City of Dallas

Maple Avenue Transportation Safety Project
Frequently Asked Questions

November 2024

Contents

Question 1: Does this part of Maple Avenue actually have a traffic safety problem?

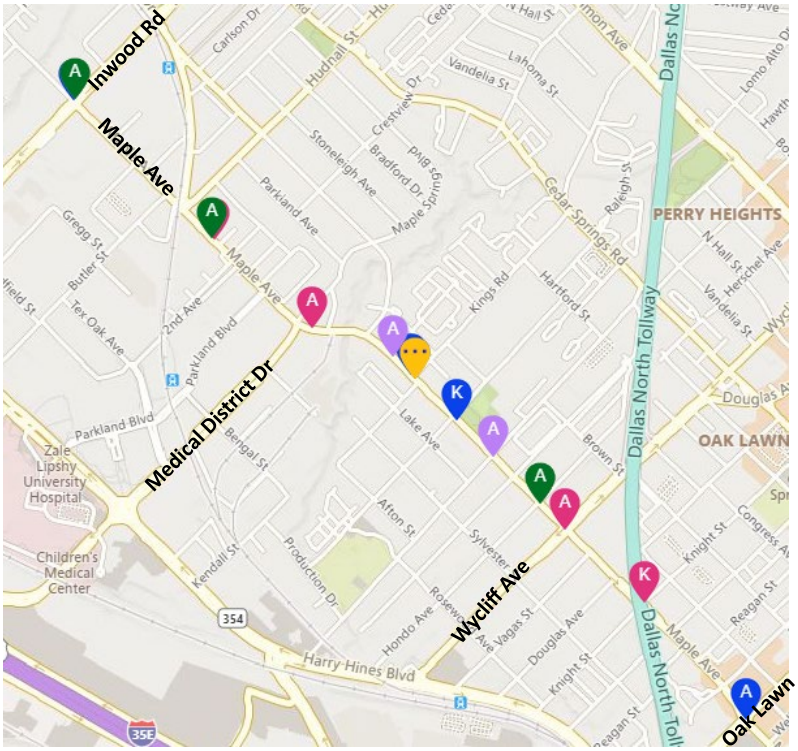
Answer: The stretch of Avenue Maple Avenue between Oak Lawn Avenue and Inwood Road is among the most dangerous stretches of 4-lane roadway in the City of Dallas, particularly for pedestrians. In just the past 12 months, two people have been killed, one of whom was a pedestrian crossing in the crosswalk at Hawthorne Avenue in broad daylight.

According to crash reports from the Texas Department of Transportation's Crash Records Information System, **from 2020 to 2024, there were 16 fatal or severe injury crashes** (i.e., someone was killed or went to the emergency room) along Maple Avenue between Oak Lawn Avenue and Inwood Road, and 2024 is not over yet. The location of these crashes is shown in Figure 1. To put these numbers into perspective, that is 23% more fatal and severe injury crashes than this same stretch of Cedar Springs Road, and 45% more than a similar length (2 mile) section of Harry Hines Boulevard around the hospitals (from Medical District Drive and Lovedale Ave).

2020 to 2024 includes COVID-19 pandemic years, in which traffic patterns, and therefore crashes, drastically changed. Pre-pandemic, the number of fatal and severe injury crashes was even worse. **From 2015 to 2019, there were 20 fatal and severe crashes on Maple Avenue** between Oak Lawn and Inwood, and **14 resulted in a pedestrian being killed or seriously injured**. The location of these crashes is shown in Figure 2. To put this into perspective, from 2015 to 2019, there were 33% more fatal and severe injury crashes on Maple Avenue between Oak Lawn Avenue and Inwood Road than this same stretch of Cedar Springs Road, 82% more than this same stretch of Lemmon Avenue, and 11% more than the 2-mile stretch of Harry Hines Boulevard around the hospitals.

