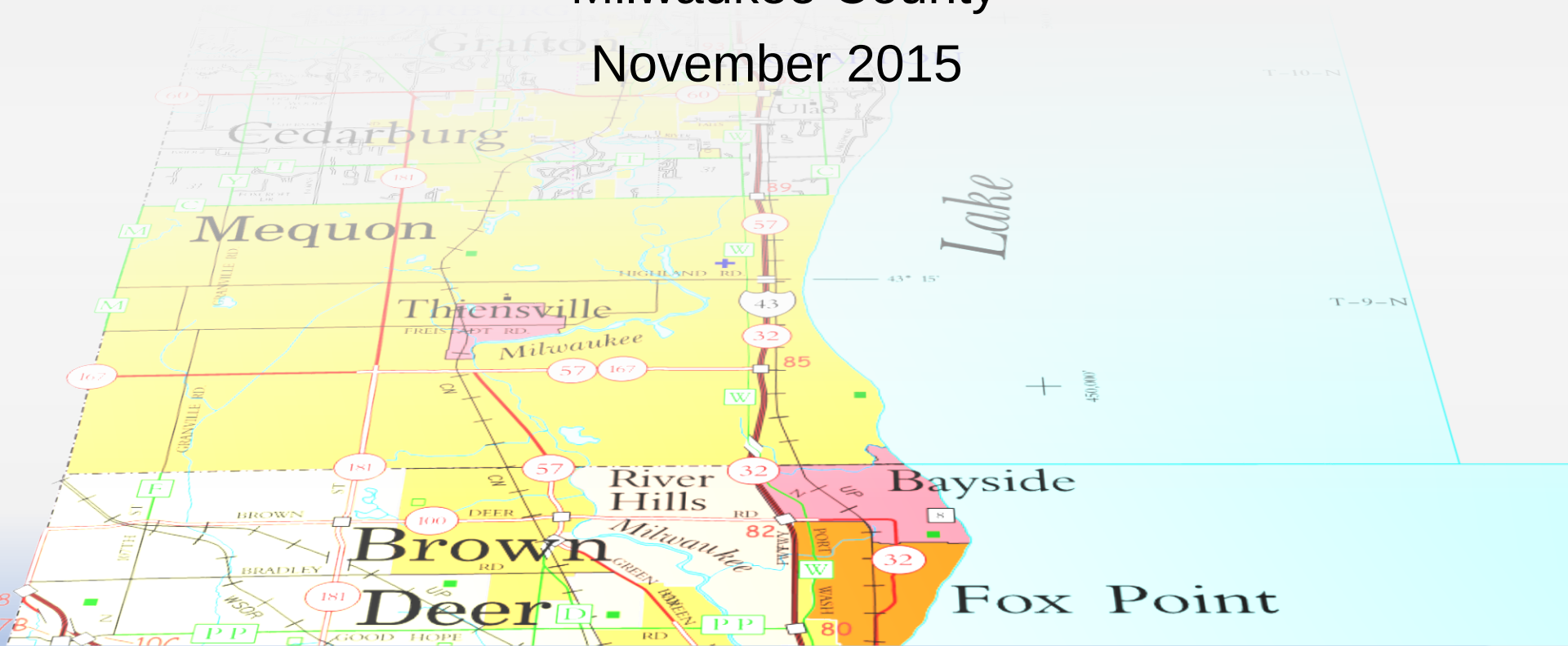
STH 57 & STH 100 Intersection

Village of Brown Deer

Milwaukee County

November 2015



Introduction

- How we got to here
  - WIS 57 Bridge over WIS 100 in need of replacement
  - Local support favors At-Grade Intersection vs Interchange
    - Supports economic development
    - Improves visibility and connectivity of the quadrants bordering the intersection
  - Various alternatives evaluated
  - Multiple PIM's, LOM's, and meetings with Village to discuss alternatives
  - New project team reevaluated assumptions and alternatives, working within Region, CO, and with FHWA to discuss feasibility

