In-Road Warning Lights: Revisiting a Pedestrian Crosswalk Application

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Why are we revisiting an IRWL crosswalk?

- LADOT’s vision zero 2014 strategic plan aims to eliminate pedestrian fatalities on crosswalks by 2025.
- LADOT is assessing treatments at locations with low accident statistics to assess them for possible lessons.

*LA Wide*
Why did we revisit an IRWL crosswalk?

This study will evaluate a 10 year old IRWL crosswalk:

1) Product quality and durability
2) Compliance and Safety
3) Public opinion
Location, demographic, and relevant information

- San Pedro, CA
- Average Pedestrian-Vehicle Incident rate: 8 fatalities/year
Evaluation Key Points – Compliance

- Pedestrians are required to actuate any warning devices available, look for traffic, and enter the crosswalk slowly and cautiously.
- For the purposes of this study, driver yielding on a crosswalk is the act of stopping for a pedestrian as they stand on the curb and attempt to begin a crossing.
## Compliance Results

<table>
<thead>
<tr>
<th></th>
<th>Avg Waiting Time</th>
<th>Avg Crossing Time</th>
<th>Staged Activated Compliance</th>
<th>Staged – Not Activated compliance</th>
<th>Real Activated Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morning Dec20</td>
<td>6.6s</td>
<td>14.6s</td>
<td>78.9%</td>
<td>38.6%</td>
<td>93.8%</td>
</tr>
<tr>
<td>Afternoon Dec20</td>
<td>5.6s</td>
<td>14.5s</td>
<td>69.9%</td>
<td>37.1%</td>
<td>83.3%</td>
</tr>
<tr>
<td>Evening Dec20</td>
<td>4.2s</td>
<td>13.7s</td>
<td>81.5%</td>
<td>64.0%</td>
<td>75.0%</td>
</tr>
<tr>
<td>Morning Dec21</td>
<td>3.5s</td>
<td>14.5s</td>
<td>88.54%</td>
<td>N/A</td>
<td>75.9%</td>
</tr>
</tbody>
</table>
Evaluation Key Points – Compliance 2004
Evaluation Key Points – Compliance 2010
Evaluation Key Points – Compliance 2014
Evaluation Key Points – Public Opinion

How safe is this crosswalk from the pedestrian’s perception? What about driver’s? Do the IRWLs help drivers see and identify pedestrians?

- 25 subjects
- Pedestrian perception: fairly safe to moderately safe
- Drivers perception: moderately safe
- A traffic signal is recognized as “safe” or safer by all subjects
Conclusion

Quality:
- The technology has matured over the past 15 years and is even more reliable
- The quality is product dependent, just like any other ITS device, and must be specified for the highest standard available

Compliance:
- Similar to previous research, relatively high rate
- Aids with distracted drivers
- Better on wider roads than other devices

Public Opinion:
- Similar to previous research, relatively high
- Accepted and appreciated
Other Compliance Results

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Compliance</th>
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</thead>
<tbody>
<tr>
<td>Sign and Markings</td>
<td>58.22%</td>
</tr>
<tr>
<td>Overhead Beacons</td>
<td>78.00%</td>
</tr>
<tr>
<td>RRFBs</td>
<td>81.99%</td>
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<tr>
<td>IRWL</td>
<td>94.10%</td>
</tr>
<tr>
<td>Half Signal</td>
<td>98.00%</td>
</tr>
</tbody>
</table>

Legend:
- Calgary, AB
- Delta & Surrey, BC
- Winnipeg, MB
- Los Angeles, CA
Recommendations

- City wide implementation for vision zero goal
- Further research to confirm high compliance and better visibility for wider roads. IRWL comparison against other devices.