

D. Transportation

Transportation Goals and Policies

1. **Retain North Fourth Street as an important segment of the regional road network, classified as a minor arterial roadway, functioning as a paired street with North Second Street, classified as a principal arterial roadway.**
 - a. Traffic calming measures should be taken, which may have the effect of slowing down and reducing traffic on North Fourth Street to some extent.
 - b. Signage and traffic calming street improvements should be used to encourage diversion of some commuter through-traffic from North Fourth Street to North Second Street.
 - c. The timing of lane reduction on North Fourth Street should coincide with capacity enhancement improvements programmed for North Second Street, if any.

2. **Uses within character zones should determine lane configurations and speed limits.**
 - a. Retain the 4 moving-lane configuration in proximity of I-40 and Menaul, corresponding to a mix of automobile-related commercial uses.
 - b. Reduce the lane configuration north of I-40 from 4 lanes of moving traffic to 2 lanes in a designated segment where lane reduction supports significant pedestrian-oriented businesses and opportunities for mixed use development.
 - c. Design and engineer lane configuration transitions to safely and efficiently allow for ingress and egress to businesses on North Fourth Street – in conjunction with limiting the number of curb cuts.

3. **Continuous left-turn lanes should generally be replaced with landscaped medians and turning bays in various locations, still retaining opportunities for left turns into side streets and many businesses**
 - a. .

4. **The number of curb cuts should be reduced for safety of pedestrians and motorists, and to minimize disruption of traffic flow.**
 - a. Curb cuts should be consolidated where possible.

5. **Discourage a bike lane and/or bike route designation along the overall length of North Fourth Street , although it is expected that some residents will be riding on the street. Bike lanes should be located on Second Street rather than on Fourth Street and cyclists can access Fourth Street using east-west streets between Second and Fourth.**
 - a. Consideration should be given for a bike lane on North Fourth Street between Lomas and I-40, and possibly to the Alameda Drain, where an off-street bicycle path is planned.
 - b. In active pedestrian areas where traffic is calmed through lane reduction, on-street parking and streetscape improvements, bicycle travel should be encouraged – particularly from nearby residential neighborhoods. Bike routes or lanes should be designated.
6. **Widen sidewalks and clear sidewalks of obstructions, especially reducing high-capacity power poles and other utility poles.**
 - a. Meet ADA requirements.
 - b. Create for pedestrians and transit users greater safety and convenience for walking.
7. **Consider roundabouts and chicanes as an alternative to traffic signals in areas of moderate traffic flow, such as North Fourth Street and Mountain Road, and possibly at North Fourth Street and Griegos Road.**
 - a. Study prospective intersections to ascertain that roundabouts can be designed to function for the volume of pedestrian and vehicular traffic and movements.
8. **Acquire rights-of-way at selected corners to assure adequate sidewalk space and landscaping.**
9. **Mark crosswalks so that motorists note them and slow down, using a pavement surface change or zebra strips.**
10. **Add on-street parking in front of retail commercial uses where appropriate.**
11. **Give consideration to reducing the number of bus stops to improve the bus travel time.**
12. **Smaller buses should be considered to replace large buses.**

13. Enhancement options for future transit serving North Fourth Street should include:

- a. Local bus service with 10-minute headways or less serving the North Fourth Street corridor.
- b. RapidRide (bus rapid transit) linking Downtown to the Cottonwood Mall or another destination on the West Side of Albuquerque.