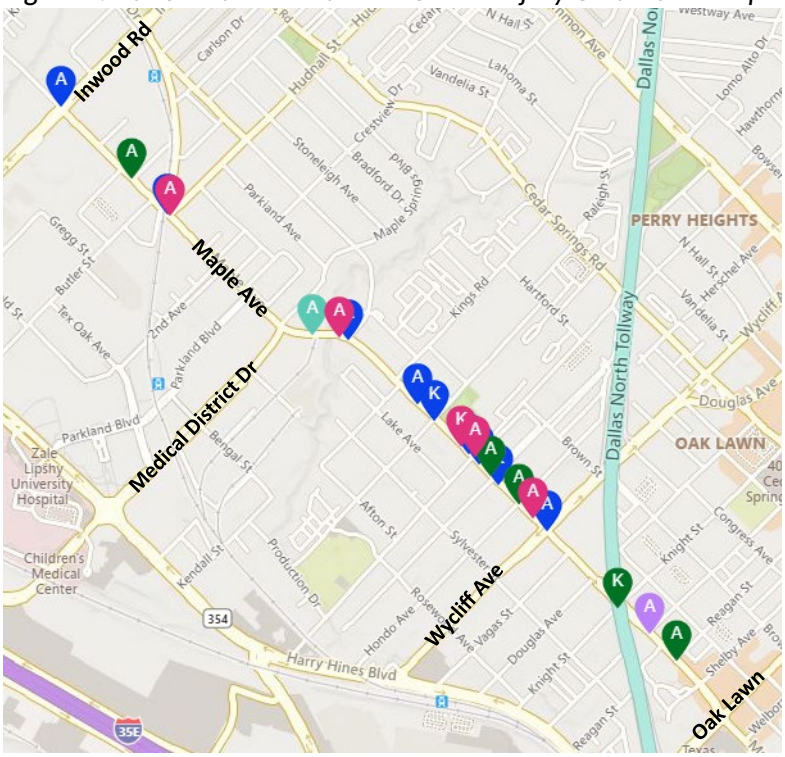
In 2022, the City of Dallas commissioned a Vision Zero Action Plan. This plan evaluated the City's roads to rank the ones with the highest density of fatal and severe crashes. Maple Avenue between Hudnall to Oak Lawn is #1 on the City's Top 15 pedestrian High Injury Network (HIN) segments, which shows a history of fatal and serious injury crashes involving pedestrians on this corridor.

Figure 1: 2020 - 2024 – Fatal and Severe Injury Crashes on Maple Ave from Oak Lawn Ave to Inwood Rd



K=Killed
A=Severe Injury
Color varies by year.
A yellow marker symbolizes multiple crashes at a given GPS location.

Figure 2: 2015 - 2019 – Fatal and Severe Injury Crashes on Maple Ave from Oak Lawn Ave to Inwood Rd



K=Killed
A=Severe Injury
Color varies by year.
A yellow marker symbolizes multiple crashes at a given GPS location.

Question 2: How would the proposed improvements address the causes of fatal and severe injury crashes on this stretch of Maple Avenue?

Answer: Key factors in the fatal and severe injury crashes between 2020 and 2024 between Wycliff Avenue and Inwood Road: Pedestrian-Involved (43%), Vehicle Turning Left (36%), Under the Influence of Alcohol (21%) and Nighttime (8pm-6am) (43%). Key factors for the fatal and severe injury crashes between 2015 and 2019: Pedestrian-Involved (71%), Under the Influence of Alcohol (24%), Speed Related (18%), and Nighttime (8pm-6am) (82%). Here are how the proposed improvements would address each these key factors:

- Pedestrian-Involved Crashes: A 4-lane to 3-lane roadway reconfiguration would reduce the pedestrian crossing distance, thereby reducing pedestrian exposure to being hit by a vehicle. Also, with slower speeds the likelihood of a collision resulting in death or severe injury would be reduced. Studies have shown that these reconfigurations have reduced pedestrian crashes by 19% to 47%.[1] The 4-lane to 3-lane reconfiguration would create opportunities to install pedestrian refuge islands in the center left-turn lane, as illustrated in Figure 3 below. Pedestrian refuge islands have been shown to reduce pedestrian crashes by 56%.[2] Because of the way in which pedestrian crashes are spread out throughout the corridor, and not clustered at specific locations, it would not be possible to install new, safe crossings at every one of the crash locations. Therefore, it was determined that the best chance of saving pedestrian lives is to reduce impact speeds and impact forces and reduce pedestrian exposure to collisions along the corridor.

