



In
cooperation
with



TDOT

Department of
Transportation

Tennessee Department of Transportation



OPERATION PEDESTRIAN PROTECTION CASE STUDY

Creating a safe mid-block pedestrian crossing.

Operation Pedestrian Protection Case Study

Case Study

P.P.P. Inc Transportation Safety Innovations collaborated with the Tennessee Department of Transportation to develop an innovative safety solution for Nashville, Tennessee's "Most Deadly Crossing"

Date

December 1st, 2017
Updated April, 2019

Problem



Pedestrian Safety

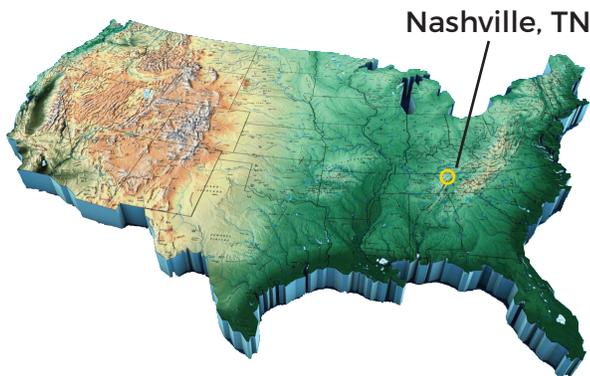


Motorist Safety



Bicyclist Safety

Location



Product Solution Used



MedianAlert™



Modular Median™



PostAlert™



RediMat Duo™

The Problem

Tennessee Department of Transportation (D.O.T.) officials recognized they had a problem. Since 2010 seven pedestrians had been killed and dozens injured by vehicles within the one block area of Nolensville Pike near Welshwood Drive. This, of course, does not include the likely hundreds of near misses.

Nolensville Pike seems like a typical suburban roadway, having two lanes running north-bound, two running south-bound, divided by a reversible turn lane, and outlined with pedestrian sidewalks on each side.

What makes this section of the pike deadly is its high concentration of pedestrian traffic moving between north-bound and south-bound metro bus stops across from one another. This unprotected mid-block pedestrian crossing mixed with a posted speed



limit of 45 MPH, and annual average daily travel of 38,000 vehicles creates an extremely unsafe environment for both motorists and pedestrians, and the data proved it.

It only takes a few moments of observation to witness the dozens of pedestrians that navigate these traffic hazards every day.

[Video Link](#)

The struggle was that every day of design, impact study, permitting and construction, was another day of pedestrian exposure to this danger. TDOT officials needed an effective solution that could be implemented safely, economically, timely and without extensive traffic delays on this busy roadway.



The Potential Solution

After considerable research, it was decided to build a mid-block pedestrian crossing. Built and used properly, the crossing would provide a much-improved route for pedestrians to cross the roadway. Mid-block crossings are locations between intersections where marked crosswalks have been provided. The crosswalk may be signalized or unsignalized. They offer convenient locations for pedestrians to cross in areas when intersections are inconveniently spaced. When implemented on a multi-lane roadway, medians are constructed and designed to provide a pedestrian refuge area where pedestrians can stop before finishing crossing a road. According to an [FHWA](#) report, "Providing raised medians or pedestrian refuge areas at pedestrian crossings at marked crosswalks has demonstrated a 46 percent reduction in pedestrian crashes." Conventional medians are of concrete construction that take up both economic and time resources that TDOT just did not have.

While searching out alternative solutions, TDOT discovered the Modular Median offered by Professional Pavement Products (PPP),

headquartered in Jacksonville, Florida. Serving the transportation safety industry of local and state agencies across 75 countries, TDOT valued the decades of experience and innovative countermeasures PPP brought to solving



complex transportation safety issues.

In 2016, PPP had completed an installation of their innovative "Modular Median" in New York City. That installation caught the attention of Danny Lane, TDOT New Products Unit Manager and Richard Weber, TDOT Transportation Project Specialist. They consulted with PPP on the details of the product including costs, durability, installation and effectiveness. The Modular Median provided for the special resources and application needs of TDOT and was chosen as the anchor product on this project.