Transportation Findings and Issues

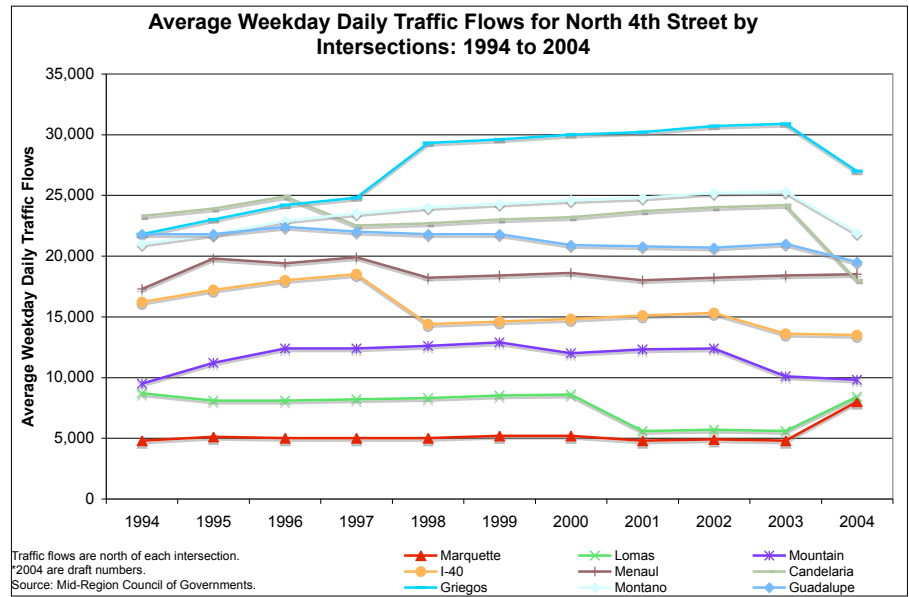
North Fourth Street is a major street through the North Valley. It extends north from downtown Albuquerque, through the portion of the Valley within the City of Albuquerque, continuing through the Village of Los Ranchos de Albuquerque, and through Alameda in unincorporated Bernalillo County, where it branches off to Roy Avenue/Tramway Boulevard heading east and also continuing north through the Sandia Indian Reservation on NM 313 to the Town of Bernalillo. Within the planning area, North Fourth Street connects to the grid of arterial and collector east-west cross streets.

Traffic flow varies from under 9,000 vehicle trips per day just north of Lomas Boulevard to over 28,000 trips per day north of Griegos Road.

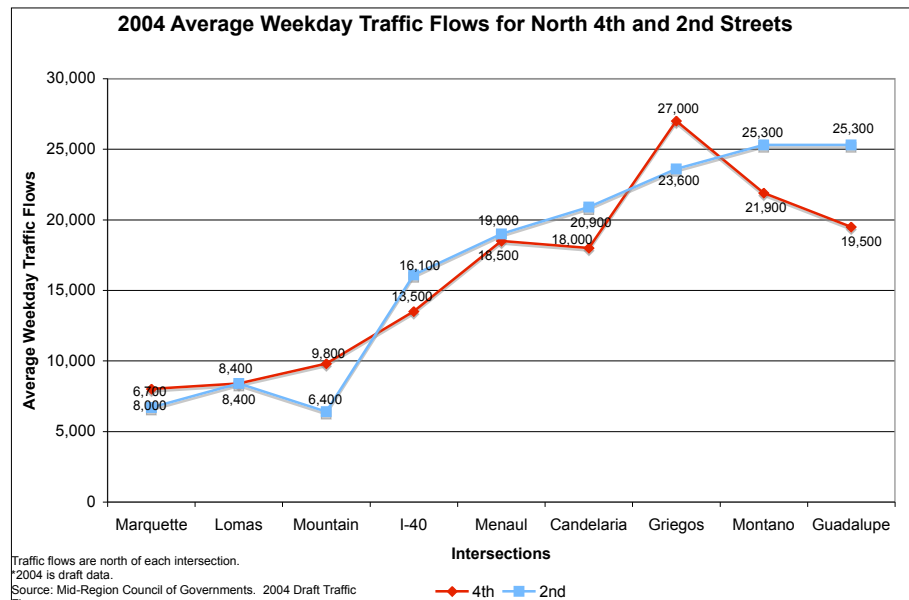
Location	Average Daily		Direction of AM Peak	PM Peak Hour	Direction of PM Peak
	Trips (Raw Counts)	AM Peak Hour			
North of Lomas	8,974	713	S	769	N
North of I-40	14,236	1,179	S	1,161	S
North of Menaul	19,679	1,255	S	1,675	S
North of Candelaria	19,961	1,456	S	1,698	N
North of Griegos	28,175	2,055	S	2,331	N
North of Montano	23,325	1,436	S	1,808	N
North of Guadalupe Trail	20,072	1,290	S	1,740	S
North of Osuna	15,640	1,249	S	1,339	S

Source: Mid-Region Council of Governments Traffic Forecast Modeling, 2005.

Overall, traffic has not increased substantially on North Fourth Street over the last ten years. Average daily trips peaked in 1999, then came down some, ending with a similar volume in 2004 as in 1994.



