

Los Alamos NM 502/Trinity Drive Corridor Study –Health Impact Assessment

Health indicator	Relevancy to transportation planning	Existing conditions on NM 502/Trinity Drive	Recommendation for NM 502/Trinity Drive Corridor Study & Plan
<p><b>Pedestrian Safety</b></p> <p>Pedestrian-vehicle crashes are a serious concern.</p> <p>The most vulnerable people, who often cannot drive, are the most at risk.</p>	<p>Pedestrian safety is improved by road design that provides for the safety and connectivity needs of the pedestrian. A convenient sidewalk system includes adequate crossing opportunities.</p> <p>Lower traffic speeds can result in fewer collisions and when collisions do occur, they may be less serious (1, 2). Research shows that approximately 5% of pedestrians would die when struck by a vehicle traveling at 20mph or less. This compares with fatality rates of 40, 80 and nearly 100 percent for striking speeds of 30, 40, and 50 mph, respectively (4). Because of the exponential relationship between speed and pedestrian injury/death, small reductions in speed translate into large reductions in risk (4).</p> <p>Eliminating conflicting vehicular/pedestrian movements at intersections and reducing the number of driveways that cross the pedestrian path improves safety.</p>	<p>The relatively high vehicular speeds on NM 502/Trinity Drive add to pedestrian risk, especially at street crossings and driveways.</p> <p>There are a few sections of NM502/Trinity that have no sidewalks and sections that exist are poorly maintained.</p> <p>Infrequent protected crossings encourage unsafe midblock jaywalking by pedestrians.</p> <p>Frequent driveways that cross the sidewalk along Trinity Drive add to pedestrian risk.</p> <p>Substandard ramps at driveways and road crossing along Trinity Drive do not meet ADA standards and add to the risk of all pedestrians.</p> <p>The narrow sidewalk immediately adjacent to heavy traffic, including large trucks, adds to the risk of those walking along Trinity.</p>	<p>Add or upgrade sidewalks where they are missing or in disrepair; upgrade all driveway and road crossing ramps to achieve ADA guideline standards (5).</p> <p>Create safe, convenient pedestrian crossings that are adequately spaced to accommodate pedestrian destinations.</p> <p>Widen the sidewalk to allow for 3 people abreast and move sidewalk away from the edge of the road by putting in a buffer.</p> <p>Explore potential for traffic calming in areas most used by pedestrians along NM502/Trinity corridor.</p> <p>Explore potential to decrease number of “driveways” on Trinity Drive.</p>
<p>1. Ewing R. Traffic Calming: State of the Practice. (1999). Washington: Institute of Transportation Engineers.</p> <p>2. Insurance Institute for Highway Safety (2000). <a href="http://www.iihs.org/">http://www.iihs.org/</a></p> <p>3. Leaf WA, Preusser DF. (1999). Literature review on vehicle travel speeds and pedestrian injuries among selected racial/ethnic groups. Washington, DC: Preusser Research Group, Inc.</p> <p>4. Anderson RW, McLean AJ, Farmer MJ, Lee BH, Brooks CG. (1997). Vehicle travel speeds and the incidence of fatal pedestrian crashes. <i>Accident Analysis and Prevention</i>. 29(5), 667-674.</p> <p>5. US Department of Transportation Federal Highway Administration, Pedestrian Facility Design Course NHI Course No. 142045.</p>			

