

South 24th Street Road Diet Health Impact Assessment

movingomaha



Figure 1 (Source: USDOT Federal Highway Administration)

Background

During the process of updating the City of Omaha's Transportation Master Plan, numerous streets were identified that were designed for higher traffic volumes than they currently serve. One of these streets was South 24th Street from Leavenworth to L. It was designed as four lanes – two travel lanes in each direction – prior to the building of the US-75 Kennedy Freeway.

The City of Omaha has proposed doing a "road diet" on South 24th Street as a way to make it safer and to better fit the commercial and residential context of the neighborhoods surrounding it. The road diet would involve converting South 24th Street to three lanes – one travel lane in each direction plus a middle turn lane. In February 2012, the City of Omaha was awarded \$1.2 million in Transportation Enhancement funding for completing the road diet.

Since a road diet is a new process in Omaha that would affect the lives of thousands of South Omaha residents and visitors, the decision was made to conduct a Health Impact Assessment (HIA) on the proposal. HIAs are used to better inform decisions made outside the health sector about likely impacts on health and health equity.

Surveys of community members and South Omaha business owners were used to determine what issues to include in the HIA. Additional community engagement, review of the scientific literature, analysis of speed and crash data, and other methods were used to determine the likely impact on the health of South Omaha residents.



For more information

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Community Input

Two surveys – one of the general public during the Cinco de Mayo parade and one of members of the South Omaha Business Association (SOBA) – identified the same top five concerns for 24th Street from Leavenworth to L Street.

- Crossing 24th Street – especially for children, the elderly, and people who are blind or in a wheelchair
- Cars speeding or driving recklessly
- Getting out of your car into traffic when you park
- Safety from crime
- Making walking and riding a bicycle along 24th Street safe and convenient

Further community engagement discussions that occurred with members of the following organizations confirmed the survey findings [South Omaha Neighborhood Association, Mujeres Activas, UNMC Center for Reducing Health Disparities, South Omaha Community Care Council, inCommon Community Development, Spring Lake Neighborhood Association, Deer Park Neighborhood Association]. For example, youth participating in a clean-up along 24th Street as part of the STEP-UP summer employment program shared these reflections:

"I don't think it was that easy to pick up trash on 24th Street because it was too loud with the cars driving by so fast."

"I think people will really like and appreciate if 24th Street was safer because I think they have nice stores but most people don't go because they don't feel safe."

"Yesterday I felt afraid because we had to cross the road and run to the other side. I worried about a car accident."


"I didn't feel safe because there was a lot of cars passing by and we could have been run over. We had to run very fast to cross the street. The streets should be fixed somehow."

"I didn't feel safe because it seemed like the streets were so close to the sidewalk. It made me feel like I should be very careful on 24th Street because the cars go so fast. On 24th Street there is a lot of traffic and it's not safe for people to walk on the streets."

Key Findings

Following the community input process, the scientific literature was reviewed for how road diets affect each of the concerns identified by the South Omaha community. The key findings for each concern are summarized with further explanation provided.





Crossing 24th Street Safely

- Road diets make it safer to cross the street because going down to one travel lane in each direction removes the threat of a type of auto-pedestrian crash called a “multiple threat crash.”

- The South 24th Street Road Diet will also make it easier for people to cross 24th Street because included in the funding is money for curb extensions, ADA-compliant curb ramps, and pedestrian countdown timers.

Multiple Threat Crash

Curb Extensions

Figure 1. The effect of the number of trials on the number of correct responses. The number of correct responses was significantly higher than the number of incorrect responses in all cases. Error bars represent the standard error of the mean.

