ATOMIC CITY TRANSIT
SHORT-RANGE TRANSIT PLAN - 2023 Update

Final Report

Prepared for
Atomic City Transit

Prepared by
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Short-Range Transit Plan
2023 Update

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Prepared for the

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Chapter 1
INTRODUCTION

Located on the scenic Pajarito Plateau in northern New Mexico and less than 45 minutes from the state capital Santa Fe, Los Alamos County is home to two census-designated communities: the Town of Los Alamos and the nearby suburb of White Rock (Figure 1). Both communities were initially established to provide homes to the staff of the Los Alamos National Laboratory, a renowned scientific facility famous for its historical significance as being part of the Manhattan Project during World War II. There are also residents who live in the more remote regions of Los Alamos County outside of the two census-designated communities.

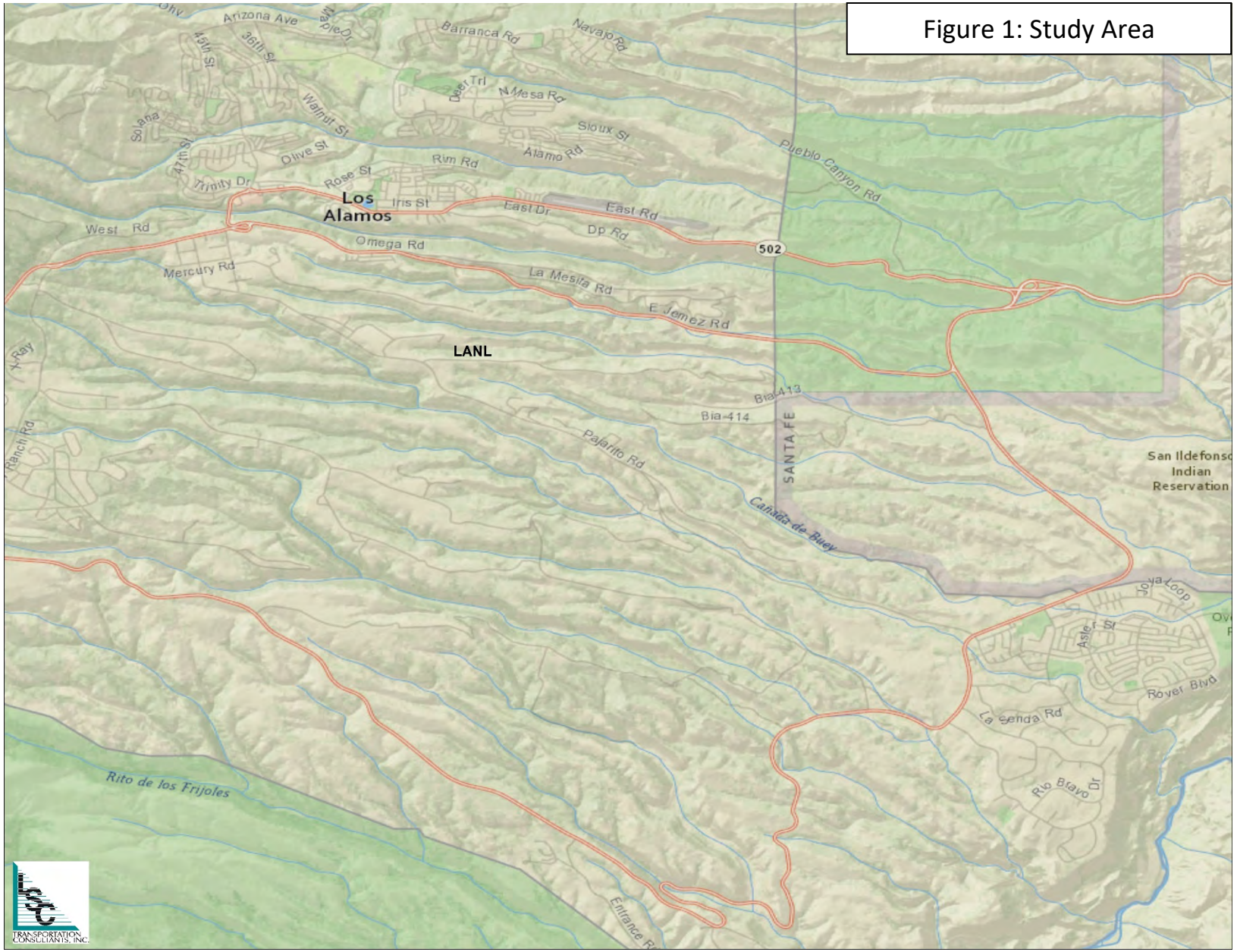
Los Alamos County is served by Atomic City Transit (ACT) which provides fixed route, demand response, and paratransit services in Los Alamos and White Rock and seasonal transit service to the nearby Bandelier National Monument. This public transit agency is operated by Los Alamos County.

Aware of the importance of transportation issues, Los Alamos County has retained LSC Transportation Consultants, Inc., to prepare a 2023 Short-Range Transit Plan for ACT that will span the next five years. This study provides an opportunity to develop a plan that will tailor transit services to current and near-term future conditions in the study area.

The Short-Range Transit Plan presents the setting for transportation in Los Alamos County, including demographic factors, the recent operating history of public transit services, information on connecting services, the evaluation of service alternatives, capital alternatives, funding alternatives, and institutional alternatives, ultimately presenting a recommended course of action over the next five years.

The overall study affords the leaders and transportation providers of Los Alamos County the chance to take an in-depth look at the transit systems currently in place, identify the optimal manner in which transit can meet the public's needs within Los Alamos County, and carefully identify where transit resources should be devoted over the plan period. In the end, the study will provide a "business plan," based on public input, which can guide the regional transit program to best meet mobility needs utilizing available resources.

Figure 1: Study Area



Chapter 2
COMMUNITY CONDITIONS

DEMOGRAPHIC CHARACTERISTICS

The population of Los Alamos County was 18,976 in 2020 according to the US Census American Community Survey (Table 1). Below is a detailed discussion about characteristics of the Los Alamos County population that influence transit demand and travel patterns.

Transit Dependent Population

Certain segments of the population tend to have a greater need for public transit: Youth, senior adults, persons with disabilities, low-income individuals, and households with no available vehicles. These transit dependent groups are not exclusive from each other. Table 1 presents the most recent data available estimating the amount of potentially transit dependent individuals within each Los Alamos County block group, as well as the relative concentrations of these persons compared to the overall population in the block group.

Youth Population

Children between the ages of 5 and 17 typically do not have a driver's license and therefore may be dependent on public transportation to get around. Los Alamos is rather unique in that a large number of youths use the public transit system regularly as it is perceived as safe and convenient for after-school transportation. As shown in Table 1, the eastern portion of White Rock (Census Tract 5 BG 2) has the highest number of youths (345), followed by Census Tract 2 BG 4 in northwest Los Alamos.

Older Adult Population

Accessible transportation services are critical in helping older adults live independently. In the context of this study, seniors are considered to be adults ages 65 and older. Census Tract 2 BG 3 in southwest Los Alamos is home to the greatest number of seniors (398) when compared to other block groups. Other block groups home to high numbers of seniors include Census Tract 2 BG 4 (362) in northwest Los Alamos and Census Tract 5 BG 4 in the southern area of Los Alamos County (290).

Population with Disabilities

Public transit is an excellent mobility option for many disabled persons who may be unable to drive themselves because of a physical or cognitive constraint. According to the 2020 American Community Survey (ACS), only 8.5 percent of the Los Alamos County population had a disability. This is less than the statewide percentage of 10.9 percent. There are greater concentrations of persons with disabilities living in the central eastern region of Los Alamos and eastern White Rock.

Table 1: Los Alamos County Population Characteristics by Census Tract

Census Tract	Census Block Group	Area Description	Total Population	Total Households	Youth (Ages 5 - 17)		Senior Adults (Ages 65+)		Low Income		Disabled Persons		Zero Vehicle Households	
					#	%	#	%	#	%	#	%	#	%
1	1	Santa Fe National Forest; Northeast Los Alamos County	1,212	490	253	20.9%	272	22.4%	30	2.5%	98	8.1%	0	0.0%
1	2	Los Alamos - Northeast	861	353	145	16.8%	188	21.8%	0	0.0%	70	8.1%	17	4.8%
1	3	Los Alamos - Central East	1,809	693	266	14.7%	273	15.1%	102	5.6%	147	8.1%	7	1.0%
2	1	Los Alamos - Central West	1,071	494	279	26.1%	32	3.0%	68	6.3%	85	7.9%	10	2.0%
2	2	Los Alamos - North	1,195	364	289	24.2%	208	17.4%	31	2.6%	94	7.9%	0	0.0%
2	3	Los Alamos - Southwest	1,537	687	161	10.5%	398	25.9%	0	0.0%	121	7.9%	12	1.7%
2	4	Sante Fe National Forest; Northwest Los Alamos County	1,569	688	312	19.9%	362	23.1%	57	3.6%	124	7.9%	0	0.0%
4	1	Los Alamos - Southeast	731	401	60	8.2%	155	21.2%	0	0.0%	63	8.6%	0	0.0%
4	2	Los Alamos - Central	1,000	488	186	18.6%	80	8.0%	10	1.0%	86	8.6%	1	0.2%
4	3	Los Alamos National Laboratory	768	427	33	4.3%	169	22.0%	20	2.6%	66	8.6%	0	0.0%
4	4	Los Alamos - Central South	1,326	729	77	5.8%	188	14.2%	133	10.0%	114	8.6%	0	0.0%
5	1	White Rock - Northern Region	527	244	43	8.2%	59	11.2%	26	4.9%	48	9.1%	0	0.0%
5	2	White Rock - Central East	875	327	246	28.1%	126	14.4%	0	0.0%	80	9.1%	0	0.0%
5	3	White Rock - East	1,505	446	345	22.9%	224	14.9%	65	4.3%	137	9.1%	0	0.0%
5	4	South of NM State Road 4	763	325	20	2.6%	290	38.0%	7	0.9%	69	9.1%	0	0.0%
5	5	White Rock - West	945	292	264	27.9%	151	16.0%	0	0.0%	86	9.1%	0	0.0%
5	6	White Rock - Central West	1,282	445	282	22.0%	172	13.4%	35	2.7%	117	9.1%	18	4.0%
		Total County	18,976	7,893	3,261	17.2%	3,347	17.6%	584	3.1%	1,604	8.5%	65	0.8%

Source: US Census American Community Survey, 2020

Low-Income Population

Only about 3.1 percent of the Los Alamos County population was reported to be living below the poverty level in the 2020 American Community Survey. This equates to only 584 people across the whole county. Some of the block groups actually had no one considered low-income living in the area; for instance, Census Tract 1 BG 2 in northeast Los Alamos, Census Tract 2 BG 3 in southwest Los Alamos, and Census Tract 5 BG 2 in central White Rock all have no low-income population (Table 1).

Zero-Vehicle Households

Households without a vehicle available, or zero-vehicle households, are perhaps the most obvious group considered part of the overall transit dependent population. For people within these homes, public transit is likely one of the most predictable options available for motorized travel. According to the 2020 ACS, less than one percent of Los Alamos County households do not have a car, or 65 households across the county. Many of the county's zero-vehicle households are located in either northeast Los Alamos or the central western region of White Rock.

COMMUNITY ECONOMIC CHARACTERISTICS

Commuting to/from work is a common reason why many people use public transit. This section reviews major employers in Los Alamos County and commuting characteristics of the area's population.

Major Employers

Los Alamos National Laboratory

The Los Alamos National Laboratory (LANL) is by far the largest employer in Los Alamos. LANL was originally established by the US Department of Energy during World War II to research and design nuclear weapons as part of the Manhattan Project. The community of Los Alamos sprang up around the lab property to provide homes and schools for lab employees and their families. Today, LANL employs approximately 12,000 employees and is anticipating hiring an additional 2,000 to 2,500 employees in upcoming years. Roughly 60 percent of employees commute from outside of Los Alamos County to LANL. This influx of commuters has created a parking shortage and traffic congestion.

In 2021, LANL partnered with the North Central Regional Transportation District (NCRTD) and New Mexico Department of Transportation (NMDOT) to prepare the *LANL Transit Services Option Analysis*. The impetus for the study was to reduce traffic congestion and parking shortage problems at LANL as the lab continues to grow. The following elements were discussed in the analysis:

- Increasing transit options for employees getting to LANL through expanded NMDOT and NCRTD routes and Park and Ride lots.
- Expansion of the transit center at the current location, including more bus bays and an actuated left turn signal for bus priority.
- Creation of a transit center in White Rock and eliminating ACT stops in White Rock neighborhoods.

- Changes to ACT routes: streamline service from Barranca Mesa and North Mesa to allow for a shorter travel time to the lab. Greater frequency on the Downtown Circulator.
- Additional on-site transit shuttle options so employees would not need vehicles once at work.
- Implementing a long-distance shuttle with on-board badge check so that employees could take a direct trip from a Park and Ride lot outside Los Alamos County to their work site on lab property.

Other Employers

Other large employers in Los Alamos include the following, all of which are served by public transit:

- Los Alamos County
- School District
- Los Alamos Medical Center

Table 2 presents Los Alamos employment categorized by different sectors such as Professional, Retail, and Construction. As shown, over half of those employed in Los Alamos County represent jobs in the "Professional, scientific, management and administrative and waste management services." This category covers employment at LANL. "Educational services and health care" is the next largest sector of employment in Los Alamos. As shown in Table 3, Los Alamos County has an extremely low unemployment rate of 2.7 percent. This supports the fact that only 3 percent of the county population is considered low-income (Table 1).

Means of Transportation to Work

Table 4 presents how employees travel to work, information that is useful in assessing a community's propensity to ride the bus to work. In Los Alamos, roughly 2.4 percent of employed residents took public transit to work. This is higher than the statewide average of 0.5 percent. An additional 3.5 percent walk to work and another 3.5 percent bike to work. Even after the increase in telecommuting during the pandemic, only 6.2 percent work from home.

Travel Time to Work

How long it takes Los Alamos County employees to get to work is important. A long travel time (60 minutes or more) that has a public transit option may encourage more commuting by bus, particularly if there are parking restrictions. A short travel time (less than 10 minutes) could also encourage public transit ridership if the trip is conveniently served by a bus.

Figure 2 presents travel time to work for employed residents of Los Alamos County. The majority of employed residents have a commute time of less than 25 minutes, with 14.4 percent of employed residents having a commute less than 10 minutes. Very few employed residents (1.5 percent) commute 60 minutes or more. The mean travel time to work is 16.5 minutes.

Table 2: Los Alamos Employment by Sector

Industry	# of Workers	Percent
Professional, scientific, and management, and administrative and waste management services	3,987	55.6
Educational services, and health care and social assistance	827	11.5
Arts, entertainment, and recreation, and accomodation and food services	701	9.8
Public administration	449	6.3
Other services, except public administration	272	3.8
Retail trade	211	2.9
Construction	209	2.9
Information	132	1.8
Manufacturing	121	1.7
Transportation and warehousing, and utilities	98	1.4
Agriculture, forestry, fishing and hunting, and mining	76	1.1
Finance and insurance, and real estate and rental and leasing	73	1.0
Wholesale trade	21	0.3
Total Employed	7,177	100

Source: US Census Bureau, 2020

Table 3: Community Employment Statistics

	Estimate	Percent
Population 16 Years and Over	10,603	
In Labor Force	7,410	69.9
Civilian Labor Force	7,375	69.6
Employed	7,177	67.7
Unemployed	198	1.9
Armed Forces	35	0.3
Not in Labor Force	3,193	2.9
Unemployment Rate		2.7

Source: US Census Bureau, 2020

Figure 2: Los Alamos County Employed Residents Travel Time to Work

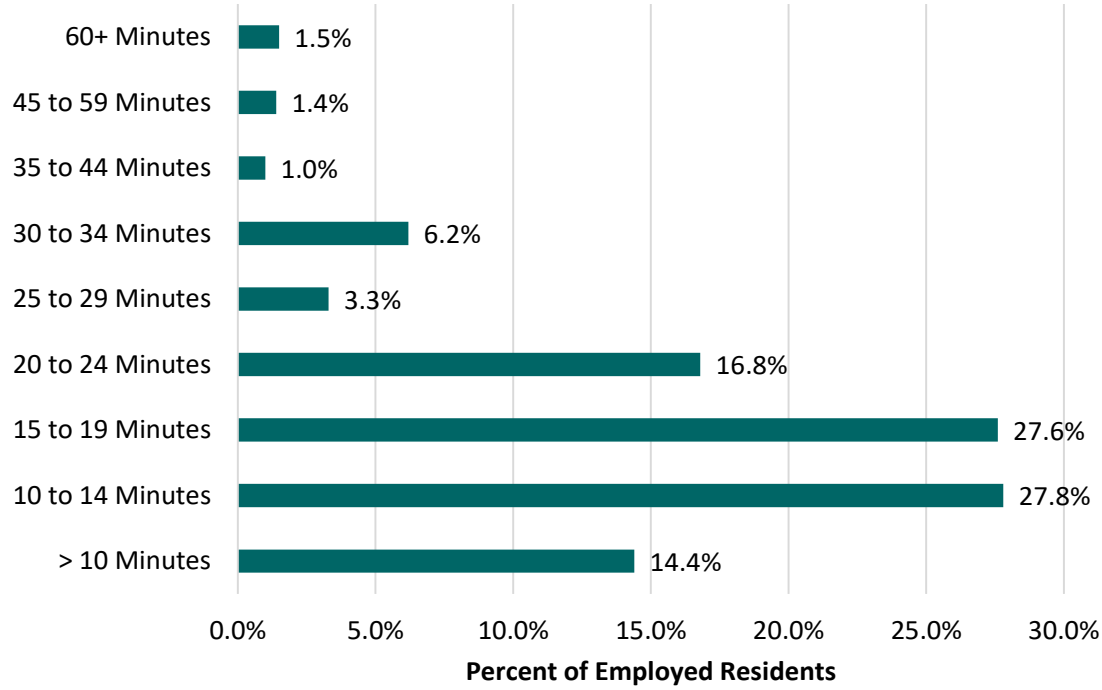


Table 4: Modes of Transportation for Commuting

Mode	# of Workers	Percent
Drive Alone	5,407	75.5
Carpool	573	8.0
Public Transportation	172	2.4
Walk	250	3.5
Bicyle	250	3.5
Taxi	65	0.9
Work from Home	444	6.2
Total Employed	7,161	100

Note 1: Statistics are for workers 16 years and older.
Note 2: Public transportation excludes taxi cabs.
Source: US Census Bureau, 2020

Time of Day Workers Commute

According to the US Census Bureau's 2020 American Community Survey, most Los Alamos County employed residents leave their house for work between 6:30 AM and 8:30 AM with the largest proportion of employed residents beginning their commute around 7:30 AM.

Commute Patterns

The US Census Longitudinal Employer Household Dynamics data represents the best source of data detailing where people work and live. Unfortunately, sometimes the data can be misleading, particularly with respect to employees who work from home. LEHD data tends to show a large number of employees working far from where they live, yet these workers are likely telecommuting either all or most of the time. Regardless, this data source provides a good overview of commute patterns.

As shown in Table 5, 77 percent of jobs held by residents of Los Alamos County are within Los Alamos County. A fair number of Los Alamos County residents commute to jobs in the City of Albuquerque (776) and the City of Santa Fe (405 jobs). The lower half of Table 5 shows that more employees commute into the county than out of the county. Of the 15,781 jobs within Los Alamos County, county residents hold roughly 48 percent. Another 22 percent of jobs or 3,466 jobs, are held by residents of Santa Fe County. Approximately 1,349 jobs are held by residents of Rio Arriba County, which is just north of Los Alamos, and another 1,182 jobs are held by residents of Bernalillo County (which includes the City of Albuquerque). Table 5 also shows that 14 percent of Los Alamos County jobs are held by employees who commute within the county from White Rock.

Table 5: Los Alamos County Local and Regional Commute Patterns, 2019

Where Los Alamos County Residents Work and Commute to

Counties	# of Jobs	% of Total	Cities/Towns	# of Jobs	% of Total
Los Alamos County, NM	7,577	77%	Los Alamos CDP, NM	2,682	27%
Bernalillo County, NM	918	9%	Albuquerque city, NM	776	8%
Santa Fe County, NM	552	6%	Santa Fe city, NM	405	4%
Taos County, NM	148	2%	White Rock CDP, NM	164	2%
Rio Arriba County, NM	112	1%	Española city, NM	74	1%
Sandoval County, NM	96	1%	Taos town, NM	61	1%
Doña Ana County, NM	57	1%	Rio Rancho city, NM	44	0%
San Miguel County, NM	35	0%	Las Cruces city, NM	43	0%
San Juan County, NM	28	0%	Las Vegas city, NM	27	0%
Valencia County, NM	21	0%	Farmington city, NM	21	0%
All Other Locations	292	3%	All Other Locations	5,539	56%
Total Job Primary Jobs	**9,836**		**Total Job Primary Jobs**	**9,836**	

Where Workers Live and Commute From Who are Employed in Los Alamos County

Counties	# of Jobs	% of Total	Cities/Towns	# of Jobs	% of Total
Los Alamos County, NM	7,577	48.0%	Los Alamos CDP, NM	5,341	34%
Santa Fe County, NM	3,466	22.0%	White Rock CDP, NM	2,144	14%
Rio Arriba County, NM	1,349	8.5%	Santa Fe city, NM	1,695	11%
Bernalillo County, NM	1,182	7.5%	Albuquerque city, NM	961	6%
Sandoval County, NM	936	5.9%	Española city, NM	540	3%
Taos County, NM	152	1.0%	Rio Rancho city, NM	538	3%
Doña Ana County, NM	137	0.9%	Nambe CDP, NM	168	1%
Valencia County, NM	126	0.8%	Pojoaque CDP, NM	157	1%
San Miguel County, NM	68	0.4%	La Mesilla CDP, NM	132	1%
Chaves County, NM	52	0.3%	Chimayo CDP, NM	119	1%
All Other Locations	736	4.7%	All Other Locations	3,986	25%
Total Primary Jobs	**15,781**		**Total Primary Jobs**	**15,781**	

Source: LEHD, US Census 2019

Chapter 3

EXISTING SERVICE EVALUATION

INTRODUCTION

This section provides a brief summary of the various transportation providers in Los Alamos County in order to better evaluate the transportation resources available both in and around the study area. Existing services include:

- Atomic City Transit
- North Central Regional Transit District (NCRTD)
- New Mexico Department of Transportation (NMDOT) Park and Ride service
- Los Alamos National Laboratory (LANL) Taxi

ATOMIC CITY TRANSIT

Atomic City Transit (ACT) is operated by the Public Works Department of the incorporated County of Los Alamos. ACT provides fixed route and demand response transportation to neighborhoods and businesses in the communities of Los Alamos and White Rock. As shown in Figures 3, most of the fixed routes begin/end at the transit center located adjacent to the guard station at the Los Alamos National Laboratory (LANL) on W. Jemez Road (the express routes and Bandelier Shuttle follow different schedules). Fixed routes are designed to meet at the transit center at 30-and 60-minute headways. At the transit center, passengers traveling out of the county can catch one of the NMDOT Park and Ride buses to Espanola or Santa Fe, while LANL staff can take the LANL Taxi to the various lab office buildings.

The transit center is located on LANL property. As discussed further in the Capital Facilities section, this limits ACT from being able to improve or expand the transit center. Vehicle maintenance services are provided by the Fleet Division of the Public Works Department. The administrative staff consists of a Transit Manager, a Management Analyst, a Senior Office Specialist and two Customer Service Representatives (Figure 6). Operations staff is headed up by two Transit Supervisors. There are then three Lead Transit Operators in addition to the 23 other Transit Operators. During the seasonal Bandelier service, an additional four Transit Operator positions are filled.

Fixed Route Services

ACT fixed route services can be considered in three categories: fixed routes, express routes, and the Bandelier service. A map of the fixed routes system is shown in Figure 3, the express routes are shown in Figure 4, and the Bandelier service is shown in Figure 5, while Table 6 summarizes the existing services.

Figure 3: Atomic City Transit Fixed Routes

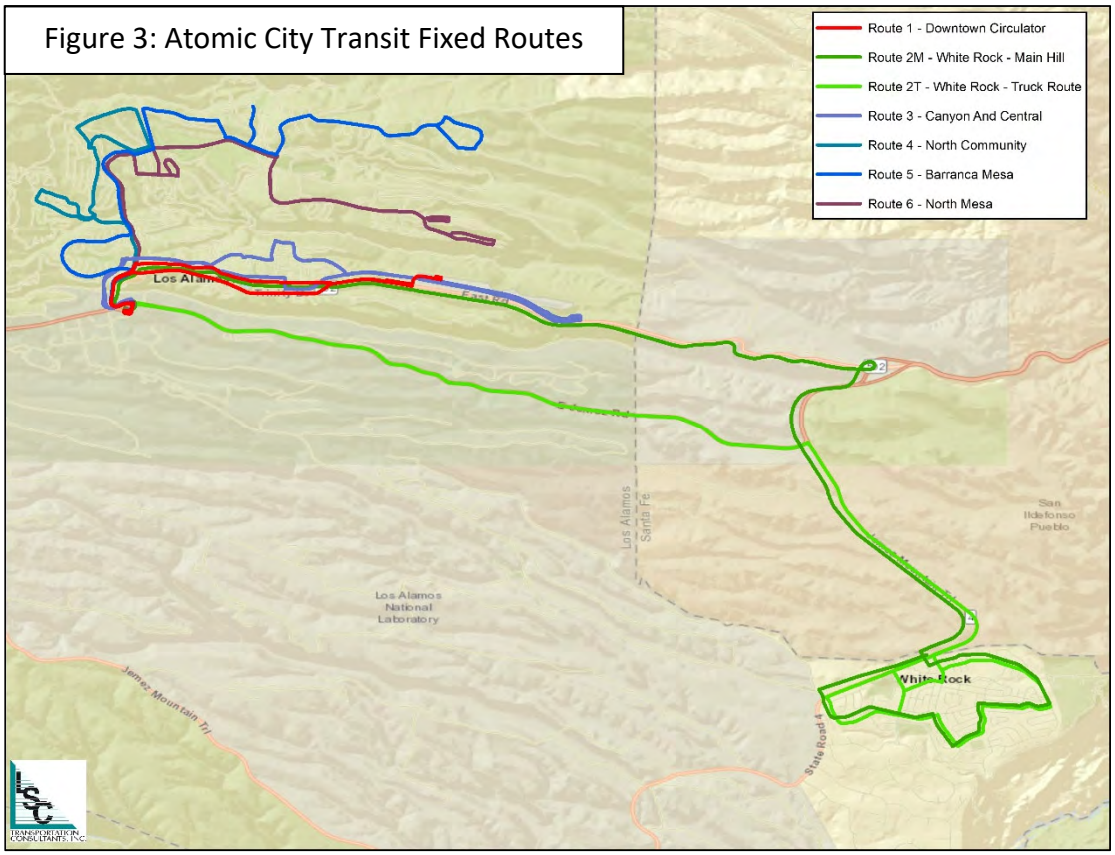


Figure 4: Atomic City Transit Express Routes

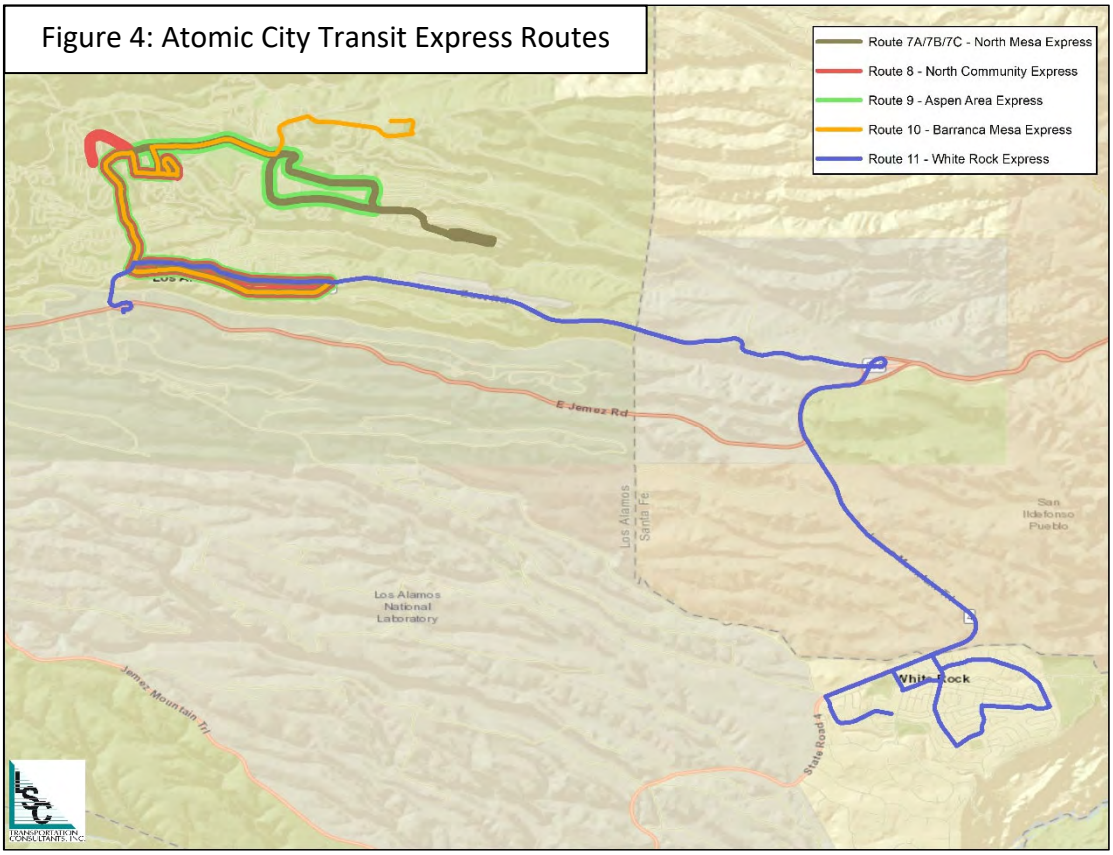


Figure 5: Atomic City Transit Bandelier Shuttle

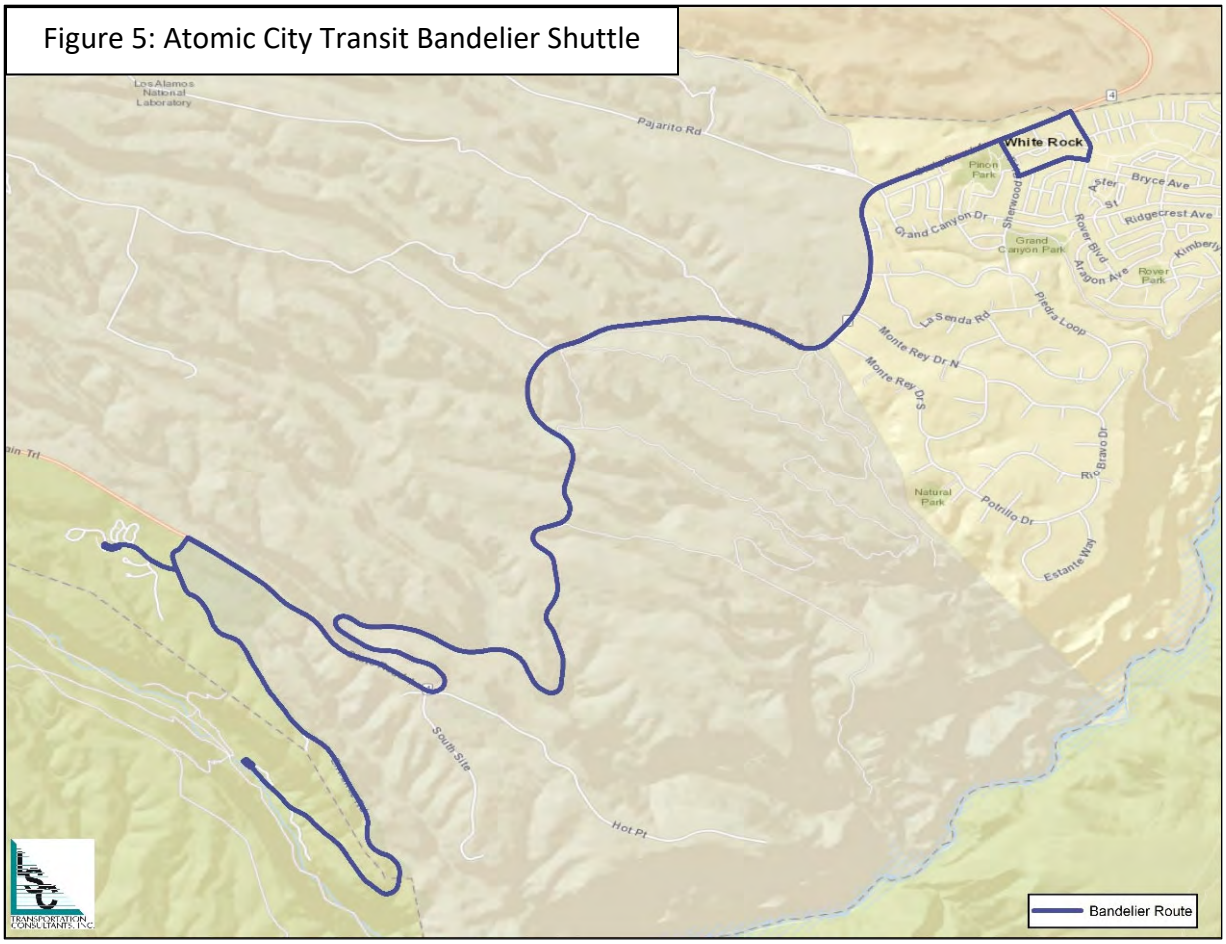
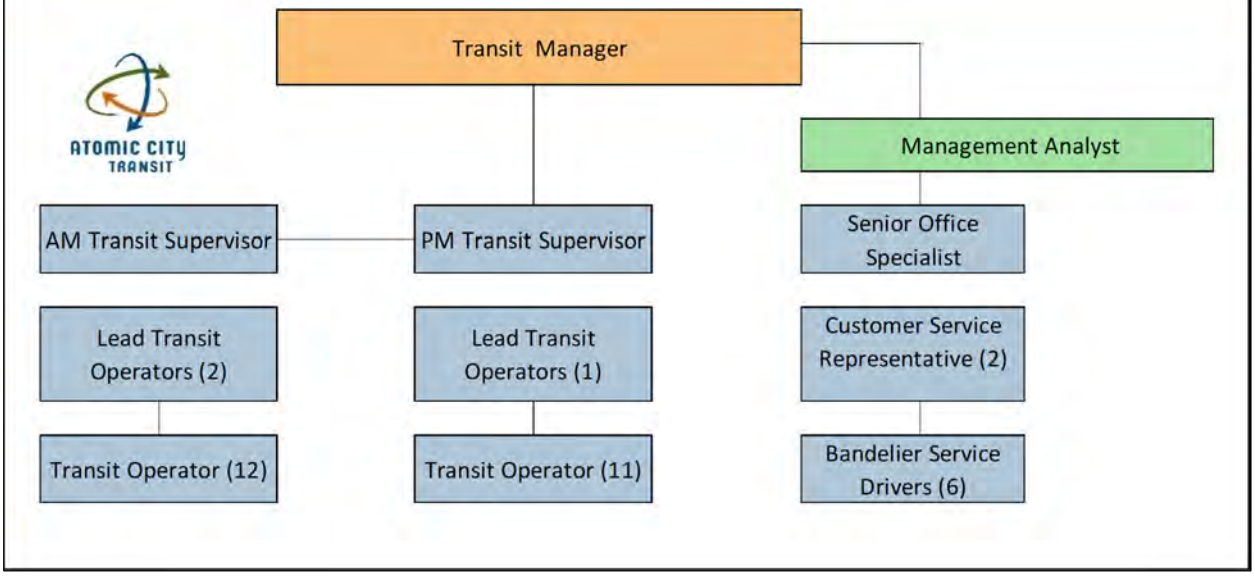


Figure 6: Atomic City Transit Organizational Structure



Fixed Routes

ACT currently operates a total of seven routes throughout each weekday (generally from 6 AM to 7 PM or 7:30 PM):

- Route 1 (Downtown Circulator) is a downtown circulator route connecting the Transit Center at the Main Gate of LANL (TA3) with the Airport via Trinity Drive (eastbound) and Central Avenue (westbound). Service is provided every 30 minutes, with 15-minute service during the lunch period.
- Route 2M (White Rock Via Main Hill) provides hourly service between the Transit Center and White Rock through downtown Los Alamos via State Route (SR) 502 and SR 4, serving a one-way loop through White Rock.
- Route 2T (White Rock Via Truck Route) provides hourly service via the Truck Route (East Jemez Road) and SR 4, with a slightly longer one-way loop in White Rock. Note that, prior to COVID, Route 2P was operated in peak morning and afternoon commute periods, providing half-hourly service.
- Route 3 (Canyon and Central) is a relatively short route along Trinity Drive, Central Avenue (eastbound), and Canyon Road (westbound) between the Transit Center and the Main Gate area, with one bus providing half-hourly service.
- Route 4 (North Community) is also a relatively short 30-minute route connecting the Transit Center with the central residential portion of Los Alamos via Diamond Drive and N Road.
- Route 5 (Barranca Mesa) provides hourly service between the Transit Center and Barranca Mesa on the north end of town.
- Route 6 (North Mesa) serves the North Mesa, with half-hourly service in the morning and afternoon commute periods and hourly service in the remainder of the day.

Starting in 2017, ACT began operating three routes serving the popular Friday evening concerts at Ashley Pond, using a nearby stop at Mesa Library. This service was suspended during 2020 and 2021 due to the COVID-19 pandemic but resumed again in 2022.

Express Routes

The express routes are open to the general public, but represent routes and schedules tailored specifically to school afternoon bell times. One run is operated each school day on the following routes (with a different schedule on Wednesdays and "early out" days):

- Route 7 (North Mesa Express) connects Los Alamos High School, Los Alamos Middle School, and Aspen Elementary School with downtown and North Mesa.
- Route 8 (North Community Express) serves Aspen and Mountain Elementary Schools, providing service to the N Road neighborhood and downtown.
- Route 9 (Aspen Area Express) connects Aspen Elementary School with the downtown area.

Table 6: Summary of ACT Services

Routes		Service Hours: Weekday Service Start	Weekday Service End	Weekday Peak Service Start	Weekday Peak Service End	Service Frequency (Minutes): Weekday Peak	Weekday Off-Peak	Buses in Service: Peak	Buses in Service: Off-Peak	Round-Trip Time (Min)
Route 1	Downtown Circulator	6:15 AM	7:13 PM	11:00 AM	12:58 PM	15	30	2	1	30
Route 2M	White Rock via Main Hill	6:05 AM	7:37 PM	--	--	60	60	1	1	60
Route 2P	White Rock via Truck Route NOT CURRENTLY OPERATED	--	--	6:20 AM 3:16 PM	8:59 AM 5:49 PM	30	--	1	--	60
Route 2T	White Rock via Truck Route	5:55 AM	6:58 PM	--	--	60	60	1	1	60
Route 3	Canyon & Central	6:17 AM	6:59 PM	--	--	30	30	1	1	30
Route 4	North Community	6:18 AM	7:18 PM	--	--	30	35	1	1	30
Route 5	Barranca Mesa	6:05 AM	6:58 PM	--	--	60	60	1	1	60
Route 6	North Mesa	5:50 AM	6:51 PM	6:15 AM 3:05 PM	9:21 AM 6:21 PM	30	60	2	1	60
Route 7 (1)	North Mesa Express	--	--	2:35 PM	3:42 PM	1 Run	--	1	0	72
Route 8 (1)	North Community Express	--	--	3:35 PM	4:01 PM	1 Run	--	Note 3	0	26
Route 9 (1)	Aspen Area Express	--	--	3:35 PM	3:56 PM	1 Run	--	1	0	21
Route 10 (1)	Barranca Mesa Express	--	--	3:35 PM	4:02 PM	1 Run	--	1	0	27
Route 11 (1)	White Rock Express	--	--	3:35 PM	4:15 PM	1 Run	--	1	0	40
Route 12 (2)	Bandelier - Weekdays	9:00 AM	5:26 PM	--	--	30	30	2	2	60
	Bandelier - Weekend/Holidays	9:00 AM	5:36 PM	--	--	20	20	3	3	
				Peak Fixed Route Buses in Operation		School Days		14	7	
						Non-School Days		10	7	
						Summer Days		13	10	
ACT Assist	Throughout Los Alamos County	6:00 AM	9:00 PM	--	--	On-Demand		2	1	30 Min Window

Note 1: Operated on school days only. Different schedule operated on Wednesdays and Early Out school days.

Note 2: Operated summer only.

Note 3: Route 8 operated by ACT Assist van.

- Route 10 (Barranca Mesa Express) serves Barranca Elementary and Aspen Elementary Schools, providing service along Diamond Drive to downtown.
- Route 11 (White Rock Express) serves the Chamisa and Piñon Elementary Schools and connects with neighborhoods in White Rock before traveling into downtown Los Alamos.

Bandelier Service

The Bandelier Shuttle is a summer-only service provided by ACT between mid-May and mid-October using funding from the National Park Service. This service operates between the White Rock Visitors Center and the main entrance to the National Monument. It is an element of the traffic management plan for the National Monument, which also requires visitors to use the bus by prohibiting general public auto access between 9 AM and 3 PM. Service is operated every 30 minutes on weekdays and every 20 minutes on the weekends, holidays, and during the Albuquerque International Balloon Fiesta. There is no charge for passengers.

Dial-A-Ride Service

ACT provides a general public dial-a-ride service on weekdays between 6:30 PM and 9:00 PM. Phone requests are received starting at 6:00 PM for same-day service. This service is geared for "return" trips home and Park and Ride lots.

Paratransit Service

The ACT Assist program provides paratransit (origin-to-destination) service for ADA paratransit eligible persons between 6 AM and 9 PM on weekdays. Trips may be requested between 8 AM and 5 PM, and requests can be made from two weeks in advance up to the day prior to service. Same day service is also provided if there is space available. Riders are provided with a 30-minute service window. Two vehicles are typically in operation at any one time.

Changes to ACT Service Due to COVID-19

In reviewing ACT services, it is important to understand the recent changes that have been implemented due to the COVID pandemic. The chronology of major changes is as follows:

- May 18, 2020—All services suspended except for demand response and ACT Assist. Hours for ACT Assist cut to approximately 7:30 AM – 5:30 PM.
- June 14, 2020—Routes 1, 2M and 2T reinstated.
- November 16, 2020—Routes 1, 2M and 2T suspended again.
- March 1, 2021—Routes 1, 2M, 2T, 4 and 6 reinstated.
- April 5, 2021—Routes 3 and 5 reinstated. Dial-A-Ride service terminated.
- May 10, 2021—Routes 7A, 7B, 7C, 8, 9, 10, 11 reinstated, along with evening Dial-a-Ride
- July 3, 2021—Weekend Route 12 service initiated.

At present (reflecting any seasonal service periods), ACT services are fully restored to pre-pandemic services, except that Route 2P remains suspended and Dial-a-Ride hours are still limited to evening. Part of the reason for these continued service reductions is because of the bus driver shortage being experienced across the nation since the pandemic began in March 2020.

Transit Activity Centers

Figure 7 shows Los Alamos community centers which generate high levels of transit ridership. These include employment centers such as LANL, schools, medical centers, as well as businesses frequented by children after school such as the Teen Center and Starbucks. As evidenced by the figure, ACT routes serve most of these activity centers.

Driver Schedules

There are two driver shift groups: Morning and Afternoon. The Morning shifts generally begin around 5:15 AM, with the exception of the Bandelier Shuttle drivers who start at 8 AM. Many of the morning drivers have to work a split shift which includes a three-to-four-hour break during the middle of the day. The Afternoon shifts begin around 11 AM and end at 8 PM. This schedule configuration began when the ACT schedule was changed as a result of the prior transit plan update to design all routes to run on half hour or hourly headways, thereby allowing multiple transfer opportunities at the transit center. The split shifts are difficult for morning drivers as they must be prepared to work for a long period throughout the day and has made driver retention difficult. One of the objectives of the transit plan update is to review the driver schedules for different options which meet both the needs of the transit system and the drivers.

FARES

Passengers are able to utilize all ACT services without paying fares.

SYSTEMWIDE SERVICE LEVELS

The annual revenue vehicle-hours and vehicle-miles of service by route are summarized in Table 7. As shown, ACT currently operates 19,549 vehicle-hours and 369,224 vehicle-miles of service systemwide each year. This service level is approximately 40 percent below pre-COVID levels. Of the current total vehicle-hours, 86 percent are used on the fixed routes (Routes 1 to 6), 3 percent on the Bandelier service, 6 percent on ACT Assist, 2 percent on the express routes, and 2 percent on Dial-a-Ride and special services.

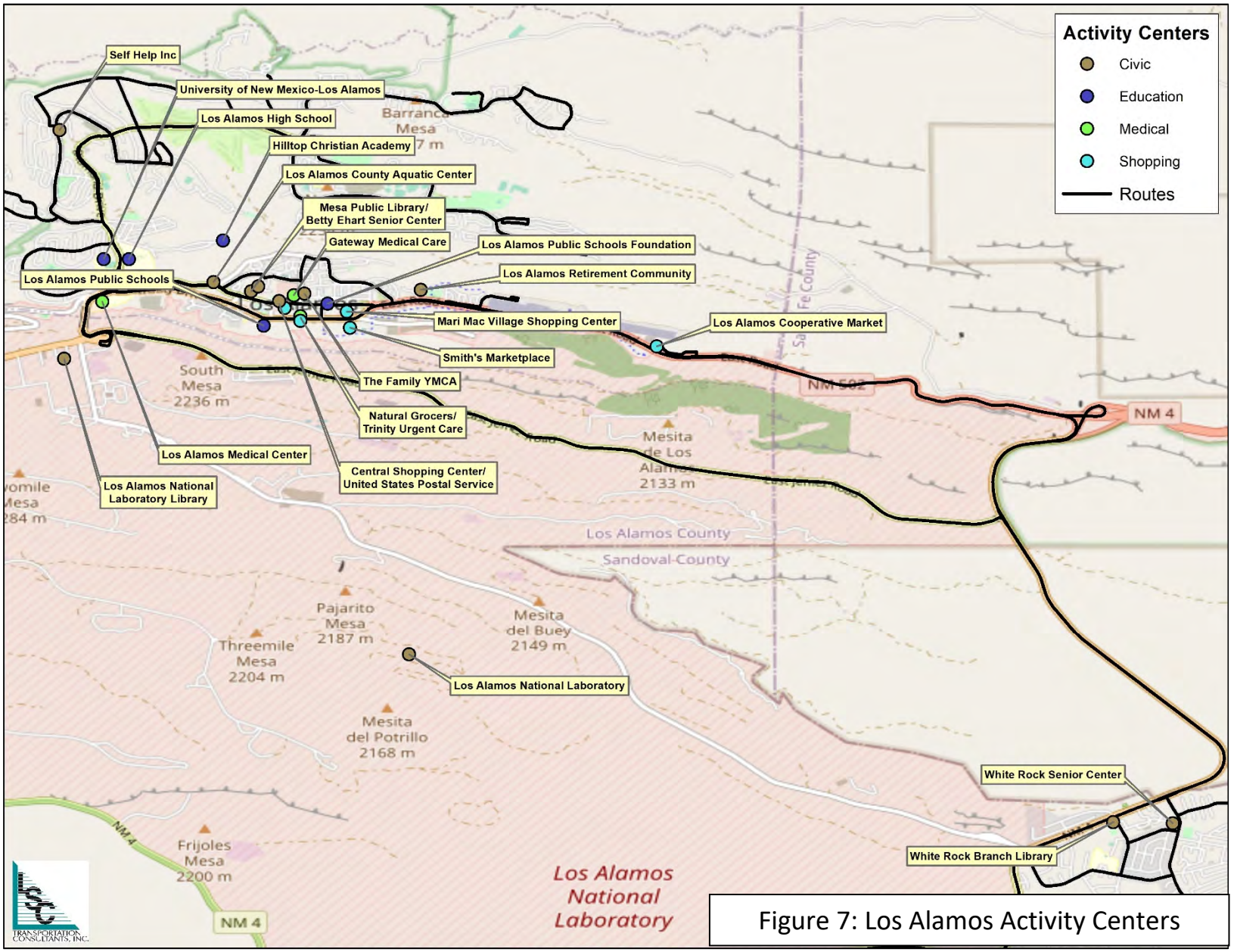


Figure 7: Los Alamos Activity Centers

Table 7: Annual Service Quantities

Route	Route / Service Name	Revenue Hours					Revenue Miles				
		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
1	Downtown	3,559	3,704	2,662	1,945	2,480	44,027	44,704	33,113	26,109	34,272
2M	White Rock - Main Hill	3,328	3,359	2,409	2,010	2,344	85,969	89,067	63,778	53,274	62,114
2T	White Rock - Truck Rt	3,202	3,241	2,323	1,658	2,340	82,785	82,238	59,036	43,086	60,776
2P	White Rock - Peak	888	1,239	926	0	0	16,454	33,547	25,034	0	0
3	Central / Canyon	3,125	3,155	2,261	729	2,279	63,537	63,129	45,110	14,539	45,785
4	North Community	3,181	3,229	2,314	996	2,317	46,035	45,738	33,279	14,963	35,311
5	Barranca Mesa	3,147	3,200	2,293	745	2,284	50,585	50,259	35,986	11,722	36,652
6	North Mesa	4,695	4,800	3,449	1,297	2,821	71,655	70,970	50,701	18,463	42,869
	Fixed Routes Subtotal	**25,126**	**25,927**	**18,636**	**9,380**	**16,864**	**461,047**	**479,651**	**346,037**	**182,156**	**317,779**
7	North Mesa Expr	203	196	144	60	180	3,371	3,254	2,370	1,166	2,402
8	North Community Expr	81	79	54	13	58	1,219	1,168	834	315	888
9	Aspen Expr	65	64	44	10	57	937	898	661	238	881
10	Barranca Expr	97	94	66	18	70	1,571	1,505	1,098	591	1,164
11	White Rock Expr	127	121	88	19	94	3,197	3,062	2,215	724	2,358
	Express Routes Subtotal	**574**	**554**	**396**	**120**	**460**	**10,295**	**9,886**	**7,177**	**3,034**	**7,692**
12	Bandelier	2,931	2,976	2,047	0	580	75,131	76,530	52,874	0	15,204
DAR	Dial-a-Ride	516	488	1,010	1,628	299	7,002	7,484	17,026	18,463	4,412
PARA	ACT Assist	2,675	2,305	1,669	929	1,249	47,955	41,603	25,667	13,651	22,357
DAR-EVENING	Dial-a-Ride Evening	31	110	16	16	19	418	1,686	198	347	383
SPECIAL	Special Services	360	271	194	0	77	7,907	4,903	3,983	0	1,397
	System Total	**32,212**	**32,630**	**23,967**	**12,073**	**19,549**	**609,755**	**621,744**	**452,962**	**217,652**	**369,224**

Note: Fiscal years are defined by the calendar year in which the fiscal year ends. FY 2022, for example, is the period from July 2021 through June 2022.

