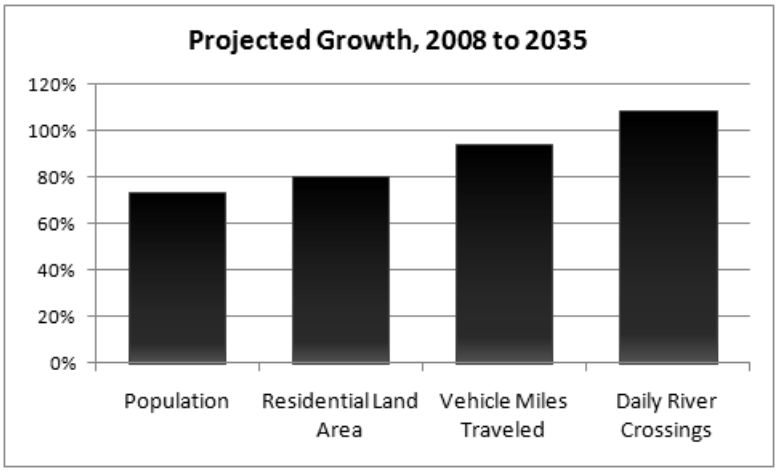
Appendix A – Compact Land Use Scenario

Nationally, there is growing demand for multi-family and small lot single family housing located near amenities, jobs and transit. Research indicates urban communities with high quality transit systems have greatly reduced vehicle miles traveled, commuting times and individual transportation expenses and are often safer and healthier than suburban, vehicle-dependent communities. How these national trends manifest themselves in Albuquerque and its environs remains to be seen. Current development trends, although slowed by the recession, suggest these national patterns may be slow to emerge locally.

In the eight short years between 2000 and 2008 the Albuquerque Metropolitan Planning Area (AMPA) grew by 128,000 people, developed 20,000 residential acres, and increased the average number of vehicle miles on roadways each day by 3.6 million. In relative terms, this equates to a 20 percent increase in population, a 25 percent increase in residential land area, and a 29 percent increase in vehicle miles traveled. This demonstrates the fact that land consumption and travel in the metropolitan area are growing at a faster rate than population. Based on historical growth patterns and existing land use plans, MRMPO's 2035 Socioeconomic Forecast shows how this may play out in the future: a population growth of 563,000 will result in an increase of 80,000 residential acres and 15 million daily vehicle miles traveled. In addition, there will be an astounding one million trips made across the Rio Grande each day.



Growth in the metropolitan area is largely inevitable. The challenge lies in planning for how this growth will be distributed. Forecasts that are based on current land use plans and patterns result in an urban footprint that is expanding faster than population. This is because it is driven by primarily lower density development among large expanses of land, particularly to the west of the existing urban area.

Although the MRMPO 2035 Socioeconomic Forecast presents one picture of growth in the region, the metropolitan area is not bound to this future. It is incumbent upon government officials and planners to review existing growth plans and policies and consider if they are achieving results that are congruent with regional goals. Scenario analysis is a tool for informing this process; by imagining alternative scenarios decision-makers are better equipped to affect change.

Scenario analysis allows for the consideration of a series of "what-if" questions, such as:

- What if development in the Albuquerque Metropolitan Planning area (AMPA) took decidedly different forms in the coming decades than the previous ones?
- What if transit service could be relied upon to shoulder the additional burden to the transportation system? And what if transit service was extensive enough along major corridors to attract true transit-oriented development?
- What if more employers located their businesses in distinct employment centers that were balanced with the location of housing?
- What changes would a compact development pattern incur on the transportation network and what would be the impact on indicators such as vehicle miles traveled, travel times and average speeds?

Scenario analyses are often part of a larger regional visioning process that includes a series of alternatives and significant input from planners, committees and the public. Recognizing the value of such a process, MRMPO has developed a single alternative scenario as an initial exercise intended to serve as a starting point for discussion. This scenario is a first brush effort to address the final "what if" question above by measuring the impact on the transportation network of more compact future development. This documentation presents the steps and results of this exercise.