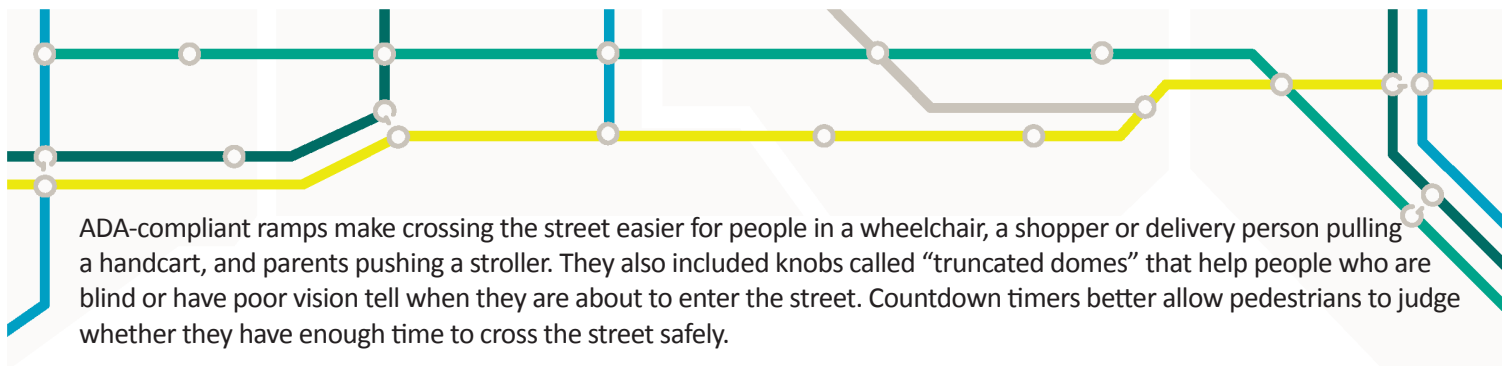


Figure 4 (Source: Florida Center for Instructional Technology)



Figure 5 (Source: WalkingInfo.org)

Recommendation: Messaging about the value of road diets by the City of Omaha should highlight how road diets, especially with added design features, make it safer and easier to cross the street.

Car Speeding or Driving Recklessly on 24th Street

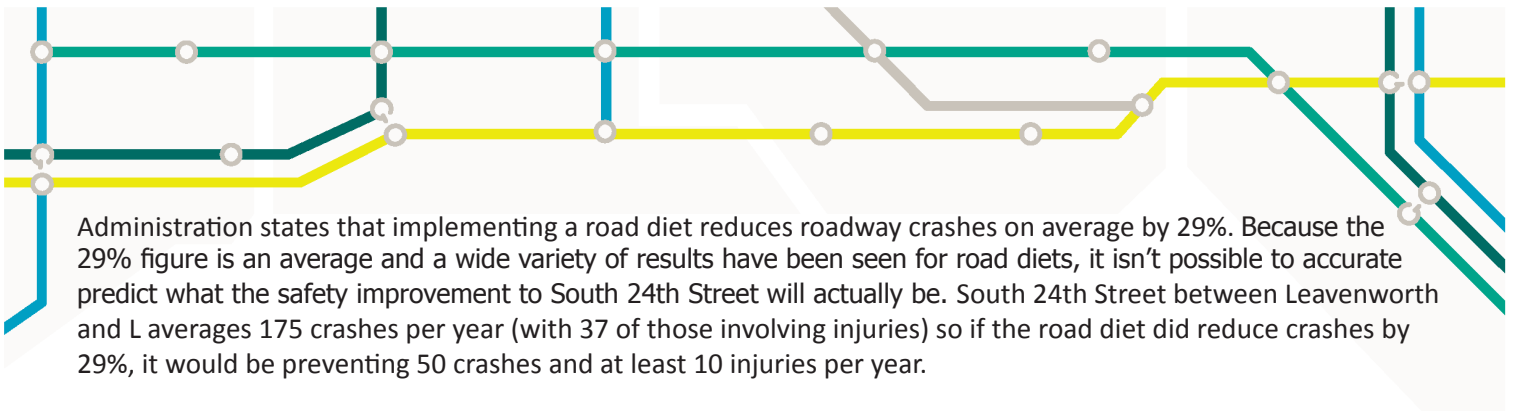
- Speeding along 24th Street from Leavenworth to L Street is not just a matter of perception. A speed study conducted along 24th Street showed significant rates of speeding.
- Road diets lower speeds and make speeds (and driving movements) more consistent and predictable.
- US Department of Transportation Federal Highway Administration lists road diets as a “proven safety countermeasure” that have been shown to reduce car crashes by 29% on average. If this reduction held true for South 24th Street, 50 crashes and at least 10 injuries per year would be prevented.
- Three-fourths of the crashes that occur along 24th Street are types where having a separate turning lane might have prevented them.

The City of Omaha Public Works Department conducted a speed study for both northbound and southbound traffic on South 24th Street at three different locations (24th & H, 24th & Arbor, 24th & Pierce). On average, 15% of drivers were exceeding the speed limit by at least 6 mph. The highest speed recorded was 55 mph in a 30 mph speed limit.

