Offset Right Turn Lanes

Trial Applications and Observations
IDOT
Vision and The Driving Task

“About 90 per cent of the information used by the driver is visual...; other inputs are audible (sound), tactile (touch, such as vibration), vestibular (affecting balance, such as stability and acceleration), and occasionally olfactory (smell).

Retroreflective Signs
Shape and Color-Coded

Retroreflective Pavement Markings Color-Coded

Lighting for Visibility and Intersection Identification

Extensive Sight Distance

Roadside Clear of Sight Obstructions

Contrasting Shoulder Material
Provide Offset Right-Turn Lanes at Intersections
A potential problem in installing right-turn lanes at intersections is that vehicles in the right turn lane on the major road may block the minor-road drivers’ views of traffic approaching on the major road. This can lead to collisions between vehicles turning left, turning right, or crossing from the minor road and through vehicles on the major road. To reduce the potential for crashes of this type, the right-turn lanes can be offset by moving them laterally so that vehicles in the right-turn lanes no longer obstruct the view of the minor-road driver.
Identifying Purpose for Offset Right Turn Lane
Identifying Purpose for Offset Right Turn Lane

Substantive Safety Issues
- Local Residents Report that Traffic in Right Turn Lane Blocks Their Vision
- Reports of Close Calls
- Crash Reports
  - Angle and Turning Crashes with Vehicles from the Stopped Leg Pulling Out
Existing Condition
Traffic at IL 1/Hutsonville Road

ADT (HCV)

Hutsonville Road

IL 1

4500 (850)

3250 (750)

2700 (300)
Crash History at Site (2003-2007)

<table>
<thead>
<tr>
<th>Collision Type</th>
<th>Property Damage</th>
<th>C-Injury</th>
<th>B-Injury</th>
<th>A-Injury</th>
<th>Fatal</th>
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</thead>
<tbody>
<tr>
<td>Turning</td>
<td>4</td>
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<td>0</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Rear End</td>
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Proposed Work
Traffic at IL 32/IL 33

IL 32

3400
(275)

3800
(575)

IL 32

7500
(775)

IL 32/33

ADT
(HCV)
## Crash History IL 32/IL 33 (2003-2006)

<table>
<thead>
<tr>
<th>Collision Type</th>
<th>Property Damage</th>
<th>C-Injury</th>
<th>B-Injury</th>
<th>A-Injury</th>
<th>Fatal</th>
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<tbody>
<tr>
<td>Turning</td>
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## Crash History IL 32/IL 33 (2008 Partial)

<table>
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<tr>
<th>Collision Type</th>
<th>Property Damage</th>
<th>C-Injury</th>
<th>B-Injury</th>
<th>A-Injury</th>
<th>Fatal</th>
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<tbody>
<tr>
<td>Rear End</td>
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Traffic at US 24/IL 103

ADT (HCV)
## Crash History US 24 at IL 103 (2003-2007)

<table>
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<th>Collision Type</th>
<th>Property Damage</th>
<th>C-Injury</th>
<th>B-Injury</th>
<th>A-Injury</th>
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<tr>
<td>Turning</td>
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<tr>
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Traffic at US 24/IL 103

<table>
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<th>Collision Type</th>
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<th>C-Injury</th>
<th>B-Injury</th>
<th>A-Injury</th>
<th>Fatal</th>
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</thead>
<tbody>
<tr>
<td>Angle</td>
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<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Rear End</td>
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Crash Reduction Study for Offset Right Turn Lanes

- Safety Effects of Offset Right-Turn Lanes at Rural Expressway Intersections (Hochstein, et al, CTRE 2006)
  - Naïve Before-After Study
  - Less Than 3 Years’ After Data
  - Not Known if RTL was Occupied or Not at Time of Crashes
  - At Two of Three Locations Showed Reduction of Near Side Right Angle Collisions
  - Recommend Before-After Observational Conflict Study

Offset Right Turn Lanes -- Experimental

- Offset Right Turn Lanes
- Warrants are Unknown
  - Traffic Volumes?
  - Truck Volumes?
  - Turning Volumes?
  - Crash Types?
  - Crash Severity?
  - Rural vs Near Town?
  - Driver Characteristics?
  - Curve vs Tangent?
- Design Guidelines Not Established
Purpose of Offset Right Turn Lane

- The offset right turn lane should provide the minor road driver with a clear sight triangle when right turning vehicles are present. (Paraphrase from Hochstein, ibid)