ITEM# 19
DATE: 05/26/15

COUNCIL ACTION FORM

SUBJECT: SOLE SOURCE PROVIDER (MIOVISION AUTOMATED TRAFFIC DATA COLLECTION SERVICES)

BACKGROUND:

In the 2014/15 Capital Improvements Plan under the Traffic Engineering Studies program there is a project to collect intersection turning movement counts at signalized intersections throughout Ames. The purpose of this study is to collect current traffic data to establish hourly traffic patterns and to determine modal split at these major intersections. Data will also be used to update the traffic signal timing and coordination plans. Current timing plans were last updated around 2008 based upon the availability of staff at the time. Past practice has been for staff to sit at an intersection and manually count turning movements using either an electronic or analogy counting board. National best practices advocate for a proactive approach to traffic management – the City's count program, and specifically the use of video processing to automated collection of that count data, is intended to meet that requirement.

Recent changes in traffic data collection technology has opened up the opportunity for automated traffic counts through the analyzing of intersection video. **Currently there is only one company that offers a data collection services that are fully automated, this company is Miovision Technologies, Inc.** They have created a software algorithm that processes video information to determine vehicle counts and classification. Because of the process power needed to perform this task, video files are uploaded through via a web portal and processed using Amazon's cloud based data services. Staff has successfully used their services in the past and concurs with the justification for the City of Ames to use Miovision Technologies, Inc. as the sole provider of automated video process services to provide count data at various intersections in Ames.

COST COMPARISON:

Current methods available for collecting count data are; Manual Methods - Paper forms, Hand "Click" Counters, or Hand-held Electronic Counters; Semi-Automated to Automated - Pavement Loops, Radar, or Video based. Most methods require the physical and continuous operation by an individual in real-time.

When collecting count data manually at an intersection it usually takes two staff members and one vehicle parked at the location to accurately enter data. This is because peak-hour traffic at signalized intersections have too much activity for one person to capture – it is especially true when you are needing to count pedestrians,

bicycles, transit, and motor vehicles separately. Typically, manual classification of separate modes takes a count for each individual mode since it is almost an impossible task to ask a staff member to collect at the same time. (Note: Miovision method includes an estimated $75.00 setup cost for staff to place video equipment.)

Example 1: 12 hour continuous count (no classification)

Method	$/hr	Duration	Total
2 Interns + Vehicle	$ 80.00	12	$ 960.00
2 Full-Time Staff + Vehicle	$ 132.00	12	$ 1,584.00
Consultant (2 people)	$ 140.00	12	$ 1,680.00
Miovision Technologies	$ 26.00	12	$ 387.00

Example 2: 12 hour continuous count (with ped/bike/vehicle classification)

Method	$/hr	Duration	# of Counts	Total
2 Interns + Vehicle	$ 80.00	12	3	$ 2,880.00
2 Full-Time Staff + Vehicle	$ 132.00	12	3	$ 4,752.00
Consultant (2 people)	$ 140.00	12	3	$ 5,040.00
Miovision Technologies	$ 26.00	12	1	$ 387.00

Cost estimate, citywide, for one year's worth of counts.

Method	Subtotals	Signals to Count	Annual Cost (x1)
2 Interns + Vehicle	$ 2,880.00	68	$ 195,840.00
2 Full-Time Staff + Vehicle	$ 4,752.00	68	$ 323,136.00
Consultant (2 people)	$ 5,040.00	68	$ 342,720.00
Miovision Technologies	$ 387.00	68	$ 26,316.00

As seen in the tables above, when comparing the efficiencies of typical manual counting by staff members or consultant to the automated video counting services of Miovision Technologies there is a significant cost-benefit. These calculations do not include the safety benefits of not have staff parked at the corner of these high traffic intersections for a 12-hour period. It also does not include the human error associated with fatigue a person experiences when counting traffic for 12 continuous hours that leads to inaccuracies in the data collected. **The 2014/15 CIP programmed $50,000 from Road Use Tax in the Traffic Engineering Studies program for this activity.**

ALTERNATIVES:

1. Approve Miovision Technologies, Inc. of Kitchener, Ontario, Canada, as the sole provider of software that will analyze recorded raw video from an intersection, roundabout, highway, or mid-block location and provide a detailed, tabular report of vehicular counts, movements and classifications.

2. Direct staff to maintain the current practice of manual traffic data collection.

MANAGER'S RECOMMENDED ACTION:

Public Works staff in the Traffic Division has conducted several searches of traffic venders, consultants, and product demonstrations at trade shows throughout the years. Currently, Miovision Technologies, Inc. is the only provider of truly automated collection of traffic data collection with classification available on the market. The analysis above also clearly shows that Miovision's services provide the best product at the most cost effect price. This action will only approve Miovision as a sole source provider. In the future, a contract will be solicited from Miovision for a specific amount depending on the scope of a particular data collection or traffic study effort.

Therefore, it is the recommendation of the City Manager that the City Council adopt Alternative No. 1, as described above.

Attachment 1: Comparison of Municipal Traffic Data Collection Practices

City Responded	Q1 *1) Do you use Manual or Automated methods for collecting turning movement counts? (examples = Paper forms, Hand Counters, Hand-held Electronic Counters, Pavement Loops, Radar, or Video based)*	Q2 *2) Who collects the data? (examples = City Staff, Consultant, or other Vendor)*	Q3 *3) How often are turning movement counts collected? (examples = As Needed or for a Specific Study, Annually or other time period, or Continuously by automated methods)*	Q4 *4) Do you budget for data collection or is it just part of your general operating budgets? If it is separate, do you usually use Lump Sum or Hourly cost estimates? and if so, can you provide some typical costs?*	Q5 *5) If you have some thoughts or experience that I did not cover in these questions or anything you think would be helpful please let me know.*
Waterloo	We have not collected turning movement counts for over 10 years.	n/a	As needed.	We have budget for temporary help which used to be used for count collection.	Machine counters and video detection cameras can be helpful in collecting approach volumes.
Marion	Manual on hand counter	city staff, sometimes a consultant	as needed	Contained in the project budgeted cost	N/A
Iowa City (By MPO)	MPOJC uses manual hand-held counters to collect the bulk of our turning movement counts. We use Jamar Technologies brand hand-held electronic counters and Apple iPads with a turning movement app.	MPOJC interns conduct the vast majority of our counts with staff occasionally filling-in.	MPOJC turning movement counts are collected 'as needed' for specific studies. We also collect counts for 1/5 of the metro area traffic signals each year (on a rotation) so we are keeping up with signal optimization.	Intern turning movement data collection is part of our general operating budget.	We have found that iPads with a turning movement app are the most cost effective device for collecting turning movement counts. However, they are not as easy to use at locations with very high traffic volumes. For these locations, we find the Jamar Technologies brand hand-held counters to be easier to use (and thus more precise).
Council Bluffs	We use hand-held electronic counters. We have used intersection video detection cameras in the past but because of the different ideal camera positioning for intersection detection and count detection, we don't consider the data reliable. We have recently installed intersection radar detection and plan to try using that for counts soon.	City staff including temporary workers.	As needed.	General operating budget.	A local engineering company working for IDOT used a company called Miovision (miovision.com) to collect turning movement count data. Miovision provides a specialized camera, but they were also able to extract data from recorded PTZ camera video.