North Fourth Street and North Second Street are “paired streets,” between which access is relatively easy and drivers may choose one or the other to reach the same or similar destinations. Impacts on the flow of traffic on either street will affect the other street. Under the regional functional classification system, North Fourth Street is a minor arterial and North Second Street is a principal arterial. The current volume of traffic carried by the two streets is fairly similar. North Fourth Street carries more traffic than North Second Street south of I-40, and close to the same volume of traffic north of I-40 even though the capacity of North Second Street is greater.

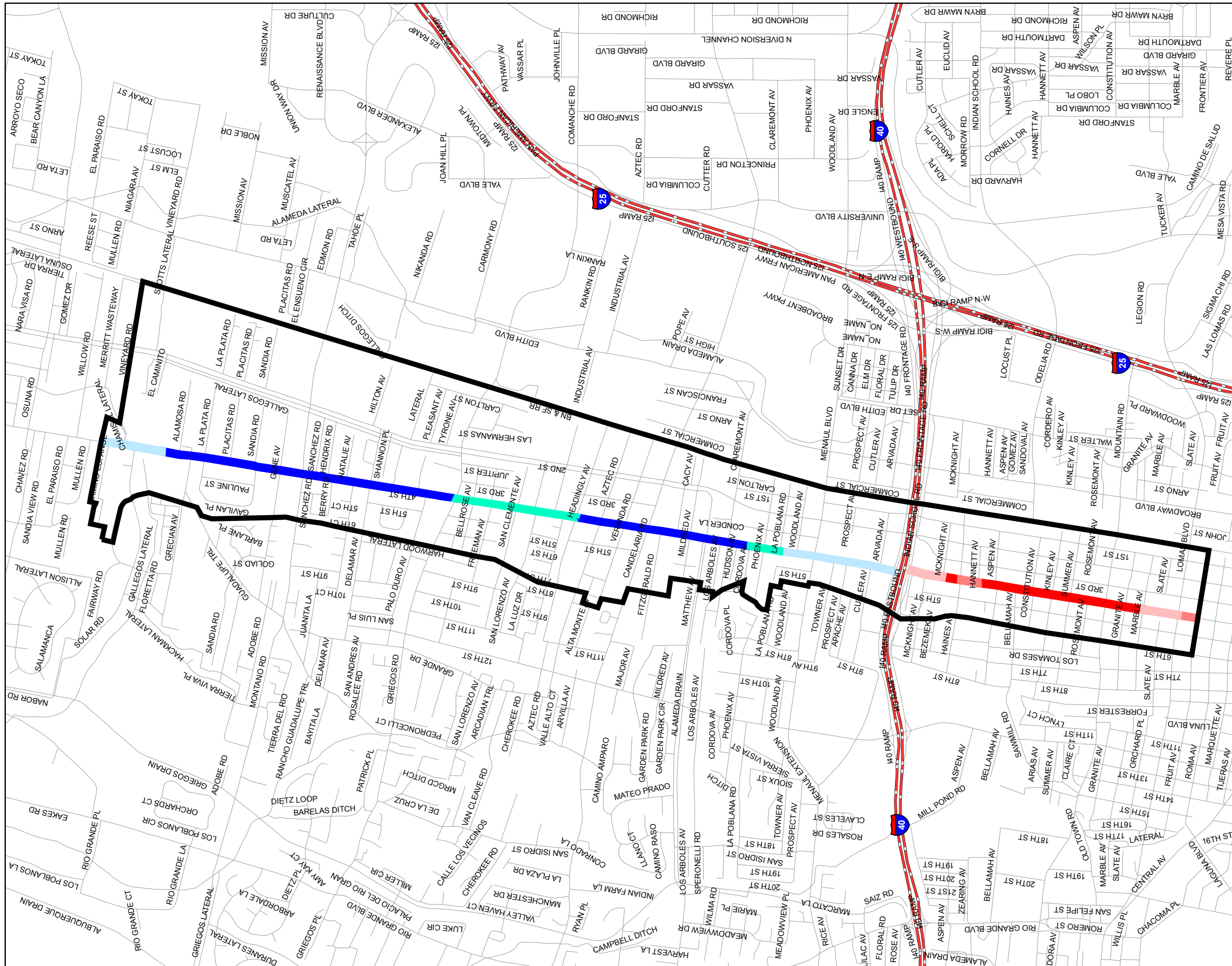


North Fourth Street handles a lot of traffic from the West Side. According to the Mid Region Council of Government traffic modeling analysis, generalized at a network level, approximately 50% of the contributing traffic on North Fourth Street is entering the corridor from the West Side (south bound a.m. peak traffic). Approximately one quarter of the trips that go on North Fourth Street cross the river on Montañó Blvd. and one quarter cross on Alameda Boulevard. North-bound peak afternoon traffic on North Fourth Street turning left (west) on Montañó Blvd. usually backs up from the left-turn bay into North Fourth Street

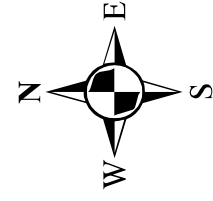
Existing lane configurations on North Fourth Street consist of two-moving lanes south of I-40 and four-moving lanes north of I-40. Turning lanes and on-street parking vary along the corridor, as shown on the map on the following page.

North Fourth Street Study: Rank III Corridor Plan

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North 4th Street Area Lane Configurations



Legend

- 2 Lane only
- 2 Lane w/ parking on one side
- 2 Lane w/ parking on both sides
- North 4th Street Corridor
- Highway
- City Streets
- 4 Lane only
- 4 Lane w/ CTL
- 4 Lane w/ parking on both sides



Sources:
 City Streets/Highway, AGIS, 2005
 North 4th Street Corridor, AGIS, 2005



North Fourth Street has poor walkability due to many conditions, including:

- some crumbling sidewalks
- some missing sidewalk links on North Fourth Street and on a number of side streets into adjoining neighborhoods
