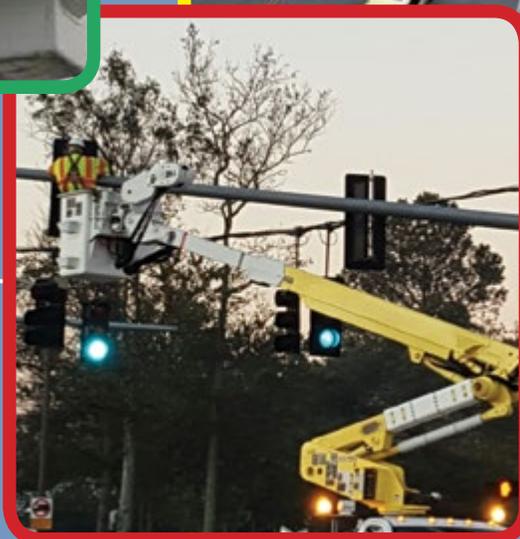




# TRAFFIC MANAGEMENT CENTER

First Quarter 2021 (Jan - March)  
ITS Report



by Frank Hickman  
Monica Stone





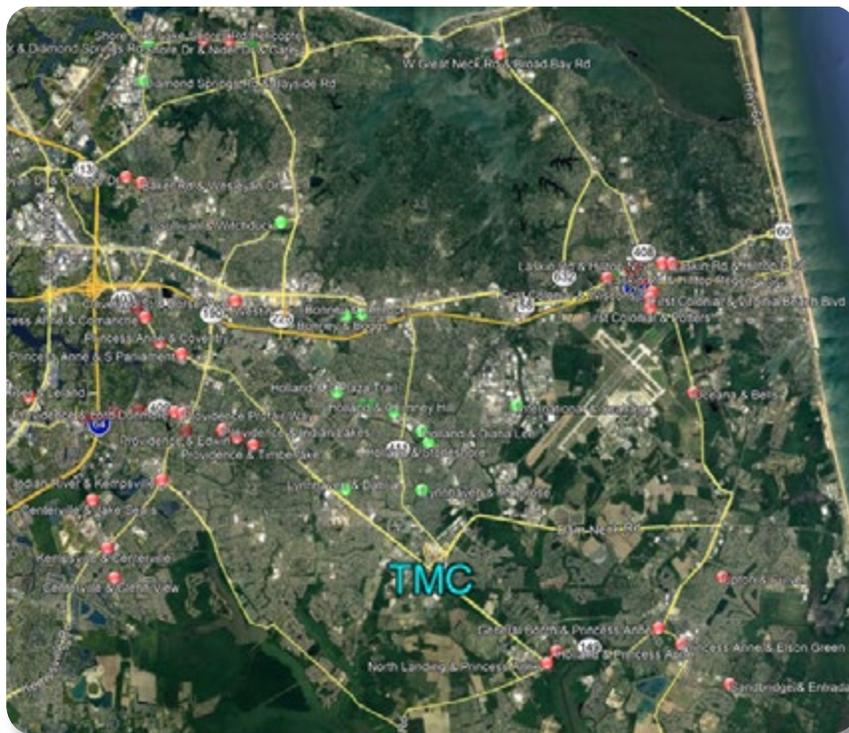
## Wireless Infrastructure Extension Using the Westin Hotel at Town Center

*The Traffic Management Center (TMC)* uses various communication methods to interact with the individual traffic signal controllers. The initial method was a copper wired physical connection interconnecting many traffic controllers throughout the city. The most prevalent medium in use now is fiber optic cable which permits faster data transfer. There are many isolated intersections (32) that had no form of communication to the central traffic computer. The controllers at these intersections maintain coordination with a synchronized clock. Any change in programming would require a technician to drive to the intersection.

With the **Westin Hotel** being one of the tallest buildings in the state of Virginia at 508 ft. tall, we thought it would be an ideal platform to begin a wireless infrastructure expansion effort.

