ANALYSIS OF RIDERSHIP POTENTIAL

UNM/CNM/Sunport Transit Study

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Executive Summary

This paper presents an analysis of "opening day" ridership potential for a proposed Bus Rapid Transit (BRT) line serving the UNM/CNM/Sunport study area. In this paper we:

- Specifically identify the key ridership market segments that will be potentially served by the BRT proposal; and
- Quantify the sizes of those markets in terms of average daily trip demand; and
- Identify existing modal shares and current capture rates on transit; and
- Characterize some of the unique and relevant travel characteristics associated with each market segment; and
- Estimate daily potential ridership that will be captured by BRT for each market segment.

The proposed BRT alignment that is the basis for ridership estimates in this paper is one of many that have been considered in the corridor. It runs generally along University Blvd. from Menaul Blvd. in the north to Avenida Cesar Chavez where it then crosses eastward to Yale. The alignment provides direct access to a number of key destinations in the corridor, including the University of New Mexico (UNM), Central New Mexico Community College (CNM), UNM Hospital (UNMH) and Health Sciences Center (HSC), and the Albuquerque International Airport (Sunport). The alignment provides access to a number of major sporting venues on UNM's south campus, including Isotopes Park (AAA Baseball), University Stadium, and University Arena ("The Pit").

42,000 students attend classes daily at the UNM and CNM campuses. There are 31,500 jobs in the study area. The population of the study area is 24,900. Altogether, 138,000 trips are made daily that begin or end in the study area, not counting additional traffic related to special events at the various sports venues.

Parking at UNM is restricted due to capacity deficiencies on main campus. Most students and many faculty and staff are required to park in outlying satellite parking lots, connected to main campus via the University shuttle system operated by Parking and Transit Services (or, "PATS"). These outlying lots provide 4,250 parking

spaces. Daily ridership on the PATS shuttles serving these lots is 7,800 daily. The BRT alignment is designed to serve most of these lots.

The UNM Main campus is currently well served by existing transit services operated by ABQ RIDE (with some routes funded by Rio Metro), especially along Central Ave. which runs along the south side of campus. Central Ave. is the backbone of ABQ RIDE's system – composite headways for all routes operating along Central are 5 minutes. (Central Ave. itself is the subject of another BRT proposal being advanced by the City of Albuquerque). Other important destinations in the study area, however, are far less well served. The CNM campus and significant parts of the UNMH/HSC medical complex are beyond walking distance from existing transit services. The BRT system is designed to connect with all regional transit services that enter the study area, thereby providing a seamless connection to all campus facilities no matter which routes users are riding or where users are ultimately destined.

The development of a north-south transit spine to unify UNM's various campuses is one of the goals expressed in the UNM Master Plan adopted in 2010. The Master Plan also expresses a goal to reduce the carbon footprint at UNM by 50% over the next several years.

UNM currently is primarily a "commuter" school, with only 11% of the undergraduate community afforded on-campus housing in residential dormitories. A goal of the Master Plan is to significantly expand student housing opportunities through a combination of on-campus residential expansion as well as "near campus" housing. The most recent example is "Lobo Village", an 864-bed independent living complex located on South campus. Students residing in these types of facilities arguably enjoy better facilities than on campus – independent living, recreational features (pool), and parking for personal vehicles. They are located, however, too far from campus to walk, yet closer than the remote parking lots that they would otherwise be required to use. They are, therefore, excellent sources of BRT ridership. The current PATS shuttle that serves Lobo Village averages 2.37 daily rides per student, meaning that on average students use the shuttle more than once a day to travel back-and-forth between campus and home. Lobo Village, and other near campus housing opportunities along the alignment including ones that are privately developed and unaffiliated with the University, are strong potential sources of BRT ridership.

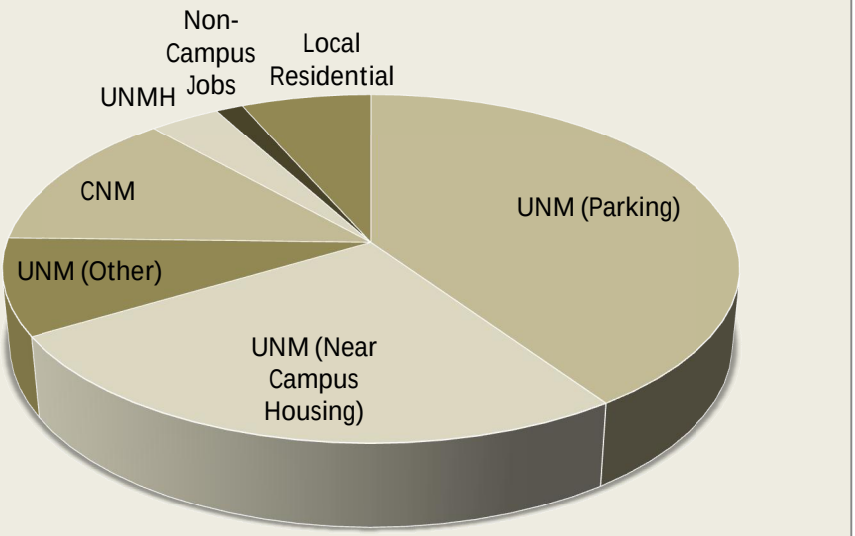
"Opening day" ridership potential for the proposed BRT line is 17,300 riders per day for days in which the academic institutions are in session. This ridership will be drawn from a variety of different travel market segments, as follows:

- *UNM Remote Parking Shuttle Rides (7,000 BRT riders):* The BRT will assume responsibilities for transporting UNM students (also faculty and staff) from the major satellite parking lots ("G", "Q", and "South" lots) to main campus. This is the demand currently using PATS shuttles.
- *UNM Student Riders on ABQ RIDE (520 BRT riders):* While most students attending classes on main campus do not need additional connections, the BRT will provide some UNM students arriving on ABQ RIDE routes with continuing transportation closer to their ultimate campus destinations (e.g., north campus).

- *UNM Students in Near Campus Housing (4,500):* Students in Lobo Village and other near campus housing opportunities located along the BRT alignment represent a strong potential market as indicated by ridership on the existing Lobo Village shuttle. These students live some distance from main campus and limited parking opportunities discourage driving. Up to 4,500 daily rides could potentially be attracted to BRT, depending on station locations ultimately established during future project development phases of work on this project.
- *UNM Intra-Campus Commuting (500):* PATS currently operates a shuttle that tours main and north campus. Unlike the PATS shuttle, the BRT will provide direct access to all UNM campuses and therefore implement the unified transportation spine envisioned in the UNM Master Plan.
- *UNM Faculty and Staff (530):* The BRT also serves UNM faculty and staff, a market segment that is much more likely than students to be destined to north campus sites. The BRT will provide direct connections between ABQ RIDE services on Central Ave. with north campus locations.
- *CNM Students (2,100):* CNM students currently have relatively poor transit access. Existing ABQ RIDE bus routes on University Blvd. operate on long headways so transfers to connecting buses to CNM involve long waits. Walking distances from the main Rapid Ride stop at Central and Cornell, for example, exceed 1 mile. BRT will change that. It will provide CNM students access to campus from all transit routes entering the study area, especially the ones on Central Ave.
- *CNM Faculty and Staff (150):* The BRT will also attract ridership among CNM faculty and staff as it will for CNM students.
- *UNMH Staff (180):* UNMH Main Hospital is well served by ABQ RIDE routes on Lomas Blvd., however the new hospital facilities (e.g., Cancer Hospital) on University Blvd. are not. The BRT will serve these newer facilities directly and will make all ABQ RIDE routes into the study area viable for UNMH staff.
- *UNMH Visitation (440):* UNMH, the public hospital for the Albuquerque metropolitan area, generates 4,400 visitor trips per day – a significant number of them from transit dependent travelers with no vehicle otherwise available for their trip. UNMH shuttles currently transport visitors from the Main Hospital to other outlying facilities. BRT will serve some of them directly.
- *Non-Campus Jobs (240):* There are another 14,400 jobs in the study area that are not related to UNM, CNM, or UNMH – half of them in the Sunport area south of Gibson. With high frequency direct service, BRT will improve the accessibility to many of them.
- *Local Residents (1,140):* 24,500 people live in local neighborhoods around the University, many of them from lower income and lower vehicle ownership households. BRT will serve some of these residents as well, especially those from neighborhoods accessible to South Yale Blvd.

Figure ES-1 illustrates the relative contribution of various market segments to the overall ridership potential of 17,300 daily rides.

Figure ES-1:
BRT Ridership by Segment



This assessment of ridership potential has been formulated from an extensive amount of data that has been collected on travel in the study area. A systemwide onboard survey of ABQ RIDE services was conducted in April, 2012 and establishes existing transit usage patterns. Internet surveys of the UNM and CNM population were conducted in 2010 to establish travel characteristics with the universities. PATS ridership data, the regional business database maintained by MRCOG, and the MRCOG regional travel demand model were also sources that were consulted. This is a preliminary estimate of potential: more detailed projections, possibly considering future horizon years as well as the current base year, and perhaps involving the regional mode choice model, will be undertaken in the next phase of study as more detailed planning for the proposal proceeds.

1.0 Introduction

This paper presents an analysis of ridership potential for a proposed Bus Rapid Transit (BRT) line serving the UNM/CNM/Sunport study area. In this paper we:

- Specifically identify the key ridership market segments that will be potentially served by the BRT proposal; and
- Quantify the sizes of those markets in terms of average daily trip demand; and
- Identify existing modal shares and current capture rates on transit; and
- Characterize some of the unique and relevant travel characteristics associated with each market segment; and
- Estimate potential ridership that will be captured by BRT for each market segment.

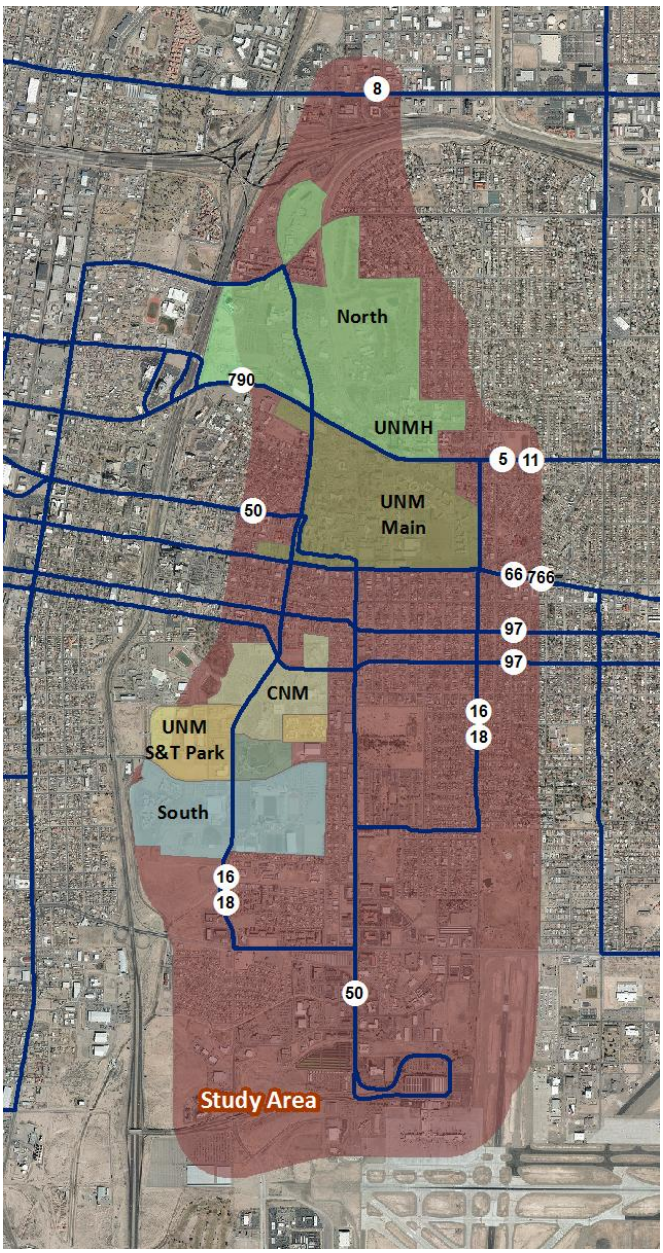
Before exploring these topics, it might be helpful to review background information on the existing transit system serving the study area. This material is available in other technical reports prepared for this study, but it will be useful to briefly review it once again here.

1.1 Regional Transit Services

The study corridor is located in the south-central portion of the Albuquerque metropolitan area, about one mile east of downtown Albuquerque. The study area encompasses a number of the most significant destinations in Albuquerque including the main and north campuses of the University of New Mexico (UNM), the University of New Mexico Hospital system (UNMH) and Health Sciences Center (HSC), Central New Mexico Community College (CNM), and Albuquerque's airport ("Albuquerque Sunport"). The University athletic complex, including University Stadium and University Arena ("The Pit") are also located within the study area, as is Isotopes Park (home of Albuquerque's AAA baseball club). Albuquerque's airport ("Sunport") is located at the southern terminus of the corridor.

The statistics presented in this technical memorandum all relate to the study area, shown in Figure 1 in red.