- obstructions in sidewalks including power poles and other utility installations,
- ADA compliance issues regarding obstructions in sidewalks and crosswalks
- difficulty in crossing streets
- lack of visual interest,
- sense of safety
- speed of traffic excessive for the comfort of pedestrians.

An additional factor that has hindered improvements to walkability is narrow right-of-way widths, making it difficult to fit in broad sidewalks. In many locations, the right-of-way is less than 65 feet, in places only 55 feet. (See map of proposed lane reduction and rights-of-way widths.)

The urban design element of this plan proposes streetscape improvements that will enhance walkability.

Transit

The Route 10 bus on North Fourth Street is the sixth busiest bus route in the city, with 22-minute headways. There are 53 bus stops on North Fourth Street (both directions) within the planning area, averaging one every 428 feet.

Ridership on Top Bus Routes		
Route Number	Route Name	Persons per day
66	Central	8-9,000
4 (140)	San Mateo	2,300
11	Lomas	1,950
5	Montgomery/ Carlisle	1,900
8	Menaul	1,500
10	N. 4th	1,150

Note: Averages are for 9 months of August 2003 to April 2004.
Source: Albuquerque Transit Department.

North Fourth Street is designated in the City Comprehensive Plan and the Metropolitan Transportation Plan as a Major Transit Corridor. The Comprehensive Plan indicates that high capacity transit service is possible in the future in the following types of rail or rapid bus.

High capacity urban rail transit includes:

- Light rail (modern streetcar electrically powered)
- Monorail (on single rail, beam or tube).

High capacity bus transit include:

- Bus rapid transit (frequent, fast service in separate traffic lane)
- Express bus (for commuters, with limited number of stops).

Densities and transit-oriented mixes of activities are needed to support better transit. Local bus service on North Fourth Street with headways of 10 minutes or less will require higher bus ridership generated by higher densities and commercial activities. Express bus, RapidRide or bus rapid transit service on North Fourth Street need to serve a major destination.

