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Los Alamos National Laboratory

Transit Service Implementation Plan

April 2024



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1 INTRODUCTION

OVERVIEW

LANL Transit Options Study

In 2021, Los Alamos National Laboratory (LANL) partnered with Nelson\Nygaard Consulting Associates to conduct the LANL Transit Options Study in preparation for Laboratory expansion plans. When the study started, LANL was expected to grow by 3,000 employees over the next several years. Most of that growth has already taken place. Sixty percent of employees commute from outside of Los Alamos County, and with limited housing capacity in Los Alamos, most of the new employees are expected to live outside of Los Alamos County as well.

The Transit Options Study reviewed existing transit services that serve LANL and analyzed travel markets around Los Alamos County and northern New Mexico. The project team then identified strategies to increase usage of public transit and modes other than single-occupancy private vehicles. These strategies were grouped in three categories:

- Getting employees to LANL – including improvements to existing public transit services, development of LANL long-distance shuttles, and expansion of vanpooling and carpooling
- Getting employees around LANL – including improvements to the LANL Taxi and Shuttle services, expansions of transit centers, and connections to White Rock
- Programs and Incentives that Encourage Alternative Commuting – including program staffing, education programs, incentives, and tools

The Transit Service Implementation Plan expands on the work completed in the Transit Options Study—specifically preparing LANL to implement the strategies related to public and LANL-run transit services and facilities¹.

¹ The ideas presented in this study are recommendations for LANL to use as they develop their transportation plans. This is not a commitment that LANL will adopt all of the recommendations.

Plan Partners

The LANL Transit Options Study and Transit Service Implementation Plan project teams consisted of the following partners:

- Los Alamos National Laboratory (LANL)
- New Mexico Department of Transportation (NMDOT)
- North Central Regional Transit District (NCRTD)
- Atomic City Transit (ACT)
- Nelson\Nygaard Consulting Associates

LANL MODE SHIFT GOALS

The changes needed to meet LANL's transportation goals are dramatic. LANL is planning to add approximately 3,000 jobs to the Pajarito Corridor by 2028. Because LANL is not expanding parking, 3,000 employees in the Corridor will need to arrive by transit. Many more employees (1,500+) will choose or want to commute by transit for the following reasons:

- Cost savings
- Working/relaxing instead of concentrating on driving
- Environmental stewardship
- Other LANL incentives

This plan is designed to ultimately facilitate approximately 4,500 LANL employees commuting to and from the Laboratory on either public transit or LANL run shuttles by 2028. This plan also assumes that 25% of Pajarito Corridor employees, 10% of TA-3 employees, and 5% of all other employees carpool or vanpool (see Figure 1). This will dramatically reduce the drive alone rate of LANL employees, which in 2019 was 71% for employees living outside of Los Alamos County and 76% within Los Alamos County.

LANL also hopes to drastically increase carpooling and vanpooling. NMDOT provides monthly vanpool subsidies through its NMGo! Program. The program is open to vanpoolers statewide and can offset the monthly cost of vanpooling by as much as 33%.

The Scale of Change

The current capacity of public transit services serving LANL is approximately 1,600 during peak periods. To meet LANL's commute goals, the capacity of transit vehicles will need to be closer to 6,400 (assuming transit vehicles are an average of 70% full). Public agencies cannot quadruple their capacity in 5 years. Instead, the focus of this plan is to optimize transit

ridership on existing public services to LANL and build up a LANL operated fleet of long-distance and on-site shuttles to fill the large gap between current service and needed transit capacity (see Figure 2).

Figure 1 Arrival Mode by LANL Worksite (2028)

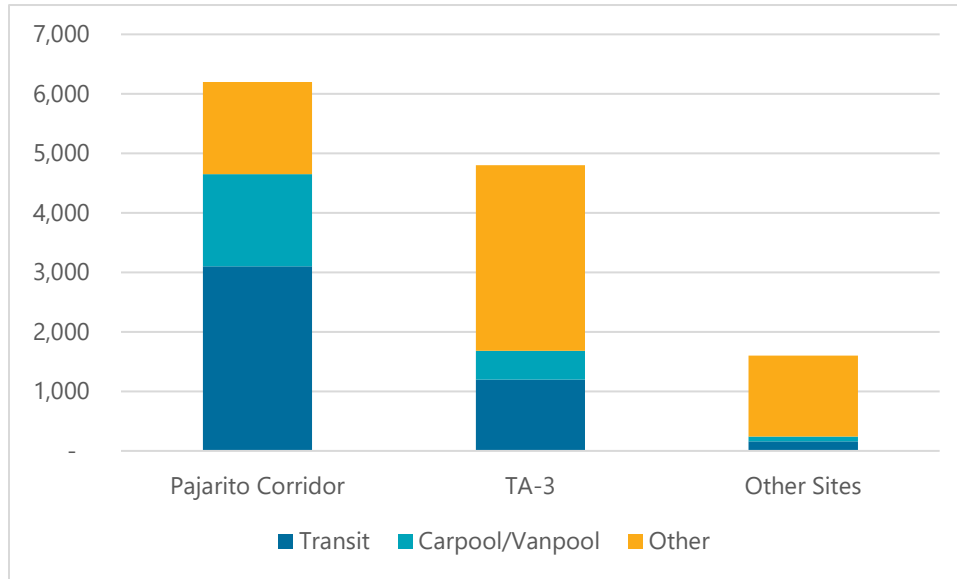


Figure 2 Transit Arrivals at LANL (2028)

Work Area at LANL	Percentage of Employees Arriving by Transit at Work Area	No. Employees Arriving by Public Transit (Assumes 70% of seats are filled by LANL employees)	No. Employees Arriving by LANL Long Distance Shuttles (Assumes vehicles are 70% full)	No. Employees Arriving by Transit
TA-3	25%	281	919	1,200
Pajarito Corridor	50%	725	2,375	3,100
Other Sites	10%	48	0	48
S Site	10%	53	0	53
LANSC	10%	59	0	59
Total	-	1,166	3,294	4,460

Around 3,300 employees arriving by LANL Long Distance shuttles means the total capacity of LANL Long Distance shuttles needs to be about 4,750. This means approximately 100 trips by 50-passenger buses must arrive each morning and leave each afternoon, an average of 70% full. This will require between 35 and 50 buses depending on how many trips each bus can take during each morning and afternoon period. This transformation of LANL's transit services will require many new operators, new on and off- site facilities, policy changes and programs that incentivize transit use, parking changes, and many more. These changes will also significantly reduce the environmental impact per employee of commuting to, from, and within LANL. It will also improve the quality of life for employees by allowing them to reduce commuting costs, reduce the stress of driving and increase safety by having fewer vehicles on the road.

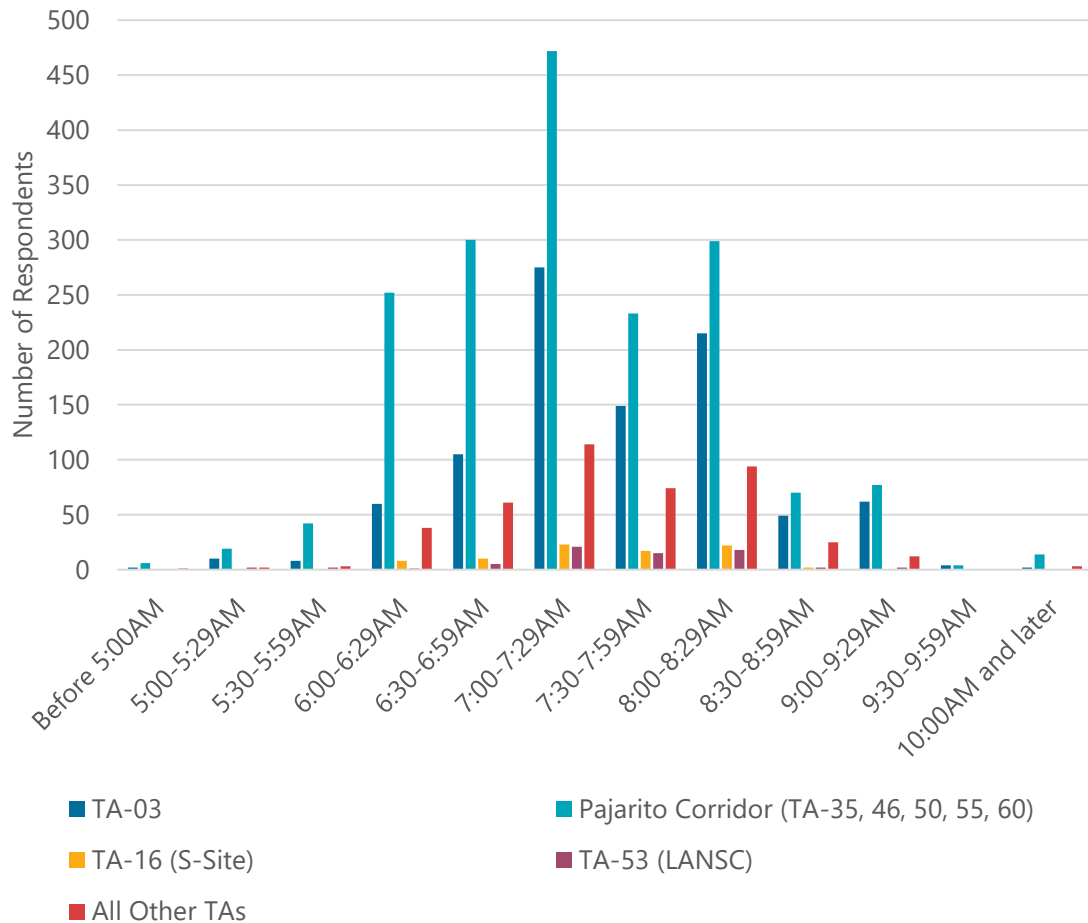
EMPLOYEE SURVEY RESULTS

In Spring 2023, LANL conducted an employee commuter survey with 2,365 respondents. The results of this survey were used to develop many of the strategies and service elements discussed in this implementation plan.

Based on the survey answers, the vast majority of LANL employees start work between 6AM and 9AM, with about 13% of employees starting at 6AM. About a quarter of employees have no flexibility in their start times. Another quarter have flexibility up to 15 minutes, and the remaining half of respondents have flexibility up to 30 minutes in their start times.

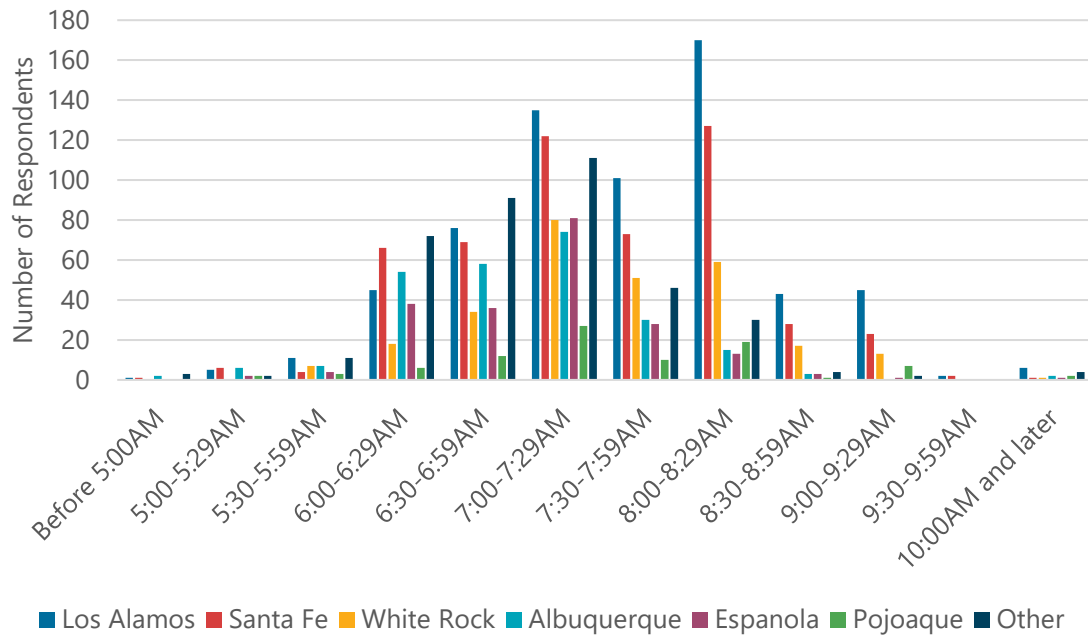
As shown in Figure 3, employee start times also vary by technical area (TA). Employees in the Pajarito Corridor (TA-35, 46, 50, 55, and 60) tend to start work earlier than TA-03, TA-15, and TA-53 workers.