Scenario Building Steps

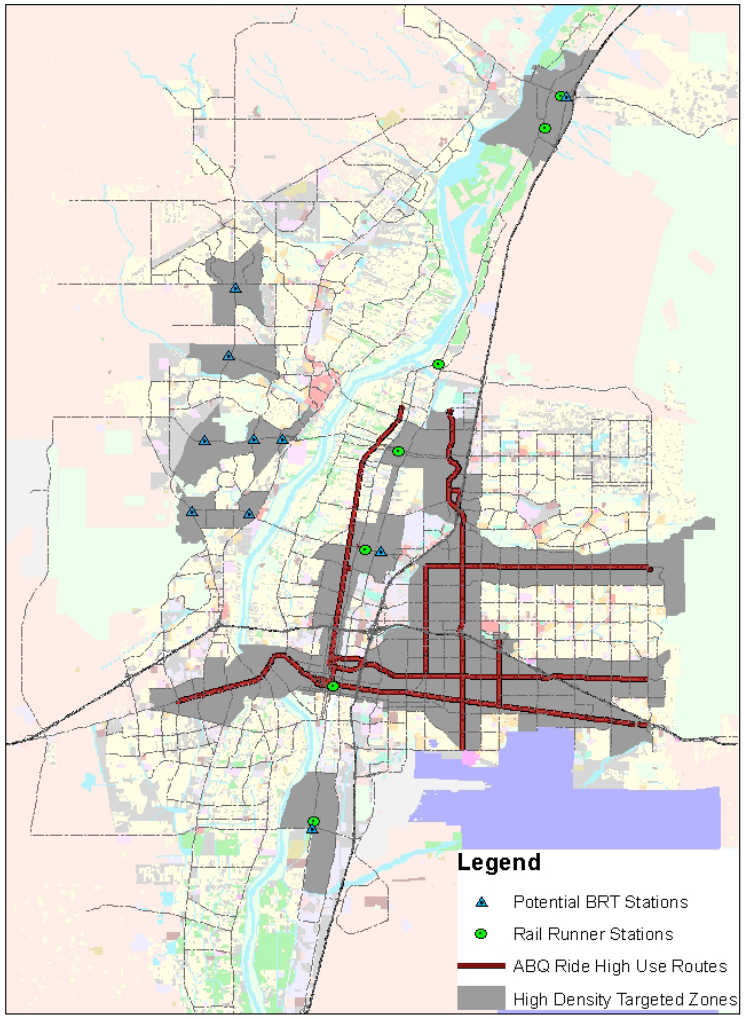
A. Selecting zones for densification

The first step in creating a *compact development* scenario is locating appropriate places for additional growth. Data Analysis Subzones (DASZs) were selected if they were located along major transit corridors (e.g. Central, Lomas, San Mateo, 4th Street) or if they were in the immediate vicinity of a New Mexico Rail Runner Express station or a potential Bus Rapid Transit station. The assumption behind the selection process is that transit will be a more enticing option for commuters as congestion and travel times worsen and that higher densities are more successful in close proximity to transit. A total of 229 zones (out of 762 in the AMPA) within proximity of major transit centers and corridors were selected for compact development.

B. Selecting parcels available for development and assigning potential land uses

MRMPO maintains a regional database of existing land uses that serves as the basis for its socioeconomic projections (see Chapter 2 for more on the development of these projections). From this database, all urban vacant or abandoned land within the selected zones was extracted to create a file of "developable parcels." Using aerial imagery and local knowledge, a small number of underutilized surface parking lots were included for development. Parcels with redevelopment potential, as identified through interviews with the City of Albuquerque's Metropolitan Redevelopment Authority and other planners and developers during the development of the 2035 MTP socioeconomic dataset, were also included in the "developable parcels" file.