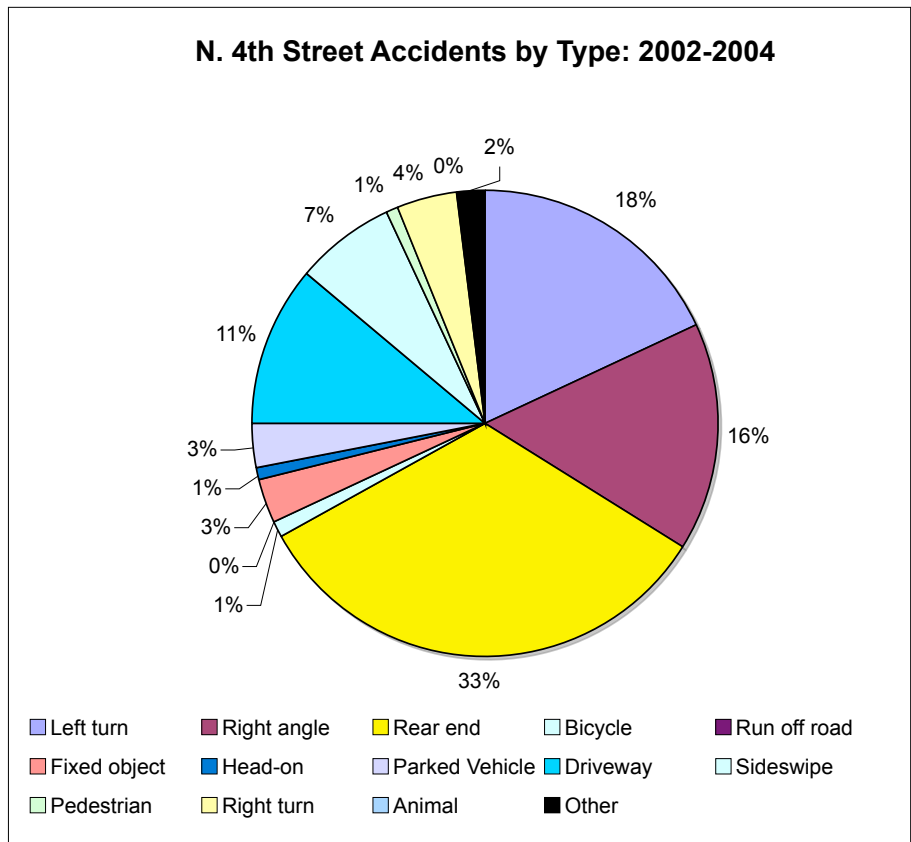
Traffic Safety

During the six-year period of 1998-2003 the following crashes occurred on North Fourth Street:

- 26 crashes involving pedestrians
- 19 crashing involving bicycles
- 1,522 crashes involving other vehicles.

A more detailed three-year accident analysis (2002–2004) was conducted for the North Fourth Street planning area. Accident data were obtained from the NMDOT Traffic Safety Bureau and were sorted by type and number of crashes. The top four types of accidents that occurred were rear-end collisions (33%), left turning collisions (18%), right angle collisions (16%), and driveway-related accidents (11%).

A pie chart on the following page illustrates recent accidents types and percentages.



Increasing Safety Through Traffic Calming

The proposed strategies for redeveloping Fourth Street could generate improved safety and reduction of certain types of accidents. A reduction in the number of through lanes would eliminate most sideswipe (same-direction) accidents because same direction lane changes would not occur. Construction of medians would provide a physical barrier between opposing traffic flows and would significantly reduce the potential for opposing vehicle conflicts and head-on collisions. Head-on collisions, however, only account for approximately 1% of the total accidents on Fourth Street.

Traffic calming practices are being used on many transportation projects around the world and locally in Albuquerque. “Bump-outs” have three simultaneously helpful effects. They shorten the distance that pedestrians must travel in the street, they make waiting pedestrians more visible to approaching drivers and, by narrowing the street, they cause drivers to slow as they reach the intersection.

Roundabouts and chicanes are illustrated in more detail starting on page 4-61.

Certain signalized intersections with high speeds and accidents could be replaced with “modern roundabouts”. Modern roundabouts can have many advantages over traditional signalized intersections both in terms of operation and safety. Studies have shown that initially accidents go up after a modern roundabout is constructed, but over time the accident rate is reduced significantly. The number of conflict points at the intersection is reduced from thirty-two to nine.

Chicanes are proven-effective traffic calming measures. A chicane is a horizontal shift of the roadway alignment. The shifts can be gradual or more aggressive. Chicanes force vehicles to change directions slightly and thus reduce speed to maneuver safely through the traffic calming device. Chicanes also provide and also provide opportunities for streetscape and landscaping amenities.