Figure 3: Pedestrian Refuge Island in the Center Turn Lane of a Three-Lane Road

[3]

A 4-lane to 3-lane reconfiguration would also remove the potential for multiple-threat crashes. In multiple-threat crashes, a car in one lane slows down or stops to allow the pedestrian to cross, which then blocks the view of both the driver in another lane and the pedestrian so they do not see each other (see Figure 4 below). This type of crash is

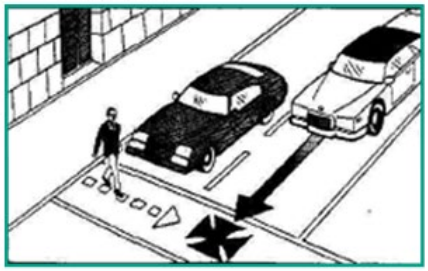
[1] Harkey, D., R. Srinivasan, J. Baek. (2008). *NCHRP 617: Accident Modification Factors for Traffic Engineering and ITS Improvements*. Transportation Research Board: Washington, DC. Available at: http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_617.pdf

[2] Zegeer, C. V., Stewart, R., Huang, H., and Lagerwey, P. (2002). *Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines*. FHWA-RD-01-075, McLean, Va., Federal Highway Administration.

[3] Federal Highway Administration. (2018). *Pedestrian Refuge Island - Safe Transportation for Every Pedestrian Countermeasure Tech Sheet*. FHWA-SA-18-062. Retrieved from https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-08/techSheet_PedRefugeIsland2018.pdf

particularly dangerous because the car involved in the crash has little to no time to slow down before colliding with the pedestrian.

Figure 4: Multiple-Threat Crash Diagram



Lastly, roadway reconfigurations improve pedestrian safety by reducing high-end speeding. By allowing prudent drivers to set the pace, the reconfigurations typically drop the average speed by a few miles per hour, but more importantly, cars do not have the opportunity to travel at dangerous speeds well over the posted speed limit. They also make speeds more consistent by allowing cars that are turning left to move out of the travel lane prior to slowing down. Reducing high-end speeding is critical for reducing deaths and severe injuries involving pedestrians, as research has shown that the average person hit by a vehicle traveling 40 mph has an 80% likelihood of being killed or severely injured, compared to a 40% likelihood if the vehicle is traveling 30 mph.[4]

- Left-Turn Crashes: Under the current 4-lane configuration, visibility for vehicles turning left is very poor, as illustrated in Figure 5 below. Furthermore, the lack of dedicated left-turn lanes puts additional pressure on cars to turn left even when it's not safe. The 4-lane to 3-lane reconfiguration would create dedicated left-turn lanes and improve visibility for vehicles turning left. Roadway reconfigurations like this have been proven to reduce rear-end and left-turn crashes through the use of a dedicated left-turn lane and simplify road scanning and gap selection for motorists (especially older and younger drivers) making left turns from or onto the roadway.[5,6] With vehicles no longer having to change lanes to get around left-turning vehicles in the through lane, there are reduced instances of side-swipe crashes.[7]

[4] Institute for Road Safety Research. *SWOV Fact Sheet: The Relation Between Speed and Crashes*. Retrieved from https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa1304/Resources3/08%20-%20The%20Relation%20Between%20Speed%20and%20Crashes.pdf

[5] Federal Highway Administration. (2010). Evaluation of Lane Reduction 'Road Diet' Measures on Crashes. FHWA Report No. FHWA-HRT-10-053. Washington, D.C: 2010

[6] Stout, Thomas B. (2005, March). *Before and After Study of Some Impacts of 4-Lane to 3-Lane Roadway Conversions*.

