



# Neighborhood Connections: A Health Impact Assessment

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### Summary

Building street connections into an existing neighborhood is frequently controversial. Common ground exists between neighborhood residents and the City of Omaha for 1) keeping automobile trips on the streets where they belong -- local trips on local streets and regional trips on arterials -- and 2) reducing speeding in neighborhoods. Focusing on these two areas would protect neighborhood residents from injuries while increasing physical activity and decreasing air pollution and traffic congestion. Stronger guidance from the City of Omaha to developers on how and when to engage neighborhoods effectively, as well as a citizen's guide to the development review process, would reduce the stress experienced by nearby residents.

### Background

The City of Omaha routinely faces controversy when deciding whether or not to build streets that connect a new real estate development to an existing neighborhood. While improved connectivity is a goal of Omaha's Master Plan, nearby residents frequently oppose these connections on the grounds that they will increase traffic and compromise safety for the neighborhood, especially for children. The issue is especially controversial if the new real estate development is commercial or multifamily housing.

As a result, the City of Omaha asked the Douglas County Health Department to serve as a neutral third party by conducting a Health Impact Assessment that would look more closely at the benefits and risks of building neighborhood connections from a health perspective. This effort was part of an ongoing collaboration between the Health Department and the City called *Build with Health*.

### Purpose

There were two purposes guiding the Neighborhood Connections Health Impact Assessment. The first was to identify health and safety issues that should be considered in making well-grounded decisions for building or not building a street connection. The second was to determine if there could be improvements in how neighborhood residents were engaged in the development review process.

### Description of the Approach

A key component of the Health Impact Assessment was involving both main stakeholder groups (City of Omaha staff and neighborhood residents) and the decision-maker (the Omaha City Council). Beginning in July 2015, the HIA Lead from the Health Department plus five City staff members from the Planning and Public Works Departments formed a team that met on a monthly basis to collaborate on the Health Impact Assessment.

To create a manageable yet representative group of neighborhood residents, the City and Health Department team selected three case-study neighborhoods that had been through a neighborhood connection decision within the past five years. The neighborhoods selected were **Candlewood** (near 120th & Dodge), **Royalwood Estates** (next to the Sterling Ridge development at 132nd and Pacific) and **Fire Ridge** (near 192nd and Dodge). To learn about the experience of neighborhood residents and listen to their concerns, the HIA Lead arranged interviews with representatives from all three neighborhoods -- typically a current or former president of the homeowners association. The results from these interviews were then shared with City staff and the three City Council members representing the case-study neighborhoods were briefed.

Following the interviews, the Douglas County Health Department held a forum where neighborhood representatives worked in small groups with City staff and their City Council members. The focus of the forum was understanding the perspectives for and against building a connection between an existing neighborhood and a new real estate development, plus determining what health and safety information was needed to weigh different tradeoffs. Recommendations for improving neighborhood engagement was also a top discussion topic at the forum.

## Neighborhood Forum Results

*Traffic volume and traffic speed impacts were key issues for both neighborhood residents and City of Omaha staff, but in different ways.*

- For neighborhood residents, the focus is on potential cut-through traffic from the new development, resulting in increased traffic volumes and a higher number of cars speeding within the neighborhood. The concern is that an increased number of cars and cars speeding would put neighborhood residents (especially children) at risk while also creating an adverse environment that would inhibit social connections and walking, jogging, and biking in the neighborhood.
- For City staff, the focus is on keeping local traffic local to minimize congestion on arterial streets. Cut-through traffic is viewed as unlikely to occur and is therefore seen as a low risk to the neighborhood, especially compared to the risk of residents traveling on higher volume, higher speed arterials instead of making the same trip via local neighborhood streets. Increased traffic congestion and trip lengths are also a concern to City staff due to Omaha being close to exceeding EPA standards for air pollution.

*Neighborhood residents reported experiencing a high level of stress as a result of not knowing how being connected to a new development would affect the safety and sense of community for their neighborhood.*

- Neighborhood residents reported that this stress from the Development Review process was exacerbated by what they felt was a lack of early and substantive involvement.
  - In some cases, letters sent by the City of Omaha which are intended to be a meeting notification (before the Zoning Board of Appeals or Planning Board) were the first notification that nearby residents heard about a new development and its accompanying street connection decision.
  - Secondly, when developers did hold a meeting with neighborhood residents, there was frequently little flexibility for making changes in the development design to address concerns raised by neighbors.