PPP founder, Greg Driskell, took a personal interest in the project as it was an opportunity to positively impact the safety of pedestrians while mitigating deaths with this innovative product. In his role as the president-elect for the American Traffic Safety Services Association, he is passionate about achieving the ambitious "Toward Zero Deaths" goal in his lifetime. "I flew Nashville because I wanted to see for my own eyes the problem we were trying to solve. Immediately after landing, I drove to the location. Alone in my car, I sat and observed from a parking lot, dozens of pedestrians crossing the road without the protection of a crosswalk and pedestrian refuge. It was like a real-life deadly game of Frogger with a number of near misses just in the short time of my observation. It was then that I knew this would be the perfect application for our line of pedestrian protection products including the Modular Median, AlertBrands delineation devices and the RediMat Duo detectable warnings."

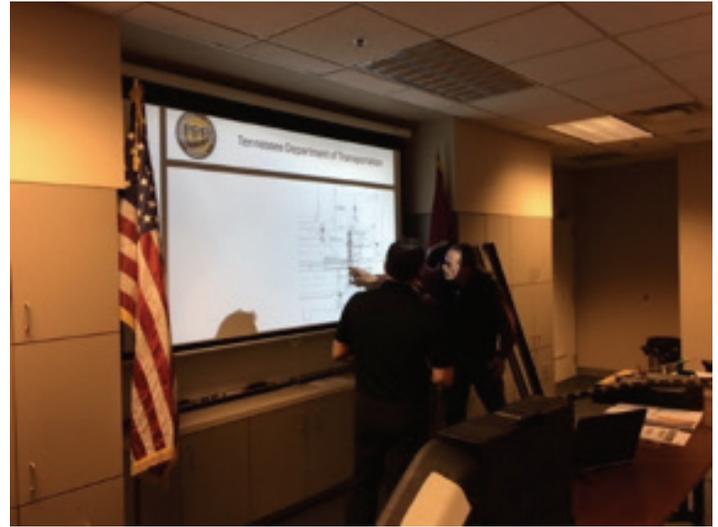
The Challenges

The environmental characteristics of this project provided some additional challenges. This was an extraordinarily busy roadway and safety and traffic disruption during installation was going to be a challenge. Further, this five-lane roadway had an additional lane for a public transit bus stop which would require a second pedestrian refuge that could potentially be repeatedly impacted by the buses if not designed just right.

TDOT needed the project started right away. There were some concerns of delays. First was that it was headed into the holiday season of Thanksgiving and Christmas. Roadway construction normally slows during this period due to weather and excessive traffic conditions. Second was that the project called for both yellow and white marked medians. PPP would need to produce the modules with the less frequently used white markings.

The Project Scope

Weber, along with his team of about 15 engineers and installers, set to work planning the day-long install. Monday morning at 9 am, the team got together to go over the plans. Driskell too was on hand to provide his



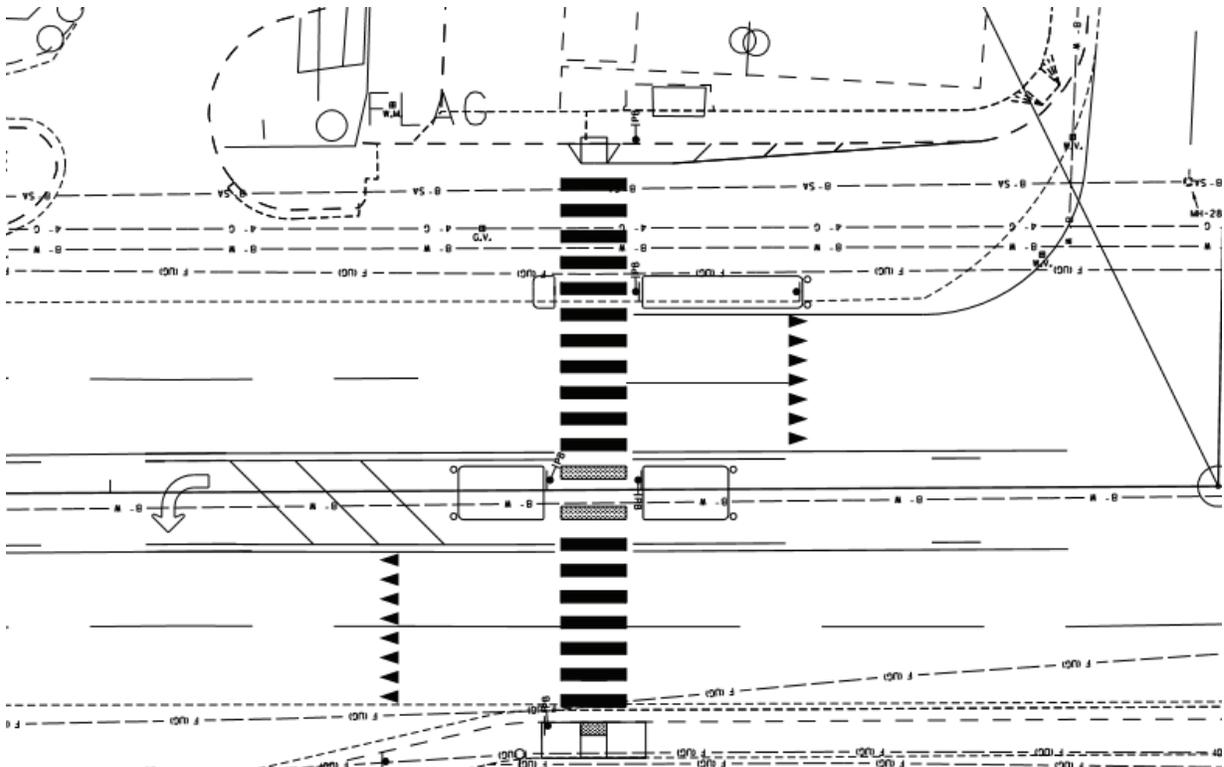
expertise and assist in installation process management.