[7] Federal Highway Administration. (2014). *Road Diet Informational Guide*. Retrieved from https://safety.fhwa.dot.gov/road_diets/guidance/info_guide/rdig.pdf

Figure 5: Visibility for Left-Turning Vehicles

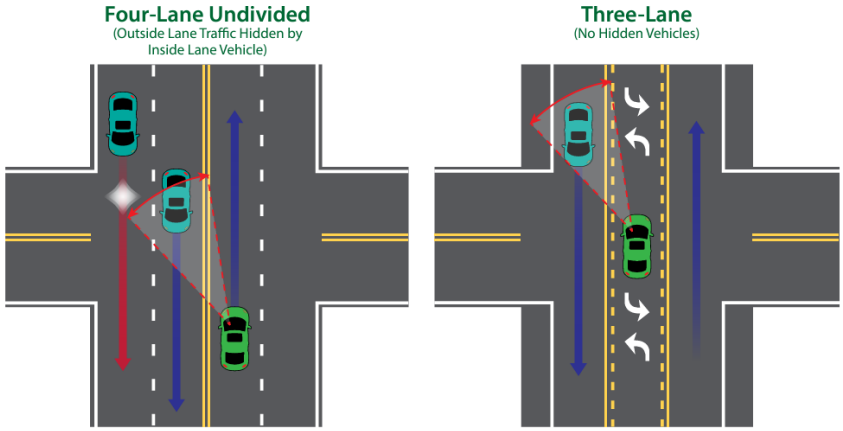


Figure 6. Major-Street Left-Turn Sight Distance for Four-Lane Undivided Roadway and Three-Lane Cross Section (Adapted from *Welch*, 1999)

- Under the Influence: By reducing speeds and conflict points, as shown in Figure 6 and Figure 7, roadway reconfigurations reduce the likelihood that crashes will occur and that they will result in a severe outcome when they do occur. Roadway reconfigurations have been shown to reduce total crashes by 19% to 47%.[8]
- Nighttime: All the streetlights along Maple Avenue in the project area have been converted to LED in recent years. The study has identified several locations where lighting could be enhanced; however, many of the fatal and severe injury crashes are in locations in which the lighting levels meets City of Dallas and industry standards. Additional treatments are needed to reduce the likelihood of crashes occurring and reduce the severity of the crashes when they do occur.

[8] Harkey, D., R. Srinivasan, J. Baek. (2008). *NCHRP 617: Accident Modification Factors for Traffic Engineering and ITS Improvements*. Transportation Research Board: Washington, DC. Available at: http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_617.pdf

Figure 6: Conflict Points at Mid-Block Locations

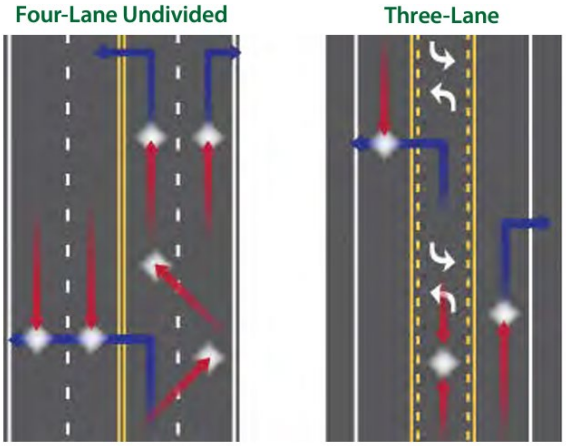


Figure 4. Mid-Block Conflict Points for Four-Lane Undivided Roadway and Three-Lane Cross Section (Adapted from *Welch*, 1999)