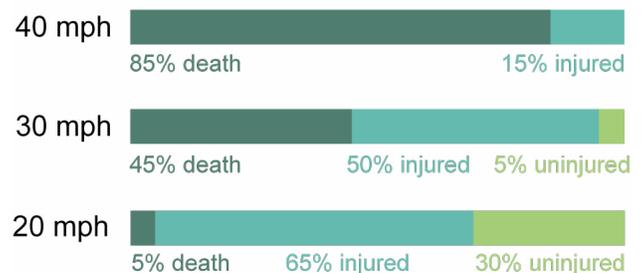
While stress experienced by nearby residents during the development review process is unavoidable, it should still be minimized. Excess stress keeps the body in a “fight or flight” mode that through the release of cortisol and other stress hormones that interfere with digestion, normal blood sugar levels, blood pressure, and the immune system in ways that can lead to a host of health complications ranging from sleep disruption to chronic diseases like diabetes and obesity. The stress response also narrows thinking in ways that can make communication and negotiation between City staff, developers, and neighborhood residents more challenging.

## Key Findings

*Speed is a more critical factor for safety on neighborhood streets than traffic volume.*

- The chances of a crash increase with higher speeds because drivers are less likely to see pedestrians when going faster and greater speeds increase the stopping distance needed to avoid a collision. The fatality rate is only 5% if a pedestrian is hit at 20 mph, but the chance of being killed goes up to 45% at 30 mph and 85% at 40 mph.
- In his seminal Livable Streets study, Donald Appleyard found that the major safety concern for people on a light traffic street (like residential streets in Omaha) was the occasional speeder rather than the number of cars. Appleyard also showed that increases in traffic volume can decrease the number of friends and acquaintances residents have; however, his comparisons were the equivalent of going from a local residential street (200 vehicles per peak hour) to an arterial road (1,600 vehicles per hour).
- More specifically, a study on child pedestrian injuries that was published in the Institute for Transportation Engineers Journal found that traffic speed was the greatest risk factor when also accounting for traffic volume, number of pedestrians, amount of multifamily housing and number of parked cars. The authors concluded “these results suggest that it is more important to control speed than vehicular volume to prevent child pedestrian injuries on residential streets.”

### Pedestrian Injuries at Impact Speeds



Source: U.K. Department of Transportation, *Killing Speed and Saving Livings* (1987)

*If the connection provides access to nearby destinations (within approximately a half-mile), then residents would likely make more trips by walking or biking which increases physical activity.*

- For example, a study by the Federal Transit Administration found that about 40% of trips to a transit station were made by walking if the station was a half-mile away (compared to less than 10% walking at 1 mile).
- Data from the 2008 National Household Travel Survey showed that 40% of trips are made by walking when shops are within a mile compared to less than 1% when the distance is 3-4 miles.

*Traffic calming measures like speed humps, speed tables, and traffic circles frequently achieve a 4-8 mph decrease in speeds, which has been shown to decrease injuries.*

