**NoTraffic – Israel - 2017**

**Miovision – Canada - 2005**

RhythmEngineering – Kansas, United State - 2005

Iteris – California, United States – 2004

**Miovision:**

**They give us the best place to setup the device in an intersection**

**Combining Latest hardware technology, User friendly software, Practical training and customer support.**

**Miovision has offices in north America and Europe – which plans, collect, analyzes and interpret the data in one centralized location,**

**Less time collecting data and more time solving real time problems.**

**Data collected through – Miovision Scout**

**Claims that - Miovision has 7 billion + vehicles counted and**

**770 million – cyclists and pedestrians counted.**

**Collected data from 66 countries around the world .**

<https://www.youtube.com/watch?v=F1yMpInkuLg&t=60s&ab_channel=Miovision>

**Case Studies of Miovision:**

City of Quincy, Massachusetts

• Modus Consult, an engineering firm based out of Germany

• The region of Waterloo, Canada

• The Town of Milton, a community west of Toronto

• City of Chicago

• The High Street/Mount Holly Bypass, Delaware

• Escambia County, Florida

**Region of waterloo:**

**Aim: To enable a relatively small traffic operations team to monitor and manage an expansive and increasingly complex transportation infrastructure, the Region of Waterloo needed an efficient, effective, modern solution to manage its network.**

Using Miovision TrafficLink, the Region’s traffic operations team receives immediate alerts of road or infrastructure incidents, enabling the team to:

* Remotely monitor and resolve incidents
* Use infrastructure alerts to prioritize maintenance resources
* View streaming video from intersection cameras to verify and assess incidents
* Send automated alerts of road issues to transit and emergency medical services

In June 2016, a collision at one of the region’s busiest intersections clearly demonstrated how the TrafficLink platform is helping the Region’s traffic team. When the collision occurred, the performance measures within TrafficLink clearly showed there was an issue through:

* A spike in travel time along the corridor
* A significant drop in southbound vehicle volumes

These metrics alerted the city engineers within minutes of the accident. Immediately after becoming aware of the collision, engineers were remotely monitoring the situation in real-time through the SmartView 360 camera. The team was able to act quickly, dispatching the necessary resources to resolve the issue, instead of waiting for citizen complaints to start pouring in.

**City of Peterborough:**

Using Miovision TrafficLink solutions with Miovision Surtrac adaptive traffic signal control systems, the City of Peterborough initiated a pilot project to compare traditional signal timing systems with adaptive signal systems. The project resulted in close to $1 Million in reduced user costs, reduced vehicle emissions by 20%, decreased vehicle delay by 41.3% and split failures by 46.4%.

Travel Time With Miovision TrafficLink dashboards, the city was able to define and compare travel time differences between the adaptive signal timing and TOD systems. During off-peak traffic flow periods, adaptive control and TOD control kept similar travel times along the corridor. During free-flow traffic, vehicles took 126 seconds to travel through the tested area at the speed limit, assuming no stops. Using the existing TOD control during peak times, the average travel time through the corridor was approximately 253 seconds in the eastbound direction and 270 seconds in the westbound direction. Compared with the adaptive control system, the travel time through the corridor was reduced by approximately 28 seconds (11%) in the eastbound direction and 80 seconds (30%) in the westbound direction

**Side Street Vehicle Delay**

Miovision TrafficLink revealed that with the adaptive control system, side street vehicle delay increased an average of 63% during peak periods. This was an expected outcome as the adaptive software automatically adjusts the signal timing to current traffic needs by reallocating green time from side streets to manage the heavier traffic flow on the main street. An increase in side street delay was shown to be most pronounced at intersections with heavy turning volumes or where geometric deficiencies affect the ability of side street vehicles to utilize the available green time.

**Corridor Stops**

Corridor stops occur when vehicles are forced to stop on the main thoroughfare street due to insufficient green time. On average, TrafficLink highlighted that the adaptive signal system reduced corridor stops on Lansdowne Street by 37% in the eastbound direction and 53% in the westbound directions. This key performance measure reduced the overall travel time along the corridor.

TrafficLink performance measures and the adaptive signal control system reduced congestion, delay, and travel time, improving the level of service in both the Eastbound and Westbound direction. The overall improved level of service equates to an approximate 6% increase in corridor capacity.

**User Cost Savings**

Using Miovision TrafficLink with the adaptive control signal system, there was an overall reduction in user travel time in the pilot study area. The results of the pilot estimated travel time savings over a typical year to be approximately $977,000 in reduced user costs. User cost savings are calculated as the value of reduced delay time for vehicle passengers, multiplied by the average vehicle occupancy (1.2 for cars and 1.0 for trucks). They are based on the median hourly wage rate for all occupations ($19.64 / hr for passenger vehicles and $55.24 / hr for trucks). The estimated fuel saving from implementing the adaptive signal control system within the pilot corridor was approximately 106,700 liters per year, an additional savings of about $213,000 annually based on an average fuel price of $2.00 per liter. The reduction in fuel use by drivers generated an estimated reduction of 273 tons of CO2 emissions annually within the pilot project study area.

Source: <https://miovision.com/trafficlink/managed-connectivity>

**A Modern Approach to Traffic Management:**

Today, Signal Performance Measures (ATSPMs) offer a cost-efficient and data-driven way to identify and assess problems, which alleviates the need for frequent field visits.

Using customer collaboration and communication, Miovision Traffop™, a software-only solution that uses ATSPMs and AI, proactively flags potential issues in traffic networks by providing actionable insights that will help improve flow and save time.

