



Enhanced Red Light Enforcement (ERLE) Project Summary

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ERLE Project Needs

- Red light running is a significant safety concern
- Despite enforcement efforts, citations can be contested and overturned
- Visual evidence of violations can reduce contested and overturned citations, leading to more efficient use of resources



ERLE Project History

Phase I an ITS Project

- 2011 – Project concept originates with State Patrol
- 2012 – Project planning and design
- 2013 – System Installation with Laser Detector over the stop bar of the intersection
- 2013 / 2014 – Issues with system reliability and false calls of red light violations

Phase II a Traffic Safety Project

- 2016 – Project re-started with MnDOT
- 2017 – System re-installed with Radar Detector to monitor stop bar
- 2017 – System observation through late winter and spring

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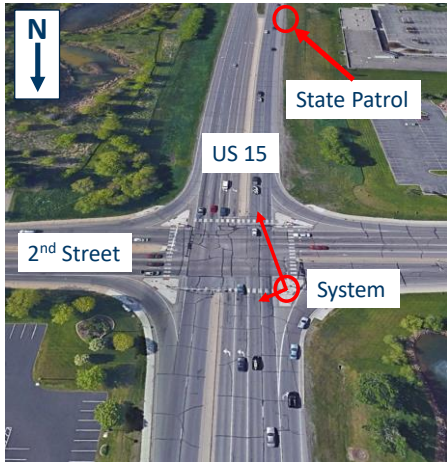
ERLE Project Goals and Objectives

- Goal: Determine the feasibility of a cost-effective and accurate red-light violation video capture system to provide conclusive evidence of red light violations
- Objectives:
 - Identify a viable and cost effective system that uses mostly off-the-shelf technologies
 - Design, implement and test a red light violation image capture system that meets system requirements and stakeholder needs

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The Logistics



- One camera is pointed toward the intersection indicator for Southbound traffic
- One camera is pointed toward the stop bar at of the two southbound lanes
- Law enforcement officer positioned south of the intersection

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ERLE System Violation Record



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ERLE Software Interface – Live View

Live View of Stop Bar

Live View of Intersection

Depth of Red Signal Text

Link to Violation History Page

Violations from Current Day

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ERLE Software Interface – Violation Playback

5 second video clip of violation

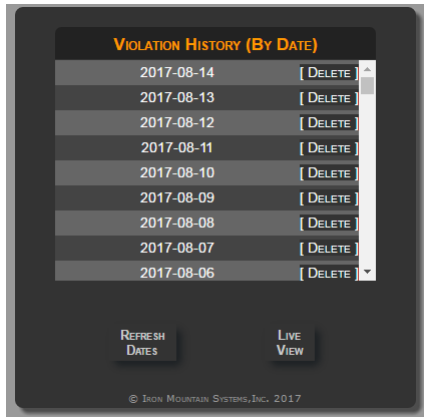
Screen captures of violation

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ERLE Software Interface – Violation History

Violation History Page



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Violations by Time of Day



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ERLE Software Interface Recording

Video Recording of Lane 2 Violation from July 26th at 12:45pm



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ERLE System Violation Record



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ERLE System Data Analysis

- Data analysis performed based on file names of System Recorded Violations
 - Hour-Minute-Second-Millisecond-Lane of Violation
- Post-processing in MS Excel to review quantity of system recorded violations and actual red light violations by time of day
- Other types of system recorded violations
 - Right Turn on Red
 - Inching past stop bar on red

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Analyses of Violations: Feb. 10 – May 8, 2017

Day of the Week	Night					Morning				Mid-Day					Evening				Night					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Monday	0	0	0	0	1	1	0	1	0	3	1	1	2	2	1	0	0	1	3	1	0	1	0	0
Tuesday	0	0	0	1	0	0	0	3	0	1	1	1	2	3	4	1	0	1	0	0	0	0	0	0
Wednesday	0	0	0	0	1	0	3	1	0	0	1	3	0	1	1	2	1	1	0	1	0	0	0	1
Thursday	0	0	1	0	1	3	0	3	0	3	1	1	1	3	1	1	1	0	0	0	1	1	1	0
Friday	0	0	0	0	0	0	0	0	1	1	3	0	0	1	0	0	0	0	0	0	0	0	0	0
Saturday	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	2	1	0	0	0	0	0
Sunday	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	0	0	0	0	0	0	0

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Analyses of Violations: July 16 – July 29, 2017

Day of the Week	Night					Morning				Mid-Day					Evening				Night					
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Monday	0	0	0	0	2	0	1	1	1	1	3	4	5	1	4	1	0	1	1	0	1	1	1	1
Tuesday	0	0	0	0	0	2	6	2	1	0	4	0	4	3	1	1	2	1	4	0	0	0	0	0
Wednesday	0	0	0	3	0	1	2	1	1	3	2	1	6	4	4	2	1	2	1	0	0	0	1	0
Thursday	0	0	0	0	1	2	4	3	0	1	2	2	5	6	3	10	1	1	2	0	0	0	0	0
Friday	0	0	0	0	1	0	1	0	2	1	4	4	0	1	2	0	1	1	1	1	0	0	1	0
Saturday	0	0	0	0	0	0	0	1	0	0	6	4	5	7	2	1	2	0	0	0	1	0	0	0
Sunday	0	0	0	0	0	0	1	0	0	2	0	3	4	7	14	6	3	0	1	1	0	0	0	0

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Benefits of the device

- Eliminates the need for officers to go through a light to pursue a violator
- Provides real-time playback at the roadside
- Provides video and photo evidence for court trials
- Logged data inform most efficient day and times to enforce the intersection

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ERLE System Next Steps

- Use of ERLE System by State Patrol and potentially Local Law Enforcement
- Post-Processing of System-Recorded and Red Light Violations After Enforcement
- Evaluation of Potential Changes to Red Light Violations
- Evaluate court challenges where video of citation may be used in court to uphold citation

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Thank you again!

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