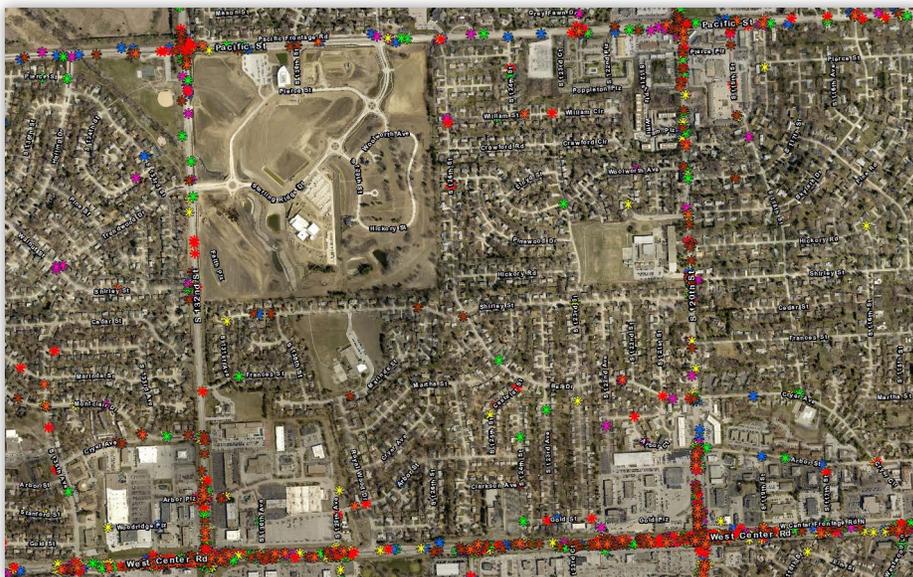
- A systematic review of 16 controlled before and after studies found an 11% reduction in injuries after traffic calming measures were undertaken.
- Other comparisons of before and after studies typically found a 15% to 25% decrease in injuries with some reaching as high as a 50% decrease.

### Local Data

*Arterial roads are more dangerous to make trips than local neighborhood streets due to their higher speeds and greater number of crashes.*

- Local streets in west Omaha have speed limits at 25 mph and handle low volumes of traffic – often well under 250 cars per hour at peak which is the low threshold commonly used in traffic safety research. Arterial roads typically have a speed limit of 45 mph and often handle over a thousand cars per hour at peak.
- While the City of Omaha is working on a more comprehensive study of motor-vehicle crashes and injuries on neighborhood streets, maps of 6 years of crash data for the three case-study neighborhoods were used to create a conservative estimate. Based on this data, arterials have at least ten times more crashes than local streets (see map of Royalwood Estates above and Appendix A).

### **Crashes on Arterials vs. Neighborhood Streets** (Crashes are color-coded by year 2008-2014)



Data source: City of Omaha Public Works

*While the actual number of pedestrian fatalities (especially those involving children) are low, this issue is so important that steps should be taken to prevent any potential increase in traffic risk to children.*

- In previous years, there had been no pedestrian fatalities for children 14 and under, but one 5 year old boy was killed in 2015 in south Omaha.
- Omaha has approximately 5 pedestrian fatalities per year out of about 25 total crash fatalities.
- For injuries, in a typical year, Omaha has about 175 pedestrians who are reported injured – about 35 of these being children under 14 years old.

*Like the rest of metropolitan Omaha and the United States, west Omaha adults and children suffer from high rates of chronic diseases that could be reduced through neighborhoods that support physical activity.*

- Only a third of west Omaha adults are at a healthy weight, over 8% have been diagnosed with diabetes, and over a fourth have high blood pressure.
- 54% of west Omaha adults and 47% of west Omaha children meet physical activity recommendations.
- Only about 15% of west Omaha students walk or ride their bike to school most days. 60% of parents said the school was too far away as the main reason why their child didn't walk or ride their bike more frequently.

## Health Impacts and Recommendations

Based on the available evidence, the table below highlights likely health impacts from different neighborhood connection scenarios and recommendations for promoting health benefits and minimizing potential harms. These recommendations are both evidence-based and directly grounded in the feedback received during the stakeholder forum and other engagement processes. (See Appendix F - Neighborhood Connections Decision Tree.)