RIDERSHIP

ACT ridership, both systemwide and by route, is an important metric to consider when planning any potential changes to the transit system. Ridership metrics are analyzed in this section.

Ridership History

ACT annual ridership over the last five years is presented in Table 8. A graph showing ridership by service type is presented in Figure 8. This data indicates that overall ridership fell from a recent high of 446,836 boardings in FY 2019 to a low of 42,739 (a drop of more than 90 percent) in FY 2021. Ridership, however, has rebounded in FY 2022 to 193,686. At present, total ridership is 43 percent of the pre-COVID figures. Ridership has rebounded at a faster rate on the fixed route services (54 percent) compared with the express routes (44 percent). ACT Assist ridership is 62 percent of pre-COVID levels.

Ridership by Month

Recent ridership by month data is shown in Table 9 and Figure 9. Looking over the data, it is evident that fixed route ridership is highest in the warmer months. Overall monthly ridership over the past year reached peaks of around 18,000 boardings in July and September, despite express routes not being operated in July. Note that the high levels of ridership during summer is likely because the Bandelier service ridership can significantly impact summer ridership figures.

Ridership by Hour

Ridership by hour by route for March 2022 (during the school year) is shown in Table 10 and Figure 10. This reflects the concentration of ridership around the end of the school day (3 PM and 4 PM), along with commute ridership (7 AM, 8 AM and 5 PM, 6 PM) as well as a smaller mid-day peak. 25 percent of total daily ridership is carried in the 3 PM hour, along with an additional 16 percent in the 4 PM hour. Note that the mid-day ridership on Routes 7 to 11 reflect Wednesday schedules timed for early-release school sessions.

A similar summary of ridership by hour during the non-school year (July 2021) is shown in Table 11 and Figure 11. This reflects more consistent high ridership between 9 AM and 3 PM, with an overall peak in the 10 AM hour.

Table 8: Annual Ridership History by Route

Route	Route / Service Name	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Percent of Pre-COVID Totals (FY 2019)
1	Downtown	68,964	68,030	46,662	11,497	41,384	61%
2M	White Rock - Main Hill	32,296	31,710	21,882	6,526	18,293	58%
2T	White Rock - Truck Rt	20,417	20,394	12,967	3,290	11,874	58%
2P	White Rock - Peak	4,001	5,505	5,184	0	0	0%
3	Central / Canyon	33,960	33,159	23,648	2,652	19,351	58%
4	North Community	32,873	36,603	24,836	3,772	17,789	49%
5	Barranca Mesa	19,794	17,536	14,460	2,015	10,683	61%
6	North Mesa	67,929	69,855	55,588	6,464	33,133	47%
	Fixed Routes Subtotal	**280,234**	**282,792**	**205,227**	**36,216**	**152,507**	**54%**
7	North Mesa Expr	11,976	11,494	8,094	1,207	7,302	64%
8	North Community Expr	7,517	7,464	5,223	376	2,819	38%
9	Aspen Expr	7,168	7,472	5,559	437	2,973	40%
10	Barranca Expr	9,980	9,906	5,444	705	2,330	24%
11	White Rock Expr	6,679	7,857	6,310	95	4,015	51%
	Express Routes Subtotal	**43,320**	**44,193**	**30,630**	**2,820**	**19,439**	**44%**
12	Bandelier	107,522	111,261	76,307	0	16,008	14%
DAR	Dial-a-Ride	520	506	1,427	2,427	731	144%
PARA	ACT Assist	4,890	4,974	3,566	1,255	3,102	62%
DAR-EVENING	DAR Evening	33	114	687	21	232	204%
SPECIAL	Special Services	5,924	2,996	4,120	0	1,667	56%
	System Total	**442,443**	**446,836**	**321,964**	**42,739**	**193,686**	**43%**

Note: Fiscal years are defined by the calendar year in which the fiscal year ends. FY 2022, for example, is the period from July 2021 through June 2022.

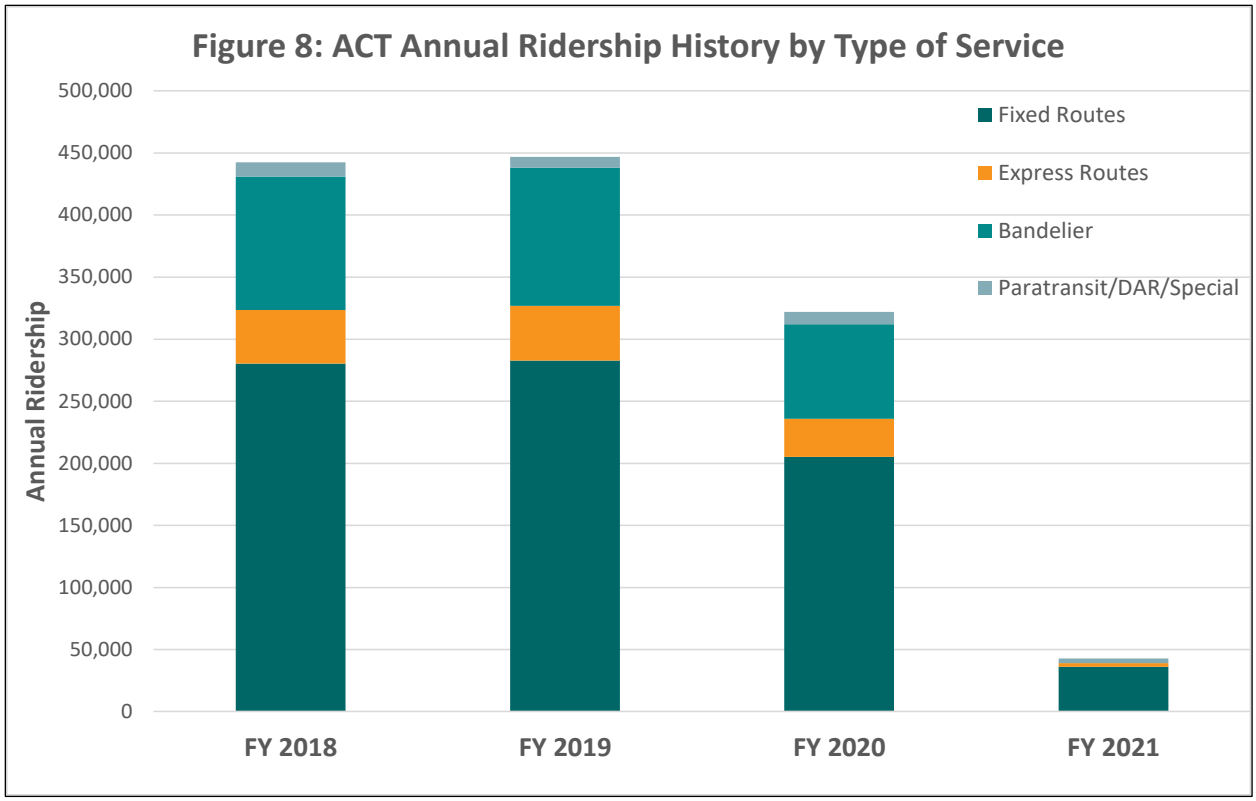


Figure 8: ACT Annual Ridership History by Type of Service
Annual Ridership
500,000
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
Fixed Routes
Express Routes
Bandelier
Paratransit/DAR/Special
FY 2018
FY 2019
FY 2020
FY 2021

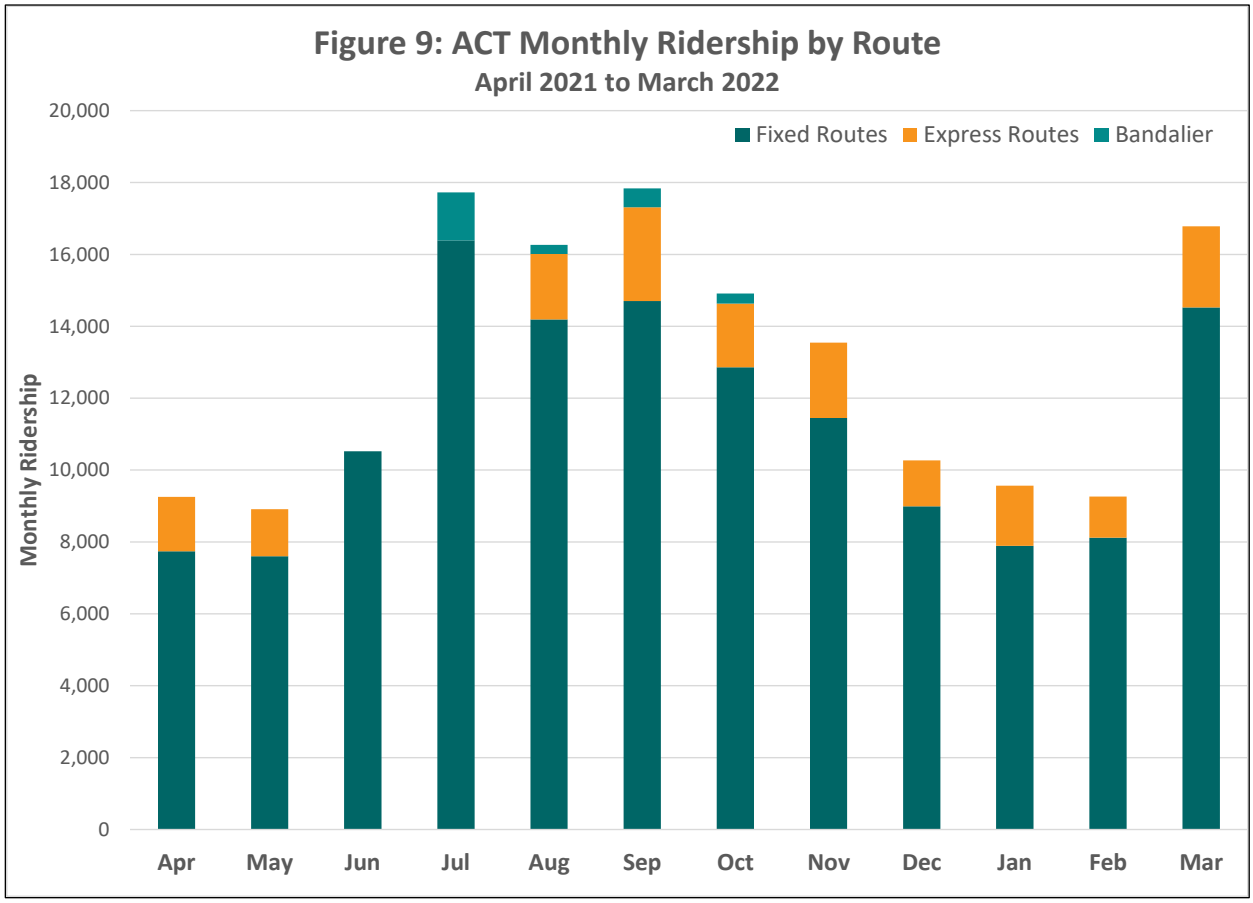


Figure 9: ACT Monthly Ridership by Route
April 2021 to March 2022
Monthly Ridership
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
Fixed Routes
Express Routes
Bandalier
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar

Table 9: Ridership by Route by Month

April 2021 to March 2022

Route	Route / Service Name	Month												Total
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
1	Downtown	1,965	2,024	3,258	5,620	3,851	3,717	3,176	3,254	2,241	2,099	1,909	4,037	**37,151**
2M	White Rock - Main Hill	1,223	1,000	1,320	2,026	1,608	881	1,063	1,316	1,178	1,061	1,156	1,902	**15,734**
2T	White Rock - Truck Rt	398	530	976	1,833	1,029	1,365	841	653	579	508	431	787	**9,930**
3	Central / Canyon	802	720	1,130	1,845	1,790	1,962	1,705	1,362	1,233	954	885	1,881	**16,269**
4	North Community	1,126	1,132	1,119	1,635	1,919	2,067	1,967	1,465	1,242	1,156	1,337	1,652	**17,817**
5	Barranca Mesa	580	602	833	1,072	1,004	1,181	802	764	671	514	663	1,056	**9,742**
6	North Mesa	1,645	1,596	1,886	2,361	2,989	3,526	3,305	2,631	1,843	1,597	1,736	3,207	**28,322**
	Fixed Routes Subtotal	**7,739**	**7,604**	**10,522**	**16,392**	**14,190**	**14,699**	**12,859**	**11,445**	**8,987**	**7,889**	**8,117**	**14,522**	**134,965**
7	North Mesa Expr	613	594	0	0	740	901	648	653	528	731	884	781	**7,073**
8	North Community Expr	229	147	0	0	161	292	226	354	190	125	18	424	**2,166**
9	Aspen Expr	244	193	0	0	233	435	274	391	206	248	80	364	**2,668**
10	Barranca Expr	370	335	0	0	319	335	196	280	91	291	48	237	**2,502**
11	White Rock Expr	58	37	0	0	367	646	425	422	267	282	112	451	**3,067**
	Express Routes Subtotal	**1,514**	**1,306**	**0**	**0**	**1,820**	**2,609**	**1,769**	**2,100**	**1,282**	**1,677**	**1,142**	**2,257**	**17,476**
12	Bandelier	0	0	0	1,333	251	530	286	0	0	0	0	0	**2,400**
DAR	Dial-a-Ride	56	43	18	46	54	67	34	43	40	110	172	62	**745**
PARA	ACT Assist	144	134	210	169	189	210	227	196	181	629	426	225	**2,940**
DAR-EVENING	DAR Evening	0	6	15	13	12	31	14	18	15	35	14	20	**193**
SPECIAL	Special Services	0	0	0	0	0	697	302	144	0	0	0	0	**1,143**
	Sytem Total	9,453	9,093	10,765	**17,953**	16,516	**18,843**	15,491	13,946	10,505	10,340	9,871	**17,086**	**159,862**

Table 10: Ridership by Route and Hour

March 2022

Route	Trip Start Time														Average Daily Trips
	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	Noon	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	
1	27	207	253	276	189	220	248	213	263	714	498	479	362	88	288
3	6	191	58	77	88	64	92	70	71	562	287	202	79	34	134
4	6	343	96	88	61	19	85	41	76	452	113	102	115	55	118
5	31	206	156	59	60	46	29	25	33	208	65	81	47	10	75
6	24	378	382	143	131	81	153	132	102	926	286	254	169	46	229
8	0	0	0	0	0	0	115	0	0	0	309	0	0	0	30
9	0	0	0	0	0	0	58	0	0	0	306	0	0	0	26
10	0	0	0	0	0	0	79	0	0	0	158	0	0	0	17
11	0	0	0	0	0	0	150	0	0	0	301	0	0	0	32
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2M	8	110	95	88	101	88	134	82	245	428	230	200	64	29	136
2P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2T	16	31	81	27	48	72	29	42	60	41	156	59	100	25	56
7A	0	0	0	0	0	0	0	0	0	116	0	0	0	0	8
7B	0	0	0	0	0	0	0	0	0	665	0	0	0	0	48
7C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**118**	**1,466**	**1,121**	**758**	**678**	**590**	**1,172**	**605**	**850**	**4,112**	**2,709**	**1,377**	**936**	**287**	**1,199**

Source: LSC Transportation Consultants, Inc.

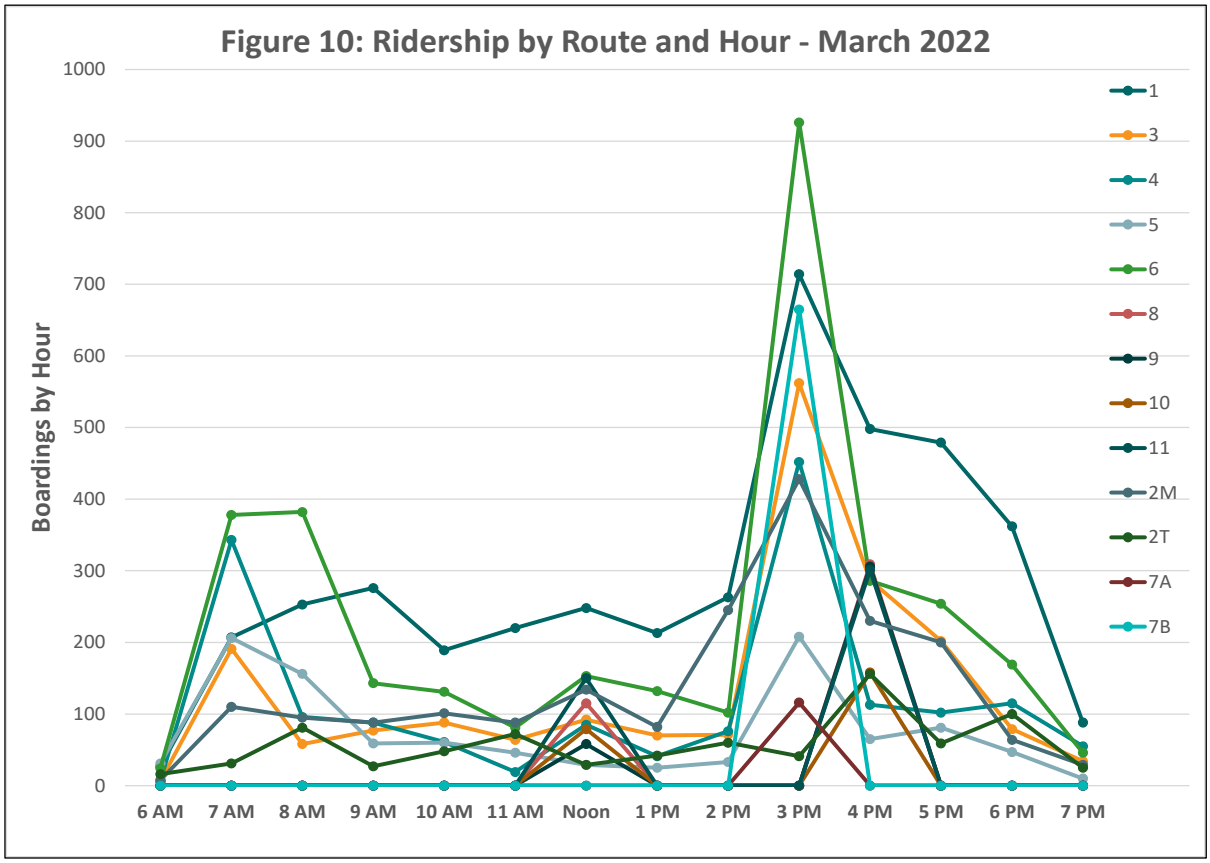


Figure 10: Ridership by Route and Hour - March 2022
Boardings by Hour
1000
900
800
700
600
500
400
300
200
100
0
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
Noon
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
1
3
4
5
6
8
9
10
11
2M
2T
7A
7B

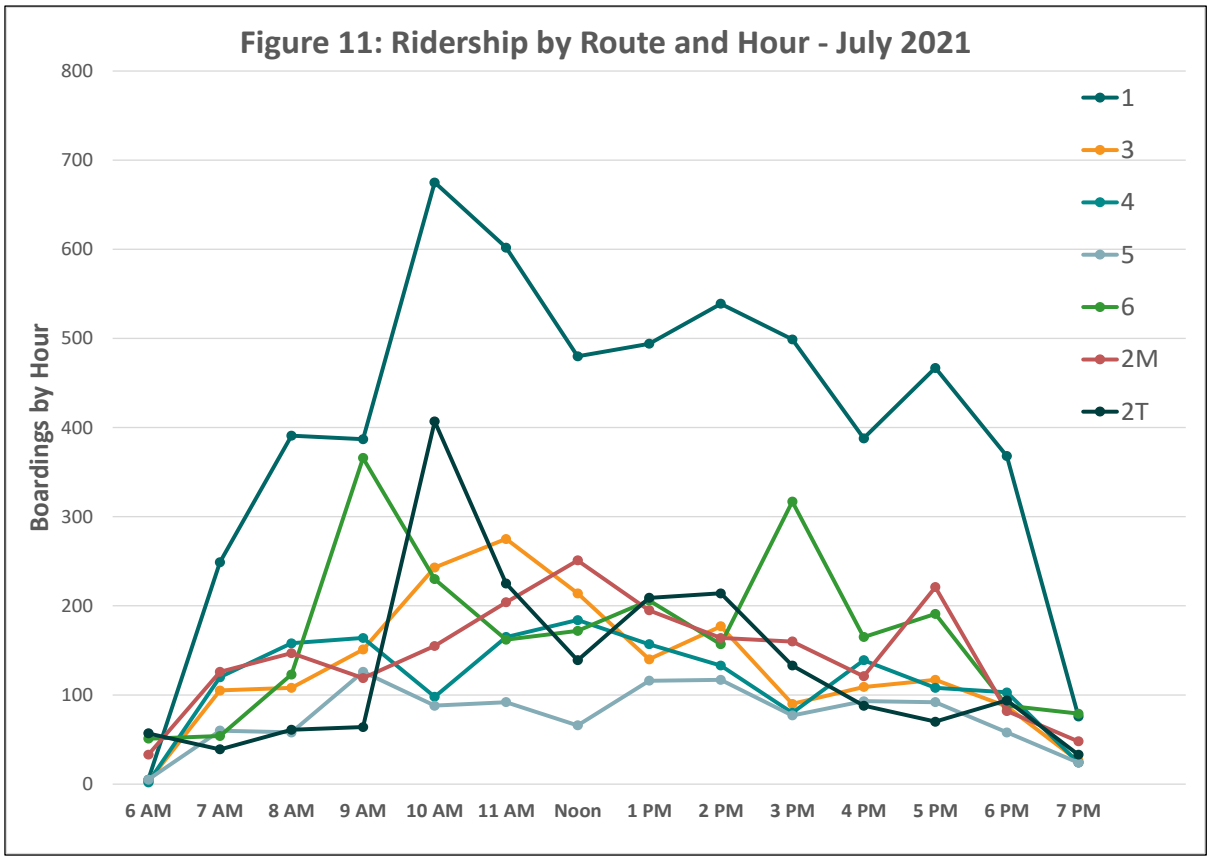


Figure 11: Ridership by Route and Hour - July 2021
Boardings by Hour
800
700
600
500
400
300
200
100
0
6 AM
7 AM
8 AM
9 AM
10 AM
11 AM
Noon
1 PM
2 PM
3 PM
4 PM
5 PM
6 PM
7 PM
1
3
4
5
6
2M
2T

Table 11: Ridership by Route and by Hour

July 2021

Route	Trip Start Time														Average Daily Trips
	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	Noon	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	
1	5	249	391	387	675	602	480	494	539	499	388	467	368	76	401
3	3	105	108	151	243	275	214	140	177	90	109	117	87	26	132
4	2	120	158	164	98	165	184	157	133	80	139	108	103	24	117
5	5	60	58	126	88	92	66	116	117	77	93	92	58	24	77
6	51	54	123	366	230	162	172	206	157	317	165	191	88	79	169
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	77	174	167	242	158	241	167	77	30	0	0	95
2M	33	126	147	119	155	204	251	195	164	160	121	221	82	48	145
2P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2T	57	39	61	64	407	225	139	209	214	133	88	70	94	33	131
7A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**156**	**753**	**1046**	**1454**	**2070**	**1892**	**1748**	**1675**	**1742**	**1523**	**1180**	**1296**	**880**	**310**	**1,266**

Source: LSC Transportation Consultants, Inc.

Ridership by Passenger Type

The types of riders using the various services are shown in Table 12. Highlights of the table include:

- Overall, 46 percent of ACT ridership consists of students and 43 percent are non-senior, non-ADA adults. Even on the non-express routes, students make up 49 percent of all riders.
- While the express routes are predominately used by students, Route 9 (Aspen Area Express) has 19 percent non-student ridership.
- The Bandelier Shuttle (Route 12) has a different mix of riders, with 30 percent of boardings by seniors, ADA passengers not using the lift, and ADA passengers using the lift.
- Passengers loading a bike comprise 1 percent of total boardings overall and are a relatively high proportion of riders (3 percent) on both Route 2P (While Rock via Truck Route Peak) and Route 12 (Bandelier).

Table 12: Ridership by Passenger Type by Route

July 2017 to March 2022

		Percent of Boardings by Pasenger Type					
	Route / Service Name	Adult	Student	Senior	ADA	Bike	Lift
1	Downtown Circulator	56%	37%	5%	1%	1%	0%
2M	White Rock via Main Hill	42%	50%	5%	2%	1%	0%
2P	White Rock via Truck Route	57%	32%	3%	6%	3%	0%
2T	White Rock via Truck Route	48%	43%	5%	1%	2%	1%
3	Canyon & Central	48%	46%	3%	1%	1%	0%
4	North Community	40%	55%	3%	1%	1%	0%
5	Barranca Mesa	40%	51%	6%	1%	2%	0%
6	North Mesa	32%	63%	2%	1%	1%	0%
7A	North Mesa Express	2%	98%	0%	0%	0%	0%
7B	North Mesa Express	2%	98%	0%	0%	0%	0%
7C	North Mesa Express	5%	94%	0%	1%	0%	0%
8	North Community Express	4%	95%	0%	1%	0%	0%
9	Aspen Area Express	15%	80%	0%	4%	0%	0%
10	Barranca Mesa Express	7%	92%	0%	1%	0%	0%
11	White Rock Express	4%	95%	0%	1%	0%	0%
12	Bandelier	56%	11%	10%	6%	3%	14%
	Fixed Routes Subtotal	44%	49%	4%	1%	1%	0%
	Express Routes Subtotal	6%	92%	0%	1%	0%	0%
	System Total	43%	46%	5%	2%	1%	3%

COST ALLOCATION MODEL AND PERFORMANCE ANALYSIS

A "cost allocation model" is useful in evaluating the cost effectiveness of individual transit services. This model assigns the various transit operating costs (excluding capital costs) to one of three categories: those that vary by the number of vehicle-hours operated (such as driver wages and benefits), those that vary by the number of vehicle miles operated (such as fuel and vehicle maintenance) and those that are relatively "fixed" and do not vary with modest changes in service levels (such as administrative costs,

indirect overhead costs and facility utility/maintenance costs). These three categories can then be summed and divided by the pertinent total service quantity to yield the cost model, as shown in Table 13. The resulting Atomic City Transit cost model for Fiscal Year 2022 is:

Total Operating Costs = $53.24 X Vehicle-Hours of Service +

$0.78 X Vehicle-Miles of Service + $1,787,451

Excluding the fixed costs, the marginal cost model that can be used to assess the cost impacts of a change in service is as follows:

Marginal Operating Costs = $53.24 X Vehicle-Hours of Service + $0.78 X Vehicle-Miles of Service

Table 13: ACT FY 2022 Operating Cost Model

Expense Category	FY 2022 Projected	Variable		
		Hour	Mile	Fixed
Variable Salary & Benefits	$1,525,622	$1,525,622		
Fixed Salary & Benefits	$514,578			$514,578
Fuel	$39,709		$39,709	
Vehicle Maintenance	$392,639		$392,639	
IDC Fixed (Non-fuel & Maintenance)	$988,816			$988,816
Other (Supplies & Services)	$284,057			$284,057
Total	**$3,745,421**	**$1,525,622**	**$432,348**	**$1,787,451**
Annual Service Quantity		28,658	556,729	--
Cost per Unit by Variable (Cost Model)		$53.24	$0.78	$1,787,451

Source: ACT

Performance Analysis

Using the marginal cost model and the data presented above regarding ridership and service quantities, Table 14 presents a performance analysis of ACT services. Three key performance measures were evaluated, as discussed below.

Passenger-Trips per Vehicle-Hour of Service

Also known as the "productivity," this factor is particularly important as many of the variable costs of a transit service vary by vehicle-hours rather than vehicle-miles. Also shown in Figure 12, in FY 2022 the productivity of ACT services was as follows:

- For the fixed route services, average productivity was 6.7, ranging from a low of 4.7 for Route 5 to a high of 16.7 on Route 1.
- Express routes have relatively high productivity, ranging from a low of 33.2 on the Barranca Express to 52 on the Aspen Express. While these values are good, they also are a substantial drop from the productivity prior to COVID.

- The ACT Assist service, at 2.5, is consistent with paratransit productivity in other smaller cities. The productivity of the DAR Evening service, at 12.1, is relatively high.
- The productivity of the Bandelier service in FY 2022 was quite high (27.6); however, this represents a decrease from pre-pandemic times of approximately 37 passengers per vehicle-hour. The Bandelier Shuttle primarily attracts out of town visitors who were less likely to travel long distances during the pandemic. There was also a period of time during FY 2022 when parking was allowed at Bandelier National Monument and the bus was not mandatory.

Passenger-Trips per Vehicle-Mile of Service

Systemwide, ACT services average 0.5 passengers per vehicle-mile. The fixed routes saw 0.5 passengers per vehicle-mile, while the express routes averaged 2.5. As depicted in Figure 13, the relative value of this performance measure is largely consistent with the pattern for the passengers per vehicle-hour, though some of the longer routes (such as Routes 2M and 2T) show lower values for this metric due to the additional mileage along the routes.

Marginal Operating Cost per Passenger-Trip

The cost effectiveness of a transit service is measured by the operating cost per passenger-trip. To reflect the variation between services, it is better to focus on the marginal cost, excluding the fixed costs needed for the service as a whole. As shown in the right column of Table 14 and depicted in Figure 14, overall, the ACT services incurred $6.85 in marginal operating costs for every trip served in FY 2022. The fixed routes ranged from a low of $3.83 for Route 1 to a high of $14.47 for Route 2T, averaging $7.50. The express routes are quite cost-effective, ranging from a high of $1.99 (Barranca Express) to a low of $1.25 (Aspen Express). The Dial-A-Ride and ACT Assist services have relatively high costs per passenger-trip of $26.48 and $27.04, respectively, though the evening DAR at $5.69 is lower than most of the fixed routes. The Bandelier service at $2.67 is relatively cost effective.

ON-TIME PERFORMANCE

Both Table 15 and Figure 15 present on-time performance for April 18, 2021, through April 17, 2022, by route. The 2015 SRTP identified an on-time performance goal of 95 percent on-time (no more than five minutes late). As shown, none of the routes operated more than 93 percent on-time, on average, during this time period. Express Routes 9, 10, and 11 have the poorest on-time performance (46 percent, 39 percent, and 40 percent). These routes were neither consistently early nor late, likely a factor that they are centered around serving school children. Of the fixed routes, Routes 2M and 2T had the worst on-time performance, running late 18 percent and 13 percent of the time.

Table 14: Performance Analysis

Route	Route / Service Name	Productivity: Passengers per Vehicle-Hour					Passengers per Vehicle-Mile					Marginal Operating Cost per Psgr-Trip
		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2022
1	Downtown	19.4	18.4	17.5	5.9	16.7	1.6	1.5	1.4	0.4	1.2	$3.83
2M	White Rock - Main Hill	9.7	9.4	9.1	3.2	7.8	0.4	0.4	0.3	0.1	0.3	$9.46
2T	White Rock - Truck Rt	6.4	6.3	5.6	2.0	5.1	0.2	0.2	0.2	0.1	0.2	$14.47
2P	White Rock - Peak	4.5	4.4	5.6	--	--	0.2	0.2	0.2	--	--	–
3	Central / Canyon	10.9	10.5	10.5	3.6	8.5	0.5	0.5	0.5	0.2	0.4	$8.11
4	North Community	10.3	11.3	10.7	3.8	7.7	0.7	0.8	0.7	0.3	0.5	$8.47
5	Barranca Mesa	6.3	5.5	6.3	2.7	4.7	0.4	0.3	0.4	0.2	0.3	$14.04
6	North Mesa	14.5	14.6	16.1	5.0	11.7	0.9	1.0	1.1	0.4	0.8	$5.54
	Fixed Routes Subtotal	**11.2**	**10.9**	**11.0**	**3.9**	**9.0**	**0.6**	**0.6**	**0.6**	**0.2**	**0.5**	**$7.50**
7	North Mesa Expr	58.9	58.5	56.2	20.1	40.5	3.6	3.5	3.4	1.0	3.0	$1.57
8	North Community Expr	92.4	94.6	96.4	28.0	48.3	6.2	6.4	6.3	1.2	3.2	$1.35
9	Aspen Expr	109.4	117.3	126.5	44.6	52.0	7.6	8.3	8.4	1.8	3.4	$1.25
10	Barranca Expr	102.7	105.3	82.5	40.1	33.2	6.4	6.6	5.0	1.2	2.0	$1.99
11	White Rock Expr	52.7	64.8	71.7	5.1	42.7	2.1	2.6	2.8	0.1	1.7	$1.70
	Express Routes Subtotal	**75.5**	**79.7**	**77.3**	**23.6**	**42.3**	**4.2**	**4.5**	**4.3**	**0.9**	**2.5**	**$1.57**
12	Bandelier	36.7	37.4	37.3	--	27.6	1.4	1.5	1.4	--	1.1	$2.67
DAR	Dial-a-Ride	1.1	1.0	1.4	1.5	2.4	0.1	0.1	0.1	0.1	0.2	$26.48
PARA	ACT Assist	1.8	2.2	2.1	1.4	2.5	0.1	0.1	0.1	0.1	0.1	$27.04
DAR-EVENING	Dial-a-Ride Evening	1.1	1.0	43.5	1.3	12.1	0.1	0.1	3.5	0.1	0.6	$5.69
SPECIAL	Special Services	16.5	11.1	21.2	--	21.6	0.7	0.6	1.0	--	1.2	$3.12
	System Total	**13.7**	**13.7**	**13.4**	**3.5**	**9.9**	**0.7**	**0.7**	**0.7**	**0.2**	**0.5**	**$6.85**

Note: Fiscal years are defined by the calendar year in which the fiscal year ends. FY 2022, for example, is the period from July 2021 through June 2022.

Figure 12: FY 2022 Passengers per Vehicle-Hour by Service

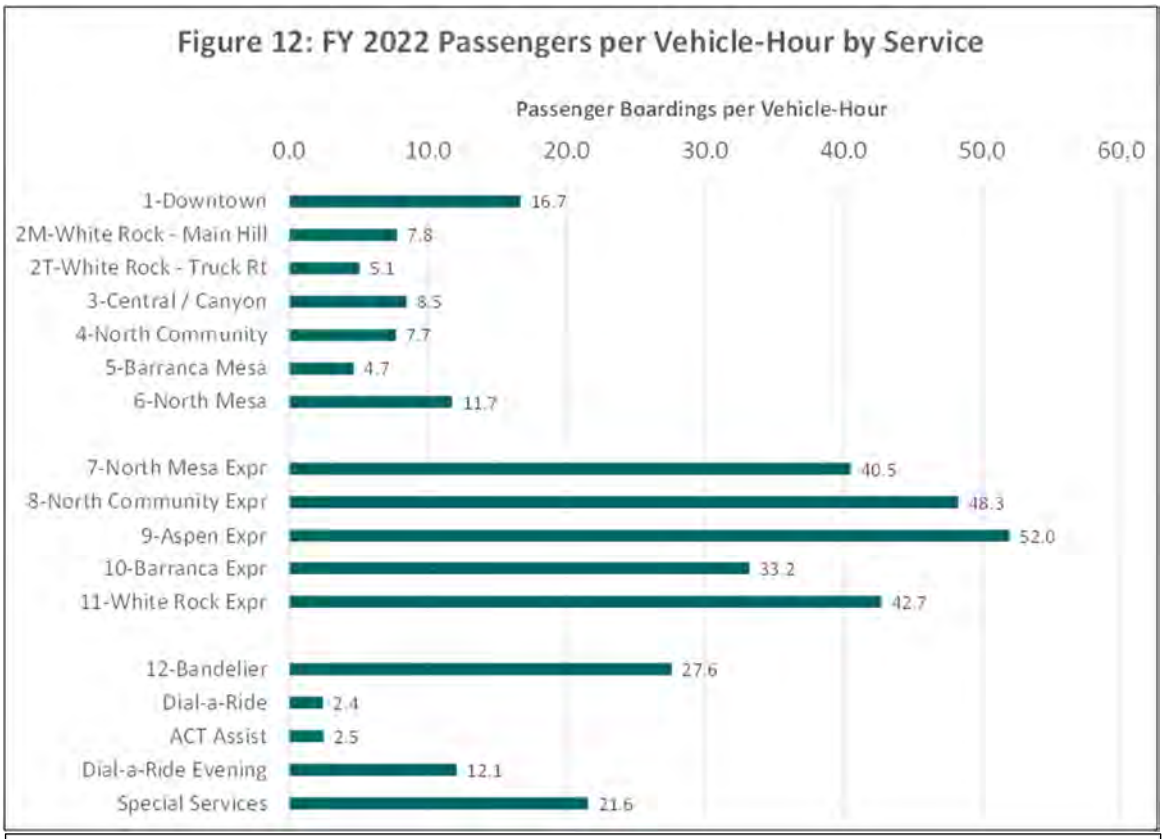
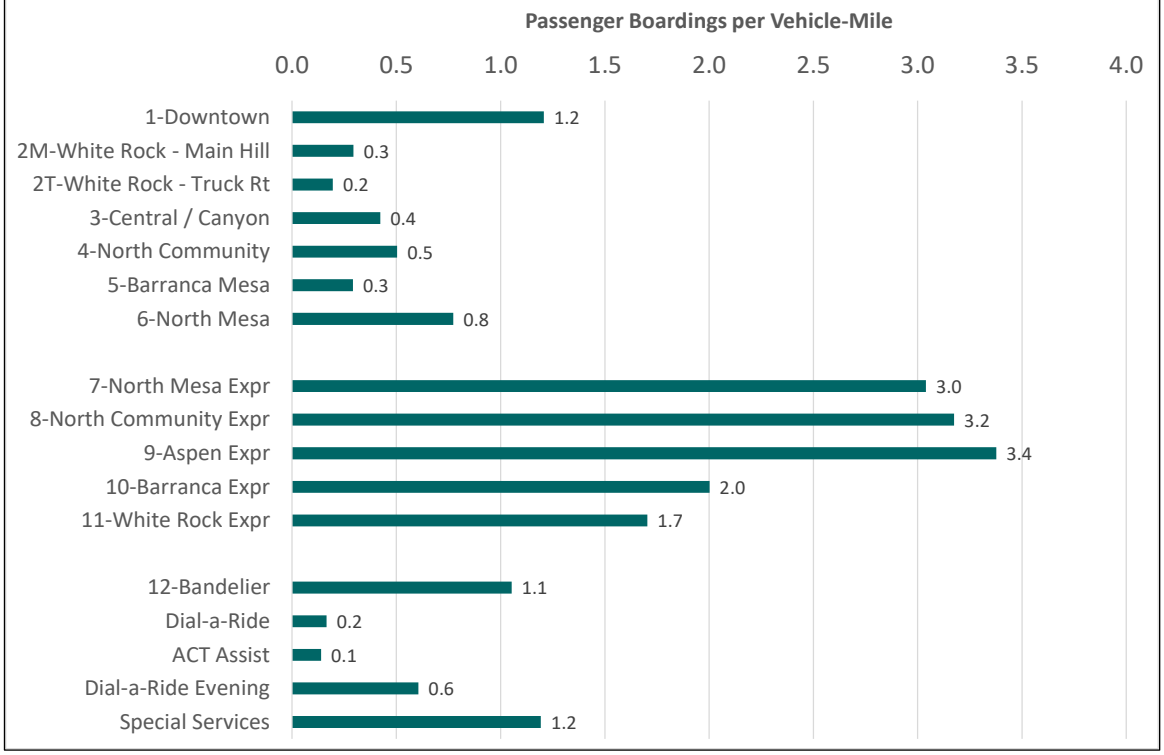
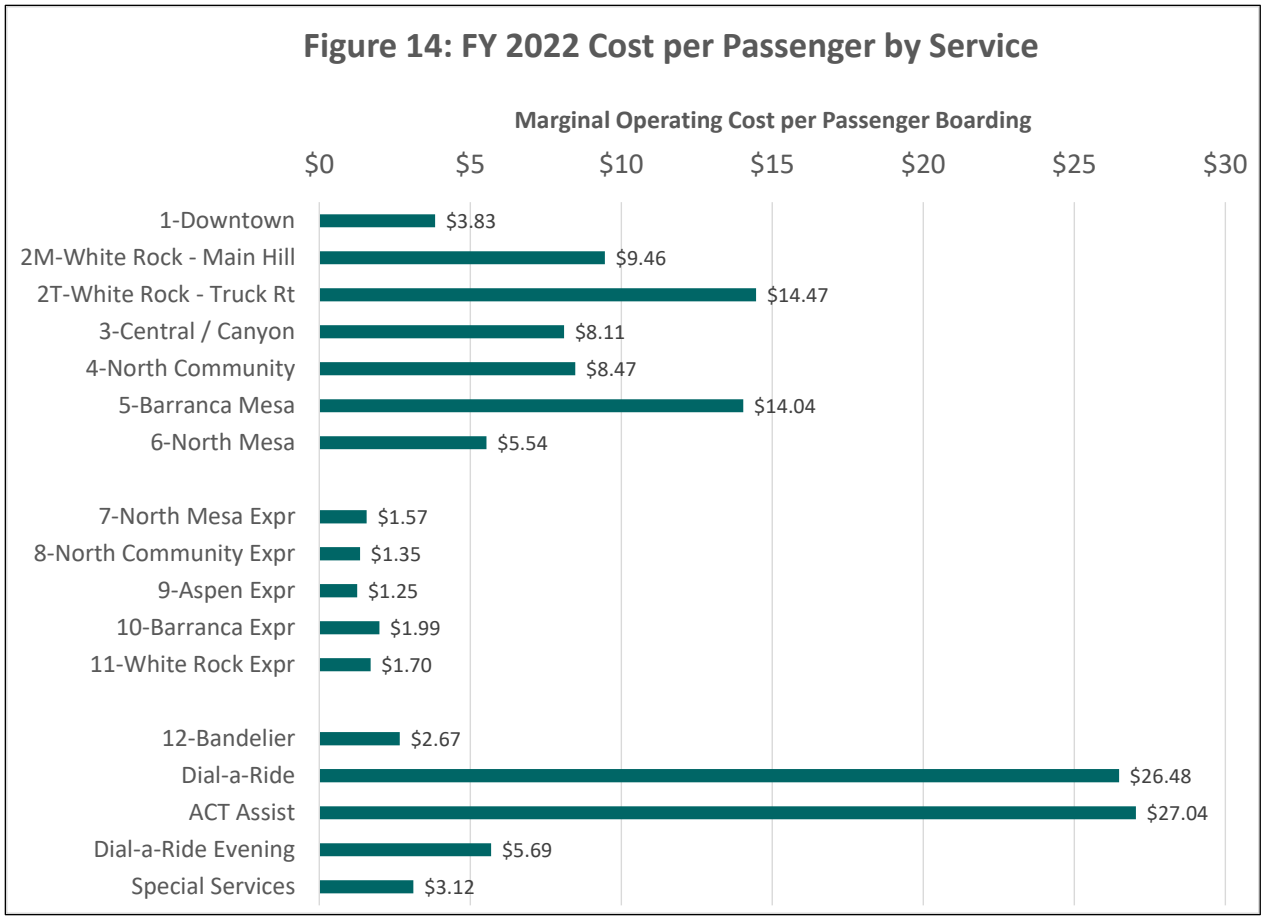


Figure 13: FY 2022 Passengers per Vehicle-Mile by Service





Discussions with drivers have indicated that these routes are exceedingly difficult to operate on-time given the hourly headway schedule. Route 3, which is late 10 percent of the time, is also challenging to serve on an hourly schedule.

On-time performance by hour data is also available (Table 16). A greater proportion of fixed route runs (Routes 1 – 6) operate late between 3 PM and 6 PM. During the 7 PM hour, the fixed routes run early about 13 percent of the time. On-time performance on the express routes (Routes 7 – 11) is worst between 2 PM to 3 PM.

Discussions with drivers indicated that rush hour traffic leaving LANL can contribute to poor on-time performance, as well as safety. Each bus turning left into the transit center from W. Jemez Road must wait for a break in traffic. Between the hours of 4:30 PM and 6 PM there is often a steady stream of cars leaving TA3 at LANL, causing the bus to wait to make the turn into the transit center. LANL rush hour also effects buses departing the transit center when they turn left to downtown Los Alamos, although this intersection (W. Jemez Road and E. Jemez Road) is signalized. This is evident in Tables 15 and 16.

