

Computer Speeds Toronto

By Jack Eisen

Washington Post Staff Writer

TORONTO — A computer that tells traffic what to do has speeded the flow of vehicles on major Toronto streets by an average of 15 per cent.

Soon the traffic itself will tell the computer what to tell the traffic, and the time-saving for motorists should jump perhaps 25 per cent.

This Canadian metropolis of 1.8 million people, spread over 240 square miles, is the first North American community to install a business-type digital computer to activate its traffic signal system. Some other cities, including Baltimore, use specially designed computer systems for traffic control. Washington uses a pre-programmed mechanical system for its 65 square miles and is watching the Toronto experience with interest.

Autos Numerous

Toronto's traffic problems are the same as those of most big American cities, including Washington. Downtown

After a limited but successful neighborhood experiment, Metro bought and installed a Univac 1107 computer and its little brother, a 418, behind a glass partition in the lobby of the old City Hall. This modernistic fish bowl, with its console, flashing lights and spools of magnetic tape, lends an eerie touch to the very Victorian building.

The computer is the brain of a vast nerve system of wires, leased from the telephone company, leading to and from 300 intersections. One set of wires picks up impulses from sensors buried beneath street pavements. The other set leads from the computer back to signal control boxes at each intersection.

Right now, the data coming in from the sensors is being used mostly for observation purposes. The data is helping create future programs—that is, instructions—that will be fed into the computer.

Such data formed the basis for a temporary traffic control program now being used. This interim program calls for

a mess, thanks to illegally parked cars and very heavy streetcar traffic which will end next February when a new subway is opened. On Avenue Road, similar to Washington's 16th Street NW., there were several stops that seemed unnecessary.

When I reported my findings, traffic chief Cass chuckled. He had observed the same problem that very afternoon on Avenue Road and discovered that the wrong program apparently had been fed into the computer. It was favoring the less heavily traveled cross streets over the artery.

Stops Cut in Half

On Jarvis Street, showcase of the computerized system, rush hour traffic has been speeded over a 1½ mile controlled section by 34 per cent, from 7 minutes down to 4½ minutes, and the number of stops by motorists has been halved. Over all, the computerized system is saving about 15 per cent in travel time and

other governmental uses. During these times, the system operates mechanically although the smaller 418 computer can maintain a limited program if needed.

During November, tests will begin on a traffic-activated system. The sensors at each intersection will send their impulses to the computer, which, based on the program it has been told to carry out, will decide how best to direct traffic. Almost instantaneously, impulses will be sent out to the signal control boxes.

If, for example, traffic runs unusually heavy along Avenue Road, the computer will keep its signals green for longer intervals.

Unlike other cities' installation, Toronto's computers will consider the speed of traffic as well as the volume. The time it takes each vehicle to pass across each sensor is transmitted to the computer, and the average time of all vehicles minute by minute is converted into the speed of flow.

Traffic

Hence, if a traffic jam develops, the sensors will note that fact and signals will stay green longer in front of the snarl to get cars moving again. At the same time, the computer will keep the red light on longer behind the jam to prevent cars from piling up and making it worse.

Prints Information

As this is done, Univac will

tell the operator at City Hall console about the problem by means of automatically typewritten print-outs. All the while, the computer is storing up all the information about the traffic flow at the jam and everywhere else in the city. It can be checked later and, if necessary, the program changed by giving the computer new instructions.

The computer even could be told to re-enact the jam.

Toronto motorists don't know precisely which streets are computerized and which aren't, and officials are not publicizing details of the program so motorists will not jam the controlled streets.