Project Updates

- Scoping level ICE completed
- Alternative Selection ICE pending PI
  - Improved Service Interchange
  - Traditional At-Grade Intersection
  - Median U-Turn Intersection

Intersection Control Evaluation (ICE)

- Safety
  - Crash Analysis
  - Access
- Operational Analysis
- Right of Way Impacts
- Cost

Intersection Control Evaluation (ICE)

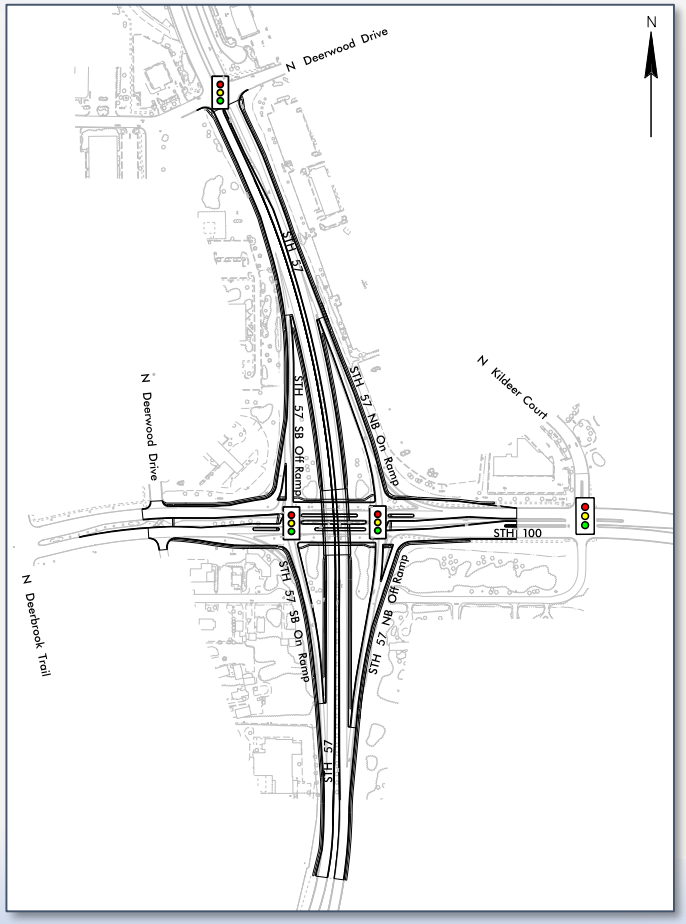
- Practical Feasibility
- Pedestrians and Bicycles
- OSOW Freight Network
- Environmental Impacts