Figure 15: Atomic City Transit On-Time Performance by Route
April 18, 2021 - April 17, 2022

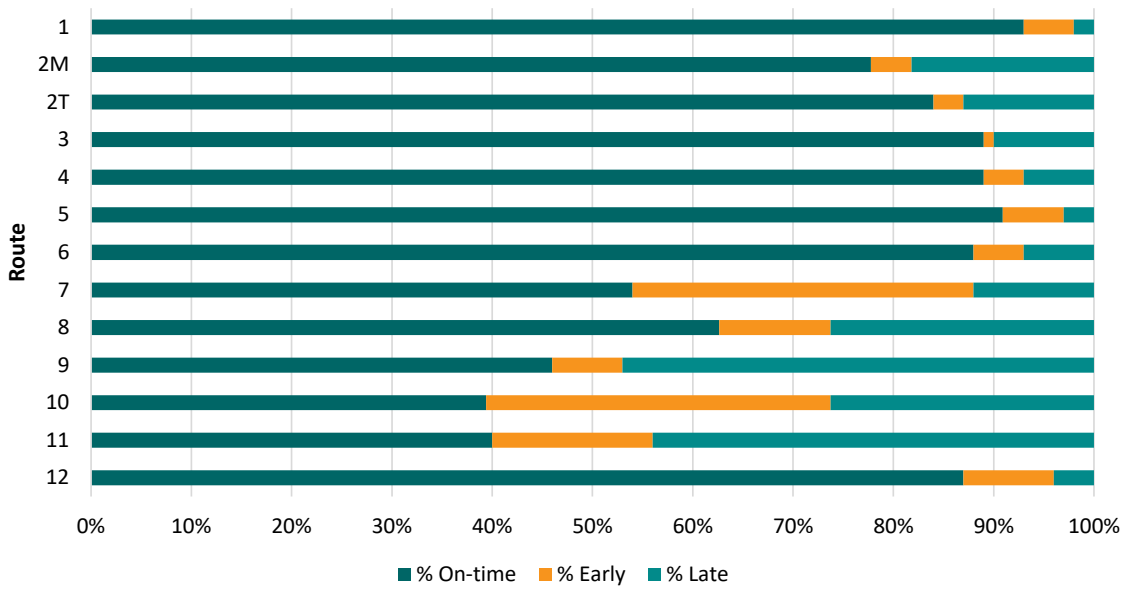


Table 15: ACT On-Time Performance by Route

April 18, 2021 - April 17, 2022

Route		% On-time	% Early	% Late
1	Downtown	93%	5%	2%
2M	White Rock - Main Hill	77%	4%	18%
2T	White Rock - Truck Rt	84%	3%	13%
3	Central / Canyon	89%	1%	10%
4	North Community	89%	4%	7%
5	Barranca Mesa	90%	6%	3%
6	North Mesa	88%	5%	7%
7	North Mesa Expr	54%	34%	12%
8	North Community Expr	62%	11%	26%
9	Aspen Expr	46%	7%	47%
10	Barranca Expr	39%	34%	26%
11	White Rock Expr	40%	16%	44%
12	Bandelier	87%	9%	4%

Source: Atomic City Transit
Note: On-time = less than five minutes late.

Table 16: ACT On-Time Performance by Route and Hour

April 18, 2021 - April 17, 2022

	Fixed Routes (1 - 6)			Express Routes (7 - 11)		
Hour Beginning	% On-time	% Early	% Late	% On-time	% Early	% Late
5:00 AM	88%	1%	11%	--	--	--
6:00 AM	92%	4%	4%	--	--	--
7:00 AM	91%	2%	6%	--	--	--
8:00 AM	91%	3%	6%	--	--	--
9:00 AM	91%	5%	4%	--	--	--
10:00 AM	91%	5%	4%	--	--	--
11:00 AM	87%	4%	9%	--	--	--
12:00 PM	87%	4%	9%	37%	33%	30%
1:00 PM	88%	5%	6%	65%	15%	20%
2:00 PM	87%	5%	8%	45%	18%	35%
3:00 PM	80%	2%	18%	63%	2%	35%
4:00 PM	81%	3%	16%	--	--	--
5:00 PM	83%	3%	14%	--	--	--
6:00 PM	87%	6%	6%	--	--	--
7:00 PM	81%	13%	6%	--	--	--

Source: Atomic City Transit
Note: On-time = less than five minutes late.

FIXED ROUTE BOARDINGS BY STOP

Appendix A and Figures 16 and 17 present boarding by stop for all routes during the months of July 2021 and March 2022. The top 10 boarding locations all experienced more than 14 boardings a day on average, with the transit center seeing an average of 104 boardings per day. Other popular stops include:

- San Ildefonso Road & Hawk Dr Inbound (33 average daily boardings)—Near the Los Alamos Middle School
- Diamond Drive & Orange Street Outbound (25 average daily boardings)—Near Los Alamos High School
- Barranca Road & Camino Encantado Inbound (23 average daily boardings)—Near Barranca Mesa Elementary School
- Trinity Drive & 7th (18 average daily boardings)—Near Smiths Supermarket
- Villa & 33rd (16 average daily boardings)—Near Aspen Elementary School

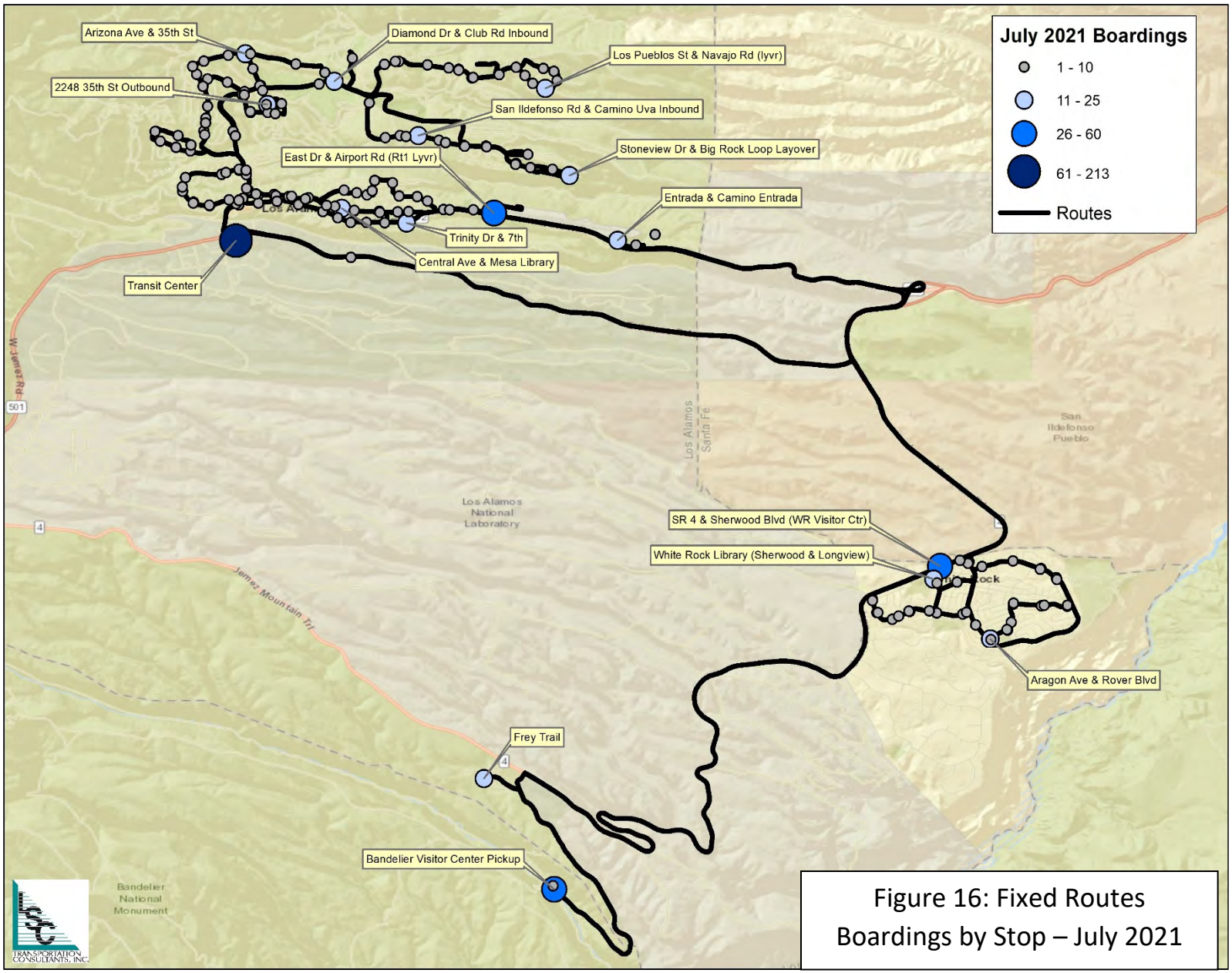


Figure 16: Fixed Routes Boardings by Stop – July 2021

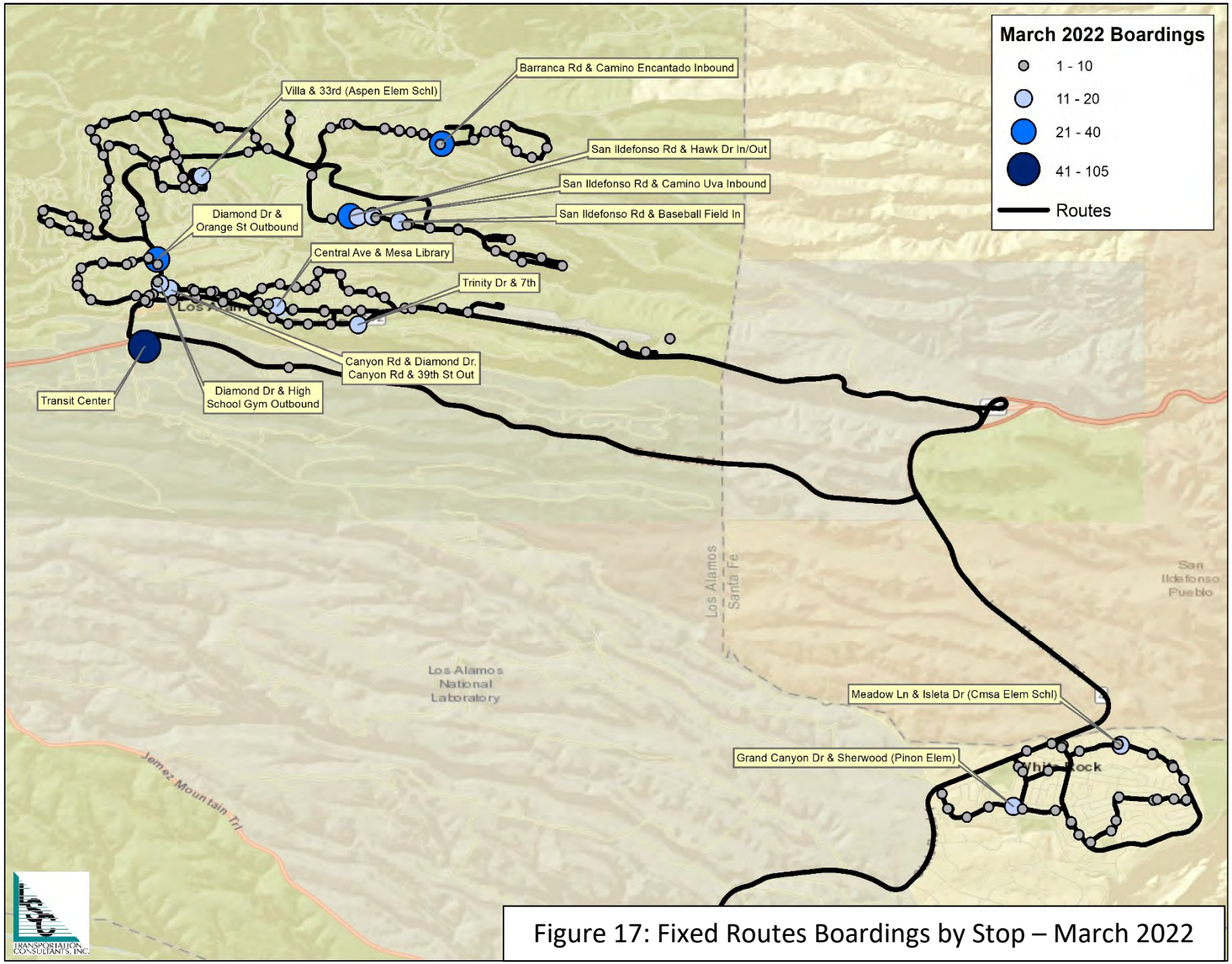


Figure 17: Fixed Routes Boardings by Stop – March 2022

- Grand Canyon Drive & Sherwood (16 average daily boardings)—Near Pinon Elementary in White Rock
- Canyon Road & 39th Street Outbound (15 average daily boardings)—Near Gold Street Apartments

Each of these stops include a bus stop sign and all but Barranca & El Camino Encantado and Grand Canyon Dr & Sherwood have a shelter and bench, but as these stops primarily serve a school there is less passenger waiting time throughout the day at these stops. Studies show that bike racks are an important passenger amenity for attracting ridership. Of the stops listed above, only the transit center has a bike rack.

DEMAND RESPONSE BOARDINGS

Paratransit and DAR total boardings for July 2021 and March 2022 are shown in Figures 18 and 19. The more popular pick-up locations are located in downtown Los Alamos and White Rock.

OTHER TRANSIT SERVICES

NMDOT Park and Ride

The New Mexico Department of Transportation operates extensive bus services, including services in northern New Mexico (Santa Fe, Albuquerque, Belen, Espanola, Las Vegas) as well as southern New Mexico (Las Cruces, El Paso, White Sands). This service provides three routes that serve Los Alamos on non-holiday weekdays:

- The Purple Route connects Los Alamos with the NM 599 rail station southwest of Santa Fe. It provides three AM runs per day inbound (arriving in Los Alamos between 6:11 AM and 8:31 AM) and four PM outbound runs from 3:19 PM to 5:47 PM. One run is operated in the opposite direction in each peak period, with a run departing Los Alamos for Santa Fe at 6:17 AM and a run arriving in Los Alamos at 8:03 PM.
- The Blue Route is the primary route connecting Santa Fe and Los Alamos. Five runs per day are operated in each direction during the AM commute period, with arrivals in Los Alamos from 6:20 AM to 8:42 AM and departures from 6:30 AM to 9:03 AM. Five daily runs are also operated in the PM commute period, with departures from 4:05 PM to 8:39 PM and arrivals from 3:53 PM to 8:30 PM.
- The Green Route connects Los Alamos with Espanola. AM runs arrive in Los Alamos from 6:12 AM to 8:03 AM and depart for Espanola from 6:12 AM to 8:36 AM. In the afternoon, runs depart from 3:07 PM to 5:43 PM, and arrive in Los Alamos from 2:58 PM to 5:20 PM.

Figure 18: Dial-a-Ride Pickups – July 2021

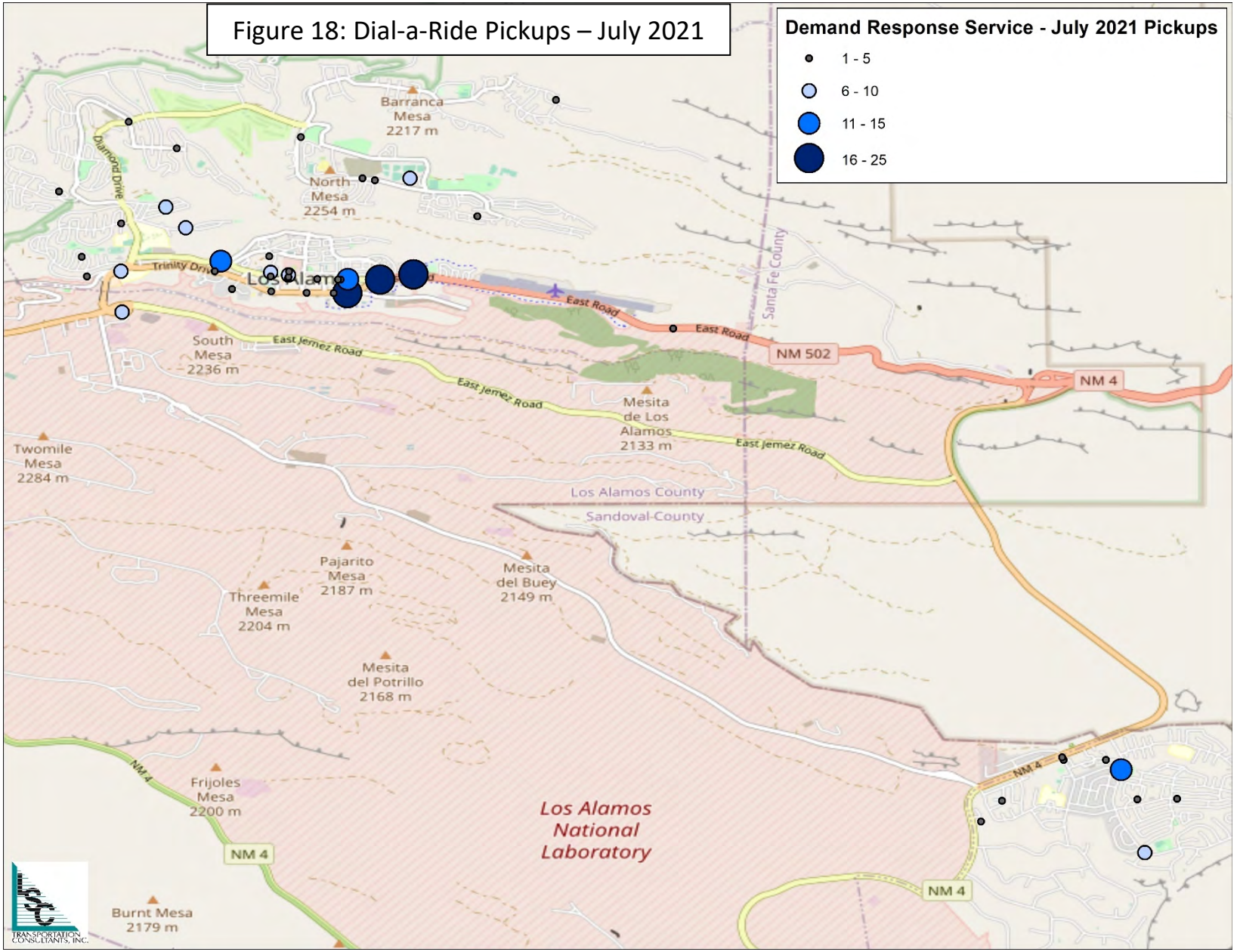
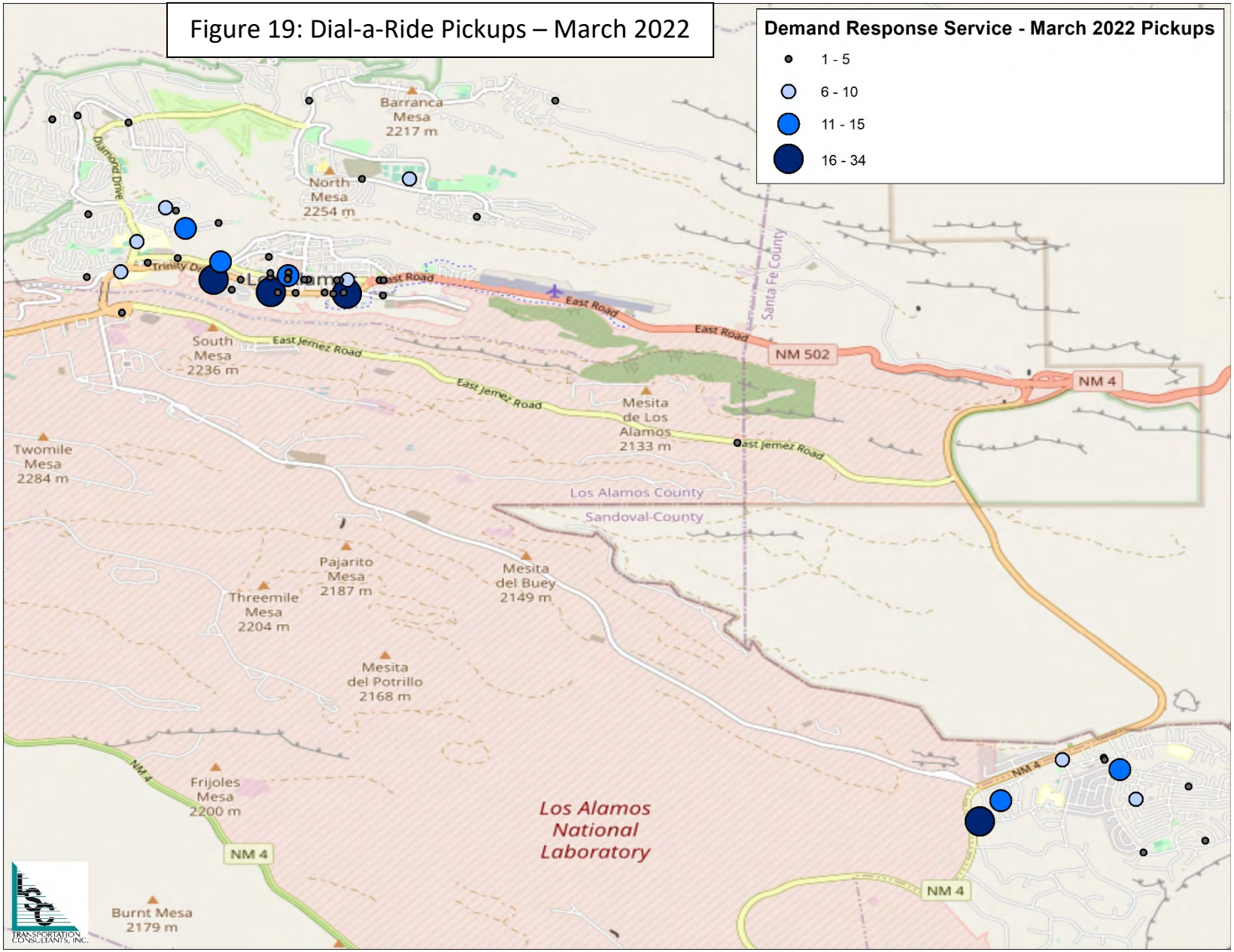


Figure 19: Dial-a-Ride Pickups – March 2022



Five stops are currently served in Los Alamos:

- Mesa Public Library – On the north side of Central Ave at 20th Street, in front of the Mesa Public Library.
- TA-3 TC -– The Tech Area-3 Transit Center. This lot is located on the south side of Jemez Road, east of Diamond Drive at the Los Alamos National Laboratories.
- Ashley Pond on Trinity Drive
- Los Alamos Medical Center on Diamond Drive
- Knecht Street and Trinity Drive near Smiths

Fares are $3 per trip on the Purple and Blue Routes with a $90 monthly pass, while fares on the Green Route are $2 per trip with a $60 monthly pass.

Ridership Data

Table 17 presents Park and Ride average daily boarding data in Los Alamos for pre-COVID conditions, indicating the following:

- Total average daily boardings of 181.2 passengers per weekday.
- The majority of ridership (56.3 percent) was on the Blue Route services to/from Santa Fe, with 22.1 percent on the Green Route to/from Espanola and 21.6 percent on the Purple Route to the NM 599 Rail Runner station.

The large majority of boardings are in the afternoon commute period (93.3 percent) with 37.2 percent in the 4 PM hour. There are some (7.3 percent or 15 passengers per day) boarding in the AM period, largely on the Blue Route. Evening ridership is incredibly low.

74.8 percent of total Park and Ride boardings are at the Transit Center, followed by 18.5 percent at the Mesa Public Library and 6.7 percent at the Medical Center. Ridership at the Ashley Pond and Knecht Street stops was extremely low.

North Central Regional Transit District

As part of an extensive service that includes Taos and Santa Fe, the North Central Regional Transit District (NCRTD) prior to the pandemic operated Route 400, operating two roundtrips per day between Los Alamos and Espanola, with stops at the San Ildefonso and Pojoaque Pueblos. Service times in Los Alamos (at the Transit Center) were at 10:30 AM and 1:50 PM. In FY 2018, this route carried a total of 1,380 passengers, or approximately only 6 passengers per day. This route has been suspended since the COVID pandemic began in FY 2020.

Table 17: Park and Ride Average Daily Boardings by Stop and Hour

July 2018 to June 2019

Hour Start	Transit Center (TA3)				Medical Center			Mesa Public Library				TOTAL			
	Blue	Green	Purple	Total	Blue	Green	Total	Blue	Green	Purple	Total	Blue	Green	Purple	Total
6:00 AM	1.1	0.3	0.2	1.6	1.0	0.0	1.0	3.3	0.0	1.9	5.2	5.3	0.3	2.1	7.7
7:00 AM	1.4	0.5	0.0	1.9	0.5	0.2	0.7	1.0	0.7	0.0	1.7	3.0	1.3	0.0	4.2
8:00 AM	0.2	0.1	0.0	0.3	0.2	0.1	0.3	0.6	0.2	0.0	0.9	1.1	0.3	0.0	1.4
9:00 AM	0.6	0.0	0.0	0.6	0.2	0.0	0.2	0.9	0.0	0.0	0.9	1.6	0.0	0.0	1.6
3:00 PM	16.1	8.6	8.7	33.4	1.5	4.3	5.8	3.7	2.8	3.8	10.3	21.3	15.7	12.5	49.5
4:00 PM	32.1	12.7	23.6	68.4	1.9	2.8	4.7	4.0	7.2	5.7	16.9	38.0	22.7	29.4	90.1
5:00 PM	50.5	8.9	7.5	66.8	1.8	1.2	3.0	3.2	3.0	1.0	7.2	55.5	13.2	8.4	77.1
6:00 PM	7.7	0.0	0.0	7.7	0.6	0.0	0.6	1.3	0.0	0.0	1.3	9.6	0.0	0.0	9.6
8:00 PM	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.5	0.0	0.0	0.5	1.1	0.0	0.0	1.1
Total	110.2	31.0	40.0	181.2	7.7	8.5	16.2	18.5	13.9	12.4	44.8	136.4	53.6	52.4	242.4
PERCENT OF TOTAL															
6:00 AM	0.4%	0.1%	0.1%	0.6%	0.4%	0.0%	0.4%	1.4%	0.0%	0.8%	2.1%	2.2%	0.1%	0.9%	3.2%
7:00 AM	0.6%	0.2%	0.0%	0.8%	0.2%	0.1%	0.3%	0.4%	0.3%	0.0%	0.7%	1.2%	0.5%	0.0%	1.8%
8:00 AM	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.3%	0.1%	0.0%	0.4%	0.4%	0.1%	0.0%	0.6%
9:00 AM	0.2%	0.0%	0.0%	0.2%	0.1%	0.0%	0.1%	0.4%	0.0%	0.0%	0.4%	0.7%	0.0%	0.0%	0.7%
3:00 PM	6.6%	3.6%	3.6%	13.8%	0.6%	1.8%	2.4%	1.5%	1.1%	1.6%	4.3%	8.8%	6.5%	5.2%	20.4%
4:00 PM	13.3%	5.2%	9.8%	28.2%	0.8%	1.2%	1.9%	1.6%	3.0%	2.4%	7.0%	15.7%	9.4%	12.1%	37.2%
5:00 PM	20.8%	3.7%	3.1%	27.6%	0.7%	0.5%	1.2%	1.3%	1.2%	0.4%	3.0%	22.9%	5.4%	3.5%	31.8%
6:00 PM	3.2%	0.0%	0.0%	3.2%	0.3%	0.0%	0.3%	0.5%	0.0%	0.0%	0.5%	4.0%	0.0%	0.0%	4.0%
8:00 PM	0.2%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.2%	0.4%	0.0%	0.0%	0.4%
Total	45.5%	12.8%	16.5%	74.8%	3.2%	3.5%	6.7%	7.6%	5.7%	5.1%	18.5%	56.3%	22.1%	21.6%	100.0%

Note: Stops at Ashley Pond and Knecht Street also served, with average daily boardings less than 0.2 at each.

Los Alamos Retired and Senior Organization

The Senior Organization provides wheelchair-accessible van service from 8 AM to 4 PM on Mondays, Tuesdays, and Saturdays, as well as from 8 AM to 6 PM on Wednesdays, Thursdays, and Fridays. Trips throughout the County are served. There is a suggested donation of $4 per trip. 24-hour advance reservations are required.

PEER COMPARISON

A peer analysis can help an agency understand its size, scope, and operating statistics in comparison to other similar agencies. While no two transit agencies are identical, it can be helpful to compare metrics across systems that operate in similar environments, such as service areas with similar populations or agencies providing a similar number of rides each year. This analysis can offer insights into funding mechanisms, overall operations, challenges, and opportunities.

Selected Peers

Peers for the ACT peer analysis were chosen based on having similar service area populations, similar annual ridership, and being located in a similar region of the country. The analysis used data from the National Transit Data Base for 2020. The selected peers are:

- City of Durango Transit, Durango, CO
- Butte-Silver Bow Transit, Butte, MT
- Vista Transit, Sierra Vista, AZ
- Red Apple Transit, Farmington, NM

Los Alamos is a relatively compact community with a large employment center accessible by transit. This leads to a high level of ridership in comparison to similar communities in the southwest. Table 18 shows the following:

- ACT has the highest ridership per capita of 17.0 trips per person annually, much greater than the peer average of 5.7. In terms of service area population Los Alamos County is ranked 5th.
- ACT also has the largest operating budget, $3.5 million which is more than double the peer average. ACT has the second highest operating cost per trip of the peer agencies at $11.07 as compared to the peer average of $8.53.
- In terms of productivity, ACT's passenger-trips per vehicle service hour is 130 percent of the peer average of 10.3.

Table 18: Peer Transit System Operational Analysis

FY 2020

Transit System	Location	Input Data (Annual) Ridership	Vehicle Service Hours	Vehicle Service Miles	Service Area Population	Total Operating Costs
Atomic City Transit	Los Alamos, NM	321,964	23,967	452,962	18,976	$3,562,831
City of Durango	Durango, CO	232,798	23,208	323,376	19,433	$1,898,104
Butte Silver Bow Transit	Butte, MT	183,658	16,812	222,016	34,263	$1,232,380
Vista Transit	Sierra Vista, AZ	146,271	10,469	116,943	45,166	$927,430
Red Apple Transit	Farmington, NM	93,430	14,612	217,851	44,967	$1,207,067
Peer Average		**164,039**	**16,275**	**220,047**	**35,957**	**$1,316,245**
ACT Rank (1 = Highest)		1	1	1	5	1

Transit System	Location	Performance Measures Annual Ridership per Capita	Passengers per Vehicle-Hour	Passengers per Mile	Total Operating Cost per Hour	Total Cost per Psgr-Trip
Atomic City Transit	Los Alamos, NM	17.0	13.4	0.7	$148.65	$11.07
City of Durango	Durango, CO	12.0	10.0	0.7	$81.79	$8.15
Butte Silver Bow Transit	Butte, MT	5.4	10.9	0.8	$73.30	$6.71
Vista Transit	Sierra Vista, AZ	3.2	14.0	1.3	$88.59	$6.34
Red Apple Transit	Farmington, NM	2.1	6.4	0.4	$82.61	$12.92
Peer Average		**5.7**	**10.3**	**0.8**	**$81.57**	**$8.53**
ACT % of Peer Average		**300%**	**130%**	**88%**	**182%**	**130%**
ACT Rank (1 = Highest)		**1**	**2**	**4**	**1**	**2**

Source: Atomic City Transit and National Transit Database 2020 Transit Agency Profiles

EXISTING SERVICE STANDARDS

The 2015 Short Range Transit Plan (SRTP) identified the following goals and standards for ACT:

- Goal #1: Provide mobility opportunities for residents and visitors in Los Alamos
  - Objective 1.a: Serve elementary schools, the middle school, and high school; and key activity centers within Los Alamos County including major employers, government buildings, medical clinics, hospitals, nursing homes, and shopping centers.
  - Objective 1.b: Serve the elderly, people with disabilities, low-income, minority, and non-English-speaking individuals as well as those that cannot drive or cannot afford a vehicle.
  - Objective 1.c: Provide connections to regional services for commuters to and from Los Alamos County.

- Goal #2: Continue to enhance the environmental sustainability of the transit system.
  - Objective 2.a: Use smaller vehicles where appropriate, more fuel-efficient vehicles, and alternative energy vehicles to reduce the carbon footprint of the entire transit system.
  - Objective 2.b: Pursue federal funding through all available programs to help offset the cost of new alternative fuel vehicles.
  - Objective 2.c: Develop sustainable local funding sources.

- Goal #3: Provide high-quality, customer-oriented service.
  - Objective 3.a: Operate 30-minute frequency service during peak periods.
  - Objective 3.b: Operate fixed routes with a 95 percent on-time rate as defined by never leaving a scheduled stop early and being no later than five minutes behind the scheduled arrival time at each stop along the route.
  - Objective 3.c: Distribute a rider survey once a year to obtain input from system users on the adequacy of Atomic City Transit services and any unmet needs.
  - Objective 3.d: Distribute a rider survey once a year to parents to obtain input from student users on the unmet needs of Atomic City Express services.
  - Objective 3.e: Implement Intelligent Transportation System (ITS) applications to monitor system performance and provide real-time information to users.

- Goal #4: Provide efficient, effective, and safe services.
  - Objective 4.a: Coordinate transportation services with the other transportation providers in the area to meet regional needs.
  - Objective 4.b: Provide service to 90 percent of the population in the areas with the greatest transit needs.

- Objective 4.c: Implement weekend services.
- Objective 4.d: Increase ridership to 600,000 passengers in FY 2015.
- Objective 4.e: Increase system performance to a systemwide average of 21 passengers per hour.
- Objective 4.f: Improve individual routes to achieve a productivity level of 16 passengers per hour.
- Objective 4.g: Ensure operations have fewer than 2.5 preventable accidents per 100,000 vehicle-miles.
- Objective 4.h: Provide convenient timed transfers between routes.

- Goal #5: Transportation services will be flexible and adaptable to meet changing conditions and needs in Los Alamos County
  - Objective 5a: Conduct an annual review of goals, objectives, accomplishments, new needs, and performance.
  - Objective 5c: Complete an annual review of system performance and adjust service to improve performance.

- Goal #6: Promote the transit service.
  - Objective 6.a: Develop a public education program on the benefits of transit services and the need to maintain/improve the overall transportation system in Los Alamos.
  - Objective 6.b: Work with local employers to promote the use of the transit system, especially for employers that are expected to attract employees from outside of the area.

Table 19 presents 2015 quantitative performance standards and compares them to current performance for FY 2022. As shown in the table, the ridership goal of 600,000 one-way passenger-trips per year is significantly greater than actual ridership of 193,000. With the long-term impacts of the COVID pandemic unknown, a more realistic ridership goal would be closer to levels seen in FY 2020 or 300,000. Similarly, the 2015 also set a high bar for productivity levels at both the systemwide and fixed route level, 21 passenger-trips per hour and 16 passenger-trips per hour, respectively. This SRTP update recommends the following productivity standards for each type of service:

- Systemwide—13. 0
- Fixed Route—10.0
- Express—50.0
- Demand Response Services—2.5
- Bandelier—30.0

As noted in an earlier section, on-time performance for the fixed routes does not meet the 95 percent on-time standard. As on-time performance is an important part of marketing and improving transit reliability, it is recommended that ACT maintain a 95 percent on-time standard.

Preventable accidents are a measure of how safely the transit system is operated. ACT tracks the number of accidents but does not categorize them as preventable or not.

Table 19: Atomic City Transit Performance Goals and Standards

Service	Category	Standard/Goal	FY 2022	Recommended Standard/Goal
Systemwide	Ridership	600,000	193,686	300,000
Systemwide	Passenger-trips per hour	21	9.9	13.0
Fixed Route	Passenger-trips per hour	16	9.0	10.0
Express Routes	Passenger-trips per hour	--	--	50.0
Demand Response	Passenger-trips per hour	--	--	2.5
Bandelier	Passenger-trips per hour	--	--	30.0
Fixed Routes	On-time Performance	95% on time	72% on time	95% on time
Systemwide	Preventable accidents	< 2.5 per 100,000 miles	NA	< 2.5 per 100,000 miles

Source: 2015 Atomic City Transit Plan and Atomic City Transit

INVENTORY OF EXISTING AMENITIES

Bus Stops

Figure 20 presents the approximate location of passenger amenities along ACT route. All stops are signed, and 47 benches and 32 shelters have been placed at high activity stops along the routes. Solar lights have also been placed at 61 bus stops.

Transit Technology

ATC uses Avail technology for Automatic Vehicle Location (AVL), dispatch and real time passenger information and paratransit scheduling. This allows for recording of passenger boardings by stop and on-time performance.

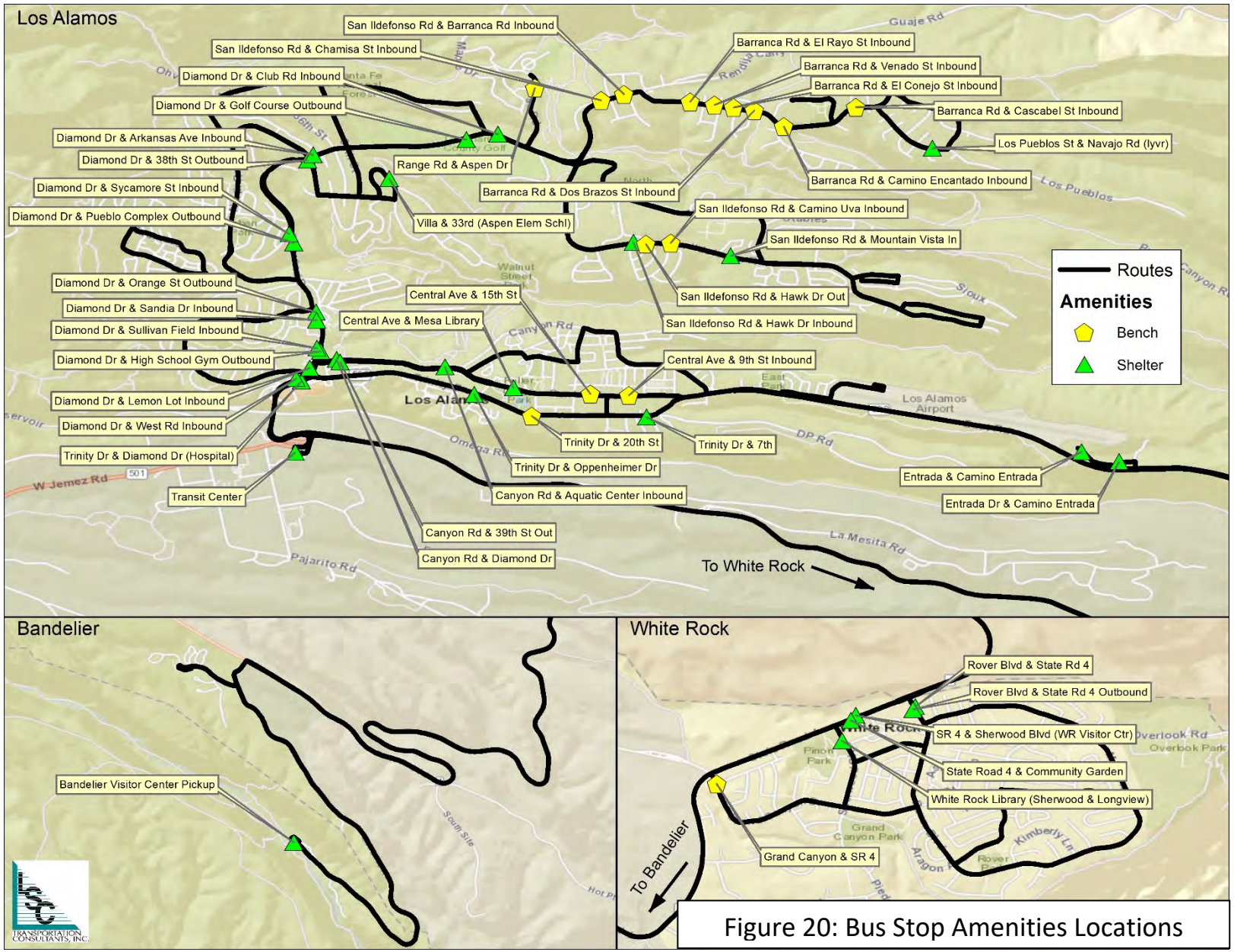


Figure 20: Bus Stop Amenities Locations

CAPITAL INVENTORY

Vehicle Fleet

ACT is in the process of replacing two diesel buses. One of the gasoline powered vehicles will be replaced with an electric vehicle. Three more vehicles will be replaced in FY 2023 or FY 2024 depending on supply chain issues. Five more diesel buses will be eligible for replacement by the end of the planning period as will the smaller gas-powered vans in the fleet.

Facilities

Atomic City Transit has a transit center located at the Diamond/West Jemez intersection at the badge check entrance to LANL near TA-3. This transit center is shared between ACT, LANL Shuttles, and NMDOT Park and Ride buses and the land is owned by LANL. The facility includes passenger waiting areas and a portable toilet cabin for drivers. The transfer center provides shelter and amenities such as benches and trash cans for passengers of ACT and NMDOT Park and Ride.

There are several disadvantages of the transit center:

- There is no parking available at the transit center.
- Although conveniently located next to LANL with direct transfers possible to LANL shuttles, there are no shops or other employment centers near the transit center.
- Entry and exit of the transit center can be challenging during rush hour. Buses must turn left into the transit center at an unsignalized intersection across a considerable flow of traffic exiting LANL.
- With the current schedule, 6 buses meet at the transit center at 30 minutes past the hour, in addition to NMDOT Park and Ride buses. There is no room for additional vehicles at the transit center.
- As public transit transitions to zero-emission vehicles, ACT will need charging facilities at the transit center. ACT does not own the land and therefore would be reluctant to make any capacity improvements or install charging infrastructure.

The LANL Transit Services Options Analysis Report proposes making improvements to the transit center including expanding the capacity for buses and installing EV charging infrastructure. The plan also recommends building a transit center in White Rock with a Park and Ride lot. LANL shuttles would connect employees to lab work sites from the White Rock Transit Center. Before a more permanent White Rock Transit Center location is chosen and built, the SR 4 & Community Garden stop in White Rock would serve as the temporary connection point.

ACT has received funding to study new locations for the transit center in downtown Los Alamos. A transit center in downtown could improve on-time performance as buses would not have to go through rush hour traffic leaving the lab. It may also provide a more central transfer point for ACT routes that is adjacent to businesses and services. However, there would be some challenges associated with how to best connect with LANL shuttles. Advantages and disadvantages of a transit center in downtown will be discussed further in the capital alternatives analysis chapter.

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Chapter 4

SUMMARY OF PUBLIC OUTREACH

SUMMARY OF SURVEY EFFORTS

It is essential that any successful transit plan consider the thoughts and opinions of the greater community that uses the local public transit system. Initial public outreach efforts for the 2022 ACT SRTP consisted of an onboard passenger survey and an online community survey. Both surveys were available from May until July 2022.

The onboard survey instruments consisted of a two-page questionnaire, made available in both English and Spanish. The survey consisted of 18 questions. Drivers distributed the onboard surveys for passengers to self-administer. Passengers could also take the onboard survey by scanning QR codes on informative flyers onboard the buses.

The online community survey was made available through email notification sent to stakeholders in Los Alamos County to be further distributed to their respective networks of contacts. The online survey was available through Survey Monkey and contained 15 questions. Participants could also provide their information if they wanted more news about the SRTP.

In all, 97 passengers completed the onboard survey, and 156 community members completed the online survey. The ACT onboard survey results are provided in Appendix B and community survey results are in Appendix C. Highlights of the survey results are below.

Passenger Profile (Onboard Surveys)

- Most of the participants were adults; 31 percent were 25 to 39 years old, and another 31 percent were 40 to 64 years old. Senior adults, or adults ages 65 or older, represented 21 percent of responses. Few respondents were children or college-aged adults, likely because the survey was conducted during the summer.

- A large portion of ACT passengers choose to ride the bus even though they are able to drive and have a vehicle available: 51 percent of the respondents reported that they had an alternative vehicle available, and 84 percent had their driver's license.

- Passengers were most commonly traveling on the bus to go to work (32 percent) or for recreation (27 percent). The top motivations for riding the bus among the passengers surveyed were the environment (56 percent), to save money on costs associated with driving (43 percent), and to simply avoid driving (38 percent).

- Over 50 percent of the respondents were employed full time, while 13 percent were employed part time. 14 percent were either students in grade school or college.

Respondent Profile (Community Survey)

- The majority of participants reported that they live in a zip code within the Town of Los Alamos (64 percent). About one third of respondents live within White Rock (32 percent).

- Almost half of the respondents were adults between the ages of 40 to 64 years old. Senior adults represented 26 percent of participants, with seniors over the age of 75 comprising 10 percent of overall responses. Like the onboard survey, very few children or college-aged adults responded.

- The Los Alamos National Laboratory employs nearly one third of the community survey respondents (29 percent). Another 45 percent work or attend school at other locations within Los Alamos. Very few participants work in White Rock, Santa Fe, Albuquerque, or other locations.

- 97 percent of participants have at least one person in their home with a driver's license and 97 percent also have at least one vehicle available to their household.

- On their most recent trip taken on ACT, 30 percent of the respondents had been going to work, and 26 percent to a recreational or social activity. The participants' top motivations for riding the bus were to avoid driving (27 percent), the environment (16 percent), and because of not having a car available (16 percent).

Trip Patterns (Onboard Surveys)

- Routes popular among the surveyed passengers included Route 3 (24 percent), Route 1 (21 percent), Route 5 (21 percent), and Route 6 (20 percent). No one was riding or planning to ride Routes 7, 8, 9, 10, or 11, likely because very few students responded to the survey.

- Most of the respondents boarded the bus during the morning: 15 percent boarded between 6 AM to 7:59 AM, 27 percent boarded between 8:00 AM to 9:59 AM, and 18 percent boarded between 10 AM to 11:59 AM. Only 7 percent of respondents boarded during the final three hours of service (6 PM to 9 PM).

- Although passengers board the bus all across the ACT system, from the onboard survey data it was determined the following locations saw the strongest boarding and alighting activity among the survey participants:
  - Transit Center (17 percent of boardings and 13 percent of alightings)
  - Bandelier Visitor Center (7 percent of boardings and 7 percent of alightings)

- Mesa Public Library (2 percent of boardings and 6 percent of alightings)
- Range Road and Aspen Drive (2 percent of boardings and 6 percent of alightings)

- The vast majority of ACT passengers get to and from bus stop by walking (80 percent). The next most likely mode of travel to the bus stop among respondents was to drive their personal cars.

Travel Patterns (Onboard Surveys)

- The survey asked participants to identify what modes of travel they normally use. The most popular travel method, by far, was personal vehicles (76 percent). Other common transportation methods were public transit (10 percent), walking (7 percent), and getting a ride (4 percent). Respondents were asked more specifically what method of travel they normally use to get to work or school. 65 percent drive alone to work, 14 percent use public transit, 6 percent carpool, and 6 percent walk.

- Most of the community survey participants ride ACT irregularly: 26 percent never ride the bus, 35 percent ride less than once per month, and 17 percent ride less than 1 day per week.

Passenger Opinions (Onboard Surveys)

Passengers were asked to rank various components of ACT on a scale of 1 (poor) to 5 (excellent). ACT passengers indicated an overall high level of satisfaction with the service: 83 percent of answers were either 4 (good) or 5 (particularly good), and the overall service ranked an average of 4.5. The highest ranked ACT service characteristics were safety (4.8) and driver courtesy (4.7). Bus stops were not considered highly among the survey participants, with bus stop amenities (3.8) and bus stop locations (4.0) being the two lowest ranked characteristics.

Passenger Opinions (Community Survey)

Just like the onboard surveys, the community survey respondents were asked to rate various characteristics of ACT on a scale of 1 (poor) to 5 (excellent). Overall, the community survey respondents ranked public transit lower than the passengers (3.6 versus 4.5 in the onboard surveys). However, it is important to note that 58 percent of community respondents still have a good or excellent opinion of PTS (a 4 or a 5). The community survey respondents also ranked driver courtesy and safety as the highest two characteristics (both 4.4). Bus stop amenities and end time of bus service were the two lowest ranked factors (both 3.0).

Desired Improvements (Onboard Surveys)

To gain insight into what potential changes could be made to existing services to encourage increased ridership, passengers were asked to rank the likelihood that various service changes or economic conditions would result in them riding ACT more often. Passengers ranked these service improvements and economic conditions on a scale of 1 (exceptionally low impact on ACT ridership) to 5 (exceedingly

high impact on ACT ridership). The highest ranked service changes were an expanded service area, more frequent service, and later service hours, (all 3.8).