Figure 3 Employee Start Times by TA



Employees' start times also vary by their home locations. As shown in Figure 4, staff who live in Albuquerque and Española tend to start earlier than those who are coming from other locations such as Los Alamos and Santa Fe.

Figure 4 Employee Start Times by Home Location



Most LANL employees do not work 9-to-5 Monday through Friday schedules typical of professional workers in the US. As shown in Figure 5, about a third of employees work for 10 hours four days a week. Another half work 80 hours over nine days over two weeks (A and B Schedules refer to which Friday in a two-week period employees do not work). About 14% work a 40-hour work week from Mondays through Fridays. Many employees also noted that they often work overtime or rotating shift schedules.

Figure 5 Typical Work Schedule

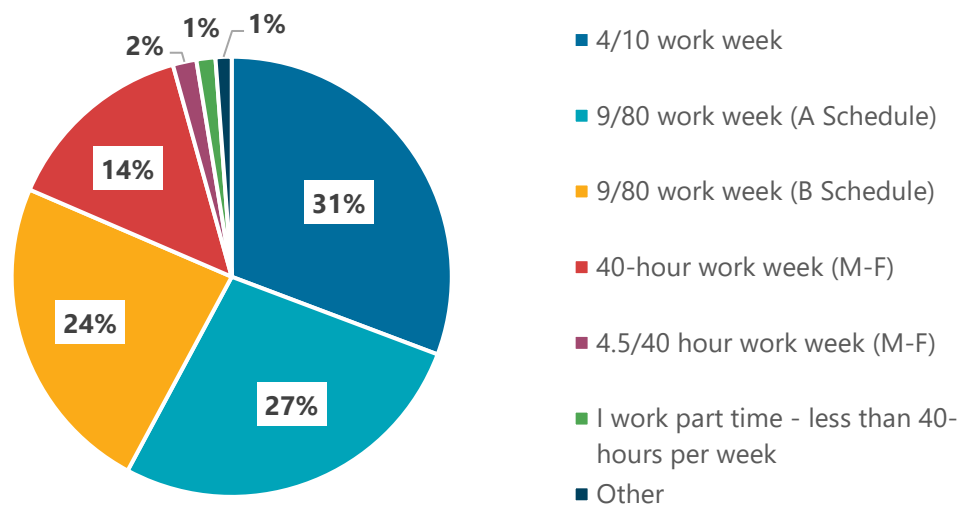
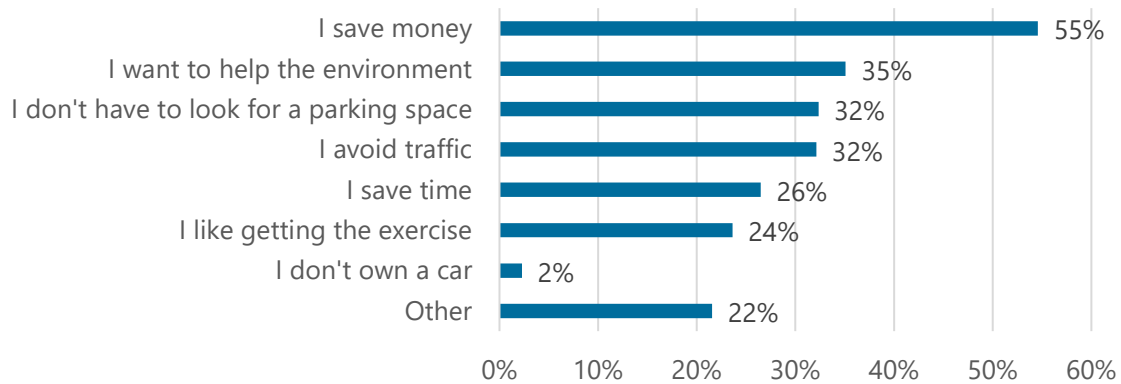


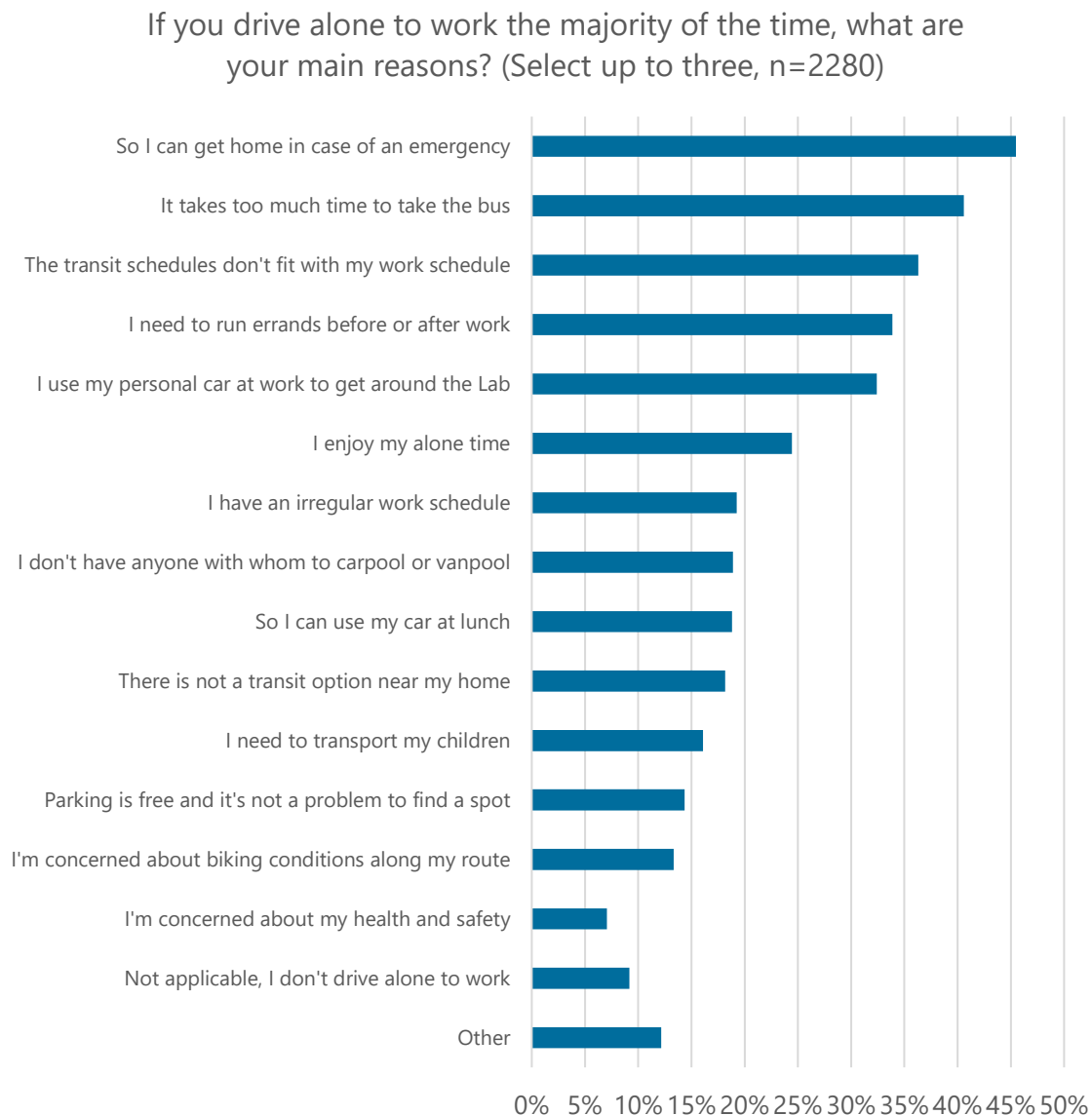
Figure 6 Reasons for Choosing Alternative Modes

If applicable, please share the reason(s) you choose to walk, bike, take the bus, take the train, carpool, vanpool or telework.
(Select up to two choices, n=872)



The survey also asked about employees' motivations and willingness to take alternate commute modes. Those who are already walking, biking, taking the bus, taking the train, carpooling, or vanpooling are primarily doing so to save money, and secondarily to help the environment, avoid traffic, and so they do not have to look for a parking space (Figure 6). For those driving on their own into work, their main reasoning is needing a car in case of an emergency, the bus takes too long, and transit schedules do not match their needs.

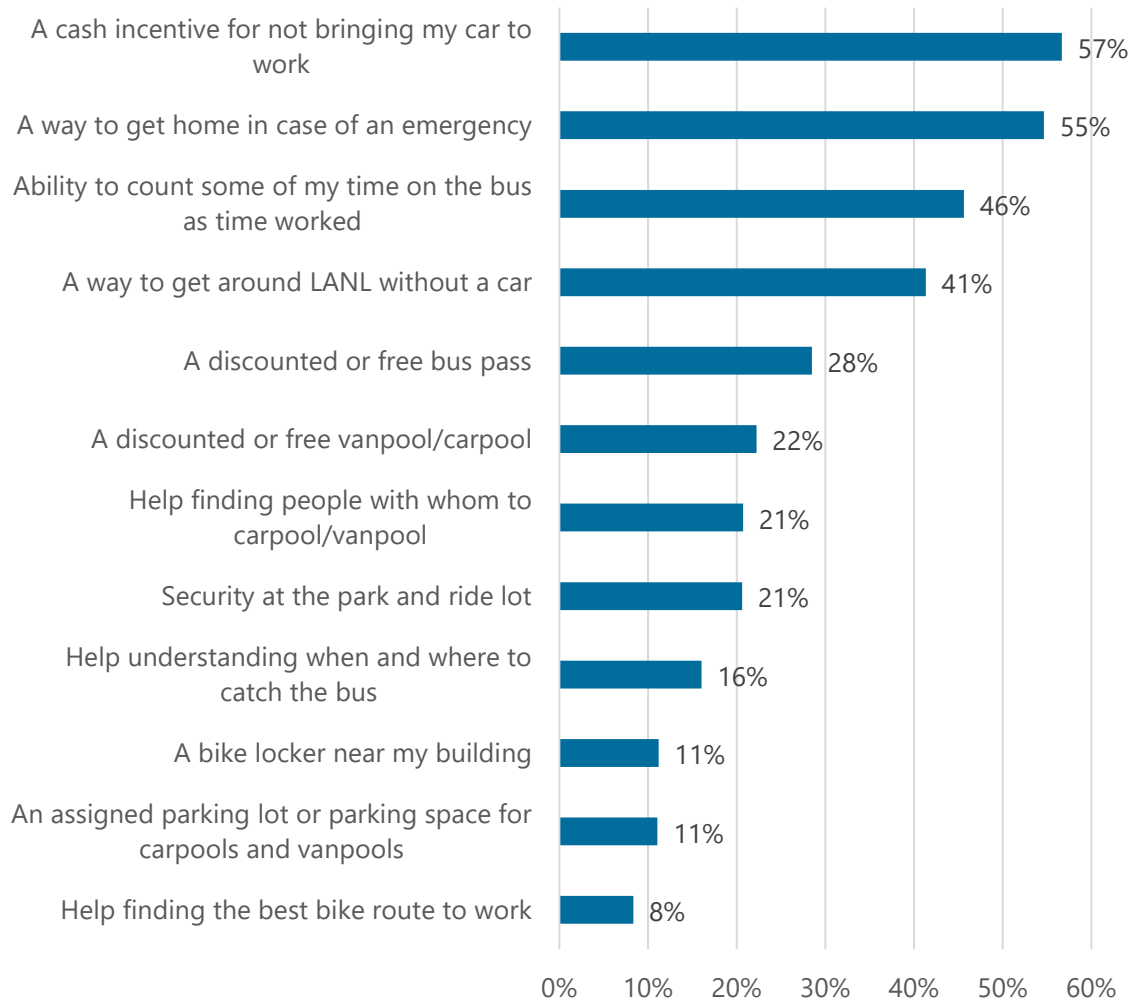
Figure 7 Reasons for Driving Alone



When asked if they are willing to try a different commuter choice to get to work, 70% of respondents said yes if the timing works with their schedule. The modes survey respondents were most interested in trying were riding in a dedicated LANL shuttle, teleworking, and taking the bus. As shown in Figure 8, employees noted that the factors that would most encourage them to not drive alone included cash incentives, a way to get home during emergencies, and the ability to count time worked on the bus.