The city had received a citizen complaint about the green phase being too short at the Westbound approach at Second Street and Main Street during the AM peak. When a green phase is too short, the duration of green isn’t sufficient to serve all vehicles waiting at that approach, thus forcing vehicles to wait for more than one cycle to pass through.

To ensure the citizen complaint didn’t stem from an isolated incident, such as a sudden spike in demand, the issue needed to be verified as a persistent problem. For that purpose, “not enough green” translates into Split Failures which the engineer investigated to diagnose the problem and verify the complaint.

To address the problem, the engineer took four seconds from the major phases’ (2&6) green time and added it to the problematic phase 8 (Westbound) in the AM peak. With the addition of four seconds, the number of Split Failures had gone down substantially in the AM peak. However, the engineer’s work wasn’t done. (for example, the problem gets solved for the Westbound Left, while the Southbound Left becomes problematic)

The following two charts use Split Failures (as MOE) to measure the impact of adding four seconds to the problematic movement (Westbound - AM Peak Plan):

Before the addition of four seconds to the problematic movement, there were 22 Split Failures within 86 cycles, and they were happening almost every cycle between 7:50 – 8:10 AM.

Seven days later, the same chart was investigated to evaluate the potential improvements. As shown in the image below, the number of Split Failures has been substantially reduced from 22 to 9, a reduction of ~60%.

And further to optimize the other similar problems faced due to the addition of seconds onto one particular signal there used Queue length concept to optimize the routes congestion and thus efficiently appeasing the “Not Enough Green” issue.

<https://miovision.com/lp/get-scout?utm_source=google&utm_medium=cpc&utm_campaign=go_s_b_en_na_sc_ao_co_GetScout&utm_content=Brand_Scout&utm_term=miovision%20datalink&gclid=CjwKCAiApvebBhAvEiwAe7mHSBKmX9zsQNT5Ce7BbO-LnyVjXz5Fi4Y9w1ps8n_ZK1V0jmvYOhyy8xoCYYUQAvD_BwE>

NoTraffic

- *Bradley Berman* - Theorist

NoTraffic offers an end-to-end solution that includes software, a **camera-radar sensor unit and a SAS-based traffic-management platform**. An initial deployment for NoTraffic usually comprises about 10 to 15 intersections, although some setups are larger.

Competing NoTraffic offers an all-in-one, hardware-software solution. The company’s technology also includes three essential components. First is a set of four proprietary sensors –one per approach – that uses a camera with machine vision and a compact automotive-grade radar in a box. The system can take other inputs as well, including signals from connected vehicles.

The sensor units detect objects approaching the intersection from up to 900 feet (274 m) away. The system differentiates traffic based on a human-eye level, estimating each vehicle’s arrival time to the intersection. NoTraffic situates an Nvidia-powered “edge-computing device” in the intersection cabinet, although some of its AI is shared with cloud-based computers

The installation takes around one hour but once done it is ready to be used. NoTraffic has agreements with companies such as AT&T.

Finally, NoTraffic uses cellular-based communications to create a network effect via the cloud. Rather than passing full-streaming video or other large files, a set of extrapolated lightweight metadata about the vehicle types, latitude-longitude, speed, and direction is passed between the nodes. Latency is claimed to be minimal.

<https://www.sae.org/news/2020/12/traffic-light-automation?utm_source=google&utm_campaign=TN_Edge_PH>

Customers - City of Phoenix and City of Tucson.

<https://www.cbinsights.com/company/notraffic>

<https://www.youtube.com/watch?v=O_Bpyuu_URI&ab_channel=NoTraffic>

Case Studies:

The City of Redlands, California selected NoTraffic to provide a technical demonstration of advanced traffic management tools that could meet the city’s evolving need for ITS solutions. In just two months of optimization, with installations at only 2% of city signals, the NoTraffic platform provided the following benefits to city residents

59% - Direct cost savings

900hours - Delay Eliminated

$331,380 - Economic Benefit

11Tons - Emissions Reduced

How it works?

**Virtual Management Center:**

The VMC offers human oversight to NoTraffic’s AI-based system. Operators focus on preventive monitoring, optimization, and fast paced resolutions. They also dig through the system for information that can be beneficiary for both customers and product teams to ensure safety and efficiency are always top of mind. This helps NoTraffic address any issues in real time and can help catch client challenges earlier than competitors.

**Plug & Play AI sensors:**

NoTraffic’s plug and play AI sensors can be installed quickly to existing infrastructure, connecting the intersections to a managed grid in under 2 hours. They are able to classify any type of road users - bicyclists, pedestrians, trucks, buses, cars, and emergency vehicles. Connected vehicle capabilities (DSRC and C-V2X) are also integrated into the sensor units, providing more opportunities for smart technology on the road.

**NoTraffic Apps Engine:**

The NoTraffic Apps Engine is installed in the traffic light cabinet, integrates with all types of existing traffic controllers. The NoTraffic Apps Engine aggregates sensor data from each intersection on the grid, offers valuable insights to traffic engineers and city officials.

The Traffic Apps Engine enables a rich ecosystem of mobility apps and services for residents, to improve the quality of life.

### **Product Impact**

Reduction in CO2 emissions

Improvement in safety of vulnerable road users (pedestrians and cyclists)

Reduction in total vehicles & pedestrians delay time

Key Features:

Cyber Secured

Pedestrian/ Bicycle Prioritization

V2X enabler

Emergency Vehicle

Preemption (EVP)

Transit Signal Priority (TSP)

Red Light Extension (RLE)