Figure A-1: Targeted Zones for Compact Development Scenario and Relationship to Transit Centers and Corridors



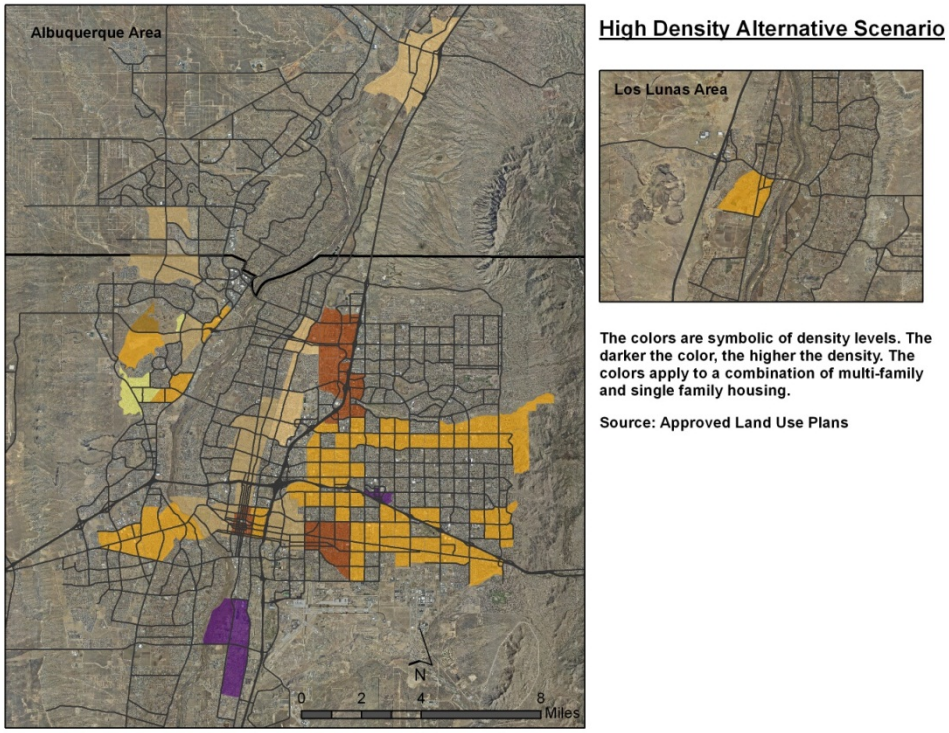
This process resulted in the identification of 1,256 parcels and 5,627 buildable acres within the 229 zones identified for development. Developable parcels were reviewed in light of current zoning and surrounding uses. Each was assigned a use – SF (single family), MF (multi-family), or CIO (commercial, industrial, or office) – indicating the type of development expected to occur on that parcel. The use assigned often complied with current zoning, but not in all cases. Because the goal of this exercise is to determine if more compact growth patterns would impact regional travel, multi-family units were allowed in activity centers and areas where there already was a considerable presence. This is justified assuming that developers request zone changes, there is a demand for rental and affordable housing, and as congestion worsens there will be an increased desire to live closer to jobs and amenities.

During this process 33 zones were removed as they were essentially "built out," and an additional 26 zones were removed as unsuitable for residential uses. A total of 170 zones remained for development or redevelopment.

C. Choosing the maximum development potential by area

Given that this is a *compact development* scenario, targeted zones were assigned a maximum allowable density for single family and multi-family development. Densities were identified by overlaying and reviewing adopted and proposed sector plans, area plans, corridor plans and existing and proposed Rail Runner station plans. Ultimately this produced a maximum number of housing units per acre for single family housing and multi-family housing for each zone targeted for additional development.

Figure A-2: Compact Scenario Density Levels



D. Densification of parcels

Individual parcels were built by multiplying the maximum allowable density for the appropriate residential type (SF or MF) by the area of vacant or redevelopable land. The new residential development at the parcel level was then summed to the DASZ level.

