

# U.S. Route 14 at Hartland / Hughes Road Phase I Study

McHenry County, Illinois

Stakeholder Working Group Meeting #2  
December 8, 2022



US 14 AT HARTLAND / HUGHES ROAD  
McHENRY COUNTY,  
ILLINOIS



Illinois Department  
of Transportation

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Welcome to the second Stakeholder Working Group meeting for the Phase I study of US Route 14 at Hartland/Hughes Road.

We are going to keep everyone on mute during the presentation. If you have a question please write it in the chat box and we will get to it during the discussion portion of the meeting.

# INTRODUCTIONS

- IDOT Project Team
  - Brenda Alicea – Consultant Studies Unit Head
  - Anna Kutryn – Project Manager
  - Cary Lewis – Project Engineer
  - Kenny Martinez – Project Engineer
- Consultant Team
  - Epstein
    - Beth Norton
    - Athena Erbs
    - Greg Osborne
  - Atlas Engineering
    - Behzad Amini
    - Bob Thoma



# Agenda

- Recap of the Public Outreach Event #2
- Existing Conditions Summary
- Alternatives Analysis Recap
- Preferred Alternative
- Next Steps



The agenda for today's meeting is to provide a recap of the second Public Outreach Event held in the summer of 2022, a brief summary of the existing conditions including an update to the crash analysis, a recap of the alternatives analysis and presentation of the Preferred Alternative. At the end of the meeting we will go over the next steps of the project and have time for questions and discussion.

## Recap of Public Outreach Event #2

- Held between July 18 and August 7, 2022
- 583 unique visitors to project website
- Visitors not limited to:
  - Village of Woodstock
  - McHenry County
  - Local Residents



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The second Public Outreach Event for this study was held virtually over a three week period from July 18 to August 7, 2022 on the project website. The outreach event was held virtually in place of an in-person public meeting.

The project website contained all of the meeting documents for attendees to view at any time over the three week period.

During the event, 583 unique visitors viewed the project website 616 times.

Of the 583 unique visitors, 45 completed the sign-in sheet and provided their name and email addresses. Based on email and mailing addresses, those who signed in represent the following groups: representatives from McHenry County, the Village of Woodstock and many local municipalities including Huntley, McHenry, Algonquin, Crystal Lake, Harvard, Marengo, Chicago and Bull Valley.

## Public Outreach Event #2 – Comments

- 42 comments received
  - Safety
    - High Speeds
    - Poor sight distance
  - Intersection Improvements
    - Roundabout
    - Traffic Signals



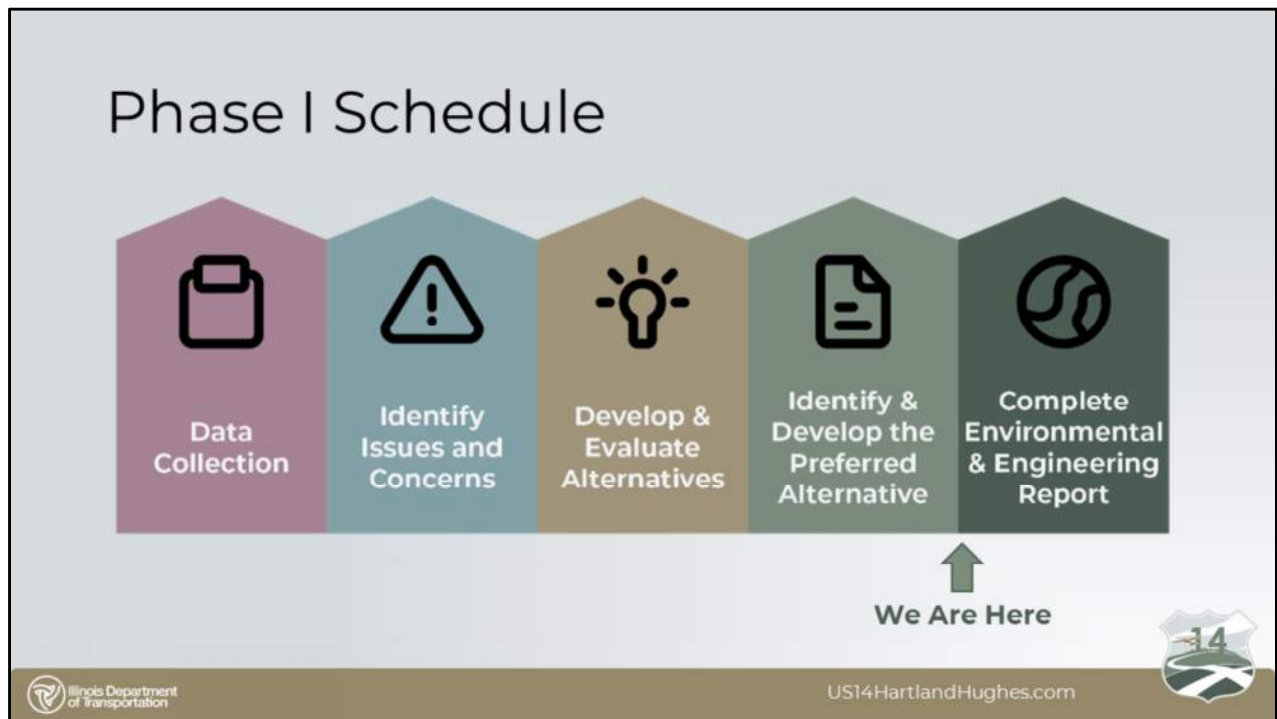
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A total of 42 comments were received during the Public Outreach Event. A majority of the commenters mentioned safety issues. Of these safety comments, the majority discussed high vehicular speeds and poor sight distance on US 14. All of the comments recommended or advocated for a redesign of the intersection, some even had more than one recommendation. The intersection recommendations included comments in favor of a roundabout and a traffic signal. 34 of the comments were in support of the roundabout and 5 of the comments were in support of the traffic signal.