Figure 1: ABQ RIDE Services

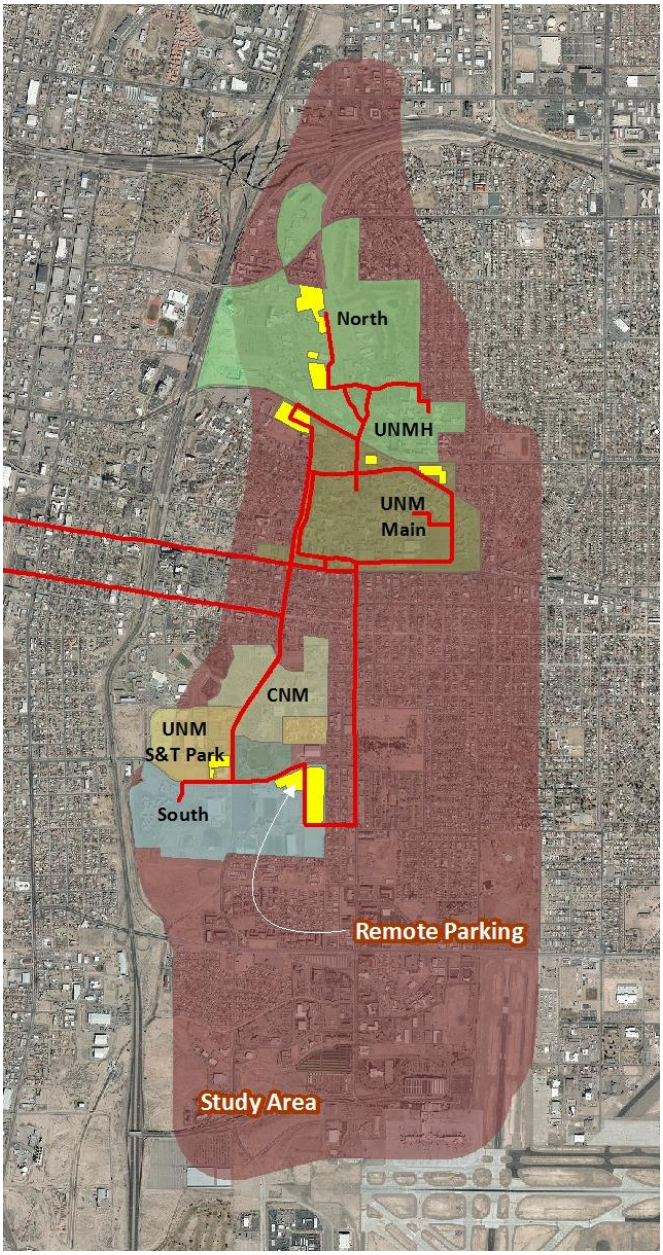


Transit services are operated by the City of Albuquerque's Transit Department, known as "ABQ RIDE", although some routes are funded by the regional transit district operator Rio Metro (e.g., Route 790). Routes serving the study area are illustrated in Figure 1. The UNM main campus is well served by local transit services. Routes on Central (66, 766, 777, 790) are high frequency services that provide direct access to the UNM main campus. ABQ RIDE's 7xx series routes (766, 777, 790) are premium "Rapid Ride" routes involving skip stop and express services using articulated coaches. The aggregate headway of services operated on Central past the University is 5 minutes. ABQ RIDE routes on Lomas (5, 11) also provide direct access to the main campus and exhibit strong ridership characteristics.

The CNM campus, on the other hand, has historically been poorly served by transit services. The campus itself is located too far from Central to make walking convenient, and in fact, the main Rapid Ride bus stop at Central and Cornell is located 1 mile away from campus buildings. CNM is served directly by several ABQ RIDE routes (16/18, 50, 97), but each of these services run infrequently.

University Blvd, the favored potential route alignment for BRT, is currently served by ABQ RIDE Route 16/18, although it does not run entirely to the northern terminus of the study area (Menaul). That said, service on Route 16/18 is infrequent: roughly 50 minutes headways.

Figure 2: PATS Services



1.2 PATS Services

The University of New Mexico Parking and Transportation Services Department (PATS) operates its own campus-wide shuttle system with a fleet of school-bus type vehicles. The university shuttle system is primarily oriented to providing connections between remote satellite parking lots with academic buildings on Main and North campus, as illustrated in Figure 2.

UNM main campus, and to a lesser extent north campus, has suffered severe parking capacity deficiencies for many years now. All campus parking is controlled by a permit system, and UNM relies heavily on satellite parking facilities and associated PATS shuttles. The remote parking facilities are, by and large, located beyond walking distance from main campus. As a result, users of these facilities rely

heavily on PATS shuttles. The shuttles are popular: ridership runs 7,800 rides daily during the academic year. *Much of this ridership can be captured by the BRT proposal.*

PATS also operates several other shuttles serving the campus population. These include a local circulator serving North and Main Campus, an off-campus shuttle that meets Rail Runner Express trains downtown, and a shuttle to the new student apartment complex on South campus ("Lobo Village").

Lobo Village, the university-sponsored student apartment complex on south campus, is an interesting example that warrants attention. PATS shuttle ridership from this complex runs 2,000 rides daily, or averages 2.37 rides for each of the 860 students that live there. Commute distances to main campus are too far to walk, but the housing complex itself is closer than the remote parking lots that students would otherwise be required to use. As a result, students rely heavily on the shuttle and use it, on average, multiple times per day to commute back-and-forth between campus and home. *Service to "near campus housing" complexes, including Lobo Village and others like it, is another ridership segment that BRT can capture.*

Some of the limitations associated with the PATS system that the BRT proposal hopes to overcome include:

- A university entity, PATS is prohibited from serving the general public. Access to the system is reserved exclusively for UNM students, faculty, and staff.
- UNM shuttle services do not connect directly to ABQ RIDE transit services. It does not supply connections to final destinations for transit riders originating from outside of the study area.
- UNM routes are anchored at Main Campus: shuttles do not travel through campus and do not provide a unified central spine connecting the campuses such as called for in the UNM Master Plan.
- Most of the vehicles utilized for the service are high floor step-up buses with rear loading wheel chair lifts which result in longer boarding times and a less than ideal transport mode for those needing a lift.

1.3 BRT Mobility Objectives

Today, the UNM/CNM/Sunport study area is well-served by a number of ABQ RIDE routes and shuttles operated by both UNM and UNMH. But it is a large study area (5.4 square miles). Ultimately, the destinations that are actually served by any individual route coming into the area are limited to those within walking distances from local bus stops (typically 3/8 mile). The "reach" of any individual route is therefore quite limited. As a result, a number of important destinations are poorly served, and even unreachable.

Five minute service on a BRT route bisecting the area and connecting directly to regional routes entering the study area will make it possible for any destination to be easily reached, for all riders, on all routes, including new ones introduced in the future. The BRT proposal can also support the university remote parking system and related shuttles, both now and in the future.

The introduction of a BRT route that directly connects to all ABQ RIDE routes entering the study area and distributing trips directly to desired destinations can also conveniently serve UNM's

satellite parking lots as well as near-campus student housing complexes – both those that are directly affiliated with the university as well as those that are developed privately. These are high volume markets that will require high frequency bus service on the BRT such as presently provided by PATS. This means that all BRT users, whether they are originating from parking lots or arriving via ABQ RIDE, will benefit from high frequency services and short transfer times.

1.4 Future Parking Issues for UNM & CNM

It is also important to recognize that both UNM and CNM face an uncertain future with respect to on-campus parking. The UNM Master Plan, for example, calls for the elimination of substantial amounts of main campus parking in order to create a "greener" campus environment. The Master Plan for UNM and the Health Sciences Center also calls for significant facility expansion that will displace existing parking facilities to accommodate new academic, hospital, and private development buildings, particularly on North and South campuses. Some existing remote parking facilities will have to be relocated to sites currently unknown, or capacities will need to be reduced and offset by travel demand reductions via auto. Alternatively, UNM will need to invest heavily in structured parking to minimize the ground footprint of parking facilities.

Increased reliance on shuttle transportation from remote lots is a likely outcome of campus expansion. The UNM Master Plan, in fact, calls for the introduction of a new north/south transit facility to "unify" its campuses. Decreased reliance on auto commuting to campus via increased use of transit and other modes is also a Master Plan goal. *The BRT proposal aims to address all of these goals.*

CNM, for its part, has no such formal expansion plans for its main campus. However, it is apparent that the main campus is currently fully built-out, so future expansion is virtually impossible without impacting parking supply.

1.5 The BRT Study Option

At this writing, there are several BRT alignment proposals remaining under consideration from which a locally preferred option will be selected. These alignment options all share several defining characteristics:

- They run north and south from Menaul to the Albuquerque Sunport (airport), mostly on University Blvd and/or Yale Blvd.
- They directly connect the large satellite parking lots used by students and faculty to the UNM campuses
- They directly connect to the primary ABQ RIDE routes serving the study area
- They directly serve the CNM campus

Therefore, each alignment option serves the same target ridership markets to a lesser or greater extent.

For the purposes of this analysis, the alignment option shown in Figure 3 was used as the basis of analysis. This option currently scores well in comparison to others still under consideration, and may become the locally preferred option.

In background, the existing ABQ RIDE route system was assumed to remain intact without any changes to route alignment or frequency of service except for small shifts in bus stop locations to connect to the BRT proposal. That said, future ABQ RIDE route modifications to better capitalize on the improved distribution and accessibility to key destinations in the study corridor are certainly advised and some will be evaluated in the next phase of study for the preferred alternative. These may include concepts such as:

- Headway improvements for routes entering the study area, particularly Route 8 on Menaul and Routes 5 and 11 on Lomas
- Significant improvements to Route 6 on Indian School which currently is served by only 2 peak hour bus trips
- Alterations to the tour followed by Route 790 (Rapid Ride "Blue") from the Northwest Mesa
- New Rapid Ride or express services operating in a corridor from the Southwest Mesa and/or the East Mountain communities

Further, it should be noted that a major BRT project is being planned by the City of Albuquerque on Central Ave. This corridor bisects the study area and would tie directly to the BRT project addressed in this study. Ridership impacts associated by the synergy created between these two investments will also be quantified in future phases of study.

Figure 3: University-Yale Alignment Option

1.6 Data Sources

Travel characteristics in the study area have been extensively studied over the last three years and a substantial amount of survey information has been assembled on behalf of the study. Statistics reported in this technical report largely come from a number of these surveys. Here is a quick review of the data that contributed to this ridership assessment:

- *Onboard Survey*: A systemwide onboard survey of all ABQ RIDE services was conducted by MRCOG in April, 2012. The survey successfully collected trip information from roughly 10% of overall ridership (4,700 records). This survey recorded origin-destination patterns, trip purpose, route usage, access and egress modes and walking distances, etc.

The survey provides the basis for estimating total travel volumes by transit to campus, and by implication through comparison with overall trip volumes, transit mode share.

- *UNM Travel Behavior Survey*: This was an internet based survey of UNM students, staff, and faculty that was performed in 2010. The overall sample covering each of these groups involved about 1,840 records. The survey provided details on travel behavior including trip generation characteristics (travel frequency to campus), modal use, etc.
- *UNM Residence Locations*: A complete 100% roster of the entire UNM population (students, faculty, and staff) resides in an address-matched GIS database of residence locations.
- *CNM Travel Behavior Survey*: This was also an internet based survey of CNM students that was performed in 2010. The overall sample ran 2,450 records. The survey questionnaire was quite similar to that employed at UNM and provided details on travel behavior.
- *CNM Residence Locations*: A complete 100% roster of the entire CNM population (students, faculty, and staff) resides in an address-matched GIS database of residence locations.
- *PATS Ridership Counts (2013):* The University shuttle system PATS monitors ridership activity on each PATS route on a daily basis (half hour counts). Routes serving remote parking lots merely shuttle back-and-forth between a satellite lot and main campus, and so ridership can be easily related to parking demand.
- *Info-USA Business Inventory*: MRCOG maintains an inventory of all businesses in the region, including job counts and NAICS code for each. This data is acquired from a commercial vendor. MRCOG address-matches (and vets) this data set to provide an exceptionally detailed GIS database by business location and is the source for information related to non-campus jobs in the study area.
- *UNM Fact Book 2011-2012*: This report provides an extensive overview of UNM operations including a detailed statistical profile: student enrollments, faculty appointments, and staff jobs.
- *CNM Fact Book 2012-2013:* This report provides an extensive overview of CNM operations including a detailed statistical profile: student enrollments, faculty appointments, and staff jobs.

2.0 Ridership Analysis

Target markets for BRT ridership in the study area revolve around the primary destinations: the UNM main campus, the UNMH hospital system, and the CNM main campus. Together these destinations account for the great majority of travel into the study area. There are secondary destinations as well. These would include various activities associated with UNM (e.g., the Medical and Law Schools on North Campus, the UNM Science and Technology Park on South Campus, various other employers in the study area that are not affiliated with the university system, and local residents. Finally, Isotopes Park (home of Albuquerque's AAA professional baseball club) and UNM athletic facilities: University Stadium and University Arena (i.e., "The Pit") are all located on south campus and can be directly served by all of the BRT alignment options and therefore will provide ongoing intermittent sources of "special event" traffic.

Overall travel volumes in the study area associated with these various market segments are different, as are their associated socioeconomic characteristics. University populations include the student body as well as faculty and staff. Students typically have less disposable income available to them, reduced access to vehicles for commuting, and different eligibility rules controlling parking availability. It will therefore be helpful to distinguish students as a separate market segment from faculty and staff when considering ridership potential of the university population.

One way to characterize potential ridership segments in the study area for BRT is as follows:

- UNM Campus:
  - Commuters in Satellite Parking Lots (Students, Faculty, and Staff)
  - Students
    - Commuters to Campus (by ABQ RIDE)
    - Residing in Near-Campus Housing
  - Intra-Campus Travel
  - Faculty and Staff
- CNM Campus
  - Students
  - Faculty and Staff
- UNM Hospitals
  - Staff
  - Visitation
- Non-Campus Jobs
  - Sunport Area
  - Elsewhere in the Study Area
- Local Residents
  - Work trip commuting
  - Other Trip Purposes

2.1 Existing Transit Shares

Existing trip volumes and transit shares associated with the various market segments are summarized below in Table 1.