Figure 8 Encouragement to Not Drive Alone

What would encourage you or help you make the choice to not drive alone? (Select all that apply, n=2027)



These survey results help to guide LANL's investments in public transportation options for their employees.

2 PUBLIC TRANSIT SERVICES

PEER REVIEW OF SECURE FACILITIES TRANSPORTATION

Los Alamos National Laboratory is a secure facility that is closed to the general public, which presents a unique series of challenges for public transportation providers and riders. The project team interviewed two other secure government locations in New Mexico that have public transit service on their campuses: the Kirtland Airforce Base and the White Sands Missile Range.

Kirtland Air Force Base

ABQ Ride provides public transportation to the City of Albuquerque and surrounding areas. ABQ Ride operates 23 local routes, 8 commuter/express routes, and 2 ART (rapid transit) routes during weekdays and weekends. In addition to local fixed-route service, ABQ Ride operates “SunVan” ADA paratransit service. ABQ Ride currently operates two routes to and from Kirtland Air Force Base (KAFB).

Partnership and Programming

ABQ Ride and KAFB do not have formal agreement or an MOA. ABQ Ride usually coordinates with security personnel and military police if there are gate closures. ABQ Ride has operated service onto KAFB since early 2000s.

Rider Profiles

Once the bus goes onto the base, only people with a security clearance and badge are allowed onto the base. Non-base riders are not allowed to go on base. The exception to this is SunVan riders – these riders have set origins and destinations and operators know to only drop-off riders who are cleared to go on base.

Security

Gate security will do a physical check of badges once ABQ Ride reaches the gate. Operators on these routes do not need to be cleared or vetted by KAFB (if needed – KAFB will allow ABQ Ride maintenance and/or supervisors on base). ABQ Ride is not allowed to access the Sandia Technical Area.

Operations

There are two layover locations on KAFB since it is the endpoint for routes that travel to the base – bus operators have access to low security buildings to use for bathrooms.

Communication

There is no formal, recurring communication between ABQ Ride and KAFB. Riders usually communicate gate changes and closures to ABQ Ride staff. The main point of contact for ABQ Ride is usually gate security personnel.

Vehicle Type

ABQ Ride's 40-foot buses are operated on KAFB. ABQ Ride has experienced issues maneuvering vehicles through gate security.

Funding

There is no additional funding provided for the bus service to KAFB. ABQ Ride uses direct operational funding to provide service.

White Sands Missile Range

NMDOT provides multi-modal public transportation service throughout the state of New Mexico. NMDOT operates 12 Park and Ride shuttle routes. These shuttles provide connections between urban and suburban areas to large employers elsewhere in the state. NMDOT currently operates one route (Silver Route) from New Mexico State University (NMSU)/Las Cruces to White Sands Missile Range (WSMR).

Partnership and Programming

There is a formal agreement between WSMR and NMDOT. A Memorandum of Agreement (MOA) has been in place since 2005 with WSMR.

Rider Profiles

The Silver Route provides indirect service to WSMR, but WSMR is the endpoint for this route. Most riders traveling to WSMR are allowed on base and have security clearance.

Security

NMDOT buses are restricted to Main Post at WSMR. NMDOT is not allowed in classified areas or further into the range. Silver Route drivers operating shuttles to WSMR are vetted by WSMR security prior to operating the shuttles on the range. WSMR gate security/military (inspection tent) police check badges (scanners) and IDs of all riders coming on the range at the gate. Supervisors and a few NMDOT maintenance staff are usually vetted to make sure the route can be covered if there is a driver shortage so that the bus can continue to operate to/from WSMR.

Operations

The Silver Route shuttle schedule is published online, and the pick-up locations are available online (buses are clearly marked with WSMR so that riders know the buses destination). There are currently six NMDOT bus stops at WSMR. NMDOT operates two vehicles in the morning and two vehicles in the afternoon (service is very limited due to driver shortage and since the pandemic).

Communication

Communication between NMDOT and WSMR is limited.

Ridership

Specific ridership numbers are unavailable but the Silver route is under-utilized and has low productivity.

Vehicle Type

NMDOT's 40-foot buses are operated on WSMR.

Funding

There is no additional funding provided for shuttle service to WSMR. NMDOT uses direct operational funding/state funding to provide service.

Conclusion

There is precedence for public transportation services traveling onto secure sites similar to LANL. While bringing public transportation services onto LANL's campus would make these services more convenient in some ways because employees wouldn't have to transfer once reaching LANL, NMDOT services would have to be completely re-routed to run through

Downtown Los Alamos first, making these trips longer for LANL passengers. Additionally, bringing Atomic City Transit routes onto the LANL campus would greatly extend the length of these routes and make them much more expensive to operate. At this time, it is not recommended to bring public services onto LANL property, but to continue to drop LANL employees at the Transit Center near TA-3. Internal shuttles will continue to be coordinated with public services to make the transfer as seamless as possible.

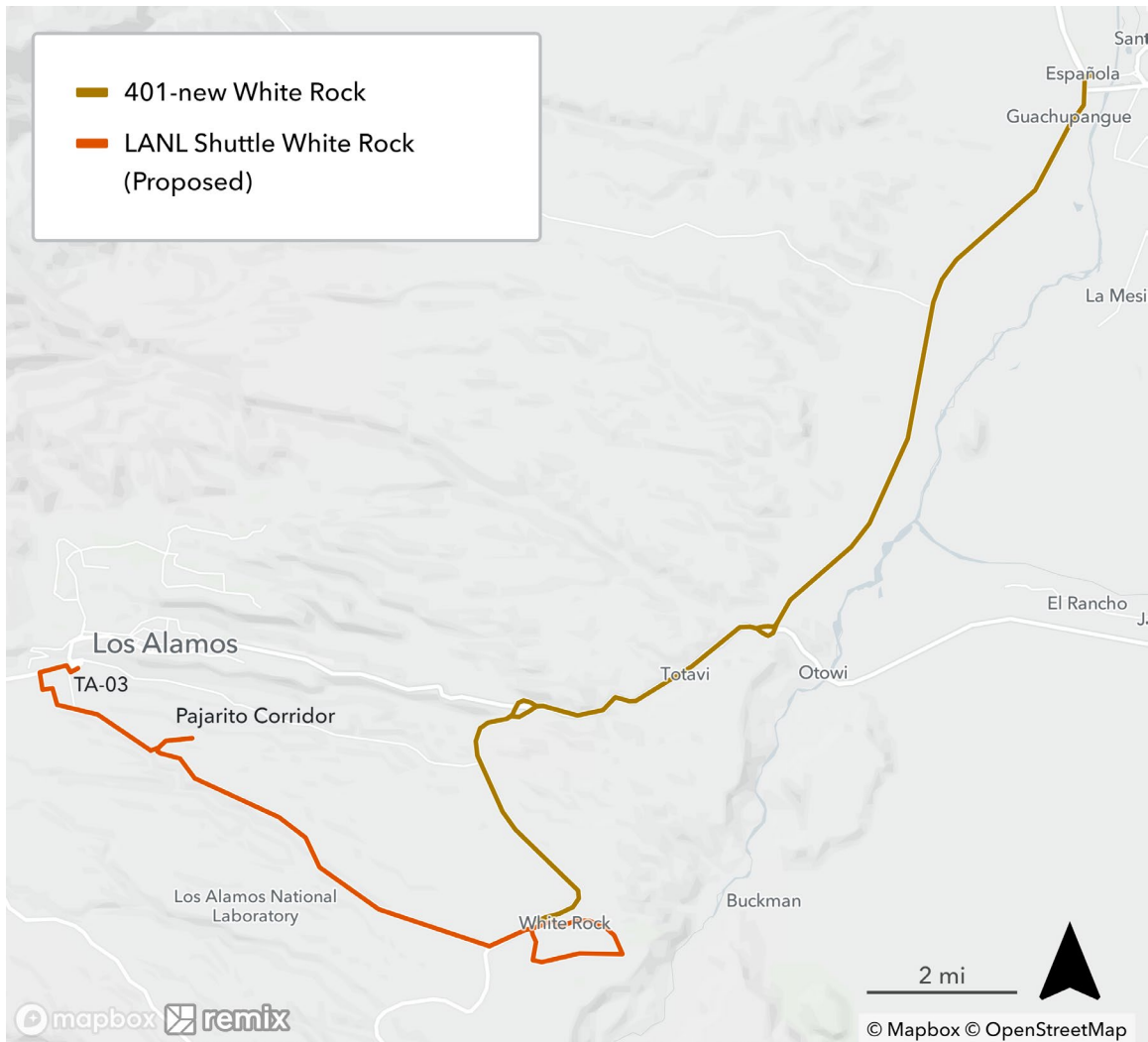
NCRTD SERVICES

Prior to the COVID-19 pandemic, NCRTD operated Route 400 between Española and the Los Alamos Transit Center. The route had very low ridership (6 riders a day in 2019) and was designed as a one-way loop that operated once per day during the midday. To better meet travel demands, a new Route 401 between Española and White Rock is proposed for implementation.

Route Alignment

Route 401 would operate between the Española Transit Center and the SR 4 & Sherwood enhanced bus stop in White Rock or wherever else is identified for the White Rock Transit Center, with an estimated travel time of 31 minutes in each direction and no intermediate stops. Currently, there are no direct routes between Española and White Rock, so taking the NMDOT Green Route with a transfer to Atomic City Transit would take approximately 57 minutes. This new route allows for better connections for Española residents to LANL by connecting into the White Rock Hybrid Shuttle, as well as White Rock, which is also a growing job center. After alighting Route 401, LANL employees can transfer onto the new White Rock LANL shuttle to get to the Pajarito Corridor and TA-03.

Figure 9 Proposed NCRTD Route 401



Service Levels

Route 401 would initially run two trips in the morning and two trips in the afternoon on weekdays. As the route would provide a transfer to the LANL White Rock shuttle, the primary customers are expected to be LANL workers who live in Española and work in TA-03 or the Pajarito Corridor. These employees can also take the NMDOT Green Route to the Los Alamos Transit Center and transfer onto the LANL Taxi service, so Route 401 should be scheduled at a time that allows for more options for these employees and at times that do not overlap with Green Route trips.

Figure 10 Work start times of TA-03 and Pajarito Corridor employees who live in Española

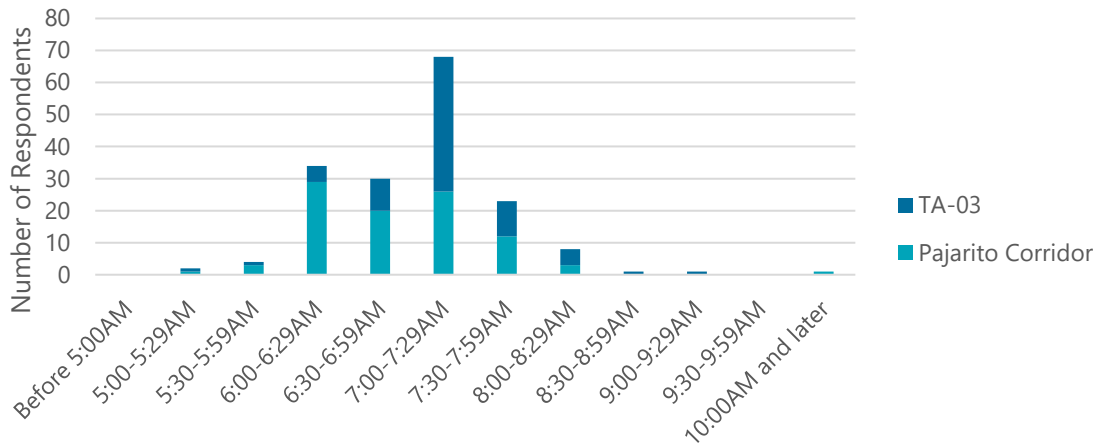
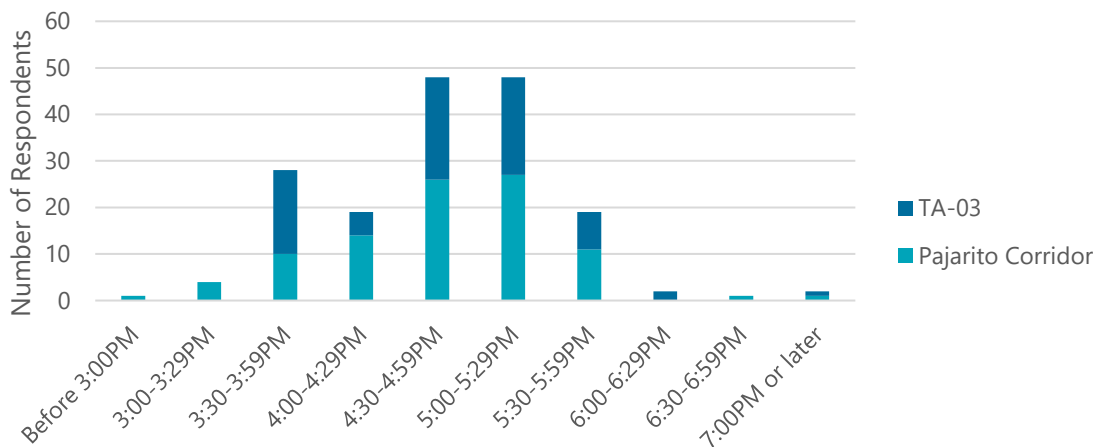


Figure 11 Work end times of TA-03 and Pajarito Corridor employees who live in Española



As shown in Figure 10 and Figure 11, most employees who live in Española and work in TA-03 or the Pajarito Corridor start work between 6AM and 8AM and end work between 3:30PM and 6:00PM. Currently, the NMDOT Green Route serves the transit center with five inbound trips in the morning (arriving at 6:12, 6:30, 7:02, 7:22, and 8:03 AM) and five outbound trips in the afternoon (departing at 3:17, 3:50, 4:20, 4:55, and 5:48 PM). Accounting for the travel time on the LANL taxi between the transit center and the final work location, these trips work well for employees who start between 6:30 and 9:00 AM and end between 3:00 and 5:30 PM.