By allowing the prudent drivers to set the pace, road diets 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. Road diets also make speed more consistent by allowing cars that are turning left to move out of the travel lane prior to slowing down.

In addition to improving safety by reducing speeding, road diets also have been shown to reduce car crashes. In looking at the reduction in crashes from a number of pre/post studies of road diets, the Federal Highway





Road diets achieve a reduction in crashes largely by adding a separate turning lane to the road, which reduces three types of auto crashes in particular – rear end collisions, side swipes, and left turns/broadside. The three diagrams below show how adding a middle turning lane is a safety improvement. (Note: a pre-road diet picture is on the left and a post-road diet picture on the right for each diagram).

- **Rear End Collisions:** Prior to the road diet, when the red car wants to turn left, it has to slow down in the travel lane which can result in the blue car running into it. With a center turning lane, the red car wanting to turn left can move into the turning lane and then slow down.
- **Side Swipes:** Prior to a road diet, the blue car may try to pass the turning red car by moving into the right lane, which can result in a side swipe if the yellow car is in a blind spot.
- **Left Turns/Broadside:** Prior to the road diet, the yellow car may be hidden behind the bottom red car so the top red car can't see the yellow car prior to turning. With the center turning lane, the angle is better for the top red car to see the yellow car.

A closer look at the types of crashes at major intersections along 24th Street revealed that over three-fourths (38 out of 49) were rear end collisions, side swipes, or left turns/broadside.

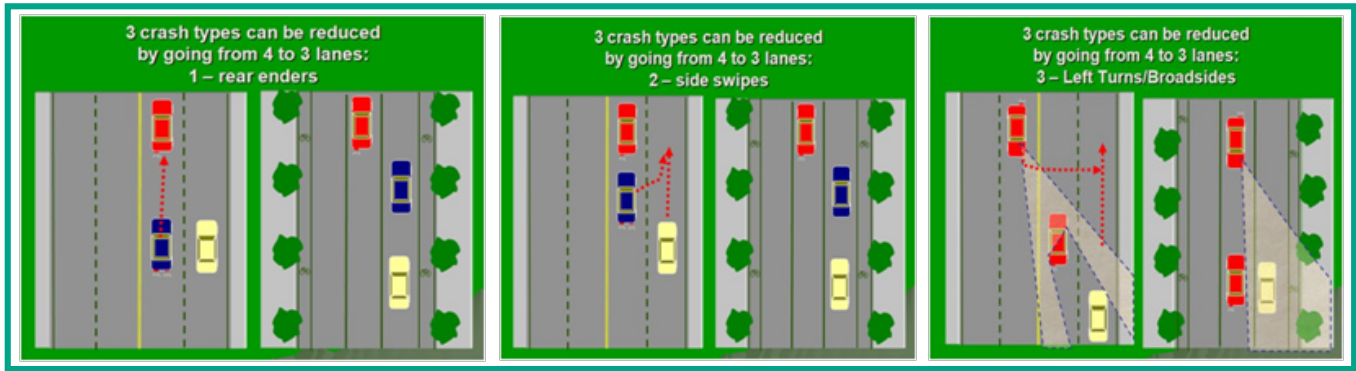


Figure 6 (Source: City of Fresno, CA Public Works)

Recommendation: Because road diets can appear to the public as an improvement for bicyclists at the expense of motorists, the City of Omaha should prominently emphasize the safety benefits for motorists when discussing the value of road diets.

Getting Out of a Car into Traffic Along 24th Street

- The South 24th Street Road Diet includes bike lanes in each direction that provide a buffer for drivers to exit their cars without stepping into an automobile travel lane.
- Drivers will need to look carefully before exiting their cars to avoid “dooring” cyclists. Cyclists will need to avoid riding in the “door zone” whenever possible.

Converting South 24th Street from four auto lanes to three allows enough space to include bike lanes. The design calls for the bike lanes to be between the on-street parking and the travel lane. This allows the bike lane to serve as a buffer for motorists exiting their cars. It also results in a situation where, if drivers do not look for bicyclist prior to opening their door, they risk causing a particular type of auto-bicyclist crash called “dooring.”



