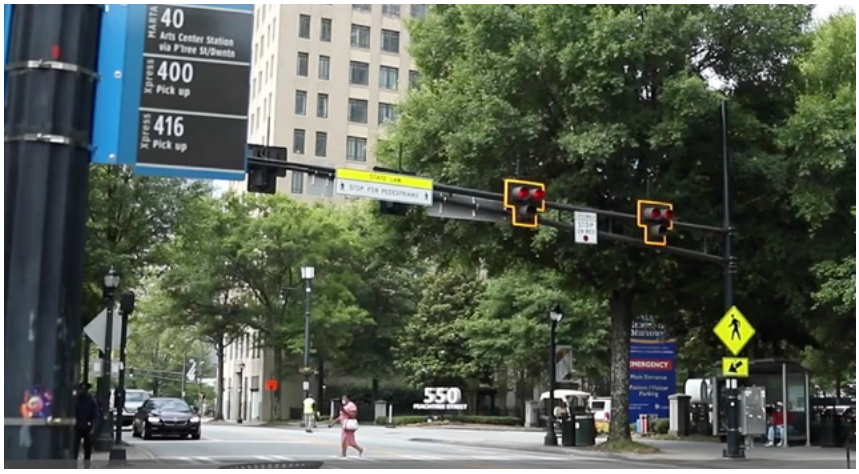
SAFE SYSTEM CASE STUDY

Systemic safety strategies in Georgia

KEY TAKEAWAY: Georgia's approach to injury prevention goes beyond focusing on known hot spots. The state uses network screening and near-miss data to proactively deploy countermeasures. Interventions happen earlier and more consistently across the network, preventing severe injuries and fatalities at locations that might otherwise be overlooked.

SAFETY LEVERS

The Georgia Department of Transportation (GDOT) is increasingly adopting a systemic, or risk-factor-based, safety approach, rather than traditional hot-spot analysis. Instead of waiting to implement countermeasures at isolated high-injury locations, GDOT uses proactive, data-driven methods to prevent fatal and serious injury crashes before they occur. Examples of tools that Georgia has deployed systemically include curve treatments, bus stop assessments, all-way stop-controlled upgrades and conflict analysis for pedestrian safety.



Georgia Department of Transportation

Instead of being reactive …

Waiting for crashes to occur before addressing safety gaps

With this approach, improvements occur inconsistently, allowing severe crashes to continue to happen in locations with known risk factors.

… Georgia is proactive

Implementing safety countermeasures systemically based on measurable risk

GDOT and Georgia Tech developed a statewide inventory of horizontal roadway curves and categorized them into five risk levels. This inventory is used to guide the deployment of proven safety countermeasures based on the level of risk. For example, Risk Level V curves may be equipped with flashing beacons. Other countermeasures include curve warning signs, enhanced pavement markings, optical speed bars and high-friction surface improvements.

Instead of relying on inadequate data about pedestrians …

Using only pedestrian crash history and volume counts to identify safety gaps and justify the costs of improvements

Pedestrian crashes are rare, underreported and unpredictable, and pedestrian volume data are often unavailable. Using these data alone can leave locations with known exposure risks unimproved.

… Georgia uses other clues to identify risks

Using land use and transit activity to identify where people are likely to walk

GDOT and the Metropolitan Atlanta Rapid Transit Authority (MARTA) conduct proactive safety reviews of bus stops. The reviews incorporate factors such as ridership, roadway width, traffic volumes, speed limits, medians and a social vulnerability index. This approach uses data to predict crash frequency and severity in benefit-cost and risk analyses and directs investments to locations with clear pedestrian exposure, not just documented crashes.

Supplementing crash data with video-based conflict and near miss analysis

GDOT uses post-encroachment-time and time-to-collision metrics from video analytics. These metrics quantify pedestrian risk by evaluating the time separation between vehicles and pedestrians and are used to support the justification and placement of midblock crossings.

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Instead of waiting for intersection crashes …

Upgrading intersections only when crash frequency reaches a warrant

This delays improvements at many high-risk intersections, particularly rural or low-volume sites with small but potentially severe crash samples.

… Georgia prioritizes high-risk intersections

Using a risk-factor-based scoring method for all-way stop-controlled (AWSC) intersections

The scores weight geometry, presence of curves, driveway density, lighting, speed and predicted crash rate. Intersections are prioritized based on risk, not only historical crash occurrence. This enables earlier, more cost-effective interventions across a large network of intersections. Common countermeasures include oversized signs, rumble strips, reflective tape and "STOP AHEAD" pavement markings.

Instead of maintaining silos …

Addressing safety problems agency by agency

Safety initiatives are implemented separately and inconsistently, limiting systemic gains.

… Georgia fosters cooperation

Addressing safety as a shared responsibility and prioritizing multi-agency partnerships

GDOT works with Georgia Tech, MARTA, local governments and consultant partners to operationalize new tools to proactively identify and address likely problem locations. These collaborations help institutionalize Safe System processes statewide.

What levers did this intervention pull?

PRIMARY: Georgia's network screening approach promotes a variety of countermeasures that can be systemically applied to reduce the **likelihood of a crash**. Enhanced signage, optical speed bars, and friction treatments reduce the likelihood of roadway departures on sharp curves. Conflict analysis identifies locations where pedestrians frequently interact with vehicles, allowing earlier interventions that reduce the likelihood of pedestrian-vehicle conflicts. The proposed countermeasures at midblock crossings, including pedestrian hybrid beacons, rectangular rapid flashing beacons and raised crosswalks, have been documented to reduce crashes with pedestrians. AWSC prioritization reduces the likelihood of intersection crashes.

SECONDARY: Some proposed treatments, such as optical speed bars on curves and raised crosswalks, also reduce **severity** by lowering vehicle speeds.

State and local DOTs can reduce crash injuries by lowering one or more of the following **SAFETY LEVERS**:

EXPOSURE	how much people drive
SEVERITY	how fast vehicles travel and how heavy they are
LIKELIHOOD OF A CRASH	how often road users come into conflict

What else can be done?

Rapid-deployment steps: Expand systemic treatments that manage kinetic energy. While GDOT's current approach is largely focused on conflict management, additional speed management and user separation strategies would help ensure crashes occur within survivable limits, particularly for vulnerable road users.

Policy/process trigger: Institutionalize Safe System principles, embedding them into policies, guidance, design manuals and training to ensure consistent application rather than project-by-project adoption.

Continued data collection: Build on existing use of video analytics by tracking operating speeds and assessing whether they align with survivable energy limits. Network-wide speed management assessments could be conducted to proactively identify and address high-speed safety concerns.