Estimates of daily travel volumes associated with each market segment reported here were deduced from a variety of sources, including the surveys taken at UNM and CNM, the regional travel demand forecasting model, and parking/shuttle counts available from UNM.[1] Estimates of daily trip volumes on transit come directly from the onboard survey (or PATS counts).

Existing transit mode shares in the UNM/CNM/Sunport area are among the highest in the City. The roughly 20,000 daily transit rides is roughly half of overall system ridership on ABQ RIDE, although this claim is somewhat disingenuous since it includes ridership on PATS shuttles. As is

[1] The regional travel model does not provide sufficient detail on these individual market segments and was therefore supplemented by additional analysis for this report.

apparent from this summary, the most significant sources of existing transit ridership are, in descending order:

- UNM Remote Parkers (on PATS Shuttles): 7,800
- UNM Students arriving on ABQ RIDE services: 3,800
- UNM Students arriving on PATS shuttles from near-campus housing: 2,000
- CNM Students arriving on ABQ RIDE services: 2,000

With these statistics in mind, we will now explore each of the market segments in sequence.

Table 1: Market Segment Summary

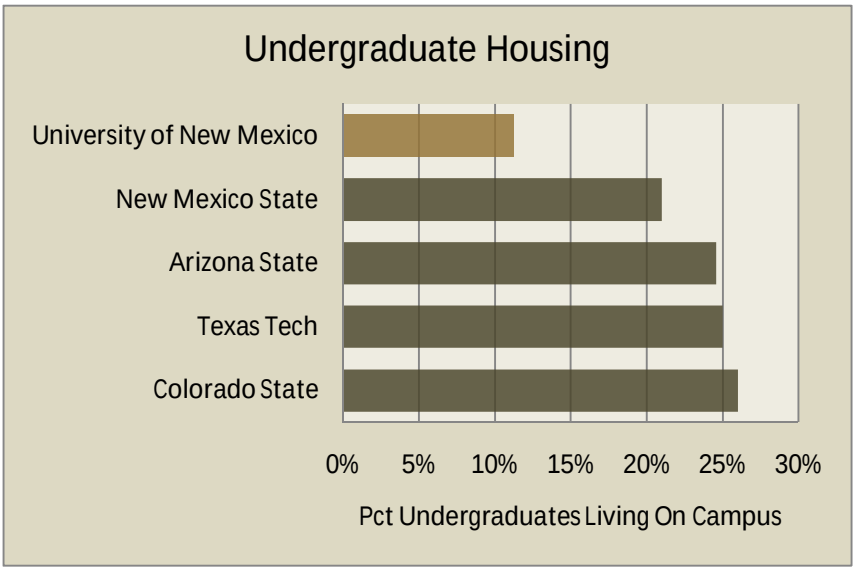
Market Segment	SubMarket	Population	Daily Trips	Existing Transit	Transit Share
UNM					
	Students				
	.....Commuters	29,000	38,200	3,820	10.0%
	.....Near Campus	860	--	2,050	--
	Faculty & Staff	9,600	13,400	650	4.8%
	Remote Parking	--	--	7,800	--
	Intra-Campus	--	400	400	--
CNM					
	Students	13,000	15,200	1,990	13.1%
	Faculty & Staff	1,340	2,000	140	7.0%
UNMH					
	Staff	6,200	9,900	290	2.9%
	Visitation	2,200	4,400	520	11.9%
Non-Campus Jobs					
	Sunport	7,200	6,000	200	1.7%
	Other	7,200	5,600	360	3.2%
Local Residents					
	Work Trips	24,900	10,700	720	6.8%
	Other Trips	--	32,400	1,210	3.7%
Totals		101,500	138,200	20,150	14.6%

2.2 UNM Student Market Segment

Total enrollment (2011) for UNM is 29,000 for the Main and North Campuses (in the study area) – close to 37,000 overall state-wide.

In terms of undergraduate enrollments, UNM (21,000) is comparable in size to the University of Utah (24,000), Colorado State (23,000), UNLV (22,000), the University of Nebraska (19,000), and the University of Kansas (19,000) (see Figure 4).

Figure 4: Undergraduate Housing Rates at Peer Group Universities



UNM is primarily a commuter school. Only 11% of all undergraduate students live in on-campus housing, making it among the lowest of all major universities in the west. So commuting demand to the UNM campus is higher than would ordinarily be expected for universities of comparable size. With an additional 9% of the student population living in "near campus" housing complexes (some unaffiliated with the university), roughly 80% of the student population commutes to campus on a daily basis.

The university is actively pursuing plans to expand on-campus and near-campus housing opportunities for students. A number of new residence halls and housing complexes have been constructed in the past several years, and more are planned in the near future.

The overwhelming majority (94%) of UNM students attend classes on Main Campus (as opposed to North or South Campuses). About 1,100 students attend classes on North Campus, primarily the location of the Law School, the Medical School, and several other science programs (e.g., Astronomy).

Not all students schedule classes for every day of the week: on an average day, about 73% of the student body is scheduled for class. With an assumed absentee rate of 10%, this means that there are 19,100 students on campus daily, amounting to 38,200 commuting trips (this estimate includes students already living in on-campus housing which of course accounts for the high level of access via non-motorized modes).

Here are some additional characteristics of interest associated with student commuting, drawn from both the student survey run in 2010 and the onboard survey in 2012:

Commute Mode to Campus: As indicated in Table 2, transit mode share to campus is 10%.[2] The high percentage is influenced by the university bus pass program: all UNM students can ride ABQ RIDE services free of charge (as can all UNM and UNMH faculty and staff). Non-motorized

[2] This is based on our own analysis of actual modal use, corroborated by onboard survey results, remote parking characteristics, and PATS shuttle counts. Students responding to the internet survey actually reported higher transit use (17%), but this figure appears to exaggerated for whatever reason and could not be matched against actual onboard survey results.

Table 2: Mode of Access to UNM Campus

	Students	Pct
Carpool	1,379	7.2%
Drive Alone	11,231	58.8%
Bicycle	2,149	11.3%
Transit	1,912	10.0%
Other	681	3.6%
Walk/Skateboard	1,737	9.1%
Total	19,090	100.0%
Percent Transit Use		10.0%
Percent Non-Motorized		20.4%
Auto Users		66.1%

modes (walk and bicycle) account for another 20%, of course influenced by the number of students living in on-campus university housing. The balance commutes via auto.

Auto Availability for UNM Students on Transit: A remarkable number (55%) of UNM students that ride the bus to campus despite the fact that they have a vehicle available to make the trip – for them, transit is a sound competitive choice for their commute. A combination of factors may account for this: excellent transit access to UNM's main campus (incentive) and fees and trip delays associated with the satellite parking (disincentive). 45% of UNM transit riders, on the other hand, are dependent on ABQ RIDE: they do not have vehicles available for an auto commute.

Table 3: Vehicles Available for Trip Among UNM Transit Riders

	Origins	Destinations	Total	Pct
None: No vehicles owned	378	424	802	21%
None: Vehicles not available	533	375	908	24%
Yes	992	1,104	2,096	55%
Total	1,904	1,903	3,806	100%

"Origins" are all trips that originate at UNM
"Destinations are all trips that are destined for UNM

Access Walking Distances to Campus Buildings: As was indicated in the introduction to this report, the UNM main campus is well served by existing ABQ RIDE services which are concentrated on major arterials bordering the main campus (i.e., Central, Lomas, and University). Our expectation is that UNM students report short walking distances to their final campus destination. This expectation is confirmed by the onboard survey: close to 80% of all UNM students report walking distances of 1/8 mile or less (comparable to a 2.5 minute walk at a brisk 3 mph pace).

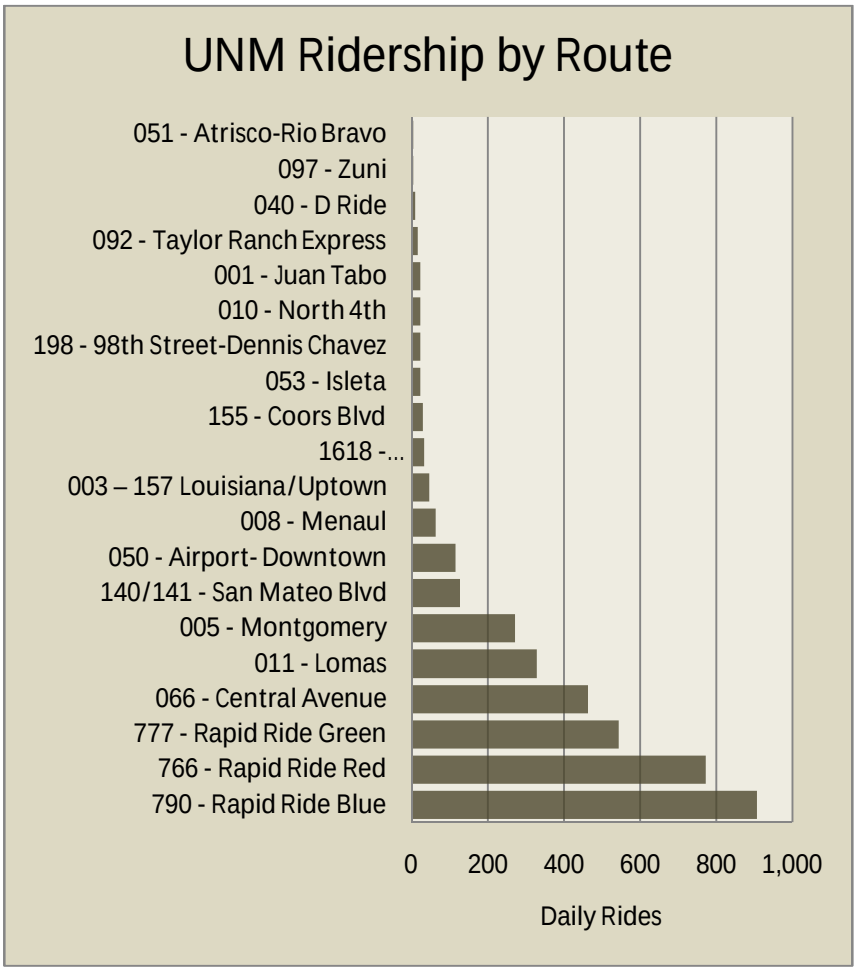
Table 4: Access and Egress Walk Distances by UNM Students

	Origins	Destinations	Total	Pct	Cumulative
< 1/8 mile (less than 1 block)	1,005	1,086	2,091	55%	55%
1/8 mile (1-2 blocks)	484	408	891	23%	78%
1/4 mile (3-4 blocks)	266	226	492	13%	91%
1/2 mile (5-8 blocks)	105	119	224	6%	97%
3/4 mile (9-12 blocks)	0	9	9	0%	97%
1 mile (13-16 blocks)	43	30	72	2%	99%
1.5 miles	19	9	28	1%	100%
2 or more miles	0	16	16	0%	100%
Total	1,921	1,903	3,824	100%	

"Origins" are all trips that originate in the study area
"Destinations are all trips that are destined for the study area

Prominent ABQ RIDE Routes Serving UNM: ABQ RIDE routes on Central (66, 766, 777, and 790) are by far the primary services of access for UNM students. 70% of UNM students use one of these routes. It is also remarkable to see the popularity of the Rapid Ride routes (7xx series), especially Route 790 from the far Northwest Mesa. Usage of the Lomas routes (bordering the north side of campus) is healthy (16% of overall UNM ridership) but figures much less prominently in comparison with the Rapid Rides.

Figure 5: UNM Ridership by Route



Note: Route data here reflects the route that the UNM student was aboard when he/she was surveyed. Therefore, there is a smattering of routes reported that are remote from UNM: these students obviously transferred to another route later in their trip in order to reach UNM. No attempt was made to track those transfer routes for this tabulation.

Number of Transfers: Transfer rates for UNM students are also quite low (in comparison with other ridership markets, which will be shown later). 70% of UNM students ride only one route to campus. This is another indicator of the excellent service that ABQ RIDE provides to UNM Main campus.

Table 5: Number of Routes Ridden by UNM Students

	Origins	Destinations	Total	Pct
One	1,256	1,379	2,636	69%
Two	505	460	965	25%
Three or More	160	64	223	6%
Total	1,921	1,903	3,824	100%

Student Parking Choices: According to the UNM Student Survey (with post-survey data analysis to refine the data), an estimated 12,600 students commute to campus by auto on a daily basis. As was indicated earlier, student parking on campus is controlled by permits. Student parking fees are as follows:

- Preferred On-Campus Locations (e.g., Yale Structure): $499 annually
- Close-In Locations (e.g., "T" lot): $235 annually
- Remote Satellite Locations: $175 annually

PATS also constrains the number of permits issued according to the capacity of the lots. Despite the fees, demand for preferred close-in lot locations among students is very high and far exceeds supply: these lots sell out regularly (students can be wait-listed) and students must accept assignments to more distant outlying locations.

Table 6: UNM Student Parking

	Students	Pct
Use Parking Permit	6,618	52%
Use Parking Structure	1,087	9%
Use Metered Parking	955	8%
Use ADA Parking	296	2%
Use Reserved Parking	148	1%
Used Non-UNM Parking	2,552	20%
Other Parking	955	8%
Total Drive-Alone	12,610	1

About 7,700 student commuters (61%) park in permit locations (and the parking structures). Another 3,400 students (28%) park in "other" or "non-UNM" locations, indicating a serious shortfall in parking capacity close to campus. Since there are not many other parking opportunities available, other than those administered by UNM itself, this indicates that students are parking illegally in local neighborhoods and/or at CNM. Illegal parking in the neighborhoods around UNM and at CNM has been a continuing complaint for many years even though most of these adjacent streets are permitted for residents only.