A series of checks were performed before finalizing the dataset. First, the zones that received new growth were compared to the approved 2035 Socioeconomic Forecast. Of the 170 zones analyzed, 31 were removed that were forecast at similar or higher densities in the official dataset, leaving 139 zones. Next, the number of housing units added to each zone was visually assessed and areas that developed most intensely were individually reviewed and in some cases adjusted lower. The 139 target zones, grown at their maximum potential, add 57,104 units to the core, 40,834 of which are multi-family. Given that 13,463 are added to these zones in the approved 2035 Socioeconomic Forecast, this scenario adds approximately 43,600 net units to the urban core.

Table A-1: Housing Unit Comparison by Scenario

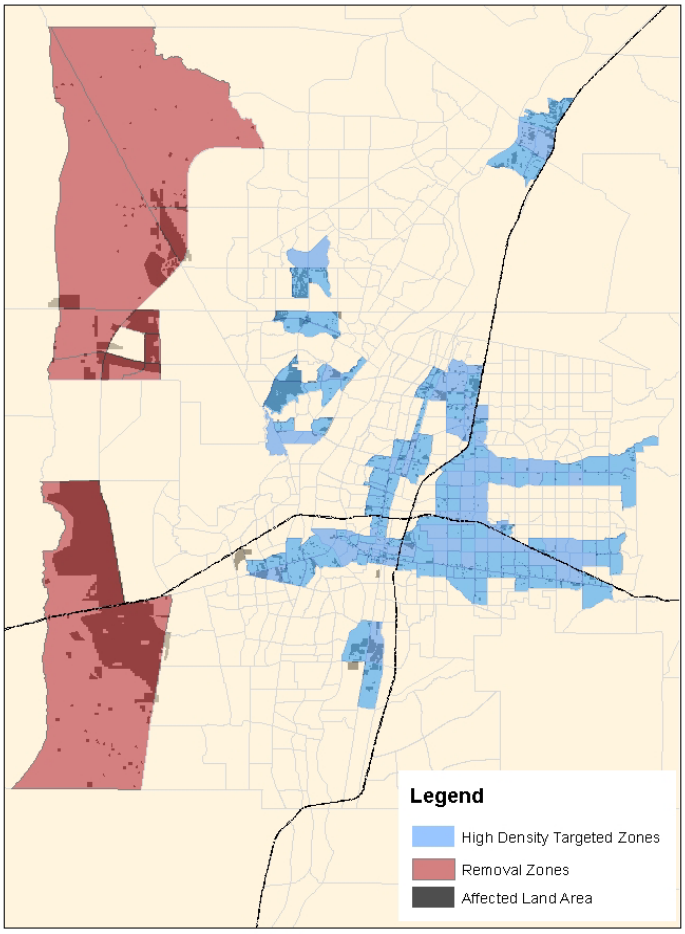
Number of Housing Units in the 139 Target Zones	**Single Family**	**Multi Family**	**Total Units**
MTP Scenario	4,373	9,090	13,463
Share of Region	*1%*	*7%*	*2%*
"Compact Development" Scenario	16,270	40,834	57,104
Share of Region	*3%*	*30%*	*8%*
Difference	11,897	31,744	43,641

E. Selecting Zones for Removal of Housing Units

Because the purpose of the *compact development* scenario is to measure the potential impact of higher densities on the transportation network, and because the worst congestion levels are seen on the river crossings, population and housing units were essentially reallocated from peripheral areas on the Westside of the AMPA. The twelve "contributing" zones are illustrated in the following map.

While zones in Bernalillo County contributed the most toward the core zones, both Sandoval and Valencia County zones also contributed housing because they were recipients of higher density growth in areas near Rail Runner stations. Thus, county control totals for population and housing were roughly held constant to what they are projected to be in the approved 2035 Socioeconomic Forecast.

