

# Crash Analysis Studio

Memphis, Tennessee

Held on September 13, 2025

## Session Participants

- **Will Henke**, Licensed engineer; Multimodal transportation and traffic safety enthusiast; Strong Towns member; Concerned Memphis local
- **Yvonne Bobo**, Executive Director of Off The Walls Arts; Owner of Warehouse Studios, LLC; Workshop facilitator; Grant writer; Traffic safety advocate
- **Brendan Duffy**, Chairman and visionary of Off The Rails Artline; Grant writer; Concerned resident; Safety advocate
- **Robert Noordermeer**, Long-time Memphis resident; Cyclist commuter; supply chain marketing specialist; delivery vehicle collision analyst
- **Tony Harris** (moderator), Community Engagement Coordinator at Strong Towns

## Summary of Crash Event

- The hit-and-run crash took place at 6:21 pm on July 14, 2025 at the intersection of Walnut Street and Vance Avenue in Memphis, Tennessee.
- An unidentified southbound vehicle traveling on Walnut Street struck William Gaines<sup>1</sup> as he was cycling westbound on Vance Avenue.
- According to the crash report, Memphis Fire Department Unit 11 arrived on the scene and transported Gaines to the hospital.
  - Gaines was treated for broken ribs and a partially collapsed lung during his time at the hospital.
  - Gaines made a full recovery.
- The crash report incorrectly states that the point of impact with the vehicle was the front passenger side; Gaines indicates it was actually the front driver side of the vehicle that struck him.
- The posted speed limit on Vance Avenue at its intersection with Walnut Street is 35 miles per hour (mph).
  - Walnut Street follows the Tennessee standard urban road speed limit of 25 mph, though no signage is posted to note this limit at or nearby the crash location.

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<sup>1</sup> William Gaines also goes by “Don” with his friends and colleagues.

- Weather reports indicate it was in the 80s in Memphis on the evening of the collision; the crash report states it was daylight with no adverse weather conditions.

## Primary Contributing Factors

The intersection of Vance Avenue and Walnut Street is situated just along the outskirts of Memphis' South City neighborhood—a compact, mixed-use area with homes, churches, schools, and public transit stops.. Despite these neighborhood characteristics, the streets at this intersection are designed to function as high-capacity vehicular conduits. Oversized lanes along Vance and Walnut—some as wide as 19 or 20 feet—create an environment that visually and physically encourages high-speed driving. These dimensions exceed urban design standards and surpass widths typical of highway lanes. There is no marked bike infrastructure, no traffic signal, and minimal visual or physical cues to reinforce that this is an intersection where all road users should stop and proceed with caution.

Although this location is governed by four-way stop signs, panelists and residents repeatedly noted that many motorists roll through or ignore these controls entirely—particularly those traveling on Vance, which was recently resurfaced. The smooth pavement, paired with wide lanes and a direct route into downtown, may invite cut-through behavior and motorist inattentiveness. Sight distance at the intersection is compromised by a building on the northeast corner, making it difficult for both drivers and cyclists to see one another until they are already in the conflict zone. Cyclists traveling westbound on Vance must rely on drivers to yield, but often cannot make eye contact or assess vehicle intent until they are fully exposed in the intersection.

Sun glare may have also reduced the visibility of westbound cyclist William Gaines. Even if both parties had attempted to follow the law, the intersection's geometry, obstructed views, wide lanes, and lack of protective infrastructure left little margin for error. These elements reveal a deeper mismatch between how this street is designed and the people it is expected to serve—pointing to a systemic failure to protect vulnerable users in a setting that should support them.

Session participants aligned around these premises and identified the following as factors that contributed to this crash:

- 1. Vance Avenue and its intersection with Walnut Street are designed to facilitate and prioritize high capacity and high speed automobile traffic in a manner mismatched with the residential developments, commercial business, and walkability associated with the South City neighborhood.**
  - a. Travel lanes at this intersection are wide enough to make drivers comfortable traveling at a design speed higher than the posted 35 mph limit.
    - i. The westbound lane on Vance Avenue, where the cyclist William Gaines was traveling at the time of the crash, is 19 feet wide—nearly double the width commonly recommended for urban streets.