Weekend service was the most popular service improvement recommended by the survey participants. A few people asked for more frequent service and later service hours so they can actually ride the bus to and from work. Many people mentioned that, unfortunately, information provided by ACT is inaccurate. They recommended improving the bus trackers, clarifying the Route 2T and 2M maps, and improving the functionality of the app. Other suggestions included lowering the bike racks, turning off the engine when idling to reduce emissions, and for an expanded service area.

One new service idea was presented to the passengers; participants were asked if they would be interested in using an on-demand transportation program if ACT were to offer this service. Most respondents (65 percent) said they would use this type of program if it were to be made available. In regard to potential wait times, 37 percent of respondents said they would be willing to wait no more than 15 minutes after requesting their ride, and 47 percent said they would wait 15 to 30 minutes.

Desired Improvements (Community Survey)

In order to prioritize service improvements that may result in new bus riders, it is important to know what issues are preventing some community members from riding the bus. The top issues and reasons identified by the community survey participants preventing them from riding ACT are the bus schedule/frequency (38 percent), that they have their own transportation (22 percent), and the service area (7 percent). 11 percent have no issues with the current transit offerings.

The community survey participants were also asked to rank the likelihood that various service changes or economic conditions that could result in them riding ACT more often. Just like the onboard survey, respondents ranked these service improvements and economic conditions on a scale of 1 (exceptionally low impact on ACT ridership) to 5 (extremely high impact on ACT ridership). The highest ranked service change, by far, was to have more frequent service (4.2). The lowest ranked idea was to expand ACT's service area (2.5).

The most popular service improvement suggestions left by participants in the final survey question were the addition of weekend service and the redesign of the fixed route schedule in order to reduce travel times and the number of transfers (24 and 23 percent, respectively). 15 percent suggested expanding the service area and 10 percent asked for more frequent service. A significant number of respondents suggested drastically reducing the size of ACT or eliminating the transit system all together. These requests were mostly prompted by frustration from seeing empty buses operating.

STAKEHOLDER OUTREACH

In addition to gathering input from the general public, major stakeholders were contacted on several occasions to offer input for the transit plan update. Responses to date are summarized below:

Los Alamos National Laboratory

Employee hours at LANL vary but generally LANL employees work 10-hour shifts beginning at 6 AM or 7 AM. People tend to work from home on Mondays and "flex" Fridays. According to LANL staff 3,862 LANL employees live in Los Alamos County, 862 of which are in White Rock. LANL plans to add more employees and more buildings but no parking. This makes the need for LANL to shift to alternative transportation increasingly important. Nelson Nygard is conducting an implementation study to determine which alternative transportation options are feasible. It will be important for ACT to coordinate schedules with future LANL transportation programs. Recent surveys conducted by LANL have shown that employees are more likely to take public transit if their total commute time is not increased significantly.

As for plans for a new transit center, LANL indicated the potential for some "quick build" solutions to address the bus capacity issue at the current site until a new transit center is completed. Although keeping the transit center on LANL property is most convenient for LANL, staff understand the economic development side of locating the transit center in downtown.

North Central Regional Transit District (NCRTD)

NCRTD provides bus routes across northern New Mexico from Edgewood to Taos to Farmington. Prior to the pandemic NCRTD operated Route 400, between Los Alamos and Espanola, with stops at the San Ildefonso and Pojoaque Pueblos. This route was suspended due to driver shortage and a decrease in ridership. NCRTD plans to reinstate the route as soon as enough drivers are recruited. NCRTD recently updated their Transit Service Plan. According to the plan, the District plans to implement weekend service on a number of routes, including 100 Riverside, 110 Westside/Crosstown, 340 Chile Line Red, and an expansion of the 200/300 Santa Fe/Taos interlined regional service between Santa Fe, Espanola, and Taos (will replace 305 Taos Express). However, these changes will not be possible until additional operator recruitment has taken place.

NCRTD is also in the process of developing a Tribal Transit Plan for native tribes in the area. The plan evaluates current services provided to Tribal Entities in the area as well as related short-term improvements recommended in the Service Plan Update. The study may yield recommendations for Tribal services near Los Alamos, such as with San Ildefonso Pueblo.

NCRTD noted that the LANL Transit Options Analysis recommends changing route 400 to serve Los Alamos more directly. The existing service operates as a loop route with two round trips per day. The loop nature of the route would be revised and a direct route from Espanola to the ACT Transit Center would be implemented. Additionally, the plan recommends a new route to White Rock from Espanola. In coordination with the consultant who prepared the options analysis, NCRTD and its partners are working to kick off an implementation plan that provides concrete next steps and assigns responsibility for each task as well as timelines.

As for other coordination opportunities with ACT, NCRTD stated that the two agencies could collaborate on new technologies and mobility solutions so that riders have a seamless experience across transit systems. ACT and RTD coordinated the procurement of their CAD/AVL systems, so there is precedent for an opportunity for future technology and new mobility projects.

NCRTD was also asked to provide input on the subject of a new transit center in downtown Los Alamos. NCRTD stressed the importance of having the transit center be easily accessible for regional routes coming into Los Alamos from the east via State Route 502 as well as considering zero emission fuels.

New Mexico Department of Transportation (NMDOT)

NMDOT provides a variety of Park and Ride Lots with connecting bus route to employment centers in an effort to reduce traffic congestion, greenhouse gas emissions and provide a cost-effective way for New Mexico residents to commute. NMDOT provides 3 routes into Los Alamos with stops in downtown and at the transit center. NMDOT staff were asked how Atomic City Transit could better coordinate with NMDOT. They suggested specifying on the ACT schedule which routes provide connections to NMDOT services. Staff also mentioned that the number of transfers between ACT and NMDOT services is not recorded and therefore, suggested distributing a survey for NMDOT passengers.

Los Alamos Public Schools (LAPS)

ACT provides transportation for many school children as it is deemed a safe and convenient way for kids to get around. With service throughout the day, children find ACT more appealing than the school bus, if they want to go to the Teen Center or other after school destinations outside the times the yellow school buses run. LAPS staff indicated that their transportation budget is dependent on students that live in Los Alamos County riding school buses. High school, and some middle school, students who live in Los Alamos seem to catch ACT to/from school throughout Los Alamos County. There are specific count days each year that determines what transportation funding will be. It is important that those students are informed and encouraged to ride a school bus on those days.

When asked how ACT services could be improved to better help LAPS. Staff mentioned that perhaps LAPS drivers could be hired as “extra help” drivers to help with staffing shortages during the summer.

Chapter 5
ASSESS TRANSPORTATION NEEDS

This chapter summarizes issues and needs related to public transit in Los Alamos County and will serve as the basis for determining which transit service and capital alternatives will be analyzed.

TRANSIT NEEDS INDEX

Chapter 2 discussed the various segments of the Los Alamos County population which are typically transit dependent: Youth, older adults, disabled, low-income individuals, and zero-vehicle households. There is some overlap between these groups, therefore it is beneficial to map the combined transit dependent population across the entire study area to better understand what areas of Los Alamos County have the greatest need for transit services.

The "greatest transit need" is defined as those areas with the highest density of youth, zero vehicle households, older adults, people with ambulatory disabilities, and low-income populations. The U.S. Census Bureau's American Community Survey (ACS) data from Table 1 was used to calculate the greatest transit need. Using these categories, LSC developed a transit need index (Table 20). The density of the transit dependent population for each U.S. Census block group within each category was calculated and ranked into five segments (1= lowest need and 5 = greatest need). Appendix D includes maps showing the density of each transit dependent group across the county.

After each of the census block groups was ranked into the five segments, all of the scores were added together to achieve an overall score. This score, which ranges from 5 to 23, was again ranked into five segments in Table 20. Figure 21 graphically displays the overall transit needs index score for each block group.

Los Alamos County's transit dependent population mainly consists of youth, elderly and disabled. As shown in Figure 21 and Table 20, central White Rock has the greatest transit need. This area is currently served by the 2T and 2M routes.

SUMMARY OF PUBLIC TRANSIT NEEDS AND ISSUES

Los Alamos is a unique southwest community. The County is rather compact and has one major employer. This makes it easy to serve with public transit as distances between transit destinations are generally short. Roughly three-quarters of employed Los Alamos residents work within the county, yet there is also a large number of LANL employees who commute from outside of the county. Commuters unfortunately exacerbate an existing parking shortage and increasing traffic congestion within Los Alamos County. These issues demonstrate a need for coordination between ACT and other regional transit services (including LANL). A summary of public transit needs/issues are summarized below:

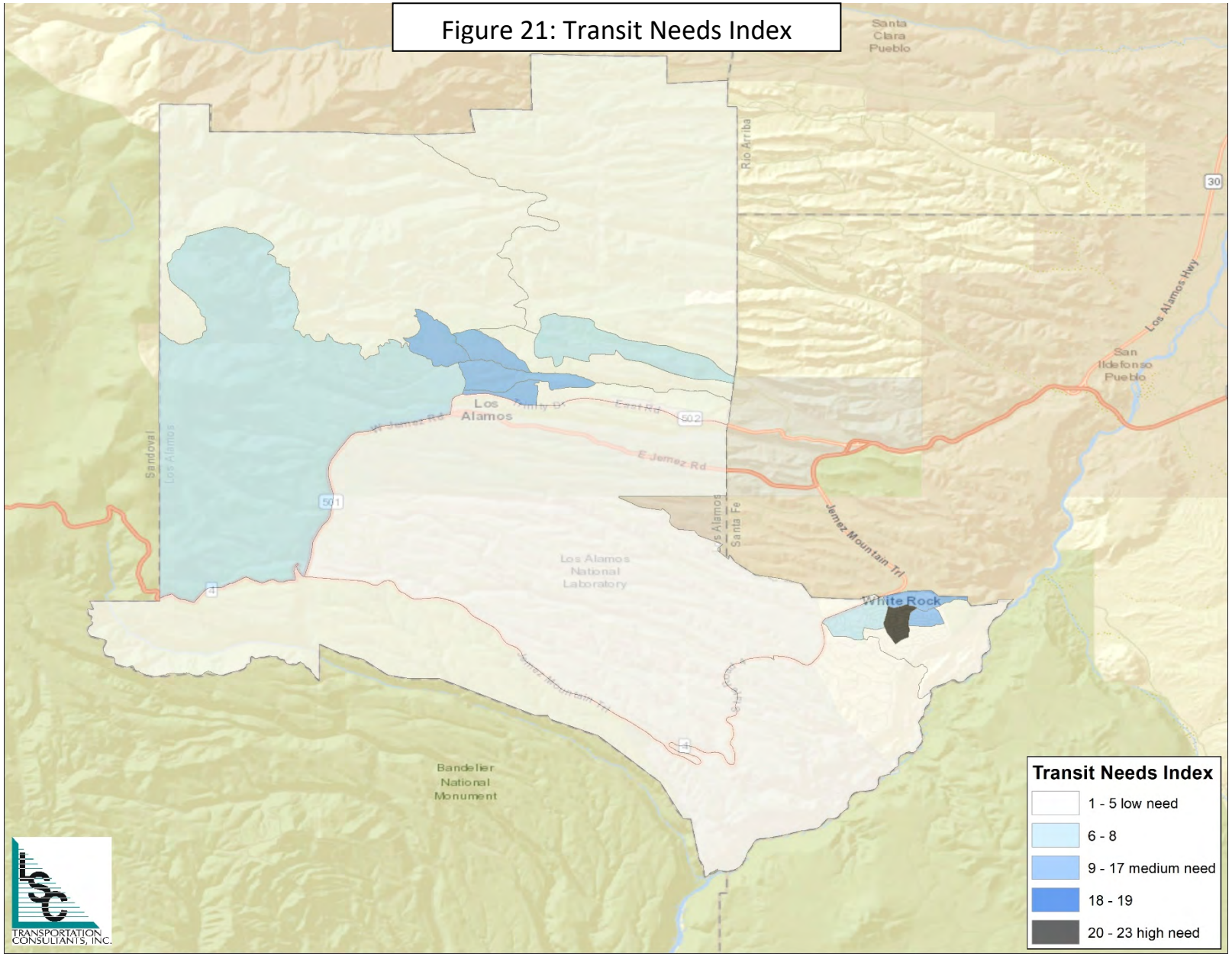
Table 20: Los Alamos County Relative Transit Needs by Census Tract

Census Tract	Census Block Group	Square Miles (1)	Area Description	Total Population	Total Households	Youth per Sq. Mi.	Rank	Seniors per Sq. Mi.	Rank	Low Income per Sq. Mi	Rank	Disabled per Sq. Mi.	Rank	Zero Vehicle Households per Sq. Mi.	Rank	Overall Score	Final Rank
1	1	4.3	Santa Fe National Forest; Northeast Los Alamos County	1,212	490	58.2	1	62.5	1	6.9	1	22.6	1	0.0	1	**5**	**1**
1	2	1.4	Los Alamos - Northeast	861	353	105.2	1	136.4	1	0.0	1	50.6	1	12.3	1	**5**	**1**
1	3	1.5	Los Alamos - Central East	1,809	693	181.5	1	186.2	2	69.6	2	100.0	1	4.8	1	**7**	**2**
2	1	16.7	Los Alamos - Central West	1,071	494	16.7	1	1.9	1	4.1	1	5.1	1	0.6	1	**5**	**1**
2	2	0.4	Los Alamos - North	1,195	364	717.5	3	516.4	3	77.0	2	234.4	3	0.0	1	**12**	**3**
2	3	0.5	Los Alamos - Southwest	1,537	687	303.6	1	750.6	5	0.0	1	229.0	3	22.6	2	**12**	**3**
2	4	1.7	Sante Fe National Forest; Northwest Los Alamos County	1,569	688	184.0	1	213.5	2	33.6	1	73.1	1	0.0	1	**6**	**2**
4	1	1.1	Los Alamos - Southeast	731	401	54.8	1	141.6	1	0.0	1	57.5	1	0.0	1	**5**	**1**
4	2	0.2	Los Alamos - Central	1,000	488	851.2	3	366.1	3	45.8	2	393.6	4	4.6	1	**13**	**3**
4	3	1.8	Los Alamos National Laboratory	768	427	18.1	1	92.8	1	11.0	1	36.3	1	0.0	1	**5**	**1**
4	4	0.6	Los Alamos - Central South	1,326	729	122.2	1	298.4	2	211.1	5	181.0	2	0.0	1	**11**	**3**
5	1	0.3	White Rock - Northern Region	527	244	162.6	1	223.1	2	98.3	3	181.3	2	0.0	1	**9**	**3**
5	2	0.1	White Rock - Central East	875	327	1759.5	5	901.2	5	0.0	1	569.5	5	0.0	1	**17**	**3**
5	3	1.7	White Rock - East	1,505	446	202.9	1	131.7	1	38.2	1	80.5	1	0.0	1	**5**	**1**
5	4	2.6	South of NM State Road 4	763	325	7.8	1	113.3	1	2.7	1	27.1	1	0.0	1	**5**	**1**
5	5	0.4	White Rock - West	945	292	595.8	2	340.8	2	0.0	1	194.1	2	0.0	1	**8**	**2**
5	6	0.2	White Rock - Central West	1,282	445	1285.4	4	784.0	5	159.5	4	531.8	5	82.0	5	**23**	**5**
			Total County	**18,976**	**7,893**												

Source: US Census American Community Survey, 2020

Note 1: Excludes National Forest and LANL property where there are no residential areas.

Figure 21: Transit Needs Index



- Coordinate with LANL, NMDOT and NCRTD to increase modes of alternative transportation to the LANL in a way that does not increase travel time for employees.
- Central White Rock has the greatest transit needs overall. Microtransit could be an option for increasing transit options in this community.
- On-time performance could be improved, particularly for the routes which travel to White Rock. The Express routes also have poor on-time performance.
- Most of the fixed routes are negatively impacted by rush hour traffic leaving LANL from around 4 PM to 6 PM.
- In terms of overall fixed route performance, Rout 2T and 5 (Barranca Mesa) are the least productive and the most expensive to operate.
- Productivity on the demand response services has increased over the years. The evening DAR is particularly productive, carrying 12 passengers per hour.
- On-board surveys indicated a desire for weekend service and a willingness to use on-demand micro-transit.
- ACT provides safe and convenient transportation for school children, and many children prefer public transit to the yellow bus service. This makes it more challenging for the school district to obtain funding for transportation.
- Maintain and improve driver retention by considering a reduction in the need for split shift schedules.
- There is a need for a new transit center which is owned by the County, has capacity for ACT and regional transit services expansion and zero-emission vehicle charging.
- There is a need to replace transit vehicles over the next five years in order to maintain a well-working fleet. Zero-emission vehicles should be considered.

Chapter 6
SERVICE ALTERNATIVES

The following presents a list of service options for Atomic City Transit which are designed to increase mobility for Los Alamos County residents and employees and/or make public transit services more efficient. Potential ridership and operating costs are estimated for each service alternative in Table 21. Table 22 presents relevant performance metrics for each alternative. Operating costs represent projected costs for Fiscal Year (FY) 2024 (beginning July 1, 2023). Costs are based on the Atomic City Transit projected FY23 operating budget and increased by 3 percent based on Bureau of Labor Statistics projections. Base case service levels are assumed to be roughly that operated in FY 2022, which does not include Route 2 Peak, but does include Route 3 and Peak Service for Routes 1 and 6. A reduced service plan is also presented in this chapter to discuss the current labor shortage. Note that cost and ridership estimates in Tables 1 and 2 represent marginal costs or passenger-trips, equal to the changes from existing service.

EXPAND PEAK SERVICE ON PRODUCTIVE ROUTES

In the community survey, one of the issues identified as preventing respondents from riding Atomic City Transit was "bus schedule/frequency". Surveys conducted by LANL of their employees also noted that there is a high importance placed on transit service frequency. The following alternatives explore increasing frequency on Atomic City Transit's most productive routes.

Route 1 – Extend Peak Service from 1 PM Hour to 5 PM Hour

In the base case scenario, fifteen-minute frequency is provided on Route 1 between 11 AM and 1 PM after which it returns to 30-minute frequency. Ridership by hour data from January to June 2022 show that average daily ridership on Route 1 increased from 10 to 19 in the 2 PM hour and remained high until the 6 PM hour. Therefore, this alternative reviews extending peak service (15-minute frequency) from 1 PM to 5 PM on Route 1. Currently Route 1 Peak service is provided by the same driver who does Route 6 Peak service. This alternative would require an additional vehicle and driver for this four-hour period.

Ridership by hour data for both summer and school year seasons show that on average 18 passenger - trips are carried on Route 1 for each hour beginning at 1 – 5 PM. An elasticity analysis was conducted to estimate additional ridership from the added frequency. Elasticity is the measurement of the percentage change of one economic variable in response to a change in another. Various studies provide insight as to the percentage change in ridership observed at other transit agencies after increasing or decreasing service levels. According to this analysis, ridership on Route 1 would increase by 32,240 one-way trips annually. The increase in service comes at a cost of $102,165 annually.

Benefits: As shown in Table 22, productivity of this alternative (27.8 passenger-trips per vehicle hour) exceeds the recommended standard of 10 passenger-trips per hour for ACT fixed route services. Table 22 also indicates that it will only cost $3.17 for each additional passenger-trip served, which makes this alternative cost efficient.

Disadvantages: Increase in annual operating costs and an additional driver shift and vehicle required.

Table 21: Atomic City Transit Service Alternatives

FY 2023-24

Alternative	# of Additional Shifts	Annual Operating Days	Annual Vehicle Service Miles	Annual Vehicle Service Hours	Annual Operating Cost	Ridership Impact (One-Way Trips) Daily	Ridership Impact (One-Way Trips) Annual
Status Quo							
Marginal Operating Costs		248	536,958	28,065	$2,933,896	1,051	260,622
Fixed Costs					$2,002,190		
Total Status Quo					**$4,936,087**		
Extend Peak Service on Route 1 from 1 PM to 5 PM	1	248	7,775	1,160	$102,165	130	32,240
Extend Peak Service on Route 6 between 9:20 AM and 3 PM	1	248	18,687	1,320	$129,291	50	12,400
Saturday Service Fixed Route Service 9 AM - 5 PM (2 bus) Option 1							
Los Alamos Main Route Half-Hourly Service	2	52	4,576	468	$43,125	155	8,080
ACT Assist within Los Alamos	1		2,184	468	$39,956	6	310
White Rock Connection to Downtown	1	52	9,535	468	$49,694	55	2,880
Dispatcher/Supervisor costs	1		--	--	$7,904	--	--
Total		**52**	**16,295**	**1,404**	**$140,679**	**217**	**11,270**
Saturday Service Fixed Route Service 9 AM - 5 PM (2 bus) Option 2							
Los Alamos Main Route Hourly Service	2	52	5,824	468	$44,778	158	8,195
ACT Assist within Los Alamos	1		2,184	468	$39,956	6	310
White Rock Connection to Downtown	1	52	9,535	468	$49,694	55	2,880
Dispatcher/Supervisor costs	1		--	--	$7,904	--	--
Total		**52**	**17,543**	**1,404**	**$142,330**	**219**	**11,390**
Saturday Service Fixed Route Combined Microtransit, 9 AM to 5 PM							
White Rock connection to Downtown	1	52	9,535	468	$49,694	55	2,880
Microtransit in Los Alamos Phase I - 2 Vans	2	52	18,720	936	$98,925	90	4,680
Microtransit in Los Alamos Phase 2 - 3 Vans	4	52	54,054	1,404	$182,795	149	7,722
Dispatcher/Supervisor costs			--	--	$7,904	--	--
Technology Costs					$25,000		
Total - Phase 1		**52**	**28,255**	**1,404**	**$181,524**	**145**	**7,560**
Total - Phase 2		52	**63,589**	**1,872**	**$265,390**	**200**	**10,602**
White Rock Service Alternatives							
Eliminate Second Loop on 2T		248	-14,285	0	-$18,920	1	240
Eliminate Second Loop on 2T from 3 PM to 5 PM		248	-2,381	0	-$3,150	0.5	120
Shortened Route 2M		248	-20,832	0	-$27,600	-13.4	-3,320
Route 2P - Stay on Aragon and Grand Canyon			0	0	$0		
Replace Route 2T with Microtransit During Non-Peak Hours							
Discontinue Route 2T between 9 AM and 3 AM		248	-30,950	-1,490	-$159,000	-14	-3,588
White Rock Microtransit 9 AM to 3 PM (1 van)		248	1,680	1,490	$120,225	4.5	1,120
Technology Costs					$20,000		
Total		**248**	**-29,270**	**0**	**-$18,775**	**-10.0**	**-2,468**
Combined Shortened Route 2M and Microtransit							
Shortened Route 2M		248	-20,832	0	-$27,600	-13.4	-3,320
Eliminate Second Loop on 2T		248	-14,285	0	-$18,920	1	240
White Rock Microtransit 6 AM to 7 PM (1 van)	2	248	8,093	3,224	$266,040	21.8	5,395
Technology costs					$20,000		
Total		**248**	**-27,024**	**3,224**	**$239,520**	**9.3**	**2,315**
Route 2T Express Route							
Existing Route 2T		248	-83,723	-3,224	-$366,230	-47.9	-11,874
2T Express		248	116,064	3,224	$409,080	57.9	14,367
White Rock Microtransit 6 AM to 7 PM (1 van)	2	248	8,093	3,224	$266,040		
Technology Costs					$20,000		
Total			**40,434**	**3,224**	**$328,890**	**10.0**	**2,490**
Route 3 Revised							
Discontinue Service to Co-op		248	-23,560	0	-$31,210	-8	-1,984
Serve Sandia/Trinity Drive		248	9,300	0	$12,320	23.5	5,828
Total		**248**	**-14,260**	**$0**	**-$18,890**	**15.5**	**3,844**
Early Morning Connections to the Transit Center for LANL Employees							
Los Alamos Early Morning Microtransit to Transit Center (5 AM - 7 AM)		248	4,464	0	$5,914	6	1,488
Add 4:55 AM RT on 2T		248	6,349	250	$28,209	2	500
Add 5:30 AM run on 2M		248	5,406	140	$18,249	2	500
Service Reductions							
Eliminate 6 AM run of 2M		248	-6,527	-250	-$28,450	-0.9	-220
Serve Pajarito Mountain Ski Area							
New Weekend Service to Pajarito Mountain Ski Area - 2 Roundtrips	1	19	532	152	$12,740	50	950

Table 22: Comparison of Service Alternatives

FY 2023-24

Shading Indicates Does Not Meet Minimum Standard

Shading Indicates Meets Minimum Standard

Alternative	Change from Existing Service: Annual Ridership	Change from Existing Service: Marginal Annual Operating Cost	Change from Existing Service: Vehicle Hours	Performance Measures: Marginal Operating Cost per Veh-Hour	Performance Measures: Marginal Passenger-trips per Veh-Hour	Performance Measures: Marginal Operating Cost per Passenger Trip
Status Quo Systemwide (Fixed costs not included)	260,622	$2,933,896	28,065	$105	9.29	$11.26
Extend Peak Service on Route 1 from 1 PM to 5 PM	32,240	$102,165	1,160	$88.07	27.8	$3.17
Extend Peak Service on Route 6 between 9:20 AM and 3 PM	12,400	$129,291	1,320	$97.95	9.4	$10.43
Saturday Service Fixed Route Option 1 (30 minute service in Los Alamos)	11,270	$140,679	1,404	$100.20	8.0	$12.48
Saturday Service Fixed Route Option 2 (Hourly Service in Los Alamos)	11,390	$142,330	1,404	$101.37	8.1	$12.50
Saturday Service Fixed/Microtransit Option Phase I	7,560	$181,524	1,404	$129.29	5.4	$24.01
Saturday Service Fixed/Microtransit Option Phase 2	10,602	$265,390	1,872	$141.77	5.7	$25.03
Eliminate Second Loop on 2T	240	-$18,920	0	--	--	-$78.83
Shortened Route 2M	-3,320	-$27,600	0	--	--	$8.31
Replace Route 2T with Microtransit During Non-Peak Hours	-2,468	-$18,775	0	--	--	$7.61
Combined Shortened Route 2M and Microtransit	2,315	$239,520	3,224	$74.29	0.7	$103.45
Route 2T Express and Microtransit	2,490	$328,890	3,224	$102.01	0.8	$132.08
Route 3 Revised	3,844	-$18,890	0	--	--	-$4.91
Los Alamos Early Morning Microtransit to Transit Center	1,488	$5,914	0	--	--	$3.97
Add 4:55 AM RT on 2T	500	$28,209	250	$112.84	2.0	$56.42
Add 5:30 AM One-way on 2M	500	$18,249	140	$130.35	3.6	$36.50
Eliminate 6 AM run of 2M	-220	-$28,450	-250	$113.80	0.9	$129.32
Serve Pajarito Mountain Ski Area	950	$12,740	152	$83.82	6.3	$13.41

Route 6

Route 6 is the second most productive of the Atomic City Transit fixed routes (not including the express routes). Half hourly service is generally provided between 6:00 AM and 9:21 AM then again between 3:00 PM and 6:51 PM. This leaves around a six-hour period between 9:21 AM and 3 PM where hourly service is provided.

Ridership by hour data shows an average of 7 passenger-trips per hour are carried on Route 6 during each hour between 10 AM and 3 PM. This does not represent a spike in ridership as was seen with Route 1. An elasticity analysis indicates that increasing peak service on Route 6 would increase annual ridership by 12,400 or 50 trips per day. This alternative is not as cost effective as increasing the Route 1 peak service. This alternative would require an additional vehicle and driver for this six-hour period.

This would be consistent with the LANL Transit Service Options report to increase frequency on ACT routes to the neighborhoods in the mesas.

Benefits: There would be a good ridership increase but productivity of this alternative is 9.4 passenger trips per hour, which is just below the recommended standard of 10 trips per hour for fixed route services and slightly above status quo of 9.3 trips per hour. This alternative would cost $10.43 for each new passenger-trip served, which is a slight improvement over base case scenario.

Disadvantages: This alternative would require and additional vehicle and driver and is more expensive than increasing peak frequency on Route 1.

SATURDAY SERVICE

According to surveys, "weekend service" was the most common factor which would encourage respondents to ride ACT more often. Two different options are reviewed for providing public transit service on Saturdays in Los Alamos/White Rock.

Fixed Route Half-Hourly Service in Los Alamos Option 1

One option is to provide fixed route transit service on Saturdays with 2 buses from 9 AM to 5 PM with one bus providing half-hourly service in the downtown area of Los Alamos with the other bus providing hourly service between White Rock and downtown Los Alamos (Figure 22). The Transit Center is not served as part of this alternative. The Los Alamos bus would travel a route similar to Route 3 except that it would not serve the Co-op and instead operate a loop around the Western Area (Sandia and Trinity Drive) similar to Route 5. The White Rock bus would follow a route similar to Route 2M except that it would make a slightly larger loop in Los Alamos so that it encompassed the full downtown core. Per ADA law, complementary paratransit would be required during the same hours as the fixed route, therefore one ACT Assist vehicle and driver should be available. A dispatcher or supervisor would be required for a full day shift. It is estimated that this alternative would cost on the order of $140,680 to operate annually.

Saturday ridership patterns for other transit systems show that Saturday ridership is roughly half of the average weekday ridership. During the week, the Los Alamos population increases by 10,000 as the "day trippers" drive up the hill from Espanola or Santa Fe to work at LANL. Many children of these commuters attend Los Alamos schools and ride ACT buses. Therefore, another reduction to Saturday ridership estimates was made based on data from the on-board surveys. With this in mind, the Saturday Service Fixed Route Option 1 Alternative is projected to be around 11,270 annually.

Benefits: This alternative would almost meet productivity standards by carrying 8.0 passenger trips per additional vehicle service hour operated and cost around $12.58 per additional passenger trip carried.

Disadvantages: This would require four drivers (including lunch relief) to work on a Saturday as well as a dispatcher or supervisor. Although half-hourly service would be provided, not a large number of residences would be served within Los Alamos.

Fixed Route Hourly Service in Los Alamos

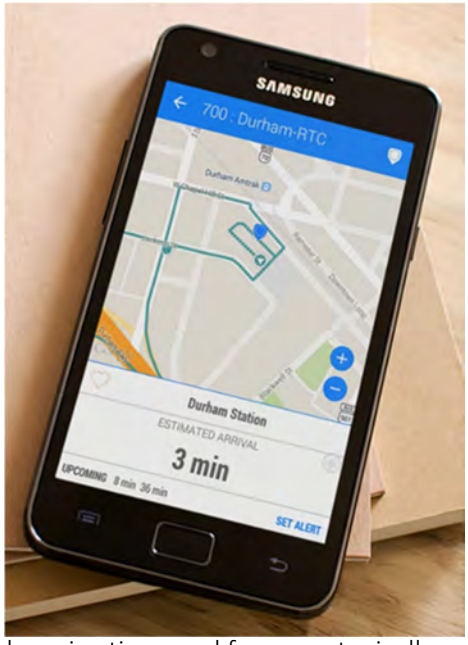
In order to serve more homes in Los Alamos, the Los Alamos main route could be extended to travel along Diamond Drive and San Ildefonso Rd. Then turn around via Cheyenne and Iroquois Street before returning to downtown (Figure 22). The entire route would be around 14 miles and therefore could be operated on hourly headways. Similar to the alternative above, the Los Alamos main route would be operated in conjunction with the White Rock connection fixed route from 9 AM to 5 PM. It is estimated that this would cost $142,330, very similar to the option above.

Interestingly, ridership estimates for this alternative are also similar to the Half-Hourly option. Despite serving more homes, the frequency would be decreased. Combined with the White Rock Connection a total of 11,390 trips annually or 219 daily would be served.

Benefits: This option would serve a larger number of homes than the half-hourly option above.

Disadvantages: This would require four drivers and a dispatcher/supervisor to work on a Saturday.

Microtransit/Fixed Route Combination



Another option would be to provide a combination of fixed route and microtransit service. Over the last several years, the concept of "microtransit" has seen increasingly widespread application across the nation. The goal of microtransit service is to provide coverage over an area not served efficiently by fixed-route service with a short response time, typically within 15 minutes of the request. Microtransit applies the app-based technology developed for transportation network companies (such as Uber and Lyft) to provide a new form of public transit service in lower demand and lower density areas. While the concept of real-time, demand-response service has been envisioned for many years, it could not be effectively implemented until recently with the advent of new technology. Passengers typically use an app downloaded on their smartphone or computer to request a ride and a routing algorithm (rather than a dispatcher) assigns the ride request to a specific driver/vehicle. The passenger is provided with an estimated service time, and fares are typically handled through the app. In addition, to ensure equitable accommodation, rides may also be requested directly over the phone. However, most trips are assigned without the need for manual dispatching. As microtransit is a shared-ride service, multiple passengers may be on the vehicle at the same time. Requirements of the Americans with Disabilities Act may be met by ensuring that a sufficient number of accessible vehicles are available to serve those who require accessible service. The benefit of this type of service is that passengers are not limited to certain fixed route stops and therefore passengers are not required to walk far to/from a bus stop.

Under this option, ACT would obtain a license to an online application service and make this app available to passengers for free download. On-demand service can be operated using existing ACT vehicles, drivers and dispatchers. Passengers can use the app on a phone or computer to make a ride request or continue to make phone requests. (Other areas have found that a majority of riders shift to using the app.) Dispatchers will enter the phone ride requests into the app. Standing subscription trips (such as individuals regularly going to a senior meals program, as one example) could be made, avoiding the need for ongoing individual bookings. The application software will dispatch drivers, following algorithms that minimize service costs and enhance response times. This will free up dispatchers to address service issues and work on other tasks. It is not expected that any dispatch positions would be eliminated or reduced. The application software will automatically track ridership patterns, response times and missed trips.

Figure 22
Atomic City Transit Saturday Service Fixed Route Option 1

Figure 23
Atomic City Transit Saturday Service Fixed Route Option Number Two

There is a quickly growing list of public transit systems that are implementing microtransit services, including Sacramento RT, Napa VINE, Washoe RTC in Reno/Sparks (Nevada), the Cheyenne Transit Program (Wyoming), the Citibus system in Lubbock (Texas) and Placer County (California). Microtransit has the potential to provide a higher quality demand response service (faster response times), increase the capacity of the system within the existing vehicle-hours of service. The increased convenience of the ride request service could also lead to long-term increases in ridership.

There are several companies currently offering such packages (such as Spare Labs, TransLoc, Via, the Routing Company and TripSpark), and it would be appropriate to select a vendor through an RFP process. The cost of obtaining and maintaining the software would be determined through the RFP process and is difficult to specify, but it is estimated that a software license for an On-Demand transit application could cost around $4,500 per vehicle per year on top of $15,000 in annual costs.

For the Saturday Service Fixed Route/Microtransit option, the same fixed route connection between White Rock and Los Alamos would be provided between 9 AM and 5 PM using one bus (hourly headways). The microtransit portion would also be operated between 9 AM and 5 PM and could be named, “Sub-Atomic City Transit”. This alternative could be implemented in two phases. For Phase 1, as shown in Figure 3, the microtransit service area would encompass the majority of Los Alamos except for the portion of the mesas east of the golf course. Two vans would be needed to provide service within 30 minutes of the request. Combined fixed route and microtransit services would cost on the order of $156,000 for Phase I plus an additional $25,000 annually for purchase of the microtransit app and technology support.

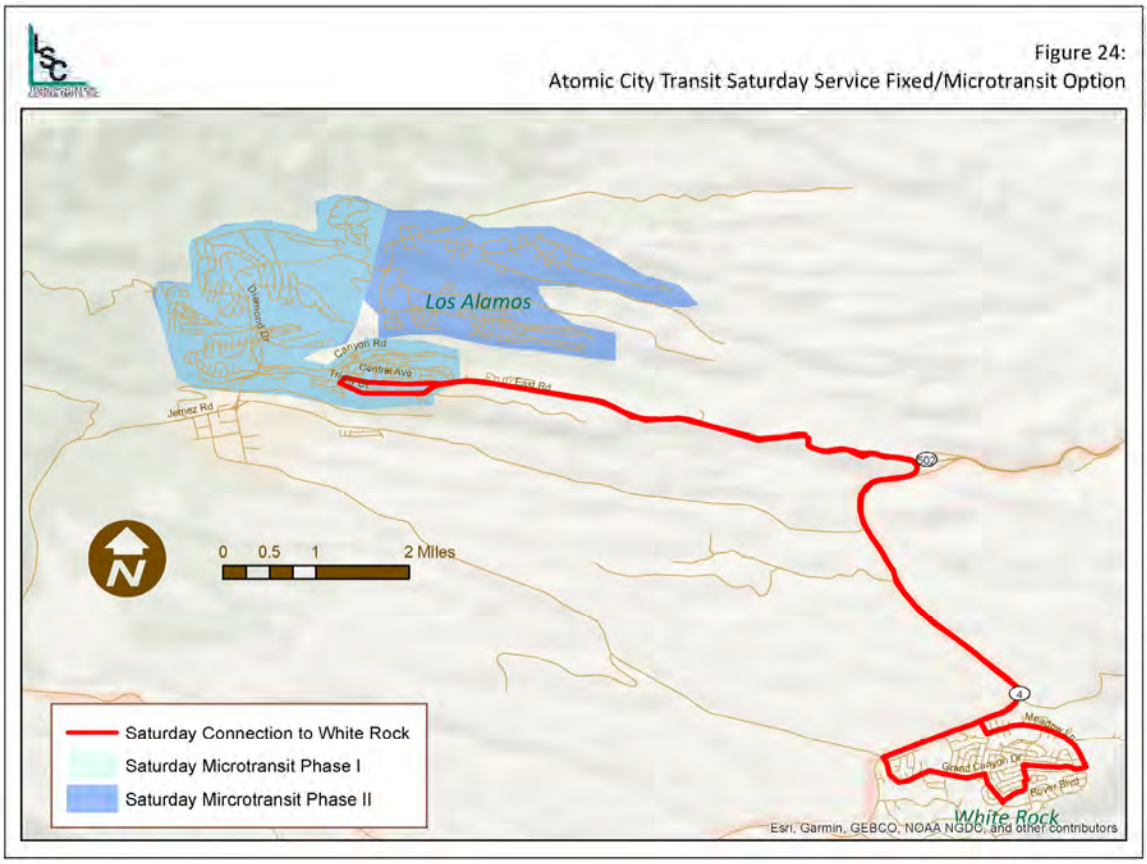
Productivity (passenger-trips per hour) varies for different transit systems who provide microtransit. Certain ski resort areas can carry up to 8 passengers per hour with an average of closer to 5 or 6 trips per hour. Los Alamos is not a resort area, but the community has good transit ridership, and many residents like to idea of taking bus instead of driving. Therefore, it is assumed that Phase I of the Los Alamos Saturday microtransit service would carry around 5 passengers per vehicle service hour or on average 90 per day.

If this program is successful, ACT could expand the microtransit service area (Phase 2) to include all of the mesa as shown in Figure 24. This would require and additional vehicle and cost around $257,490 to operate annually (including technology costs). With the expanded number of vehicles and service area, it is estimated that around 200 passengers would be carried daily on both the microtransit and fixed route services.

Benefits: The on-demand and curb to curb aspects of microtransit are appealing to many transit passengers, particularly those who don’t normally ride public transit. The microtransit option would also allow for many more homes to be directly served by public transit.

Disadvantages: The nature of microtransit services limit productivity. As shown in Table 22, it is anticipated that Phase I and II will carry around 5 trips per hour, less than all of the fixed route options. Costs are also greater due to both technology costs and the need for more vehicles to carry a similar level of ridership. Marginal operating cost per hour is greater on the microtransit Saturday options than base case scenario with $129 per hour for Phase I and $141 per hour with Phase 2. A microtransit service limited to Saturdays only would also incur new costs only for a limited portion of the overall service and

would require passengers to learn a new service (including use of the app) for service provided only one day a week. Additional shifts would be required for this option.



WHITE ROCK TRANSIT SERVICES

Three routes currently serve the small community of White Rock: Route 2T, 2M and 11. White Rock has a population of around 5,900 people with a small commercial core located along Highway 4. The community is adjacent to the Pajarito Corridor entrance to LANL. As part of their transportation plan, LANL intends to run shuttles between a transit center in White Rock and LANL work sites along the Pajarito Corridor (not including TA-3). Routes 2M and 2T travel along the residential streets of White Rock in opposite directions. Route 2M and 2T schedules are staggered to provide half-hourly service between White Rock and Los Alamos.

Route 2M connects White Rock to Los Alamos through downtown and has a relatively good productivity of 7.8 passenger-trips per hour. Route 2T follows the truck route directly to the transit center; this requires passengers to transfer at the transit center to get to downtown. Route 2T's productivity is lower at around 5.1 passenger trips per hour. According to a small sample of on-board passenger surveys, 60 percent of Route 2T respondents were taking the bus to work while 40 percent of 2M respondents stated they were taking the bus to/from work. Surveys indicate that White Rock residents often take both 2T and 2M on the same round trip depending on what time the bus departs. Both 2T and 2M have marginal on-time performance, 13 percent late and 18 percent late respectively. Much of the delay occurs during the hours of 3 PM to 6 PM when both school and LANL employees are traveling home.

Eliminate Extra Loop on Route 2T in White Rock

In an effort to improve on-time performance, the study team reviewed options to shorten both Route 2T and 2M. Route 2T operates a second loop in White Rock around the neighborhood before travelling inbound to the transit center. This takes the bus around 11 minutes to operate this loop. Although this loop travels in the opposite direction as the first loop, the second loop does not serve additional homes but provides bi-directional service for some homes. Eliminating this second loop on each trip would increase on-time performance at minimal loss in ridership. This option would provide some cushion in the time schedule as well as make Route 2T more straightforward to follow. Overall, this option would save around $18,920 in costs annually and provide greater reliability and consistency for those travelling to/from work which could have a small impact on ridership.

Another option is to only eliminate the extra loop during peak times when the bus is most likely to run late (3 PM to 5 PM). This would have only a very small impact on operating cost savings ($3,150) and ridership (120 trips).

Benefits: This alternative would provide a cost savings with the potential for a small impact on ridership.

Disadvantages: Passengers will need to walk across the street to access some of the stops. Some travel times would be slightly extended.

Shorten Route 2M in White Rock

Although Route 2M has the worst on-time performance of the non-express fixed routes, it is difficult to shorten this route without reducing service for White Rock residents. One option would be to only serve the commercial core of White Rock with a loop along Rover, Aztec and Sherwood. The bus could then make a small loop on Mirador to serve the new homes on the north side of Highway 4. (Figure 25) The neighborhoods would continue to be served by Route 2T hourly (however, passengers would need to transfer at the Transit Center to reach downtown Los Alamos). This new configuration would also serve the location of the proposed LANL White Rock Transit Center. This alternative would save around 5 minutes each loop providing a small buffer to improve on-time performance and reliability. This would also allow time for Route 2M to serve the Co-op as an on-demand stop (discussed further as part of a Revised Route 3 alternative). As the driver is still being paid for the same hours, cost savings from this alternative would stem from fewer miles driven and result in lowering annual operating costs by $27,600 annually. However, there would be a loss of around 13 boardings per day or 3,320 in annual ridership.

Benefits: This alternative may improve on-time performance and would reduce annual costs.

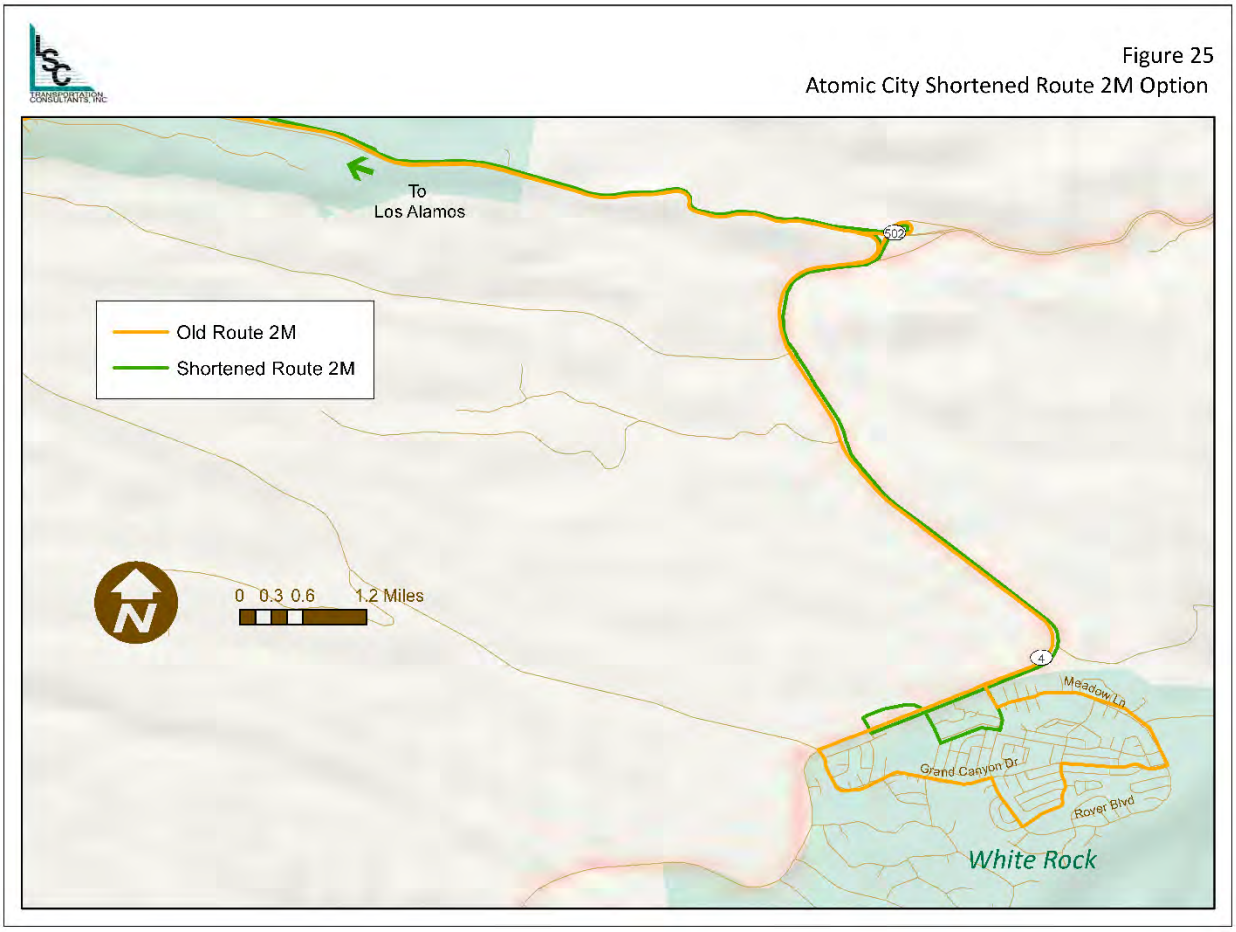
Disadvantages: This alternative would result in a loss in ridership (3,320). As can be seen in Table 22, ACT would save $8.31 for each passenger-trip lost.

Route 2P Stay on Aragon and Grand Canyon

Route 2P (when in service) travels in a clockwise direction around the periphery of White Rock along Meadow Lane and Rover Boulevard. Rerouting the bus along Aragon Avenue and Grand Canyon Drive as Route 2M does (in the other direction) would more directly serve a larger number of homes while still being within walking distance (one quarter mile) of most of the homes in the neighborhood. This would not change service levels or costs but may attract slightly higher ridership.

Benefits: There is the potential for a small ridership increase. Providing two-way service on a consistent street would make the service easier to understand.

Disadvantages: The homes on the edge of the White Rock neighborhood would have a slightly longer walk to the bus stop.



Microtransit Service in White Rock

White Rock is a relatively compact community. The main residential area currently served by transit is less than two miles across, making it easy to serve with an on-demand micro-transit system.

On-demand curb to curb transit service has the potential to encourage new transit passengers. However, there is not a significant amount of commercial land uses within the community of White Rock and what does exist is not more than a five-minute drive from homes. Therefore, it is reasonable to assume that only a small level of ridership increase would occur, if there was an on-demand option for trips within White Rock. If Los Alamos is the destination for White Rock residents, a transfer would be required from microtransit in White Rock to a fixed route transfer point (if both Routes 2M and 2T stopped serving the neighborhoods). The need to transfer decreases ridership. However, there are roughly 120 homes along Monte Rey and Piedra which could easily be served by microtransit and are not currently served by the fixed route. On top of operating costs for drivers and fuel, there could be around $20,000 in technology

costs for the microtransit app and technical support. The following alternatives analyzed a few different ways to incorporate microtransit into public transit in White Rock.

