Status of AI Adaptive Signals Installation on Hwy 68?

TAMC Board Members,

I want to personally thank the Board for their unanimous vote in October to use $500K in Measure X funds to install AI Adaptive Signal Controls at all 9 intersections on Hwy 68. Your decision is welcomed by the driving public and will greatly improve traffic along that corridor.

So, what has Caltrans done since that decision and how are they efficiently and decisively moving ahead with implementing the installation? Has TAMC staff or the Board received detailed reports on the process to inform the Board on how their funds are best being used?

It was stated at the October meeting that Caltrans would require 6-12 months to do design for the installation but no details were given on what was being designed. **The logical first step is to select the vendor and product that will be used**, which has been confirmed by conferring with several engineers. You cannot design the installation until you know what is being installed. At least one of the systems being considered requires no inground wiring/conduits and no additional pole structures since it uses the existing intersection hardware. **So, what exactly is Caltrans designing?**

Caltrans engineers have been evaluating the AI Adaptive System for Hwy 68 since December of last year, so they should be ready to make an informed decision as to which system is best suited for optimal results in this specific application. I have sent **two recent emails to the Caltrans District 5 Director and engineers**, highlighting comparative points between systems and asking for a response on their decision-making process. **I have received no response and am including those two emails at the end of this letter.**

The second critical step that Caltrans needs to define is **how will they objectively and transparently document the current traffic data along this corridor so they can accurately measure the effect that the AI Adaptive System has during different traffic situations?** It is obviously very important to measure the before and after differences to asses the improvements the AI Adaptive System generates. This will establish the benchmark by which all other alternatives, including roundabouts, will be measured, and evaluated.

I trust the Board will request regular (at least monthly) and detailed reports from Caltrans on exactly what is being done on this project and how decisions are being made to use Measure X funds wisely and in a most efficient and time sensitive manner. The public deserves the best system installed ASAP.

Thank you,

Dwight Stump

Email sent to Caltrans on 11/15/24

Mr. Stoehr and Ms. Yu,

It has been 20 days since the TAMC Board voted unanimously to allocate $500K in taxpayer funds from Measure X to pay for the installation of **Adaptive Signal Controls using Artificial Intelligence (AI)** at all 9 intersections on the Hwy 68 corridor. What has Caltrans done since then to implement the project and what specific steps will be taken, going forward, to be

certain that the **best system** is selected and installed in the **most efficient and expeditious** way possible? I trust that Caltrans will be very transparent and accountable to both the TAMC Board and the public, who are paying for the improvement with their taxpayer dollars.

There were statements made by Caltrans and TAMC staff at the Board meeting on October 23 that it would take 6-12 months for Caltrans to do the necessary design work at the 9 intersections before installation would begin. Many in the public, including myself, question why so much "designing" is necessary and why it is projected to take so long. It seems logical that the **first step** would be to select the **best system** that incorporates **the most current AI technology** and then allow the selected vendor to provide their system's needs which are then interfaced with the existing signal hardware/software. It is reported by one of the vendors being considered (Miovision) , that their single, 360-degree camera does **not** require any additional poles to be installed, and it uses one cable that does **not** run underground and thus does **not** require conduit. Since the camera interfaces with the existing ground loops for detection, what exactly needs to be "designed" by Caltrans that is projected to take so much time? The TAMC Board and Public have been waiting for years to see an improvement in traffic on this corridor, so they both deserve explanations by Caltrans as to exactly how they are moving forward in a detailed and regular manner.

Selection of the **best system** for this specific application on Hwy 68 is **critical** but should be able to be done expeditiously since investigation of the AI Adaptive Systems by Caltrans engineers has been going on since December of last year. The selection seems to be between the systems from Miovision and Rhythm and I listed some of the reported pros and cons of both systems in my email of Sept 18. I trust that Caltrans will evaluate carefully **which system <u>best</u> uses the technology of Artificial Intelligence** and makes it an integral part of their product. "Adaptive" signal controls, as Caltrans knows, have been around for some time and many do **not** use AI to achieve the optimal results that this new technology has to offer today and going forward. For example, it was reported that Rhythm's InSync adaptive product does not use AI and must be tied to another of their products (Cyclops), that does use that technology, in order to take advantage of **AI's detection superiority.**

The Public expects Caltrans to be transparent and accountable in the following areas:

1. What exact criteria were used in selecting the best AI Adaptive System for Hwy 68 in a fair and objective manner?
2. Was the need for new firmware, which also carries some new advantages, a factor in the decision?
3. Was a system's internal integration considered in determining best results and operational smoothness?
4. How was the use of AI by each of the systems evaluated and compared?
5. How is Caltrans planning to collect and evaluate the actual traffic data before the system is installed at the 9 intersections to compare to the traffic data after implementation to yield a fair and objective comparison of results?