1. Vance Avenue also features a 16-foot wide eastbound lane and a 12-foot wide turn lane.
    - ii. The southbound lane on Walnut Street where the motorist was driving prior to the collision is 13 feet wide, and the northbound lane on Walnut is 20 feet wide.
    - iii. All of the lanes at this intersection exceed the [ten-foot width deemed appropriate](#) for urban streets.
    - iv. These lanes also surpass AASHTO's [recommended width of 12 feet](#) for highway lanes.
  - b. Vance Avenue and Walnut Street are both designed to facilitate high volumes of automobile traffic traveling at high speeds.
    - i. [TDOT<sup>2</sup> states](#) the annual average daily traffic (AADT) along Walnut Street is approximately 2,000 vehicles, and that the AADT along Vance Avenue is approximately 5,000 vehicles.
      1. AASHTO<sup>3</sup> indicates [nine or ten-foot wide lanes should suffice](#) on roadways with a daily volume of 2,000 vehicles and speed limits of 30 mph; this should apply to Walnut Street given its 25 mph speed limit.
      2. Multiple sources—including a [Johns Hopkins study](#) referenced by the FHWA<sup>4</sup>—indicate ten to 12-foot wide lanes should suffice on roadways with a volume of 5,000 vehicles and speed limits between 30 and 40 mph.
      3. The travel lane widths on both Walnut Street and Vance Avenue measure in excessively wide for the volume they actually carry.
    - ii. Southbound drivers along Walnut Street lack signage, visibility, and other potential traffic calming measures—like speed bumps or speed tables—to adequately warn them that they are about to enter into an intersection.
    - iii. The absence of dedicated space for cyclists on Vance Avenue left Gaines riding in a wide, vehicle-oriented lane with no protective infrastructure to buffer him from traffic.
  - c. Despite this excessive width, on-street parking is sparse and unmarked, which further amplifies the perceived width of the travel lanes and diminishes visual friction for drivers.

**2. The Walnut Street and Vance Avenue intersection feature obstructions and geometric dimensions that severely limit the sight distance of all road users, making the street into an environment incompatible for individuals traveling by bike, on foot, and even by privately owned automobile.**

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<sup>2</sup> Tennessee Department of Transportation

<sup>3</sup> American Association of State Highway and Transportation Officials

<sup>4</sup> Federal Highway Administration

- a. The building on the northeast corner of the intersection obstructs views for southbound drivers stopped on Walnut Street looking west on Vance Avenue, and for cyclists heading west on Vance looking north toward Walnut Street.
  - i. A cyclist legally stopping and entering the intersection from the east would need to proceed 10-15 feet into the intersection before they are visible to a southbound motorist on Walnut.
  - ii. A cyclist that has already traveled 10-15 feet into an intersection has already committed to entering active traffic and will be unable to react in time to avoid a collision with a vehicle failing to stop.
  - iii. A cyclist entering the intersection from a stop would need about 7.5 seconds to reach the crash point, while a non-stopping driver traveling at even moderate speed would enter that space in less than 2–3 seconds; this timing is highly likely to create road user conflict.
- b. The excessively wide lanes on both Walnut and Vance make the streets feel more like miniature highways, which may increase driver comfort at higher speeds and diminish the likelihood of full stops at the intersection.
  - i. Neither roadway features optical or physical constraints that moderate driver behavior or encourage motorists to slow down.
- c. Residents report that many drivers either roll through this intersection or disregard the stop signs entirely.

**3. Motorists approaching the intersection often ignore or fail to fully stop at the posted stop signs, resulting in dangerous conflict conditions for cyclists and pedestrians.**

- a. Drivers frequently perform rolling stops or altogether ignore the stop signs at this intersection—especially those traveling eastbound and westbound on Vance Avenue, which was recently repaved.
  - i. Motorists who treat the newly resurfaced Vance as a fast conduit into downtown may be more likely to routinely disregard the stop signs.
- b. The westbound stop sign on Vance Avenue blends into the color of the building behind it, making it easy for road users—including motorists and cyclists—to miss or dismiss until it's too late to react.
- c. The stop-controlled nature of this intersection gives a false sense of control and visibility; when motorists choose not to stop, cyclists and pedestrians entering legally are left exposed in the conflict zone.