Maintenance of Traffic (MOT)

With the Modular Median quick installation design, it was determined that only one lane of travel needed to be closed at a time. DOT hired a professional MOT contractor and further used their support trucks on either end of the lane to protect workers from traffic.

Allotted Time

It was important that the median installation be completed within one day, if possible, due to permitting, safety, weather, staffing and traffic interruption reasons. After a walk-



through in the warehouse to make sure all tools and materials were on hand, the project was ready to begin the next day.

Project Design

The project included the installation of pavement markings, traffic signs, pedestrian activated warning lights, ADA ramps and detectable warnings with two full sets of Modular Medians.

Tools for the Job

Normally medians built of concrete require much time, expertise and heavy equipment. Fortunately, by using the Modular Median TDOT was able to utilize its own equipment, tools and workers to get the job done. For the Modular Median, the equipment need was limited to an electric generator to run a hammer drill and a large air compressor to run an impact wrench. The materials were transported on a standard stake-bed truck and no heavy equipment was required.



PPP Products installed

Modular Median™ [Modular Median™](#)

The RediPave Modular Median™ is an innovative modular system designed for the permanent, seasonal or temporary medians, pedestrian refuge islands and build-outs. As a modular system, different shapes can be made to suit almost any application; making it a safe, smart, and simple device for motorists, pedestrians, and bicyclist.

Median Alert™ [MedianAlert™](#)

The MedianAlert™ is designed to dramatically improve the nighttime visibility of medians and other roadway structures. A flexible, elongated retroreflective device that visually alerts the



motorist of the structure's presence as well as a clear and concise message of its size and shape.

Post Alert™ [PostAlert™](#)

The PostAlert™ is a simple way to place emphasis on an important or partially obstructed sign. The PostAlert™ draws extra attention from motorists, making it a safe, smart, simple life-saving device.

RediMat Duo™ (detectable warning) [Redimat Duo™](#)

The RediMat Duo™ is a detectable warning 2 mat system with a message. A detectable warning with the effective design and field

tested features of the RediMat and the ability to provide meaningful messages to the sighted.

Cost, Outcomes and Feedback

With the Modular Median's fast and simple installation and the use of the expert TDOT crew, the entire project came in under an estimated \$30,000. The two large Modular Median assemblies were a little under half the total project cost.