Figure 7 (Source: BikeSafeBoston.com)



Figure 9 (Source: BostonBiker.org)

Some communities that have invested more heavily in bicycling facilities are beginning to use a different design, called a “cycle track,” where the bicycle lane is between parked cars and the curb. With bicycles separated from traffic and only exposed to car doors on the passenger side, this design is generally considered safer for bicyclists.



Recommendations: City Planning and Public Works should design the bike lanes on 24th Street to be wide enough to allow bicyclists room to ride in it without being in the door zone. Future projects should evaluate the benefits and tradeoffs of using a “cycle track.” The Mayor’s Bicycle Pedestrian Advisory Committee and bike advocacy groups should determine how best to educate: 1) motorists about looking for bicyclists when exiting their cars and 2) bicyclists about how best to avoid being “doored.”



Safety From Crime Along 24th Street

- The center turn lane is likely to be an enhancement for emergency responders because it allows them an unobstructed passing lane.
- Increasing the number of pedestrians and bicyclists would increase the number of “eyes on the streets,” which would likely reduce the number of crimes along South 24th Street

While it seems unlikely, given its nature as a transportation project, that the South 24th Street Road Diet would have a major impact on crime, there are a few ways the road diet may affect crime. The first is in terms of response time for police and other emergency vehicles. If the center turn lane does not include medians and pedestrian crossing islands, emergency vehicles have a clear lane to passing other cars; however, if these features are included in a road diet, emergency responders could be blocked from passing other cars. The current plans for the South 24th Street Road Diet do not call for medians and pedestrian crossing islands so the design is likely to improve the ability of emergency vehicles to respond.

“Eyes on the street” or natural surveillance calls for increasing the number and ability of legitimate users to monitor activity on a street during their normal use of it. It is a core principle of Crime Prevention Through Environmental Design (CPTED). Pedestrians and bicyclists provide a higher level of natural surveillance so making South 24th Street better designed for pedestrians and bicyclists may have the added benefit of reducing crime. An analysis of crimes occurring along 24th Street from Leavenworth to L found that the most common types of crimes were thefts (typically shoplifting), assaults, and vandalism (typically graffiti).

Recommendation: City Planning and Public Works should include the Omaha Police and Fire Departments in discussions around road diet designs to ensure emergency response times are maintained or improved – especially when medians or pedestrian crossing islands are being considered.

Making Walking and Riding A Bike Along 24th Street Safe and Convenient

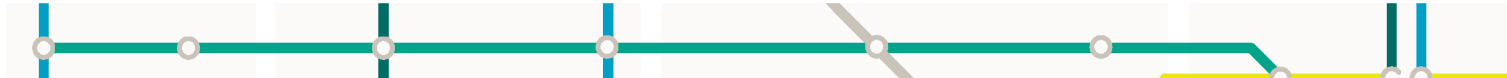
- South 24th Street has one of the highest levels of pedestrian traffic in Omaha.
- Bicyclists using 24th Street are almost always male and typically use the sidewalk instead of the street. Use of helmets is very low.

In the summer of 2011, the City of Omaha conducted its first systematic count of pedestrians and bicyclists. One of the findings of this count was that the main South Omaha commercial area – 24th Street between L and Q – had one of highest pedestrian counts in the entire city. This finding indicates the current need and future potential for making the rest of South 24th Street safer and more convenient for pedestrians. This is especially true of the commercial area from roughly F Street down to L, which includes South High School.

The bicyclists that were counted along South 24th Street were virtually all male (29 out of 30) and 90% of them were riding on the sidewalk. Both these findings indicate that riding in the street on South 24th Street is not perceived to be safe. An additional safety concern was that only 2 of the 30 bicyclists were wearing helmets.

Recommendations: Pedestrian and bicyclist counts should be conducted on an annual basis to identify areas that would most benefit from walking & biking safety improvements and to monitor pedestrian and bicycle traffic over time. Bicycle safety education should include South Omaha as a focus area. Because South Omaha has a large Latino population, Spanish-language materials should be made available.





Other Questions

While not identified by South Omaha residents and business owners as their top concerns, several questions are commonly brought up about road diets.

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Question #1: By taking a travel lane out, won't the road diet cause lots of congestion and travel delay?

Though it seems counterintuitive, two 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.

The guidance from the U.S. Department of Transportation Federal Highway Administration 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.”