To supplement these trips, Route 401 can operate as shown in Figure 12. In the mornings, the bus would first get to White Rock at 5:31 AM, which would provide transit service for employees who start before 6:30 AM. The second trip would get to White Rock at 6:41 AM, which would help supplement NMDOT service at a time when many employees are arriving. In the afternoons, the first trip would leave White Rock at 5:15 PM, which would supplement

NMDOT service at a time when many employees are leaving. The second trip would leave at 6:26 PM, increasing access to transit for those who end later in the day or work overtime.

Figure 12 Proposed Route 401 Schedule

To White Rock		To Española	
Española TC	White Rock TC	White Rock TC	Española TC
5:00 AM	5:31 AM	5:36 AM	6:07 AM
6:10 AM	6:41 AM	6:46 AM	7:17 AM
4:39 PM	5:10 PM	5:15 PM	5:46 PM
5:49 PM	6:20 PM	6:26 PM	6:56 PM

Operating Cost and Vehicle Needs

The schedule above can be operated with one vehicle, assuming a 62-minute round trip running time and an additional 10% layover/recovery time, for a total of 70-minute cycle time. The annual operating cost for this route is estimated at \$137,000. Operating this route instead of the Route 400 to Los Alamos (which has been suspended since the beginning of the pandemic) would be cost neutral while providing twice the number of trips between Española and Los Alamos County.

Implementation Schedule

This route is reliant on the implementation of the LANL White Rock Shuttle. NCRTD may also explore additional service to a new Los Alamos Transit Center in the future.

NMDOT SERVICES

The New Mexico Department of Transportation (NMDOT) operates the Park and Ride service, a series of commuter buses connecting the urban areas of New Mexico. Three of these routes—Blue, Purple, and Green—serve Los Alamos. LANL should continue to work to encourage ridership of existing Park and Ride routes, and work with NMDOT to monitor ridership and add more trips in the future.

Park and Ride Ridership

The COVID-19 Pandemic caused a large decline in transit ridership, especially among commuter services. While ridership has rebounded on many Park and Ride trips, there are

still fewer people riding the bus than in 2019. Figure 13 to Figure 18 show the ridership by trip on the Blue, Green, and Purple Routes for 2019 and 2022.

Figure 13 Blue Route Ridership by Trip (Inbound to LANL)

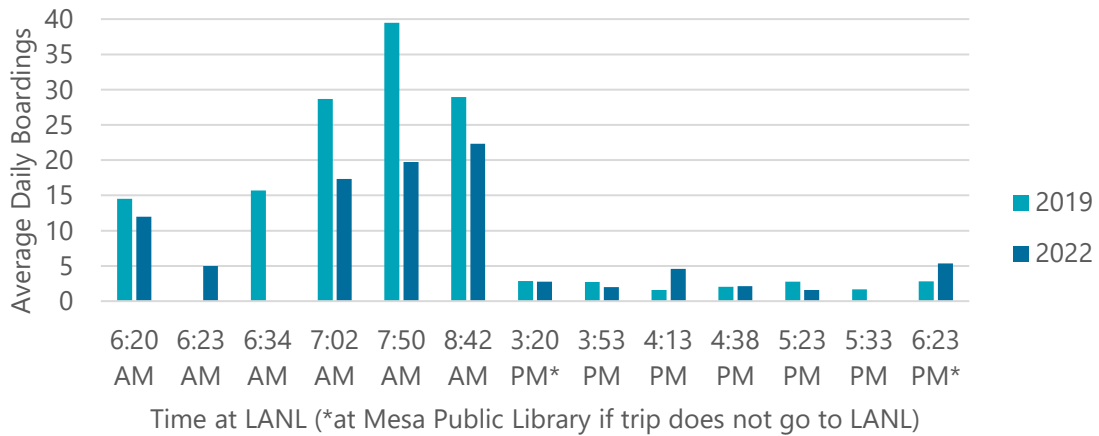


Figure 14 Blue Route Ridership by Trip (Outbound from LANL)

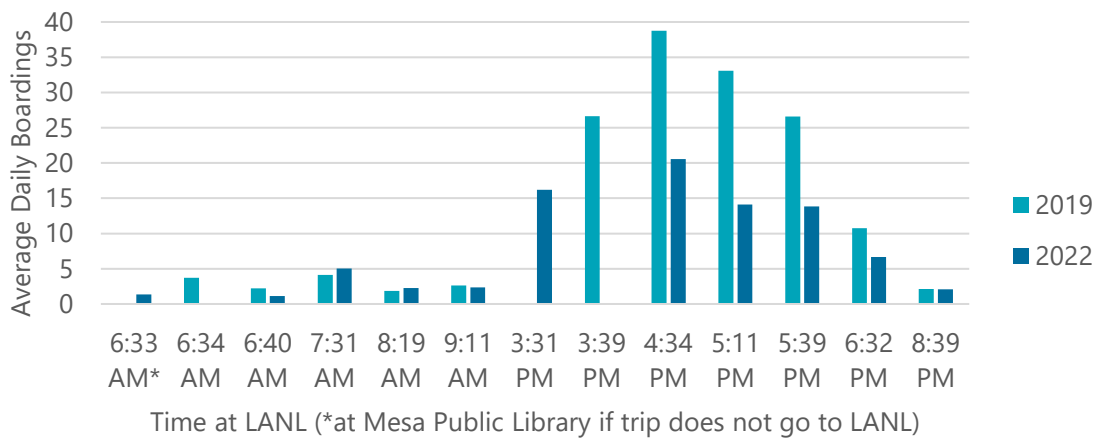


Figure 15 Green Route Ridership by Trip (Inbound to LANL)

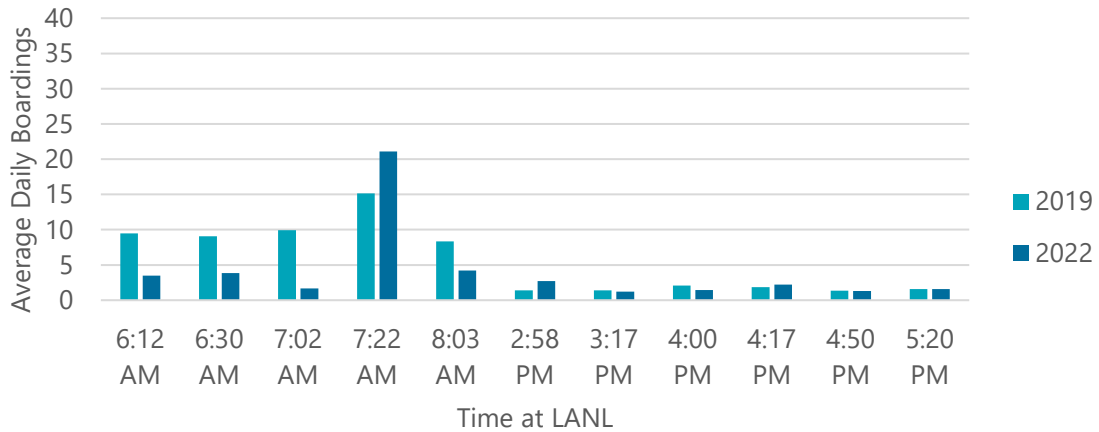


Figure 16 Green Route Ridership by Trip (Outbound from LANL)

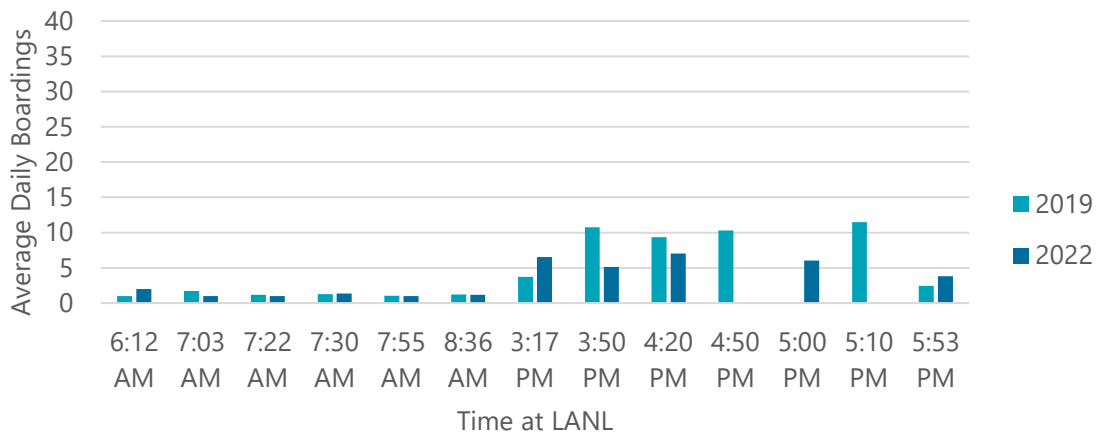


Figure 17 Purple Route Ridership by Trip (Inbound to LANL)

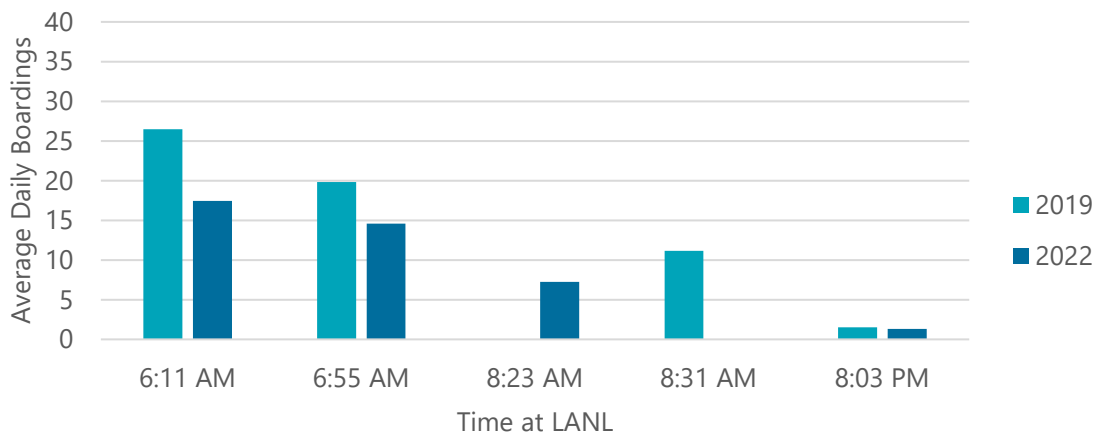
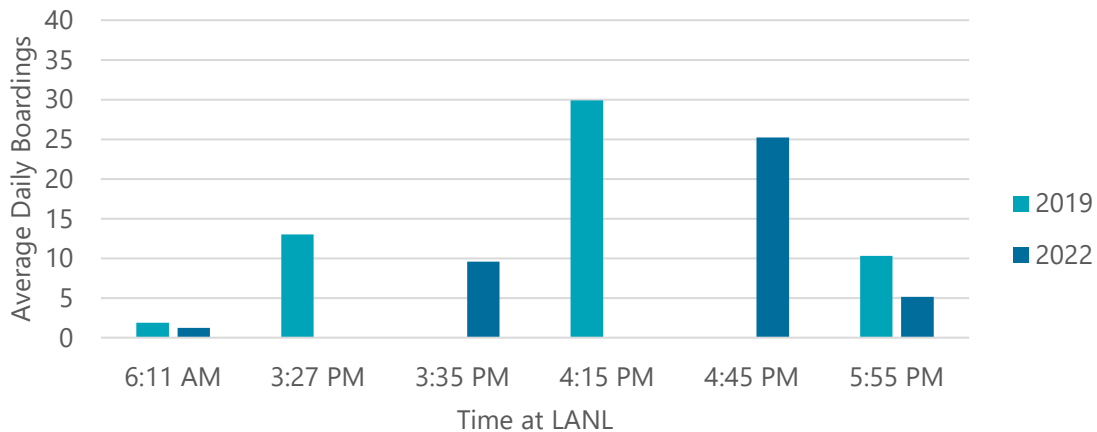


Figure 18 Purple Route Ridership by Trip (Outbound from LANL)

Each NMDOT bus seats fifty people, and no trips are on average at or near capacity on any of the three routes (as of 2022). The first priority for increasing LANL employee usage of NMDOT services would be to encourage them to take the buses that are already running today. Once trips start to reach at least 75% capacity, LANL and NMDOT can explore adding more service on each route. The Blue Route currently has the highest ridership and is the most likely candidate for additional trips.