<b>Neighborhood Connections Scenarios</b>	
<b>Health Impacts</b>	<b>Recommendations</b>
<p><b><u>No Connection</u></b>            If a street or pedestrian-bike path connection is not built, people from both the new development and the existing neighborhood who can't drive (children, the elderly, or people with disabilities) are forced to walk along arterial roads to make local trips. This leads to:</p> <ul style="list-style-type: none"> <li>• Increased risk of serious injury</li> <li>• Decreased likelihood of walking and decreased physical activity</li> </ul> <p><b><u>Pedestrian-Bike Path Only</u></b>            If a street connection is not built, people who can drive must use arterial roads for local trips, which increases trip length and congestion. As delays from congestion on arterials increase, the risk of cut-through traffic in neighborhoods increases. This leads to:</p> <ul style="list-style-type: none"> <li>• Increased air pollution</li> <li>• Increased risk of serious injury</li> </ul> <p><b><u>Street Connection Without Traffic Calming</u></b>            If a street connection is built AND a shorter trip for arterial traffic in terms of time is created, cut-through traffic is more likely. This leads to:</p> <ul style="list-style-type: none"> <li>• Increased risk of serious injury</li> <li>• Decreased likelihood of walking and decreased physical activity</li> </ul> <p>If a street connection is built AND nearby streets already experience a high rate of speeding, additional speeding is likely to occur. This leads to:</p> <ul style="list-style-type: none"> <li>• Increased risk of serious injury</li> </ul> <p>If a street connection is built AND traffic volumes increase significantly, a "fence effect" is more likely. This leads to:</p> <ul style="list-style-type: none"> <li>• Decreased social connections</li> <li>• Decreased likelihood of walking and decreased physical activity</li> </ul> <p><b><u>Street Connection With Traffic Calming</u></b>            If the street connection is built AND traffic is calmed on local streets to follow speed limits, a safer, more direct route is provided for local trips without compromising neighborhood safety. This leads to:</p> <ul style="list-style-type: none"> <li>• Increased physical activity from walking and biking</li> <li>• Decreased pollution</li> <li>• Decreased risk of serious injury</li> </ul>	<p>Focus on two priorities for connection decisions: 1) keeping trips on the streets they belong — local trips on local streets and regional trips on arterials; and 2) minimizing speeding.</p> <ul style="list-style-type: none"> <li>• Build street connections when: 1) access to nearby destinations is needed for local trips and 2) congestion or crashes on adjacent arterials is a concern based on available data.</li> <li>• Build pedestrian-bike path connections when: 1) access to nearby destinations is needed for local trips and 2) congestion or crashes on adjacent arterials are not a concern. (A street connection with barriers for cars could also be built if congestion is likely to be a concern in the future).</li> </ul> <p>Mitigate potential risks from speeding (including speeding from cut-through traffic) by lowering the design speed of the street and adding traffic calming measures.</p> <p>Establish a threshold of traffic volume increase to neighborhood streets caused by a neighborhood street connection that would trigger mitigating traffic calming measures.</p> <p>Focus on the PM peak for traffic speed and volume studies involving residential neighborhoods to more accurately assess the safety risk to children playing after school.</p> <p>Strengthen guidance to developers to ensure that neighborhood residents are engaged prior to the City sending out meeting notifications. Priority should be given to promoting this engagement at a point when decision-making flexibility for the developer still exists and at least before they submit a formal application to Planning staff.</p>

## Conclusions

1. The crux of the controversy over street connections between City staff and neighborhood residents is over determining tradeoffs between 1) creating safer, more direct routes for local trips with less congestion on arterial roads (City staff) versus 2) minimizing safety risks from additional traffic including potential cut-through drivers (Neighborhood residents).
2. City staff and neighborhood residents have two areas of common ground for reconciling these tradeoffs. The first overlap is keeping trips on the streets where they belong – local trips on local streets and regional trips on arterial roads. The second overlap is reducing speeding on neighborhood streets. Using the Neighborhood Connections Decision Tree to focus on the areas of common ground would result in decisions that protect neighborhood residents from injuries while increasing physical activity and decreasing air pollution and traffic congestion.
3. Stronger guidance from the City of Omaha to developers on how and when to engage neighborhoods effectively, as well as a citizen's guide to the development review process, would reduce the stress experienced by nearby residents.



*Build with Health* is a collaboration between the Douglas County Health Department, the City of Omaha, and eight other partners (Omaha by Design, MAPA, Live Well Omaha, CHI Health, Omaha Healthy Kids Alliance, Nebraska Department of Health and Human Services, UNMC College of Public Health, and ONE Omaha). *Build with Health* focuses on using community design and neighborhood engagement to create healthy, thriving places throughout Omaha.

For more information on *Build with Health* or Health Impact Assessments, please contact:

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Supplemental Information for this HIA is available in the Appendices -- see attached or go to <http://www.douglascountyhealth.com/healthy-community/health-impact-assessments>

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