Driveway-related accidents could potentially be decreased through consolidation of driveways and long-term concentration of fast-food restaurants in the “Fast-Food row” character zone. Driveway consolidation, elimination, and median construction on fourth are proven to be effective countermeasures reducing and improving driveway related conflicts and accidents.

Increased law enforcement and implementation of red-light running cameras are being used in the Albuquerque Metropolitan Area to improve safety, and to reduce accidents. These methods have been shown to work effectively, but require more city resources and manpower to implement. “Passive” traffic calming measures, which do not involve changes to the physical infrastructure, have been shown to reduce speeds, improve safety and reduce accident numbers and severity of accidents. Passive traffic calming measures are potentially viable options for incorporation into this project.

Right-angle collisions could potentially be reduced by lane reduction on Fourth Street. Fewer traveling lanes to cross from side streets would reduce the number of conflict locations by motorists. Medians, chicanes, and modern roundabouts are strategies that could significantly improve safety and reduce this right angle type of accident. Modern roundabout intersections eliminate left turning movements at intersections. Approximately 18% of the accidents on fourth street were left turning type accidents.

Several streetscape options are being proposed that would affect the flow of traffic on North Fourth Street including traffic calming through the creation of bulb-outs and medians, and possibly chicanes, roundabouts, and pedestrian-activated traffic lights.

Lane Reduction in a Portion of North Fourth Street

One of the most important proposed improvements is to reduce the number of lanes from the current four-moving lanes to two-moving lanes in most of Character Zone 3, a 1.6-mile stretch from the Alameda Drain to Fremont Street, south of Griegos Road.

For this study, the Mid Region Council of Governments modeled two lane configuration scenarios using the MTP 2025 network and socio-economics. It should be noted that the regional travel demand model runs included changes to the roadway network only, and not further anticipated land use or socio-economic changes. The lane reductions on North Fourth Street assume a three-lane cross section, which means that the resulting cross section and center left turn lane will provide for an additional 30% capacity beyond the two general purpose driving lanes.

The following changes were made to the regional transportation network:

- Lane Configuration 1: Two driving lanes from south of the Alameda Drain to south of Griegos Road.
- Lane Configuration 2: Two driving lanes from I-40 to the city limits.

The following tables show comparative peak hour traffic volume by direction of traffic flow on North Fourth and North Second Streets. Raw model/unadjusted output numbers are used.

PM Peak Hour Traffic Along N. 4th Street															
	2004 Average Daily Vehicle Counts	2005 Base Year		MTP 2025				Lane Configuration Scenario 1 in 2025				Lane Configuration Scenario 2 in 2025			
		PM Peak Hr Vol		PM Peak Hr Vol		Change from Base Year		PM Peak Hr Vol		Change from Base Year		PM Peak Hr Vol		Change from Base Year	
		South	North	South	North	South	North	South	North	South	North	South	North	South	North
North of Lomas	8,974	67	178	314	352	247	174	264	349	197	171	283	358	216	180
North of I-40	13,500	157	285	401	385	244	100	324	300	167	15	356	341	199	56
North of Menaul	18,500	154	1,260	947	1,109	793	-151	813	900	659	-360	723	789	569	-471
North of Candelaria	18,000	1,190	1,317	1,057	1,209	-133	-108	776	846	-414	-471	769	834	-421	-483
North of Griegos	27,000	1,445	1,566	1,341	1,539	-104	-27	1,279	1,419	-166	-147	773	907	-672	-659
North of Montano	21,900	1,170	1,479	1,235	1,484	65	5	1,032	1,121	-138	-358	1,000	1,053	-170	-426
North of Osuna	19,500	724	1,092	761	854	37	-238	726	793	2	-299	828	897	104	-195

Notes: The MTP 2025 network designated a four moving lane configuration for N. 4th St. north of I-40 and a six moving lane configuration for N. 2nd St. Lane Configuration 1 models two moving lanes on N. 4th St. from south of the Alameda Drain to south of

Source: Mid-Region Council of Governments Traffic Forecast Modeling, 2005.