Student Parking Locations: Figure 6 illustrates student parking permits by lot location. There are three PATS shuttles that serve the more remote satellite parking locations, shown here in red:

- "G/Q" Lot Shuttle
- "T" Lot Shuttle
- "South Lot" Shuttle

Roughly 4,800 students (57% of the 8,350 permit holders) park in locations served by these PATS shuttles. With the exception of the "T" lot, each of these lots will be served by the BRT proposal, as shown in Figure 7.

Table 7: Existing PATS Shuttle Ridership

Route	Daily Rides	BRT Potential
G/Q	2,418	2,418
South	4,554	4,554
Lobo *	2,047	
Redondo	397	
T	827	
ATC	25	
MDS	33	
Total	10,301	6,972

** Lobo Village shuttle does not serve parking. Potential BRT ridership associated with Lobo Village will be addressed below.*

Figure 6: UNM Student Parking Permit Holders

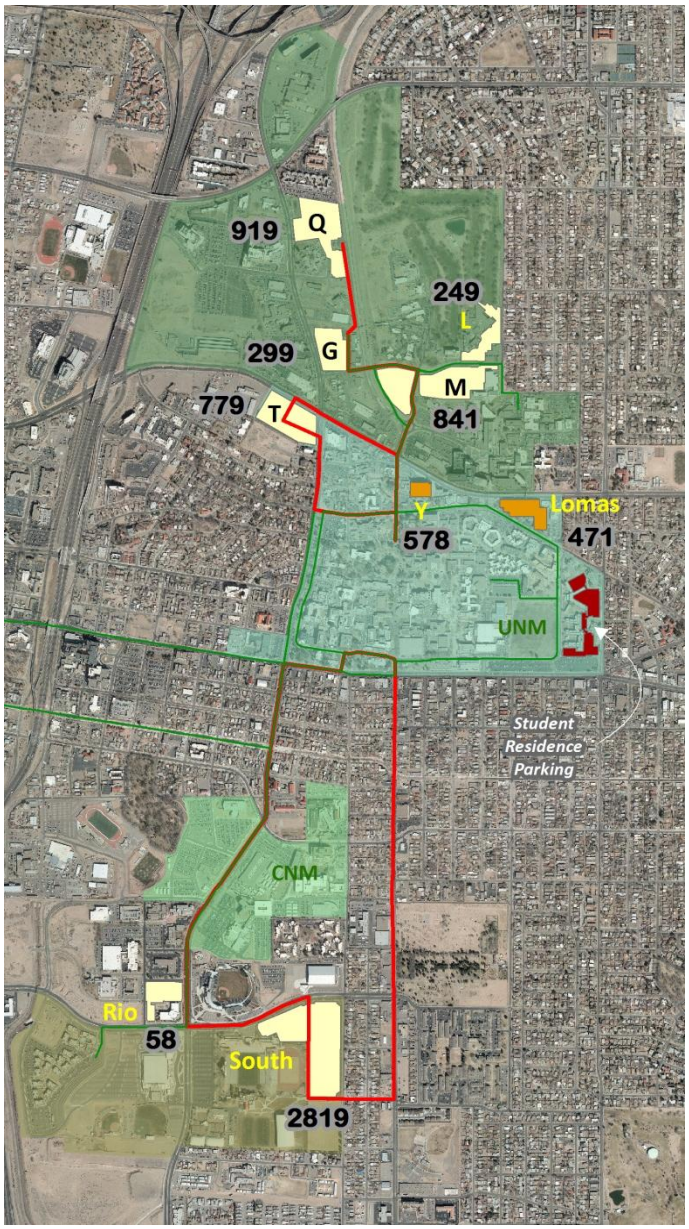
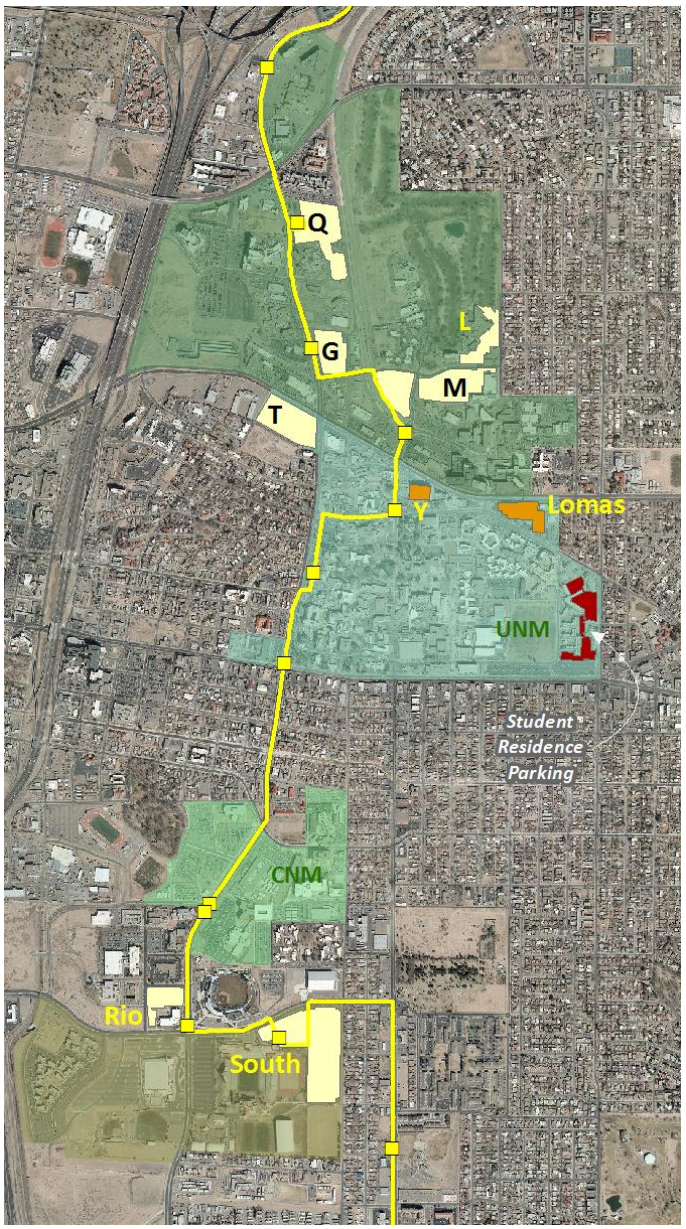


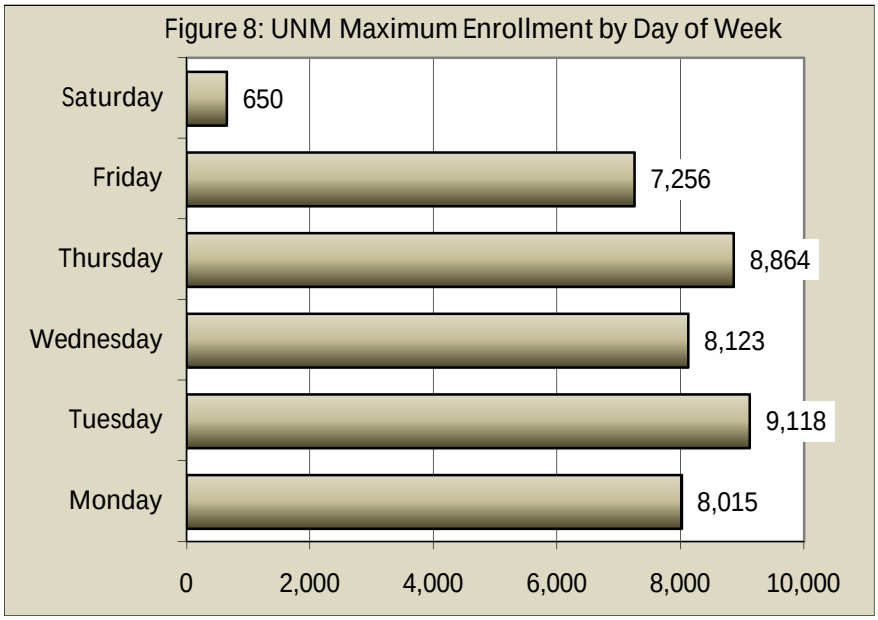
Figure 7: BRT Service to Existing PATS Shuttle Lots



BRT Ridership Potential with Respect to Remote Parking: If BRT would continue to serve satellite student parking as PATS does today, then it will carry 7,000 trips per day. In the long run, however, BRT offers the potential for expanding the remote parking scheme by adding capacity to other potential locations along the alignment to offset parking lost as a result of the "greening" of main campus and building expansion. The BRT also introduces the possibility of joint parking arrangements between UNM and CNM.

UNM Attendance by Day of Week: UNM furnished a student enrollment database by class schedules for Fall Semester in 2009, from which scheduled attendance by day of week could be determined. As indicated in Figure 8, classroom attendance is similar for each day of the week

(Tuesday-Thursday classes are most popular), although Friday schedules are somewhat lower (15%) than the regular weekday average.



2.3 UNM Student "Near Housing" Market Segment

An additional important market segment that holds significant ridership potential consists of UNM students living in "near campus" housing complexes.

Lobo Development, the real estate arm of the University of New Mexico, sponsored the development of "Lobo Village" in 2010. This is an 864 bed off-campus complex located on South Campus on Avenida Cesar Chavez immediately east of I-25. With its opening, PATS initiated a new transit route shuttling between the complex and main campus, with great success. The shuttle averages 2,050 rides daily for an average of 2.37 trips per student. It is apparent the students use the shuttle multiple times per day as they return home between scheduled classes.

Lobo Village offers students an attractive housing choice with attributes not available to students in on-campus dormitories: independent living, recreation room, swimming pool, and perhaps most important: free parking for a personal vehicle. Lobo Village is too far from campus to walk, but closer than the remote parking facility (i.e., South Lot) that students would otherwise be required to use. It therefore represents an assured source of BRT ridership.

There are other similar student complexes, not necessarily directly affiliated with the University, along the BRT alignment. These are shown in Figure 9, and include Sun Village, Netherwood, Citadel, Broadstone Towne Center, and an older university complex on south Mesa called "Student Family Housing". Together these complexes supply another 1,870 beds, some of which are potentially filled by students.

Figure 9: Location of Near Campus Housing at UNM

Sun Village, in fact, operates its own transit shuttles to the University, an amenity that is advertised on its web page promoting rentals to the university population.

As of 2010, about 420 students are living in these non-university apartment complexes (21% of capacity), an estimate that was generated by inspecting reported residence locations for the student enrollment list supplied by UNM. We know that this estimate is seriously underreported – Broadstone Towne Center, for example, was only opened last year and therefore does not count in the tally. Also, many students (maybe *most students*) continue to report their *parent's home address* to the university for mailing purposes, even though they actually reside elsewhere.

If ridership rates exhibited at Lobo Village were repeated on BRT at all of these sites, then a total of 3,000 trips per day would be generated (at occupancy levels measured by reported enrollment addresses in 2010). If actual student occupancy is really much higher than measured by enrollment addresses in 2010, say 50% of capacity, then daily ridership on BRT drawn from this market would run as high as 4,500. See Table 8.

As was indicated earlier, the University is actively expanding student housing opportunities, both through expansion of residence halls on campus as well as sponsorship of projects like Lobo Village. Clearly, the connection between near-campus housing development and BRT is a compelling concept. If overall housing capacity along the BRT alignment were doubled from an existing 2,700 beds to 5,400 and all of these beds were occupied by UNM students, 12,800 daily BRT riders would be drawn from this segment alone. Furthermore, it would result in a drop in on-campus parking demand of 3,500 spaces. If the university were to accommodate these spaces in future parking structures, the cost of these spaces alone will run $63 million (at $18,000 per space).

Table 8: Potential UNM Ridership on BRT Associated with Near Campus Housing

	Current (2012)				At Maturity		
Site	Beds	Student Occupants	Occupancy	BRT Rides	Occupancy	Student Occupants	BRT Rides
Lobo Village	864	864	100.00%	2,050	100.00%	864	2,050
Broadstone Towne Ctr	442	0	0.00%	0	50.00%	221	524
Citadel	233	22	9.44%	52	50.00%	117	276
Netherwood	271	47	17.34%	112	50.00%	136	321
Sun Village	723	132	18.26%	313	50.00%	362	858
Student Family Housing	200	200	100.00%	475	100.00%	200	475
Total	2,733	1,265		3,001		1,899	4,505

2.4 CNM Student Market Segment

Total enrollment at all CNM campuses was 28,300 in 2013, however most are part-time students and the institution estimates full-time equivalent enrollment at 15,500. We estimate that about 46% (13,000) actually attend classes at the CNM main based on breakdowns in academic program in the 2013 Fact Book and corroboration against estimated traffic in the CNM parking lots. We also deduce from this information that about 65% of CNM students attend classes on an average day. Along with an assumed absentee rate of 10% we arrive at an estimate of 7,600 students (15,200 trips) arriving on campus daily. As a traffic generator, CNM is roughly 40% the size of UNM.

Some CNM students are reportedly also enrolled in classes at UNM, however there are no statistics available that reflect this.

Here are some additional characteristics of interest associated with student commuting, drawn from both the student survey run in 2010 and the onboard survey in 2012:

Commute Mode to Campus: As indicated in Table 9, transit mode share to campus is 13%. Non-motorized modes (walk and bicycle) account for only 5%. It is interesting that overall transit modal shares at CNM are, in fact, higher than at UNM despite the fact that CNM provides on-site parking for all students but enjoys far less transit access (we will explore this momentarily). CNM students are also afforded free bus passes for ABQ RIDE services, which also contributes to high utilization. Use of non-motorized modes (bicycle and walk) at CNM, however, is far lower than at UNM. CNM does not provide any type of on campus housing program and CNM students clearly do not tend to reside in the local neighborhoods around the campus.