A traffic signal was analyzed at this intersection, but because of the low traffic volumes on Hartland/Hughes Road it is not warranted. Therefore it was not included as an alternative to be carried forward.

Responses were sent to all of the commenters via email.



As we continue with more detailed discussion on the Preferred Alternative. Here is a brief recap of a typical Phase I study schedule and where we are now.

There are several key milestones in a Phase I Study. The Project team has already completed existing data collection, and at the last Public Outreach Event and Working Group Meeting presented the alternatives analysis evaluation.

Based on input from the Public and analysis completed a Preferred Alternative has been selected that will be presented later in this meeting. Over the next few months, the Project team will refine the Preferred Alternative and finalize the engineering and environmental report, the approval of which will conclude this Phase I Study.

# Project Location



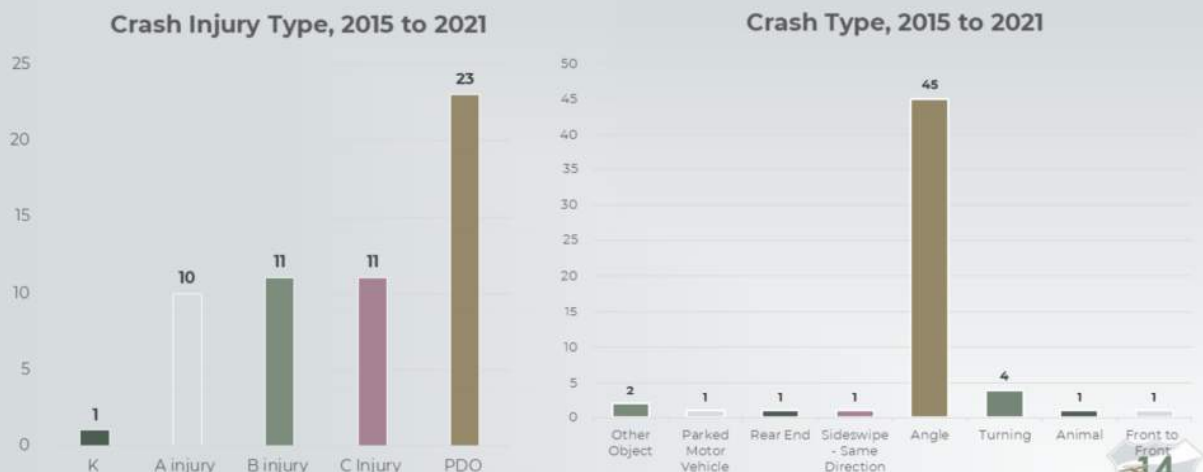
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As a refresher, this intersection is located on US 14 in McHenry County, between the City of Woodstock and the Village of Harvard. Hartland/Hughes Road is a county highway providing access to agriculture, places of worship, and residents in the area. US 14 is a primary thoroughfare in McHenry County and is an important commercial route.