PM Peak Hour Traffic Along N. 2nd Street															
	2004	2005 Base Year		MTP 2025				Lane Configuration Scenario 1 in 2025				Lane Configuration Scenario 2 in 2025			
	Average Daily Vehicle Counts	PM Peak Hr Vol		PM Peak Hr Vol		Change from Base Year		PM Peak Hr Vol		Change from Base Year		PM Peak Hr Vol		Change from Base Year	
		South	North	South	North	South	North	South	North	South	North	South	North	South	North
North of Lomas	8,400	0	723	0	820	0	97	0	821	0	98	0	827	0	104
North of I-40	6,400	826	853	1,394	1,641	568	788	1,395	1,632	569	779	1,412	1,633	586	780
North of Menaul	16,100	790	823	1,265	1,399	475	576	1,270	1,419	480	596	1,303	1,453	513	630
North of Candalaria	20,900	1,048	1,205	1,537	1,697	489	492	1,627	1,776	579	571	1,655	1,762	607	557
North of Griegos	23,600	1,183	1,246	1,547	1,595	364	349	1,519	1,564	336	318	1,635	1,705	452	459
North of Montano	25,300	1,197	1,143	1,332	1,327	135	184	1,369	1,438	172	295	1,344	1,449	147	306
North of Osuna	26,200	1,365	1,456	1,385	1,627	20	171	1,397	1,705	32	249	1,392	1,698	27	242

Notes: The MTP 2025 network designated a four moving lane configuration for N. 4th St. north of I-40 and a six moving lane configuration for N. 2nd St. Lane Configuration 1 models two moving lanes on N. 4th St. from south of the Alameda Drain to south of

Source: Mid-Region Council of Governments Traffic Forecast Modeling, 2005.

Further analysis was conducted to consider the impacts of potential lane reduction on traffic volumes, capacities, and volume-to-capacity ratios (v/c) along Fourth Street, and along 2nd Street.

The following table represents approximate lane capacities currently modeled by MRCOG. The estimated lane capacities used in this analysis are based on conferring with MRCOG and are consistent with Institute with Transportation Engineering (ITE) publications.

Travel Lane Capacities by Street Classification	
Street Classification	Lane Capacity (Vehicles Per Hour)
Urban Principal Arterial	800
Urban Minor Arterial	750
Collector	675
Local	600
Left Turning Lane	570 (285 each direction)

Based on estimated capacities for each street segment, volume-to-capacity ratios (v/c ratios) were calculated as shown below.

Volume-to-Capacity (V/C) Analysis of Peak Hour Directional Traffic for N. 4th Street and N. 2nd Street Under Alternative Lane Configuration												
North Fourth Street												
Segment	Existing			2025 MTP Configuration			Lane Configuration Option 1			Lane Configuration Option 2		
	Lane Config.	v/c nb	v/c sb	Lane Config.	v/c nb	v/c sb	Lane Config.	v/c nb	v/c sb	Lane Config.	v/c nb	v/c sb
N of Lomas	2	0.17	0.06	2	0.34	0.30	2	0.34	0.26	2	0.35	0.27
N of I-40	4	0.16	0.09	4	0.22	0.22	2	0.29	0.32	2	0.33	0.34
N of Menaul	4	0.71	0.09	4	0.62	0.53	2	0.88	0.80	2	0.76	0.70
N of Candelaria	4	0.74	0.67	4	0.68	0.59	4	0.47	0.43	2	0.81	0.74
N of Griegos	4	0.88	0.81	4	0.86	0.75	4	0.79	0.72	2	0.88	0.75
N of Montano	4	0.83	0.66	4	0.83	0.69	4	0.63	0.58	2	1.02	0.97
N of Osuna	4	0.61	0.41	4	0.48	0.43	4	0.44	0.41	2	0.87	0.80
North Second Street												
Segment	Existing			2025 MTP Configuration			Lane Configuration Option 1			Lane Configuration Option 2		
	Lane Config.	v/c nb	v/c sb	Lane Config.	v/c nb	v/c sb	Lane Config.	v/c nb	v/c sb	Lane Config.	v/c nb	v/c sb
N of Lomas	2*	0.38	0.00	2*	0.44	0.00	2*	0.44	0.00	2*	0.44	0.00
N of I-40	4	0.45	0.44	6	0.61	0.52	6	0.61	0.52	6	0.61	0.53
N of Menaul	4	0.44	0.42	6	0.52	0.47	6	0.53	0.47	6	0.54	0.49
N of Candelaria	4	0.64	0.56	6	0.63	0.57	6	0.66	0.61	6	0.66	0.62
N of Griegos	4	0.66	0.63	6	0.59	0.58	6	0.58	0.57	6	0.64	0.61
N of Montano	4	0.61	0.64	6	0.49	0.50	6	0.54	0.51	6	0.54	0.50
N of Osuna	4	0.77	0.72	6	0.61	0.52	6	0.64	0.52	6	0.63	0.52
*one-way northbound												
Estimated capacities												
4th St	One direction single through lane plus single left capacity est 750 + 285 = 1035 vph											
4th St	One direction-two lane plus single left capacity est 750 + 750 + 285=1785 vph											
2nd St.	One direction two through lanes plus left turning lane capacity est. 800 + 800 + 285=1885 vph											
2nd St.	One direction three through lanes plus left turn lane; capacity est. 800 + 800 + 800 + 285 = 2685 vph											
Sources: Mid Region Council of Governments for existing and modeled traffic volume data. Volume-to-capacity calculations by CG Engineering, Incorporated.												