Replace Route 2T with Microtransit during Non-Peak Hours

One option is to replace 2T with microtransit using one van during non-peak hours (9 AM to 3 PM). Under this scenario, White Rock residents wanting to travel to Los Alamos would either wait for the Route 2M bus to arrive on an hourly basis or take microtransit to the Route 2T transfer point a half hour later. White Rock residents wanting to travel to Smiths in White Rock could use the app to call microtransit for this trip at any time between 9 AM and 3 PM. After 3 PM, Routes 2M and 2T would operate as normal. This would have annual cost savings of only $18,775 but would lose around 2,500 trips per year, as service between White Rock and Los Alamos would essentially be reduced to hourly service from half-hourly service.

Benefits: A larger number of White Rock residents would be served directly by public transit. There would be a cost savings and no additional staff would be necessary. As seen in Table 22, there would be a savings of $7.61 for each passenger-trip lost.

Disadvantages – Service frequency between White Rock and Los Alamos would increase to hourly from half-hourly between 9 AM and 3 PM. There would be a loss in ridership as a result.

Combine Shortened Route 2M and Microtransit

Another option is to implement the shortened Route 2M (discussed above), operate Route 2T without the extra loop and add microtransit between 6 AM and 7 PM. Microtransit could shuttle White Rock residents to Route 2M or within White Rock. Under this option, there would be time for Route 2M to serve the Co-op as an on-demand stop. This would alleviate on-time performance issues for Route 3.

As microtransit would be provided for the entire service day, this alternative would be relatively expensive and cost $219,240 per year to operate, plus the cost of the microtransit app. Former Route 2M passengers would still have half-hourly service to Los Alamos; however, they would have to transfer from microtransit to the shortened Route 2M or wait for Route 2T and transfer at the transit center. As with the other options discussed above, a small amount of new ridership could be gained by serving the neighborhood along Monte Rey and Piedra and for local White Rock trips. Overall, this alternative is expected to only increase annual ridership by 2,315 trips annually.

Benefits: Route 2M could serve the Co-op as an on-demand stop and therefore, improve on-time performance for Route 3. New homes could be served by microtransit. Transit trips within White Rock would be available all day.

Disadvantage: – An additional vehicle and two driver shifts would be required. This alternative would cost $103 per each passenger trip gained and have low productivity of less than 1 passenger trip per hour.

Route 2T Express Route

Other options were considered to change Route 2T to an express service which would operate between the proposed White Rock Transit Center and the LANL Transit Center on half hourly headways. White Rock microtransit could shuttle White Rock residents to 2T or within White Rock. Route 2M would

operate as normal. Although this would effectively give White Rock residents 15-minute frequency to Los Alamos (with a transfer), this would require an additional vehicle and driver.

This option would be rather expensive ($328,890 per year). It is estimated that this alternative would increase annual ridership by 2,300 trips per year. Current White Rock ridership may not justify this level of frequency. If there is more demand for service between White Rock and Los Alamos, Route 2P could be reinstated.

Benefits: This alternative would provide more frequent service, to Los Alamos. This would be particularly beneficial for White Rock residents working at LANL TA-3, as LANL shuttles from White Rock are not planning on traveling as far as TA-3. The microtransit service will provide all day transit service within White Rock and to currently unserved neighborhoods.

Disadvantages: This alternative is very expensive and would require an additional vehicle and driver. This would cost an additional $132 for each new passenger-trip served and carry less than one-passenger trip per new vehicle hour served.

White Rock Microtransit Provided by LANL

One of the primary challenges for Atomic City Transit currently is driver retention due in part to higher wages paid by other transportation providers. Anecdotal evidence suggests that LANL pays starting drivers $2 per hour more than a Transit Operator 3 for Atomic City Transit. As LANL is currently expanding transportation options on and off lab property, a long-term option could be for LANL to provide microtransit in White Rock. This would benefit the lab as they could shuttle employees from their homes in White Rock to internal LANL shuttles at the White Rock Transit Center. Non-LANL employees could also use the microtransit system to transfer to Atomic City Transit routes as discussed above. One of the main disadvantages of the White Rock microtransit service is that there are no additional drivers available to provide the service. If LANL can pay a higher wage, having the lab provide this service could solve some of that issue. Funding partnerships with LANL could also be explored.

Microtransit operating in White Rock would cost on the order of $266,040 annually and carry around 5,400 trips per year if it replaced part of Route 2M. Additionally there would be around $20,000 in annual technology costs. According to LANL transportation plans, around 25 percent of LANL employees live within 5 miles of the lab. Therefore, if a LANL provided White Rock microtransit made direct connections with LANL internal shuttles along the Pajarito Corridor or TA-3, more employees may be encouraged to take public transit from their home to the office.

ROUTES 1 AND 3

Routes 1 and 3 serve the core Los Alamos downtown area on half-hourly headways with Route 1 providing 15-minute frequency between 11 AM and 1 PM. According to drivers, there is extra time in the schedule for Route 1 and the schedule for Route 3 is rather tight. According to on-time performance data Route 3 is late 10 percent of the time and Route 1 is only late 2 percent of the time. This indicates the potential to rebalance the two routes. Due to staffing shortages, Route 3 and peak service on Route 1 have been suspended. The following alternatives assume the base case scenario with normal operation of Route 3 and peak service on Route 1.

Route 3 – Discontinue Service to the Co-op (Figure 26)

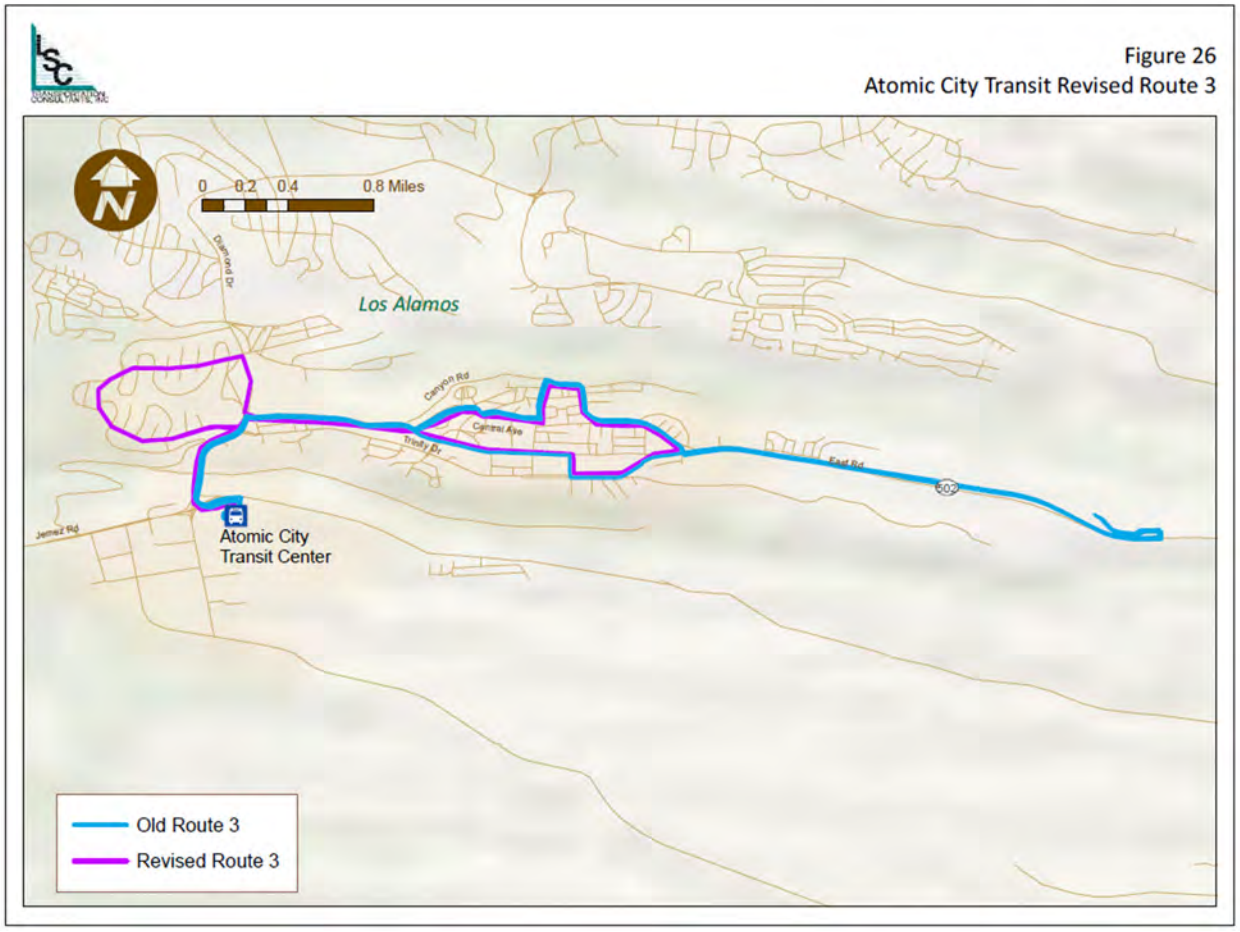
As discussed in the White Rock alternatives section, one option is to shorten Route 2M within White Rock to improve on-time performance. Route 2M travels past the Los Alamos Cooperative market on East Road every hour. It would be relatively easy for Route 2M to serve the Co-op on an on-request basis. Passengers could request a pick-up either by phone or through a text message (prior to the start of the run), while passenger needing a drop-off could simply ask the driver upon boarding the bus. Around 8 average daily boarding on combined stops along Entrada Drive and Camino Entada.

Discontinuing service to the Co-op on Route 3 would save operating costs due to fewer miles driven. It would also reduce the Route 3 runtime from 30 to 16 minutes, allowing ample time for Route 3 to improve on-time performance and serve the homes in the Western Area along Sandia Drive similar to the Saturday Route in one direction (an additional five minutes). Although Route 2M would pick up passengers at the Co-op, the stop would only be served every hour instead of every half hour. Overall, this alternative would increase ridership on Route 3 by around 15 trips per day or 3,844 per year and reduce annual operating costs by nearly $19,000. Although under this alternative Route 3 and Route 5 would serve the Western Area very close to the same time, the revised Route 3 would provide a more direct distance between downtown Los Alamos and the Western Area (in one direction).

Benefits: Improved on-time performance and increased ridership for Route 3. A reduction in annual operating costs. As shown in Table 22, this alternative would save around $5 for each new passenger-trip served.

Disadvantages: The Co-op would only be served on hourly headways instead of half-hourly. In the interest of on-time performance, this alternative could be combined with the Route 2M alternative which will reduce ridership by 3,320 trips per year for a net increase of around 500 trips per year. Alternatively, the Co-op could be served as an on-request stop or regular stop on Route 1 as is done currently (because Route 3 is suspended).

Another routing option considered was to serve the homes off of Orange Street near Pueblo, Questa and Ridgeway instead of duplicating service to the Western Area. These homes are approximately within one-quarter mile of an existing route. Additionally, the streets in this neighborhood are narrower and would be difficult to serve with a large bus. For these reasons, adding service to the Western Area is preferred.



Rerouting Route 1 and Route 3

In order to address the tight schedule for Route 3, the Study Team also considered redesigning Routes 1 and 3 while continuing to serve the Co-op. One option is for Route 1 to serve the stops along Canyon Road, Nectar St. and Rose St. in the inbound direction. Route 3 inbound would then travel more directly back to the transit center on Central Avenue. It is estimated that this would only save Route 3 around 3 minutes in travel time. Operating costs and ridership would be similar to current levels.

Benefits: Minor adjustments would slightly increase on-time performance with no expected ridership loss.

Disadvantages: May cause confusion among regular passengers at first. Not a significant time savings gained.

STREAMLINE ROUTES TO THE MESAS

The LANL Transit Service Options Analysis Final Report suggests streamlining or eliminating certain stops along Route 5 (Barranca Mesa) and Route 6 (North Mesa) to provide a shorter trip for residents living in the mesas and working at LANL. These "Express" services could operate during the morning and evening commute hours.

Route 5

The LANL Transit Service Options Analysis Final Report suggests eliminating the loop on Sandia and Trinity, bypassing Arizona and 35th and staying on Diamond Drive and not deviating onto Range Road. (Figure 27). It is estimated that this would reduce the one-way travel time by 11 minutes for Barranca Mesa residents traveling to LANL (depending on where they live).

- Roughly 23 average daily boardings occur on Sandia and Trinity in both the inbound and outbound direction. This loop serves a large number of homes.
- The stops along Arizona Ave, 35th Street and Club Drive generally have less than 2 passenger boardings per day each. The exception is Arizona and 35th (near the Pajarito Complex) during the month of July had 16 average daily boardings.
- Range Road only serves around 2 average daily boardings. There are also fewer homes in this neighborhood.

With the possible exception of eliminating service along Range Road (which would only save around 2 minutes), there are enough boardings and homes served in the other areas to justify serving directly. Additionally, providing a separate schedule and route for certain times of the day can be confusing to passengers. Even if the one-way trip time is reduced by 11 minutes, it is not a significant enough savings to increase frequency of the routes to half-hourly service. Creating a route with non-hourly or half-hourly headways would make it a longer wait time for passengers to transfer to other routes at the transit center. There are no significant on-time performance concerns on Route 5.

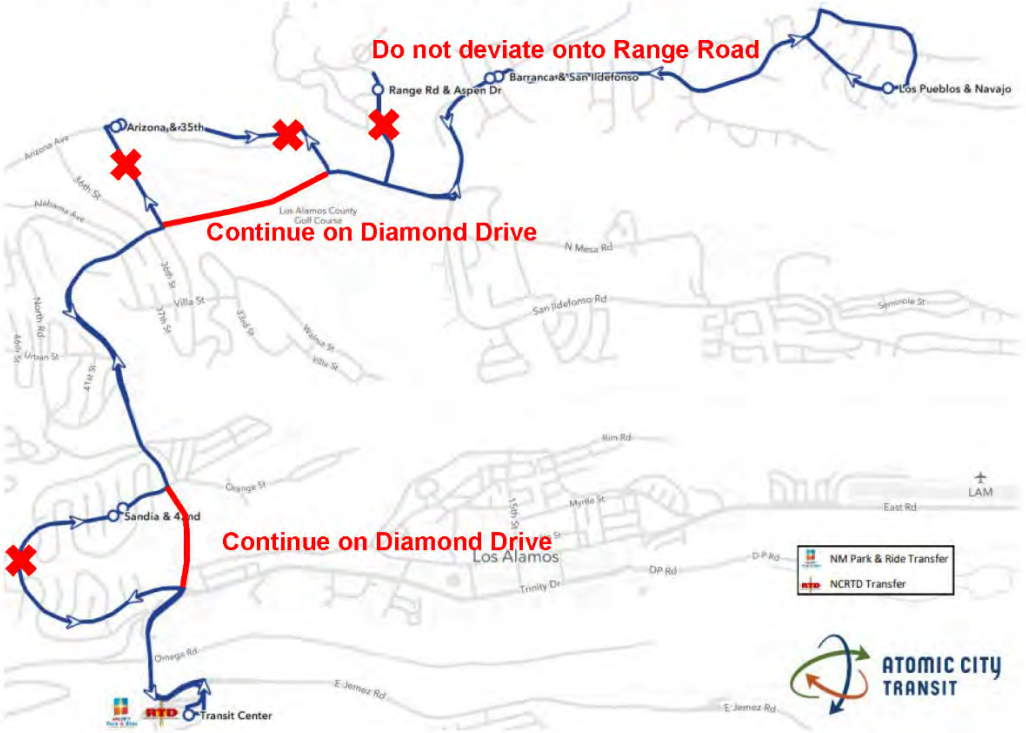
Consideration was also given to cutting the route even shorter to end at the Barranca Mesa School. Even this option would not allow for half-hourly service.

Route 6

Similarly, the LANL Transit Service Options Analysis Final Report suggests eliminating the loop which serves the 33rd and Walnut stop. The homes along this loop are within walking distance of Diamond Drive. Eliminating this loop would save around 3-4 minutes in one-way travel time. All the stops along this loop have less than 2 average daily boardings with the exception of the Aspen Elementary School. This option would not likely have a significant impact on ridership demand.

Figure 27: LANL Transit Service Options Recommendations

ACT Route 5 Barranca Mesa with Potential Changes for Express Service



ACT Route 6 North Mesa

EARLIER SERVICE FOR 6 AM WORK START TIMES

The following are service alternatives intended to get LANL employees to work at 6 AM from the mesas, as was suggested as part of outreach efforts.

Dial-A-Ride for Los Alamos Residents

The community and staff suggested considering earlier service to meet the commuting needs of LANL employees who report to work at 6 AM. Unfortunately, LANL does not track shift times for employees. Generally, shifts begin at 7 AM.

The AM Assist driver reports for work at 5 AM but is not actually driving until 6 AM. This driver could be available for Dial-A-Ride service between 5:15 AM and 6:00 AM to shuttle LANL employees from their homes in the mesas to the Transit Center. As the ACT Assist driver is being paid anyway for this time, the additional operating cost would come from the miles driven or approximately $6,000. If microtransit technology is acquired for other services, this alternative could be employed using a microtransit app; however, the $15,000 annual cost for use of the technology does not make financial sense for this alternative.

In recent years less than one percent of ACT Assist and DAR boardings occurred during the 6 AM hour; however, before the pandemic up to 16% of boardings occurred during this hour. This indicates that until ACT Assist ridership rebounds, the ACT Assist driver could provide transit center pickups until 7 AM, particularly if comingling of ADA and non-ADA passengers is allowed.

Ridership by hour for July 2021 indicates that on average 3 trips are served during the 6 AM hour on all the local Los Alamos routes combined (1,3,4,5,and 6). This may be compounded by the fact that flexible hours have become more acceptable in recent years. It is reasonable to assume that with the addition of on-demand service with pick-up at one's home, an early Dial-a-Ride service to the Transit Center would serve around 3 trips per hour.

This alternative would require coordination with LANL shuttles. Currently, the first LANL shuttle begins at 6:20 AM. LANL will be conducting employee surveys in January 2023 which will include a question regarding shift start times. This alternative should be reevaluated after more data is available from LANL.

Benefits: This alternative is cost effective as ACT Assist drivers would already be "on-the clock". As can be seen in Table 22, the option would only cost $3.97 for each new passenger-trip served.

Disadvantages: If ACT Assist ridership increases or the demand for early microtransit service increases beyond initial estimates, an additional vehicle will be required. This option would have a limited capacity to accommodate new riders.

Add 4:55 AM Route 2T Round Trip for White Rock Residents

In order to serve LANL commuters living in White Rock, ACT could add an additional roundtrip on Route 2T. The service would deadhead to White Rock and arrive for pick-ups in White Rock at 4:55 AM with arrival at the Transit Center at 5:21 AM. This would cost $28,200 annually. It is difficult to estimate ridership for this service without more detailed data regarding LANL employee trip patterns. Ridership by hour data for July 2021 (when school is not in session) shows that 2.6 average daily boardings occurred during the 6 AM hour and 1.8 average daily boardings occurred during the 7 AM hour on Route 2T.

Average daily boardings for the first six months of 2022 indicate around 2.2 boardings on 2T during the 6 AM hour. This analysis assumes an average of 2 trips per day during the 5 AM hour or 500 annually.

Benefits: This alternative would serve LANL employees living in White Rock and help to meet LANL goals of increasing transit mode split for employees.

Disadvantages: This alternative is not cost effective as it would cost $56.42 for each new passenger-trip served. Productivity is below the 10 trip per hour standard. Passengers using this service would need to get up rather early at a time when there is little traffic.

Add 5:30 AM Run on Route 2M for Early LANL Commuters

Another option would be to add an earlier run on Route 2M. If the bus deadheaded to White Rock at 5 AM, picked up passengers in White Rock, then departed for the transit center around 5:30 AM, LANL employees could be at the transit center by 6 AM. This is 20 minutes earlier than the first run of 2T currently. This option would add $18,250 in operating costs (mostly new mileage costs) and carry around 500 trips per year.

Benefits: This alternative would serve LANL employees living in White Rock and help to meet LANL goals of increasing transit mode split for employees. This alternative is more cost effective than providing an earlier run on 2T.

Disadvantages: This alternative would cost $36.50 for each new passenger-trip served, which is much greater than status quo. The arrival time at the transit center would only be 20 minutes earlier that is currently possible.

MICROTRANSIT APP FOR EVENING SERVICE

Currently, ACT operates an evening DAR service as a “last ride home” option. Passengers can call dispatch for a ride home beginning at 6 PM. Advance reservations are not allowed. This service carries around 700 trips per year, which represents an increase from 2018 levels. If microtransit technology is procured for some of the other alternatives discussed in this document, the technology could be easily applied to the Evening DAR service and potentially increase ridership.

ELIMINATE POOR PERFORMING RUNS

Ridership by hour data was reviewed to determine if there are potential cost savings by eliminating poor performing runs.

Discontinue Route 2M 6 AM Run

According to ridership by hour data, very few boardings occur on the 6 AM run of Route 2M. On average 0.9 boardings were recorded during the 6 AM hour during the first six months of 2022. No boardings were recorded at this time in March (when school is in session) and 1.5 on average were recorded in July of 2021. White Rock residents using public transit that early are likely commuting to LANL and could take the more direct Route 2T to the transit center. Therefore, this alternative considers eliminating the 6 AM run of Route 2M. This would save $28,450 and lose around 220 passenger-trips annually.

Benefits: This alternative would be cost effective as it would save $129.32 for each passenger-trip lost (Table 22). It would also meet productivity standards as it would eliminate a poor performing run.

Disadvantages: There would be a small loss in ridership.

CONNECTIONS WITH NCRTD

Until recently, NCRTD operated Route 400 between Espanola, San Ildefonso Pueblo, Pojoaque Pueblo and Los Alamos as two round trips per day. This route was suspended due to a driver shortage. The *LANL Transit Service Options Analysis Final Report* recommends changing Route 400 to serve Los Alamos more directly. The existing service operates as a loop route with two round trips per day. The loop nature of the route would be revised and a direct route from Espanola to the ACT Transit Center would be implemented. Additionally, the plan recommends a new route to White rock from Espanola. In coordination with the consultant who prepared the options analysis, the District and its partners are working to kick off an implementation plan that provides concrete next steps and assigns responsibility for each task as well as timeline.

During stakeholder interviews, NCRTD suggested continued coordinated procurement of technology. ACT and NCRTD coordinated procurement of their CAD/AVL software. This relationship could be continued to procure microtransit app technology if both transit systems move in that direction.

PAJARITO MOUNTAIN SKI AREA WINTER SERVICE

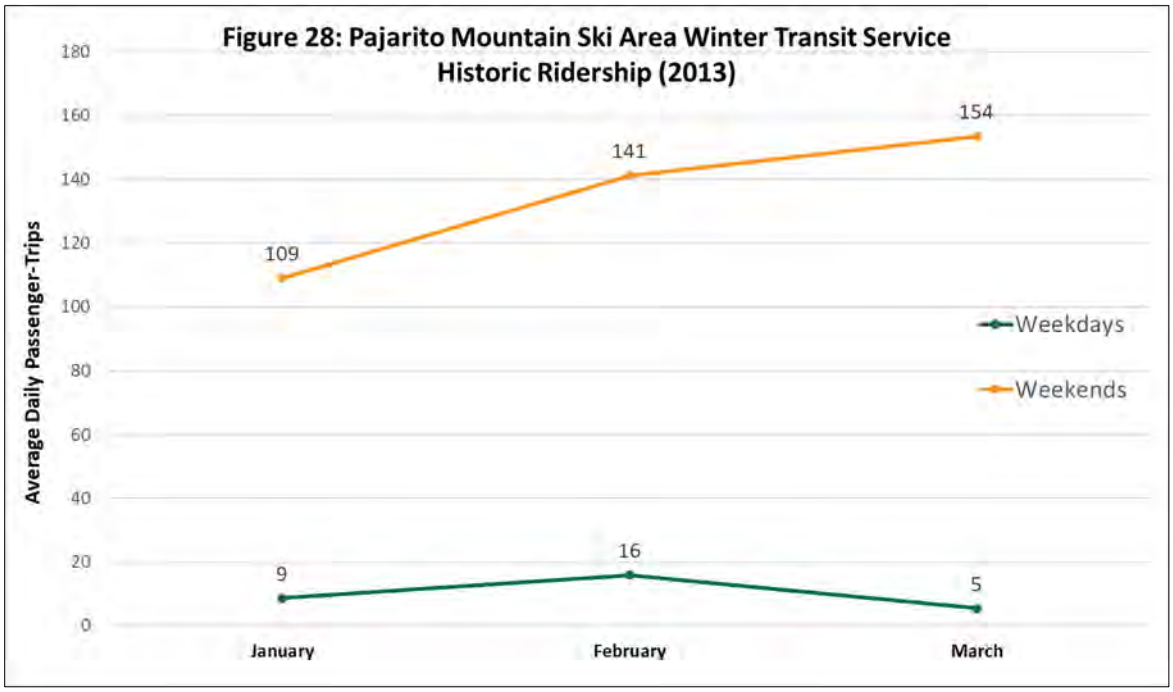
The Pajarito Mountain Ski Area (Pajarito) is located just five miles west of Los Alamos in the Jemez Mountains. In the past, ACT offered a seasonal service during the winter to transport skiers and snowboarders to and from the mountain, which served to mitigate traffic and crowding at the resort, provide an alternative method for getting to Pajarito for those without a license or personal vehicle, and reduce the amount of emissions generated by recreators traveling to Pajarito.

Pajarito Mountain Ski Area. Credit: Pajarito Mountain

ACT stopped serving Pajarito during the winter seasons due to its vehicle fleet not being properly equipped to handle the road conditions between town and the mountain and low ridership levels. Average daily ridership numbers from when ACT served Pajarito in the winter of 2013 are shown in Figure 28.

One takeaway from Figure 28 is that weekend ridership far surpassed weekday ridership; in March 2013, average daily weekend ridership was almost 31 times greater than the average weekday. Average daily ridership on the weekends (138 passenger-trips) for the ACT service to Pajarito was near daily ridership totals for many of the ACT fixed routes in March 2022 (shown in Chapter 3 of Interim Report #1), however the low weekday ridership negatively impacted the cost effectiveness of the service.

A comparable service to ACT's past winter service to Pajarito is the Tuolumne County Transit Agency's (California) SkiBus service between the City of Sonora, California, and the Dodge Ridge Mountain Resort (Dodge Ridge) on weekends and holidays during the winter season.



The SkiBus provides one roundtrip daily for $10 per passenger, leaving Sonora at 7 AM and leaving Dodge Ridge at 4:30 PM. The SkiBus is specifically equipped to handle ski and snowboard gear, and reservations are encouraged. This service carried 1,812 passenger-trips in FY 2018-19.

A key difference between the Tuolumne County Transit Agency's SkiBus service and ACT's past service to Pajarito is that the SkiBus only operates on weekends and holidays, and the bus is especially equipped for the service being provided. The SkiBus also only operates one roundtrip daily. If ACT were to begin a new service to Pajarito during the winter season, it would be more cost efficient to only operate the service on weekends and holidays. To avoid difficulties with the terrain, ACT would likely need to purchase tire chains for the bus going up to Pajarito. This would require that staff are trained in how to install chains and drive in the snow. Chains for a transit bus are estimated to cost around $200 per tire, or around $800 for one bus.

Given the variability of the Pajarito ski season, it is unknown how many days this service would operate if implemented for FY 2023-24. To develop ridership and operating cost predictions, it was estimated that the Pajarito service would operate from January 20 through March 17, 2024, on weekends and holidays for a total of 19 service days. Operating two daily roundtrips between Los Alamos and Pajarito, one in the morning and one in the afternoon, for 19 service days would cost ACT $7,480 in additional operating costs. This would also require an additional driver shift during the season. Additionally, this new service would require an additional capital cost of at least $800 to equip at least one bus with chains for the winter road conditions, in addition to costs associated with training a driver on how to use install and drive with tire chains. Average weekend ridership on this service in 2013 was around 135 trips per weekend day but service was offered every hour and extended from White Rock to the ski area. Given a much shorter service span and service area, it is estimated that a new ACT service to Pajarito would carry about 50 passenger-trips on a given weekend day, weather permitting. This is below productivity standards.

Chapter 7
CAPITAL ALTERNATIVES

VEHICLE REPLACEMENT NEEDS

It is essential that a transit agency have a functional, accessible vehicle fleet that operates safely. While it is important that a transit agency continue to maintain and update its vehicles, transit buses are extremely costly. Given the costs and challenges associated with purchasing new vehicles, especially in the years since the COVID-19 pandemic, it is important for transit agencies to have a plan for vehicle replacement.

ACT is in the process of replacing one gasoline bus and expanding the fleet by one bus with electric vehicles. Table 23 shows the ACT's fleet replacement requirements for the next five years (FY 2023-24 through FY 2027-28). As seen in the Table 23, ACT is expecting to replace 8 diesel buses during the planning period. The size of the bus to replace retired vehicles should be based on peak passenger load for the route it is used for as well as roadway requirements (narrow roads, short turning radius).

As the State of New Mexico has not instated any requirements for transit agencies to purchase Zero Emission Buses (ZEBs), Table 23 estimates the cost of replacing ACT's vehicles with more diesel- or gasoline-powered buses. If ACT continues to convert its fleet to ZEBs, the cost of each electric vehicle will be more than double than a traditional diesel vehicle; however, fueling costs will be reduced over the long-term.

When considering electric vehicles, daily mileage driven by each bus must be considered. The range of an electric bus today is around 150 miles, likely smaller when air conditioning and/or heating is run frequently. The Express Routes would be a good use of an electric bus as the entire route could easily be driven before requiring a charge. Although providing zero-emission vehicles for the Bandelier service would fit into the National Park Service's goal of reducing the carbon footprint, Bandelier buses operate around 200 miles per day. Therefore, in-route charging or switching to a fully charged bus mid-day would be required.

Table 23: Fleet Requirements

Estimated Current Cost of Vehicles	Vehicle Parameters	Fiscal Year 23/24	24/25	25/26	26/27	27/28	5-Year Plan Total
Fixed Route Vehicles Gas/Diesel $590,000	Fixed Route Buses						
	Number of Buses (Gas/Diesel)	1	2	1	2	2	8
	Total Cost [1]	*$638,085*	*$1,314,500*	*$676,900*	*$1,394,500*	*$1,436,300*	$5,460,285
Paratransit Vehicles Gas/Diesel $193,000	DAR Vehicles						
	Number of Vehicles (Gas/Diesel)	1	1	1	1	0	4
	Total Cost [1]	*$0*	*$215,000*	*$221,400*	*$228,100*	*$0*	$664,500
	Total Vehicle Needs	$638,085	$1,529,500	$898,300	$1,622,600	$1,436,300	$6,124,785

Note 1: All cost estimates include 3 percent annual inflation.
Note 2: ACT has expressed interest in procuring more electric buses, however this will depend on funding. As of 2023, there is no requirement for ACT to procure electric vehicles.
Source: LSC Transportation Consultants, Inc.

AUTONOMOUS VEHICLES

Given the driver shortage in Los Alamos, a discussion of autonomous or driverless vehicles is relevant to this discussion. In recent years, there have been significant advancements in the development of autonomous vehicles. The US Department of Transportation has identified six levels of autonomous vehicles; most cars and buses operating on the roads in 2023 are either Level 0 or 1, meaning that humans are responsible for almost every aspect of driving. Level 4 or 5 autonomous vehicles handle normal driving and are able to react to difficult situations, meaning they do not need to be operated by a human. Level 4 or 5 autonomous buses will not require bus drivers; however, safety attendants will still be needed onboard to assist passengers with mobility limitations and to maintain a safe environment. Safety attendants would not need commercial driver's licenses.

Autonomous Vehicle Pilot in CT.
Credit: Hartford Business Journal

Some of the expected benefits of using autonomous vehicles for transit include operational, safety, and service improvements. Transit agencies will likely save money by both reduced maintenance costs due to the elimination of human error and by no longer needing to pay drivers. In more urban areas, riders may also benefit from more consistent headways as automated buses also have the ability to dock at stations with more precision, making it easier for passengers to board. Almost all autonomous vehicles in development will be electric vehicles.

The first autonomous, full-length bus tested in North America was the Xcelsior AV, developed by New Flyer and Robotic Research which was used in a pilot project by the Connecticut Department of Transportation in 2021. These buses were deployed on the CTfastrak, a 9.4-mile limited-access busway between New Britain and Hartford, a controlled environment ideal for this sort of pilot. Other pilot projects have been designed to provide first/last mile connections, such as the Pinellas Suncoast Transit

Authority's (PSTA) Autonomous Vehicle Advantage service and the Hillsborough Area Regional Transit Authority's (HART) Smart Autonomous Vehicle Pilot, both in Florida. In both of these projects, the autonomous vehicles operated along downtown routes that were less than 2 miles long. For pilot projects, attendants ride onboard.

Overall, autonomous vehicles are still being designed and tested. A 2021 study ranked autonomous vehicles a 6 out of 10 on the *Technology Readiness Scale*.[1] There are also no federal regulations yet developed for Level 4 or Level 5 automated vehicle deployment for public transit. Assuming the necessary regulations, the Victoria Transport Policy Institute predicted that autonomous vehicles will only represent 1 to 2 percent of public transit vehicles by the 2030s and 10 to 20 percent by the 2040s.[2] This research suggests that ACT will not be in a position to deploy autonomous vehicle technology throughout the upcoming 5-year planning period and even beyond. ACT should continue to monitor new developments in autonomous vehicle technology and policies that may impact the potential deployment timeline.

PASSENGER AMENITIES

Benches and shelters enhance the experience of passengers waiting at bus stops by providing protection from the elements and a place to rest. Because of these benefits, many passengers request additional benches or shelters when given the opportunity to provide input during transit planning processes. Capital funds can be used to purchase and install amenities such as benches and shelters to improve the passenger experience and to potentially increase transit ridership, however given capital funds are limited, it is important funds are prioritized so they can impact the greatest number of riders.

Table 24 shows ACT bus stops that could be considered for passenger amenity upgrades based on high average daily ridership during July 2021 and March 2022. As presented in the Table, it is recommended that stops with over ten daily boardings have a bench *and* shelter installed and that stops with between five to ten daily boardings have just a bench installed. The ACT stops which experienced ridership at or beyond these levels during the two months were assessed. Stops which meet the parameters for new passenger amenities and don't already have them are listed in Table 24.

Adding stops on either side of Highway 502 near Camino Entrada would allow Route 2M to generally serve the Co-op and Holiday Inn without adding time into the schedule. As there is now an underpass from the East Canyon Rim Trailhead (south side of Highway 502) to Entrada Dr, it would be safe for passengers to disembark Route 2M as the bus travels outbound at the East Canyon Rim Trailhead and walk under the highway to the Co-op. In the inbound direction, a new stop could be located just west of Camino Entrada.

The total cost estimate for all of the amenity improvements shown in Table 24 would be $41,600, however ACT's ability to procure and install these amenities will depend on ACT's capital budget and

[1] McLeod, Peter. (2021). *Technology Readiness Level Scale Explained.* Prospect IP. http://www.prospectip.com/technology-readiness-level-scale-explained

[2] Litman, Todd. (2023). *Autonomous Vehicle Implementation Predictions: Implications for Transport Planning.* Victoria Transport Policy Institute. https://www.vtpi.org/avip.pdf

whether current land ownership and right-of-way regulations at each stop location allow for benches or shelters. For shelters proposed in residential neighborhoods, "half-shelters" could be constructed. These shelters only require a couple feet of right-of-way yet still allow for waiting passengers to sit and be protected from the elements.

During the development of this SRTP, ACT passengers requested benches be installed at the Trinity Drive and 48th Street Inbound Stop (Stop #285) and at the San Ildefonso Road and Mountain Vista Apartments Stop (Stop #309). There were less than five daily boardings on average at these two stops during July 2021 and March 2022, therefore they were not included in the table. However, it is still important to note these two locations in the discussion regarding potential areas where ACT may consider implementing passenger amenity improvements, particularly if ridership increases. Both of these stops are in residential areas and providing a more comfortable place to wait may result in greater transit ridership by nearby residents.

Table 24: Recommended Locations for Bus Stop Amenity Improvements

Key
B - Bench
S - Shelter

Stop #	Location	Average Daily Boardings[1]	Recommended Amenities	Cost Estimate[2]
303	2248 35th St Outbound	17	S + B	$9,150
213	Arizona Ave & 35th St	16	S + B	$9,150
389	Aragon Ave & Rover Blvd	11	S + B	$9,150
377	Meadow Ln & Isleta Dr (Cmsa Elem Schl)	11	S + B	$9,150
393	Grand Canyon Dr & Sherwood (Pinon Elem)	9	B	$900
145	Central Ave & 20th St	8	B	$900
114	Central Ave & 6th St Inbound	6	B	$900
555	Central Ave & Oppenheimer Dr Inbound	5	B	$900
237	Sandia Dr & 40th St Outbound	5	B	$900
	Highway 502 at the East Canyon Rim Trailhead	new stop	sign	$250
	Highway 502 at Camino Entrada	new stop	sign	$250
	Total Cost Estimate			**$41,600**

Source: ACT
Note 1: Calculated by averaging July 2021 and March 2022 average daily boardings at each stop.
Note 2: Cost estimates represent only general estimates based on costs presented in similar plans, with inflation considered.

BICYCLE AMENITIES

Bicycling is becoming an increasingly popular option for traveling, particularly with the advent of e bikes. For transit passengers, bicycling can be an excellent alternative for getting to and from bus stops, especially if the passengers' destinations are far from the transit routes. In Los Alamos County, 3 percent of the onboard survey participants indicated that they already ride their bike to get to the bus. 5 percent of the community survey respondents also said that they ride their bike to work. In order to continue being able to accommodate these bicyclists on public transit, and to encourage more bicyclists to ride the

bus, there needs to be amenities such as bike racks on the buses which fit different models of bicycles, including electric bicycles (e-bikes) or fat tire bicycles or bike lockers at major stops.

Manufacturers produce bike racks for transit buses that are capable of holding one to three bicycles. Currently, all of ACT's fixed route buses and three of the paratransit vehicles are equipped with a bike rack. Companies such as Sportworks and Byk-Rak are just two examples of businesses which offer bike racks that can adjust to accommodate both bikes with normal tires, as well as fat tire bikes. Each of these two companies also offers a bike rack which can hold up to 250 pounds of weight, meaning the bike racks could transport smaller e-bike models, as e-bikes typically weigh between 40 to 80 pounds. If ACT wanted to upgrade its bus-mounted bike racks, purchasing one, 3-position, stainless steel transit bus bike rack costs over $1,300 per unit. This estimate does not consider any additional parts to accommodate fat tire bikes or labor.

Bike lockers are small boxes which fit up to two bicycles and can be locked. Not only do bike lockers keep a person's bicycle and possessions safe, but the lockers also protect these items from the elements. Many public transit agencies have installed bike lockers at popular bus stops for passengers who don't need to take their bike along on the bus to their final destination. These lockers tend to be offered either for free or for a small charge depending on the agency. Companies that manufacture bike lockers include Madrax, CycleSafe, and Reliance Foundry, among others. Costs for bike lockers start at upwards of $2,000 per locker, excluding shipping and labor costs. Stops that are highly used by ACT passengers and where installing bike lockers might encourage greater ridership and help passengers with their first/last miles include the following: the Transit Center, Trinity Drive and 7th, Mesa Public Library, Arizona Avenue and 35th, Diamond Drive and Club Road, Stoneview Drive and Big Rock Loop, the White Rock Visitor Center, White Rock Library, and East Drive and Airport Road. Installing bike lockers would be dependent on there being enough space and land ownership/right-of-way rules allowing ACT to install these amenities.

TRANSIT CENTER IN DOWNTOWN LOS ALAMOS

The Los Alamos Transit Center is located near the Technical Area 3 (TA3) badge check entrance of the LANL, south of downtown Los Alamos. This location was selected as it is the closet area to LANL that can be served by public transit without special permits. One side of the Transit Center is designated for ACT and other public buses, while the other side of the Transit Center is for LANL taxi services and not accessible to the public. There are no facilities available for waiting passengers. One mobile trailer is used as the driver break area. LANL owns the property, making it more challenging for ACT to upgrade or improve the facility, such as to include EV charging infrastructure. A final challenge is that currently, there is just enough space for all 6 ACT buses to meet at the transit center at the bottom and top of the hour.

The location and design of the Los Alamos Transit Center are intended to make it easy for LANL employees to take the bus to work by riding the bus to the Transit Center, and then taking a LANL Taxi to their specific work site. However, LANL employees do not represent the majority of ACT riders; only 13 percent of the onboard survey respondents and 29 percent of the community survey respondents were employees of LANL. These numbers suggest that while there are a significant number of boardings that occur daily at the Los Alamos Transit Center (an average of 213 boardings occurred at the Transit Center during July 2021 and 105 daily boardings on average during March 2022), many of these passengers are

likely transferring to other routes. Having the transit center at TA3 increases the trip time for passengers travelling within Los Alamos, compared with a more centralize transit hub in downtown.

There are other reasons why relocating the Transit Center to downtown Los Alamos could be beneficial for residents. The Transit Center would be used by ACT, LANL and other regional transit operators such as NCRTD and NMDOT. Relocating the transit center where there are convenient commercial amenities could have a positive economic impact on Los Alamos County. LANL employees living outside of Los Alamos County and taking one of the Park and Ride buses to work may choose to conduct some errands in Los Alamos before going home. Passengers with a layover at the transit center could visit a coffee shop or restaurant. Relocating the transit center to downtown would also make the area more appealing and attractive; thereby potentially encouraging more people to ride the bus.

Reducing the time that ACT buses spend in traffic to/from the existing transit center would be another benefit of moving the transit center to downtown. Jemez Road can become rather congested between 4 PM and 6 PM when LANL employees are leaving work. In order to enter the transit center, ACT buses must turn left against the flow of traffic off of Jemez Road, without a traffic signal. The traffic near the transit center can delay ACT routes. Transferring in downtown would reduce delays due to traffic congestion.

A transit center in downtown should be centrally located and not require passengers to use an unprotected crossing to access nearby services or transfer to another bus. Potential central locations include the large parking area along Deacon Street in downtown near the Central Shopping Center. The land uses across from this parking lot where the VFW is located appear underutilized. There is also a vacant lot on Trinity near 20th St.

A transit center does not need to be a complicated structure but should include the following:

- Parking for 10 buses (6 ACT, 2 LANL taxis, 1 Park and Ride, 1 NCRTD)
- EV charging infrastructure for multiple buses
- A structure with a large awning to provide shelter for passengers. A climate-controlled in-door waiting area is probably not necessary for Los Alamos and would increase the potential for vandalism and homelessness.
- Benches and trash receptacles
- Schedules for ACT and the regional transit operators using the transit center
- A utility/janitorial storage area
- Lighting and natural landscaping

Moving the transit center to downtown Los Alamos would require a joint effort between the County and LANL. Currently, LANL employees who ride ACT transfer to LANL “taxis” at the transit center near TA-3, which transport them to their office. To encourage more LANL commute trips on transit and keep the number of transfers to one, LANL taxis or new local shuttle routes would need to meet ACT buses at the proposed downtown transit center at specific times. Perhaps it would be possible to conduct badge checks as employees board the LANL taxis at the downtown transit center. The number of LANL shuttles traveling to the downtown transit center would depend on the number of employees using transit. With a longer distance to travel, each LANL taxi would have a longer travel time, and therefore the same number

of vehicles may not be able to serve a downtown transit center with the same frequency as the TA-3 transit center. This, in turn, may add time to LANL employees' commute.

The county budgeted local Gross Receipt Tax (GRT) funding in the annual county budget to study the relocation of the transit center in greater detail. These issues should be considered as part of this study. Over the short-term LANL has plans/recommendations to improve the transit center at TA-3. This will include constructing an additional bus island in the overflow parking lot that can accommodate 8 to 10 more buses during peak commute times. As part of this project, it is also recommended to add a priority bus signal near the LANL entrance turning into the transit center that is timed with the light at West Jemez Road and Diamond Drive. It is also recommended that the temporary designs include an overhead shelter on both the new and existing bus islands to keep passengers protected from inclement weather.

WHITE ROCK TRANSIT CENTER

LANL is planning to expand in upcoming years. Given current land-use patterns, most of the new employees at LANL will have to live outside of Los Alamos County. LANL therefore sponsored a study, *Los Alamos National Laboratory (LANL) Transit Service Options Analysis (2021)*, to consider potential changes to existing transit services and new services/programs which could encourage greater use of alternative transportation modes by LANL employees. One of the options considered in the LANL study was to construct a new transit center in White Rock.

The Pajarito Corridor is located along the southern side of the LANL campus, close to White Rock. It is the second largest employment site at LANL and is expected to grow as LANL expands. While more employees will be commuting to the Pajarito Corridor, there are currently no services which serve the southern gate of LANL and no transit center in White Rock. The *LANL Transit Service Options Analysis* recommended building a second transit center in White Rock in order to provide increased access to LANL for employees and to split riders more evenly between the gate at TA3 and the southern entrance. Other benefits of the White Rock Transit Center would be that it would provide LANL employees living in White Rock with more direct access to work.

It was recommended that the White Rock Transit Center initially be established at the existing ACT stop at SR 4 and the White Rock Community Garden. Once a final site is selected, the White Rock Transit Center would be designed to accommodate LANL shuttles and NCRTD services and include amenities such as a shelter for passengers, benches, bike racks, and water fountains. LANL and Los Alamos County would be jointly responsible for establishing the new White Rock Transit Center. This project would be funded in part by LANL providing direct funding to ACT, additional FTA funding, and grants from the Infrastructure Investment and Jobs Act.

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Chapter 8
INSTITUTIONAL ALTERNATIVES

INSTITUTIONAL/ORGANIZATIONAL STRATEGIES

This section addresses some of the institutional/organizational challenges ACT faces.

Driver Schedule Changes

The current driver schedule requires that 6 out of the 25 driver shifts are "split shifts", meaning that they have a break of three hours in the middle of their shift. For example, one driver reports for work at 5:15 AM and drives until 11:30 AM, has a three-hour break, but then must report back to work at 3:00 PM for another 1.5 hours of driving. The need for split shifts is caused by the fact that the Express routes only operate between 3:00 PM and 4:30 PM and therefore require a higher number of drivers and vehicles during this period. All shifts are full-time 8-hour shifts, although some are seasonal. The Study Team reviewed the driver schedules as part of the transit plan effort. With the number of routes operated at peak times only, it is virtually impossible to eliminate split shifts. One option which could alleviate some of the need for split shifts is to operate some of the Express Routes with part-time drivers.

Reduced Service Due to Driver Shortage

The world-wide post pandemic labor shortage is very evident in Los Alamos. Los Alamos has very few houses for sale for under $500,000, and even fewer house for rent, therefore there is a very small local labor pool for bus drivers. To compound the problem, according to research conducted by ACT staff, several transportation providers have higher wage rates than Los Alamos County and as a result several ACT drivers have quit to work at other agencies. For example, Santa Fe Trails, the public transit operator in Santa Fe, has a starting wage rate of $19.00 which is similar to a Transit Operator 3 at ACT. Los Alamos Public Schools (LAPS) pays $20.99 per hour starting wage and anecdotal evidence suggest that the wage rate for LANL is also much higher for bus drivers.

The driver shortage combined with a supply shortage for new vehicles or parts forced ACT to make the following reductions in service: suspend Route 3, Route 1 Peak Service and Route 6 Peak Service. If the driver shortage problem worsens, suspending Route 2T would be the next reasonable step. Productivity on this route is low compared to most of the system and it would still leave White Rock residents with hourly service to Los Alamos.

