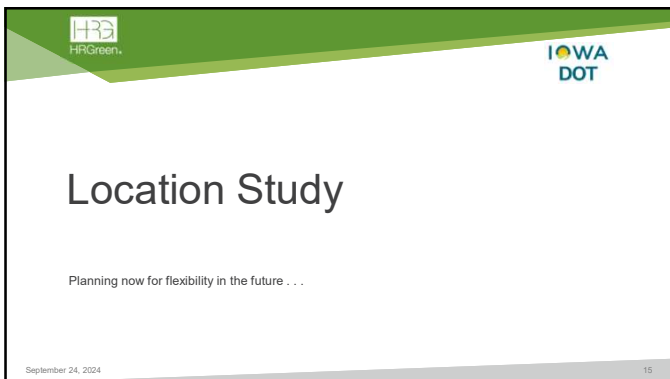
1974



September 24, 2024 12








HRGreen SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT

Guiding Principles

- ▶ Performance Based Practical Design
- ▶ Traffic Operations Level of Service
- ▶ Route Continuity and Lane Balance
- ▶ Driver Expectancy
- ▶ Cost







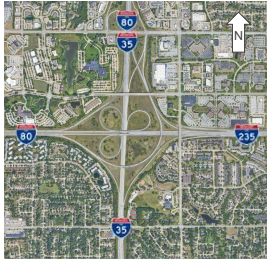
September 24, 2024 16

HRGreen SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT

Traffic Analysis

▶ 2030 AADT (Approximate)

-  90,000
-  140,000
-  110,000
-  90,000







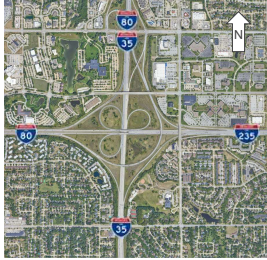
September 24, 2024 17

HRGreen SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT

Traffic Analysis

▶ 2050 AADT (Approximate)

-  125,000
-  185,000
-  140,000
-  125,000

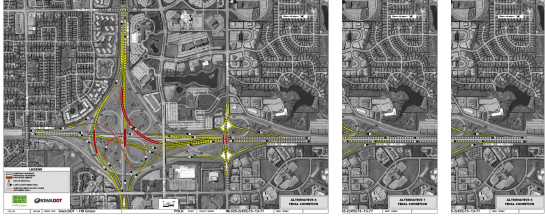


September 24, 2024 18

HRGreen
SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa

IOWA DOT

Alternative Analysis



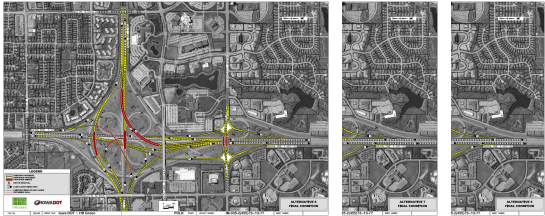
September 24, 2024 19

The slide features three maps of the SWMM interchange area. The leftmost map is a large-scale overview showing the interchange layout with various colored lines representing different alternatives. The two maps on the right are smaller, more detailed views of specific sections of the interchange, showing the proposed road alignments and surrounding infrastructure.

HRGreen
SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa

IOWA DOT

Ultimate Build Alternatives



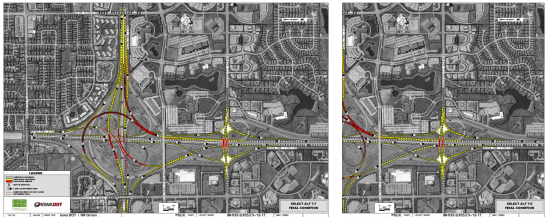
September 24, 2024 20

This slide is similar to the first one, showing three maps of the SWMM interchange. The maps illustrate the ultimate build alternatives, providing a more comprehensive view of the proposed infrastructure and its integration with the existing road network.

HRGreen
SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa



IOWA DOT

Hybrid Ultimate Build Alternatives



September 24, 2024 21



The slide displays two maps of the SWMM interchange, focusing on hybrid ultimate build alternatives. These maps show how different elements of the previous alternatives are combined to create a more optimized and integrated interchange design.

Initial Build Project

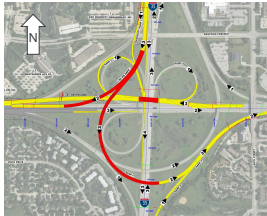
Designing for today with the end in mind . . .

