

**RESEARCH PROBLEM STATEMENT**

<b>DATE:</b> 12/19/2019	<b>PROJECT AREA:</b> Special Projects
<b>TITLE:</b> Off-Ramp Sensors to Detect Backed-up Off-Ramp on I-40 (blocking lane)	
<b>PROBLEM STATEMENT:</b>	
<p>When rush-hour traffic is in progress and an off-ramp is backed up by a traffic light until the congestion interferes with the outside lane of traffic on a 3-lane freeway and several 18-wheelers are involved there needs to be a simple way to prioritize traffic movement. I suggest that sensors be developed to detect this condition (specifically between 5:45 - 6:20PM on west bound Morgan exit from I-40) that can permit the green light to remain green a short time longer to allow more exiting traffic to clear the main traveled way. A few wireless sensors could be placed on the off-ramp and before the off-ramp to minimize the stopped traffic issues on a high-speed freeway for safety reasons. When several 18-wheelers are exiting the condition is more likely to exist. The sensors could detect this for permitting better traffic flow to design standards and occasional conditions. The hazards are greater for high-speed traffic during rush hour to have to suddenly stop with no lane available to change to, than for slow local traffic at the cross road to have to stay stopped longer. A clock in the controls could limit this to when actuation &amp; secure signal or what emergency vehicles use.</p>	
<b>OBJECTIVES:</b>	
<p>Enable V2I vehicle to infrastructure, near real time prioritization of road hazard mitigation. Wireless technology is available but not locally used in this application to my knowledge. A local electronics engineering firm, Innovative Development Inc. does this kind of prototypes. The research done here and put into practice elsewhere could save lives and highway dollars by strategically reducing bottlenecks that would take much more time to implement. ARDOT could be a leader in connected vehicle and infrastructure advances that are sought nationwide by DOT.</p>	
<b>FORM OF RESEARCH IMPLEMENTATION AND RETURN ON INVESTMENT:</b>	
<p>The ROI would come from many directions: 1) Highway Safety/congestion and accident reduction; 2) Saving money compared to more expensive remedies that try to fix the same problem; 3) Reduced Police &amp; emergency response to accidents / insurance claims and 4) Making highways Safer.</p>	
<b>Estimated Project Duration:</b> 12 Months	
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Standing Subcommittee  
Ranking

3/9

Advisory Council  
Ranking

27

Statement Combined with  
Statement Number(s)