Feasibility of Entering LANL Property

Currently, almost all LANL employees who take Park and Ride service must transfer to a LANL taxi at the transit center to get to their final work locations. (The exception is those who work in the part of TA-03 that is walking distance to the Transit Center.) This extra transfer adds time to an employee's commute.

The project team explored the possibility of bringing NMDOT Park and Ride service onto LANL property and circulating through TA-3 and the Pajarito Corridor. However, this would have required Park and Ride service to be rerouted to serve other locations in Los Alamos before serving LANL, whereas currently the Park and Rides stop at the Transit Center first before serving other locations in Los Alamos. The added time of serving Los Alamos, then entering the Vehicle Access Portal, and then circulating around LANL was not found to be time-competitive with the system as it currently operates. Bringing NMDOT Park and Ride vehicles onto LANL property would also be logistically challenging, and require differences in funding, as well as completely reworking the NMDOT schedules. For these many reasons, it is not recommended to bring NMDOT Park and Ride service into LANL property at this time.

Recommendations

Recommendations for NMDOT service for 2024-2028 are as follows, dependent on ridership growth.

Add Park and Ride Trips as Ridership Increases

NMDOT Park and Ride serves all of the major home zip codes of LANL employees outside of Los Alamos County. As more LANL employees shift to using alternative modes, LANL and NMDOT can continue to monitor the loads of the buses. Once trips start to regularly reach 75% or more capacity, NMDOT should consider adding additional buses on these routes.

Over the next few years, the route that is expected to start filling up first is the Blue Route, which serves multiple stops in Santa Fe and Pojoaque. The project team recommends adding a morning trip on the Blue Route that arrives at the Los Alamos transit center at 7:30am. This time represents a gap in the current schedule. This trip would be targeted at employees who start at 8am, giving them time to take a shuttle from the transit center to their technical area with some buffer time to spare. Additionally, adding an outbound trip on the Purple Route at 5:15pm could accommodate more Santa Fe riders.

Since all NMDOT routes are interlined with each other, NMDOT should explore adding this 7:30am trip and the 5:15pm trip alongside other schedule changes or during contract renewals with their transportation provider. In addition, if LANL does build a secure lot at the Puye Cliffs Entrance, it is recommended that the Green Route makes an additional stop here.

In the full build out capacity assumptions for 2028, it is assumed that one trip is added on either the Purple or Blue Route. If ridership on NMDOT service is very high, more trips than just this could be added.

Publicize NMDOT Options Alongside New LANL Options

As LANL rolls out new long-distance shuttles and other transportation options such as vanpools, NMDOT Park and Ride should be advertised alongside these new modes. The Park and Ride schedules offer flexibility for people who may need to stay later into the late afternoon or early evening.

ACT SERVICES

Atomic City Transit (ACT) operates a local bus service in Los Alamos County. Encouraging LANL employees who live in Los Alamos to use ACT service to get to work will help LANL meet its mode shift goals.

ACT Short-Range Transit Plan

In June 2023, Los Alamos County adopted the updated Atomic City Transit Short-Range Transit Plan (SRTP), which lays out the changes to ACT service planned over the next five years. The plan includes changes to route alignments, frequency, and services spans, as well as new investments in on-demand service. The planned changes that may affect how LANL employees commute include:

- Extended afternoon peak service on Route 1, which will now run every 15 minutes from 1pm to 5pm
- Removal of second loop of Route 2T through White Rock during peak times (3-5pm)
- Discontinuation of Route 2P, which operated at peak times from White Rock
- Rerouting of Route 3 to serve Western Area (Sandia and Trinity), which when combined with Route 5 would create service every 15 minutes between Western Area and the Transit Center
- Pilot of early Dial-a-Ride (DAR) service from 5:15am to 6am, with recommendations to continue program if there are more than two riders per hour and increase the number of vehicles at four or more riders per hour
- Pilot of one additional trip from White Rock to Los Alamos Transit Center each early morning, arriving at the Transit Center around 6am, with the caveat that the service may not be needed if LANL runs their own White Rock shuttle

Implications for LANL

Based on existing ACT service and the planned changes in the SRTP, LANL can focus on the following strategies to increase transit usage among employees in Los Alamos.

Target Employees Who Live Along More Frequent Routes

A bus that comes more often allows for greater flexibility for riders. Under the SRTP, Route 1 will run every 15 minutes in the afternoons service Downtown Los Alamos, and Route 3 and Route 5 combined would serve the Western Area of Los Alamos every 15 minutes throughout the day. Routes 2, 4, and 6 will continue to run every 30 minutes as well. LANL programs, to encourage greater transit ridership in Los Alamos, should target employees who live within walking distance of Route 1 and Western Area first, followed by those who live along Routes 2, 3, 4, 5, and 6. A frequent Route 1 also works well as a lunchtime shuttle, bringing LANL employees from the Transit Center to lunch options in downtown Los Alamos.

Supplement White Rock Service

Currently, employees who live in White Rock and commute to LANL via public transit must take ACT Route 2 service to the Transit Center before transferring to an internal LANL taxi, a trip that is indirect and time consuming compared to driving. LANL can make this trip more convenient by running its own shuttles to White Rock, with stops at the Transit Center, TA-3, and the Pajarito Corridor. ACT can then scale down its early morning and peak period White Rock service, focusing instead on connecting people between White Rock and the rest of Los Alamos. More details on the White Rock Shuttle can be found in Chapter 3. It is assumed in the Full Build out in 2028 that all employees who take transit use the LANL White Rock Shuttle and not ACT.

Advertise Early Dial-A-Ride Pilot

Many LANL employees start before 6:30am and cannot take public transit as it does not run early enough. ACT's early DAR pilot presents an opportunity to introduce transit to this group of employees. As this pilot is targeted towards LANL employees, LANL should work with ACT to advertise the service internally, targeting those who have early start times. If the pilot proves successful, LANL can partner with ACT to expand the program with more vehicles.

LANL-OPERATED SHUTTLES

While more employees taking public transportation service that currently serves LANL will be vital to LANL's growth, the majority of transit services will need to be run by LANL without a significant shift to carpool or vanpool. This includes service to White Rock, Española, Pojoaque, Santa Fe, Albuquerque/Rio Rancho, and Los Alamos. To meet the goal of around 4,460 employees using transit to get to work by 2028, LANL will need to provide approximately 100 vehicle trips each morning and 100 vehicle trips each afternoon peak period on Mondays through Thursdays by 2028.

The Market for LANL Shuttles

For those living within Los Alamos County, it's assumed that transit riders will walk to transit, as they do to access Atomic City Transit today. Similar to the NMDOT Park and Ride services, it is assumed that LANL shuttles operating in Española, Santa Fe, Pojoaque, and Albuquerque/Rio Rancho will serve park and ride lots. Most riders who take the park and ride services want to travel to a place relatively close to home that is also on their way (downstream) toward work, or not too far out of the way. The path of travel describes the number of workers who pass through an area on their way to LANL (see Figure 19). To understand the markets for each potential park and ride lot, the number of employees who pass by that lot on their commute and if that lot is closest to their home are taken into consideration.

For example, Black Mesa Casino is north of the Albuquerque Metro Area on the way to LANL, and roughly 1,561 employees pass through this point, or 12% of total employees. All of those same employees pass by NM 599 lot including 166 additional employees. It is more likely that those passing by Black Mesa Casino would want to board a bus there rather than NM 599, even though they pass by both, because Black Mesa Casino is closer to their home (see Figure 20).