# Crash History

- 56 crashes occurred between 2015 and 2021



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The crash history of this intersection reflects the safety concerns found during our review of the existing conditions. IDOT analyzes this crash data in order to find the best alternative to address the safety needs at this intersection.

Since the last meeting, IDOT has released the crash data for the year 2021. The results here show the updated crash data.

56 crashes occurred at this intersection between 2015 and 2021. One fatality has occurred at this intersection during that time, and ten incapacitating injuries with three occurring in 2021. 80% of crashes are “angle” crashes. Predominant crashes were between drivers on US 14 traveling through and drivers attempting to turn onto or cross US 14. Crash data reviewed for this intersection found that crashes are evenly distributed between all traffic movements at the intersection.

It is important to note that these crashes are occurring mostly during ideal driving conditions. 75% of crashes occurred during daylight hours and 77% of crashes occurred when the pavement was dry.



# Alternatives Evaluation Recap

- Purpose and Need
  - The purpose of this project is to improve safety and traffic operations by providing an intersection improvement.
- Range of Alternatives
- Preferred Alternative



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The first step in the alternatives evaluation process is to develop the project Purpose and Need and determine if the proposed improvement satisfies the project needs. The project study team defined the purpose of this project to improve safety and traffic operations at the intersection. The project team developed several build alternatives that satisfy the Purpose and Need.

The Range of Alternatives considered and the evaluation criteria were presented at the last meeting and will be presented again as a recap on the next slide.

# Range of Alternatives

No Build Alternative



Right-In/Right-Out Alternative



Modified R-Cut Alternative



Roundabout Alternative



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The following Range of Alternatives were presented at the last Working Group Meeting and the second Public Outreach Event. Before discussing the Preferred Alternative, we will briefly go through all of the alternatives considered and do a recap of the evaluation summary.

We have evaluated the following alternatives, the no-build alternative, and then three build alternatives, including a Right-In/Right-out, Modified R-cut, and a roundabout.

## No Build Alternative



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The No-Build Alternative includes routine maintenance to keep it functioning and serviceable, but will not include any geometric, safety or capacity improvements to the intersection. Routine maintenance is : Resurfacing, minor patching, shoulder improvements, and replacement of drainage structures.

## Modified R-Cut Alternative



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A modified R-cut does not permit left turn movements through the center of the intersection.

The R-cut alternative would use a 40' depressed median and bump outs on both sides of US Route 14 to reduce the number of conflict points at the intersection while accommodating all turning movements. This alternative also includes widened shoulders and raised islands.

## Right-In/Right-Out Alternative



The Right-in/Right-Out alternative uses a similar design to the R-Cut alternative but does not include bump outs or the median crossovers. Therefore, this intersection will no longer accommodate drivers wanting to make a left turn from Hartland/Hughes onto US 14 or continue straight on Hartland/Hughes. This alternative would include a 22' flush median, widened shoulders, and splitting islands.

## Roundabout Alternative



The Roundabout Alternative consists of removing the existing roadway at the intersection of US Route 14 and Hartland/Hughes Road and constructing a roundabout to address safety and speeding concerns. This alternative would consist of widened shoulders, raised islands, a roundabout with an inscribed diameter of 110', truck aprons maintaining passage of trucks, and drainage improvements to account for road widening.

# Alternatives Evaluation

- Evaluation Criteria
  - Required ROW
  - Utility Conflicts
  - Drainage
  - Tree Removal
  - Adjacent Land Use Connectivity
  - Driveway Conflicts
  - Cost
  - Safety Considerations
  - Conflict Points



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The evaluation criteria used in the alternatives analysis are as follows:

- Required ROW
- Utility Conflicts
- Drainage
- Tree Removal
- Adjacent Land Use Connectivity
- Driveway Conflicts
- Cost
- Safety Considerations
- Conflict Points

# Alternatives Evaluation Summary

Evaluation Criteria	No-Build	Modified R-cut	Right-In/Right-Out	Roundabout
<b>ROW</b>	None	4.92 acres	4.37 acres	2.43 acres
<b>Utility Conflicts</b>	None	Significant	Significant	Significant
<b>Drainage</b>	Existing Deficiencies	Changes required	Changes required	Changes required
<b>Adjacent Land Use Connectivity</b>	No significant impacts	Reduced access	Reduced access	No significant impacts
<b>Safety Considerations</b>	No Improvement	Improvement	Improvement	Improvement
<b>Cost + Contingency</b>	\$0	\$8.9 M	\$6.5 M	\$4.5 M
<b>Driveway Conflicts</b>	0	6	6	2
<b>Tree Removal</b>	0	92	43	7
<b>Conflict Points</b>	32	8	4	8



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The following is a summary of the alternatives evaluation.

