Modernize and Standardize Humboldt County Association of Governments' Process to Proactively Protect Vulnerable Road Users

Developed by: Stevie Luther

Development of our comprehensive safety action plan has been on our to-do list for the last 12+ months

HCAOG has applied and received a SS4A grant award that will be used to help develop a comprehensive safety action plan and pilot 12 temporary quick-build pop-up demonstrations. The success of demonstration activities will be measured using traffic cameras and other technologies to inform the development of our Action Plan.

One of those technologies that we are considered is Smart Road Safety sensors from a company called VivaCity dba as "Viva" in the US: https://vivacitylabs.com/north-america/

Viva has been around since 2015, operating in just about every market in the UK, AUS and NZ. They manufacture 3D computer vision, AI powered smart road safety sensors in the UK and provide real time data through an online dashboard. Viva has tracked 50 billion VRU movement counts on several thousand sensors throughout 3 continents. Viva entered operations in the States in 2022 through partnerships with authorities including:

- New York DOT
- Portland, Maine
- Alexandria, Virginia
- Peachtree Corners, Georgia
- Jacksonville, Florida
- Culver City, California
- Louisville, Kentucky
- City of Mansfield, Missouri
- City of Wauwatosa, Milwaukee
- Toronto, Canada

Their unique value proposition is focused on their Near Miss 3D pose technology which has market leading accuracy - independently validated by the Cities of London and Vancouver, and coveted by teams, consultants and researchers that need the best data. We like the idea of working with Viva because of the following:

- **Low Adoption cost:** their smart sensors are competitively priced and are often cheaper than legacy traffic count solutions, while providing:
- **Rapid diagnostic and behavioral insight** across multiple modes (they are strongest in active travel) through their **3D Pose Near Miss Video** analysis
- **All in Real-time:** No more waiting for loss of life to see if dangerous patterns are emerging or if interventions have been effective
- **No extra internal resourcing required:** Their real-time dashboard makes it super simple to generate trend analyses and before / after reports
- **Highest level of accuracy on the market:** Independently validated by several major metropolitan markets, Viva offers the most accurate, best performing sensors in all weather conditions, including low light, at night in heat, cold, rain or shine.

- **We can prescribe countermeasures** with utmost confidence because their Near Miss data is insanely accurate.

How many sensors do we need?

Most of Viva's customers have typically placed 1 - 2 sensors per intersection to allow for the collection of Near Miss data at the most critical zones.

With very large intersections and longer than average ped crossings, like the below 5-6 lane per road intersection in Jacksonville, FL, Viva will often recommend 4+ sensors to allow for more robust Near Miss Analysis. Their sensors simply need high and basic electrical power and can be moved around different locations.


What Is Near Miss and Why Is It Important?

Near Miss is defined as a near hit or close call is an almost-accident that does not result in human injury, environmental or equipment damage. Other providers that we have received proposals from offer Near Miss through 2D detection.

There are inherent problems with the 2D approach:

- The precise vehicle position in the road is not well understood
- 2D cannot accurately understand the spatial relationship between road users
- 2D detection boxes misplace road users in the road-space
- Reliable, meaningful Near Miss reporting is impossible without accurate spatial transformation into 3d
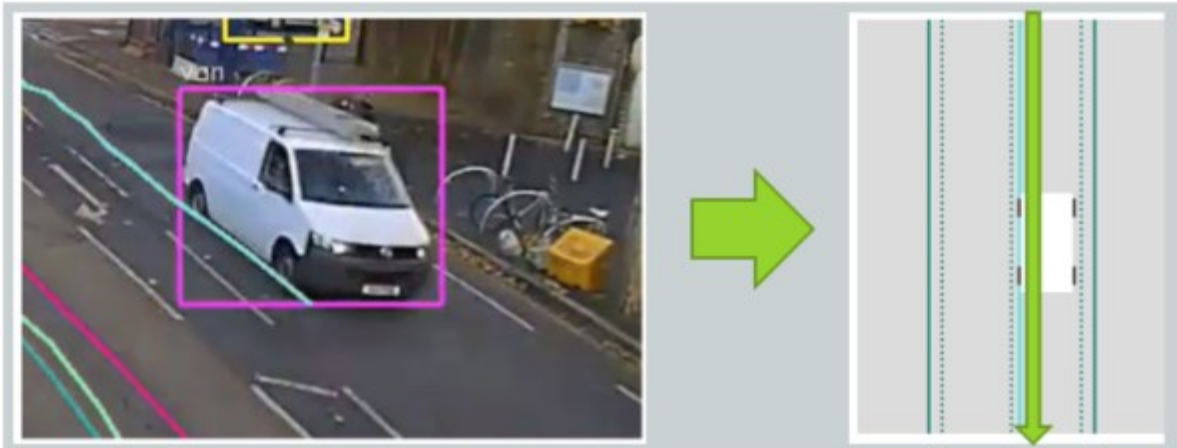
Viva's Near Miss technology leverages 3D pose detection and provides a rich understanding of unsafe events or conflicts. Which allows us to prioritise and prescribed interventions with confidence and measure the effectiveness of these countermeasures quickly. Here's a slide from their presentation on their partnership with NYDOT:
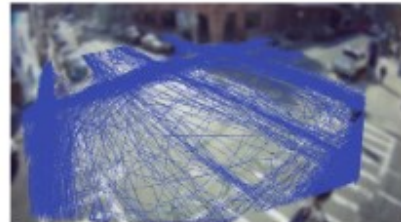

Pricing

Viva has provided their stock pricing below and has expressed their willingness to be flexible with billing terms and services and fees in pursuit of a long term partnership in Humboldt County.

They have a one time fee for purchase of the hardware and then an annual fee for access to the realtime software dashboard. License prices are based on data features on a per sensor basis but the license can be reassigned throughout the network (ie one Road Safety license can be moved for different periods of time around unique sensors):

VIVA PRICING FRAMEWORK

SAAS LICENSE BUNDLES (per sensor per year)*

Data Features Unlimited countlines | all current road user classes | AP included	Traffic Monitoring Basic $750	Traffic Monitoring Premium $1,250	Road Safety $2,500
Counts	✓	✓	✓
Tracklines	✓	✓	✓
Sensor Image	✓	✓	✓
Occupancy	✗	✓	✓
Dwell Times	✗	✓	✓
Countline Speed	✗	✗	✓
Near Miss	✗	✗	✓

SAAS LICENSE UPGRADES*

AI model improvements	✓	✓	✓
New generic dashboard & API features	✓	✓	✓
New class releases (including validation)	$250 per class	✓	✓

HARDWARE*

Sensor Volume	Sensor Unit price
< 15	$5,000
< 25	$4,500
< 50	$4,000
< 100	$3,500
< 150	$3,250
150 +	Bespoke pricing

SERVICES*

Service (per sensor)	Guided**	Full Service***
Installation	$1,000	$2,000
Relocation	$1,000	$2,000
Configuration & Validation	$500	$500
Reconfiguration & Revalidation	$500	$500