**4. Both the design speed and documented travel speed of Walnut Street and Vance Avenue conflict with non-motorist traffic that is encouraged at this intersection and in the surrounding area.**

- a. At the time of the crash, the posted speed limit on Vance Avenue was 35 miles per hour, while Walnut Street defaulted to 25 miles per hour under Memphis's [citywide ordinance](#) for unposted urban streets.
- b. A speed study conducted for this studio on Vance Avenue just east of where the crash occurred indicated that 22.4% of motorists exceeded the posted speed limit.
- c. The study stated the 85th percentile speed, or the speed at which 85% of drivers traveling at or below, was 36 mph.
- d. A [pedestrian safety analysis](#) states that fatality rates and rates of serious injury climb for automobile collisions involving pedestrians at 25 mph.
  - i. All of the motorists tracked during this speed study were traveling beyond 25 mph and past this safety threshold.
  - ii. Every driver profiled was operating at a speed known to pose fatal risks to pedestrians, even though these speeds were under the posted limit.
- e. More than one-fifth of the motorists tracked—21.8% of them—were traveling between 36 and 45 mph.
  - i. This data distribution suggests this space communicates to drivers that it is a low-risk behavior to travel at speeds higher than the posted limit.
  - ii. This increase in travel speed—especially when intersection stop signs are partially or fully ignored—directly correlates with crashes that have a higher likelihood of causing severe injuries and fatalities.
- f. By design, vehicle travel speeds on both Walnut Street and Vance Avenue subject non-motorist users—including people traveling by bicycle, foot, and public transit—and motorist users to substantive danger.

**5. The street network leading to this intersection includes missing and inconsistent bike infrastructure, forcing cyclists into dangerous mixing zones with vehicles.**

- a. Vance Avenue is legally open to bicycle traffic, but lacks any visible or physical cues that communicate shared roadway use, such as sharrows, bike lanes, or signage.
- b. Vance Avenue connects to major cycling destinations both east and west of this intersection, including Cooper Street, Peabody Avenue, and the Mississippi Riverfront via Tom Lee Park—but the segment around Walnut Street lacks any cycling accommodations.
  - i. This infrastructural gap means that safe facilities are absent along this portion of Vance Avenue, which serves as the only accessible connection to the waterfront without stairs.

**6. Drivers may be emboldened to treat Vance Avenue as a cut-through route due to its recent resurfacing and its proximity to multiple nearby high-speed roadways for regional traffic.**

- a. Vance Avenue connects drivers directly to downtown Memphis and runs parallel to major arterials and highways including Crump Boulevard (US 78), US 79, and US 51, as well as interchanges for I-240 and I-55.
  - i. This layout may encourage motorists to treat Vance Avenue like a regional conduit rather than a neighborhood corridor, especially during peak travel hours, such as morning and evening rush hour.
- b. The resurfacing of Vance Avenue reduced driver discomfort; without speed tables, narrowed lanes, or other elements of friction to slow traffic, driver speed increased in response to improved pavement conditions.

**7. Limited visibility may have been further exacerbated by sun glare due to the time of day that the collision occurred.**

- a. The sun's angle at 6:21 PM in mid-July is likely to have caused significant glare for travelers at this intersection, especially since it lacks street trees and elements that may produce a canopy-like effect over the driving area.
- b. Cyclists riding westbound into the setting sun may be harder to see, particularly for southbound drivers on Walnut Street whose visibility is already restricted by the building on the northeast corner of the intersection.
- c. Limited visibility combined with driver noncompliance and obstructed sightlines makes sun glare—a widely acknowledged contributing factor in many vehicle-bicycle crashes—an even more dangerous condition at this location.

## Recommendations

There is a clear need to reshape Vance Avenue and Walnut Street so that their design matches their neighborhood context. Immediate steps such as improving stop sign visibility, adding curb extensions, and piloting flashing beacons may begin to address the dangerous conditions at this intersection right away. Additional interventions like the addition of speed tables, high-visibility crosswalks, and painted bike markings will help reinforce appropriate driver behavior and increase the visibility of people walking and biking.