Reduce Express Routes

One strategy which is relevant to this discussion is for LAPS to operate some or all of the Express Routes. This would reduce the need for split shifts and free up drivers to operate ACT services which have been suspended and/or some of the alternatives discussed in this plan. Unfortunately, there are many challenges with this scenario. School buses only provide school to home transportation and many children attending Los Alamos public schools do not actually live in Los Alamos. Children of LANL employees are able to attend school in Los Alamos, despite living in other communities. These children take ACT buses to a community center or library to wait for their parents to finish work.

One option which could be explored further is for LAPS to provide "After-School Program Transportation". Under this scenario the school buses would drop off children at an approved after school program, such as at the Teen Center or libraries. If required by the school district, staff at these locations could meet the children outside the building and sign off that they have arrived at their destination. With more school bus transportation, some of the Express Routes could be eliminated without reducing transportation options for children after school. The greatest challenge with this scenario is that the state may not allow these changes to the school busing system.

Another factor to consider, if proposing to reduce Express service is the loss in ridership which would result. ACT receives federal funding through the state based on ridership.

Contract for Bandelier Service

The challenging process of hiring drivers has become more pronounced for ACT during the summer season, when ACT is responsible for hiring four additional drivers to operate the Bandelier Shuttle. The Bandelier Shuttle is a seasonal service that operates from early June through early October between White Rock and the Bandelier National Monument.

In order eliminate the need to hire additional drivers for the Bandelier service, ACT could contract with a private transportation provider for operation of the Bandelier Shuttle. All Aboard America and Santa Fe Valet are examples of private transportation companies in the region. ACT would need to develop a Request for Proposal for a private contractor as well as coordinate with the National Park Service. Ridership associated with the Bandelier Service would still be considered part of ACT in this scenario.

Coordination with LAPS and other Regional Transportation Providers

During stakeholder outreach, staff from Los Alamos Public Schools suggested that there may be a way for the two agencies to share drivers. ACT could potentially hire school bus drivers during the summer months to operate the Bandelier Shuttle. An added benefit to this scenario is that there is an established agreement between the two agencies so that employees could earn the same pension benefit credits at either agency. Unfortunately, there may be limits to this coordination as Bandelier Service operates partially during the school year: June through October. ACT staff should continue to coordinate with the Los Alamos Public Schools to better determine how drivers can be hired by ACT for the summer season. An example of another area where a local jurisdiction shares bus drivers with the transit operator is Eastern Sierra Transit Authority in Bishop, California.

If Los Alamos County promoted part-time bus driver positions for some of the split shift positions, perhaps those part-time drivers could also work at NCRTD or LANL part-time. This may reduce some of the competition for staff between regional transit operators.

Chapter 9

ATOMIC CITY TRANSIT SHORT-RANGE TRANSIT PLAN

INTRODUCTION

The following plan presents service enhancements, capital improvements, and institutional strategies to enhance public transit services in Los Alamos County, within the constraints of realistic funding projections. It is based on a review of existing transit service and demand conditions, analysis of a wide range of alternatives, as well as public and stakeholder input. This chapter presents the individual plan elements in brief, based on the substantial discussions presented in previous chapters; the reader is encouraged to refer to previous chapters for additional background on the plan elements.

SERVICE PLAN

The recommended service enhancements are described below and depicted in Figure 29. This plan assumes that new drivers can be recruited to fill the new shifts. Annual operating cost estimates for each plan element are displayed in Table 25 while ridership impacts as shown in Table 26.

Route 1 – Extend Peak Service from 1 PM Hour to 5 PM Hour

This plan element will extend peak service (15-minute frequency) from 1 PM to 5 PM on Route 1 and thereby increase annual ridership by 32,240 one-way passenger-trips and cost an additional $102,160 to operate. This alternative would require an additional vehicle and driver for this four-hour period. This plan element is anticipated to increase productivity of ACT.

Saturday Service Pilot Program

Transit service on Saturdays has been a common improvement request for ACT. Both fixed route and microtransit/fixed route options were considered for Saturday Service. Although the fixed route option is anticipated to be the most cost effective, on-demand microtransit is rapidly becoming adopted by transit agencies as an innovative and convenient way to provide rides, particularly for those who have a vehicle available to them. The Saturday Service Fixed/Microtransit option is an opportunity for ACT to test on-demand microtransit to see how it is received by residents. Under this plan element, hourly fixed route service will be provided between White Rock and Los Alamos while two vehicles will be used to provide on-demand microtransit within Los Alamos as far north as the golf course. These two vans would be needed to provide service within 30 minutes of a request. Combined fixed route and microtransit services would cost on the order of $148,620 plus an additional $25,000 annually for purchase of the microtransit app and technology support. ACT would need to circulate a Request for Proposals to find an appropriate vendor for the on-demand app. This service could be called “Subatomic City Transit”.

Given that the majority of Los Alamos residents are tech savvy and many ride the bus by choice, it is likely that residents will take well to on-demand microtransit. However, it is important that Saturday Service microtransit be implemented pilot program for at least a period of 6 months. If the microtransit option is not carrying at least 4 one-way passenger-trips per hour by the end of the pilot program period, the program should be reconsidered. Surveys of passengers should also be conducted during the pilot program to learn more about trip purpose and trip patterns. If the pilot program is successful, ACT could expand Subatomic City Transit to Phase II.

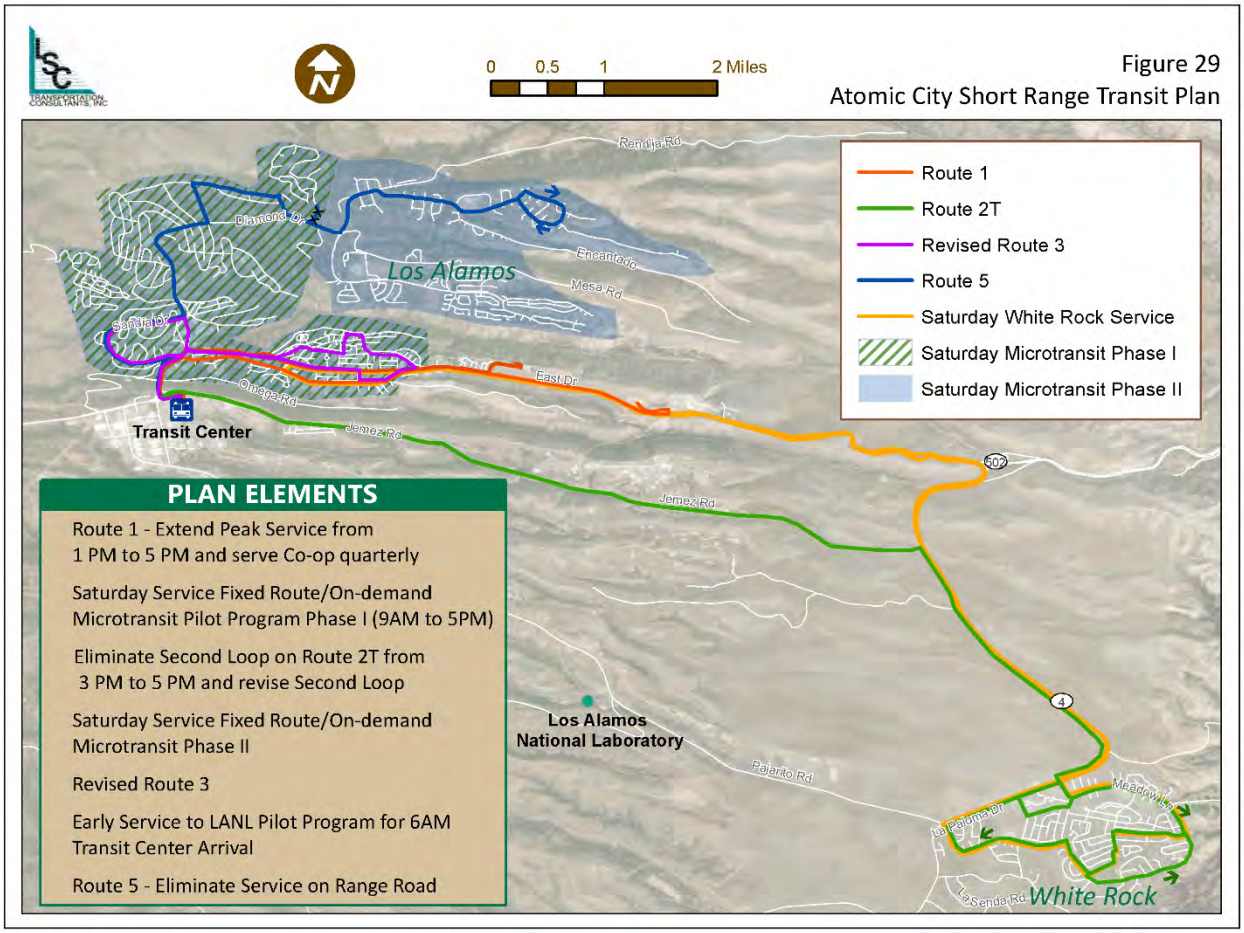

Table 25: Atomic City Transit SRTP Estimated Annual Operating Cost

Plan Element	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
Base Case Marginal Operating Cost [1]	**$2,933,900**	**$3,051,260**	**$3,142,790**	**$3,205,650**	**$3,269,760**
Extend Peak Service on Route 1 from 1 PM to 5 PM	$102,160	$106,250	$109,430	$111,620	$113,850
Saturday Service - Fixed/Microtransit Phase I Pilot Progr	$173,620	$180,560	$0	$0	$0
Saturday Service - Fixed/Microtransit Phase II	$0	$0	$275,823	$281,340	$286,967
Eliminate Second Loop on Route 2T from 3 PM to 5 PM	-$3,200	-$3,300	-$3,400	-$3,400	-$3,500
Route 1 & 3 Revisions	-$5,200	-$5,400	-$5,600	-$5,700	-$5,800
Early Service to LANL Pilot Program	$24,200	$25,100	$25,900	$26,400	$26,900
Rt 5 - Eliminate Service on Range Road	-$8,500	-$8,900	-$9,100	-$9,300	-$9,500
Plan Element Subtotal	**$283,080**	**$294,310**	**$393,053**	**$400,960**	**$408,917**
Fixed Costs	**$2,002,190**	**$2,082,280**	**$2,230,540**	**$2,437,140**	**$2,716,140**
Total Operating Cost	**$5,219,170**	**$5,427,850**	**$5,766,383**	**$6,043,750**	**$6,394,817**
Change Over Base Case	6%	6%	7%	7%	7%

Note 1: Operating costs as shown in Table 21, not including fixed costs.

Table 26: Atomic City Transit SRTP Estimated Annual Ridership

Plan Element	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
Base Case Ridership [1]	**260,622**	**260,600**	**260,600**	**260,600**	**260,600**
Extend Peak Service on Route 1 from 1 PM to 5 PM	32,240	32,240	32,240	32,240	32,240
Saturday Service - Fixed/Microtransit Phase I Pilot Program	6,050	7,560	0	0	0
Saturday Service - Fixed/Microtransit Phase II	0	0	8,480	10,600	10,600
Eliminate Second Loop on Route 2T from 3 PM to 5 PM	120	120	120	120	120
Route 1 & 3 Revisions	5,330	5,330	5,330	5,330	5,330
Early Service to LANL Pilot Program	1,990	1,990	1,990	1,990	1,990
Rt 5 - Eliminate Service on Range Road	-500	-500	-500	-500	-500
Plan Element Subtotal	***38,410***	***39,920***	***40,840***	***42,960***	***42,960***
Total Ridership [2]	**299,032**	**300,520**	**301,440**	**303,560**	**303,560**
Change Over Base Case	*15%*	*15%*	*16%*	*16%*	*16%*

Note 1: Base Case ridership is estimated based on FY 2021-22 trends.

Note 2: Ridership estimates are based on Table 21

Source: LSC Transportation Consultants, Inc.

Eliminate Second Loop on Route 2T from 3 PM to 5 PM

In an effort to improve on-time performance, this service plan element recommends eliminating the second loop on Route 2T during peak times (3PM to 5PM). As Route 2T and Route 3 interline, Route 3's on-time performance declines when Route 2T is delayed during LANL rush hour traffic. This will provide a small annual operating cost savings of $3,200 and may provide a very slight increase in ridership by improving reliability for transit service.

Additionally, when the full Route 2T is operated, the route would change after the arrival at the White Rock Library at :58 after the hour. Instead of retracing steps along Aragon and Grand Canyon, the bus would continue on Rover until Meadow Lane. This is shown in Figure 29. This option will directly serve residents on the outskirts of White Rock. As this path is the same distance as the existing route, there would be no cost impacts.

Revise Route 1 and Route 3

Route 1 and 3 both serve the downtown Los Alamos area. The schedule for Route 3 is tight and Route 1 has ample time in the schedule. In order to rebalance the routes, it is recommended that Route 1 serve the Co-op every hour and the Airport on the remaining runs. Route 3 would discontinue serving the Co-op and instead serve the western area (Sandia and Trinity) in one-direction (each loop would be in the inbound or counterclockwise direction). This will improve on-time performance for Route 3 and have minimal negative impact on on-time performance for Route 1. This service plan element will save $5,200 annually and increase ridership by 5,330 one-way passenger-trips. Revised schedules for Route 1 and Route 3 are displayed in Tables 27 and 28.

Early DAR Service within Los Alamos to the Transit Center for LANL Employees

ACT should implement a 6-month pilot program to provide early transit service to meet the commuting needs of LANL employees who report to work at 6 AM. The first AM Assist driver, who reports for work at 5 AM but is not actually driving until 6 AM, should be available for Dial-A-Ride service between 5:15 AM

and 6:00 AM to shuttle LANL employees from their homes to the Transit Center. This plan element would cost approximately $6,000 and carry an additional 1,500 passengers, if operated for a full year. The program should be advertised and coordinated with LANL. After the trial period, if less than 2 passenger-trips per hour are carried, the program should be reconsidered. If demand for the program grows to around 4 trips per hour, an additional vehicle and driver should be considered.

Early Service between White Rock and Los Alamos for Commuters

In an effort to provide early service for LANL commuters living in White Rock and working at TA-3, a second pilot program should be implemented on Route 2M. This plan element would add a one-way trip leaving White Rock around 5:30 AM to arrive at the transit center around 6:00 AM. As noted in the service alternatives chapter, the existing 6 AM run on Route 2M has very little ridership. The success of providing an earlier run would depend on the need of LANL commuters and how well the pilot program is advertised. If less than 2 passenger-trips are carried on this run on average, both this pilot program and the 6 AM run should be considered for elimination. Also note that if LANL expands shuttle programs along the Pajarito corridor, LANL commuters may no longer have a need for this service.

Discontinue Route 2P

Route 2P provides peak service to White Rock in the morning and afternoon. This route has not been in service for several years. Given that White Rock already has half-hourly service to Los Alamos and current ridership does not justify increasing service to White Rock, it is recommended that Route 2P be discontinued and staff/vehicle resources be used for other plan elements.

Route 5 - Eliminate Service along Range Road

Route 5 Barranca Mesa includes a stop on Range Road about half-way through the route. This stop has very few boardings (2 daily) and does not serve many homes. Serving it adds 0.8 miles and roughly 2 minutes to the running time, adding travel time for the many more passengers on the bus. It is recommended to eliminate this stop in order to speed up the route between downtown and Barranca Mesa. This will also provide the driver a few extra minutes of layover time at the transit center. This could save around $8,500 annually in mileage costs.

Table 27: Route 1 Revised - Downtown Circulator

Outbound						Inbound					
Transit Center	Trinity & Diamond	Trinity & Oppen-heimer	Trinity & Smiths Market-place	East Dr. & Airport Rd	Arrives: Entrada & Camino Entrada	Departs: Entrada & Camino Entrada	Central & 6th	Central & 15th	Central & Mesa Library	Canyon & Diamond	Transit Center
						6:15 AM	6:19 AM	6:20 AM	6:24 AM	6:26 AM	6:28 AM
6:35 AM	6:36 AM	6:38 AM	6:41 AM	--	6:46 AM	6:46 AM	6:50 AM	6:51 AM	6:55 AM	6:57 AM	6:59 AM
7:05 AM	7:06 AM	7:08 AM	7:11 AM	7:13 AM	--	--	7:15 AM	7:16 AM	7:20 AM	7:22 AM	7:24 AM
7:35 AM	7:36 AM	7:38 AM	7:41 AM	--	7:46 AM	7:46 AM	7:50 AM	7:51 AM	7:55 AM	7:57 AM	7:59 AM
8:05 AM	8:06 AM	8:08 AM	8:11 AM	8:13 AM	--	--	8:15 AM	8:16 AM	8:20 AM	8:22 AM	8:24 AM
8:35 AM	8:36 AM	8:38 AM	8:41 AM	--	8:46 AM	8:46 AM	8:50 AM	8:51 AM	8:55 AM	8:57 AM	8:59 AM
9:05 AM	9:06 AM	9:08 AM	9:11 AM	9:13 AM	--	--	9:15 AM	9:16 AM	9:20 AM	9:22 AM	9:24 AM
9:35 AM	9:36 AM	9:38 AM	9:41 AM	--	9:46 AM	9:46 AM	9:50 AM	9:51 AM	9:55 AM	9:57 AM	9:59 AM
10:05 AM	10:06 AM	10:08 AM	10:11 AM	10:13 AM	--	--	10:15 AM	10:16 AM	10:20 AM	10:22 AM	10:24 AM
10:35 AM	10:36 AM	10:38 AM	10:41 AM	--	10:46 AM	10:46 AM	10:50 AM	10:51 AM	10:55 AM	10:57 AM	10:59 AM
11:05 AM	11:06 AM	11:08 AM	11:11 AM	11:13 AM	--	--	11:15 AM	11:16 AM	11:20 AM	11:22 AM	11:24 AM
11:20 AM	11:21 AM	11:23 AM	11:26 AM	11:28 AM	--	--	11:30 AM	11:31 AM	11:35 AM	11:37 AM	11:39 AM
11:35 AM	11:36 AM	11:38 AM	11:41 AM	--	11:46 AM	11:46 AM	11:50 AM	11:51 AM	11:55 AM	11:57 AM	11:59 AM
11:50 AM	11:51 AM	11:53 AM	11:56 AM	11:58 AM	--	--	12:00 PM	12:01 PM	12:05 PM	12:07 PM	12:09 PM
12:05 PM	12:06 PM	12:08 PM	12:11 PM	12:13 PM	--	--	12:15 PM	12:16 PM	12:20 PM	12:22 PM	12:24 PM
12:20 PM	12:21 PM	12:23 PM	12:26 PM	12:28 PM	--	--	12:30 PM	12:31 PM	12:35 PM	12:37 PM	12:39 PM
12:35 PM	12:36 PM	12:38 PM	12:41 PM	--	12:46 PM	12:46 PM	12:50 PM	12:51 PM	12:55 PM	12:57 PM	12:59 PM
12:50 PM	12:51 PM	12:53 PM	12:56 PM	12:58 PM	--	--	1:00 PM	1:01 PM	1:05 PM	1:07 PM	1:09 PM
1:05 PM	1:06 PM	1:08 PM	1:11 PM	1:13 PM	--	--	1:15 PM	1:16 PM	1:20 PM	1:22 PM	1:24 PM
1:20 PM	1:21 PM	1:23 PM	1:26 PM	1:28 PM	--	--	1:30 PM	1:31 PM	1:35 PM	1:37 PM	1:39 PM
1:35 PM	1:36 PM	1:38 PM	1:41 PM	--	1:46 PM	1:46 PM	1:50 PM	1:51 PM	1:55 PM	1:57 PM	1:59 PM
1:50 PM	1:51 PM	1:53 PM	1:56 PM	1:58 PM	--	--	2:00 PM	2:01 PM	2:05 PM	2:07 PM	2:09 PM
2:05 PM	2:06 PM	2:08 PM	2:11 PM	2:13 PM	--	--	2:15 PM	2:16 PM	2:20 PM	2:22 PM	2:24 PM
2:20 PM	2:21 PM	2:23 PM	2:26 PM	2:28 PM	--	--	2:30 PM	2:31 PM	2:35 PM	2:37 PM	2:39 PM
2:35 PM	2:36 PM	2:38 PM	2:41 PM	--	2:46 PM	2:46 PM	2:50 PM	2:51 PM	2:55 PM	2:57 PM	2:59 PM
2:50 PM	2:51 PM	2:53 PM	2:56 PM	2:58 PM	--	--	3:00 PM	3:01 PM	3:05 PM	3:07 PM	3:09 PM
3:05 PM	3:06 PM	3:08 PM	3:11 PM	3:13 PM	--	--	3:15 PM	3:16 PM	3:20 PM	3:22 PM	3:24 PM
3:20 PM	3:21 PM	3:23 PM	3:26 PM	3:28 PM	--	--	3:30 PM	3:31 PM	3:35 PM	3:37 PM	3:39 PM
3:35 PM	3:36 PM	3:38 PM	3:41 PM	--	3:46 PM	3:46 PM	3:50 PM	3:51 PM	3:55 PM	3:57 PM	3:59 PM
3:50 PM	3:51 PM	3:53 PM	3:56 PM	3:58 PM	--	--	4:00 PM	4:01 PM	4:05 PM	4:07 PM	4:09 PM
4:05 PM	4:06 PM	4:08 PM	4:11 PM	4:13 PM	--	--	4:15 PM	4:16 PM	4:20 PM	4:22 PM	4:24 PM
4:20 PM	4:21 PM	4:23 PM	4:26 PM	4:28 PM	--	--	4:30 PM	4:31 PM	4:35 PM	4:37 PM	4:39 PM
4:35 PM	4:36 PM	4:38 PM	4:41 PM	--	4:46 PM	4:46 PM	4:50 PM	4:51 PM	4:55 PM	4:57 PM	4:59 PM
4:50 PM	4:51 PM	4:53 PM	4:56 PM	4:58 PM	--	--	5:00 PM	5:01 PM	5:05 PM	5:07 PM	5:09 PM
5:05 PM	5:06 PM	5:08 PM	5:11 PM	5:13 PM	--	--	5:15 PM	5:16 PM	5:20 PM	5:22 PM	5:24 PM
5:35 PM	5:36 PM	5:38 PM	5:41 PM	--	5:46 PM	5:46 PM	5:50 PM	5:51 PM	5:55 PM	5:57 PM	5:59 PM
6:05 PM	6:06 PM	6:08 PM	6:11 PM	6:13 PM	--	--	6:15 PM	6:16 PM	6:20 PM	6:22 PM	6:24 PM
6:35 PM	6:36 PM	6:38 PM	6:41 PM	6:43 PM	--	--	6:45 PM	6:46 PM	6:50 PM	6:52 PM	6:54 PM
7:05 PM	7:06 PM	7:08 PM	7:11 PM	--	7:16 PM	--	--	--	--	--	--

Peak Service

Table 28: Route 3 Revised - Canyon & Central

Outbound					Inbound					
Transit Center	Canyon & Diamond	Central & Mesa Library	Central & 15th	Trinity & Smith's	Canyon & 2nd	Canyon & Rim	Rose & 22nd (Sr. Center)	Canyon & Diamond	Sandia & 42nd	Transit Center
					6:15 AM	6:16 AM	6:18 AM	6:20 AM	6:22 AM	6:27 AM
6:35 AM	6:37 AM	6:39 AM	6:40 AM	6:43 AM	6:45 AM	6:46 AM	6:48 AM	6:50 AM	6:52 AM	6:57 AM
7:05 AM	7:07 AM	7:09 AM	7:10 AM	7:13 AM	7:15 AM	7:16 AM	7:18 AM	7:20 AM	7:22 AM	7:27 AM
7:35 AM	7:37 AM	7:39 AM	7:40 AM	7:43 AM	7:45 AM	7:46 AM	7:48 AM	7:50 AM	7:52 AM	7:57 AM
8:05 AM	8:07 AM	8:09 AM	8:10 AM	8:13 AM	8:15 AM	8:16 AM	8:18 AM	8:20 AM	8:22 AM	8:27 AM
8:35 AM	8:37 AM	8:39 AM	8:40 AM	8:43 AM	8:45 AM	8:46 AM	8:48 AM	8:50 AM	8:52 AM	8:57 AM
9:05 AM	9:07 AM	9:09 AM	9:10 AM	9:13 AM	9:15 AM	9:16 AM	9:18 AM	9:20 AM	9:22 AM	9:27 AM
9:35 AM	9:37 AM	9:39 AM	9:40 AM	9:43 AM	9:45 AM	9:46 AM	9:48 AM	9:50 AM	9:52 AM	9:57 AM
10:05 AM	10:07 AM	10:09 AM	10:10 AM	10:13 AM	10:15 AM	10:16 AM	10:18 AM	10:20 AM	10:22 AM	10:27 AM
10:35 AM	10:37 AM	10:39 AM	10:40 AM	10:43 AM	10:45 AM	10:46 AM	10:48 AM	10:50 AM	10:52 AM	10:57 AM
11:05 AM	11:07 AM	11:09 AM	11:10 AM	11:13 AM	11:15 AM	11:16 AM	11:18 AM	11:20 AM	11:22 AM	11:27 AM
11:35 AM	11:37 AM	11:39 AM	11:40 AM	11:43 AM	11:45 AM	11:46 AM	11:48 AM	11:50 AM	11:52 AM	11:57 AM
12:05 PM	12:07 PM	12:09 PM	12:10 PM	12:13 PM	12:15 PM	12:16 PM	12:18 PM	12:20 PM	12:22 PM	12:27 PM
12:35 PM	12:37 PM	12:39 PM	12:40 PM	12:43 PM	12:45 PM	12:46 PM	12:48 PM	12:50 PM	12:52 PM	12:57 PM
1:05 PM	1:07 PM	1:09 PM	1:10 PM	1:13 PM	1:15 PM	1:16 PM	1:18 PM	1:20 PM	1:22 PM	1:27 PM
1:35 PM	1:37 PM	1:39 PM	1:40 PM	1:43 PM	1:45 PM	1:46 PM	1:48 PM	1:50 PM	1:52 PM	1:57 PM
2:05 PM	2:07 PM	2:09 PM	2:10 PM	2:13 PM	2:15 PM	2:16 PM	2:18 PM	2:20 PM	2:22 PM	2:27 PM
2:35 PM	2:37 PM	2:39 PM	2:40 PM	2:43 PM	2:45 PM	2:46 PM	2:48 PM	2:50 PM	2:52 PM	2:57 PM
3:05 PM	3:07 PM	3:09 PM	3:10 PM	3:13 PM	3:15 PM	3:16 PM	3:18 PM	3:20 PM	3:22 PM	3:27 PM
3:35 PM	3:37 PM	3:39 PM	3:40 PM	3:43 PM	3:45 PM	3:46 PM	3:48 PM	3:50 PM	3:52 PM	3:57 PM
4:05 PM	4:07 PM	4:09 PM	4:10 PM	4:13 PM	4:15 PM	4:16 PM	4:18 PM	4:20 PM	4:22 PM	4:27 PM
4:35 PM	4:37 PM	4:39 PM	4:40 PM	4:43 PM	4:45 PM	4:46 PM	4:48 PM	4:50 PM	4:52 PM	4:57 PM
5:05 PM	5:07 PM	5:09 PM	5:10 PM	5:13 PM	5:15 PM	5:16 PM	5:18 PM	5:20 PM	5:22 PM	5:27 PM
5:35 PM	5:37 PM	5:39 PM	5:40 PM	5:43 PM	5:45 PM	5:46 PM	5:48 PM	5:50 PM	5:52 PM	5:57 PM
6:05 PM	6:07 PM	6:09 PM	6:10 PM	6:13 PM	6:15 PM	6:16 PM	6:18 PM	6:20 PM	6:22 PM	6:27 PM
6:35 PM	6:37 PM	6:39 PM	6:40 PM	6:43 PM	6:45 PM	6:46 PM	6:48 PM	6:50 PM	6:52 PM	6:57 PM

Alternatively, the Range Road stop could be served on-demand. Passengers wishing a pickup could call at least 15 minutes in advance, while passengers wishing a drop off could simply inform the driver upon boarding.

FINANCIAL PLAN

Table 29 presents the financial plan for ACT over the next five years. This plan assumes that Saturday Microtransit service will be successful, and Phase II will be implemented in FY 25-26. The plan also assumes that the Early On-Demand Service to the Transit Center will also continue over the life of the plan. Operating costs for the recommended service plan are compared to anticipated operating revenues for the five year period. In terms of revenue, ACT receives funding through the FTA 5311 program from the state. The National Park Service also provides funding for the Bandelier Service. Table 29 represents a

fiscally constrained plan as revenues are estimated to be sufficient to cover the additional operating expenses from the recommended service plan. As shown in Table 25, the SRTP represents a 6 – 7 percent increase over status quo operating costs and a 15 – 16 percent increase in ridership (Table 26). As the ridership increase is greater than the cost increase, overall this plan is forecast to improve the cost-effectiveness of the ACT transit program.

CAPITAL PLAN

ACT Capital Plan Elements are listed in Table 29. The recommended service plan will require one additional vehicle. Estimated costs for bus stop improvements listed in the Capital Alternatives section are averaged over the five-year planning period. In total around $5 million in grant funding and $1.2 million in local match funding will be required for the five-year capital plan.

Table 29: Atomic City Transit SRTP Financial Plan

	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	5-Year Plan Total
Operating Costs						
Service Plan Operating Costs [1]	$5,227,070	$5,436,070	$5,774,846	$6,052,381	$6,403,621	$28,893,988
Total Operating Costs	**$5,227,070**	**$5,436,070**	**$5,774,846**	**$6,052,381**	**$6,403,621**	**$28,893,988**
Operating Revenues						
FTA 5311	$5,169,414	$5,324,497	$5,484,232	$5,648,759	$5,818,222	$27,445,123
National Park Service	$83,546	$86,053	$88,634	$91,293	$94,032	$443,559
Total Operating Revenues	**$5,602,961**	**$5,795,550**	**$5,996,366**	**$6,205,952**	**$6,424,754**	**$30,025,583**
Annual Balance	$375,891	$359,480	$221,520	$153,571	$21,133	$1,131,594
Capital Plan						
Vehicle Replacement [2]	$638,085	$1,529,500	$898,300	$1,622,600	$1,436,300	$6,124,785
New Vehicle for Service Plan	$150,000	$0	$0	$0	$0	$150,000
Bus Stop Improvements [3]	$8,320	$8,570	$8,830	$9,090	$9,360	$44,170
Total Capital Requirements	**$796,405**	**$1,538,070**	**$907,130**	**$1,631,690**	**$1,445,660**	**$6,318,955**
Local Match Requirements (20 percent)	$159,280	$307,610	$181,430	$326,340	$289,130	$1,263,790
Total Grant Funding Required [4]	$637,125	$1,230,460	$725,700	$1,305,350	$1,156,530	$5,055,165

Potential Capital Funding Programs [4]
FTA 5339 Capital
FTA 5311
FTA 5310
Infrastructure Invesment and Jobs Act (IIJA)

Note 1: As presented in Table 21, rounded. Includes annual inflation.
Note 2: Vehicle replacement as presented in Table 23.
Note 3: As presented in Table 24.
Note 4: Typically 80 percent of capital equipment needs are covered through federal grants.

SUMMARY OF SHORT-RANGE TRANSIT PLAN ELEMENTS

Once implemented, the ACT SRTP will result in increased ridership (38,410 annually or 15 percent) with only a small increase to operating costs ($291,000 or 6 percent). The SRTP will improve the quality of transit service by increasing frequency on highly utilized routes, improving on-time performance, providing more-direct service to residents, and introducing new forms of transit to Los Alamos County. Many of the transit plan elements as well as future ridership growth depend on the ability to hire additional transit operators. Below is a summary of the service (Table 30), financial, and capital plan elements included in this SRTP:

- Extend peak service on Route 1 from 1 PM to 5 PM. This will result in 32,240 additional passenger-trips and will only cost $3.17 for each additional passenger served. This will require ACT to procure an additional vehicle (medium sized vehicle) and hire an additional driver.
- Pilot Program - Provide transit services on Saturday from 9 AM to 5 PM by operating a fixed route between White Rock and Los Alamos and microtransit within Los Alamos. The Saturday transit services will carry 7,000 to 10,000 additional passenger-trips per year and will cost $181,000 to $284,000 annually. This service will be expanded if the initial pilot program is successful. The microtransit service could be operated using the smaller buses in the Atomic City Transit fleet. If the service continues beyond the pilot phase, small 10-passenger electric/hybrid vans could be procured.
- Eliminate the second loop on Route 2T from 3 PM to 5 PM. This slight service change will result in $19,000 cost savings annually and a small increase in ridership.
- Revise Routes 1 and 3 to improve on-time performance and increase ridership. Route 1 will serve the Co-op every hour and the Airport on the remaining runs. Route 3 would discontinue serving the Co-op and instead serve Sandia and Trinity.
- Pilot Program: Using the available ACT Assist driver, implement an early morning general public DAR service from 6 AM to 7 AM to the transit center to serve LANL employees.
- Revise Route 5 to no longer serve Range Road in order to reduce travel times for other passengers, provide extra layover time for the driver, and save $8,500 in annual operating costs.
- Permanently discontinue Route 2P to allow staff and vehicles to be used for other plan elements.
- ACT will procure one additional vehicle to implement the elements in this SRTP in addition to normal vehicle replacement requirements. New vehicles will cost ACT over $1.8 million throughout the 5-year plan period, 80 percent of which could be paid for with grant funding. ACT should consider procuring more electric vehicles as vehicles are replaced.
- Bus stop improvement projects, such as installing new shelters and benches will continue throughout the plan period. These projects will cost ACT $44,170 over the 5-years.

Table 30: Summary of Atomic City Transit Operating Plan Elements

	Change from Base Case			
	Ridership	Operating Cost	Benefits	Disadvantages
Extend Peak Service on Route 1 from 1 PM to 5 PM	32,240	$102,160	Cost effective	New vehicle and driver
Saturday Service - Fixed/Microtransit Phase I Pilot Program	7,560	$181,520	New type of service, Serve more people directly	Additional driver shifts Not as cost effective as fixed route
Saturday Service - Fixed/Microtransit Phase II	10,600	$284,286	Serves more of Los Alamos directly	Additional driver shifts Not as cost effective as fixed route
Eliminate Second Loop on Route 2T from 3 PM to 5 PM	120	-$3,200	Improve on-time performance, Cost savings	Eliminate bi-directional service for some White Rock residents
Route 1 & 3 Revisions	5,330	-$5,200	Improve on-time performance, Western area has more service	Co-op served hourly instead of half-hourly
Early Service to LANL Pilot Program	1,990	$24,200	Serve LANL employees with early shifts	If popular, will require additional driver shift
Rt 5 - Eliminate Service on Range Road	-500	-$8,500	Eliminates spur which receives low ridership	Eliminates service to a small number of homes

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BUSIEST BUS STOPS

It is valuable to know which bus stops in the transit system generate high levels of passenger activity. For instance, bus stops that generate high levels of activity can then be considered for funds dedicated for improved passenger amenities. This appendix includes tables identifying the top 40 busiest bus stops used by ACT fixed route passengers. Maps showing boarding activity by stop are included in Chapter 3 of this Short-Range Transit Plan (SRTP).

Table A-1: Top 40 Busiest Bus Stops (Part 1)

Ranked by Average Daily Boardings in March 2022

Stop Number	Location	Average Daily Passenger Boardings					
		July 2021			March 2022		
		Adult [1]	Student	Total	Adult [1]	Student	Total
100	Transit Center	108.0	104.8	212.8	59.7	45.0	104.7
335	San Ildefonso Rd & Hawk Dr Inbound	2.9	1.9	4.8	1.9	31.1	33.0
172	Diamond Dr & Orange St Outbound	0.9	0.8	1.6	1.3	24.6	25.9
272	Barranca Rd & Camino Encantado Inbound	0.0	2.0	2.0	0.0	23.0	23.0
111	Trinity Dr & 7th	9.9	4.7	14.7	12.3	5.9	18.2
545	Villa & 33rd (Aspen Elem Schl)	1.4	1.1	2.5	1.4	14.9	16.3
393	Grand Canyon Dr & Sherwood (Pinon Elem)	1.5	0.3	1.8	0.1	16.0	16.1
138	Canyon Rd & 39th St Out	2.7	2.8	5.5	3.7	11.7	15.4
307	San Ildefonso Rd & Hawk Dr Out	0.5	0.5	1.0	0.1	14.1	14.2
125	Canyon Rd & Diamond Dr	0.9	1.0	1.9	1.1	13.1	14.2
120	Central Ave & Mesa Library	8.5	10.1	18.5	8.2	5.0	13.2
334	San Ildefonso Rd & Camino Uva Inbound	1.4	10.5	11.9	0.1	12.9	12.9
171	Diamond Dr & High School Gym Outbound	1.6	4.1	5.7	3.7	8.5	12.1
377	Meadow Ln & Isleta Dr (Cmsa Elem Schl)	-	-	-	0.0	10.6	10.6
333	San Ildefonso Rd & Baseball Field In	3.0	0.1	3.1	3.5	6.6	10.1
115	Central Ave & 9th St Inbound	8.7	0.1	8.8	9.1	1.0	10.0
565	Arizona Ave & Country Ln S	-	-	-	0.0	9.0	9.0
257	Los Pueblos St & Navajo Rd (Iyvr)	6.0	4.4	10.4	5.5	3.4	8.9
145	Central Ave & 20th St	3.3	5.1	8.3	2.8	5.6	8.4
237	Sandia Dr & 40th St Outbound	0.3	2.0	2.3	0.9	7.5	8.4

Note 1: Includes Seniors and ADA Passengers

Source: LSC Transportation Consultants, Inc.

Table A-2: Top 40 Busiest Bus Stops (Part 2)

Ranked by Average Daily Boardings in March 2022

Stop Number	Location	Average Daily Passenger Boardings					
		July 2021			March 2022		
		Adult [1]	Student	Total	Adult [1]	Student	Total
116	Central Ave & 15th St	3.7	1.2	4.9	7.5	0.7	8.1
332	San Ildefonso Rd & Mountain Vista In	-	-	-	4.3	3.7	8.0
555	Central Ave & Oppenheimer Dr Inbound	2.5	1.8	4.4	4.2	2.5	6.6
193	Diamond Dr & Sandia Dr Inbound	1.8	0.7	2.5	4.0	2.3	6.3
217	Diamond Dr & Arkansas Ave Inbound	0.6	0.9	1.4	3.2	2.9	6.1
114	Central Ave & 6th St Inbound	3.6	2.0	5.6	4.0	1.9	5.9
119	Central Ave & PO (Fuller Lawn) Inbound	2.9	1.9	4.8	3.1	2.3	5.4
122	Canyon Rd & Aquatic Center Inbound	1.8	2.4	4.2	3.4	1.4	4.7
208	Yucca St & North Rd Outbound	1.4	0.6	2.0	2.1	2.4	4.5
142	Central Ave & Oppenheimer Outbound	1.0	0.3	1.3	3.0	1.5	4.5
194	Diamond Dr & Sullivan Field Inbound	0.5	2.0	2.5	1.3	3.1	4.4
126	Diamond Dr & Lemon Lot Inbound	1.2	0.5	1.7	0.9	3.4	4.3
594	Grand Canyon Dr & Sherwood	1.2	1.6	2.8	0.7	3.5	4.2
101	Trinity Dr & Diamond Dr (Hospital)	5.3	1.9	7.1	3.6	0.4	4.0
286	Trinity Dr & 46th St Inbound	0.9	0.4	1.3	2.0	2.0	4.0
336	San Ildefonso Rd & Camino Redondo In	0.3	1.5	1.8	1.3	2.6	3.8
146	Central Ave & 15th St Outbound	2.0	1.3	3.3	0.5	3.0	3.5
536	North Rd & Yucca St	3.1	0.9	4.0	1.5	2.0	3.5
331	San Ildefonso Rd & Broadview Dr Inbound	1.6	1.7	3.3	0.7	2.8	3.4
486	Rover Blvd & State Rd 4	3.4	0.6	4.0	2.9	0.5	3.4

Note 1: Includes Seniors and ADA Passengers

Source: LSC Transportation Consultants, Inc.

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ACT ONBOARD SURVEY RESULTS

To determine if the transit system is effectively serving the local region, it is important to hear from the bus passenger themselves. Atomic City Transit (ACT) passengers contributed to the most recent update of ACT's Short-Range Transit Plan (SRTP) by completing onboard surveys throughout May, June, and July 2022. Drivers distributed paper surveys for passengers to self-administer. Passengers could also respond to the survey electronically by scanning QR codes posted on flyers onboard.

The survey instruments consisted of a two-page questionnaire. The survey was available in both English and Spanish. The online survey was available through Survey Monkey in both English and Spanish and contained the same questions as the paper version. The surveys included a simple introduction, with 18 questions in multiple choice, short-answer, or comment format. Most respondents did not answer every question, therefore the number of answers per question varies.

A total of 97 passengers participated in the survey; all but one of the respondents completed the survey in English. Detailed survey results by question are provided in this Appendix, with highlights provided in the main report.

Q1. Boarding Times (92 Responses)

The survey respondents' boarding times are shown in Table B-1. Most passengers reported to having boarded in the morning; 15 percent boarded during the first two hours of the service day, over one quarter boarded during what many consider to be the "morning commute" hours of 8 AM to 9:59 AM, and another 18 percent boarded between 10 AM to 11:59 AM. Only 7 percent of respondents boarded during the final three hours of service.

Table B-1: Boarding Times

Time	# of Participants	% of Participants
6 AM - 7:59 AM	14	15%
8 AM - 9:59 AM	25	27%
10 AM - 11:59 AM	17	18%
12 PM - 1:59 PM	9	10%
2 PM - 3:59 PM	11	12%
4 PM - 5:59 PM	10	11%
6 PM - 9 PM	6	7%
Total Responses	**92**	**100%**

Q2 & Q6. Boarding and Alighting Locations (92 and 90 Responses)

Many aspects of transit planning, such as future bus stop improvements, require knowledge of where passengers are boarding the bus as well as departing. The most popular stops for boarding and alighting among the survey respondents are shown in Tables B-2 and B-3. Stops recorded as "Other" are known locations that were less popular. Unclear answers are those that were either not legible or not specific enough to know which stop was being referred to.

Not surprisingly, the most popular stop for both boarding and alighting was the Transit Center in Los Alamos (17 percent and 13 percent, respectively). As the onboard survey was conducted during the summer months, the Bandelier National Monument's Visitor Center was also a popular stop (7 percent of both boardings and alightings). Tables B-2 and B-3 contain more detailed results.

The boarding and alighting information provided by respondents was analyzed to identify common origin-destination pairs, revealing more about overall travel patterns. Table B-4 shows both the actual count as well as the percent of passengers that boarded from a specified location and then alighted

Table B-2: Top Boarding Locations

Bus Stop	# of Participants	% of Participants
Transit Center	16	17%
Bandelier Visitor Center	6	7%
Los Pueblos & Navajo Rd	4	4%
Aragon Ave & Rover Blvd	3	3%
Barranca Mesa Elementary School	3	3%
Grand Canyon Dr & Sherwood Blvd	3	3%
Los Alamos High School	3	3%
Trinity Dr & 7th St	3	3%
Central Ave & Post Office	2	2%
Grand Canyon Dr & Aragon Ave	2	2%
Mesa Public Library	2	2%
Range Rd & Aspen Dr	2	2%
Villa Street & 34th Street S	2	2%
Los Pueblos & Barranca	1	1%
White Rock Visitor Center	1	1%
Unclear	9	10%
Other	30	33%
Total Responses	**92**	**100%**

Table B-3: Top Alighting Locations

Bus Stop	# of Participants	% of Participants
Transit Center	12	13%
Bandelier Visitor Center	6	7%
Mesa Public Library	5	6%
Range Rd & Aspen Dr	5	6%
North Rd & Urban Park	3	3%
Trinity Dr & 7th St	3	3%
Villa Street & 34th Street S	3	3%
White Rock Visitor Center	3	3%
Arkansas Ave & Diamond Dr	3	3%
Aragon Ave & Rover Blvd	2	2%
Barranca Mesa Elementary School	2	2%
Central Ave & 20th St	2	2%
Lemon Lot	2	2%
San Ildefonso Rd & Broadview Dr	1	1%
Los Alamos High School	1	1%
Unclear	13	14%
Other	24	27%
Total Responses	**90**	**100%**

at the specified destination. It should be noted that stops with only 1 boarding or 1 alighting are not shown. In the bottom half of the table, darker green shades indicate an origin-destination pair that was used by a greater portion of respondents. For the 5 percent of respondents who said they both boarded and alighted at the Bandelier Visitor Center, it is likely they misunderstood the question.

Table B-4: Major Origin/Destination Pairs from Onboard Survey Results

Excludes Stops with Only 1 Boarding or 1 Alighting

	Destination Stop																						
Boarding Stop	Aragon Ave & Rover Blvd	Arizona Ave & 35th St	Arizona Ave & Diamond Dr	Bandalier Visitor Center	Barranca Mesa	Barranca Mesa Elementary School	Barranca Road	Central Ave & 20th St	Diamond Dr & Arkansas Ave	Grand Canyon Dr & Sherwood Blvd	Lemon Lot	Los Alamos HS	Los Alamos Middle School	Mesa Public Library	North Road & Urban Park	Range Road & Aspen Drive	Transit Center	Trinity Drive & 7th St	Unknown	Villa St & 34th St S	White Rock Library	White Rock Visitor Center	Total
Aragon Ave & Rover Blvd	1													1					1				3
Arizona Ave & 35th																							1
Bandalier Visitor Center				5																		1	6
Barranca Mesa Elementary School														1			1						3
Barranca Road																			1				1
Central Ave & Post Office																						2	2
Grand Canyon Dr & Aragon Ave								1										1		1			3
Grand Canyon Dr & Sherwood Blvd										1							2						3
Los Alamos HS													1							1			3
Los Alamos Middle School																			1				1
Los Pueblos St & Navajo Rd							1									1	1						3
Mesa Public Library																			2				2
Range Rd & Aspen Dr												1				1							2
Transit Center			2		1				3					1	1		1	1	4	1			18
Trinity Drive & 7th St																	1	1	1				3
Unknown	1	1															1		5				11
Villa St & 34th St S								1									1						2
White Rock Library						1																	1
White Rock Visitor Center				1																			1
Total	2	1	2	6	2	2	1	2	3	1	2	1	1	5	3	4	12	3	18	3	1	3	95
Percent of Total Valid Surveys																							
Aragon Ave & Rover Blvd	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	0%	3%
Arizona Ave & 35th	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Bandalier Visitor Center	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	6%
Barranca Mesa Elementary School	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	3%
Barranca Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Central Ave & Post Office	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	2%
Grand Canyon Dr & Aragon Ave	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0%	0%	3%
Grand Canyon Dr & Sherwood Blvd	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	3%
Los Alamos HS	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	1%	0%	0%	3%
Los Alamos Middle School	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%
Los Pueblos St & Navajo Rd	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	3%
Mesa Public Library	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	2%
Range Rd & Aspen Dr	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	2%
Transit Center	0%	0%	2%	0%	1%	0%	0%	0%	3%	0%	0%	0%	0%	1%	1%	0%	1%	1%	4%	1%	0%	0%	19%
Trinity Drive & 7th St	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%	3%
Unknown	1%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	5%	0%	0%	0%	12%
Villa St & 34th St S	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	2%
White Rock Library	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
White Rock Visitor Center	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Total	2%	1%	2%	6%	2%	2%	1%	2%	3%	1%	2%	1%	1%	5%	3%	4%	13%	3%	19%	3%	1%	3%	100%

Note: Excludes stops with only one boarding or one alighting.

