

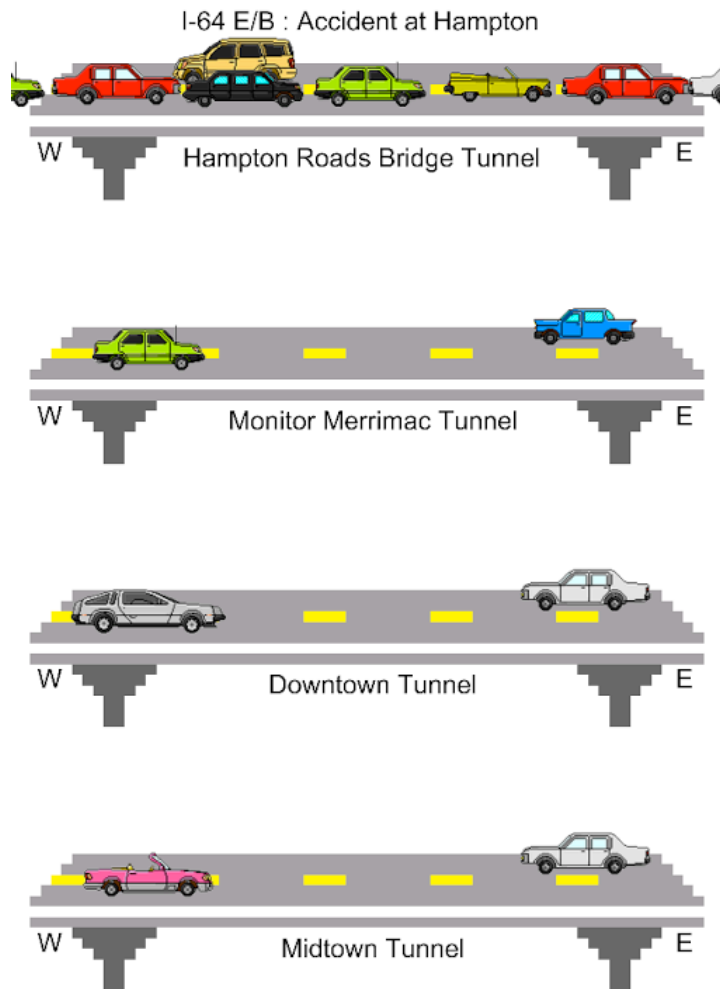
# Tunnel Traffic Technology

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## Introduction

Tunnel Traffic is an app used to monitor and report traffic conditions quickly and with no interactivity. The app features a unique layout that displays 2D cars crossing a roadway from side to side in both directions to represent a two-way street. If one direction is experiencing traffic, the cars in that lane will start moving slower. If traffic conditions are severe the cars will crawl along bumper to bumper. Finally, if the road is closed, orange cones will be placed along the surface indicating that drivers should find another route.

# Tunnel Traffic



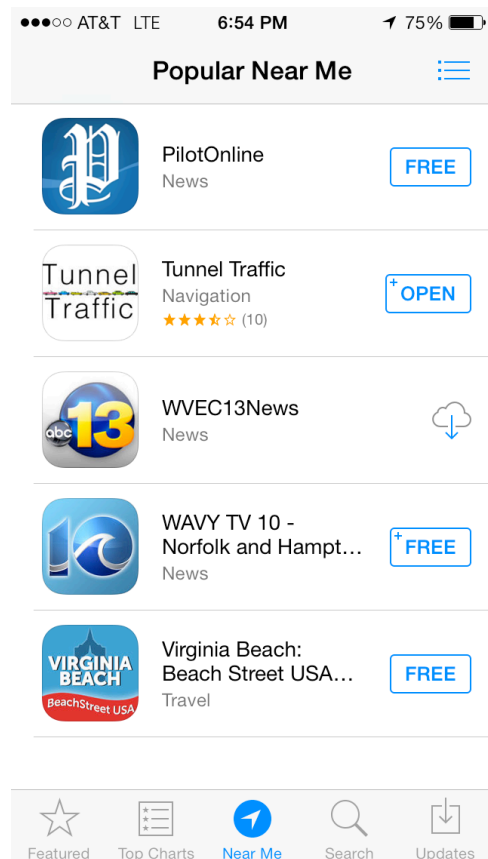
## Data Model General

Tunnel Traffic features a unique data model that pulls and interprets external sources of reporting information including real time GPS data, roadway sensors, manual reports, camera feeds, and 3rd party pre-aggregated data. Each of these data feeds is used to quantify the severity of traffic. Once the data has been quantified it is converted into a simple side-scrolling 2D animation that is quick and easy to interpret with no interactivity.

## Value Proposition and Reception

Tunnel Traffic provides value by being the quickest and easiest way to view traffic for very specific locations. The initial version only monitored 4 bridge-tunnels in the Hampton Roads region. The assumption for the app's design is that most locals and general commuters don't use GPS (which provides automated rerouting due to traffic) because they already know where they are going. Instead locals just need to know where the traffic is, really quickly. If they have to scroll or click through a series of menus to see the traffic then it becomes inconvenient.

This turned out to be the correct assumption as Tunnel Traffic rose to become one of the most popular apps in the region.



## **Early Shortcomings**

The first version of Tunnel Traffic to become widely used still had some tremendous shortcomings. The first is that it relied on 3rd party data from MapQuest, which utilized general bounding boxes that contained traffic reports. These reports were never meant to be conveyed as an animation, only text. One flawed design assumption with version 1 of Tunnel Traffic is that traffic builds up at the inlets to tunnels. So eastbound traffic typically builds up on the west side of the tunnel and vice versa. Some small percentage of the time however, traffic builds up in the eastbound direction on the east side or the westbound direction on the west side.

In addition to the rare occasions that traffic is displayed in the wrong direction, Tunnel Traffic also exhibits an up to 20 minute delay. This is a result of aggregated data sources. All currently available public data sources exhibit this delay. It is caused by a lack of GPS density. Most data sources aggregate data from in-dash factory GPS systems. For example, INRIX (a 511 provider) gets data from 3 million GPS units to cover the whole of the United States. Other systems like Waze utilize smartphone GPS and offer quicker reporting but still require significant interactivity on the part of the user. In short there is no solution that offers a quick and non-interactive way to monitor and report traffic. In addition, no single solution available provides the extreme density necessary to consistently deliver sub-20 minute reports.

## **Introduced Solutions**

By version 1.019 of Tunnel Traffic real time reporting will be introduced. By simply opening the app and placing it in a cup holder while approaching and traveling across any one of the four initially supported tunnels, users can provide reports with a sub-1 minute turn around time instantly reporting traffic to other users. Because there are nearly 10,000 people and counting (version 1.019) using Tunnel Traffic to monitor just a 10-mile radius, the density will be high enough to consistently provide sub-20 minute reports with the potential for consistent sub-1 minute reports.

In order to support this type of reporting Tunnel Traffic relies on an arbitrary geometric positioning system instead of bounding boxes. The development of this system stems from Tunnel Traffic's unique implementation of game development tools that provide fast and accurate arbitrary collision detection. This solution, which was necessary for real time reporting also solves the bounding box reverse flow glitch mentioned earlier.

## **Conclusion**

Tunnel Traffic has provided a great innovation to the traffic reporting space by further aggregating traffic data into a unique visual gauge (like any other gauge on a car's dashboard) that is instantly accessible. While other solutions do provide more comprehensive data to cover the world, they are aimed at automatic rerouting for GPS units. Tunnel Traffic provides a uniquely human experience focused on locals who want to know where the traffic is with just a glance.