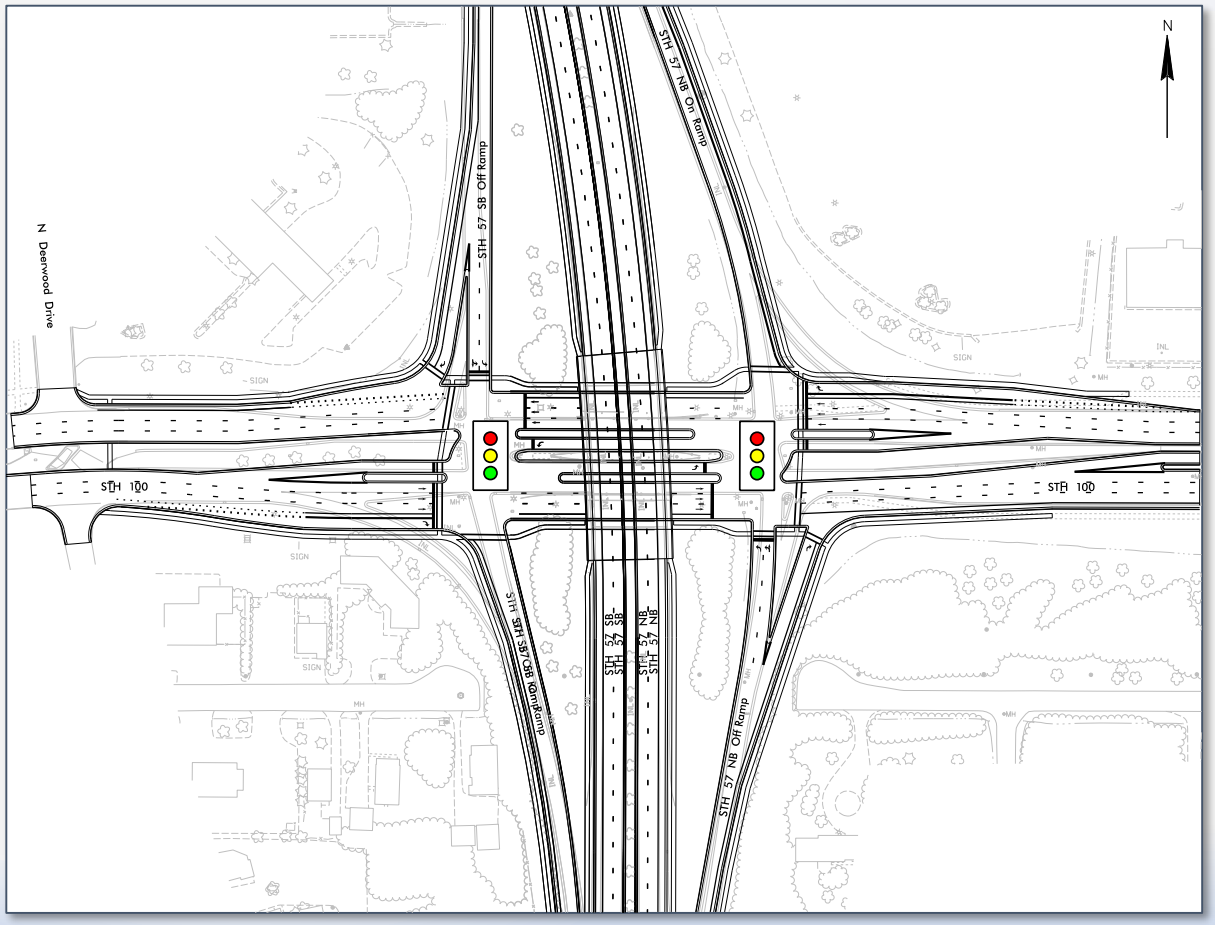
Intersection Control Evaluation (ICE)

- Additional Items Evaluated
  - Signal Warrant at Deerbrook Trail
  - Sensitivity Analysis
    - Equal growth factor applied to all traffic movements until one movement fails