September 24, 2024 22

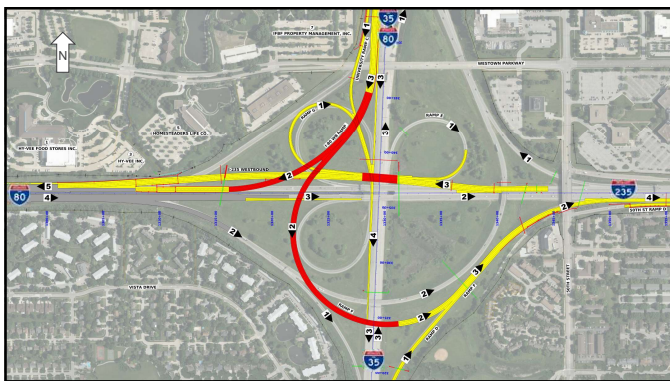
 SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa 

Defining Features

- ▶ I-80 WB Directional Connector
- ▶ I-35 SB / I-80 WB to I-235 EB Semi-Directional Ramp
- ▶ I-235 WB Mainline Realignment
- ▶ I-35 SB Entrance Ramp from University Avenue



September 24, 2024 23



HRGreen IOWA DOT
SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa

Route Continuity

September 24, 2024 25

HRGreen IOWA DOT
SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa

Increased Capacity and Improved Safety

September 24, 2024 26

HRGreen IOWA DOT
SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa

Table 7-29. 2050 No Build Conditions Freeway Operations Southbound PM

LOS	SS I-35B University Ave. Round	SS I-35B Loop to WB I-80 On-ramp	WB I-80 Loop to WB I-80 On-ramp	WB I-80 Loop to WB I-80 On-ramp	SS I-80 On-ramp	SS I-80 On-ramp	ICCT On-ramp	SS I-80 On-ramp
12:00								
14:00								
16:00								
18:00								
20:00								
22:00								
24:00								
26:00								
28:00								
30:00								
32:00								
34:00								
36:00								
38:00								
40:00								
42:00								
44:00								
46:00								
48:00								
50:00								
52:00								
54:00								
56:00								
58:00								
60:00								
62:00								
64:00								
66:00								
68:00								
70:00								
72:00								
74:00								
76:00								
78:00								
80:00								
82:00								
84:00								
86:00								
88:00								
90:00								
92:00								
94:00								
96:00								
98:00								
100:00								

Source: HCM 2012 Analysis, HR Green, 3/12/2024

Table 7-30. 2050 Build Conditions Freeway Operations Southbound PM

LOS	SS I-35B University Ave. Round	SS I-35B Loop to WB I-80 On-ramp	WB I-80 Loop to WB I-80 On-ramp	WB I-80 Loop to WB I-80 On-ramp	SS I-80 On-ramp	SS I-80 On-ramp	ICCT On-ramp	SS I-80 On-ramp
12:00								
14:00								
16:00								
18:00								
20:00								
22:00								
24:00								
26:00								
28:00								
30:00								
32:00								
34:00								
36:00								
38:00								
40:00								
42:00								
44:00								
46:00								
48:00								
50:00								
52:00								
54:00								
56:00								
58:00								
60:00								
62:00								
64:00								
66:00								
68:00								
70:00								
72:00								
74:00								
76:00								
78:00								
80:00								
82:00								
84:00								
86:00								
88:00								
90:00								
92:00								
94:00								
96:00								
98:00								
100:00								

Source: HCM 2012 Analysis, HR Green, 3/12/2024

September 24, 2024 27

HRGreen, SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT

Estimated Construction Cost

- ▶ \$36,000,000 in Roadway Items
- ▶ \$74,500,000 in Bridge Items
- ▶ \$3,000,000 in Traffic Sign Items
- ▶ \$500,000 in Erosion Control



September 24, 2024 28

HRGreen, IOWA DOT


Project Constraints

Staying within the boundaries . . .

September 24, 2024 29

HRGreen, SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT

Right-of-Way



September 24, 2024 30

HRGreen, SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT

Existing Structures

University Ave Westown Pkwy Eastbound
42nd St 50th St 60th St

September 24, 2024 31

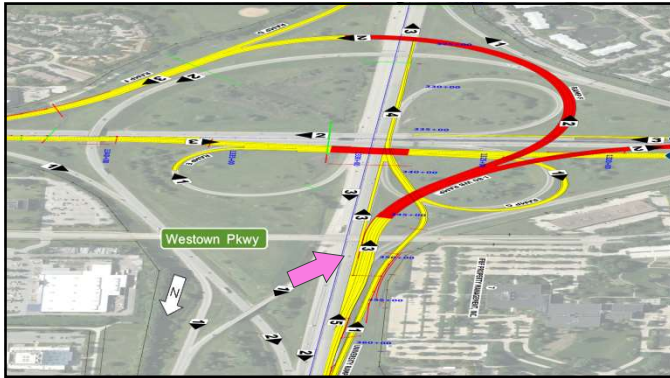
HRGreen, IOWA DOT

Design Features

The devil is in the details . . .