Figure A-3: Targeted Zones, Removal Zones and Land Area Affected in the Compact Development Scenario



F. Building the Final Dataset

Using the new housing unit totals for the 139 target zones in the *compact development* scenario, households, household population and total population were calculated. The occupancy rates and household sizes per zone were taken directly from the approved 2035 Socioeconomic Forecast so that the "Compact Development" scenario would reflect the same household characteristics as the approved dataset. Approximately 110,000 people were moved from the 12 Westside zones to the 139 core zones.

The modified zones were integrated back into the approved 2035 Socioeconomic Forecast. Regional controls were roughly maintained for population, housing and employment in the *compact development* scenario. There was one significant change: a shift of 30,000 housing units from single family to multi-family. In order to make a sizable impact on growth in the core, a large portion of the new residences were developed as multi-family units. However, the contributing zones from the Westside consisted of predominantly single family housing. Therefore, roughly 30,000 single family residences were essentially converted to multi-family units when they were transplanted into the "compact development" zones.

Results

The impacts of a higher-density socioeconomic scenario on regional travel are significant. The *compact development* socioeconomic dataset was input to the regional travel demand model using the same roadway network as the 2035 Metropolitan Transportation Plan (MTP) build scenario. Improvements to the efficiency of the transportation network are evident in summary statistics, which demonstrate improvements in vehicle miles traveled (VMT), vehicle hours traveled (VHT), vehicle hours of delay (VHD), average system speeds and daily VMT per capita. The premise is quite clear: by locating residents along higher density corridors with quality transit service, the amount of auto-travel can be reduced across the entire transportation system.

Figure A-4: Compact Development Scenario Effects on the Roadway Transportation System (PM Peak Hour)