I trust that Caltrans is embracing this great opportunity of TAMC supplying the necessary funds to implement the AI Adaptive technology on this corridor, so Caltrans can see the benefits and cost advantages of this approach over others that were considered. It should provide Caltrans with a cost/benefit example to potentially apply to similar situations in California going forward. AI is currently impacting society in many positive ways, and I trust that Caltrans can bring these positive changes to the traffic situation on Hwy 68 as soon as possible. The Public deserves it and is paying for it.

Thank you,
Dwight Stump

Email sent to Caltrans on 9/18/24

Mr. Stoehr,

Since I have not received any response from you to my email sent two months ago, I am left to just assume that Caltrans is still in the process of implementing the pilot study and selecting the best product for this specific situation. While I wait for some answers to previous questions, I wanted to convey some information that seemed important to me and hopefully is being considered by those at Caltrans District 5 and Caltrans Headquarters that are charged in making the final decision on the best company/product for the pilot study.

As I stated before, I have no stake in which product is selected but want the best system for this application on Hwy 68 with the significant distances between the intersections. Other factors include which system works best with the existing **Opticom** system and can build on that with new technology that makes it function even better and with more emergency responders. Since Miovision owns Opticom, it seems that would be an advantage in working with local first responders along this corridor. Hopefully Caltrans in investigating how the advances in the system have been implemented in San Rafael, CA.

Miovision has been very engaged and transparent, beginning with the two hour zoom meeting last year, (presentation attached) that essentially started this discussion with Caltrans of the advances that Artificial Intelligence has brought to Adaptive Signal Systems. It seems they have been very responsive to questions and have spent significant time with TAMC and Caltrans, in evaluating the advantages of their system, costs and how it could be installed. I know that they have supplied a comparison sheet (attached) to Caltrans and TAMC listing the differences between their **Surtrac** system and **InSync from Rhythm** and hopefully those items have been carefully considered by Headquarters along with any similar comparative information from Rhythm itself, from their perspective.

I believe Miovision's **Surtrac** system integrates the AI detection into one piece of hardware which makes it easier to implement but may require some additional firmware. I believe Rhythm does not have AI in their **InSync** adaptive system and needs to add their **Cyclops** to take advantage of the newest AI technology but may not need additional firmware. Let me know if my beliefs are accurate and I trust Caltrans engineers are doing careful analysis of which system is the most advanced and which will produce the best results in this specific application. While I

know costs are important, I trust that cost/benefit is the driving force behind the decision to select today's best technology for this application so future decisions can benefit from seeing the results.

Another item to consider is the Miovision's **Traffop** (attached) which to my understanding is included in their proposal for the pilot study as a tool to analyze the before and after traffic conditions for the study. I understand that Traffop cannot "see" what tools are being used to operate the intersection since it simply provides insights and dashboards based on the data that goes through the signal controller. This should make it unnecessary for Caltrans to spend the extra time and money to install cameras or other equipment to provide a thorough analysis of the impact of the pilot study. I don't know what other suppliers like **Rhythm** have along this line but they may also have a system that can supply objective/unbiased data to verify the results of the adaptive system installation without additional costs and time for Caltrans.

Another consideration is which system will function best, both now and in the future, with connected and autonomous vehicles as technology progresses so cars can communicate with traffic signals for better flow and safety. Miovison's recent acquisition of **Traffic Technology Services** (TTS), the leading provider of connected vehicle technologies, definitely puts Miovision in the position to bring this technology to the intersections on Hwy 68 in the future.

While some members of Caltrans may have seen the brief description of the Miovision system that was given to the TAMC Board, I am also including it to be sure everyone has all the information available. That way, accountability for decisions will not be subject to any lack of knowledge or information. I'm sure that Rhythm has a similar presentation of their InSync and Cyclops system but don't know if it was presented to TAMC or Caltrans.

I totally understand that the decision of which system to use in the Hwy 68 pilot study is up to Caltrans but I wanted to make sure that those in the decision process at District 5 and Caltrans Headquarters considered all the important information before doing so. Ultimately, I trust that the best system will be selected by Caltrans to evaluate how this new technology performs along this entire Hwy 68 corridor, so informed and wise decisions are made in the future on the best use of taxpayer funds.

Thank you for considering this information and I look forward to a timely response.

Dwight Stump