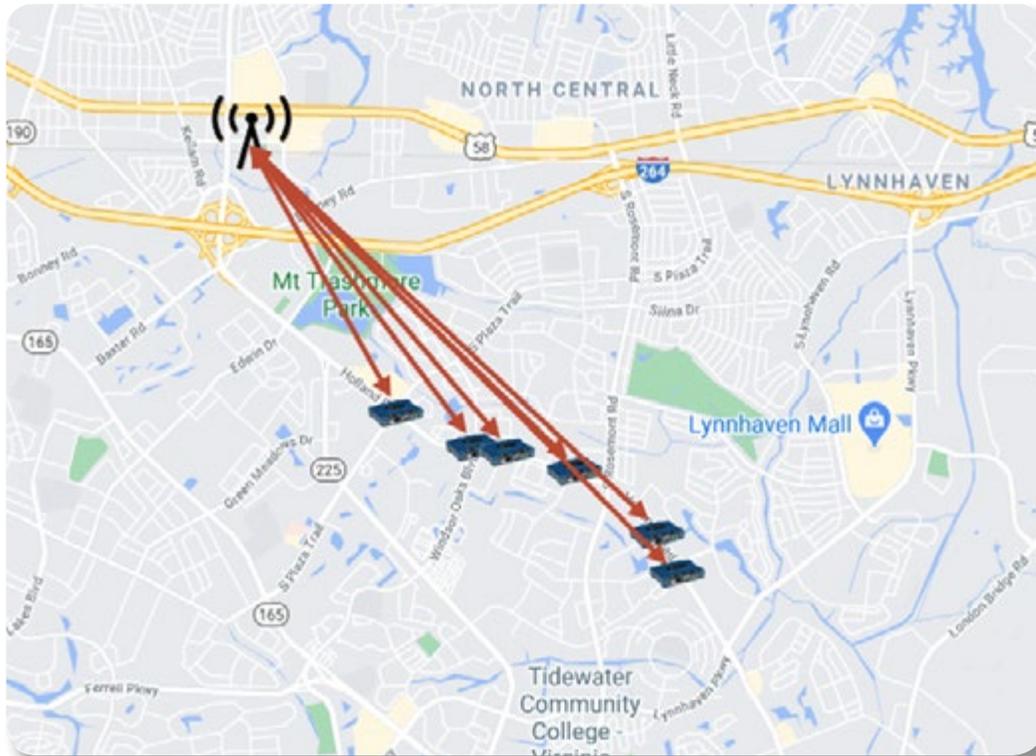
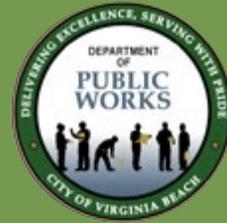
Places that were isolated or had no physical connection to the traffic computer were bridged by a wireless method which offers a substantial reduction in cost. No trenching, no conduit, no fiber, and no splicing greatly simplifies the establishment of a communication link to the isolated intersection.

The following map shows intersections that have no interconnect (red icons) access back to the TMC:



The green icons are intersections that have had communications established wirelessly via a GE MDS ethernet radio.

A typical utilization is shown below on the Holland Road corridor (between Lynnhaven Pkwy and Independence Boulevard) and was connected via 6 ethernet radios each communicating to the Westin Hotel.



The TMC is connected to the **Westin Hotel** is via a fiberoptic cable. An antenna was installed under the pyramid at the top of the Westin Hotel and connected to an ethernet radio as shown below. From the top of the Westin Hotel each of the six intersections have established a radio link which allows for monitoring the intersection status and retrieve real time data and transfer any new programming data as needed.

Radio communications can also be utilized as a temporary procedure while awaiting the installation of a hardwired system. This was the case for **N Great Neck Rd**. Prior to the installation of fiberoptics, radios were deployed to give the Traffic Management Center the ability to monitor and change the programming of the traffic signals on Great Neck Rd between Virginia Beach Blvd on the southern end to Adam Keeling at the northern end.