Q3. How Passengers Arrived at the Bus (94 Responses)

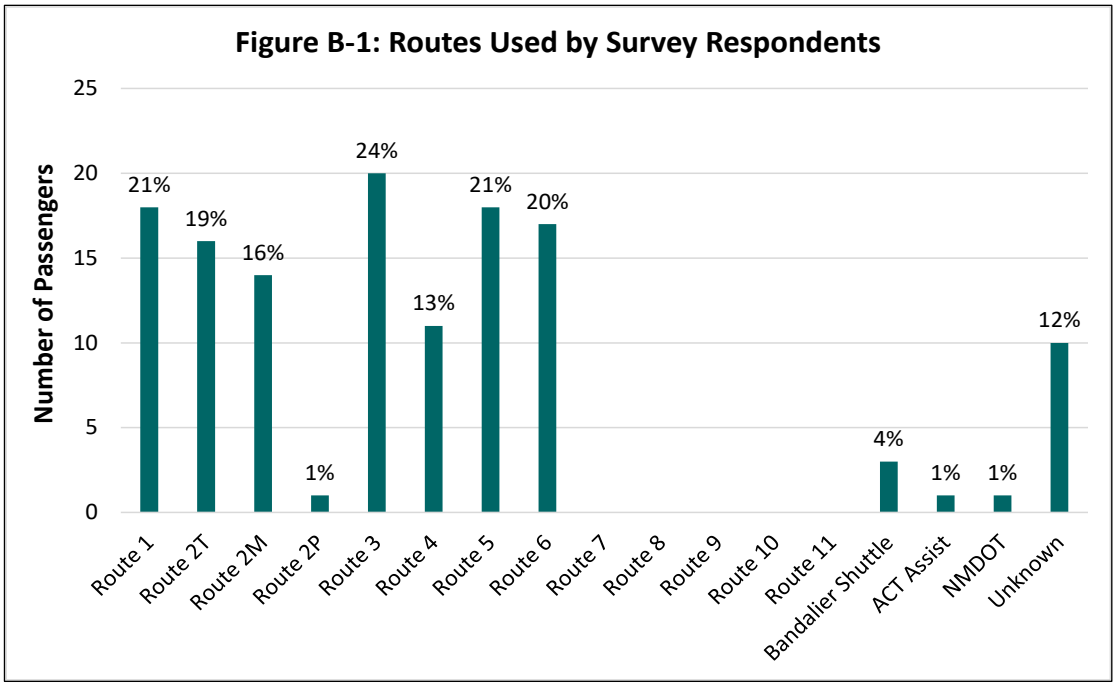
Table B-5 shows how passengers got the bus stop the day of the survey. The majority of passengers walked (80 percent), while 11 percent drove their car and parked at the bus stop. Very few respondents either got a ride, transferred from another bus, bicycled, or took a taxi.

Table B-5: How Passengers Arrived at the Bus

Mode	# of Participants	% of Participants
Walked	75	80%
Drove Car	10	11%
Got a Ride	4	4%
Bus - Transferred	4	4%
Bicycled	3	3%
Taxi or Uber/Lyft	0	0%
Other	2	2%
Total Responses	**94**	**100%**

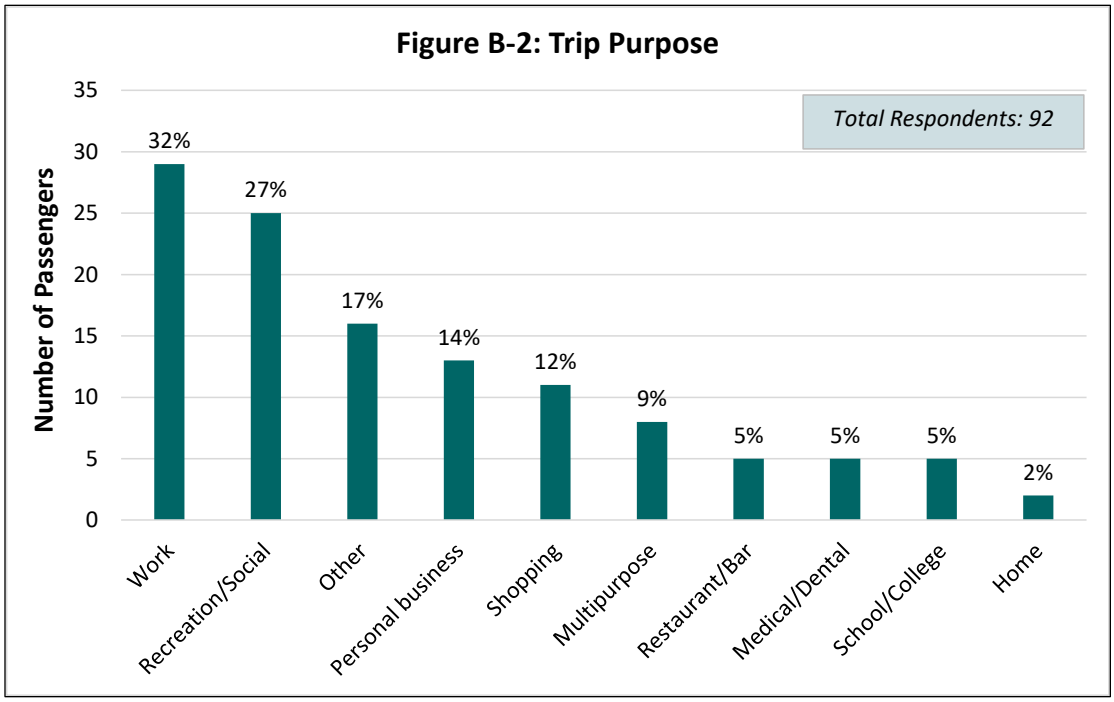
Q4. Routes Used by Survey Respondents (85 Responses)

Passengers listed all of the routes that they would use to complete their trip the day of the survey. The most popular routes among survey respondents were Routes 3, 1, 5, and 6, with over 20 percent of respondents reporting to using each of the four routes. In contrast, only 1 percent of participants were riding Route 2P, and no one was riding or planning to ride the Express routes because the survey was during the summer (Figure B-1).



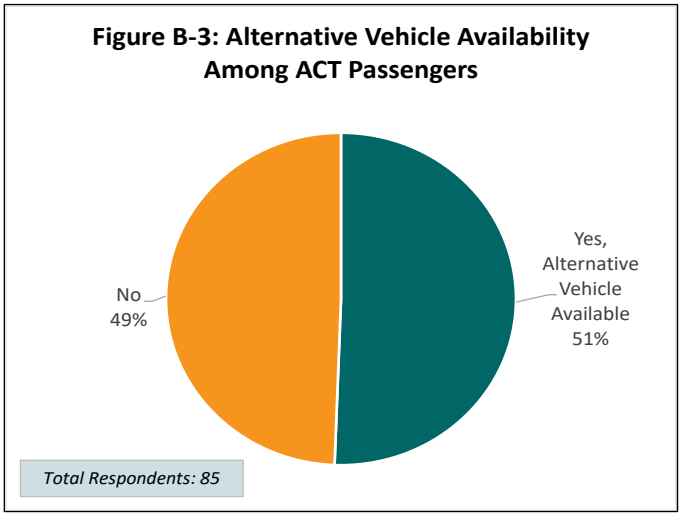
Q5. Trip Purpose (92 Responses)

To design a transit system that is able to get passengers where they need to go and at the right time, it is helpful to understand why people are riding the bus to begin with. Participants were therefore asked the main purpose of their travels the day they completed the survey. The most common reasons why ACT passengers were riding the bus were for work (32 percent), recreation (27 percent), and personal business (14 percent) (Figure B-2).



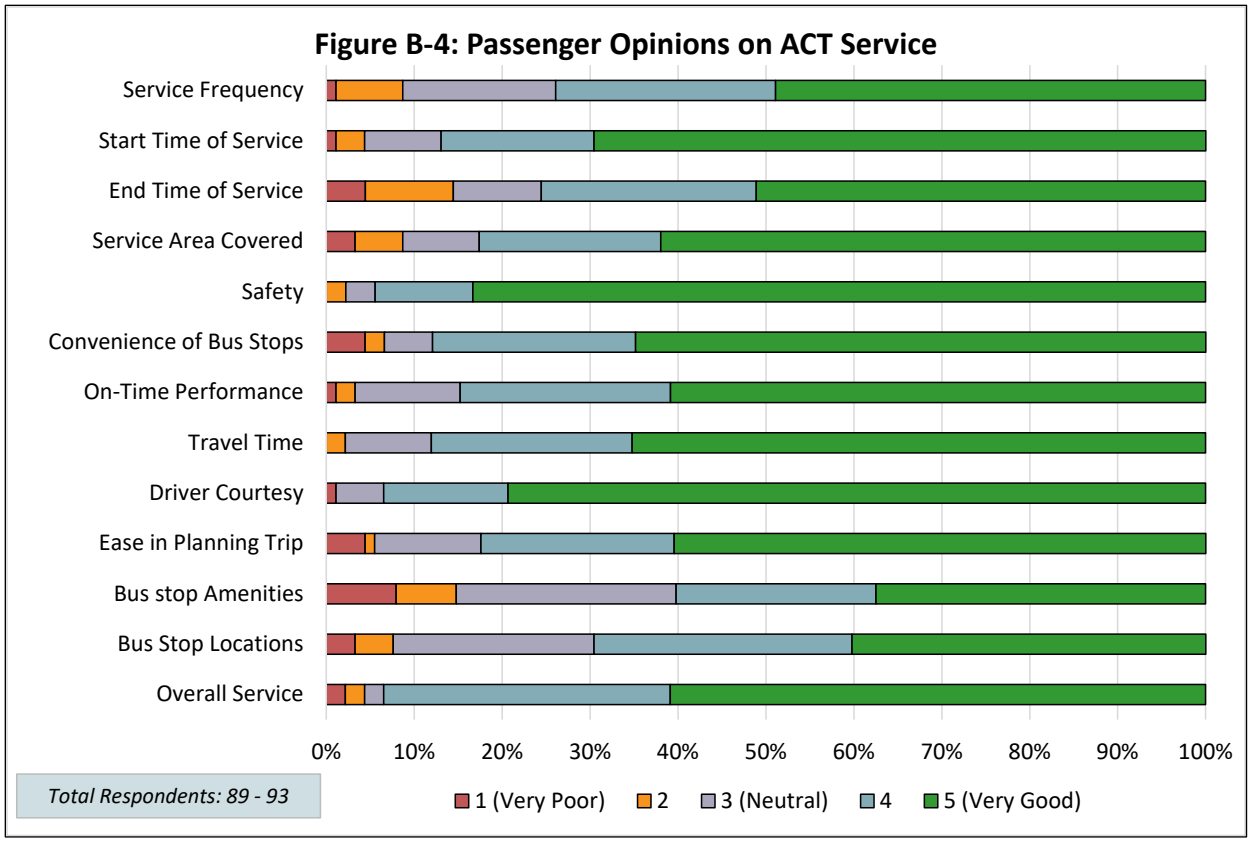
Q7. Alternative Vehicle Availability (85 Responses)

A potential indicator of whether or not someone is dependent on transit services is whether a person has a vehicle available to them. As seen in Figure B-3, the survey respondents were split on this question, with 51 percent saying that they had a vehicle available that they could have used instead of riding the bus while 49 percent did not have a vehicle available.



Q8. Passenger Opinions on ATC Services (89-93 Responses)

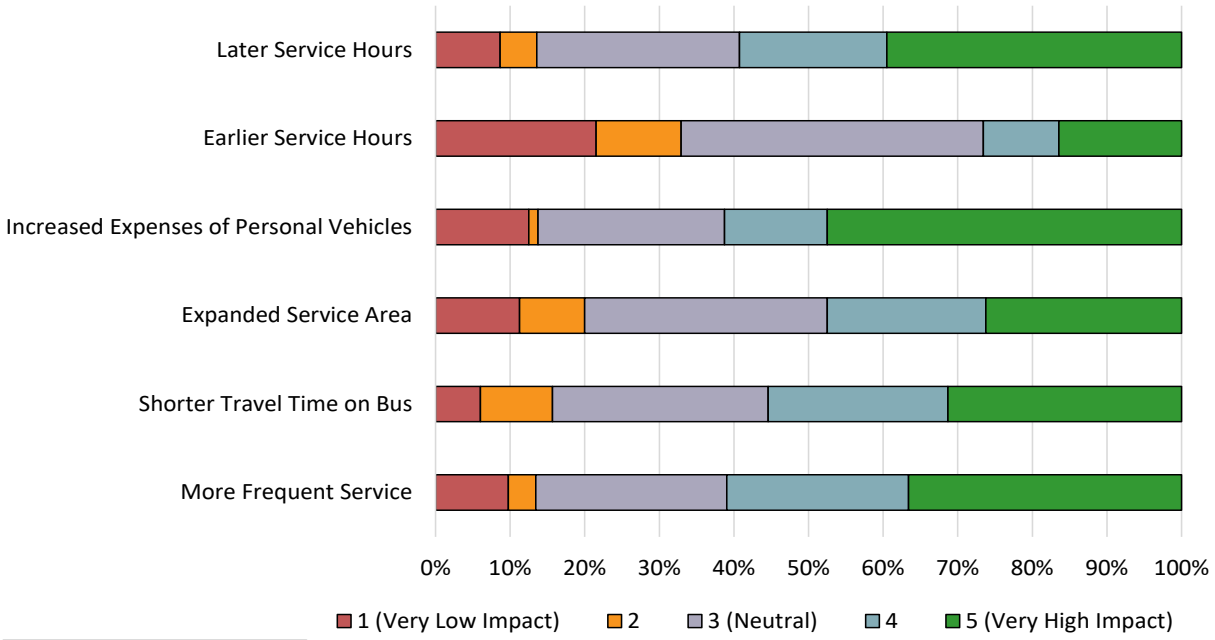
Passengers were asked to rank various components of ACT on a scale of 1 (poor) to 5 (excellent) (Figure B-4). ACT passengers indicated an overall high level of satisfaction with the service: 83 percent of answers were either 4 (good) or 5 (very good), and the overall service ranked an average of 4.5. The highest ranked ACT service characteristics were safety (4.8) and driver courtesy (4.7). Bus stops were not considered high among the survey participants, with bus stop amenities (3.8) and bus stop locations (4.0) being the two lowest ranked characteristics.



Q9. Factors that Would Encourage Passengers to Ride ACT More Often (79-83 Responses)

To gain insight into what potential service changes could encourage increased ridership, passengers were asked to rank the likelihood that various service changes or economic conditions would result in them riding ACT more often (Figure B-5). Passengers ranked these service improvements and economic conditions on a scale of 1 (very low impact on ACT ridership) to 5 (very high impact on ACT ridership). Most of the service changes considered would have a neutral impact on the survey respondents' ridership, with most factors ranking near 3. The highest ranked service changes were an expanded service area, more frequent service, and later service hours, (all 3.8). The lowest ranked idea was shorter travel times on the bus (2.9).

Figure B-5: Factors that Would Encourage Passengers to Ride ACT More Often

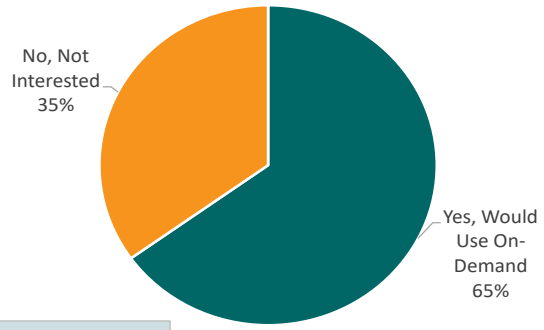


Total Respondents: 79 - 83

Q10. ACT Passengers Interest in On-Demand Transit (86 Responses)

On-demand transportation is increasingly being used as an alternative to more traditional, fixed route services. Most respondents (65 percent) said they would use on-demand transit if ACT began offering this type of service (Figure B-6).

Figure B-6: ACT Passengers Interest in On-Demand Transportation



Total Respondents: 86

Q11. How Long Passengers Would Wait for On-Demand Transportation (76 Responses)

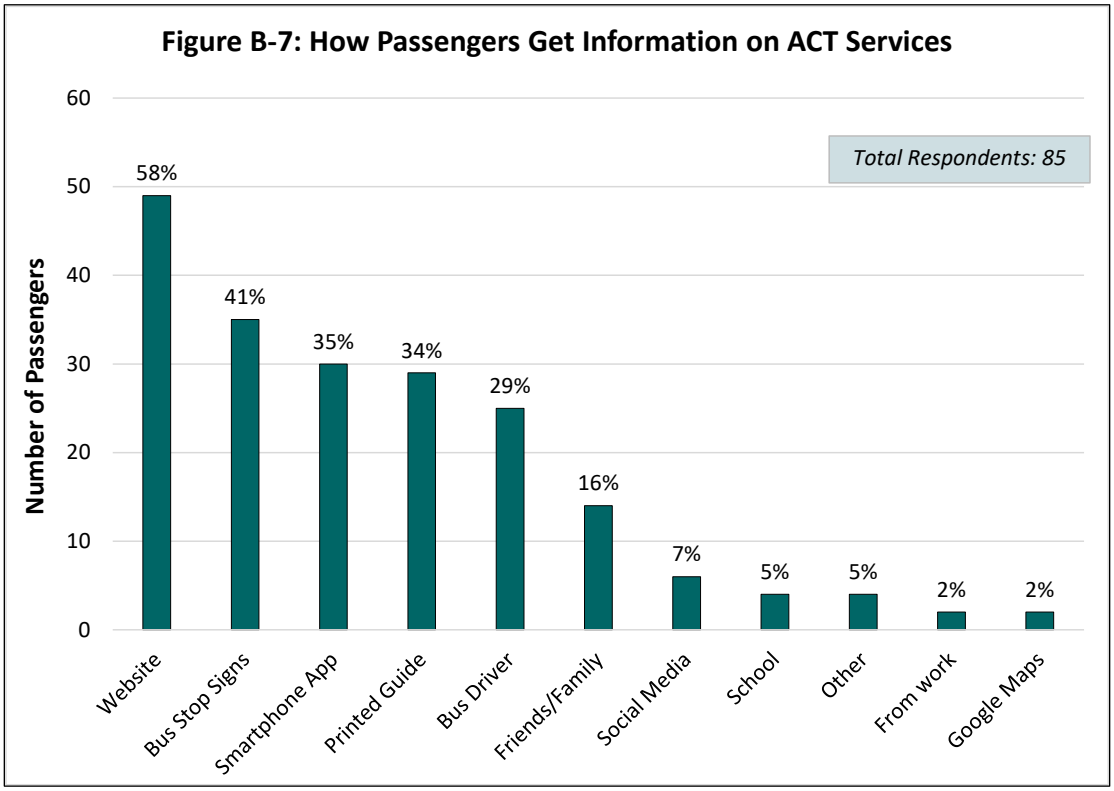
If ACT began operating an on-demand transportation service, respondents were asked how long they would be willing to wait once they had requested a ride. 37 percent of passengers said they would not wait more than 15 minutes, while 47 percent said they would wait for 15 to 30 minutes (Table B-6).

Table B-6: How Long Passengers Would Wait for On-Demand Transportation

Amount of Time	# of Participants	% of Participants
No More than 15 Min.	28	37%
15 - 30 Minutes	36	47%
30 - 45 Minutes	6	8%
Up to 1 Hour	6	8%
Total Responses	**76**	**100%**

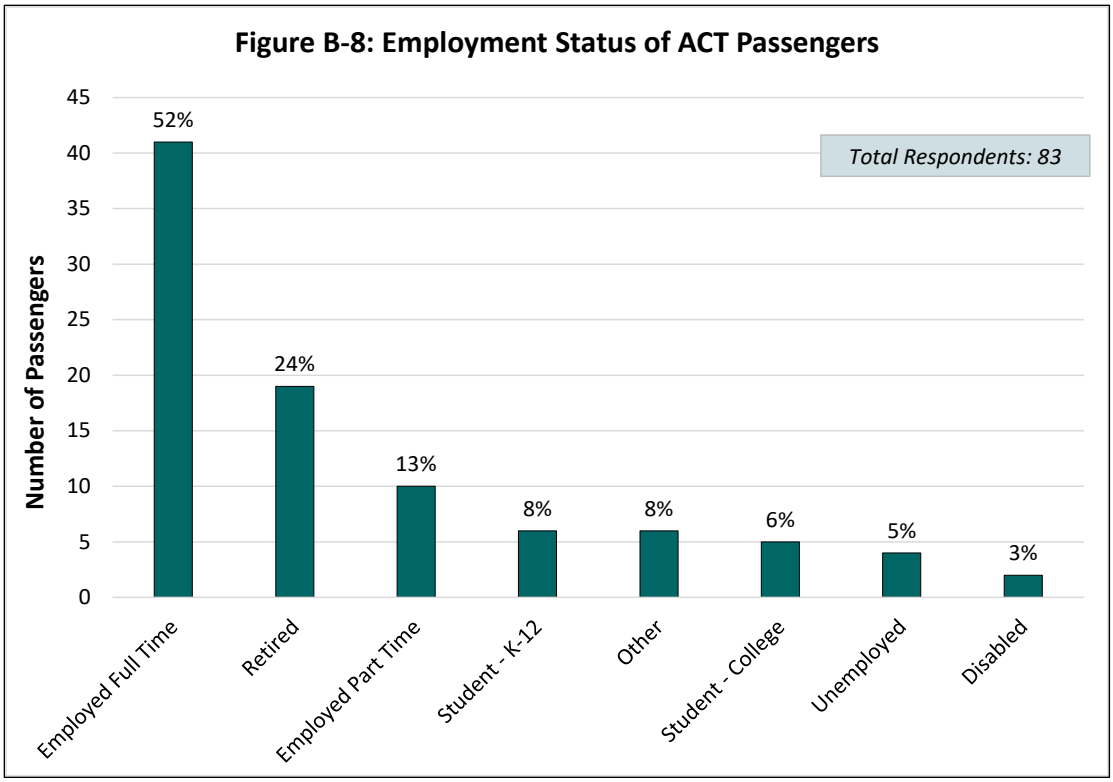
Q12. How Passengers Get Information on ACT Services (85 Responses)

The most popular source of transit information used by survey respondents is the ACT website (58 percent) (Figure B-7). Other digital resources used by ACT passengers to get information on the transit system are the smartphone app (35 percent), social media (7 percent), and Google Maps (2 percent). The survey respondents also utilize physical resources to learn about the transit system as well, with 41 percent saying they use signs posted at the bus stops, 34 percent using printed guides, and 29 percent asking the bus driver to get information on ACT.



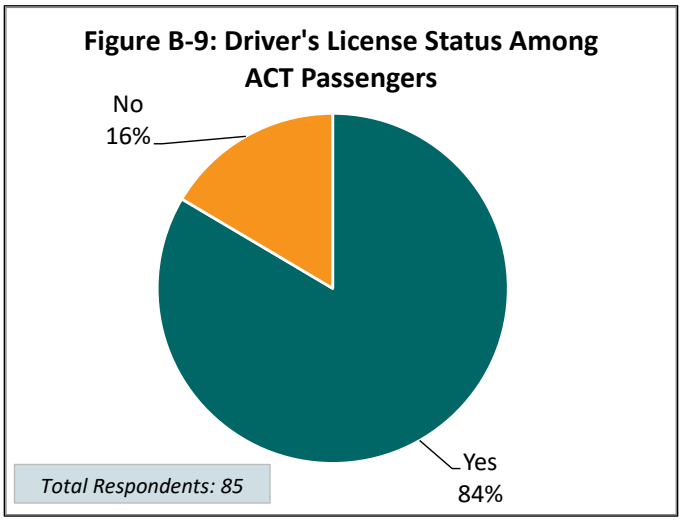
Q13. Employment Status of Respondents (83 Responses)

Whether or not a person is employed may influence when and where they need transportation services. Most of the ACT passengers surveyed were employed (52 percent). Nearly a quarter were retired (24 percent), and another 13 percent worked part-time (Figure B-8). 14 percent of participants were students; 8 percent were students in grade school while 6 percent were in college. Other individuals were either unemployed or disabled.



Q14. Driver's License Status Among ACT Passengers (85 Responses)

Over 84 percent of survey respondents reported that they had their driver's license (Figure B-9). Considering this statistic along with the fact that 51 percent of participants had an alternative vehicle available (Question 7 and Figure B-3), it signifies that a large percentage of the survey participants chose to ride the bus for a reason of their own choice, not because they were dependent on it.



Q15. Age of Respondents (85 Responses)

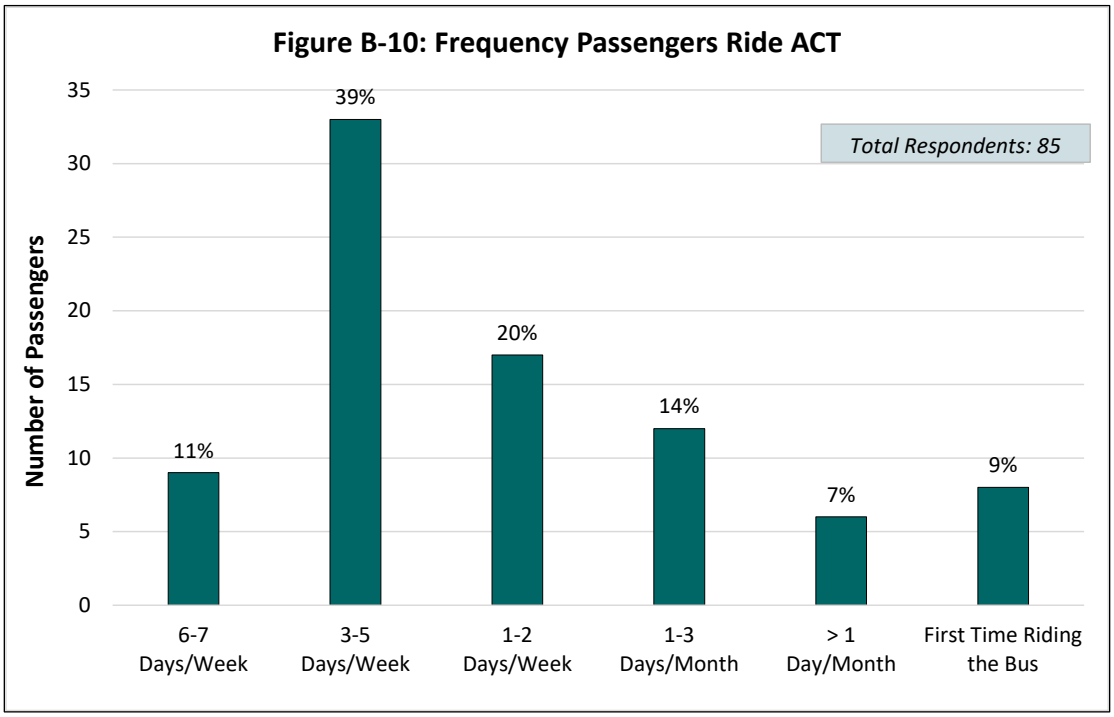
The ages of the survey respondents are shown in Table B-7. Most participants were adults, as 62 percent were between the ages of 25 to 64. Senior adults represented 21 percent of the survey participants. Only 11 percent were children under the age of 18 years old.

Table B-7: Age of Participants

Age	# of Participants	% of Participants
Under 18	9	11%
18 - 24	6	7%
25 - 39	26	31%
40 - 64	26	31%
65 - 74	10	12%
75 or Older	8	9%
Total Responses	**85**	**100%**

Q16. Frequency Passengers Ride ACT (85 Responses)

A large portion of survey respondents ride ACT 3 to 5 days per week (39 percent). One fifth ride the bus 1 to 2 days per week. While 11 percent reported to riding the bus daily, another 9 percent said that they were riding the bus for the first time (Figure B-10). This data suggests that ACT not only retains regular passengers but is also used occasionally by other members of the community as well as by tourists visiting the area.



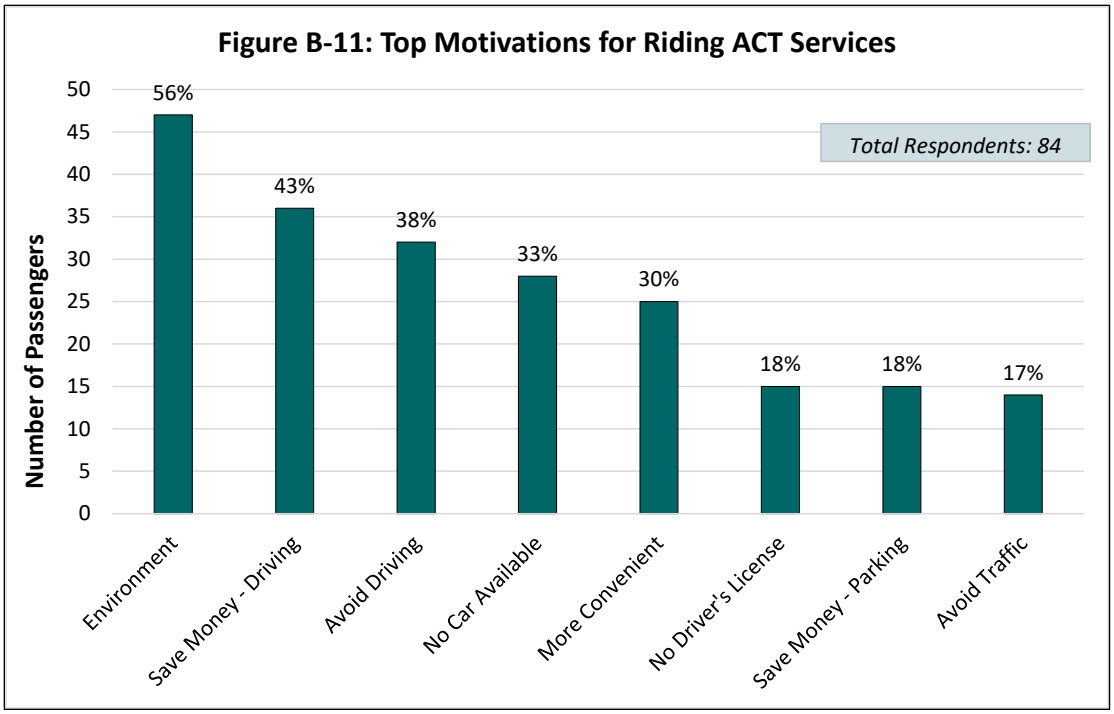
Q17. Top Motivations for Riding ACT Services (84 Responses)

Respondents were asked to select their top three reasons for choosing to ride ACT (Figure B-11). The environmental benefits and cost-effectiveness of the transit system were the two top motivations for riding the bus among the surveyed passengers (56 and 43 percent, respectively). The desire to avoid driving was also a motivator to ride the bus for a large portion of participants.

Q18. Suggestions for ACT (72 Responses)

The final question of the survey allowed passengers to provide any additional comments they may have or to describe any desired improvements they would like to see implemented on ACT. Compliments are shown in the top portion of Table B-8 and suggested service improvements are shown in the bottom portion.

Weekend service was the most popular service improvement recommended by the survey participants. A few people asked for more frequent service and later service hours so they can actually ride the bus to and from work; one passenger in particular asked that the Route 6 schedule not get reduced as the summer hours have made it far less convenient to ride the bus. Many people mentioned that, unfortunately, information provided by ACT is either confusing or not accurate.



They recommended improving the bus tracking system so that passengers can have a clearer idea of when the bus is going to arrive, clarifying the Route 2T and 2M service areas by making separate maps for each route, and improving the functionality of the app. It is incredibly important that passengers are able to get the information they need if they are supposed to rely on the bus to transport them rather than a personal vehicle, therefore ACT should consider how to improve its information sources. Other suggestions included lowering the bike racks, turning off the engine when idling to reduce emissions, and for an expanded service area.

Table B-8: Compliments and Suggestions

	Topic	Comments
Compliment	ACT Assist	ACT Assist allows me to have more independence and get around town.
	Bandelier	Bandelier Service was great.
	Driver	Ramon & Cliff are wonderful
	Driver	Very nice drivers.
	Driver	Paul is the best bus driver! (and Correne)
	Driver	[Condensed] The driver was so nice and turned on the heat for my kids when they were cold!
	Driver	[Condensed] The bus system is excellent. Most of the drivers make it a very enjoyable service.
	Driver	Bus drivers are both professional and friendly.
	Driver	Drivers are helpful and pleasant
	General	This is a great service to our town. If only more used it.
	General	I think it's a killer service and the drivers are all great people have a nice day
	General	Recently started using the bus and found at extremely convenient.
	General	I like taking the bus from White Rock to L.A. to exercise at YMCA/go to the Fri. concert series
	General	I love ACT. I used to ride it all the time when I was working.
	General	[Condensed] It's a free service with a million stops, I don't understand why more people don't take it.
	Gratitude	Thank you for all your wonderful services!
	Gratitude	Thank you for this free service! It is amazing!
	Gratitude	I love the ACT!
	Gratitude	This is an excellent service. Thank you!
	Gratitude	Great free service!!!! We are lucky to have this available!!!
	Gratitude	Appreciate your service. Thanks!
	Gratitude	Thank you for public transit and free service!
	Gratitude	[Condensed] What a great, free service available to us in Los Alamos.
	Multiple	[Condensed] Transportation has always been on time. Drivers are always courteous.
Suggestion	Bus	On some of the buses the request stop buttons don't always work
	Bus	Bike racks need to be lower.
	Bus	Turn off engine when sitting for ten minutes
	Bus Stops	[Condensed] Many Bus Stops are in dangerous locations...Please have fewer with better locations
	Bus Trackers	More reliable bus trackers
	Bus Trackers	Higher accuracy on the ACT tracker.
	Bus Trackers	It seems the bus trackers are frequently broken; please prioritized fixing them.
	Information	The references to peak times and regular times are very confusing on RT 6
	Information	I wish the app worked
	Information	I really appreciate this service! The app could use some instructions on how to interpret.
	Information	[Condensed] Ponderosa Estates has only one stop. We walk 1/3 mile to 3.4 mile to get to the stop.
	Multiple	[Condensed] (1) More frequent service (2) Better support of the app
	Multiple	[Condensed] Make a separate map for each route, 2M and 2T. Start weekend service.
	On-Time	Route #3 tends to run late. It is clear that it is too long to run in 30 minutes.
	Schedule	[Condensed] I am frustrated that my route (#6) had it's hours reduced starting in June.
	Schedule	[Condensed] Please add more buses in White Rock... so I can work 8 hours then get to the bus.
	Service Area	A bus stop closer to Myrtel Street.
	Service Area	[Condensed] There is not a bus stop near my house (Loma Linda)...it is easier to drive.
	Weekends	[Condensed] Thanks for your wonderful service. Please provide weekend service to White Rock.
	Weekends	You have been great with my disability. Weekend service would help.
	Weekends	Weekend service could be very convenient.
	Weekends	Weekend routes would be awesome.
	Weekends	Please run on weekends
	Weekends	Please include weekends trips

Appendix C

COMMUNITY SURVEY RESULTS

ONLINE COMMUNITY SURVEY RESULTS

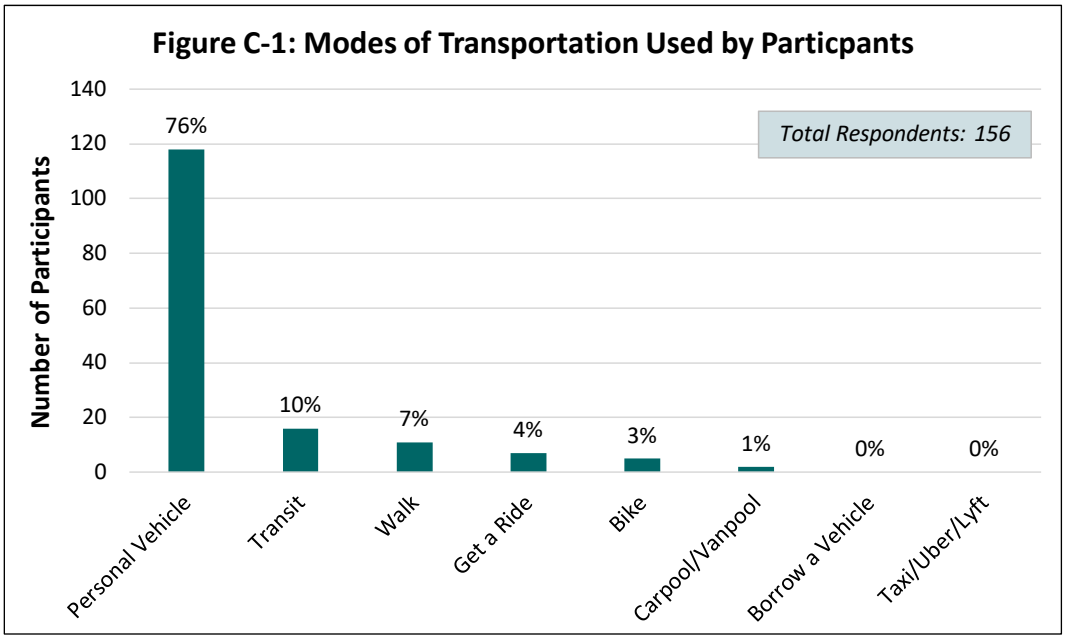
In developing a transit plan, it is valuable to not only understand the perspectives of regular transit riders, but to also learn about perceptions of public transit held by the greater community. Therefore, an online survey was made available to the greater Los Alamos community during May, June, and July 2022 to learn how the public considers Atomic City Transit (ACT). The survey results are used along with input from other outreach efforts to inform the update to ACT's Short Range Transit Plan (SRTP).

The survey was emailed to stakeholders in the Los Alamos community to further distribute to their networks. Some of these stakeholders included the Los Alamos Chamber of Commerce, the Mesa Public Library, and the Los Alamos Reporter. The survey was available in English via Survey Monkey, and included a simple introduction, with 15 questions in multiple choice, short-answer, or comment format. Participants could also provide their information if they wanted more news about the SRTP.

156 individuals participated in the survey. This Appendix includes a discussion of the results by question, while highlights are included in the main report. The number of answers per question varies as most respondents did not take the time to answer every question.

Q1. Modes of Transportation Used by Participants (156 Responses)

Respondents were asked to identify which modes of transportation they normally use. The most popular travel method among the survey respondents was personal vehicles (76 percent). Comparatively, only 10 percent said that they primarily use public transportation, 7 percent walk, and 4 percent get around by getting rides with family or friends. Full results are shown in Figure C-1.



Q2. Frequency Participants Ride ACT (155 Responses)

Very few community survey participants are regular transit riders; only 2 percent of respondents said that they ride the bus daily and 8 percent ride ACT 3 to 5 days per week (Table C-1). Rather, most of the survey respondents ride ACT extremely irregularly, if at all. Over 60 percent of participants indicated that they either ride the bus less than once per month or never. The results of the community survey therefore reflect the views of both transit riders and non-riders alike.

Table C-1: Frequency Participants Ride ACT

Frequency	# of Participants	% of Participants
6-7 Days / Week	3	2%
3-5 Days / Week	13	8%
1-2 Days / Week	17	11%
1-3 Days / Month	26	17%
Less than 1 Time / Month	55	35%
Never	41	26%
Total Responses	**155**	**100%**

Q3. Modes of Travel to Work (126 Responses)

As seen in Table C-2, over half of the participants drive alone to work (65 percent). The second most common mode of travel to work is public transit (14 percent), followed by carpooling (6 percent). Other travel methods utilized by participants to get to work, or school, are walking, bicycling, riding the school bus, and motorcycling.

Table C-2: Modes of Travel to Work

Mode	# of Participants	% of Participants
Drive Alone	72	65%
Transit	16	14%
Carpool	7	6%
Walk	7	6%
Bicycle	5	5%
School Bus	2	2%
Motorcycle	2	2%
Taxi/Uber/Lyft	0	0%
Other	7	6%
Total Responses	**111**	**100%**

Q4. Places of Work or School (127 Responses)

Los Alamos was founded to provide homes for scientists working at the Los Alamos National Laboratory (LANL), and the community continues to remain home to a large number of LANL employees: near one third of the survey respondents work at LANL (29 percent). About one half of participants work at other businesses and organizations within the Town of Los Alamos (45 percent). Not many participants work in White Rock, Santa Fe, Albuquerque, or unincorporated Los Alamos County (Figure C-2). A number of respondents are not employed (18 percent).

Q5. Top Motivations for Riding ACT Services (128 responses)

Understanding individuals' motivations for riding public transit can provide insight into what they may be looking for from transportation services. Therefore, survey participants were asked to identify their top reason for riding ACT. The most popular reason for riding the bus among participants was to avoid driving (27 percent), followed by the environmental benefits, and having no car available to drive (both 16 percent) (Figure C-3). 11 percent of respondents choose to ride the bus to save money on either driving or parking. 2 percent said they are grateful to use ACT when special events are being held in town as it helps them to avoid traffic.

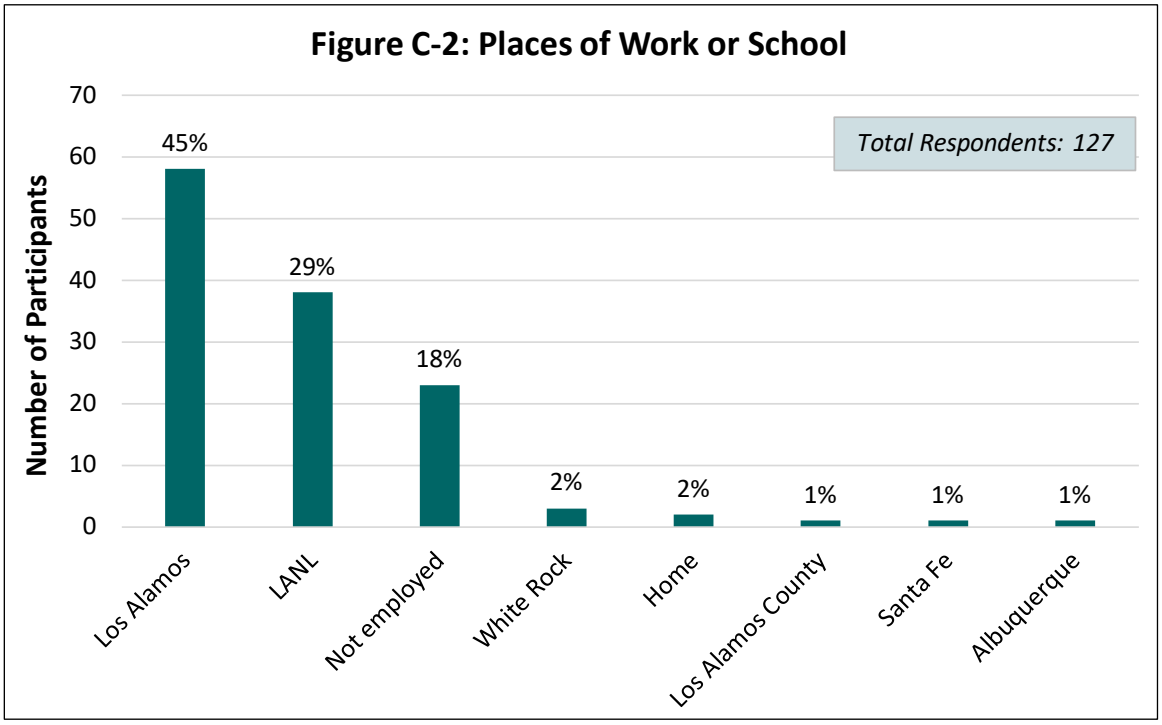


Figure C-2: Places of Work or School
Number of Participants
70
60
50
40
30
20
10
0
Total Respondents: 127
45%
29%
18%
2%
2%
1%
1%
1%
Los Alamos
LANL
Not employed
White Rock
Home
Los Alamos County
Santa Fe
Albuquerque

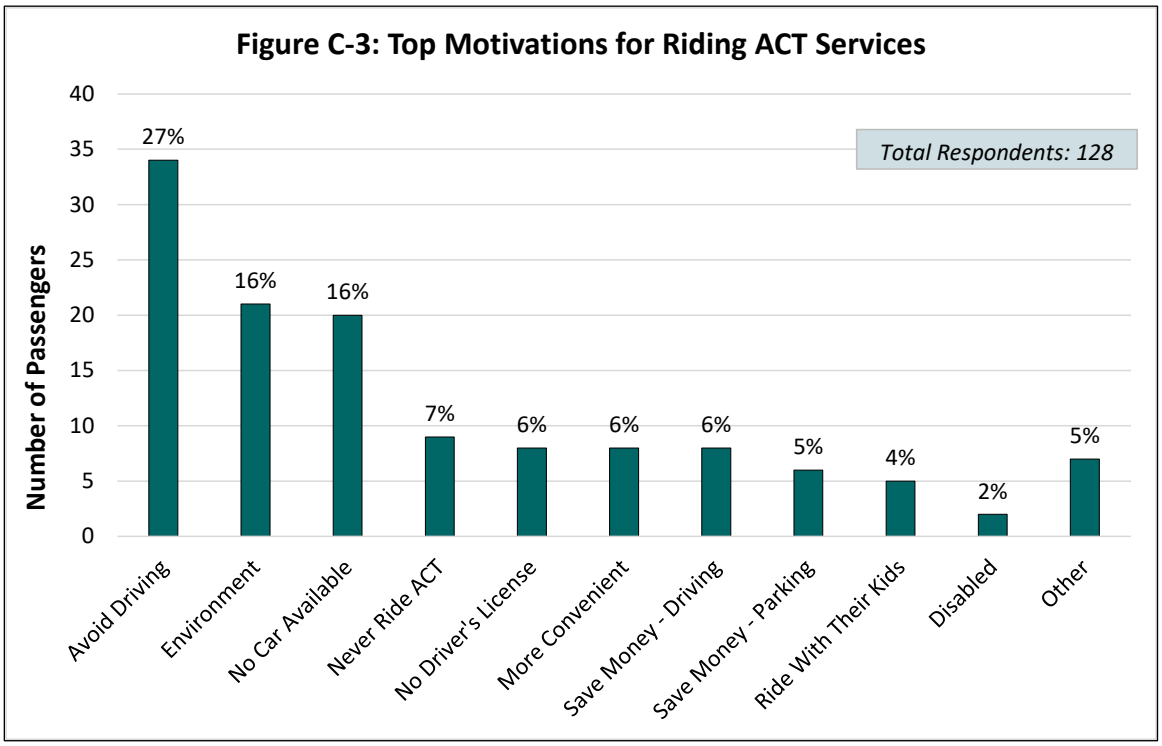
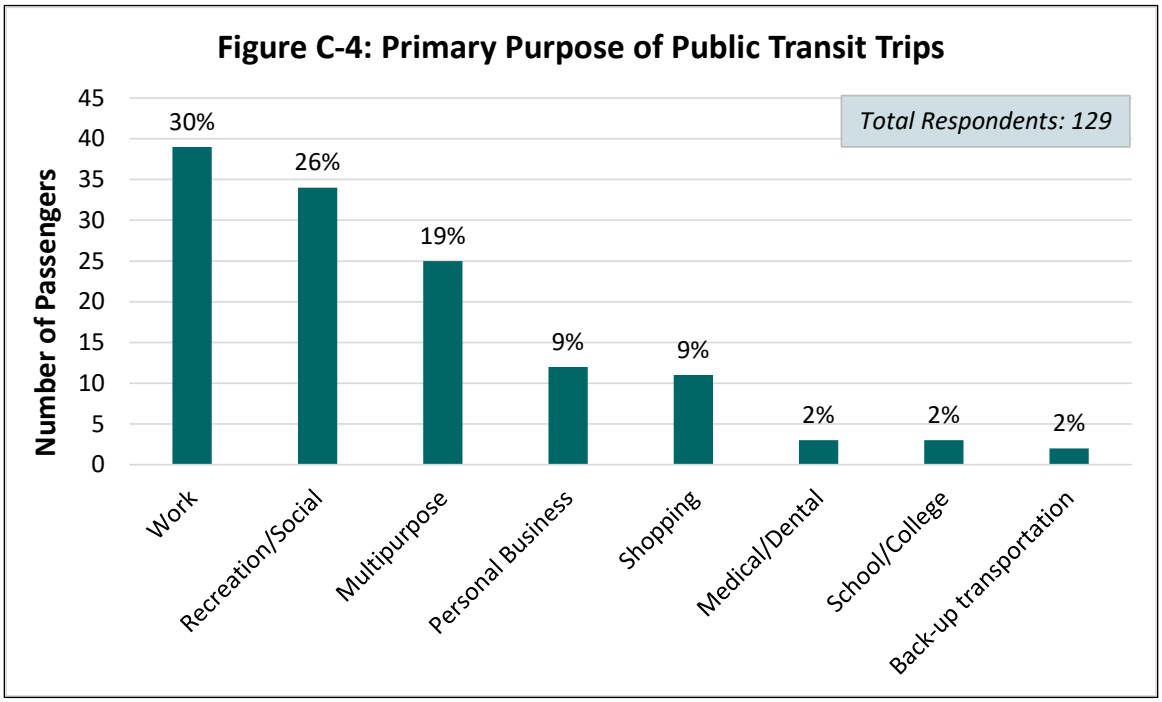


Figure C-3: Top Motivations for Riding ACT Services
Number of Passengers
40
35
30
25
20
15
10
5
0
Total Respondents: 128
27%
16%
16%
7%
6%
6%
6%
5%
4%
2%
5%
Avoid Driving
Environment
No Car Available
Never Ride ACT
No Driver's License
More Convenient
Save Money - Driving
Save Money - Parking
Ride With Their Kids
Disabled
Other

Q6. Primary Purpose of Public Transit Trips (129 Responses)

The survey asked the participants to report the primary purpose of their most recent trip taken on ACT. 30 percent of respondents had ridden the bus to go work, 26 percent for recreation, and 19 percent took multipurpose trips. Some people rode the bus because their personal vehicle was unavailable (2 percent). Full results are shown in Figure C-4.