**ROW** – No-Build has no additional ROW. Modified R-Cut requires 4.92 acres. Right-In/Right Out requires 4.37 acres. Roundabout requires 2.43 acres. The Roundabout alternative requires the least amount of ROW per our initial analysis.

**Utility Conflicts** – The No-Build has no utility conflicts. The three other alternatives require significant amount of utility conflicts.

**Drainage** – The No-Build does not improve the existing drainage deficiencies. The three other alternatives will require changes and improve the existing drainage deficiencies

**Adjacent Land Use Connectivity** – The No-Build has no significant impacts. The Modified R-cut and Right-In/Right-out alternatives have reduced access with the elimination of turning movements. There are no significant impacts with the Roundabout alternative.

**Safety Considerations** – There is no safety improvement with the no-build alternative. The three build alternatives improve safety at the intersection.

**Cost** – The No-build has \$0 cost. The Modified R-cut has an estimated \$8.9 Million. The



Right-In/Right-Out has an estimated \$6.5 Million. The Roundabout has an estimated \$4.5 Million.

Driveway Conflicts – There are no driveway conflicts with the No-Build. Both the Modified R-Cut and Right-in/Right-out alternative have 6 driveway conflicts. The roundabout has 2 driveway conflicts.

Tree Removal – There is no tree removal associated with the No-Build. There would be 92 trees removed with the Modified R-cut. There would be 43 trees removed with the Right-In/Right-out. There would be 7 trees removed with the Roundabout alternatives.

Conflict Points – A conflict point is defined as a location where paths of vehicles intersect, diverge, or converge. The No-build alternative has 32 conflict points. The Modified R-cut has 8 conflicts points. The Right-in/Right-out has 4 conflict points. The Roundabout alternative has 8 conflict points.

## Preferred Alternative

- Roundabout
  - Least amount of impacts
  - Better connectivity
  - Safety Improvements
  - Lowest Cost
  - Preferred by Public



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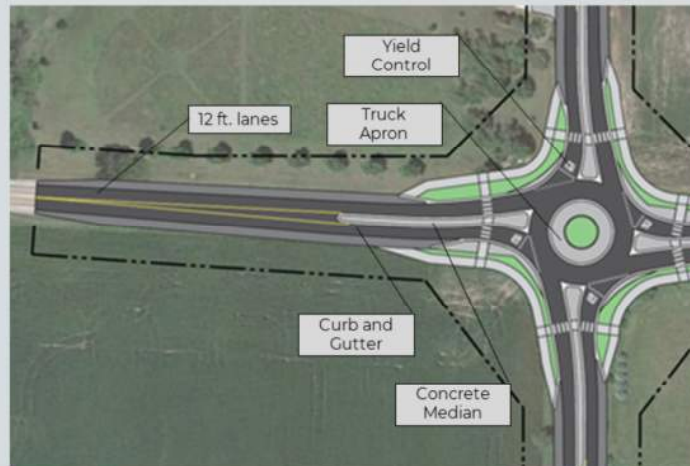


Based on the alternatives analysis previously presented and input from the Public, the Roundabout alternative is the Preferred Alternative. This alternative has the least amount of impacts to adjacent properties and wetlands. Because this alternative does not eliminate turning movements it provides better connectivity to adjacent land use and has less impact to the traveling public. The roundabout will also improve safety through this intersection by slowing down traffic, raising the profile and by eliminating conflict points through the removal of opportunities for a collision from a left turn and head on. The roundabout also has the lowest estimated cost.

In addition, based on the comments collected at the last Working Group meeting and both Public Outreach Events, the roundabout is the alternative preferred by the public. Over 80% of comments received on this project are in support of the roundabout.

Over the last two months, the Project Team has further developed the Roundabout Alternative including adding bicycle/pedestrian features, more detailed drainage design, and profile revisions. The exhibit shown here shows an overall image of the refined design of the Roundabout and how it ties into the existing roadway on US 14 and Hartland/Hughes.

## Roundabout – Key features



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As we zoom in on one of the approaches, you will notice some of the key design elements. Note, the 4 approaches are very similar, so here we will highlight the West leg of US 14.

The proposed lane widths are 12 ft. The median has concrete curb and gutter and is 8 ft wide. Typical for a roundabout of this size all movements are yield controlled and there is proper merging areas provided for extra safety in this movement.

