

# EAGER: Sustainable Energy Bike Lanes with Applications in the City of Kuala Lumpur, Malaysia

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Prairie View A&M University (PVAMU) is partnering with University Tenaga Nasional (UNITEN) at Kuala Lumpur (KL), Malaysia, to develop renewable energy sources.

## Community Identified Problem Addressed:

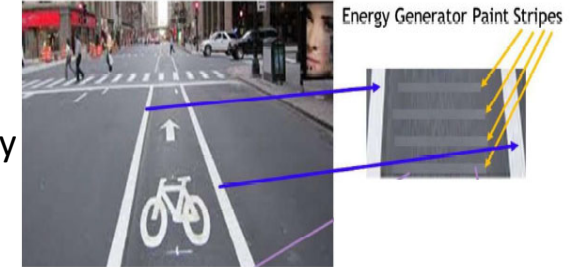
- Kuala Lumpur city is undergoing rapid growth, and currently having ~8 million people.
- Traffic congestion needs to be reduced.
- City needs (a) green mobility targets, (b) sustainable energy and (c) green lifestyle.

## Intellectual Merit:

The power generated and stored for supplying power to provide:

- emergency lights for improved safety
- charging stations for mobile devices
- purified water for bike riders

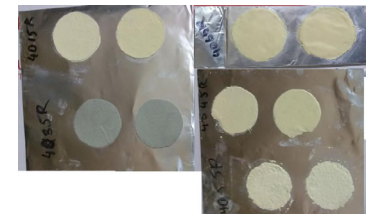
## Energy Harvesting System for Bike Lanes



## Project Activities to Date:

- Developed composite cells on aluminum and 2 out of 5 pairs tested good for mechanical stress.
- Initial tests found energy signals from these samples
- Bike lane kiosk design is complete and ready for fab.
- Rainwater filtration system is developed for purifying water for drinking.
- Kiosk's rainwater collection pad is designed with solar panels.

## PZT Composite Cell Growth on Al



## Broader Impact (Immediate):

- Kuala Lumpur city needs to reduce traffic congestion by using the bike lane and help maintain good health of bikers.
- Bike lanes with features of drinkable water and charging power will encourage more people to ride bikes.

## Broader Impact (Lasting):

- Advance the renewable energy concept by newer energy materials.
- Grid-free wireless communication and smart traffic network will establish.
- Rainwater can complement the city's water supply.

## Next Steps:

- Develop growth of cells on fabrics and porous conductor to fabricate and easily portable and attach on the bike lane.
- Complete the water kiosk and place on a 10-ft bike lane section in UNITEN and another 300ft of Bike lane in the city.