Figure 7: Conflict Points at Intersections

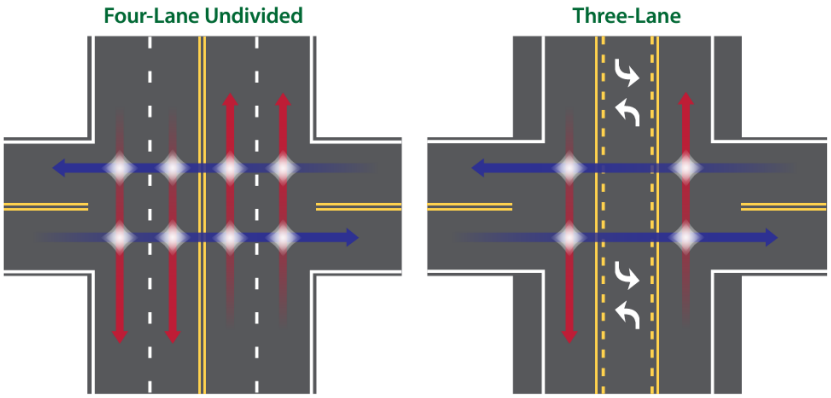


Figure 5. Crossing and Through Traffic Conflict Points at Intersections for a Four-Lane Undivided Roadway and a Three-Lane Cross Section (Adapted from *Welch*, 1999)

Question 3: Could other treatments be implemented that would have the same traffic safety impact?

Answer: The City is pursuing a suite of countermeasures in addition to the lane reduction, including enhanced pedestrian crossings like Pedestrian Hybrid Beacons and Rectangular Rapid Flashing Beacons, where warranted, and lighting enhancements. While these countermeasures by themselves may help, the likelihood of achieving the Vision Zero objectives will be diminished without the roadway reconfiguration.

What About Traffic Signals? Members of the public have asked about installing more traffic signals in lieu of the roadway reconfiguration. Traffic signals must be warranted based on criteria in the Texas Manual on Uniform Traffic Control Devices (TMUTCD) and installing traffic signals when they are not warranted can actually increase crash rates.[9] Installing more traffic signals could also

[9] Persaud, B., Hauer, E., Retting, R. A., Vallurupalli, R., and Mucsi, K. (1997). Crash reductions related to traffic signal removal in Philadelphia. *Accident Analysis and Prevention*, Vol. 29, No. 6, Oxford, N.Y., Pergamon Press, (1997) pp. 803-810.

increase travel time delay along Maple Avenue, as time would then need to be allocated to cars on the side streets at each signalized intersection. Traffic signals are also very expensive to install and maintain. It currently costs around $600,000 to install a new traffic signal at an intersection, and traffic signals should be replaced every 25 to 30 years.

What About Speed Humps? The installation of speed humps on Maple Avenue has also been proposed. The City does not install speed humps on collector and arterial roadways for several reasons. Speed humps jostle people riding buses and disrupt and could potentially damage goods in delivery trucks. Speed humps are also intended to encourage vehicles to slow to very low speeds. The combination of significantly slower speeds and disruption to truck goods can result in more vehicles using neighborhood side streets to avoid the speed humps. Vehicles suddenly slowing for speed humps on collector and arterial roads can result in rear end collisions, and vehicles swerving to get around them can result in side-swipe collisions. Both reactions create a more chaotic street environment, rather than a more orderly street environment.

What About More Enforcement? More police enforcement is often proposed as an alternative solution to most traffic safety issues. While the City of Dallas is expected to hire additional police officers over the coming years, it will be still not be possible to have an officer patrolling Maple Avenue at all times of the day. Even if the money proposed to be spent on the roadway reconfiguration portion of the project was instead spent on additional traffic enforcement, it would only be enough to pay for one officer to patrol Maple Avenue for six months. After six months, safety conditions would return to what they are today.

Question 4: Would the lane reduction reduce traffic capacity by 50%?

Answer: Under the proposed improvements, the number of travel lanes on Maple Avenue would be reduced from 4 lanes to 3 lanes, not 4 lanes to 2 lanes. Capacity would not be reduced by 50%.

Though it seems counterintuitive, 2 travel lanes with a center turn lane can handle traffic more efficiently than four travel lanes under the right conditions. The reason is having a center turn lane allows cars turning left to be able to get out of the flow of traffic instead of blocking it. Guidance from the U.S. Department of Transportation Federal Highway Administration, which was determined by summarizing the results of roadway reconfiguration projects in cities across the country, states “Roadways with Average Daily Traffic (ADT) of 20,000 or less may be good candidates for a road diet and should be evaluated for feasibility. It has been shown that roads with 15,000 ADT or less had very good results in the areas of safety, operations, and livability.