Table 9: Mode of Access to Campus at CNM

	Students	Pct
Carpool	543	7.2%
Drive Alone	5,680	74.7%
Bicycle	209	2.8%
Transit	995	13.1%
Walk/Skateboard	172	2.3%
Total	7,600	0.0%
Percent Transit Use		13.1%
Percent Non-Motorized		5.0%
Auto Users		81.9%

Auto Availability for CNM Transit Riders: Only 18% of CNM transit riders indicate that they had a vehicle available for their trip to campus. This is to say, 81% of CNM transit riders are transit dependents – they had no other commuting choice. This is quite different than at UNM and explains

why transit mode shares are higher at CNM than they are at UNM.

Table 10: Vehicles Available for Trip Among CNM Transit Riders

	Origins	Destinations	Total	Pct
None: No vehicles owned	632	470	1,103	55%
None: Vehicles not available	347	176	523	26%
Yes	169	195	364	18%
Total	1,148	841	1,990	100%

"Origins" are all trips that originate in the study area
"Destinations are all trips that are destined for the study area

Access Walking Distances to Campus Buildings: One of the original objectives sought by the BRT proposal is to make transit services more accessible to the CNM main campus. Currently, the closest bus stop on Central involves a walk of 0.66 to 0.75 miles to the main academic buildings (depending on the building). The closest Rapid Ride bus stop, at Central and Cornell, requires a walk of 1 mile. It would stand to reason, then, that CNM students would indicate rather long walking distances to campus in the onboard survey. As seen in Table 11, they do. 24% of CNM students walk further than a ¼ mile from their bus stop – compared with only 9% of UNM students. Walking distances are roughly 15%-20% longer than indicated by UNM students.

Still, 76% of CNM students report that they walk ¼ mile or less – a somewhat surprising result. The likely explanation is that these students transfer to Route 16/18 running on University Blvd.

Table 11: Access and Egress Walk Distances by CNM Students

	Origins	Destinations	Total	Pct	Cumulative
< 1/8 mile (less than 1 block)	444	309	753	37%	37%
1/8 mile (1-2 blocks)	271	170	440	20%	57%
1/4 mile (3-4 blocks)	155	162	317	19%	76%
1/2 mile (5-8 blocks)	88	93	182	11%	87%
3/4 mile (9-12 blocks)	74	35	109	4%	91%
1 mile (13-16 blocks)	43	38	82	5%	96%
1.5 miles	33	0	33	0%	96%
2 or more miles	40	35	74	4%	100%
Total	1,148	841	1,990	100%	

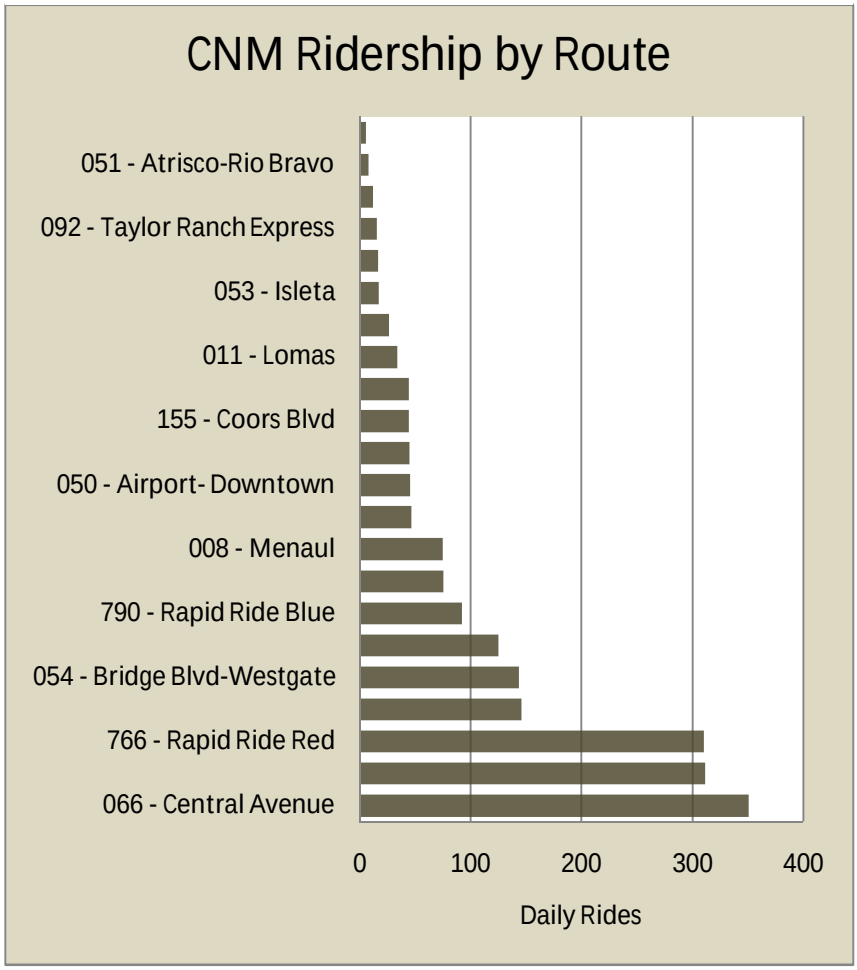
"Origins" are all trips that originate in the study area
"Destinations are all trips that are destined for the study area

Prominent ABQ RIDE Routes Serving CNM:

As indicated in Figure 10, most CNM students reach CNM via Route 66, and it would appear that a good percentage of them transfer to Route 16/18 on University Blvd to shorten their walking distances despite the fact that Route 16/18 runs on rather lengthy 50 minute headways. Altogether, the Central Avenue routes (66, 766, and 777) account for 44% of CNM transit riders (compared with 70% for UNM).

Usage of the Rapid Ride Routes (7xx series) by CNM students is quite low, compared with UNM. One possible reason is the lengthy walk distance from the closest stop at Central & Cornell, combined with the fact that Rapid Ride does not stop at University making an easy transfer to 16/18 possible. CNM ridership on Route 790 is strikingly low, compared with heavy usage by UNM students.

Figure 10: CNM Ridership By Route



Usage of the other route that directly serves the CNM campus – Route 97 on Zuni – is very low, perhaps due to its relatively poor frequency of service.

Another difference with UNM travel patterns is the comparatively heavy use of Route 54 from the Southwest Mesa. This suggests potential for the future development of a direct route serving the Southwest side similar to Route 790 to the Northwest side – a proposal that RMRTD and Bernalillo County are now considering.

Number of Transfers: Another way that CNM transit travel patterns differ from UNM students involves the number of transfers encountered in their trip. Seen in Table 12, 61% of all CNM students transfer at least once in order to reach campus (compared with 31% of UNM students).

Table 12: Number of Routes Ridden for CNM Students

	Origins	Destinations	Total	Pct
One	440	344	784	39%
Two	517	421	937	47%
Three or More	191	77	268	13%
Total	1,148	841	1,990	100%

Student Parking Choices: An estimated 6,200 CNM students commute to campus by auto on a daily basis. Parking for CNM students is provided on-site – reserved parking ($43 per term) is provided in lots east of University Blvd. near the majority of academic buildings. General

parking (free of charge) is provided in lots west of University Blvd. Parking demand related to these lots is shown in Table 13.

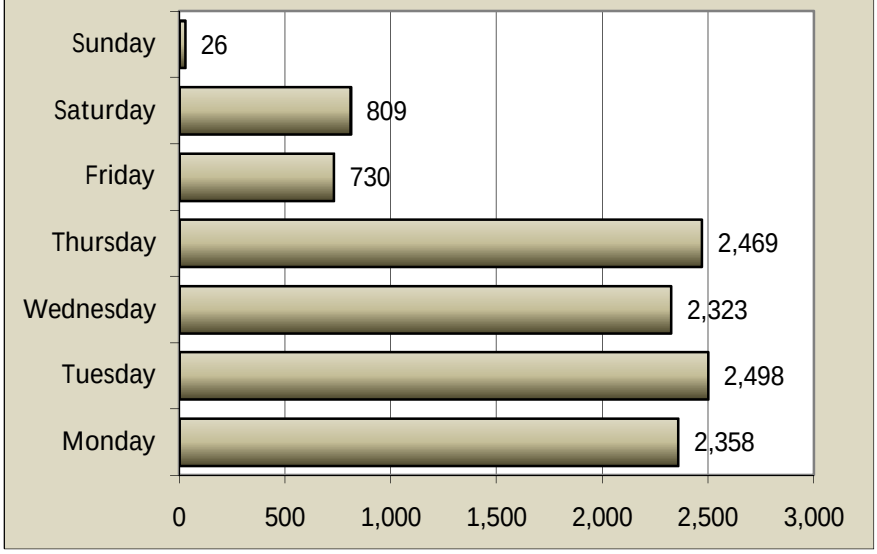
Table 13: CNM Student Parking

	Students	Pct
Use Parking Permit	1,850	30%
Use Paid Parking	1,662	27%
Use Metered Parking	716	12%
Use ADA Parking	443	7%
Used Non-CNM Parking	1,552	25%
Total	6,223	100%

A significant number (1,550) of students report "non CNM" parking arrangements. Combined with the 3,400 UNM students that report the same, there are some 5,000 students at the two institutions that are parking on a daily basis in locations not associated with universities.

CNM Attendance by Day of Week: CNM furnished a student enrollment database by class schedules for Spring Semester in 2010, from which scheduled attendance by day of week could be determined. CNM class schedules basically run 4 days per week – Friday and Saturday enrollments run only about 30% of enrollments during regular weekdays.

Figure 11: CNM Maximum Enrollment by Day of Week



2.5 Comparing the UNM and CNM Student Markets

A simple way to characterize the differences in the transit environment between UNM and CNM is as follows:

- UNM enjoys excellent transit service and offers strong auto disincentives due to its remote parking system for students.
- CNM, on the other hand, has comparatively poor transit service but offers excellent auto access due to its relatively cheap (or free) on-site parking.

Other notable comparisons include:

- A larger share of the existing transit ridership base at CNM is composed of transit dependents. Or, expressed differently: excellent transit access and auto disincentives at UNM successfully attract many more riders from the "auto competitive" market.

Table 14: Vehicle Availability for Student Transit Riders at UNM and CNM

	UNM Trips	CNM Trips	UNM Pct	CNM Pct
None: No vehicles owned	802	1,103	21%	55%
None: Vehicles not available	908	523	24%	26%
Yes	2,096	364	55%	18%
Total	3,806	1,990	100%	100%

Totals represent total number of transit trips made by UNM and CNM students
Each student is typically associated with 2 transit trips (arriving and departing)

- Simply put: CNM is harder for students to reach via transit than is UNM. Service is less direct, and many students opt to transfer to the 16/18 on University Blvd to reach campus, rather than walking.