Current Alternatives

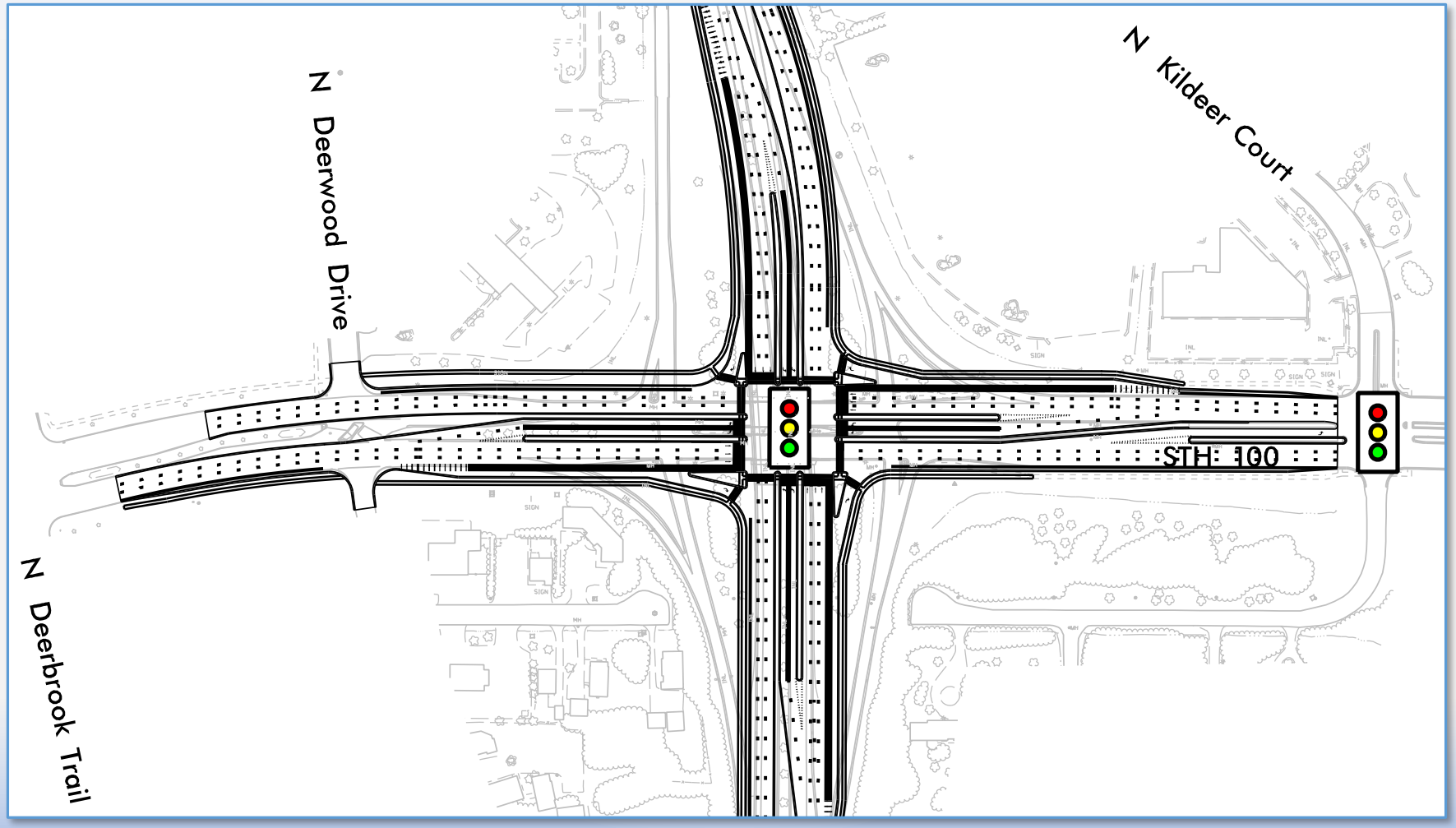
- Improved Service Interchange





Current Alternatives