Figure 19 LANL Employee Path of Travel

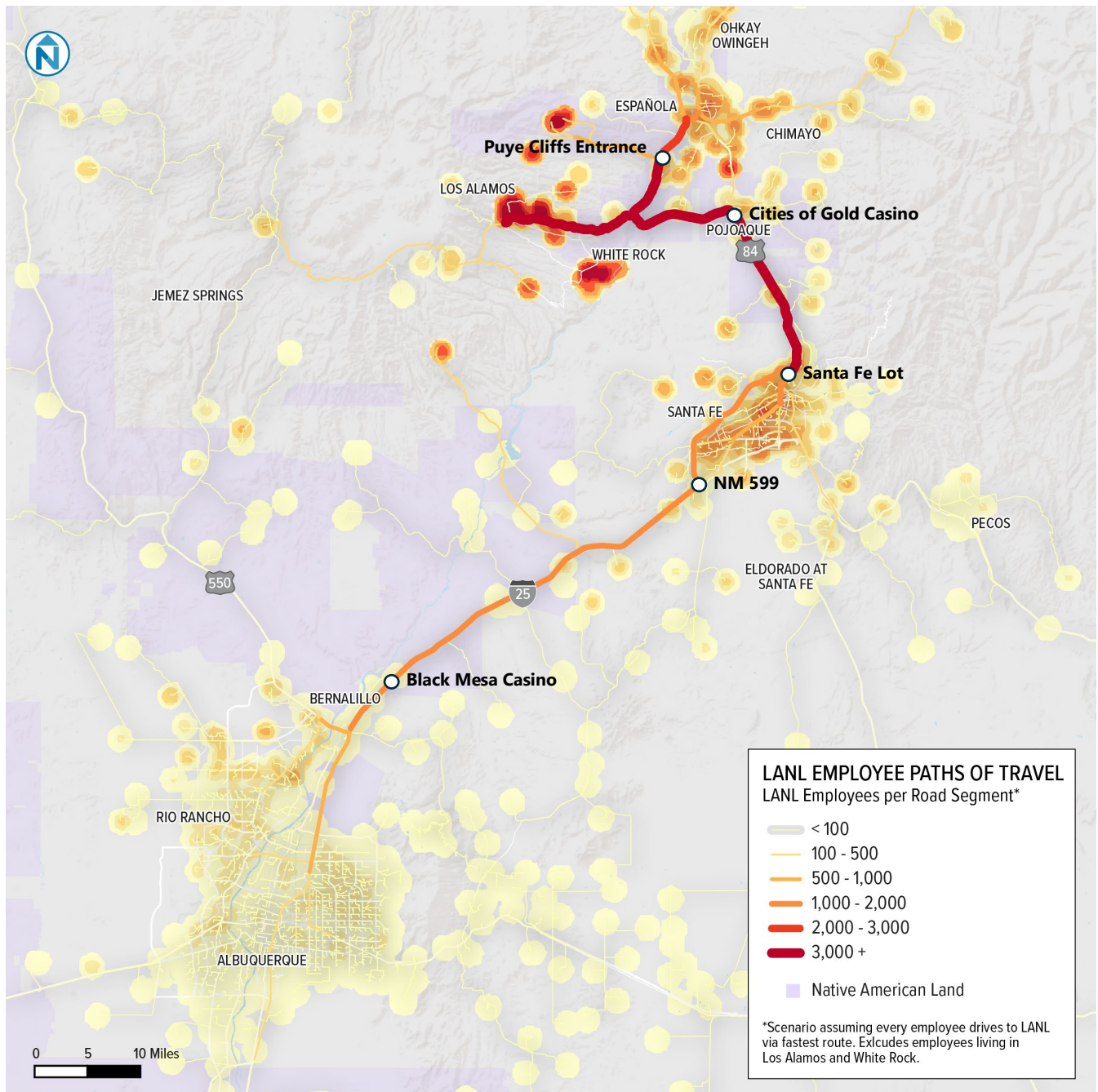
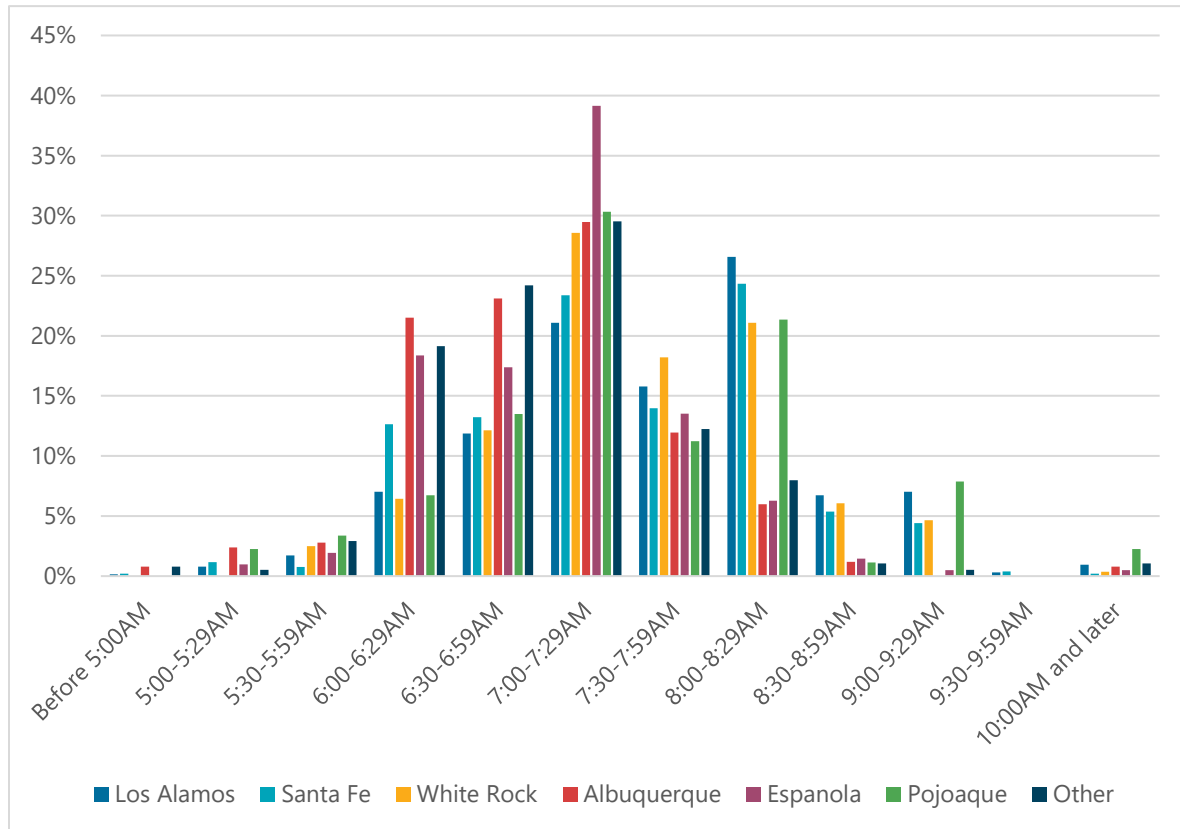


Figure 20 Path of Travel Assigned to Parking Lot/Community

Parking Lot/Community	Area	Cumulative Path of Travel	Path of Travel assigned to Lot/Community	Percentage Assigned to Lot/Community
Black Mesa Casino	ABQ/Rio Rancho	1,561	1,561	12%
NM 599	Santa Fe	1,727	166	1%
Santa Fe Lot	Santa Fe	4,243	2,516	19%
Cities of Gold Casino	Santa Fe/Pojoaque	4,888	645	5%
Puye Cliffs Entrance	Española	3,286	3,286	25%
Los Alamos ZIP	Los Alamos	4,021	4,021	30%
White Rock ZIP	White Rock	1,195	1,195	9%

Puye Cliffs is passed by a quarter of all LANL employees. Many are from the Española area, but some are coming from multiple directions further out. Other areas further away from LANL and toward employee home locations could be explored for park and ride locations, but it is very efficient for a LANL service serving these markets to pick up in Española, particularly closer to LANL like the Puye Cliffs Entrance, since this is where many roadways converge, and many employees pass through.

Figure 21 LANL Employee Start Times by Location

Ninety-nine percent of employees have a scheduled start time between 5:30 am and 9:29 am (see Figure 21). Eighty-eight percent have a scheduled start time between 6:00 am and 8:29 am. LANL service should match up to these start times as closely as possible.

Employee origin areas have different patterns of shift start times. Most employees from the Albuquerque area start work between 6:00 am and 7:29 am, while Los Alamos employees are more likely to start between 7:00 am and 8:29 am. Start times are also earlier in the Pajarito Corridor than they are in TA-3 (see Figure 22 and Figure 23).

Over 50% of LANL employees do not work any given Friday. This allows for service frequency to be less on Fridays than on all other weekdays.

Figure 22 Employee Start Time in the Pajarito Corridor

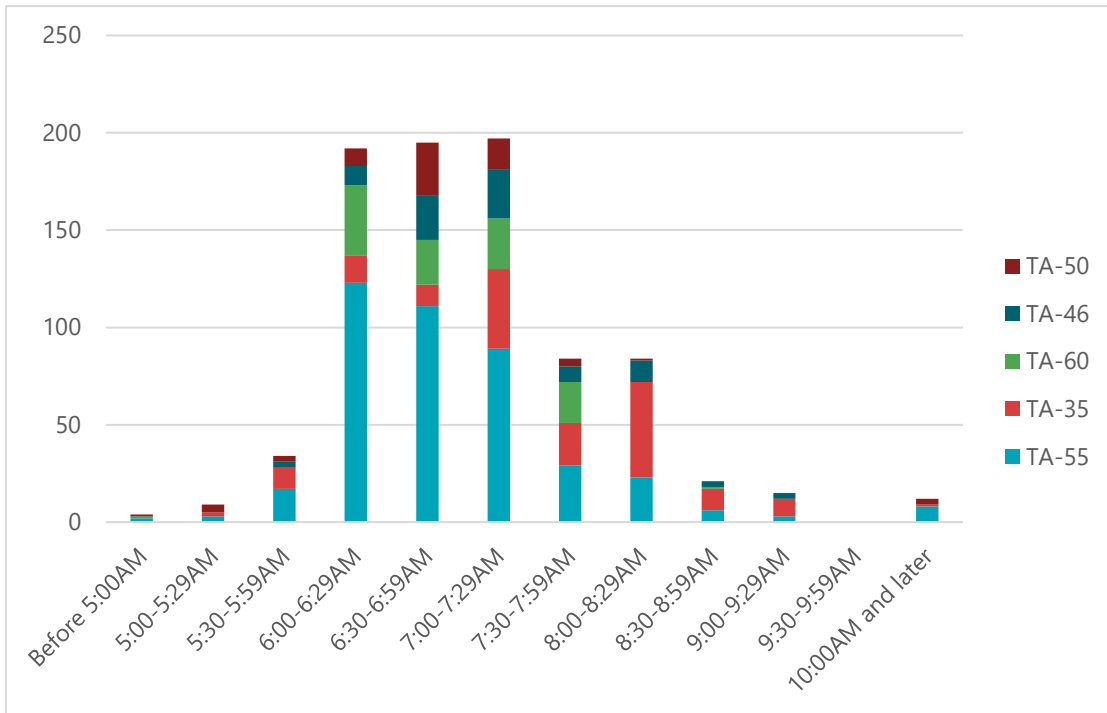
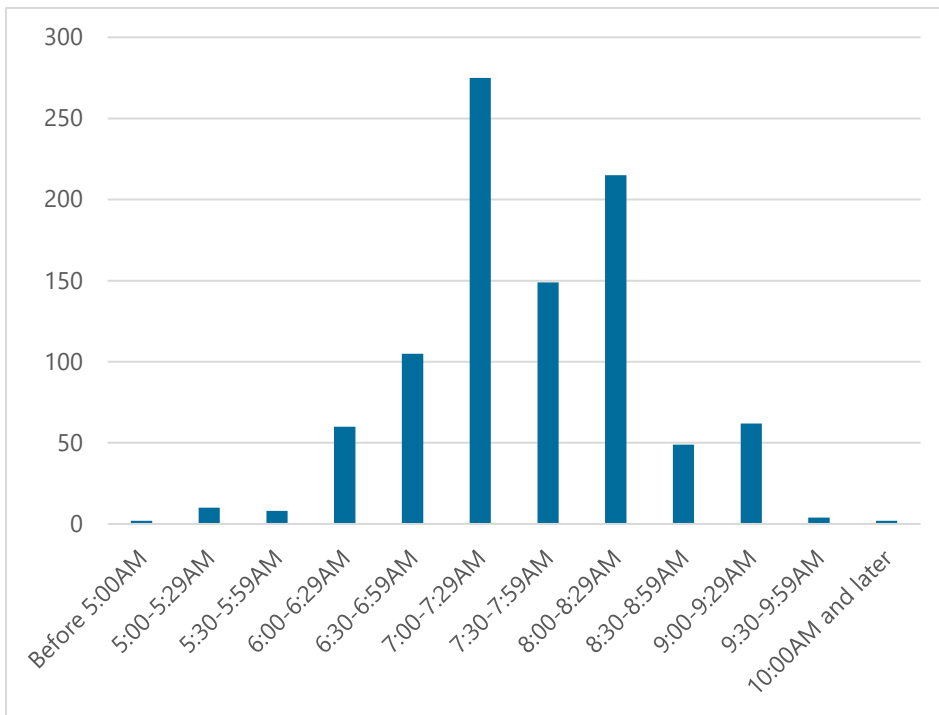


Figure 23 Employee Start Time in TA-3



LANL LONG-DISTANCE SHUTTLES

Figure 25 shows an example of potential alignments and park and ride locations for the long-distance shuttles serving Española, Pojoaque, Santa Fe, and Albuquerque/Rio Rancho. Many more park and ride locations could be served depending on future partnerships. In addition, additional stops in the Pajarito Corridor could be added at TA-46 and TA-51 as needed.

Because the vast majority of those assumed to take transit work in the Pajarito Corridor or TA-3, the LANL shuttles will only serve these areas. This removes the need to stop at the Transit Center, and the shuttles will move right through the vehicle access portal to TA-3. For this reason, all of those employees working at other sites will need to take public transportation and transfer at the Transit Center to a LANL internal shuttle.