Over the long term, the City of Memphis should study whether the center turn lane on Vance Avenue is necessary. The City may also choose to explore a full corridor redesign that narrows travel lanes, reduces speeds, and provides protected space for people outside of cars. Panelists emphasized the need for a design speed aligned with community needs, not vehicle throughput, and called for target speed studies and consistent traffic data collection to guide future decisions. With thoughtful reinvestment and a commitment to safety, the streets in South City can better serve the residents, institutions, and visitors who rely on them every day—not just those passing through.

In summary, there are a variety of ways to address the identified factors and minimize the likelihood of future collisions, injuries, and fatalities. The following recommendations should be implemented along the Vance Avenue corridor, with priority given to the intersection at Walnut Street and its immediate surroundings.

### **Immediate**

1. Install temporary curb extensions or delineators to narrow turning radii and reduce crossing distance.
  - a. Curb extensions can be installed using flexible materials such as paint and bollards to visually tighten the intersection and create a cue for drivers to slow down and come to a full stop.
  - b. These measures also improve sight distance for drivers and cyclists by positioning them farther into the intersection while maintaining a protected space.
2. Evaluate intersection control type, with consideration for whether or not a four-way stop is the appropriate control at this location.
  - a. Assess the feasibility of an all-way yield, a mini-roundabout, or signalized control as possible alternatives for this intersection, particularly if paired with narrower lanes and physical deflection.
3. Enhance visibility of stop signs using high-visibility backplates or flags.
  - a. The westbound stop sign on Vance Avenue blends into the background due to its alignment with a neutral-colored building.
  - b. Adding reflective flags or repositioning the sign could reduce driver oversight.
4. Add temporary signage indicating bicycle presence and shared roadway expectations.
  - a. “Bikes May Use Full Lane” or “Watch for Cyclists” signs could be deployed quickly to reinforce that cyclists are legally using the roadway and help correct driver expectations in the short term.
5. Paint and mark high-visibility crosswalks and possible bike-priority markings.
  - a. Crosswalk striping (especially continental or ladder-style) and green conflict zone markings can signal to drivers that they are entering a shared—and potentially active zone.
  - b. This striping would be appropriate since this area is frequented by pedestrians, cyclists, and neighborhood residents—even if that activity is not currently visible in the design.
6. Evaluate feasibility of a temporary flashing beacon at the intersection, as the existing four-way stop is routinely ignored and might not be sufficient to catch drivers’ attention.
  - a. Installing a solar-powered flashing red beacon on top of the stop signs, or a temporary rectangular rapid flashing beacon (RRFB) at pedestrian desire lines, could increase driver compliance in the short term.

- b. These installations are low-cost and can be piloted before committing to permanent infrastructure.

### **Near Term (within the next 12 months)**

7. Coordinate with Off the Walls Arts and the Off the Rails Artline project to install raised speed tables near the intersection of Vance Avenue and Walnut Street.
  - a. These features physically reduce driver speed and, if designed with an offset, can accommodate emergency vehicles.
  - b. Incorporating them into the Artline project reinforces the corridor's identity as a community-centered destination while improving safety for all users.
8. Engage the Division of Engineering within the City of Memphis' Department of Public Works to conduct a usage and volume study of the center turn lane on Vance Avenue. Utilize this study to:
  - a. Assess if the 12-foot center turn lane is necessary or overbuilt.
  - b. Conduct a corridor-wide analysis to determine if the lane can be repurposed for other forms of infrastructure, like a protected bike lane or a bus boarding island.
  - c. Build a stronger working relationship with the City of Memphis as a partner who supports intentional, incremental change.
9. Work with the City of Memphis to initiate a target speed study for the Vance Avenue corridor; base this study on the street's context, land use, crash history, and community function.
  - a. Design interventions should then work backward from this target speed, aligning with ITE<sup>5</sup> and NACTO<sup>6</sup> guidance on context-sensitive design.
10. Construct temporary protected bike lanes through the Vance corridor, as this area sits between important bicycle connections like Peabody Avenue and Tom Lee Park, yet offers no infrastructure for safe cycling.
  - a. A curb-protected facility—or a facility designated with flex posts or bollards—would close a dangerous gap in Memphis' active transportation network and would be in line with level-of-traffic-stress goals discussed by panelists.
11. Utilize findings from an intersection control evaluation to determine whether a mini-roundabout, all-way yield, or other treatment would better align with neighborhood conditions and observed driver behavior.
  - a. If appropriate, test a low-cost quick-build alternative at this location to reinforce yielding and slow vehicle speeds.