September 24, 2024 32





HRGreen IOWA DOT

Construction Staging

Black box to real world . . .

September 24, 2024 35

HRGreen SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT

Maintenance of Traffic

- Guiding Principals
 - Framework of Requirements
 - Minimum Lane Counts
 - Allowable Ramp Closures
 - Required Ramps to Remain Open
 - Detours

Objective:

1. 235 southbound - always maintain 2 lanes of traffic. Very short overnight closures may be permitted for 10 hrs.

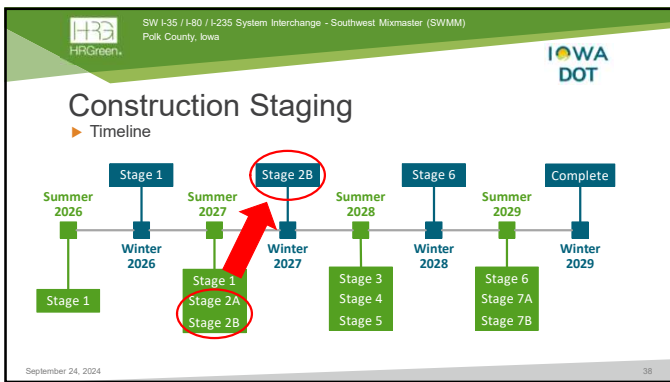
2. 235 northbound to 180 southbound ramp - always maintain 2 lanes of traffic. Very short overnight closures may be permitted for 10 hrs.

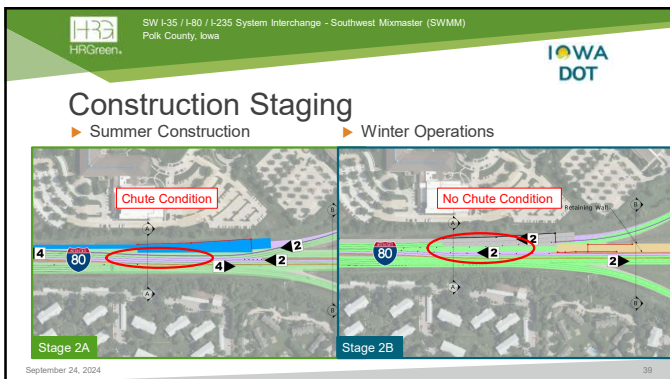
Traffic Control Notes:

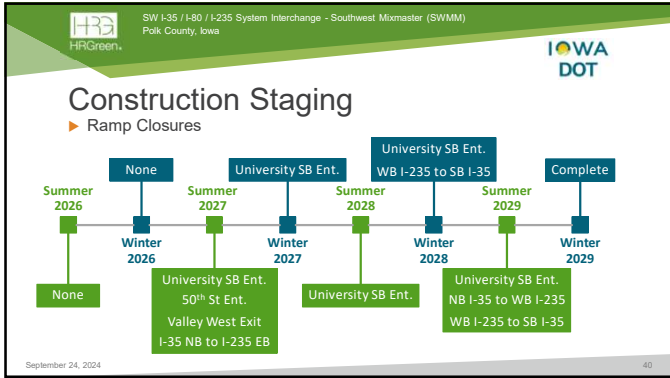
- Eastbound I-235 on Ramp at 50th Street
 - Close ramp and open to traffic prior to closures for the southbound I-80 to eastbound I-235 ramp.
 - Detour - Valley West Drive
- Northbound I-80 to eastbound I-235 Ramp
 - Do not construct at same time as southbound I-200 to eastbound I-235 Ramps
 - While closed to traffic, allow for southbound I-80 eastbound I-235 to severely reduce off ramp
 - Detour - 40th Street interchange for eastbound I-80
 - Detour - 10th Street interchange
 - Detour - University Avenue to 50th Street
- Southbound I-80 on loop at University Avenue
 - Clear during construction
 - Detour - 40th and 50th Street Interchanges
- Southbound I-80 to eastbound I-235 Loop
 - Open until new eastbound to eastbound flyover is open.
- Northbound I-80 to westbound I-80 loop
 - May close when paving westbound I-80 connection from "waggle" under southbound to westbound ramp and when I-235 traffic is shifted to median lanes.
 - Detour - University Avenue to 60th Street
- I-235 westbound to I-80 southbound loop
 - Maintain two lanes of traffic at all times, except when paving westbound I-80 connection from "waggle" under southbound to westbound ramp
 - Detour - University Ave to Jordan Creek Parkway for I-80 southbound