On some corridors like Maple Avenue, the number and spacing of driveways and intersections leads to a high number of turning movements. In these cases, 4-lane undivided roads (i.e., 4-lane roads that lack a median of center left-turn lane) can operate as de facto 3-lane roadways. That is because the majority of the through traffic uses the outside lanes due to the high number of left-turning traffic in the inside lane. In these cases, a conversion to a 3-lane cross section may not have much effect on operations.

Operational benefits of 4-lane to 3-lane reconfiguration include:

- Separating left-turning traffic has been shown to reduce delays at signalized intersections.
- Left turns coming out of side streets and driveways can more comfortably enter the roadway because there are fewer lanes to cross and gaps in traffic are easier to identify. Those vehicles can also use the two-way left turn lane to turn onto, prior to entering the desired traveled lane. Side-street traffic would not require as long of gaps to complete movements. Gaps will still occur in traffic flow due to the traffic lights along Maple Avenue.
- The reduction of speed differential due to a roadway reconfiguration or lane reduction provides more consistent traffic flow and less "accordion-style" slow-and-go operations along the corridor.[10]

For this project, traffic was projected to the year 2045 and evaluated in the busiest hour in the morning and evening rush hour. **The maximum travel time change along this corridor with the implementation of the roadway reconfiguration is an increase of two minutes during the peak rush hour in 2045.**

Question 5: Will traffic be diverted onto side streets?

Answer: An analysis of area-wide traffic patterns was conducted as part of the traffic study to determine whether traffic would choose to re-route and what corridors might be impacted. It was found that about 5% to 10% of traffic in 2045 that would otherwise use Maple Avenue may choose to be re-routed for faster travel times, mostly to Harry Hines Boulevard and Oak Lawn Avenue. Traffic volumes on residential side streets will be evaluated both before and after project implementation to determine if traffic calming or traffic diversion treatments are needed to address any cut-through traffic.

Question 6: Would a roadway reconfiguration hurt businesses along Maple Avenue?

Answer: Converting a 4-lane undivided roadway to a 3-lane roadway with a dedicated continuous left-turn lane can improve economic vitality by changing corridors from a place that people "drive-through" to one that they "drive-to." Replacing vehicle travel lanes with on-street parking options, walking areas, and bicycle lanes can make the street a more attractive "park once" area. With these improved facilities, a motorist is more likely to park, walk around, visit restaurants or shops, and enjoy the setting, benefiting the economy and public safety of the neighborhood."[11] Also, with enhanced bike and pedestrian infrastructure, more patrons who travel this way will come to the area due to the improved access.

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[10] Federal Highway Administration. (2014). *Road Diet Informational Guide*. Retrieved from https://safety.fhwa.dot.gov/road_diets/guidance/info_guide/rdig.pdf

[11] Federal Highway Administration. (2019). *Road Diets' Economic Impacts*. FHWA-SA-17-019. Retrieved from https://safety.fhwa.dot.gov/road_diets/resources/pdf/fhwasa17019.pdf.

Several studies have quantified their effect on economic growth. Here are just a few examples of this studies:

- Charlotte, NC: The before and after study of a roadway reconfiguration project in Charlotte, NC indicated a $43 million increase in the non-residential tax value of properties fronting the East Boulevard project.[12]
- Los Angeles, CA: A study of York Boulevard, where one half of the corridor had received a lane reduction and the other half did not, found that the lane reduction had little effect on surrounding businesses, property values, and customer shopping patterns. When looking at property value, there was no significant differences in property sale price exist between the corridor halves or before/after the lane reduction implementation. Sales tax revenues were higher on the lane reduction section of York Boulevard; although, since the data are provided in aggregate terms, it was not possible to conduct statistical tests or attribute the higher sales tax revenues to the presence of the lane reduction project. There was no significant difference in the number of new business openings or in business turnover between the two corridor halves.[13]
- Knoxville, TN: A study of Cumberland Avenue roadway reconfiguration found an increase in the land value for the parcels along Cumberland Avenue which was increased at a rate five times higher than that of the land value increase over the City of Knoxville. With the Central Street 4-lane to 3-lane reconfiguration, an increase in land values was observed when the project was first proposed, and again when it was implemented. The project positively impacted the value of land parcels around the road reconfiguration portion of Central Street, with growths in value higher than the City of Knoxville overall.[14]
- Boston, MA: Following a 4-lane to 3-lane roadway reconfiguration on Roxbury Centre Street, City staff reported that speeds were down, perception of safety was up, and diversion to side streets (using WAZE data) was only slightly up - from 0.3% of trips to 3.3% of trips.[15] Quarterly credit card data was reviewed to evaluate the impacts on businesses, and the finding was that the roadway reconfiguration implementation was not correlated with any measurable change in transactions, though there is month-to-month variation in transactions.[16]

[12] Nozzi, D. (2013). *The Economic Merits of Road Diets*. Located at: https://domz60.wordpress.com/2013/03/12/the-economicmerits-of-road-diets/.

[13] McCormack, C. (2012) *York Blvd: The Economic Impacts of a Road Diet*. University of California Los Angeles. Retrieved from https://nacto.org/docs/usdg/yorkblvd_mccormick.pdf

[14] Aryal, S. et al. (2021). *Evaluating Performance and Benefits of Road Reconfigurations in Tennessee*. University of Tennessee Knoxville. Retrieved from https://www.tn.gov/content/dam/tn/tdot/research/final-reports/res2020-final-reports/RES2020-16_Final_Report_Approved.pdf

[15] City of Boston. Centre Street Design Project. Retrieved 11/5/2024 from https://www.boston.gov/departments/transportation/centre-street-design-project

[16] Emailed communication from the City of Boston, November 1, 2024.

In addition, a positive relationship between the walkable built environment and property value is evident in published literature.[17,18,19,20,21]

The City will monitor retail sales and property taxes before and after the project is implemented to ensure the City's safety goals are not significantly detracting from the City's economic development goals.

Concerns were also raised about impacts to businesses during project implementation. Because the project will not impact drainage or require reconstruction of the roadway, the bulk of the changes could be implemented in as little as two days because they involve simple re-striping. The pedestrian crossing, traffic signal, and sidewalk improvements would take more time to implement, but there would be minimal disruption to traffic during their implementation.

Question 7: Would the project negatively impact emergency response times?

Answer: Peer-reviewed scientific studies have shown no difference in emergency response times before and after 4-lane to 3-lane reconfigurations.[22] Case studies have also found that emergency response was safer and easier after 4-to-3 lane reconfigurations.[23] Fire trucks and ambulances would be able to use the continuous center turn lane to bypass traffic, as illustrated in Figure 9. Dallas Fire-Rescue has expressed support for the project, as it would mean fewer trips to crash sites along Maple Avenue. Furthermore, the City is currently in the midst of upgrading its traffic signals' physical and technological infrastructure, which will result in a demand-based system that improves response time.

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[17] Leinberger, C. B. & Alfonzo, M. (2012, January). *Walk This Way: The Economic Promise of Walkable Places in Washington DC*. Brookings Institution.

[18] LGC. (2001). *The Economic Benefits of Walkable Communities*. Local Government Commission.

[19] Tolley, R. (2011). Good For Busine$$ - The Benefits Of Making Streets More Walking And Cycling Friendly. Heart Foundation South Australia. Retrieved from www.heartfoundation.org.au/SiteCollectionDocuments/GoodforBusinessFINAL_Nov.pdf.