South 24th Street between Leavenworth and L Street operates at around 15,000 ADT so it is under the threshold at which the road diet would create a significant increase in congestion or delay. Pre/post road diets studies that measured travel delay find that any change in travel time is typically under a minute. In many, if not most cases, any delay is under 30 seconds.

Question #2: Won't buses and other slow moving vehicles back everyone up because motorists won't be able to go around them now?

24th Street is not heavily used by transit. Two bus routes operate on 24th Street – the 7 and the 9.

- The 7 runs on 24th Street from Vinton to Q. It runs every 30 minutes during peak times.
- The 9 runs on 24th Street from Leavenworth to Poppleton and then from Martha to Vinton. It runs every 60 minutes during peak times.

The curb extensions included in this road diet can decrease the “dwell time” for buses by allowing them access to the curb without having to pull over and then merge back. Making streets safer to cross is an additional improvement for transit users.

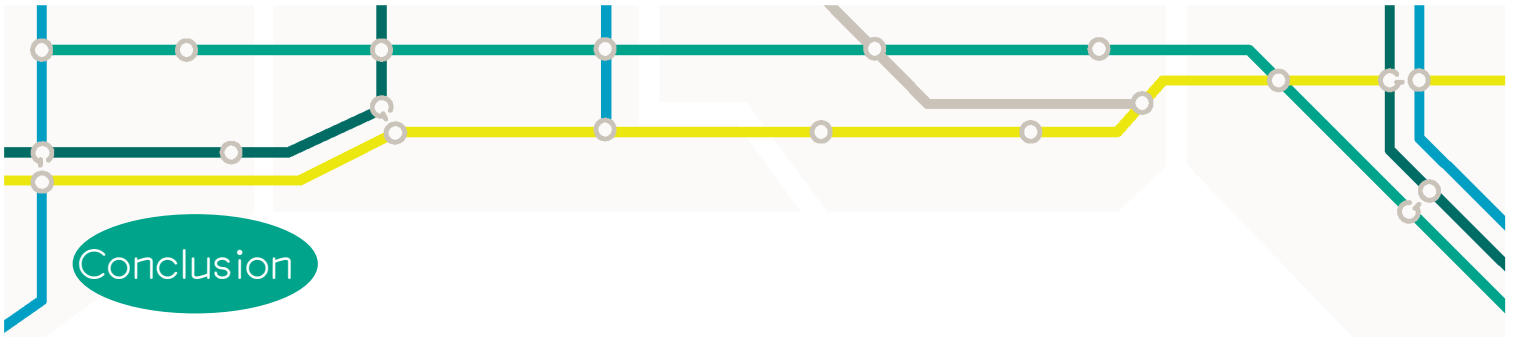
Question #3: Won't it be difficult for cars to turn onto 24th Street from driveways and side streets that don't have a traffic signal because cars will be "stacked up" in the travel lane?

Gaps will still occur in traffic flow due to the traffic lights that are on 24th Street. Left turns out of driveways and side streets will be easier because a motorist only has to cross one lane and because a middle turn lane will exist for going halfway if necessary.

Question #4: Won't cars just avoid 24th Street and take side streets instead? Won't that hurt businesses along 24th Street?

The studies of road diets have found that “diversion” of traffic is practically nonexistent. This is especially likely to be especially true for South 24th Street because drivers looking to get between the downtown Omaha and South Omaha as quickly as possible are likely to already plan on taking the US-75 Kennedy Expressway.

Many advocates of road diets propose that they help businesses by encouraging motorists to slow down and stop and making it easier for people to walk or ride a bike to a business. While there is not strong evidence to support this idea, there is also no evidence that road diets harm business traffic.



A road diet along 24th Street from Leavenworth to L Street seems well suited to addressing the top five concerns expressed in surveys of South Omaha residents and business owners. It will likely improve safety for all users of South 24th Street – motorists, bicyclists, transit users, and pedestrians. In addition to decreasing injuries, it is likely to improve the health of South Omaha residents by allowing for more opportunities to walk or ride a bike. For these reasons, it is recommended that the City of Omaha proceed with the South 24th Street Road Diet.

The residents of South Omaha deserve to have the information to make a well-informed decision about the value of a road diet. In particular, the City of Omaha should ensure they are communicating the benefits the road diet would have to motorists and pedestrians – the two primary groups of users for South 24th Street.