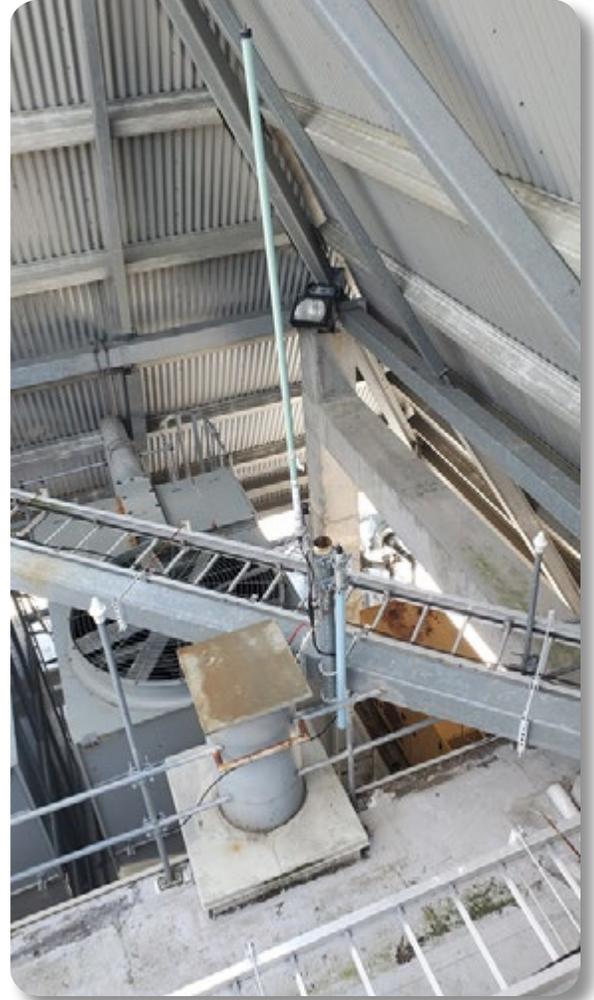
The farthest radio connection is between the Westin and the traffic signal at **Indian River Rd and West Neck Rd**. The road mileage for this path is 11 miles. With average fiber optic cable installation costs running about \$12 per foot ,trenching and installing 11 miles of fiber would have a bare bones cost of approximately \$700,000.

The cost of one ethernet radio is about \$1100. Radios are a highly effective and inexpensive tool to keep in our tool bag. It gives us connectivity to outlying areas until funds are available to extend the fiber optic infrastructure into those areas.

The radio installed in the equipment room on the top of the Westin does not take up much space as shown



Westin radio installation

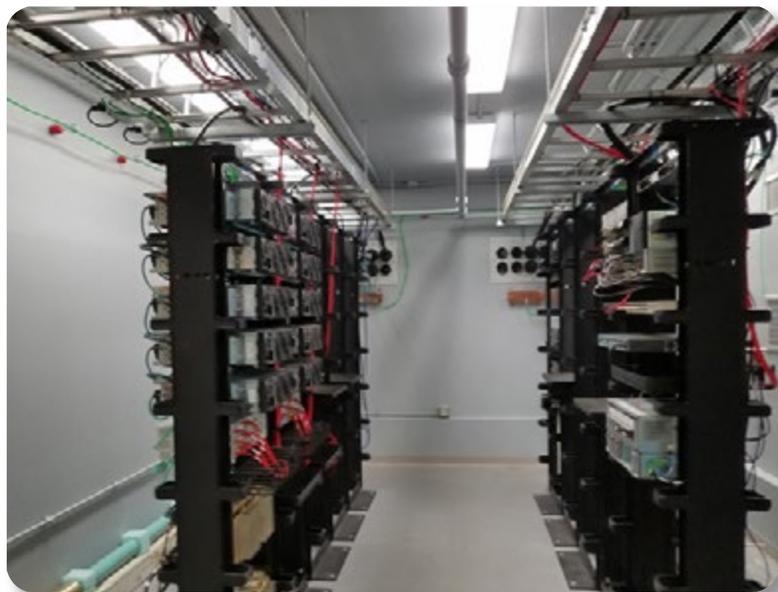


Inside the pyramid that is visible on the top of the Westin





Equipment racks in the equipment room.



Radios would direct mount to rack or sit on available shelf.