- At-Grade Signalized Intersection



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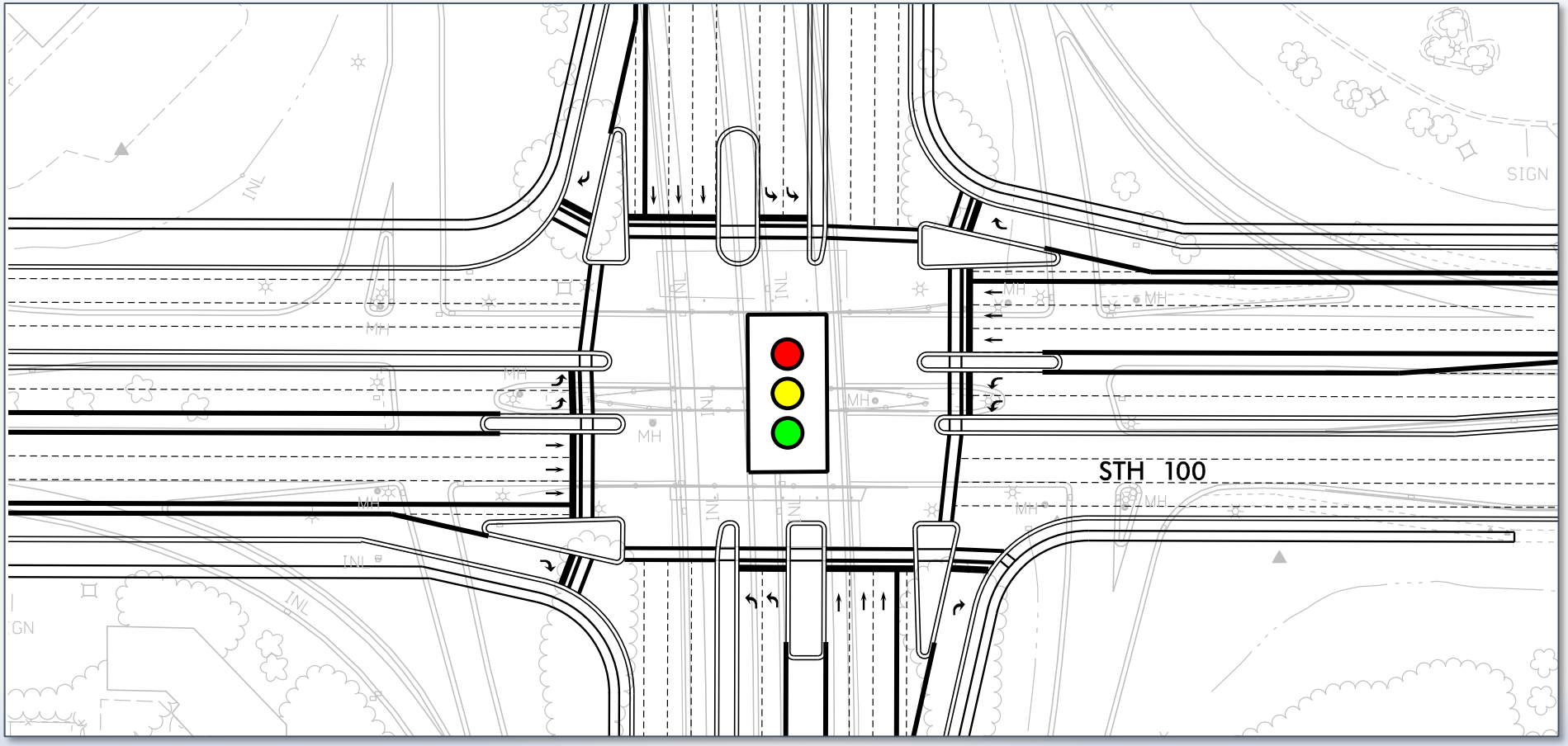