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<p><b><i>Walking as part of an active daily lifestyle</i></b></p> <p>A pedestrian environment that is convenient and attractive encourages people to include walking in their daily lives.</p> <p>Thirty minutes of moderate physical activity (for adults), such as walking most days of the week, can reduce the risk for and positively impact numerous long-term health conditions including: overweight/obesity, cardiovascular disease, diabetes, cancers, hypertension, bone and joint disease and mental health (1).</p>	<p>Creating a safe, convenient and attractive pedestrian system within a transportation corridor allows people to use walking as a way to get to work, to school, to the store, or just walk for fun.</p> <p>Providing a sidewalk that is wide enough for two to walk together and a third to pass makes walking more pleasurable.</p> <p>Providing a buffer from noisy traffic makes conversation more enjoyable for pedestrians walking on a sidewalk together.</p> <p>Providing adequately spaced street crossings makes pedestrian travel more convenient and efficient.</p> <p>Providing shade, shelter and benches along the pedestrian path makes walking more comfortable.</p>	<p>Traffic is often of high volume and relatively high speed. These conditions discourage walking on Trinity Drive as a means of transportation or exercise.</p> <p>Sidewalks typically are adjacent to the edge of the road and so the walking environment is noisy, unpleasant and perceived as unsafe.</p> <p>Sidewalks are often insufficient, with missing sections and narrow width and obstructions.</p> <p>Safe crossing opportunities on NM502/Trinity Drive are inadequate. Accessing a destination that is immediately across the street often requires walking out of the way to the nearest signalized crossing and then back.</p> <p>Many “driveways” interrupt pedestrian movement.</p> <p>Pedestrian access to stores, restaurants, and offices along Trinity Drive typically is not directly connected to the sidewalk along Trinity Drive, but requires the pedestrian to walk through a parking lot to reach the entrance.</p>	<p>Create infrastructure that provides a safe and accessible environment for pedestrians and those individuals in wheel chairs.</p> <p>Provide safe and appropriately placed crossings that give convenient access to pedestrian destinations.</p> <p>Provide buffer from the vehicular traffic by moving the sidewalk away from the road edge.</p> <p>Provide shade and benches for comfort and resting.</p> <p>Provide sidewalks that allow two people to walk together and a third to pass.</p> <p>Pay particular attention to the needs for mobility options of residents living on Trinity and in adjacent neighborhoods.</p> <p>Reduce the number and width of driveway interruptions to the sidewalk.</p>
<p>1. Physical Activity and Health: the Benefits of Physical Activity. May 2010. Centers for Disease Control and Prevention. <a href="http://www.cdc.gov/physicalactivity/everyone/health/index.html">http://www.cdc.gov/physicalactivity/everyone/health/index.html</a></p>			

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<p><b><i>Access to parks and green space</i></b></p> <p>Access to green space has been shown to have positive impacts on: physical health, mental skills of attention and reflection, decreased irritability, and healthy weight among children (1, 2).</p> <p>Having parks within walking distance is positively associated with park use and exercise levels. Needing to drive to access a park was seen to deter use (3, 4).</p>	<p>Pedestrian access along transportation corridors encourages people to use the parks, trails, and open areas.</p>	<p>Despite the urban feel of NM502/Trinity Drive, there are green/open spaces along the corridor:</p> <ul style="list-style-type: none"> <li>• Ashley Pond is a desirable public gathering space. It is however, challenging and dangerous to access by foot/wheel chair from the south side of Trinity Drive.</li> <li>• The Los Alamos Mesa Trail is a handicapped accessible trail from Aspen Ridge eastward for one-half mile.</li> <li>• East Park provides a variety of recreation opportunities to users: miniature golf course, picnic area.</li> <li>• Canyon Rim Trail is available for ADA and recreational use and extends along Los Alamos Canyon edge.</li> </ul> <p>Pedestrian access to the existing parks and trails along NM502/Trinity Drive is difficult and dangerous because of high-speed traffic on multiple lanes without adequate sidewalks or crossings.</p>	<p>Create a safe pedestrian crossing of Trinity Drive at Ashley Pond.</p> <p>Create a safe pedestrian crossing of NM502/Trinity to connect the Canyon Rim Trail with the Los Alamos Mesa Trail.</p> <p>Collaborate with public transit system to include stops that access these parks and open spaces.</p>
<p>1. Franklin, H. (2001). Beyond toxicity: human health and the natural environment. <i>American Journal of Preventive Medicine</i>, 20(3), 234-240.</p> <p>2. Verheij, R., Groenewegen, P., Spreeuwenberg, P. (2003). Natural environments-healthy environments? An exploratory analysis of the relationship between green space and health. <i>Environment and Planning</i>: 35, 1717-1731.</p> <p>3. McCormack, G., Rock, M., Toohey, A., Hignell, D. (July 2010). Characteristics of urban parks associated with park use and physical activity: A review of qualitative research. <i>Health and Place</i>. 16(4), 712-726</p> <p>4. Cohen, D., McKenzie, T., Sehgal, A et. al. (March 2007). Contributions of Public Parks to Physical Activity. <i>American Journal of Public Health</i>, 97(4), 509-514.</p>			