Figure 12: Transfer Rates for UNM and CNM Students

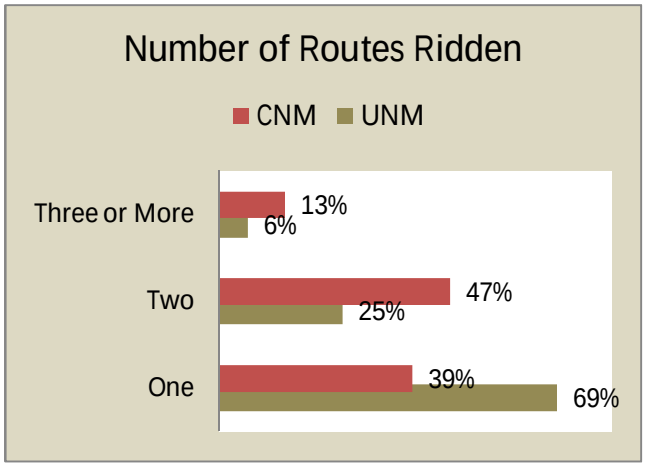
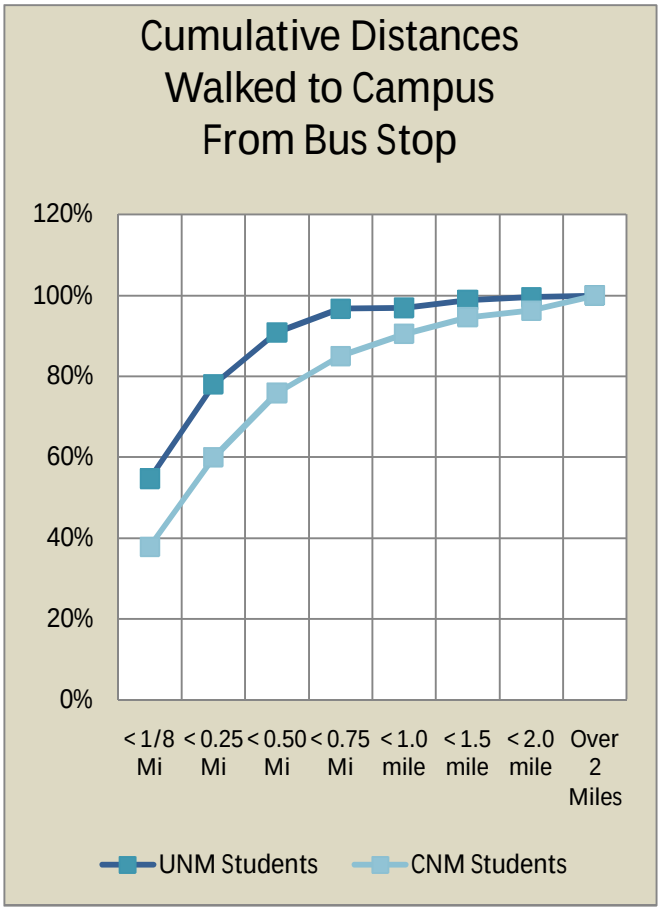
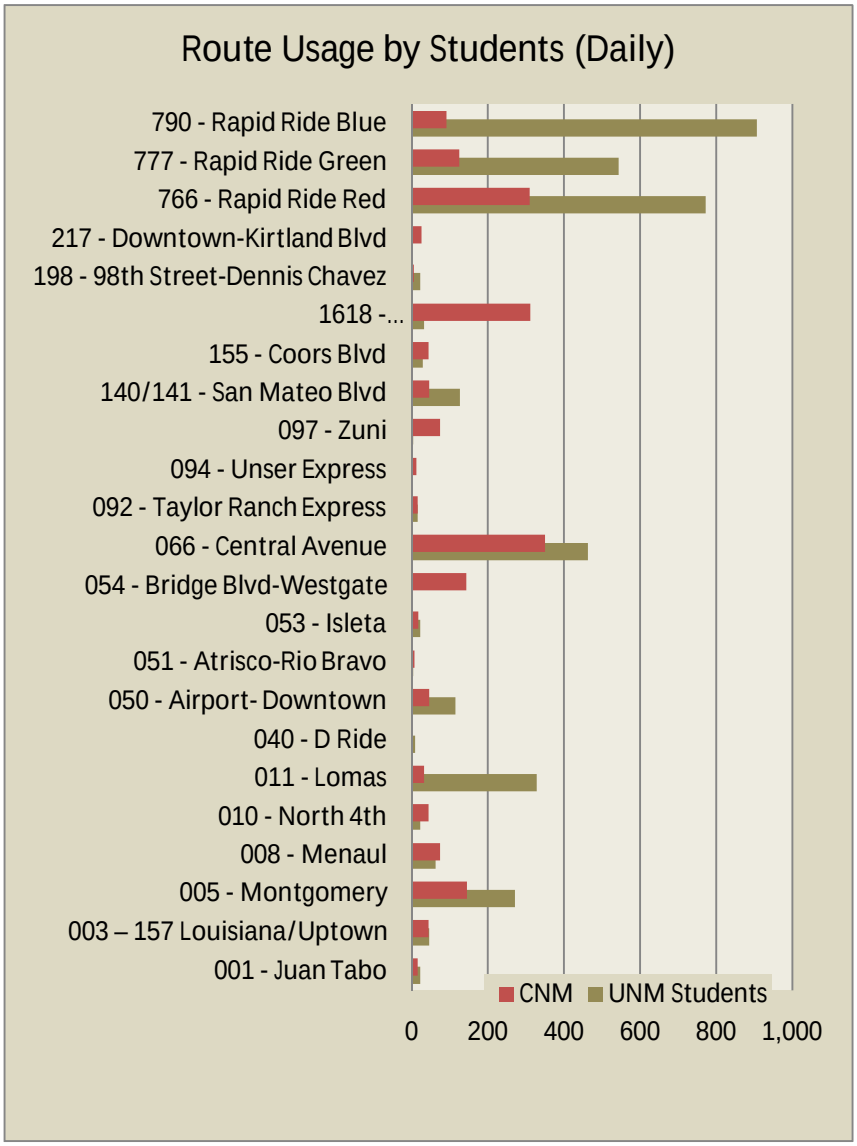


Figure 13: Comparative Walking Distances for UNM and CNM Students



- CNM students need to walk further from the bus stop to reach campus than do UNM students.
- Rapid Ride routes are enormously popular with UNM students but of significantly lesser value to CNM students. Stop locations associated with the Rapid Ride routes and lengthy walks to the CNM campus are surely one reason why this is the case. For CNM, transfers to route 16/18 operating on University Blvd is one way that you would reach CNM from other routes on Central.

Figure 14: Access Route for UNM and CNM Students



2.6 UNM Faculty and Staff

UNM employs 10,400 faculty and staff workers with 9,600 at the main campuses in Albuquerque and 840 at branch campuses in Valencia and Sandoval Counties. These figures come from the UNM Fact Book, and exclude student employment. While approximately 90% of the student body attends classes on Main Campus, faculty and staff jobs appear to be split 50/50 between North Campus and Main Campus. A significant number of these jobs are part-time jobs. Breakdowns in jobs at UNM are as follows:

- Job Type:
  - Faculty: 3,200

  - Staff: 6,400
- Campus Location:
  - North Campus: 4,900
  - Main Campus: 4,700
- Part-Time Job Status:
  - Faculty: 44%
  - Staff: 31%

Faculty and staff are also subject to permit parking policies. While some staff members do park in the more remote satellite parking lots (especially "G" Lot), many faculty and staff are eligible for more preferred, expensive, and closer-in locations.

We are estimating that 6,700 workers appear on campus on an average day, involving 13,400 commute trips.

Existing Commute Modes: Existing transit shares among UNM faculty and staff is reported to be about 4.8% (compared with about 10% for students). A 4.8% transit share is nonetheless quite good, compared with other non-university activity centers in the region. Free ABQ RIDE bus passes for the university population is doubtlessly a contributor to this favorable result.

Table 15: Commute Mode for UNM Faculty and Staff

	UNM Faculty/Staff	Pct
Carpool	545	8.1%
Drive Alone	4,816	71.7%
Bicycle	427	6.4%
Transit	325	4.8%
Other	265	3.9%
Walk/Skateboard	339	5.0%
Total	6,717	100.0%
Percent Transit Use		4.8%
Percent Non-Motorized		11.4%
Percent Auto		79.8%

Overall access characteristics associated with UNM faculty and staff is similar to that reported for UNM students. There is, however, a significantly larger population of faculty and staff working on North campus than is the case with the student body. The BRT proposal provides improved access to North Campus from the premium Abq Routes on Central.

Arrival and Departure Times on Campus: According to the faculty/staff surveys, UNM staff works traditional working hours for the most part. 84% arrive for work during the conventional morning peak period (6 AM to 9 AM). 32% depart work late afternoon (3 PM to 5 PM) with the balance leaving "after 5 PM". UNM faculty hours are not quite so traditional: 61% arrive for work during the morning peak period (the rest arrive later in the morning). 24% of UNM faculty typically departs late afternoon (3 PM to 5 PM) and

Table 16: Faculty & Staff Arrival and Departure Times

	Arrival Time		Departure Time	
	Staff	Faculty	Staff	Faculty
Between 6am and 9am	84%	61%	3%	0%
Between 9am and Noon	7%	26%	0%	1%
Between Noon and 1pm	2%	2%	1%	1%
Between 1pm and 3pm	1%	2%	2%	4%
Between 3pm and 5pm	0%	2%	32%	24%
After 5pm	2%	1%	54%	57%
No Set Schedule	4%	7%	8%	12%
Total	100%	100%	100%	100%

57% stay "after 5 PM". The number of faculty and staff that work with "no set schedule" is somewhat surprisingly small (between 8% and 12%).

Transit Dependency: 41% of UNM transit commuters claim they ride transit despite the fact that they have a vehicle available to commute.

Table 17: Vehicle Availability for Work Trips for UNM Faculty/Staff

	Origins	Destinations	Total	Pct
UNM				
...No	203	182	384	59%
...Yes	96	169	265	41%
			650	

2.7 CNM Faculty and Staff

Overall, CNM employs 2,000 faculty and staff workers, with an estimated 1,330 of them working at the main CNM campus in Albuquerque. The balance is working at CNM's satellite campuses elsewhere in the City of Albuquerque and in adjoining counties. These figures come from the CNM Fact Book for 2013. As was the case with UNM, a significant proportion of the faculty is part-time. A breakdown of CNM jobs is as follows:

- Job Type:
  - Faculty: 480
  - Staff: 850
- Part-Time Job Status:
  - Faculty: 71%
  - Staff: 15%

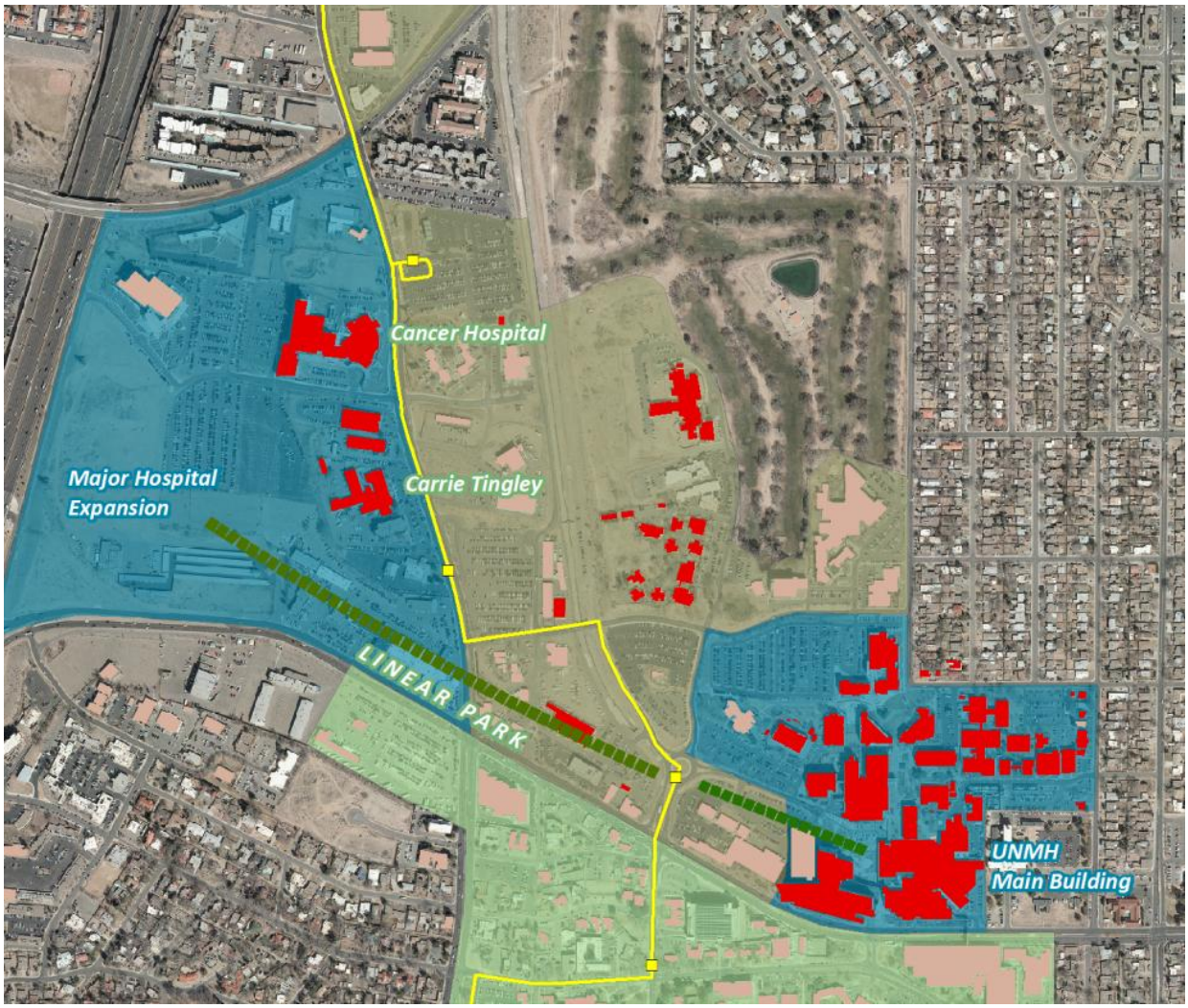
We are estimating that 1,000 workers commute to campus on an average day, or 2,000 commute trips daily.

Compared with UNM, however, much less is known about the associated commuting characteristics of CNM faculty and staff. This ridership segment has not been surveyed. We can estimate transit use, however, from the onboard survey. Approximately 70 CNM workers commute to work via transit – roughly a 7.0% modal share. Transit share among faculty and staff at CNM, therefore, is slightly higher than it is at UNM despite the fact that CNM is not as well served by transit and offers better parking conditions. As was the case with UNM, transit share among faculty and staff is roughly half of what it is for the students themselves.

2.8 UNM Hospitals/Health Sciences Center Staff

Located on north campus, UNMH is the county hospital for Bernalillo County, the regional trauma center, and the teaching hospital for the UNM Medical School (see Figure 15). The main hospital buildings are located in the southeast quadrant of north campus, which has reached build-out conditions. The hospital has already developing new hospital facilities on the west side of campus (e.g., the Cancer Hospital). The Master Plan for HSC calls for continued significant levels of expansion, mostly west of University Blvd.