Schedules

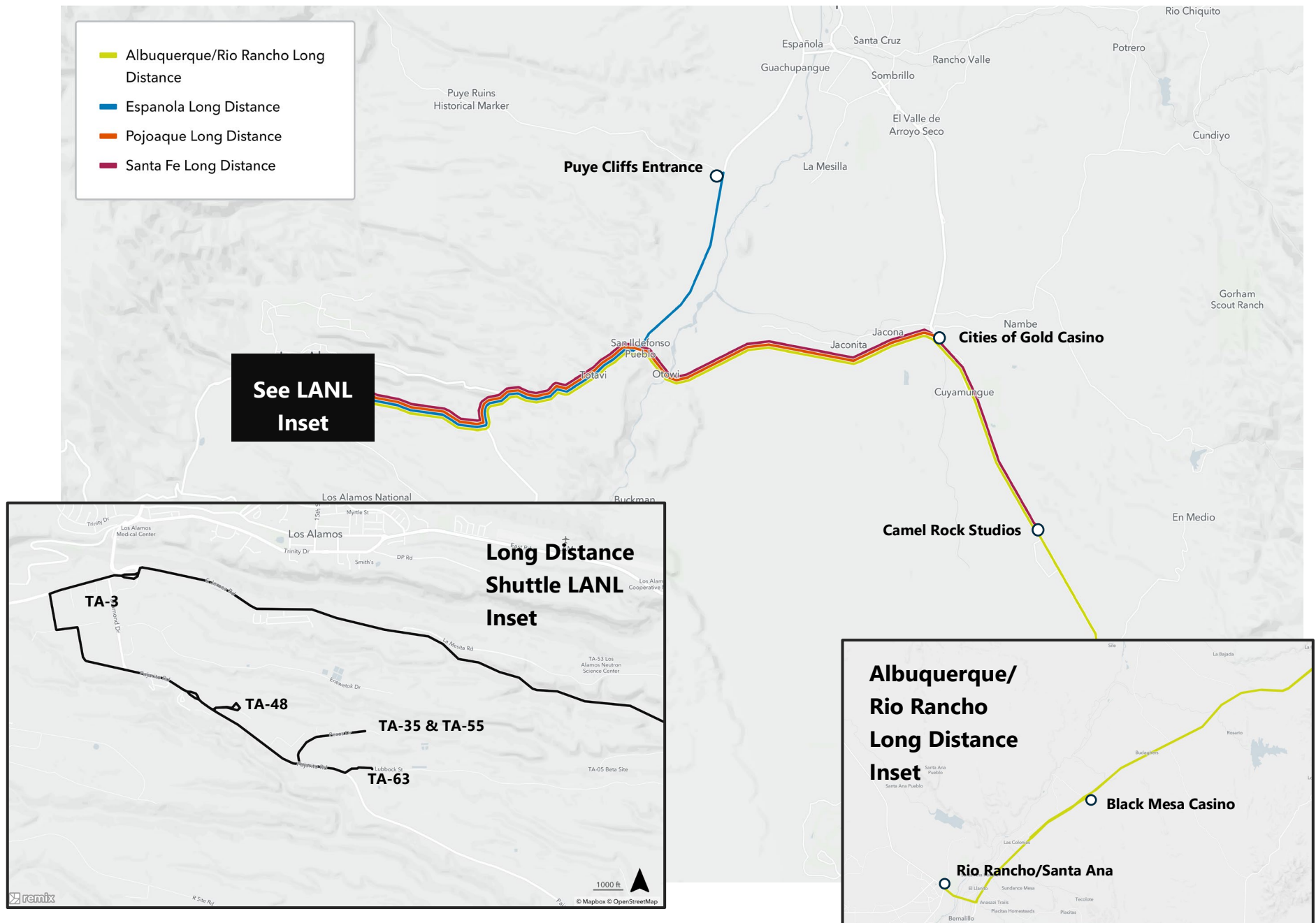
In order to provide flexibility for those who need to travel home or to work during the middle of the day, LANL should provide hourly service back to each park and ride it serves. A smaller vehicle should be used for this service if possible, but may need to be the same vehicle as the peak period LANL Long-Distance Shuttles. Because these vehicles are not expected to have very many riders, the following areas could be served by one trip:

- Pojoaque, Santa Fe, Albuquerque/Rio Rancho
 - An option for midday service in Santa Fe to serve the LANL office sites there should be explored
- Española

Figure 24 Long Distance Shuttle Frequency

Time Period	Monday – Thursday Frequency	Friday Frequency
AM Peak 5:30 am – 8:59 am	Less than every 15 mins	30 mins
Midday 9:00 am - 3:59 pm	60 mins	60 mins
PM Peak 4:00 pm – 6:30 pm	Less than every 15 minutes	30 mins

Figure 25 LANL Long Distance Shuttles



Vehicle Needs

It's assumed that all vehicles needed for long distance shuttles serving areas outside of Los Alamos County are 50-passenger coaches. This requires a minimum of 32 operating 50-seat buses during peak periods. Serving 100 vehicle trips each peak period could require as many as 40 operating buses if buses make fewer trips, for instance if more vehicles only make one trip per peak period because service is more heavily oriented toward the Albuquerque area (see Figure 26). Providing service at this level will require spare vehicles because inevitably vehicles will have maintenance issues and not all be able to be in service at a time.

Figure 26 Vehicle Needs for LANL Long-Distance Service

	Buses in Service During Peak Periods	Spare (15%)	Total
Minimum	32	5	37
Maximum	40	6	46

Layover Space

Long-distance shuttles will be able to layover at any of the transit facilities being built in TA-48, TA-35, TA-55, or TA-63. Because the long-distance shuttles do not interact with the Transit Center, no layover space will be required there for long-distance shuttles.

Ideally, layover space will be identified at the starting locations for each long-distance route, especially those serving the Albuquerque metro area. Partnering with Sandia Laboratory, ABQ Ride, Rio Metro, or the sites identified for park and ride lots like Black Mesa Casino could provide secure facilities for buses to park overnight and on weekends.

HYBRID SHUTTLES

The White Rock Shuttle and the Los Alamos Shuttle are referred to as hybrid shuttles because they serve the dual purpose of connecting residents to their work site, as well as operating as an internal shuttle to connect areas of the Laboratory to one another, including townsite locations in Los Alamos and White Rock.

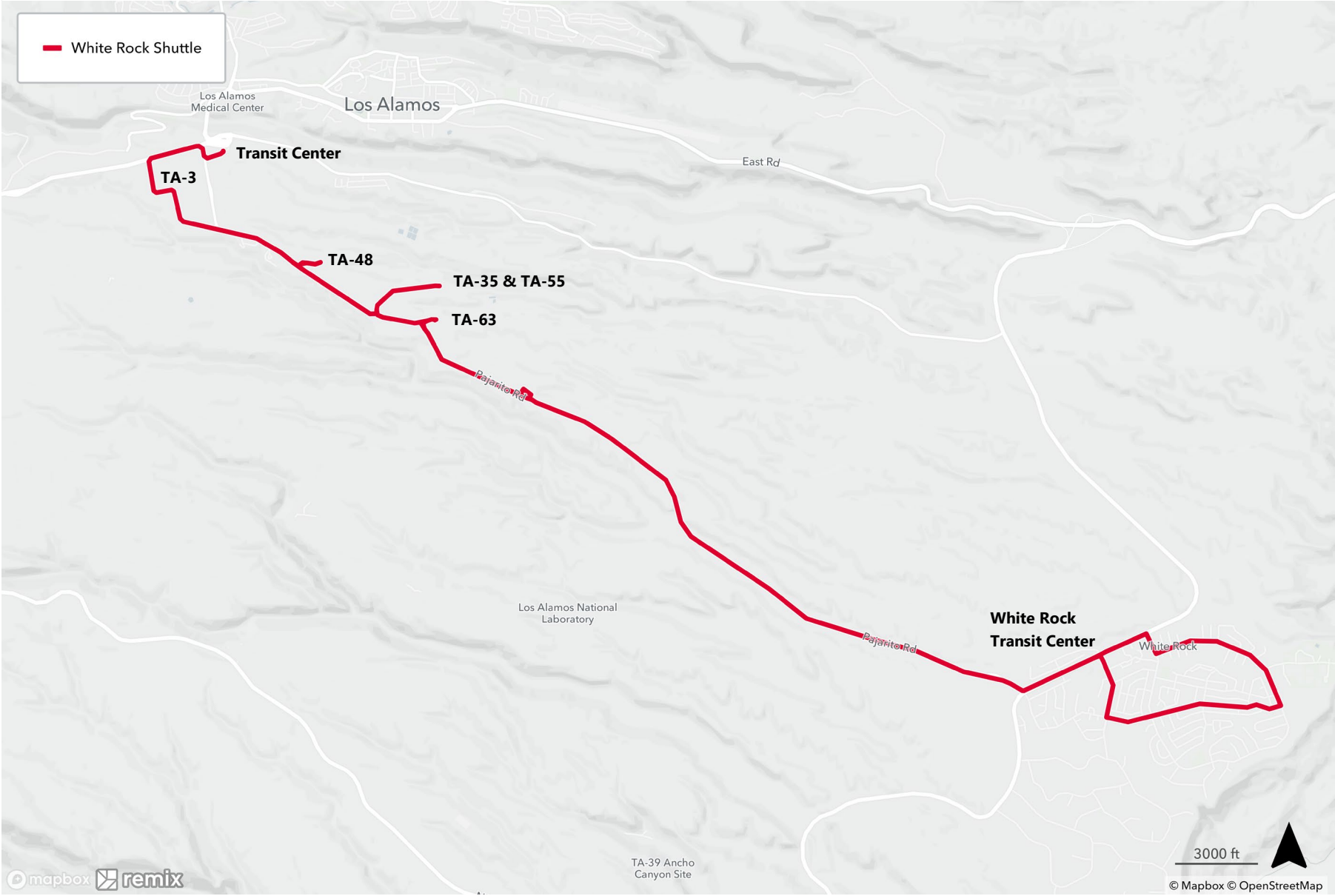
White Rock Shuttle

White Rock currently houses approximately 1,200 LANL employees, 41% of whom work at TA-3 and 20% of whom work in the Pajarito Corridor (however this number is expected to grow as the Pajarito Corridor grows). White Rock is a small, fairly dense community that lies

in close proximity to the southern gate of the Laboratory. Today, to take public transit to LANL from White Rock is very indirect and time consuming compared to driving. To take transit, an employee must get on ACT and travel to the Transit Center at TA-3 via Los Alamos, and then board the LANL Taxi to their office. Traveling from White Rock through the Pajarito Corridor is much more direct. Because the White Rock Shuttle would be operated by LANL and for LANL employees only, it can operate on the Pajarito Corridor. This will make the service much more time competitive with driving than ACT service.

The LANL White Rock shuttle does a loop around White Rock and stops at the White Rock Transit Center before heading into the southern gate and serving the Pajarito Corridor and TA-3 before connecting into the Transit Center (see Figure 27). The benefits of the White Rock Shuttle are that most White Rock residents are within walking distance of this service. This removes the necessity to find a place for these employees to park since they can leave their vehicle at home.

Figure 27 White Rock Shuttle



While the White Rock Shuttle serves as a connection to transport White Rock residents to work, it also serves a secondary purpose as an internal shuttle to connect the Transit Center, TA-3, and parts of the Pajarito Corridor to one another. This is why the White Rock Shuttle is a hybrid between an internal shuttle and a long-distance shuttle; it moves people directly from home to their office, and also moves employees within LANL. It also serves as a connection to the LANL training center in White Rock.

Pilot

LANL is currently moving toward piloting the White Rock Shuttle. The pilot will only have one stop at the LANL Training Facility. The pilot also will not travel all the way into TA-3, but just serve the Pajarito Corridor. Over the coming years, this route will expand to serve more areas in White Rock and travel along the Pajarito Corridor and into TA-3.

Schedules

At full build out, there should be 4 vehicles in constant rotation during peak periods that will complete 5 trips each for a total of 20 trips serving White Rock during each peak period. The approximate frequency is as follows:

Figure 28 White Rock Shuttle Frequency

Time Period	Monday – Thursday Frequency	Friday Frequency
AM Peak 5:30 am – 8:59 am	10-12 mins	30 mins
Midday 9:00 am - 3:59 pm	60 mins	60 mins
PM Peak 4:00 pm – 6:30 pm	10-12 mins	30 mins

Once the new NCRD Route 401 is implemented, the White Rock shuttle should be timed to depart the White Rock Transit Center within a few minutes of the new route to facilitate transfers for people traveling from Española to LANL.

Vehicle Needs

Because the White Rock Shuttle is making shorter distance trips and also serving as an on-site shuttle, the vehicles do not need to be 50 passenger coaches. The White Rock Shuttle could be served by the following vehicles already in LANL's inventory, however LANL will

need to determine exactly how they will allocate resources based on needs and available inventory at that time:

- 36 passenger vehicle
- 44 passenger vehicle
- 36 passenger vehicle
- 28 passenger vehicle – Peak periods only, used for Los Alamos Shuttle during Lunch
- 28 passenger vehicle – Peak periods only, used for Los Alamos Shuttle during Lunch
- 37 passenger vehicle (Hydrogen bus on order) – Peak periods only, used for Los Alamos Shuttle during Lunch

Los Alamos Shuttle

Several important townsite LANL locations are in Downtown Los Alamos, including the Badge Office, the Canyon Road Complex, and the NET Academy. Downtown Los Alamos also has some of the densest residential development in the county. This alignment will also serve the Mari Mac site, which is planned for high-density residential and commercial development. The Los Alamos Shuttle, similar to the White Rock Shuttle, is a hybrid shuttle to both connect residents of Los Alamos into offices at TA-3 and along the Pajarito Corridor, and also connect employees to other areas of the Laboratory (see Figure 30).