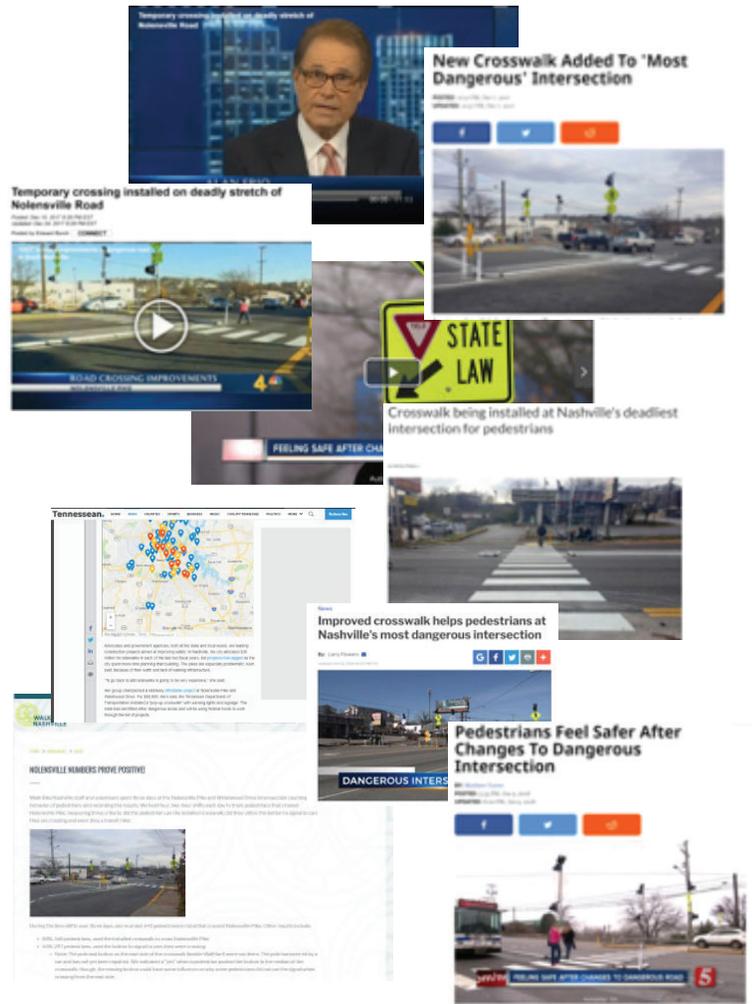
Overall, the project was a success and after, Weber is on record as saying "I can't tell you how impressed I am with the modular median system. Once we got the hang of it, it was very quick installation; in fact, we completed all four of the islands, installed the delineators, three of the signs with flashing beacons, and object markers. This was all done within five hours—including setup of the traffic control! MANY people stopped and commented on the islands and how grateful they were for the entire crosswalk project. That's exciting when you get immediate feedback like that. "

The DOT was not the only Tennesseans that appreciated the new safety addition. In fact most immediately the project caught the attention of the local media, unanimously praising the Tennessee Department of Transportation for the much needed improvement.

Ever since, news channels, safety advocate organizations, and local news papers have positively reported on or featured this innovative safety solution. Among these are... WHNT, WPLN, WSMV, WKRN, WZTV, News Channel 5, Fox 17, Nashville Public Radio, The Tennessean, Nashville Post, and the public safety advocates of Walk Bike Nashville.

“In my three decades in the transportation safety industry, I have not seen such media and public support of a safety improvement project”, says Driskell.

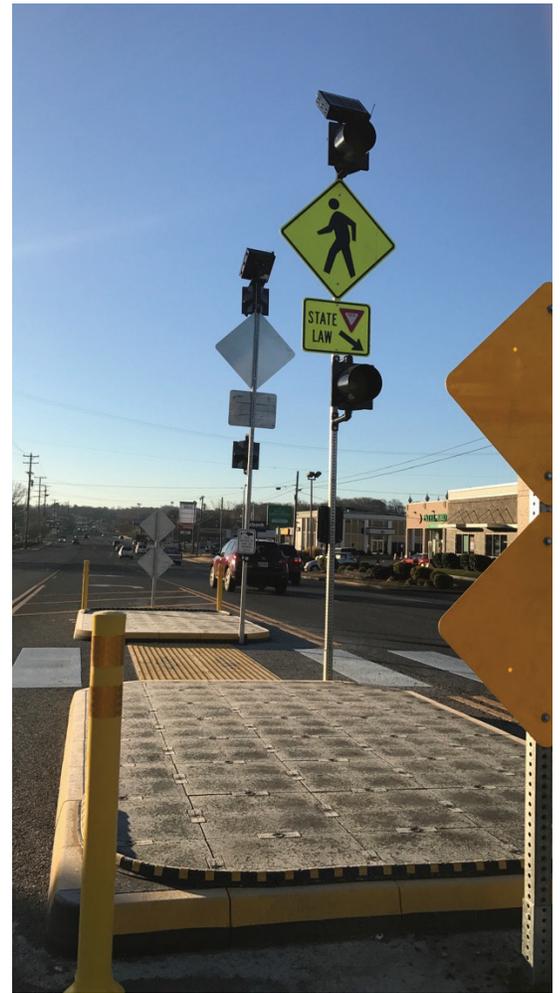
[Click here to see the stories.](#)



Completed Install Images

For more information about this TDOT installation or the products used, contact **Professional Pavement Products at 888-717-7771** or visit www.pppcatalog.com.