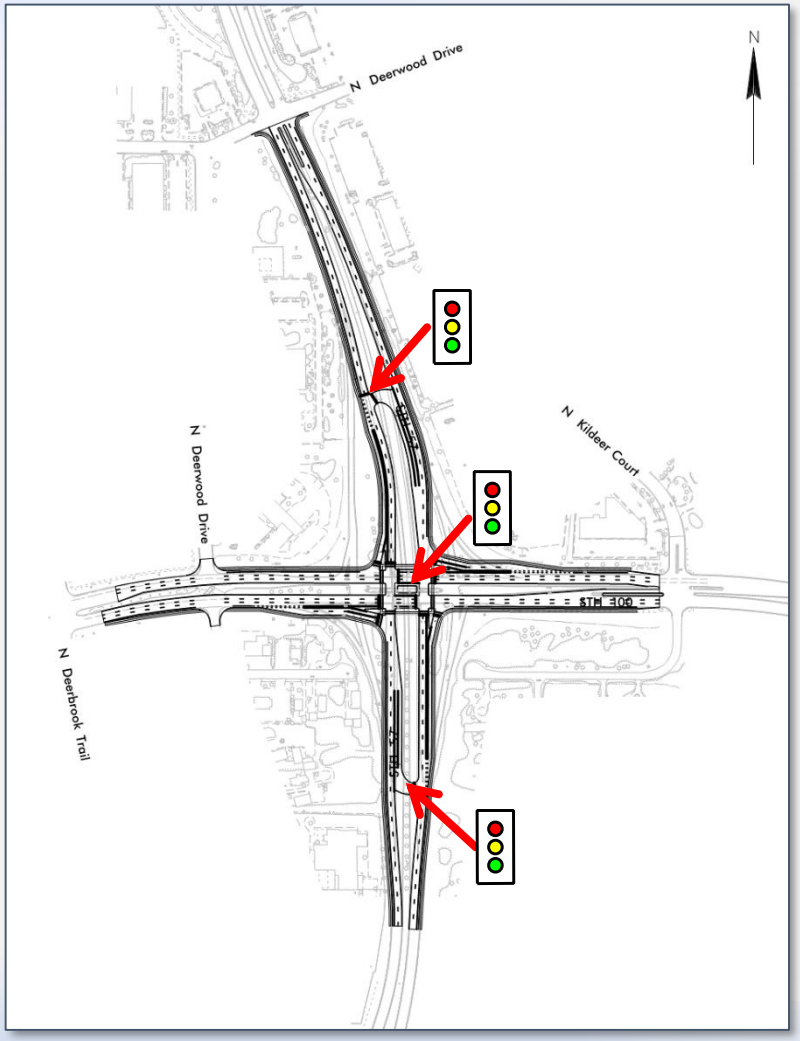
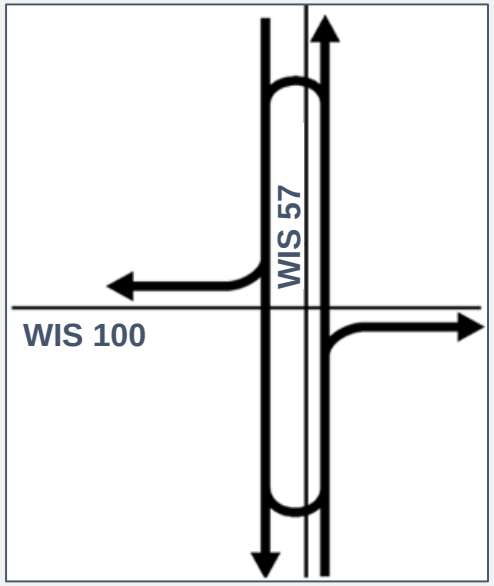
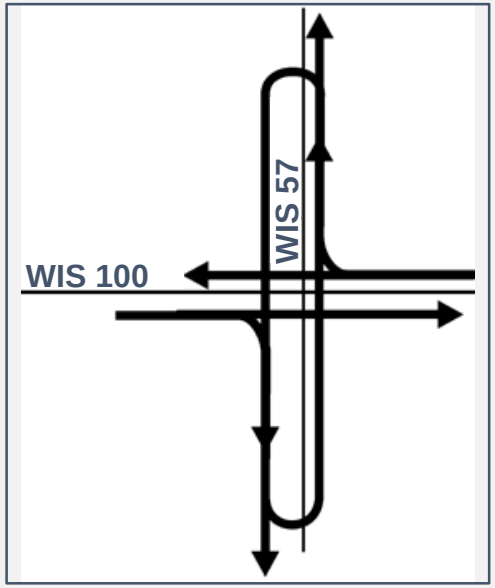