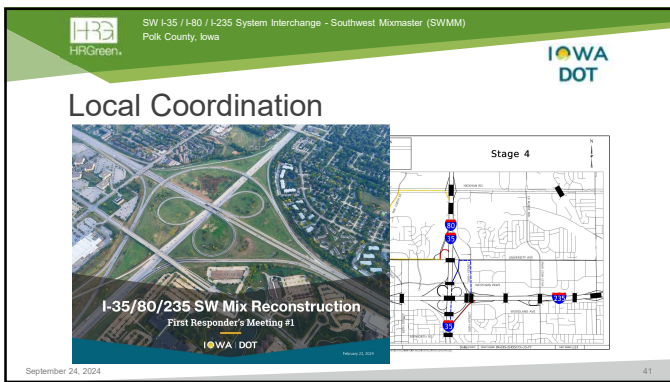
September 24, 2024 36







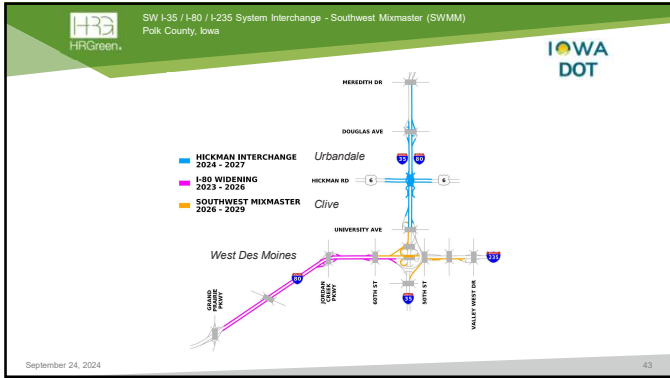




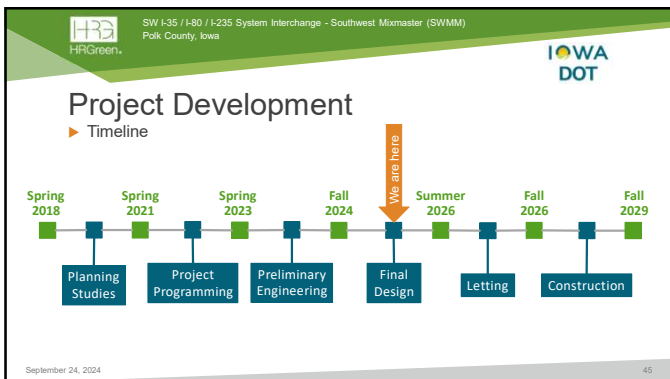
Adjacent Projects

Tying it all together...

September 24, 2024 42







HRGreen
IOWA DOT

Next Steps

Where we are going...

September 24, 2024 46

HRGreen SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa IOWA DOT

Next Steps

Confirm Staging

Summer 2026 Winter 2026 Summer 2027 Winter 2027 Summer 2028 Winter 2028 Summer 2029 Winter 2029 Complete

Stage 1
Stage 1
Stage 2A
Stage 2B
Stage 3
Stage 4
Stage 5
Stage 6
Stage 7A
Stage 7B

September 24, 2024 47

HRGreen SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM)
Polk County, Iowa IOWA DOT

Next Steps

TBR Layouts – Emergency Pull-offs

Legend: Temporary Marker (TBM), Mark Area

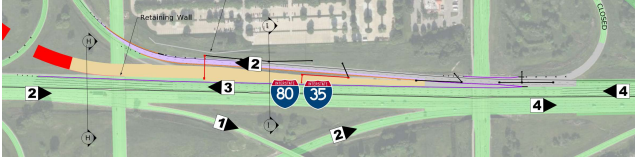
100' TYPICAL EMERGENCY PULL-OFF LAYOUT DETAIL

September 24, 2024 48

HRGreen SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa IOWA DOT

Next Steps

- Review TBR Layouts




September 24, 2024 49

HRGreen SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa

In Summary

- Outdated Interchange Geometrics
- Address Needs of Today
- Developed Surroundings
- Staging Sequence
- Maintenance of Traffic



50

HRGreen SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SWMM) Polk County, Iowa

Questions ?



51

 SW I-35 / I-80 / I-235 System Interchange - Southwest Mixmaster (SIWMM)
Polk County, Iowa



 <p>Jason Lastovica, PE (515) 657-5332 jason.lastovica@hrgreen.com</p>	 <p>Benjamin Adey, PE (515) 238-1194 benjamin.adey@iowadot.us</p>
 <p>Ryan K. Simbro, PE (515) 657-5269 rsimbro@hrgreen.com</p>	 <p>Megan Anderson, PE (515) 657-5253 manderson@hrgreen.com</p>

September 24, 2024 52