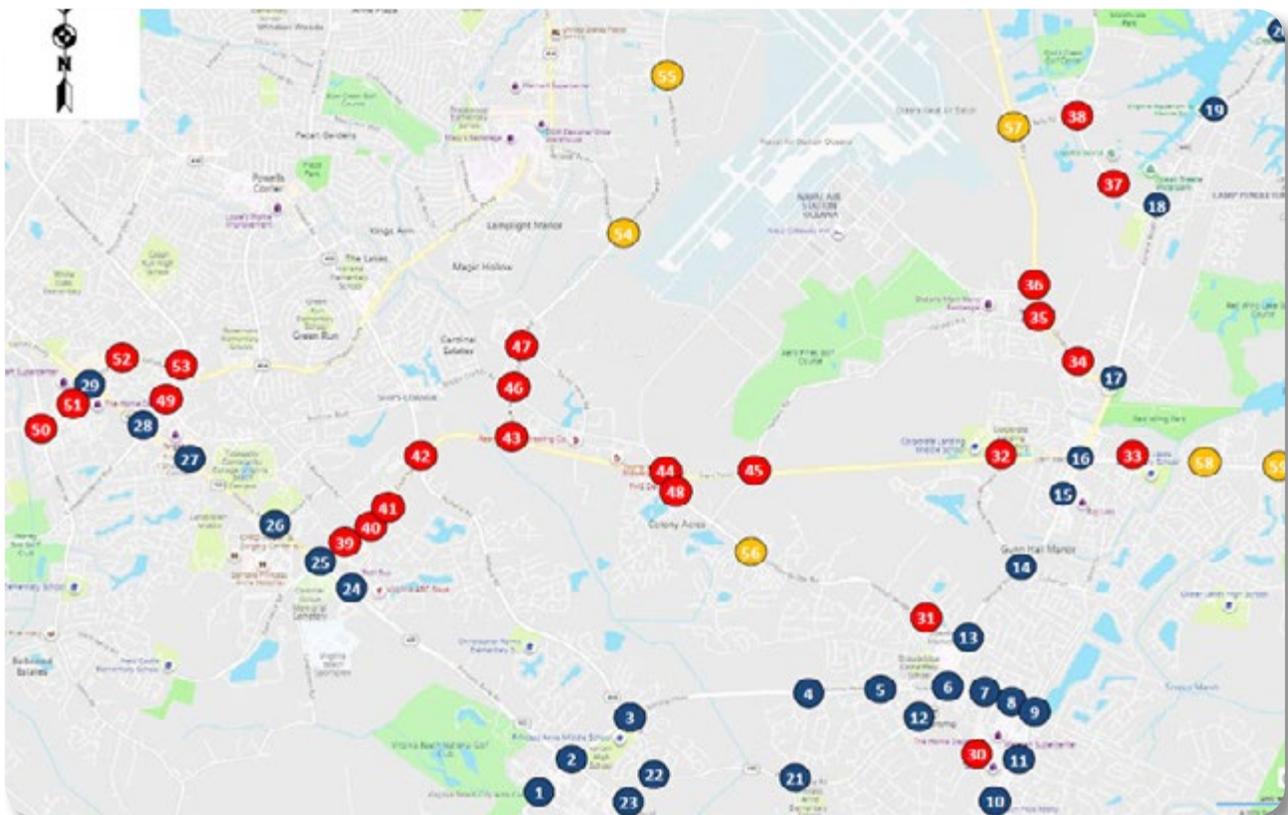


## Traffic Signal Retiming on Select Corridors

Traffic signal timings are the critical component of an efficient signal coordination network. Correct timings help to reduce travel time & delay and help to increase traffic safety. It is the industry recommendation to update the traffic signal timings along major /minor arterial roadways every three to five years and we have adhered to that schedule.

In July 20 traffic data collection and system analysis will begin at 51 intersections on select corridors on following roadways:

- Princess Anne Road
- Nimmo Parkway
- Upton Drive
- General Booth Blvd
- Dam Neck Road



In addition, Traffic Operations, Traffic Engineering and Engineering Project Management staff felt that with the completion of the Indian River Road/Kempsville Road intersection improvement project, the entire area would benefit from a retiming effort. Consequently, 29 intersections on Military Highway, Indian River Road, Kempsville Road and Ferrell Parkway will be analyzed.



With 100,000 vehicles per coming through the Indian River Road/Kempsville Road intersection alone, an effective traffic signal timing plan for the corridor was vital.



## Traffic Management Operations Division Response Information (January – March 2021)

### Some of the vital statistical areas we addressed:

Number of Traffic Counts completed – 25

Number of Utility Locate Tickets (Miss Utility) Received/Checked/Marked – 2785/2205/580

Number of Traffic Signal Preventive Maintenance Actions completed - 91

Number of Traffic Signal Work Orders Completed - 294

Number of Traffic Sign Work Orders Completed – 888

Feet of Installed Thermoplastic paint – 41,434



### Provided event support for the following Special Events:

VB Convention center COVID Vaccination Site Traffic Control & Bike Racks

Williams Farm COVID Vaccination Site – Traffic Control

Drive-Thru Food pantry

VBVRS Fund raiser