Current Alternatives



- Median U-Turn Intersection





Current Alternatives

- Safety
  - Interchange to At-Grade Intersection
    - 22%-56% increase in crashes
  - At-Grade to Median U-Turn Intersection
    - 20%-50% reduction in crashes

Current Alternatives

- Operational Analysis

Intersection	Eastbound STH 100 HCM Delay PM Peak 2040 (s/veh)	Westbound STH 100 HCM Delay PM Peak 2040 (s/veh)	Northbound STH 57 HCM Delay PM Peak 2040 (s/veh)	Southbound STH 57 HCM Delay PM Peak 2040 (s/veh)
Existing Service Interchange	24.2	15.4	0	0
Improved Service Interchange	12.1	12.8	0	0
Conventional At-Grade Signalized Intersection	32.4	17.2	49.2	43.8
Median U-Turn Intersection	12.6	12.2	21.9	18.0

- Sensitivity Analysis

Intersection	Percent Excess Capacity
Improved Service Interchange	40% - 45%
Conventional At-Grade Signalized Intersection	5% - 10%
Median U-Turn Intersection	35% - 40%

Operational Analysis

- Improved Service Interchange 2040 LOS

  100
  - Through — LOS A – LOS B
  - Left-Turns — LOS A – LOS B

  57
  - Through — LOS A
  - Left-Turns — LOS C – LOS D

- At-Grade Intersection 2040 LOS

  100
  - Through — LOS A – LOS C
  - Left-Turns — LOS D

  57
  - Through — LOS D
  - Left-Turns — LOS D

Operational Analysis

- Median U-Turn 2040 LOS

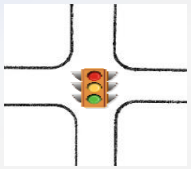
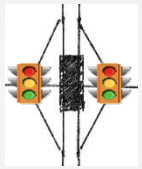
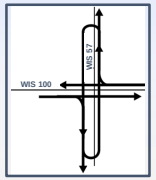
100

- Through — LOS A – LOS B
- Left-Turns — LOS C – LOS D

57

- Through — LOS B – LOS C
- Left-Turns — LOS C – LOS D

Current Alternatives

	 Improved Service Interchange	 At-Grade Signalized Intersection	 Median U-Turn Intersection
✓ **Strengths**	✓ Familiar condition ✓ Anticipated lowest crash frequency ✓ Lowest conflicting volumes ✓ Lower user delay ✓ Short pedestrian crossings at ramp termini ✓ Low sensitivity to growth	✓ Familiar Condition ✓ Greater exposure for redevelopment than Improved Service Interchange ✓ Preferable conditions for pedestrians/bicycles ✓ Local support favors at-grade ✓ Potential future access	✓ Eliminates left turning movements ✓ Reduces crash frequency and severity compared to traditional at-grade intersection ✓ Improves operations compared to traditional at-grade intersection ✓ Greater exposure for redevelopment than Improved Service Interchange ✓ Preferable conditions for pedestrians/bicycles ✓ Local support favors at-grade ✓ Low sensitivity to growth ✓ Potential future access
☒ **Weaknesses**	☒ Two signals at WIS 57 / WIS 100 ☒ Bridge visually divides the village ☒ Unsafe for pedestrians/ bicycles crossing free-flow ramps along WIS 57	☒ Higher Conflicting Volumes ☒ Longer pedestrian crosswalks for WIS 57 ☒ Anticipated higher crash frequency ☒ Higher overall user delay on WIS 57	☒ Unfamiliar Condition ☒ Greater distance traveled for left-turning movements ☒ Additional right-turn lanes required
Construction Costs	**$10,000,000**	**$7,000,000**	**$7,000,000**

Median U-Turn

- Agency Outreach
  - Federal Highway Administration
  - City of Allisonville Indiana
  - Utah Department of Transportation

Next Steps

- Provide the Village with the opportunity to review new information
- Follow up meeting(s) with Village and stakeholders – Early December
- Partner with Village to select alternative

Next Steps

- Present alternative to Village board – January 18, 2016
- Recommend alternative to the public – February, 2016
- Finalized ICE report – April, 2016
- PS&E – May, 2019

Questions