Figure 15: UNMH Facilities on North Campus

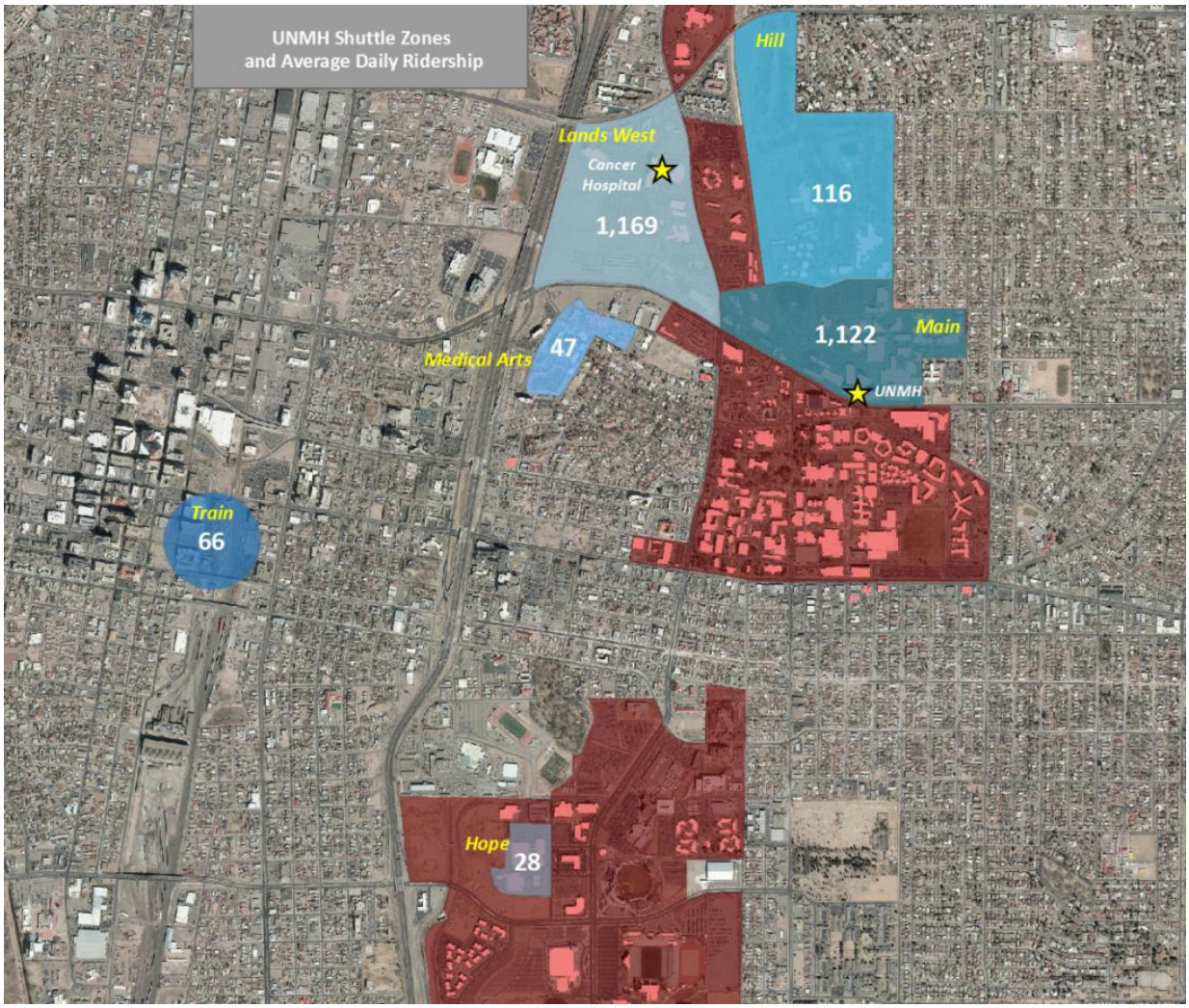


Intra-campus transportation has been a major concern at UNMH. The Master Plan, adopted in 2010, calls for a "linear corridor" or "greenway" across University Blvd that will directly tie the two disparate parts of the UNMH system together. This corridor will also support shuttle services serving staff, patients, and visitors alike. The technology proposed for this shuttle operation (i.e., bus, rail, etc.) is not defined in the Master Plan and has yet to be determined.

UNMH also operates its own shuttle system, handling on average 2,500 trips per day. These buses operate in a demand-responsive mode – there are no predefined scheduled routes. Instead the buses circulate through the parking lots and serve passengers as needed similar to how airport parking shuttles operate. UNMH workers park in assigned lots, sometimes at some distance from their actual work locations. However walking distances are nowhere near as long as they are for UNM Main campus, for example. UNMH shuttles also make runs to the downtown Rail Runner Express station. Figure 16 indicates the locations of UNMH shuttle trip ends. The overwhelming majority are in parking zones surrounding the two main hospital buildings.

The BRT proposal is not envisioned to assume the present functions performed currently by the UNMH shuttles except potentially with respect to transportation by visitors. Currently, about 250 trips per day handled by the shuttles involve transporting hospital visitors arriving at the main hospital on Lomas to the Cancer Hospital. Visitors ultimately destined for the Cancer Hospital would find the BRT a better connection.

Figure 16: Existing UNMH Shuttle Ridership Trip Ends



The ultimate status of shuttle operations on the planned UNMH "linear corridor" is currently unknown. The BRT could certainly connect to it, if it was built, but its existence is not assumed in the analysis presented here.

There are 6,200 jobs at UNMH. All of them are located on north campus and 85% of them are full time jobs. Assuming attendance rates of 85% for full time jobs and 50% for part-time jobs, there are therefore 5,000 workers commuting to UNMH daily, or roughly 9,900 trips.

Information on commuting modes and other associated characteristics associated with UNMH workers is not available. UNMH staff did not participate in the internet surveys conducted in 2010.

The onboard survey, however, indicated current transit ridership among UNMH workers of 290 trips daily (i.e., 145 workers making round trips) for an estimated transit share of 2.9%. The great majority (72%) of these commuters indicate that they commute by bus because they do not have a vehicle available to drive to work. This is primarily a transit dependent market segment.

Table 18: Vehicle Availability for UNMH Staff Work Trips on Transit

	Origins	Destinations	Total	Pct
UNMH				
...No	141	67	208	72%
...Yes	30	49	79	28%
			287	

Table 19: Vehicle Availability for Medical Trips to UNMH on Transit

	Origins	Destinations	Total	Pct
None: No vehicles owned	152	165	317	60%
None: Vehicles not available	42	76	118	22%
Yes	59	32	90	17%
Total	253	273	526	100%

"Origins" are all trips that originate in the study area
"Destinations are all trips that are destined for the study area

The UNMH main hospital, on Lomas, is served by two local ABQ RIDE routes – Route 5 and Route 11 as well as a Rapid Ride route (790) from the far Northwest Mesa. The locals provide fairly frequent service – each operating at 20-25 minute headways all day long from the Lomas and Montgomery Blvd corridors.

An estimated 2,000 UNMH jobs, however, are located at the Cancer Hospital (and other associated buildings) in the western parts of North Campus along University Blvd. These jobs are currently inaccessible to transit except by very long walks from Lomas (close to ½ mile). BRT can potentially improve access to UNMH by providing direct connections to health facilities along University Blvd from ABQ RIDE routes operating on Central, Lomas, and Menaul. BRT would also provide additional transit choices to the main hospital.

2.9 UNM Hospitals/Health Sciences Center Visitation

In addition to the commuter market segment at UNMH/HSC, another significant ridership segment is visitation. Based on statistics maintained by the Health Sciences Center, there were 668,000 patients and visitors in 2008, leading us to estimate an average daily visitation of 2,200 people daily.

The onboard survey indicates roughly 526 trips at UNMH, so existing transit mode share is 11.9% -- a surprisingly high level of bus access. Transit riders travelling to UNMH for medical purposes are largely transit dependent – 82% of them report that no vehicle was available to

them to make that trip. UNMH is the county's public hospital, and therefore provides medical services to everybody regardless of socioeconomic status.

Routes ridden to access UNMH are shown in Table 20. Routes 5 and 11 both stand out as the primary access route used by UNMH visitors – not surprising since these are the two Lomas routes that stop immediately in front of the main hospital. As was mentioned earlier, UNMH provides shuttle services to other hospital buildings for patients and visitors disembarking on Lomas (reportedly, about 250 per day). BRT can also potentially serve these passengers if they were to choose to travel to these other hospital facilities directly.

Table 20: Routes Used for UNMH Medical Trips

	Origins	Destinations	Total	Pct
005 - Montgomery	25	53	78	15%
008 - Menaul	0	7	7	1%
010 - North 4th	29	8	37	7%
011 - Lomas	108	140	248	47%
040 - D Ride	9	0	9	2%
051 - Atrisco-Rio Bravo	7	4	11	2%
053 - Isleta	0	6	6	1%
066 - Central Avenue	34	12	46	9%
097 - Zuni	5	0	5	1%
140/141 - San Mateo Blvd	0	17	17	3%
766 - Rapid Ride	16	0	16	3%
777 - Rapid Ride	14	16	30	6%
790 - Rapid Ride Blue Line	0	15	15	3%
Total	247	276	523	1
From Lomas			341	65%
From Central			92	18%

Surprisingly, 18% of UNMH visitors report using one of ABQ RIDE's Central Ave routes (66, 766, 777) to access the hospital. These routes all involve a significant walking distance, and so the BRT proposal could potentially serve these passengers as well.

2.10 Commutes to Non-Campus Jobs

Another market segment potentially served by BRT includes commuting travel to other job locations within the study area, not necessarily affiliated with the universities. Table 21 reports total commuting traffic onboard ABQ RIDE buses in the study area. In addition the 1,100 commuting trips on transit to jobs at UNM, UNMH, and CNM (already discussed earlier), another 560 transit trips are destined to other work locations. The most prominent single job location served by transit is in the Sunport area (for our purposes here, we are referring to the entire study area south of Gibson as the "Sunport" area). The balance of trips to "other" locations is dispersed among other job locations – mostly along Central and Menaul.

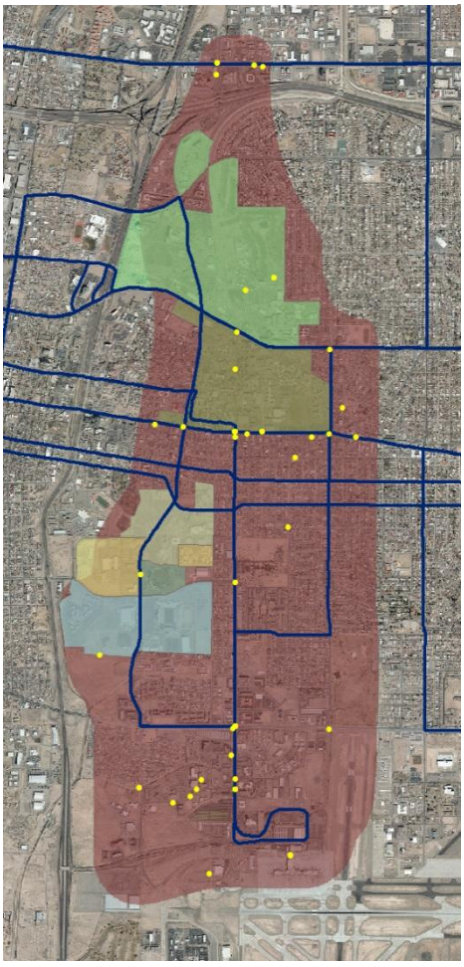
Table 21: Work Trip Destinations in the Study Area

	Origins	Destinations	Total	Pct
UNM	299	351	650	39%
UNMH	171	116	287	17%
CNM	95	46	141	9%
Sunport	115	91	206	13%
Other	158	203	361	22%
Total	838	807	1,645	100%

Note: "Sunport" includes entire study area south of Gibson

The locations of all work trip ends currently on transit and reported in the onboard survey is shown in Figure 17. There are a small number of transit trips to job locations on the university campuses that are not specifically related to the universities, for example to the Indian Health Center or the New Mexico Law Center. There are currently very few trips on transit to the UNM Science and Tech Park on south campus.

Figure 17: Existing Transit Work Trip Ends



Overall, there are 11,600 daily commute trips to non-campus related jobs. This estimate is based on commuting rates coming from the MRCOG travel demand forecasting model in relation to job estimates in the Info-USA business inventory. Existing transit share for commuting to these jobs is 2.4%, obviously much lower than recorded at the university institutions themselves. A breakdown is shown in Table 22.

Table 22: Existing Transit Shares for Non-Campus Commuting

	Sunport	Other	Total
Total Riders, Onboard Survey	206	361	567
Workers Using Transit (50%)	103	181	284
Total Jobs	7,230	7,225	14,455
Total Commutes to Jobs	5,994	5,620	11,614
Mode Share	1.7%	3.2%	2.4%

Note: Sunport includes 3 TAZs south of Gibson within the study area

Transit shares to "other" job locations (3.2%) are almost twice as high as to jobs in the Sunport area. One reason is because many of these jobs are along Central which already enjoys a superior level of transit service compared with the Sunport area. Another reason is that these are more likely lower-paying retail and part-time jobs – more likely to attract transit ridership than the office and professional jobs around the airport. Finally, parking is quite limited in the Central corridor, currently served by short term metered parking, customer only parking, and residential permits on adjacent streets.

The proposed BRT alignment does provide access to a number of these jobs, particularly those in the general Sunport area. Access to the Sunport area will be improved through the provision of much higher frequency service than is currently available from ABQ RIDE's existing Route 50 (30 minute headways).

2.11 Home-Based Travel

There are approximately 8,800 households residing within the study area[3], and they too comprise a viable market segment that may be attracted to the BRT proposal. Currently, there are about 1,900 daily rides on ABQ RIDE associated with this market segment. A breakdown of the various trip purposes (again, from the onboard survey) associated with home-based travel is shown in Table 23.

Table 23: Home-Based Trip Purposes for ABQ RIDE Riders

	Origins	Destinations	Total	Pct
College/Univ	19	32	51	3%
Home (Other)	111	128	239	12%
Medical	52	92	144	7%
Other	174	87	261	13%
Recreation	24	59	83	4%
Restaurant	21	13	34	2%
Retail	86	148	234	12%
School/DayCare	63	100	163	8%
Work	232	491	723	37%
Total	781	1,149	1,930	100%

This tabulation includes all responses that claimed "Home" as an origin or a destination.

The most prominent trip purpose reported by local resident transit riders is for commuting to and from work (37%). Otherwise, trips are fairly well dispersed among a number of other trip purposes.

As seen in Table 24, existing local residents using transit tend to be transit dependent. 80% of them report no vehicle available to make the trip they are taking.

