

Memorandum



GOE

Agenda Item No.

7(A)

Date: July 8, 2008

To: Honorable Chairperson Natacha Seijas
and Members, Governmental Operations and Environment Committee

From: George M. Burgess
County Manager

A handwritten signature in black ink, appearing to read "G. Burgess". The signature is written in a cursive, flowing style.

Subject: Vehicle Detection Loop Report

Pursuant to your May 1, 2008, memorandum in which you requested that the Public Works Department (PWD) identify alternative funding sources, in order to expedite the replacement of damaged vehicle detection loops at signalized intersections within Miami-Dade County, please be advised of the following information.

Please note that there are no County records which indicate that municipalities have expended any of their PTP funds for the loop replacement effort. The cities normally select their own priorities for their PTP allocations and have always relied on the County to provide maintenance of the traffic signal system. Nonetheless, the Cities of Doral and Miami Beach have recently proposed to undertake and prioritize this maintenance effort, but are requesting to be reimbursed for the associated costs.

Regarding the possible use of Tax Increment Funds (TIF) within the boundaries of our many Community Redevelopment Agencies, TIF may only provide funding if infrastructure improvements that were part of the original plan or if the improvement is part of the geographical region of the TIF. In addition, the Convention Development Tax (CDT) can not be used for the vehicle detection loop effort.

PWD recognizes that the Miami-Dade County (MDC's) traveling public would benefit significantly if the loop replacement backlog is eliminated. A functional vehicle detector on a minor signalized intersection approach enables the traffic signal controller to serve that approach only on an as-needed basis. When the controller detects there is no further need to serve the minor approach, it can provide additional green time to the major intersection approaches, above and beyond the amount of time it would otherwise provide. When vehicle detectors are working properly, traffic flows through an intersection from both the major and minor approaches most efficiently. However, when the detectors are inoperative, the controller assumes there are numerous vehicles present on the minor approaches, which results in unnecessary increases in the amount of green time provided to the minor approaches and in the red time provided to the major approaches. Therefore, maintaining vehicle detection loops in their fully-operational state is a high priority to PWD.

Of the 2,700 operational traffic signalizations in MDC, 2,230 (83%) are designed to operate most efficiently with vehicle detectors. The remainder operates only with pedestrian detectors, emergency vehicle detectors, or without detectors due to being in a tight grid network, with significant traffic volumes on all approaches. At those 2,230 vehicle-actuated signals, about 99.5% of the detectors are magnetic vehicle detection loops, commonly known as just loops. The number of loops per vehicle-actuated intersection ranges from 1 to 16. At an average of 4 or 5 loops per location, there are about 10,000 loops in MDC. Based on the aforementioned, given an average loop life of about ten (10) years, MDC must replace ~1,000 loops per year, or ~80 per month, to keep the vehicle-actuated intersections working as efficiently as possible. MDC's current loop contractor is replacing loops at an average rate of only 25 loops per month and road construction contractors probably replace a

comparable number of bad loops per month, resulting in the replacement of approximately 50 loops per month instead of the needed 80 per month. Per MDC records, ~540 (25%) of the 2,230 vehicle-actuated signals currently have one or more failed loops. At an average of 3 or 4 failed loops at each of those 540 intersections, this equates to about 20% of our entire loop inventory. MDC is not alone in facing this challenge of keeping its loops operational; a recent independent study found that ~40% of the vehicle detection loops within the State of Florida are inoperative at any given time, which is double the current MDC failure rate.

It must be noted that loops have a limited life; many fail after ten (10) to fifteen (15) years due to old age. Others are damaged by contractors and/or utilities working in the intersections many years short of their normal lifespan. The PWD consistently tries to identify contractors who damage infrastructure in order to hold them responsible to make the necessary repairs at their own expense. Although, PWD recognizes that many contractors are very responsive and repair their damage as soon as their own work at an intersection is completed, it is a fact that damage is sometimes difficult to be promptly detected since the related construction is usually of a short duration. Therefore, in those cases where it may not be conclusively proven who the responsible party for the damage is, the County must underwrite the cost of the repair. With the usual cooperation among the permitting agencies such as FDOT, the County and municipalities, PWD is able in the majority of cases to identify the offending contractors and hold them accountable for the repairs.

Since the price to replace loops has escalated from ~\$400 to ~\$1400 per unit in the past several years, PWD would like to complement this effort with in-house forces, as was done in the early 80's. In order to accomplish this and mitigate the higher contract, costs to date PWD has reassigned 2 Signal Technicians from within the Department's Traffic Signals & Signs Division and has hired a crew foreman to begin the loop replacement effort. Additionally, PWD had increased the Secondary Gas Tax (SGT) funding allocation for the current fiscal year ('07-'08) from \$250,000-\$500,000, and for fiscal year ('08-'09) an additional \$500,000 has been identified from Capital Outlay Reserve (COR). Furthermore, the current People's Transportation Plan (PTP) yearly allocation was recently increased from \$150,000 to \$200,000 as unused funds are carried over into future year allocations. With an increased diversion of available resources toward this effort, significant savings will be realized and as such, PWD is confident that it can reverse the trend of recent years and catch up with the backlog of needed vehicle detection loop replacements. This undertaking will prove to be one of the most cost-effective ways of improving traffic flow in Miami-Dade County.


Assistant County Manager