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<p><b>Noise</b></p> <p>Potential negative impacts of noise can degrade quality of life, cause sleep disruption, increase stress (1) and lower property values.</p>	<p>Car speeds and driver behavior impact noise levels experienced by those walking and living along the street. The higher the vehicular speeds and the more acceleration and braking significantly raise the level of noise.</p> <p>Noise caused by traffic can reduce the livability and property values of adjacent residences. Noise can also have a negative impact on outdoor-style businesses (2).</p> <p>Reducing vehicle speeds from 40 to 30 mph is as effective in noise reduction as removing one half the vehicles from the roadway (2).</p>	<p>Residents living at the edge of NM502/Trinity Drive endure vehicular noise levels that negatively impact the use and enjoyment of their homes and yards.</p> <p>Houses at the edge of NM502/Trinity Drive tend to be slower to sell and have a lower value.</p>	<p>Strategies to decrease noise along the Trinity Corridor should be considered as roadway design decisions are made.</p> <p>Consider use of “sound barriers” (meeting aesthetic guidelines/desires of community) near residential areas.</p> <p>Encourage use of public transportation on Trinity Corridor to eliminate some motor vehicle traffic.</p> <p>Reduce speed limits on NM502/Trinity Drive in areas adjacent to homes and neighborhoods.</p> <p>Buffer both the pedestrians and residents from traffic noise with the use of a landscaped buffer along the road edge.</p> <p>Avoid stop and go traffic.</p>
<p>1. Health Impact Assessments UCLA School of Public Health <a href="http://www.hiaguide.org/sectors-and-casual-pathways/pathways/noise-pollution">http://www.hiaguide.org/sectors-and-casual-pathways/pathways/noise-pollution</a>                  2. Cowan, J. (1993). Handbook of Environmental Acoustics: Wiley and Sons.</p>			
<p><b>Air quality</b></p> <p>It has been well documented that air quality has direct impact on respiratory health. Increased ozone levels have been known to exacerbate asthma with high levels correlated with higher levels of emergency room visits (1).</p>	<p>Providing safe and accessible pedestrian infrastructure can reduce car dependency, pollution and improve air quality (1).</p>	<p>Pedestrians along most of the NM502/Trinity Drive corridor currently walk at the very edge of the highway without any buffer from the car fumes.</p>	<p>Consider strategies for decreasing vehicle volume and speed on NM502/Trinity Drive to lessen pollutant exposure to pedestrians.</p> <p>Consider buffers that include vegetation/trees/shrubs to block and absorb pollution.</p>
<p>1.Frank, L. and Engelke, P. (April 2005). Multiple Impacts of the Built Environment on Public Health: Walkable Places and the Exposure To Air Pollution. International Regional Science Review 28 (2), 193–216.</p>			