[3] This estimate comes from the MRCOG 2015 projection, the closest estimated year currently available

Table 24: Vehicles Available for Trip (Home-Based Trips)

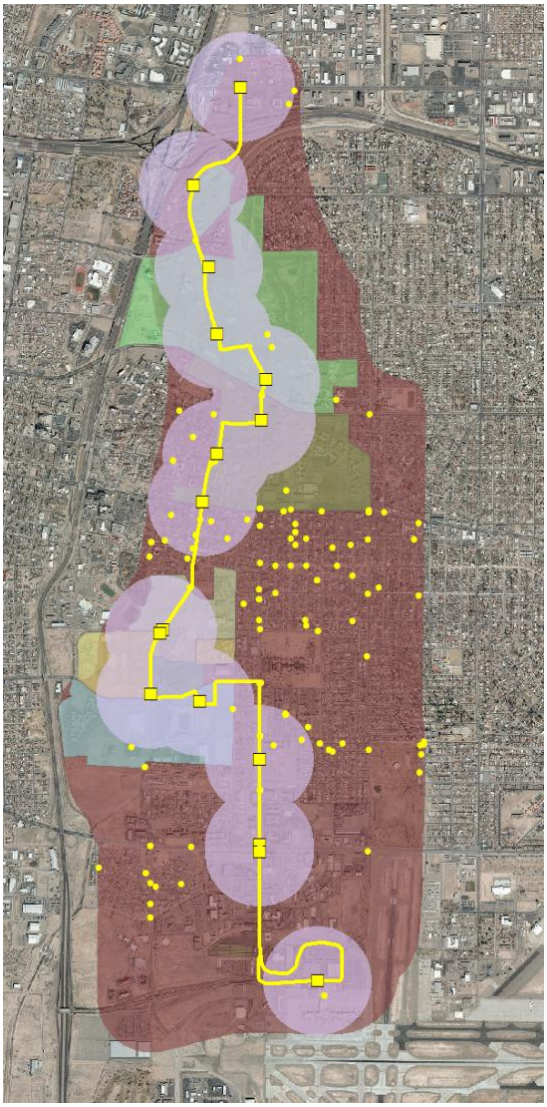
	Origins	Destinations	Total	Pct
None: No vehicles owned	552	644	1,196	62%
None: Vehicles not available	126	224	350	18%
Yes	103	281	384	20%
Total	781	1,149	1,930	100%

"Origins" are all trips that originate in the study area
"Destinations are all trips that are destined for the study area

Figure 18 indicates the locations of all current transit trips that are associated with a local resident's home location. The concentration is in the residential neighborhoods south of the UNM main campus, between Central and Gibson.

Local residents make 43,100 trips per day. This projection is taken, once again, from trip rates in the MRCOG travel demand forecasting model. Overall transit shares, then, are now running at about 4.5%. Transit share for commuting trips is much higher than for other trip purposes – about 6.8% for work trips and 3.7% otherwise. These modal shares are much higher than for the region as a whole, possibly reflecting the socio-economic status of residents in these neighborhoods, as well as the availability of good transit accessibility along Central.

Figure 18: Home Based Transit Trip Ends



3.0 Ridership Potential

In this section we will provide a preliminary estimate of transit ridership potential with respect to each of the key ridership market segments that we have reviewed. The estimate is based on detailed knowledge of the sizes of these existing market segments, the current transit shares and ridership levels associated with them, as well as the underlying travel patterns and indicators of transit potential (e.g., auto availability). Before offering those results, however, it would be useful to enumerate ways in which the BRT proposal could benefit each of the key market segments identified for this report. This comes next.

3.1 BRT Benefits to Market Segments in the Study Area

UNM Students: The UNM Main Campus, where 94% of all UNM students are destined, is already well served by ABQ RIDE services on major arterials around the boundary of the campus, especially the premium routes on Central. While the introduction of a BRT project does dramatically improve access to the main campus, it does provide travel benefits to UNM students in these ways:

- First, and most obviously, the BRT will continue to provide shuttle transportation between the satellite parking lots and the UNM Main Campus, as PATS does now.
- With preferential treatment and separate travelled ways, the BRT will provide somewhat shorter travel times and more reliable service than currently available on PATS.
- The BRT also ties together all of the satellite parking locations with all of the UNM campuses (south, north, and main campus) – something that PATS does not currently do – thereby expanding student's choice in parking lot locations and providing access to all UNM buildings no matter what parking lot is used or what campus the buildings are located on.
- The BRT provides a backbone transportation corridor around which to manage future parking as the University shuts down existing lots to support the "greening" of main campus and to support future expansion of academic infrastructure.
- The BRT will also connect a number of ABQ RIDE routes to the campus, such as Route 8 (Menaul), Route 6 (Indian School), Route 97 (Zuni), Route 222 (Gibson), that currently do not serve UNM directly. Premium routes on Central (766, 777) would now directly serve all UNM campuses, not just the Main campus, via connections to the BRT.
- The BRT can support the introduction of additional premium services from quadrants of the region not currently served, such as the Southwest Mesa and East Mountain. Both existing premium services (e.g., Route 790 from the Northwest Mesa) as well as new proposals are relieved of their responsibilities to circulate throughout the study area to distribute passengers to their final destinations.
- Finally, BRT provides students with an inter-campus transportation route that connects all of the UNM campuses: North, South, and Main. The BRT implements the unifying spine that is envisioned in the UNM Master Plan.

UNM Students in Near Campus Housing: BRT can provide fast, frequent, high quality service from UNM students in near campus housing, including those in private apartment complexes not directly affiliated with the university, directly to all UNM campuses. BRT provides a central

corridor around which UNM can plan future expansion of near campus housing opportunities, either directly through its development arm Lobo Development or through cooperative projects with private developers.

UNM Faculty and Staff: UNM faculty and staff benefit in ways similar to what was described above for UNM students. Unlike the student population, a significant number of faculty and staff work in locations on south campus and north campus – areas that are not now readily reachable via transit. BRT will provide access to these areas from all ABQ RIDE routes entering the study area.

CNM Students, Faculty, and Staff: Transit service to the CNM main campus is poor because it is really too far from Central Avenue and it is difficult and costly to deviate routes bound for UNM to serve CNM as well. BRT solves this problem. Riders aboard all ABQ RIDE routes crossing the study area (on Menaul, Indian School, Lomas, Central, and Gibson) would have direct access to the CNM main campus via connections to the BRT. Other benefits to CNM students include:

- CNM students can take advantage of the "near campus" housing opportunities in private apartment complexes along the BRT alignment that are currently enjoyed by UNM students.
- CNM is presented with an opportunity to join UNM in a coordinated off-site parking management program at such time in the future when existing lots are displaced by the need for additional space to support academic building expansion on main campus.

UNMH Hospital Staff: The UNMH main hospital buildings on North Campus are already well served by ABQ RIDE routes operating on Lomas, but the new hospital buildings at the far west side of the campus are poorly served and require walking distances of nearly one-half mile from the nearest stop. BRT will provide access to these new health complex expansion areas. BRT also will dramatically increase the palette of route options available to potential transit riders – all of ABQ RIDE routes entering the study area will find it easy to access any of the hospital buildings on North Campus. BRT will not, in the way currently envisioned, eliminate the need for shuttle service between hospital buildings.

UNMH Visitors: A significant number of UNMH patients and visitors are transit dependent. As mentioned above with respect to the hospital staff, UNMH patients would benefit from improved access to UNMH facilities with the BRT proposal. They could now access all hospital buildings from premium transit services on Central (of which many do now albeit with long walking distances) and can also directly access health center buildings located in the more remote western expansion area of the complex (for which they now use UNMH shuttles).

Non-Campus Jobs: The BRT provides excellent access to non-campus jobs in the study area, especially along Yale and into the employment center south of Gibson as well as to the airport itself.

Local Residents: The BRT provides several stops along its south Yale alignment that would serve residential neighborhoods south of the University. High frequency service along this alignment could be a vast improvement over existing route 50 (30 minute service) and route 16/18 (50

minute service). These neighborhoods already exhibit higher transit shares despite low service frequencies due to higher proportion of transit dependency.

Special Events: We have not elaborated on this particular market, but readers should be aware that BRT will also provide an excellent mechanism for managing parking for special events. The BRT proposal provides direct access to the major sports facilities on south campus, including Isotopes Park (seating capacity: 13,280), The Pit (14,830), and University Stadium (39,200). In addition to local and student access from on-campus housing, the BRT can play a major role for opening up satellite lots to attendees as PATS currently does for Popejoy Hall today. Together, events are scheduled for one of these venues a total of 116 days over the course of a calendar year (roughly, twice a week).

3.2 Daily Ridership Potential for BRT

There are two sources of ridership for BRT: (1) existing transit ridership currently onboard ABQ RIDE and PATS buses operating in the study area that will take advantage of the new service and (2) new ridership forthcoming from increases in existing transit modal shares achieved through the overall improvement in service and increased access to destinations not currently served.

Table 25: Daily BRT Ridership Potential for Opening Day

Market	Submarket	Existing Transit	Captured by BRT	New Additional BRT Trips	BRT Total
UNM					
	Students	3,820	140	380	520
	.....Near Campus	2,050	2,050	2,450	4,500
	Faculty & Staff	650	30	500	530
	Campus Population				
	.....Remote Parking	7,000	7,000	0	7,000
	.....IntraCampus	400	100	400	500
CNM	Students	1,990	1,700	400	2,100
	Faculty & Staff	140	120	30	150
UNMH	Staff	290	30	150	180
	Visitation	520	310	130	440
Non Campus Jobs					
	Sunport	200	100	50	150
	Other	360	60	30	90
Local Residential					
	Work Trips	720	260	130	390
	Other Trips	1,210	500	250	750
Special Events					
	University Stadium	*TBD*	*TBD*	*TBD*	*TBD*
	University Arena (Pit)	*TBD*	*TBD*	*TBD*	*TBD*
	Isotopes Park	*TBD*	*TBD*	*TBD*	*TBD*
Totals		19,350	12,400	4,900	17,300

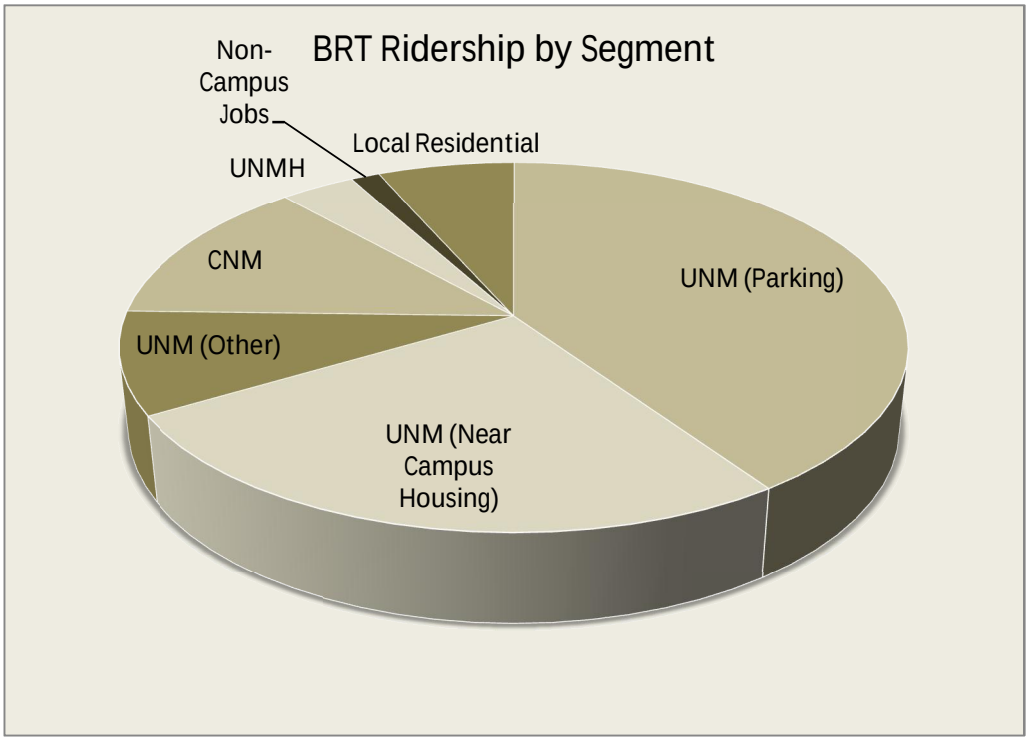
Some of the assumptions associated with this estimate of ridership potential:

- All ridership estimates are for the "current year": i.e., 2013. Assumes schools are in session.
- It is assumed that a significant portion of existing PATS services will be subsumed by the BRT
- Frequent BRT service: 5 minute headways through much of the day
- Existing ABQ RIDE routes are all assumed to remain as is with the possible exception of the portion of Route 16/18 that currently operates along University Blvd.
- No expansion in existing "near campus" housing capacity for UNM students, however assumes 50% occupancy by UNM students in apartment complexes along the BRT alignment. Also assumes some alterations in station locations in the preferred BRT option to better serve this market segment.

As seen in Table 25, a potential for 17,300 daily riders on BRT is estimated for times when both UNM and CNM are in session. About 12,400 of these riders already exist today – they are on existing routes serving the area (particularly, PATS). An additional 4,900 riders will be induced through increased ridership in the study area.

The most prominent ridership market segment will obviously be UNM students parking in remote lots, as it is today on PATS, accounting for about 40% of BRT ridership. But this by no means is the only source of ridership. Other strong market segments will consist of UNM students commuting from near-campus housing locations (26%) as well as CNM students and population (13%) who will enjoy significantly better access to campus.

Figure 19: BRT Ridership By Segment



This completes the profile of ridership potential for the BRT. In the next phase of study, more detailed analysis relying on the MRCOG travel demand model may supply more refined estimates of ridership potential. The projection will likely address future year outlook as well. Potential modifications to the background transit system and new regional route proposals will be included in that analysis. Parking management plans in support of the preferred BRT option will also likely be explored.