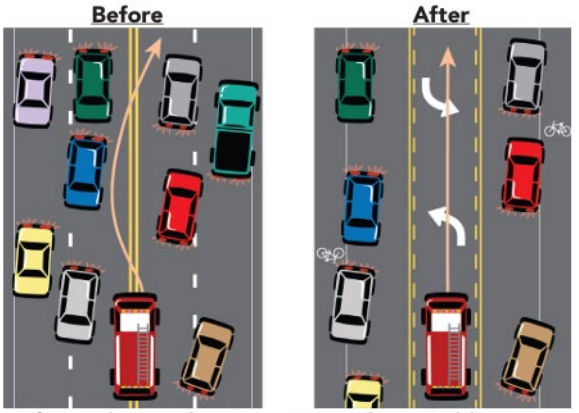
[20] Hack, G. (2013). Business performance in walkable shopping areas. *Active Living Research*. Retrieved from www.activelivingresearch.org); at https://bit.ly/3FLEr0g.

[21] Rowe, K. (2013). *Bikenomics: Measuring the Economic Impact of Bicycle Facilities on Neighborhood Business Districts*. University of Washington. Retrieved from http://cep.be.washington.edu/wpcontent/uploads/2013/07/bikenomics_v2.pdf.

[22] Corcoran, N., Hamann, C. J., Reyes, M. L., Jansson, S., & Cavanaugh, J. E. (2024). Impact of 4-to-3 lane conversions on emergency response. *Transportation Research Interdisciplinary Perspectives*. Volume 26, July 2024, 101158. https://doi.org/10.1016/j.trip.2024.101158.

[23] Federal Highway Administration. (2017). *Road Diets and Emergency Response: Friends Not Foes*. SA, 17 (2017), p. 020. Retrieved from https://safety.fhwa.dot.gov/road_diets/resources/pdf/fhwasa17020.pdf

Figure 9: Path for Emergency Responders Before and After Reconfiguration



Question 8: Did the City conduct proper notifications?

Answer: The City followed proper procedures to publicize the Maple Avenue Safety Project's July 31, 2024, and February 16, 2023, community meetings, including mailing out postcards to owners of real property within 200 feet of the corridor, posting information on various City and elected officials' social media accounts across several social media platforms, emailing information to local neighborhood associations and previous meeting attendees, and giving interviews to the press. Meeting materials and a survey were posted online for several weeks following the meetings for people that were unable to attend in-person. Meetings have been held with representatives from Southwestern Medical District and Dallas Area Rapid Transit. And as with all City transportation projects that are under design and development, the public is given multiple opportunities to provide input as projects progress. For Maple Avenue, this includes a follow-up meeting on November 1, 2024, to hear from residents and business owners about their concerns.

Question 9: If the City addresses the homeless problem, will that take care of the safety issues?

Answer: Based on confidential information in police crash reports, some of the pedestrians involved in the fatal and severe injury collisions along Maple Avenue were homeless, but several were residents of nearby apartment complexes that provide housing options for lower-income residents. People who are lower income, even when housed, often rely on walking and public

transportation to get around, and the City has an obligation to provide residents of all income levels with a safe transportation system.

Question 10: What is the timeframe for this project, and will there be additional input opportunities?

Answer: After the survey closes on November 20, 2024, the additional survey responses will be reviewed and addressed as feasible. It is anticipated that the revised conceptual plan ("roll plot") and the corridor study report, which includes the traffic analysis for the 4-lane to 3-lane roadway reconfiguration, will be finalized and posted to the project website in January 2025.

After that, City Council will be asked to consider amending the Thoroughfare Plan to reduce Maple Avenue from 4 lanes undivided to 3 lanes. The amendment process should take roughly four months. If or when City Council approves the Thoroughfare Plan amendment, detailed design on the project will begin. Detailed design could take six months to a year to complete, after which the implementation of the project would occur. Following the implementation of the project, the corridor and surrounding streets will continue to be monitored to determine if additional measures or modifications are needed.

There will be additional opportunities for public input during the Thoroughfare Plan amendment process and as the project progresses. If you provided your email at one of the public meetings or through the online survey, your email address has been logged and you will be notified of future input opportunities. If you missed the survey, a Sign-Up form will be made available on the project website: https://bit.ly/MapleAveVZ.