The traffic analysis indicates that traffic flow can be accommodated under either two through-lane option, but more favorably under Option 1, two-moving lanes from the Alameda Drain to Freeman Street. The projected v/c ratios are projected to be less than one in all cases with one exception. The projected v/c slightly exceeds one (1.02) for Fourth Street, north of Montano, when modeled with two lanes in Option 2. It is anticipated that any excess flow could be accommodated by a six-lane Second Street.

Further analysis by the City of Albuquerque and MRCOG may reveal that 6 laning of North 2nd Street is not needed for increased capacity. A 4 lane configuration of North 2nd Street is preferable in order to make it easier for pedestrians to cross the street, better allow for cross-traffic movements, and not encourage excessive speeds on North 2nd Street.

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Factors such as buses and on-street parking tend to decrease capacity. Certain types of parking could have different effects on lane capacities. For example, typically a parallel parking maneuver takes longer and is more difficult to perform than a forty-five degree or flat angle (22.5 degree) parking maneuver.

Public transit service is a key element in developing a successful and thriving corridor along Fourth Street. Convenient bus service along Fourth Street is vital for a thriving, active and pedestrian-oriented urban environment. Bus service increases the “person-capacity” along the corridor as one full bus can be equivalent to thirty or forty passenger vehicles on the roadway. Bus “pull-outs” should be considered along the corridor to keep traffic lanes flowing on Fourth Street

Benefits anticipated from reducing the number of lanes of North Fourth Street through Character Zone 3 are summarized below:

1. Slows down traffic in the two-lane street segment - and signals motorists to overall be more careful/drive more alertly elsewhere on the street
2. Enhances pedestrian safety and comfort, both crossing North Fourth Street and walking along North Fourth Street.
3. Improves traffic safety.
 - Several types of common traffic accidents on North Fourth Street would be less likely in a two-lane configuration.
4. Improves aesthetics in a narrow right-of-way by converting space now used for roadway to on-street parking, landscaping, and pedestrian streetscape.
5. Encourages retail and mixed use redevelopment & investment through providing a more pedestrian and transit-friendly environment, more on-street parking,
 - Economic benefits from traffic calming and improving walkability have occurred in many communities. For example West Palm Beach, Florida property values and commercial rents more than doubled after improvements.
 - Drivers going more slowly can better see stores that they may be interested in and more easily and safely stop to shop at these stores.
6. Complements the intended future land use and proposed zoning to encourage redevelopment and enhanced activities in this mixed use area.
7. Encourage through-trip commuter traffic to use North Second Street, where there is more capacity and travel speeds are likely higher.

- COG modeling indicates traffic is likely to decrease due to two-laning. The desired outcome is to have more traffic that is associated with shopping on the street, which may actually be as much traffic as currently travels this section.
- If the entire distance of North Fourth Street were converted to two lanes of moving traffic, this would substantially slow down traffic and discourage street-based high capacity transit (e.g., RapidRide) and also many drivers from using the street. This move would threaten the business viability of the street, and therefore be detrimental to other goals of the plan.
- A national study conducted in 1999 assessed traffic flow before and after road conversions from four to two lanes. In 16 out of 18 cases, the volume of traffic did not decrease. In 10 cases, traffic increased after two-laning. Traffic volumes in the areas studied varied from 9,700-25,900 average daily trips. North Fourth Street is mainly in this range.