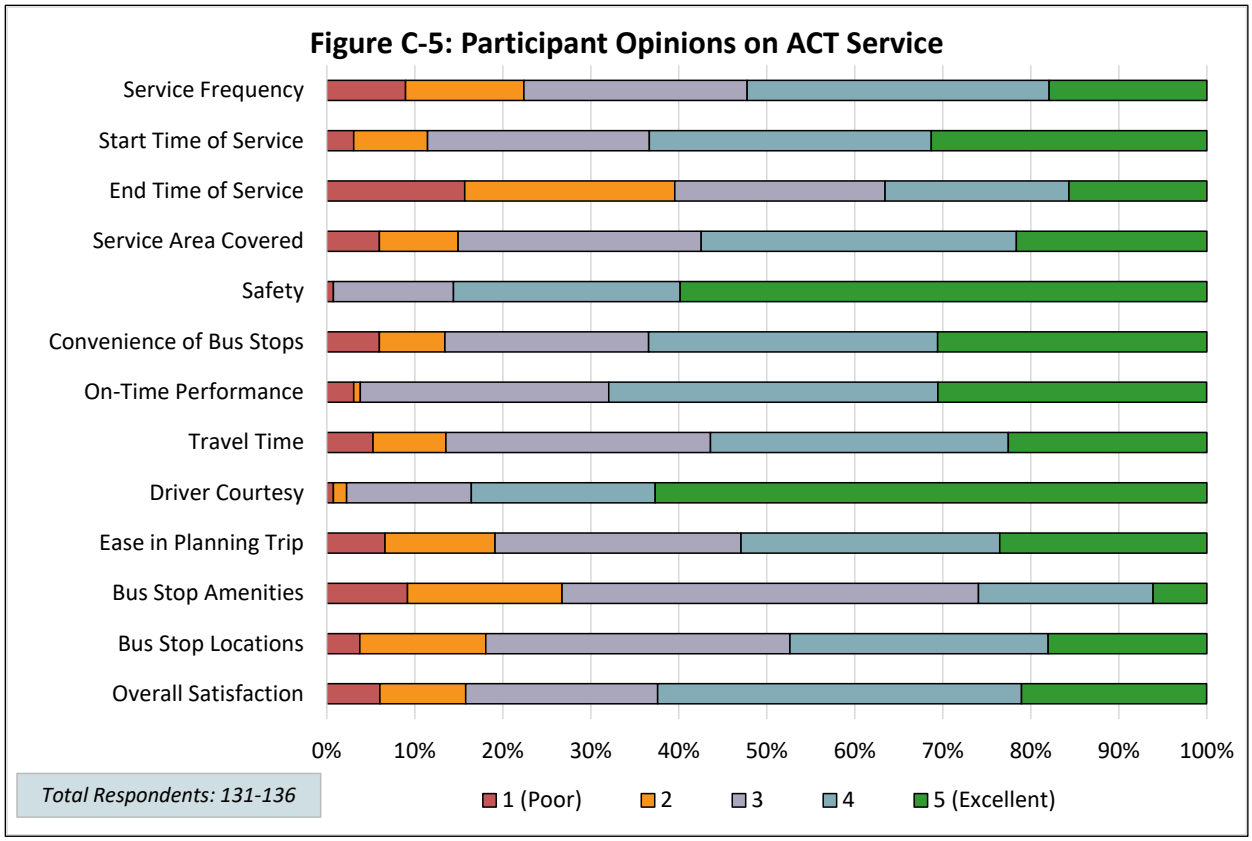


Q7. Do Participants Transfer to ACT from Other Transportation Services? (19 Responses)

It is important that passengers are able to make the transfers they need when riding the bus. Some respondents indicated that they transfer to and from ACT from other transportation services, specifically LANL buses (63 percent) and New Mexico Department of Transportation (NMDOT) Park and Ride (36 percent).

Q8. Participant Opinions on ATC Services (131-136 Responses)

Similar to the onboard survey, participants were asked to rank various components of ACT on a scale of 1 (poor) to 5 (excellent) (Figure C-5). While the community survey participants were less satisfied with ACT services compared to the onboard survey participants, 58 percent of respondents had an overall positive perception of ACT as indicated by either a score of 4 (good) or 5 (very good). The highest ranked ACT service characteristics, just like the onboard survey, were safety and driver courtesy (both 4.4). Bus stop amenities and the end time of bus service were the two lowest ranked factors (both 3.0).



Q9. Issues Preventing Participants from Riding ACT

Table C-3: Issues Preventing Participants From Riding ACT

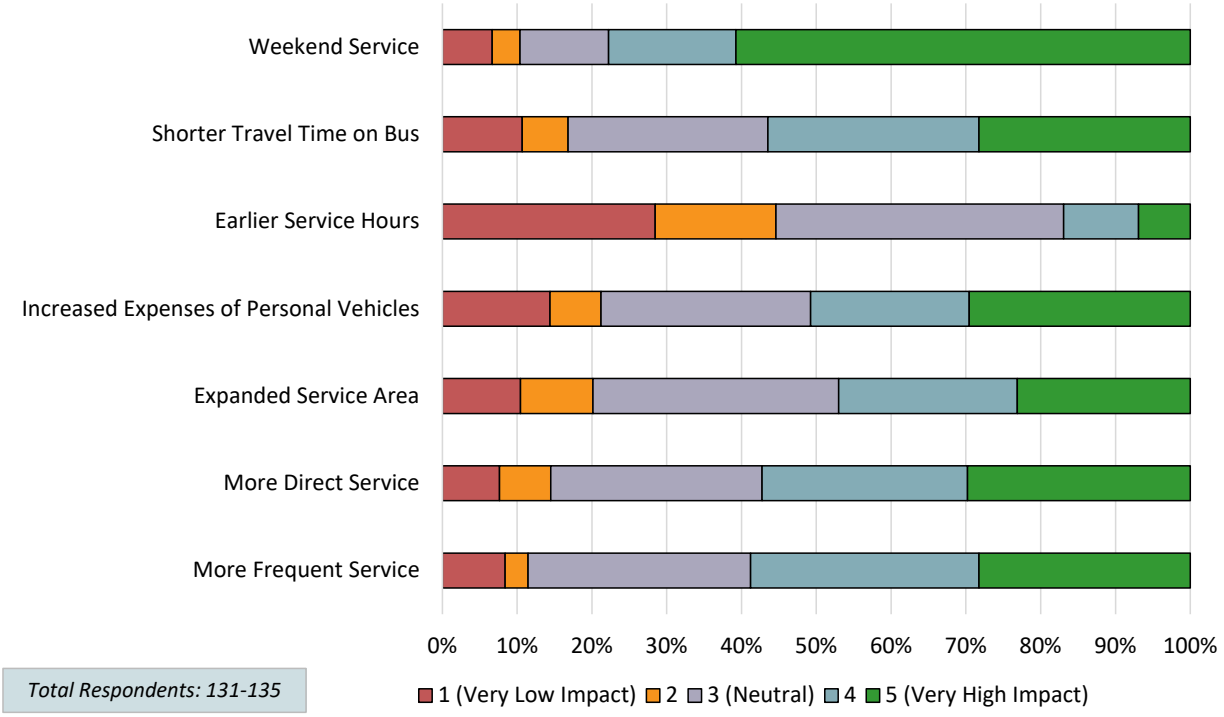
Issue	# of Participants	% of Participants
Bus Schedule/Frequency	57	38%
Other Transportation Available	22	15%
Service Area	18	12%
No Issues	17	11%
Too Much Time	8	5%
No Weekend Service	6	4%
Reliability of Services	5	3%
Never Used Transit	4	3%
Don't Know How To	3	2%
Pet Policy	2	1%
Other	9	6%
Total Responses	**150**	**100%**

Addressing the barriers and issues preventing community members from riding the bus may result in increased ridership over time. The top issues and reasons identified by the community survey participants preventing them from riding ACT are the bus schedule/frequency (38 percent), that they have their own transportation (22 percent), and the service area (7 percent). Participants were unsatisfied with the service area both because there are no stops near their homes, and because they are unable to take the bus where they need to go. Of note, 11 percent of participants don't have any issues preventing them from riding the bus. Table C-3 shows the top issues mentioned by respondents.

Q10. Factors that Would Encourage Participants to Ride ACT More Often (131-135 Responses)

Participants were asked to rank the likelihood that various service changes or economic conditions would result in them riding ACT more often (Figure C-6). Just like the onboard survey, respondents ranked these service improvements and economic conditions on a scale of 1 (very low impact on ACT ridership) to 5 (very high impact on ACT ridership). The highest ranked service change, by far, was to have more frequent service (4.2). Other popular ideas among respondents were to implement weekend service (3.7), more direct service (3.6), and to have shorter travel times (3.6). The lowest ranked idea was to expand ACT's service area (2.5).

Figure C-6: Factors that Would Encourage Participants to Ride ACT More Often



Q11. Participants' Home Zip Codes (152 Responses)

Most of the survey respondents live in Los Alamos (64 percent). Unsurprisingly, the second most common place where the survey participants live is White Rock (32 percent). One percent of respondents live in Santa Fe, and 3 percent of respondents live in cities further away (Table C-4).

Table C-4: Participants' Home Zipcodes

Zipcode	City	# of Participants	% of Participants
87544	Los Alamos	93	61%
87547	White Rock	49	32%
87545	Los Alamos	4	3%
87506	Jaconita	2	1%
85747	Tuscon (AZ)	1	1%
87507	Santa Fe	1	1%
88047	Mesilla Park	1	1%
	Total Responses	**152**	**100%**

Q12. Age of Respondents (153 Responses)

Close to half of participants were adults between the ages of 40 to 64 (Table C-5). Senior adults represented 26 percent of respondents, with seniors over the age of 75 comprising 10 percent of overall responses. Very few children or college-aged adults responded to the survey; members of these age groups represented only 5 and 4 percent of total respondents, respectively.

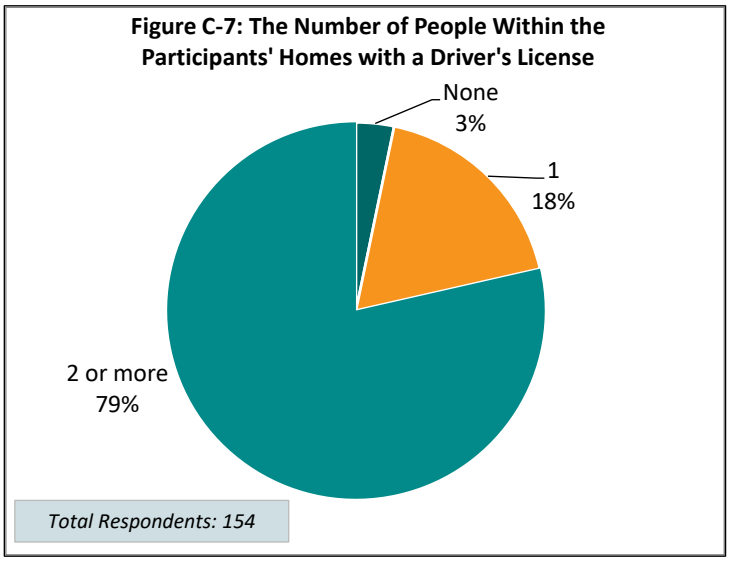
Table C-5: Age of Participants

Age	# of Participants	% of Participants
Under 18	8	5%
18 - 24	6	4%
25- 39	31	20%
40 - 64	68	44%
65 - 74	25	16%
75 or Older	15	10%
Total Responses	**153**	**100%**

Q13. The Number of People Within the Participants' Homes with a Driver's License (154 Responses)

As seen in Figure C-7, most survey respondents have at least one person in their home with a driver's license (97 percent). For the 18 percent of individuals who only have one person in their home with a driver's license, it is very possible that these people simply live alone. Only 3 percent of participants live in a home in which no one can drive a personal vehicle.

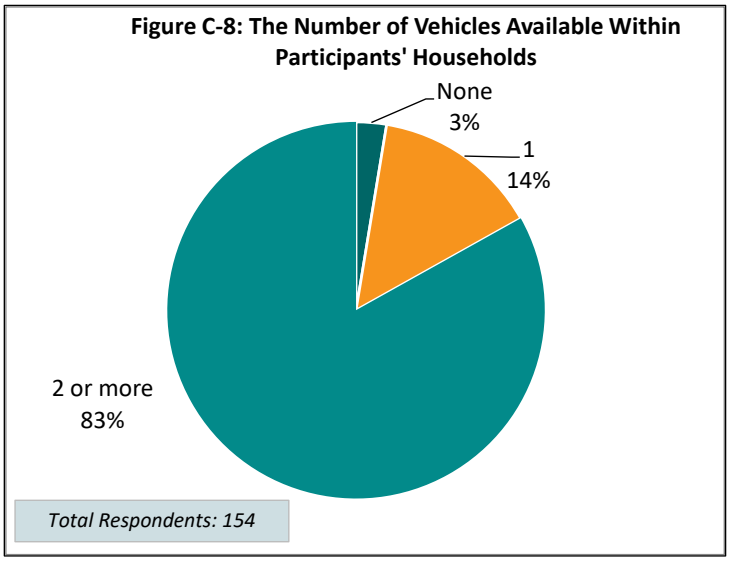
Figure C-7: The Number of People Within the Participants' Homes with a Driver's License



Q14. The Number of Vehicles Available Within Participants' Households (154 Responses)

The vast majority of the survey participants reported that they have two or more vehicles in their home (83 percent). Similar to the previous question, only 3 percent of participants live in a home with no car available (Figure C-8). This data indicates that it is likely that most of the community survey participants are not transit dependent.

Figure C-8: The Number of Vehicles Available Within Participants' Households



Q15. Compliments and Suggestions for ACT (86 Responses)

In the final question, participants had the opportunity to describe any desired service changes they would like to see on ACT, as well as any unmet transportation needs that the individual or someone in their household may be struggling with. Figure C-9 summarizes the most popular service improvement ideas presented by the community survey participants. The addition of weekend service and the redesign of the fixed route schedule in order to reduce travel times and the number of transfers required were the two most popular ideas (24 and 23 percent, respectively). 15 percent of respondents suggested expanding the ACT service area; locations suggested included North Mesa Road, Pajaritos Acres, Santa Fe, Espanola, and the end of Los Pueblos Street. A significant number of respondents suggested drastically reducing the size of ACT or eliminating the transit system all together. These individuals expressed frustration that their tax money was being spent on buses that were mostly empty and wanted to make sure ACT funds were being used effectively.

Compliments are shown in the top portion of Table A-6 and some of the suggested service improvements are shown in the bottom portion. These suggestions represent a random selection of specific ideas provided by the survey respondents.

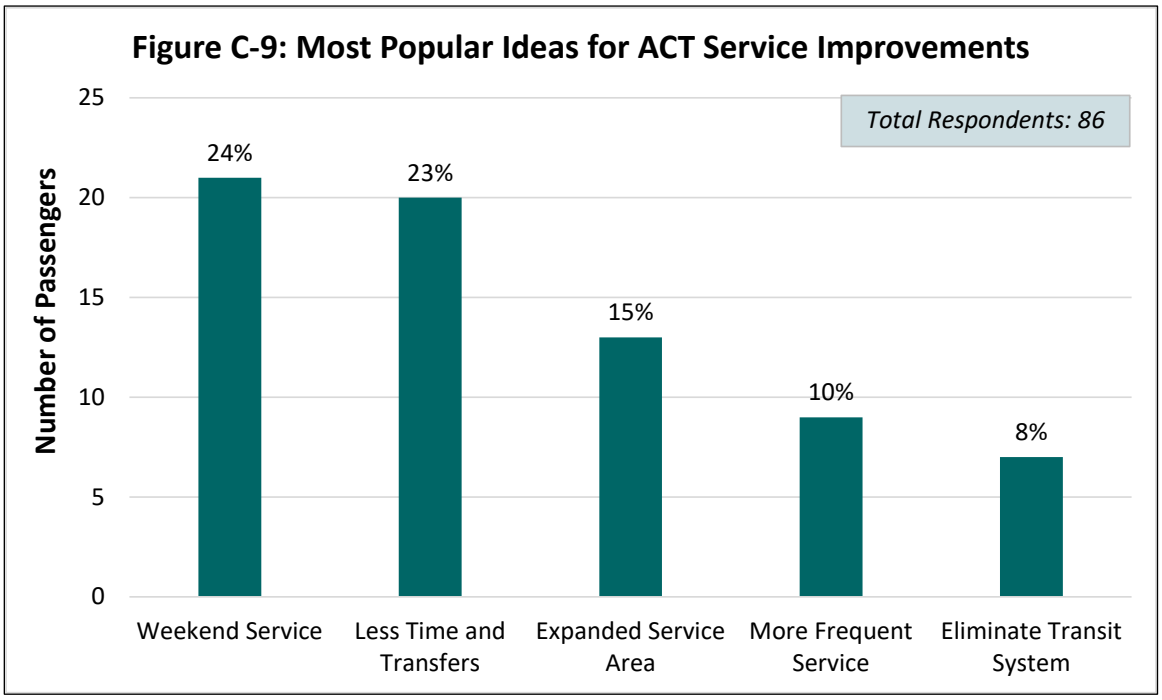


Table C-6: Compliments and Suggestions

	Topic	Comments
Compliment	Accomodations	This transit provides transport for my disabled son to get to work
	Accomodations	Condensed] I'm glad that the transit adjusted its time to serve students.
	Bandalier	[Condensed] Great Bandalier service. Thanks.
	DAR	[Condensed] I'm 92. The closest bus stop is [too far]. I do love everything about the dial a ride though!
	Driver	When I have ridden, all the drivers have been very helpful and friendly!
	General	Atomic Transit is the best thing the County has done.
	General	ACT is a significant factor in my family's decision to live here.
	General	The times I've used the system I [had] nothing but excellent service
	General	I used the bus service after I had shoulder surgery and the service was excellent.
	General	Thank you for the services already provided, understand if changes are needed.
	Gratitude	We're very lucky to have this service available!!
	Gratitude	ACT is such a fabulous program.
	Gratitude	Overall, I love ACT. Drivers are friendly, service is reliable, and buses are comfortable.
	Gratitude	What an amazing FREE service!
Suggestion	Bus	[Condensed] SMALLER BUSES!! 90% of what we see are EMPTY...Waste of our taxes for fuel, etc.
	Bus	Cleanliness is a concern. Shuttle buses that accommodate smaller amounts of passengers would be nicer.
	Bus	Can't wait to go electric. Then I will ride more often. I heard all buses will be electric.
	Bus stop	A bus stop at the Y on SR 4 and Main Hill.
	DAR	DAR during night hours (holidays) similar to Crimson Cab (For NMSU) would be great to deter drunk driving.
	Information	White Rock routes are hard to interpret. Direction arrows would help a lot.
	Information	Maybe the signs at bus stops could have clear maps of directions the bus travels
	Information	I use the app tracker, but the #3 bus is often not tracked.
	Information	[Condensed] The little signs at all the bus stop...are SUPER helpful to me, but some have worn off.
	Information	Schedules are really hard to use when needing to navigate a transfer.
	Information	More accessible bus schedules. Make a user-friendly app.
	On-Demand	[Condensed] Have you done a cost /benefit analysis of the bus system. They tear up the roads, waste fuel, require maintenance, and we paying for drivers to have the loneliest job in Los Alamos. Maybe an Uber or some other on demand service...would be more useful.
	Pets	Being able to take my dog with me to/from hiking trails would...increase my usage to more than 2x/week
	Reduce service	I think it's an excellent idea but not necessarily [good] for the environment. Having two sets hours per peak hours should be sufficient. Waste of gas and adding air pollution for bus roving around empty.
	Schedule	Start doing routes both ways. Especially the Downtown Circular if you want more tourists.
	Schedule	[Condensed] Hub-and-spoke routes, particularly when combined with service only once or twice an hour, make riding the bus impractical for people with more complicated commutes or trips.
	Schedule	I would like to.. staggered pickup times on Downtown routes (1,2M, 3) - every 15 min instead of every 30 min
	Schedule	The lack of late night bus service especially on weekends is awful. The buzz bus is a phenomenal service...but it stops at 9pm!?
	Schedule	It seems the system is set up as a secondary school bus system. School buses are empty while kids wait for ACT. Clearly not set up for the riders and we pay for two school bus systems.
	Serice Area	The bus closest to my home is 0.7 miles away. I see no reason why the bus can't go to the end of Los Pueblos.
	Service Area	Bus service in Pajarito Acres. Even if it's only a few times a day
	Service Area	pickup at my home
	Service Area	North Mesa Road needs at least one bus stop.
	Special Events	Transit dedicated to more events around town would be helpful

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Appendix D

POPULATION DENSITY OF TRANSIT DEPENDENT GROUPS

TRANSIT DEPENDENT POPULATION

Across the United States, a large portion of transit ridership is drawn from specific subgroups that, together, are known as the transit dependent population. These groups include youth, senior adults, disabled individuals, low-income individuals, and people who live in zero-vehicle households. In the main report, the numbers of transit dependent individuals living in each census tract and block group within Los Alamos County were identified. The concentration of these individuals compared to the overall populations were also calculated.

This Appendix contains figures showing the population density across Los Alamos County, and then the density of each specific transit dependent population. The data presented in these figures was used later in the main report of the Short-Range Transit Plan (SRTP) to develop a transit needs index, a tool reveals the areas of Los Alamos County with the greatest overall need for transportation services.

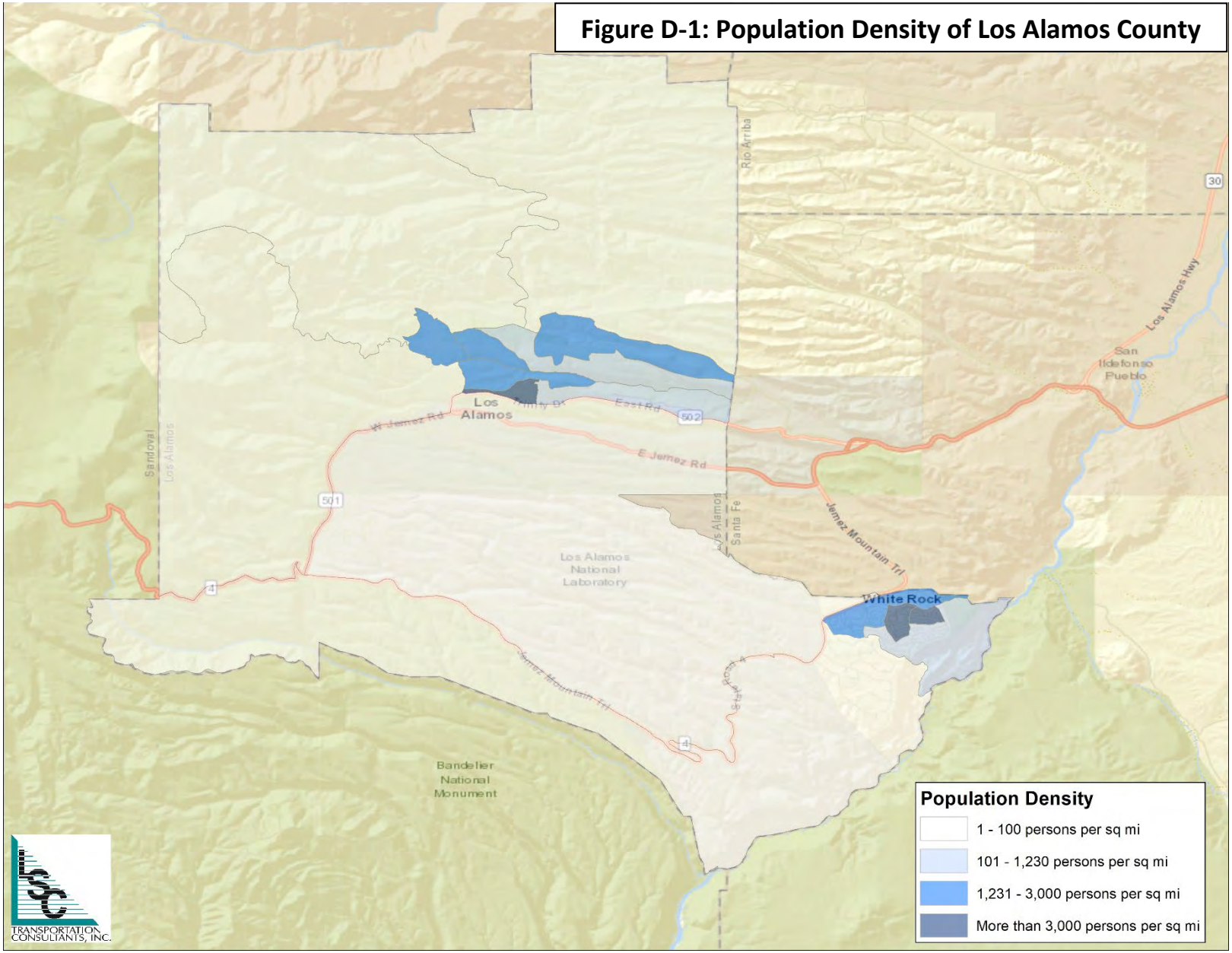
Figure D-1: Population Density of Los Alamos County
Rio Arriba
30
Los Alamos Hwy
San Ildefonso Pueblo
Los Alamos
East Rd
502
W Jemez Rd
E Jemez Rd
Sandoval
Los Alamos
501
4
Los Alamos Santa Fe
Jemez Mountain Trl
Los Alamos National Laboratory
White Rock
Bandelier National Monument
Population Density
1 - 100 persons per sq mi
101 - 1,230 persons per sq mi
1,231 - 3,000 persons per sq mi
More than 3,000 persons per sq mi
TRANSPORTATION CONSULTANTS, INC.

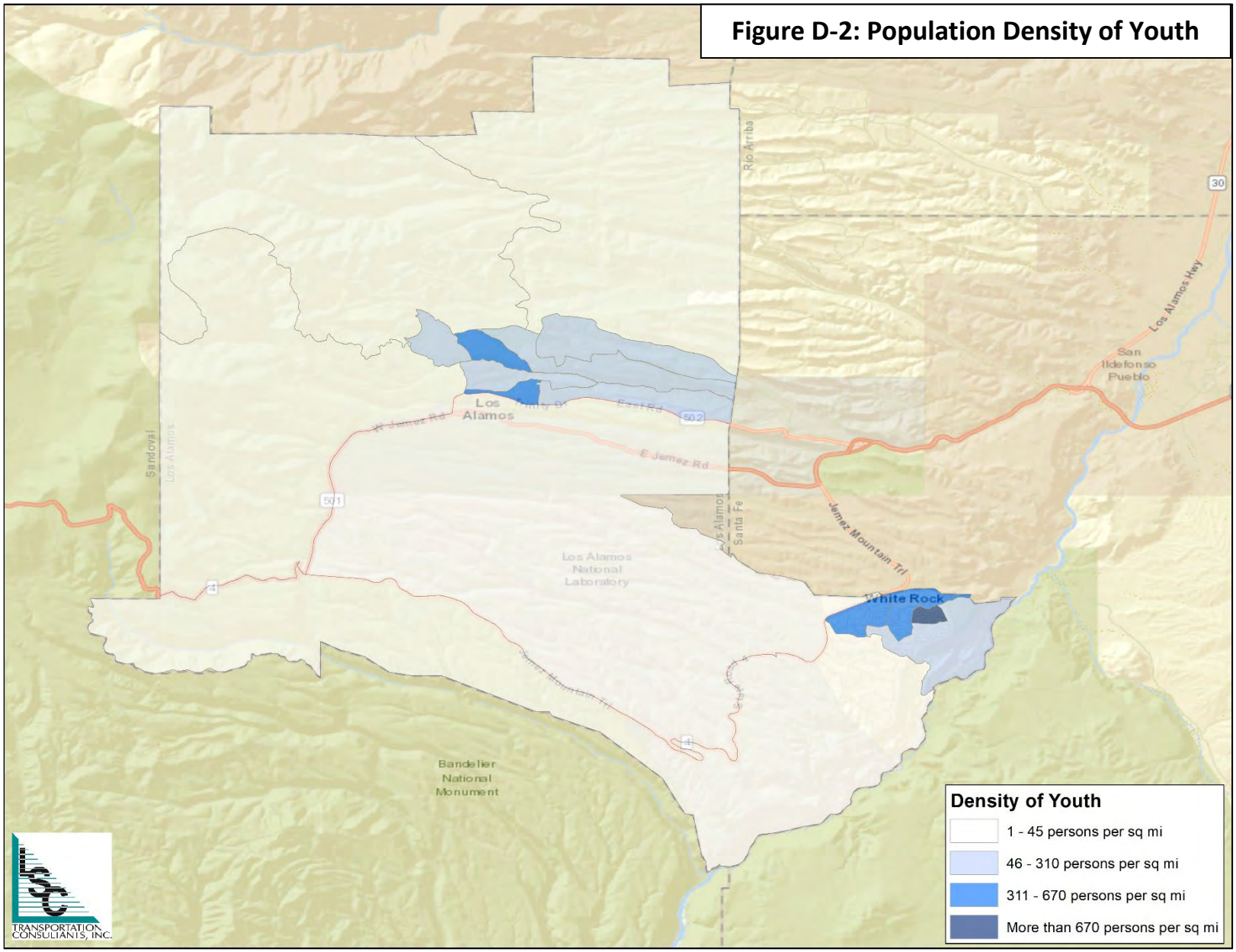
Figure D-2: Population Density of Youth
Los Alamos
White Rock
San Ildefonso Pueblo
Los Alamos National Laboratory
Bandelier National Monument
Jemez Mountain Trl
E Jemez Rd
Los Alamos Hwy
Rio Arriba
Sandoval
Los Alamos
Santa Fe
30
502
501
4
Density of Youth
1 - 45 persons per sq mi
46 - 310 persons per sq mi
311 - 670 persons per sq mi
More than 670 persons per sq mi
TRANSPORTATION CONSULTANTS, INC.

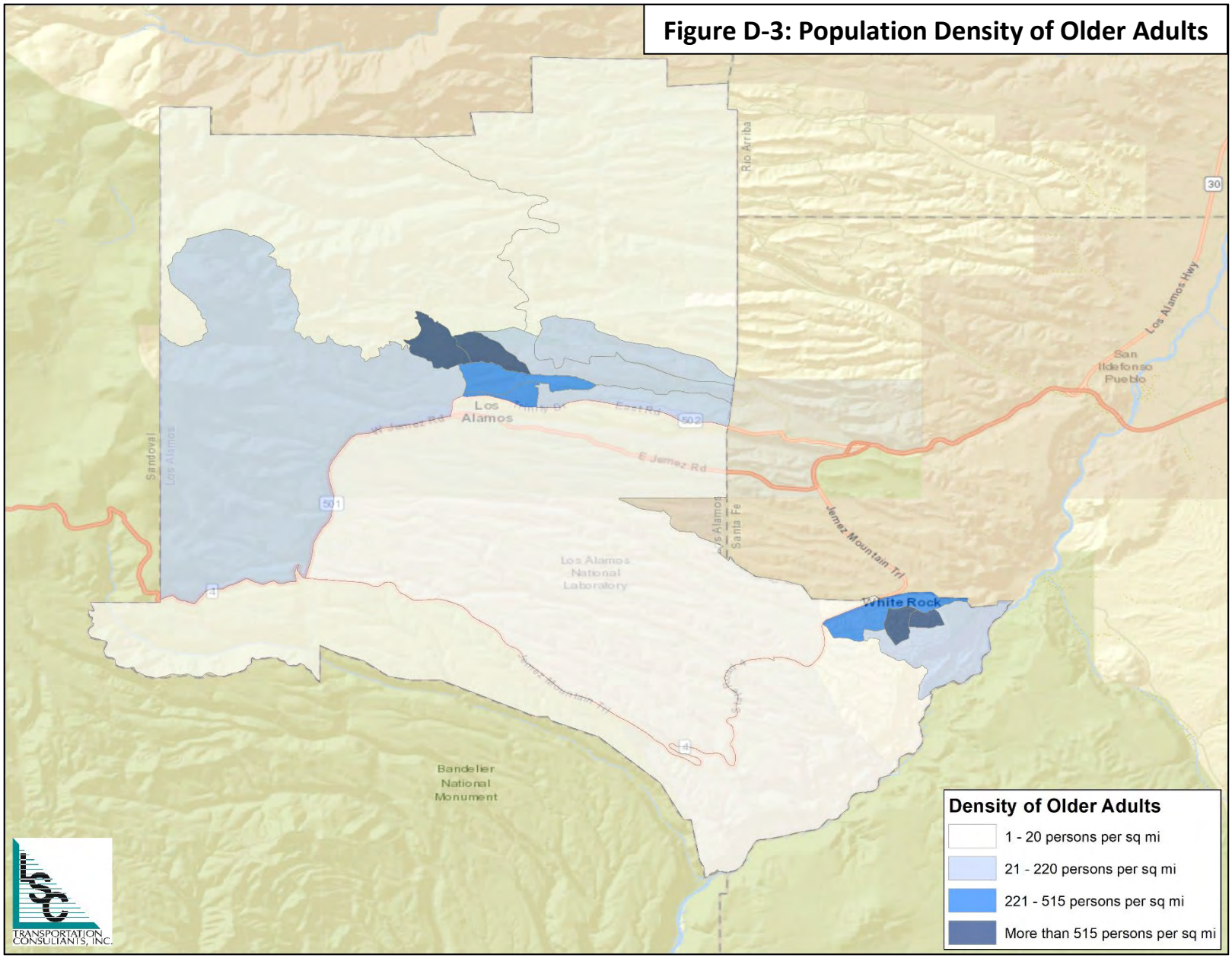
Figure D-3: Population Density of Older Adults
Rio Arriba
30
Los Alamos Hwy
San Ildefonso Pueblo
Los Alamos
502
E Jemez Rd
501
Sandoval
Los Alamos
Los Alamos Santa Fe
Jemez Mountain Trl
Los Alamos National Laboratory
White Rock
Bandelier National Monument
Density of Older Adults
1 - 20 persons per sq mi
21 - 220 persons per sq mi
221 - 515 persons per sq mi
More than 515 persons per sq mi
TRANSPORTATION CONSULTANTS, INC.

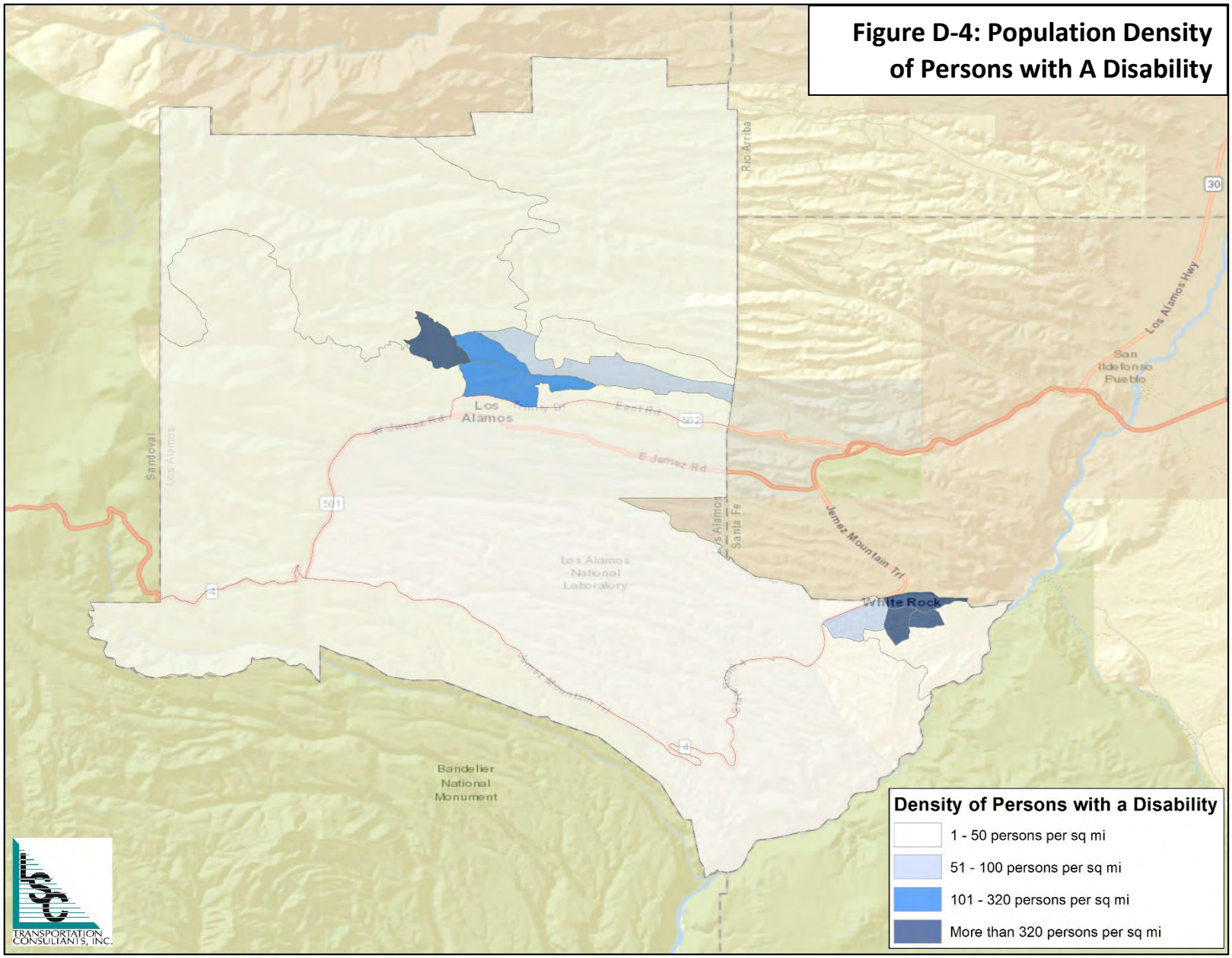
Figure D-4: Population Density of Persons with A Disability
Los Alamos
White Rock
San Ildefonso Pueblo
Los Alamos National Laboratory
Bandelier National Monument
Rio Arriba
Sandoval
Los Alamos Hwy
E Jemez Rd
W Jemez Rd
East Rd
Jemez Mountain Trl
Los Alamos
Santa Fe
502
501
4
30
Density of Persons with a Disability
1 - 50 persons per sq mi
51 - 100 persons per sq mi
101 - 320 persons per sq mi
More than 320 persons per sq mi
TRANSPORTATION CONSULTANTS, INC.

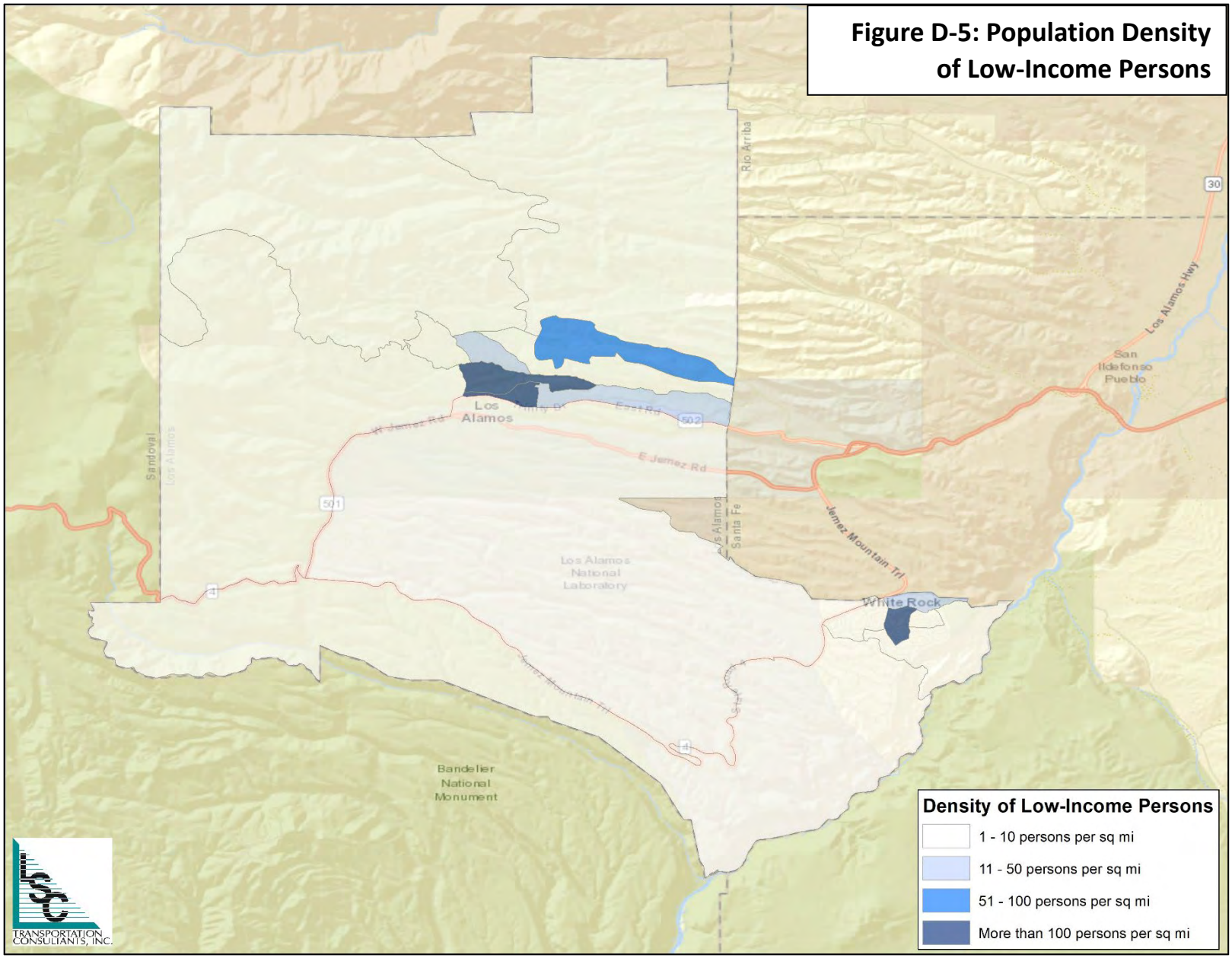
Figure D-5: Population Density of Low-Income Persons
Rio Arriba
30
Los Alamos Hwy
San Ildefonso Pueblo
Los Alamos
East Rd
502
W Jemez Rd
E Jemez Rd
501
Sandoval
Los Alamos
Los Alamos
Santa Fe
Jemez Mountain Trl
Los Alamos National Laboratory
White Rock
4
Bandelier National Monument
Density of Low-Income Persons
1 - 10 persons per sq mi
11 - 50 persons per sq mi
51 - 100 persons per sq mi
More than 100 persons per sq mi
TRANSPORTATION CONSULTANTS, INC.

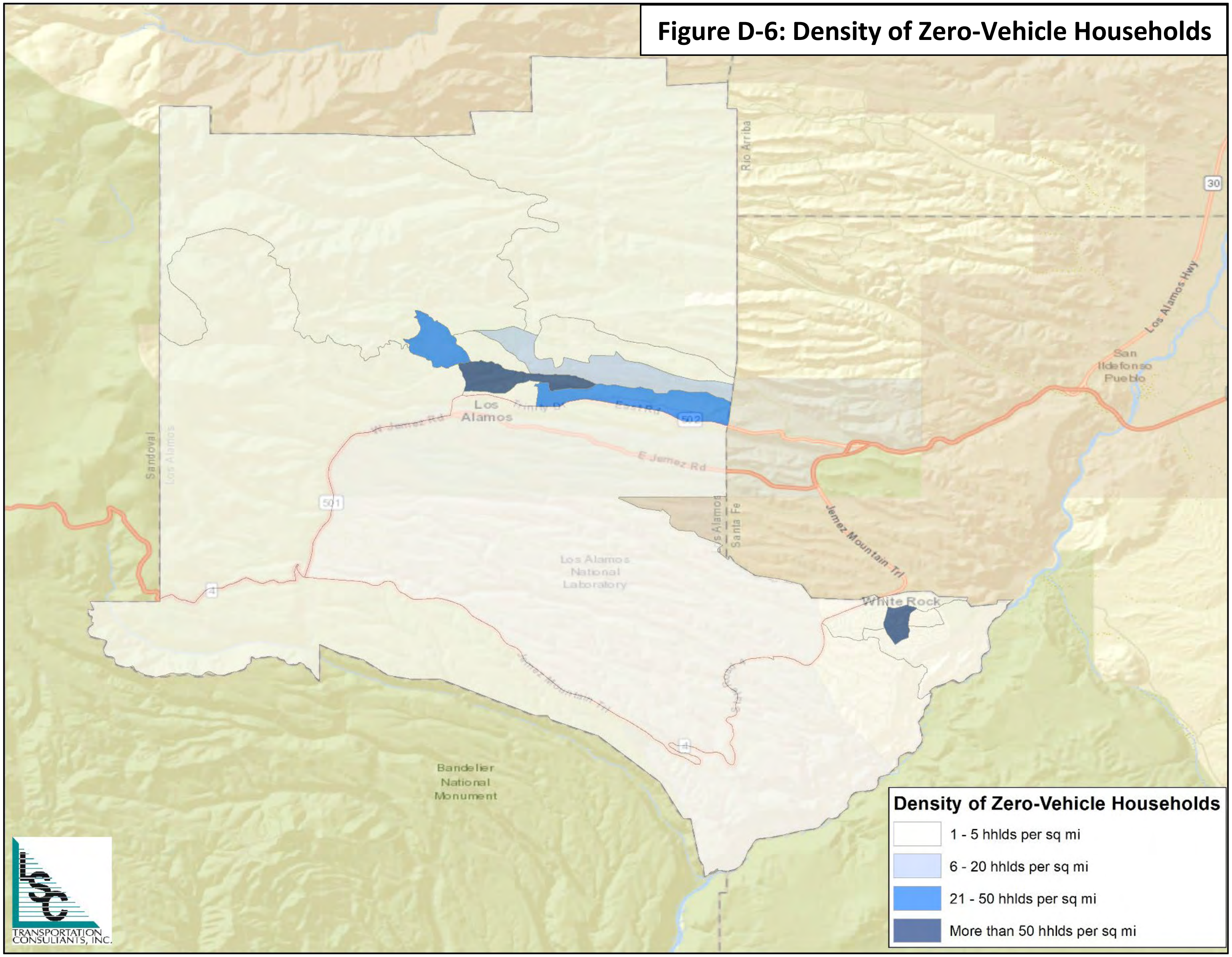
Figure D-6: Density of Zero-Vehicle Households
Los Alamos
White Rock
Los Alamos National Laboratory
Bandelier National Monument
San Ildefonso Pueblo
Los Alamos Hwy
Jemez Mountain Trl
E Jemez Rd
W Jemez Rd
Sandoval
Los Alamos
Rio Arriba
Santa Fe
Density of Zero-Vehicle Households
1 - 5 hhlds per sq mi
6 - 20 hhlds per sq mi
21 - 50 hhlds per sq mi
More than 50 hhlds per sq mi
LSC TRANSPORTATION CONSULTANTS, INC.