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<sup>5</sup> Institute of Transportation Engineers

<sup>6</sup> National Association of City Transportation Officials

12. If deemed feasible, install a solar-powered flashing beacon atop the stop signs or as part of a pedestrian crossing to improve compliance and increase visibility—especially in the near term while longer-term redesign plans are developed.
13. Pilot gateway treatments and tactile feedback interventions to reinforce driver awareness at this intersection, as these treatments help reset driver expectations, especially for commuters who may choose to cut through the area from nearby highways.
  - a. Install visual gateway elements such as vertical signage, pavement markings, and surface color changes along the approaches to this intersection to clearly signal a transition into a neighborhood environment.
  - b. Rumble strips or minor surface texturing can be tested on approaches to the intersection—especially on Vance Avenue—to deliver tactile and auditory feedback to drivers who may be inattentive or speeding.
  - c. These are low-cost additions that do not require full reconstruction and can significantly improve compliance at stop-controlled intersections.

#### **Long Term and Systematic**

14. Develop funding and implementation plans to make any effective quick-build interventions at this site—such as bike lanes, roundabouts, or temporary flashing beacons—into durable pieces of infrastructure.
  - a. Effective flashing stop signs or beacons may be replaced by more permanent signalization or raised intersection treatments—especially if traffic volumes or injury crash patterns justify it.
  - b. Raised intersections or mini-roundabouts would also reinforce the expectation of yielding and reduce approach speeds.
15. Remove or reallocate the center turn lane on Vance Avenue if it is determined to be either unnecessary or an unproductive use of land.
  - a. The space could be converted to a protected bike lane, utilized for street trees, or even repurposed for public art installations in partnership with neighborhood organizations like Off the Walls Arts.
16. Fully redesign Vance Avenue and Walnut Street for lower speeds and multimodal access.
  - a. Reduce lane widths to no more than 10 feet in each direction on Walnut Street and 12 feet in each direction on Vance Avenue; repurpose excess roadway space for protected bike lanes, street trees, or on-street parking.
  - b. Since Vance Avenue may be classified as a minor arterial, the City of Memphis might utilize this redesign as a pilot opportunity to reclaim arterial streets as neighborhood-serving infrastructure, especially since this corridor's current AADT does not justify its existing lane widths.

## Concluding Statement

The conditions at the intersection of Vance Avenue and Walnut Street reflect a broader design failure: streets that are overbuilt for vehicle speed and volume, yet embedded within a walkable neighborhood full of homes, community spaces, and pedestrian activity. Prioritizing fast-moving car traffic in this context has left people walking and biking vulnerable—without dedicated infrastructure, sufficient sight lines, or safe crossing options.

Given the mismatch between design and context, a tiered strategy is warranted. Immediate measures like curb extensions, flashing stop sign beacons, and high-visibility crosswalks can begin to reclaim this intersection for safety. In the near term, Memphis should pilot speed tables, improve signage, and evaluate both the function of the center turn lane and the intersection's control type. Long-term, a full corridor redesign of Vance Avenue should reduce lane widths, establish a protected bikeway, and align the street's design with a clearly defined target speed. These efforts must be supported by routine data collection on speed, volume, and crash trends.

By acting decisively and layering these interventions over time, Memphis can transform this segment of Vance Avenue from a cut-through commuter route into a street that serves the needs of South City residents, institutions, and small businesses. Doing so would not only prevent future crashes—it would set a precedent for rebalancing neighborhood corridors across the city.