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<p><b><i>Access to public transportation</i></b></p> <p>Individuals who travel using public transportation typically need to walk while getting to a bus stop and accessing ones destination (1).</p> <p>Proximity to public transit stops is linked to higher transit use and higher levels of physical activity among adults (2). Use of public transit is linked with higher levels of physical activity and lower rates of obesity (2).</p>	<p>Accommodation of public transit within the transportation system will encourage increased use of transit. Accommodation includes shelters, safe and convenient bus stops, pull outs for boarding and existing the bus, and safe and convenient road crossings.</p> <p>Increased use of transit improves road capacity.</p>	<p>The Atomic City transit does stop on Trinity Drive but there are no pull-outs, shelters, benches, or safe crossings at the stops.</p>	<p>Pull-outs for transit should be accommodated along Trinity Drive.</p> <p>Adequate crossing opportunities will make transit more convenient as well as safer.</p> <p>Shelters and benches should be available at bus stops.</p>
<p>1. Litman, Todd. (June 2010). Evaluating Public Transportation Health Benefits. Victoria Transport Policy Institute For The American Public Transportation Association. <a href="http://www.apta.com/resources/reportsandpublications/Documents/APTA_Health_Benefits_Litman.pdf">http://www.apta.com/resources/reportsandpublications/Documents/APTA_Health_Benefits_Litman.pdf</a></p> <p>2. Active Living Research Brief Series. (Summer 2009). Active Transportation: Making the Link from Transportation to Physical Activity and Obesity. <a href="http://www.activelivingresearch.org/files/ALR_Brief_ActiveTransportation.pdf">http://www.activelivingresearch.org/files/ALR_Brief_ActiveTransportation.pdf</a></p>			
<p><b><i>Opportunity for incidental interactions among community members</i></b></p> <p>It has been documented that lack of social networks or connections can undermine mental and physical health (1).</p>	<p>Residents of walkable neighborhoods were found to have an enhanced sense of community (2).</p> <p>Walking increases social capital by promoting face-to-face interaction with neighbors.</p> <p>Studies have shown that for every 10 minutes a person spends in a daily car commute, time spent in community activities falls by 10% (3).</p>	<p>The Trinity Drive currently acts as a barrier to those who work or live along the corridor. The infrequent protected pedestrian crossing opportunities contribute to this sense of division.</p> <p>The lack of quiet comfortable places along Trinity Drive discourages visiting and spontaneous conversations at the street edge.</p>	<p>Incorporate safe and accessible sidewalks and crossings along NM502/Trinity Drive to aid in connecting north to south and east to west.</p> <p>Where appropriate and possible, small pocket parks with landscape and seating should be developed along the south side of Trinity Drive to help create a sense of place and neighborhood.</p>
<p>1. University of Minnesota (2008) “Building Social Capital with Comprehensive Planning and Ordinances.” <a href="http://www.designforhealth.net">www.designforhealth.net</a>.</p> <p>2. Lund (2002). Pedestrian Environments and Sense of Community. Journal of Planning Education and Research. 21, 301-312.</p> <p>3. Walk Score:<a href="http://www.walkscore.com/walking-matters.shtml">http://www.walkscore.com/walking-matters.shtml</a></p>			

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<p><b><i>Equitable impact</i></b></p> <p>“The fairness with which impacts (benefits and costs) are distributed” can greatly impact the health and quality of life of a community (1).</p> <p>Living in the same community where one works saves on money (to commute) and increases available time to spend with family and friends.</p>	<p>Both mobility and accessibility should be considered when evaluating equity in transportation.</p> <p>Some residents do not drive because they are too young, too old or physically unable. Some residents cannot afford a car.</p> <p>Transportation options that include safe and convenient pedestrian and bike facilities provide families with affordable mobility choices.</p>	<p>Many homes along NM502/Trinity Drive offer the affordable transportation choice of walking to daily destinations. However, because of unsafe and uncomfortable road conditions, many individuals are unwilling or unable to walk for transportation.</p>	<p>Provide safe pedestrian infrastructure to connect lower income housing developments (and rental apartments) to downtown/worksites and to easily accessible transit.</p>
<p>1. Litman, T. (6 September 2010). Evaluating Transportation Equity For Incorporating Distributional Impacts in Transportation Planning. Victoria Transport Policy Institute. <a href="http://www.vtpi.org/equity.pdf">http://www.vtpi.org/equity.pdf</a></p>			