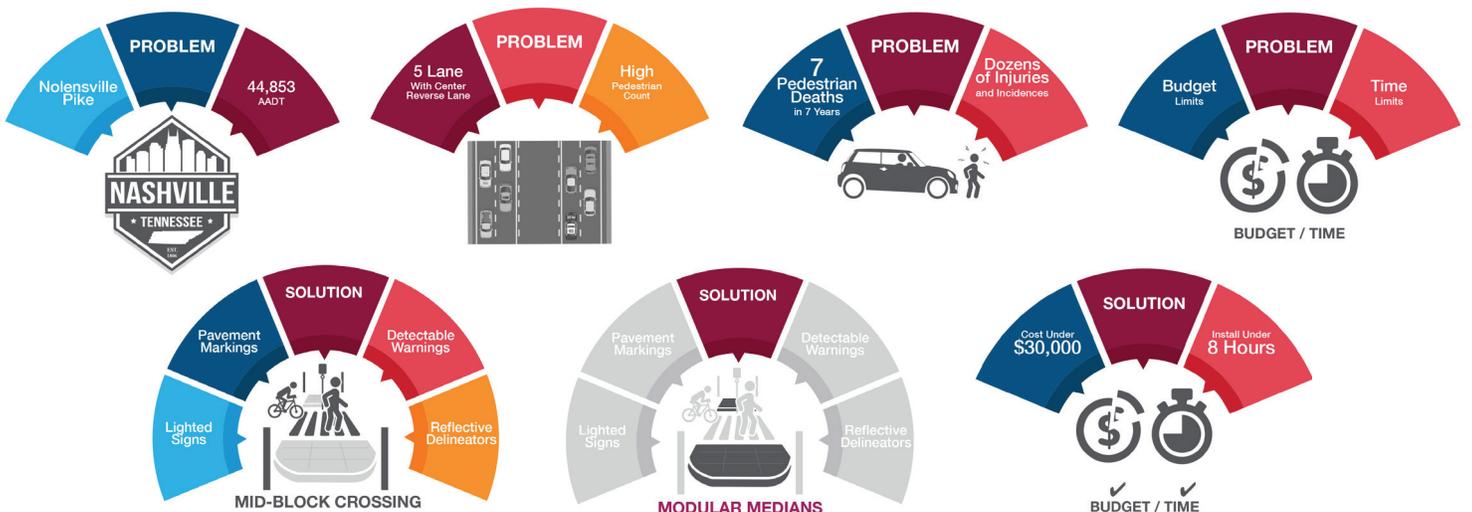


Update

2019 Walk Bike Nashville Study “Nolensville numbers Prove Positive”

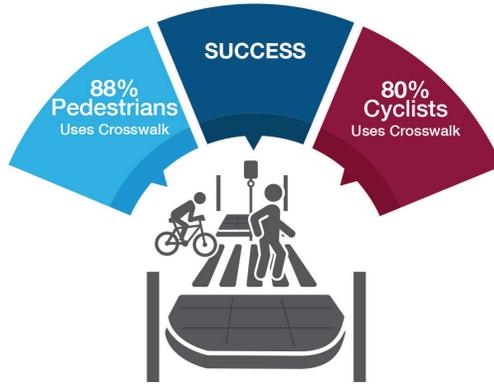
In January of 2019, pedestrian and cyclist advocate organization Walk Bike Nashville in cooperation with TNDOT conducted a three day study to determine the usefulness and effectiveness of this innovative mid-block crossing. **See more details of this study [Here](#)**

Here are the project’s facts.



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INJURIES

SINCE INSTALL OF MID-BLOCK CROSSING



ZERO
DEATHS

SINCE INSTALL OF MID-BLOCK CROSSING



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SAFE, SMART, SIMPLE SOLUTIONS

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SaferRoads™ RoadVista® AlertBrands™ Guideline™

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