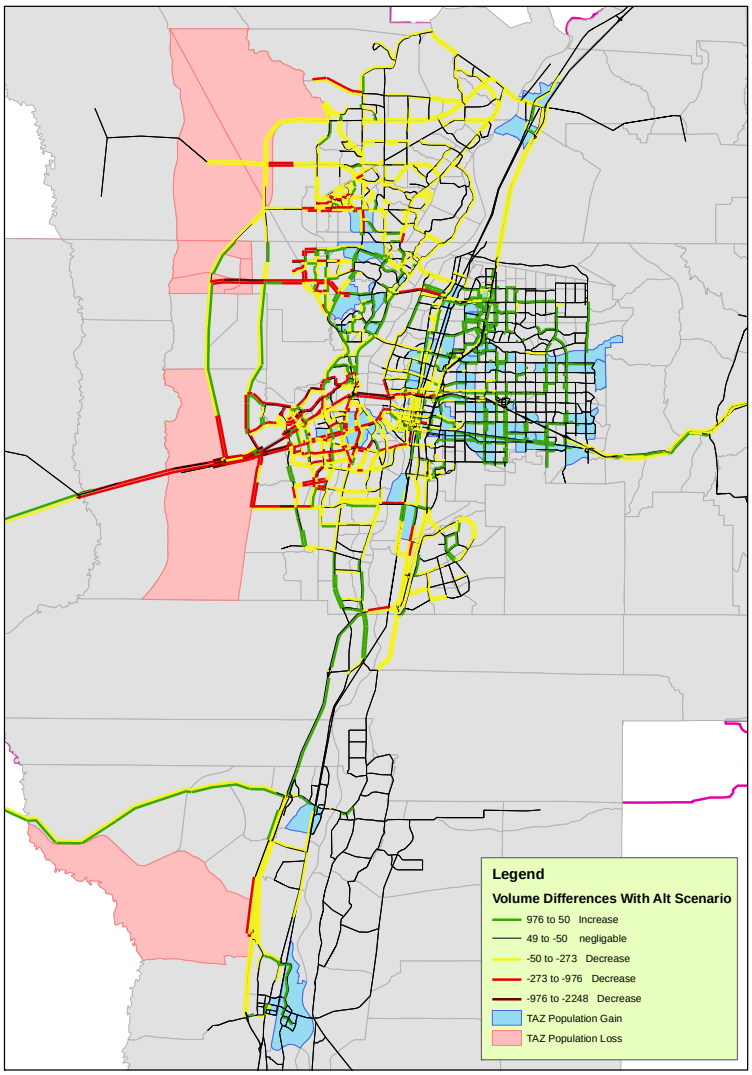


Figure A-4 shows the link-level volume differences for the PM peak hour between the *compact development* scenario and the MTP scenario. When the data are viewed concurrently the association between population distribution and travel is evident: areas of the transportation network that show a decrease in population experience significant reductions in volume, and areas that gain population show an increase in travel. While this relationship may be obvious, it is important to point out that the portions of the AMPA that gain population under this scenario are those best equipped to handle higher traffic volumes (due to the presence of transit and a grid roadway system), and the areas that exhibit a decrease in traffic volumes, in general, are roadways that are reaching their capacity.

Summary statistics shown in Table A-2 indicate that travel conditions in the *compact development* scenario improve significantly compared to the 2035 MTP scenario. Travelers spend fewer hours in traffic and travel shorter distances given that greater numbers live closer to employment sites and services found on the Eastside. Perhaps most remarkably, the average speed for the region increases. By encouraging denser development and allowing for shorter trips, overall congestion actually decreases and many longer trips can be accomplished at faster speeds.

Table A-2: Systemwide travel statistics for the PM peak hour, 2035

PM Peak Hour	MTP 2035	Compact Scenario	Percent Difference
Vehicle Hours of Delay	160,154	123,654	-23%
Vehicle Hours Traveled	228,812	189,354	-17%
Vehicle Miles Traveled	3,077,065	2,946,946	-4%
Average Speed	13.4	15.6	16%

Table A-3 contains the daily impacts on travel between the MTP 2035 scenario and the compact scenario. Reductions in total and per capita miles traveled are achieved, along with 50,000 fewer trips across the river. The latter statistic is particularly significant given the severity of current and projected congestion and travel delay on the river crossings.

Table A-3: Daily travel statistics, 2035

Daily Statistics	MTP 2035	Compact Scenario	Percent Difference
Vehicle Miles Traveled	31,588,579	30,333,044	-4%
Vehicle Miles Per Capita	23.8	22.8	-4%
River Crossings	1,032,041	982,482	-5%

This exercise demonstrates that affecting changes in future development patterns is an effective strategy toward mitigating some of the anticipated transportation challenges in the metropolitan area.

Adopted and Proposed plans used to inform maximum densities for "Compact Development" Scenario Analysis

- Comprehensive City Zoning Code
- Albuquerque/Bernalillo County Comprehensive Plan
- Coors Corridor Plan
- Nob Hill Highland Sector Development Plan
- Downtown 2010 Sector Development Plan
- Downtown Neighborhood Sector Development Plan & proposed draft/revision
- Uptown Sector Development Plan
- East Gateway Sector Development Plan
- North Interstate-25 Sector Development Plan
- North 4th Street Rank III Corridor Plan
- North Valley Area Plan
- Old Town Sector Development Plan
- Near Heights Metropolitan Redevelopment Plan
- Huning Highland Sector Development Plan
- EDO Regulatory Plan
- Martineztown/Santa Barbara Sector Development Plan
- Huning Castle & Raynolds Addition Neighborhood Sector Development Plan
- University Neighborhood Sector Development Plan
- West Route 66 Sector Development Plan
- West Central Metropolitan Redevelopment Area Plan
- West Side Strategic Plan
- Northwest Mesa Escarpment Plan
- Draft Volcano Heights & Volcano Cliffs Sector Plans
- Trumbull Neighborhood Sector Development Plan
- Sawmill/Wells Park Sector Development Plan
- Riverview Sector Development Plan
- NM Rail Runner Station Area Plans (Belen, Town of Bernalillo, Los Lunas, and Bernalillo County/Sunport)

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