The inscribed circle of the roundabout has a 110' inscribed diameter with truck aprons to provide for turning movements. An analysis of a WB-65 truck was done using Auto turn software to verify the widths of the truck aprons. A WB-65 is a typical tractor trailer. In addition, the intersection was designed for a truck carrying wind blades to be able to go straight through on both Hartland/Hughes and US 14.

The green shown on the exhibit is where grass or additional landscaping will be provided. The truck aprons will be a different color pavement to differentiate between travel lanes.

## Roundabout – Bike/Ped Accommodations

- 10 ft. Shared Use Path
- Crosswalks
- Refuge Island in Median



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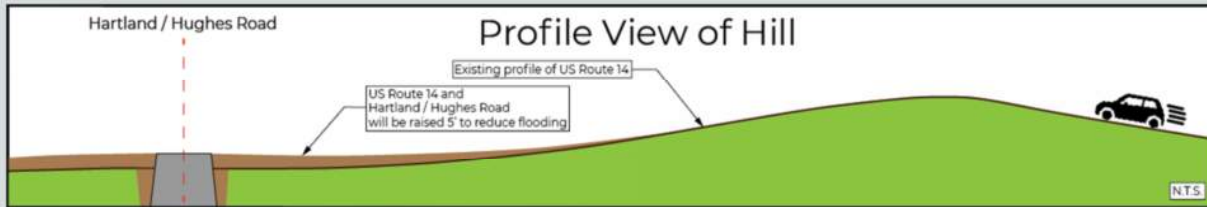


Based on Complete Streets policy and comments from stakeholders at the last Working Group Meeting, accommodations for bicycles and pedestrians were added to the roundabout. Key features include:

10 ft shared use path on each leg of the intersection which connects to the widened 10 ft shoulder currently proposed. In addition, this path can be used to accommodate any future sidewalk or path development.

Crosswalks will be provided on each leg using standard white pavement markings. In addition, there is an 8 ft pedestrian refuge in the median.

# Roundabout – Drainage Design



- Existing Drainage Issues
  - Ponding and Overtopping at SE corner
- Proposed Drainage Design
  - Raising Profile by 5 feet
  - Reconstruct Ditches
  - New drainage structures and pipes



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We will now present a few of the key elements of the drainage design. The major existing drainage issue is that IDOT has had reports of several incidents where water would pond and overtop on the southeast corner of the intersection. Then in the winter this water would freeze and create hazardous icy conditions on the roadway. In order to remedy this problem, the above exhibit shows that the profile will be raised by 5 feet to reduce flooding. In addition, a culvert will be installed for water flow to move from the southeast corner to the southwest corner.

Other drainage improvements include:

- Existing ditches are being regraded and extended to properly convey water flow and provide additional storage for overall drainage system.
- New drainage structures and pipes are proposed to convey flow from the closed drainage system at the intersection to the ditch system along US 14 and Hartland/Hughes. The new inlets will be located before pedestrian crosswalks.
- Although detention is not required at this location, providing standard ditch sections and regrading will provide additional storage.

## Roundabout – ROW



- Updated ROW needs  
~ 3.02 acres
- 8 parcels

The exhibit above shows the areas where proposed ROW (including both permanent and temporary) will need to be acquired in order to provide for the new intersection configuration, appropriate grading to tie back into the existing ground, and safely perform construction. There are still adjustments being made to the property acquisitions as we finalize design. Final ROW will be determined prior to the third Public Outreach Event and property owners will be officially notified. At this time, the approximate ROW requirements total is 3.02 acres from 8 parcels.

# DISCUSSION



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We would like to take this time to have an open discussion to gather feedback regarding the Preferred Alternative presented.

## Next Steps

Public Outreach Event #3

Design Approval

Phase II – Plan Prep. & Land Acq.



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The next steps for this project after today will be to begin preparation for Public Outreach Event #3 to share the information presented today on the Preferred Alternative with the General Public. We anticipate this event will be held in January 2023. The Project Team will also finalize the Preferred Alternative design and prepare the necessary documents to receive Design Approval. This project is currently included in the Department's Fiscal Year 2023 – 2028 Proposed Highway Improvement Program. Once this project receives Design Approval it will move onto Phase II (Plan Preparation and Land Acquisition) to develop design details, prepare construction documents and go through the land acquisition process.



# Thank you!

## Questions?



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Thank you for your time today. Let us know if you have any questions or comments.