



## GRANTS PROGRAM



# City of Phoenix Passive Detection Technology for Bikes, Pedestrians and Motorists

City of Phoenix

## PROJECT PARTNERS

University of Arizona  
Arizona Commerce Authority  
Maricopa Association of Governments  
Iteris  
NoTraffic



City of Phoenix



## PROJECT CHALLENGE

To better position Phoenix, Arizona as a global competitor on the smart cities stage, the City has proposed upgrades to the existing HAWK beacon technology to augment active detection with passive. This innovative detection strategy has demonstrated the ability to improve safety and provides equitable access to mobility, and better overall integration of traffic systems. Additionally, as a result of the COVID-19 pandemic, pedestrians have become more reluctant to activate push-button systems to request crossing calls. In addition to bypassing this dangerous trend, proper passive detection provides the opportunity to reallocate unused time from other signal phases.

## IMPACT

Phoenix, Arizona is the nation's fifth largest city, encompassing an area of over 500 square miles and housing over 1.6 million people. The projects each involve upgrading HAWK beacons located along the western end of the Grand Canal in Phoenix; the portion of this trail that overlaps with a high number of Census tracts that have been designated as historically disadvantaged. This twelve-mile multi-use recreational trail system serves as a key transportation corridor which provides a unique opportunity for users to safely walk, run, or cycle along a dedicated pathway. Notably, the corridor intersects with other key transportation corridors and modes in the Phoenix area, such as fixed-route and demand-responsive public transportation services.

## CURRENT STATE OF THE ISSUE

The Arizona Department of Transportation has shown that the traffic related incident and fatality crisis has only continued to grow in recent years. Per their most recent annual report, overall crashes have increased by over 22% in the last year, and fatalities by over 11%. Traffic incident fatalities are currently the number one cause of death for people 54 and younger in the United States.

## POLICY QUESTIONS

What are measures of success? What does this technology bring in terms of standardization of hardware and software?

## STAGE 1 OUTCOMES

Safety: passive detection of bikes and pedestrians will result in greater compliance with signals and safer crossing conditions. Passive detection will improve outcomes by customizing the signal cycle to each crossing. Video detection also improves safety for vulnerable populations, by extending crossing time when needed for elderly or disabled pedestrians. Reliability and resiliency; the technology has been demonstrated to work with existing signal controllers and is replicable and scalable. Integration: the proposed solution represents a demonstrable improvement over status quo.

## STAGE 2 VISION

On a larger scale, these improvements will provide a better-connected system of intersections. Once tested along the Grand Canal, other pedestrian crossings controlled by HAWKS can benefit from the upgrades. In partnering with MAG (see Appendix III, Letters of Commitment), the City is ensuring that more entities in the region will benefit from this technology and the lessons learned through this pilot application. Partnering with MAG (the regional planning agency for the metropolitan Phoenix area which includes 27 jurisdictions and 3 Native American Nations) provides historically disadvantaged and low-income communities in the region access to these technologies.