Schedules

At full build out, the shuttle will have 30-minute frequency for most of the day. This shuttle will also serve as a lunch shuttle between 11:00 am-1:30 pm, which will be a frequent service.

Figure 29 Los Alamos Shuttle Frequency

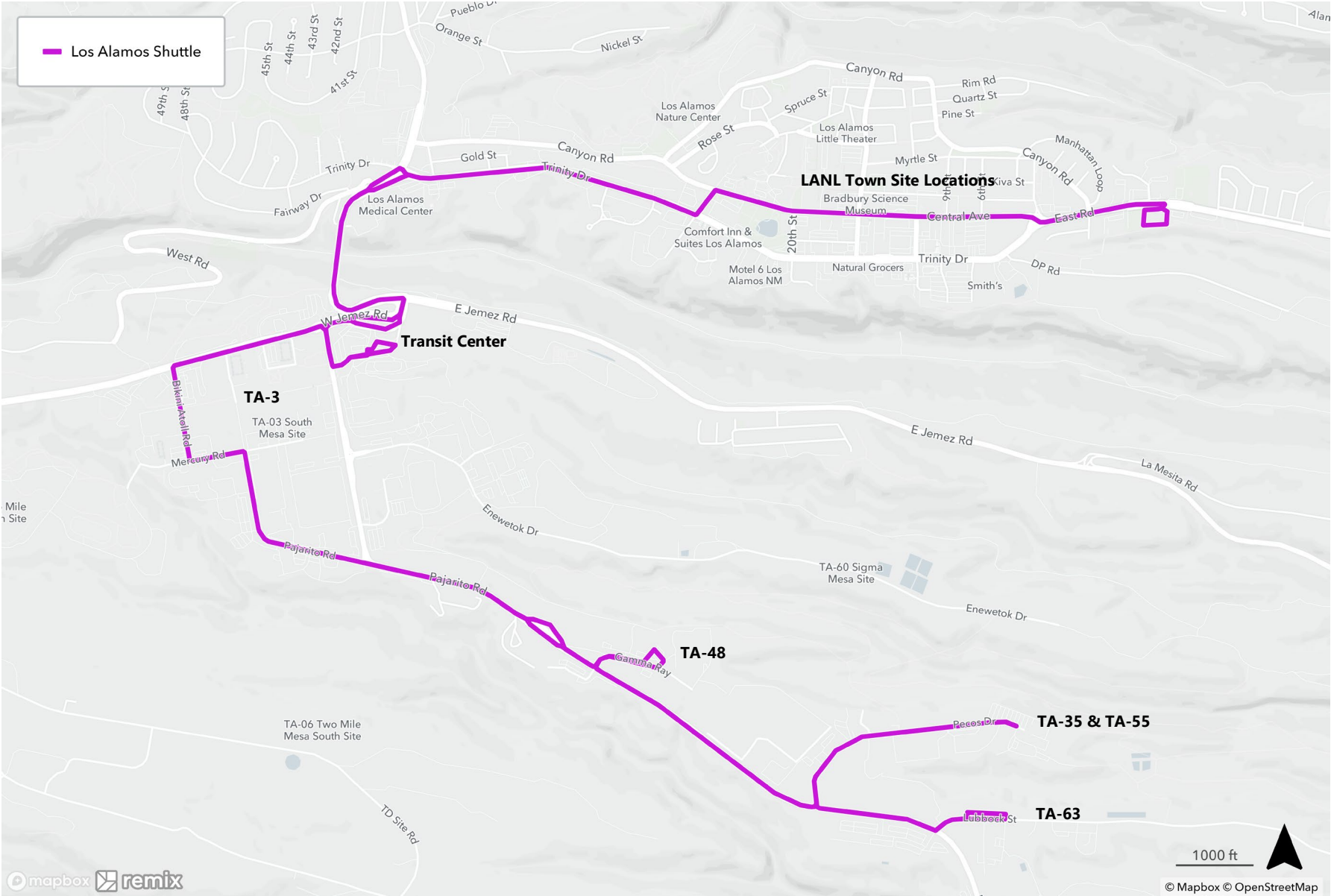
Time Period	Monday – Thursday Frequency	Friday Frequency
5:30 am – 10:59 am	30 mins	30 mins
11:00 am - 1:29 pm (Lunch Shuttle)	15 mins	30 mins
1:30 pm – 6:30 pm	30 mins	30 mins

Vehicle Needs

The following vehicles could be used that LANL already owns, however LANL will need to determine exactly how they will allocate resources based on needs and available inventory at that time:

- Three 28 passenger vehicles, two of which LANL just received, one of which is part of a larger order of new vehicles yet to be received
- 28 passenger vehicle – Lunch time only, used for White Rock Shuttle during peak periods
- 28 passenger vehicle – Lunch time only, used for White Rock Shuttle during peak periods
- 37 passenger vehicle – Lunch time only, used for White Rock Shuttle during peak periods

Figure 30 Los Alamos Shuttle



IMPLEMENTATION

The following table explains the dynamics of serving each service area, and how the amount of transit service provided should relate to the total market share for LANL employees.

Area	Employees with Home Location in Area	Percentage of LANL-Run Transit Service Recommended to Area	Reason/Notes for Service Range Compared to Home Location Proportion
Albuquerque/Rio Rancho	12%	15-20%	Employees from this area have the most to gain financially from transit service since they commute the farthest resulting in a strong market. Additionally, the existing service now requires most riders to transfer from the Rail Runner, resulting in a very lengthy round trip. There are also multiple willing partners to provide parking in this area, making implementation more viable. For these reasons, providing up to 20% of LANL service could be worthwhile. However, a single vehicle cannot make two trips into LANL within the commute window, so offering service to this area is less efficient per passenger for LANL than serving other areas.

Santa Fe/Pojoaque	25%	25-45%	Santa Fe and Pojoaque areas house a quarter of total LANL employees, in addition to being a pass-through point for those coming from the Albuquerque area. Commuters from these areas can also save hundreds of dollars a month by not commuting in a private vehicle. Service here depends on finding parking capacity in the Santa Fe Area. The more total employees who have to drive to Pojoaque, the less attractive this service may be.
Española/Northeastern Commute Shed	24%	15-25%	While commuters coming from and passing through the Española area can also save heavily on commuting expenses, commuters coming from these locations are more spread out and may find the service less appealing. Finding parking for these services may also be more challenging in the Española Area.
Los Alamos	30%	0-15%	Los Alamos is well-served by Atomic City Transit for many commuters. LANL could choose to run early morning service for those arriving before ACT is running. The LANL-run Los Alamos Shuttle will also provide service to residents in Downtown Los Alamos. Los Alamos has the least competitive market for LANL transit because commuters have less of a financial incentive to give up driving their personal vehicle, and neighborhoods in Los Alamos are spread far apart from one another, making service less efficient than in White Rock.

White Rock	9%	8-15%	White Rock is currently served by ACT, but is very time uncompetitive with driving alone. The White Rock Shuttle can efficiently and quickly serve most people within White Rock in a comfortable walk/biking distance and travel up the Pajarito Corridor, which public service cannot do. This service will be very attractive because of its convenience, especially for those struggling with parking. This service is also so close to LANL that many round trips are possible with a vehicle, making the cost investment per passenger much less for LANL in this area.
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Implementation Timeline

Figure 31 LANL Operated Peak Period Vehicle Trips by Area Added by Fiscal Year

	Los Alamos	White Rock	Espanola	ABQ/Rio Rancho	Pojoaque	Santa Fe	Total
2024	2	5	1	4	3	4	19
2025	2	5	2	4	4	5	22
2026	2	5	3	4	3	5	22
2027	2	5	4	3	3	5	22
2028	1	0	5	1	4	4	15
Total	9	20	15	16	17	23	100

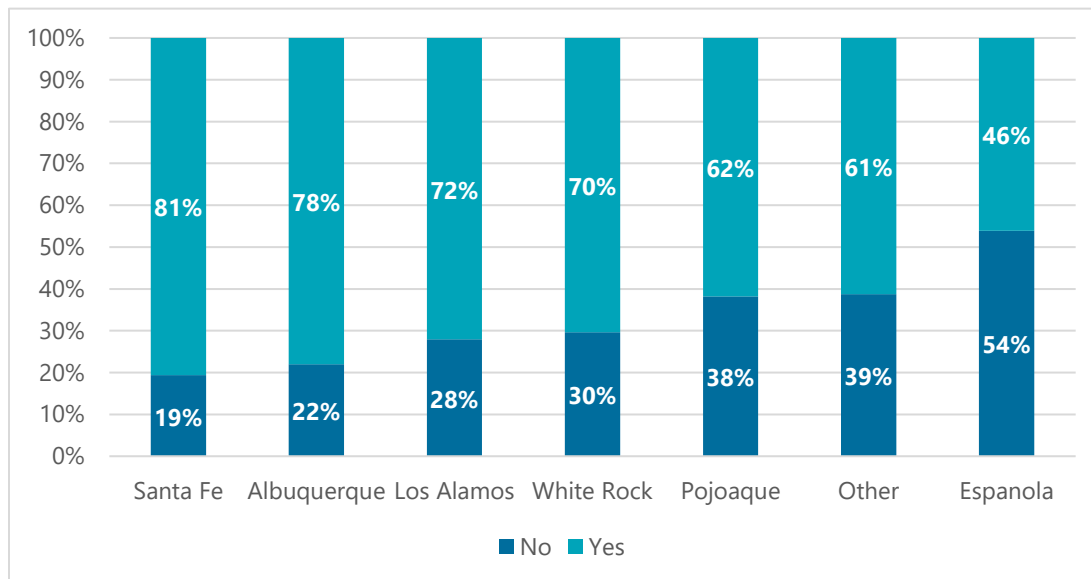
The full build out is 100 LANL-run vehicle trips during the AM peak and the PM peak on Monday through Thursday. For steady implementation for FY 2024-2028, this results in about 20 vehicle trips added every year on average. Because over 50% of the LANL workforce does not work on any given Friday, 50 vehicle trips or fewer during peak periods could be run on Fridays.

In 2024, LANL has the following plans already in place:

- Continue running the Cities of Gold Pojoaque Express Pilot, which serves four round trips a day to the Pajarito Corridor and has been experiencing steady ridership growth since its implementation
- Run two round trips from Black Mesa Casino serving the Albuquerque area. These same vehicles will then serve an additional Pojoaque trip each.
- Pilot the White Rock Shuttle. This shuttle will just serve two stops in White Rock and only connect to the Pajarito Corridor to start.

While the majority of employees overall are willing to try a new commute choice if it works with their schedule, this varies by employee home location. Employees willingness to try a new commute is one way to prioritize where to focus initial shuttle service (see Figure 29). Focusing service on Santa Fe, Albuquerque, and White Rock, will result in higher levels of initial interest and hopefully ridership. However, employees from all regions will need to use alternative commute mode. Engaging particularly with employees from Española will be important to learn why more than half are unwilling to try a new mode.

Figure 32 Employee Willingness to Try New Commute by Area



The full build out will provide a very convenient service for all of the employees with access to the LANL shuttle service. With the exception of Los Alamos, all areas will have a LANL shuttle arriving less than every 15 minutes, which is considered to be frequent service. Service this frequent means employees can travel spontaneously, and that having trouble getting out the door on time means they don't have to wait for more than a few minutes to catch the next shuttle.

LANL ON-SITE SHUTTLES

On-site shuttles bring people from the Los Alamos Transit Center to their final work locations, and also bring staff between different technical areas on the main LANL campus. The proposed on-site shuttle network discussed in this section replaces the existing LANL Taxi services.

Route Alignments

In addition to the Los Alamos and White Rock shuttles discussed earlier (which also run internally on LANL property), five routes are proposed from the Transit Center, as shown in Figure 33.

- TA-3 Circulator
- Pajarito Corridor Shuttle, serving Tas 35, 55, 48, and 63
- TA-53 Shuttle
- S-Site Shuttle
- On-Demand Shuttle, serving the rest of the Tas not served by the other four shuttles

These routes are designed to connect people riding public transit services—namely NMDOT Park and Ride and Atomic City Transit—to their technical areas. During the middle of the day, the Los Alamos and White Rock shuttles will continue to operate, providing internal LANL connections between and within TA-3 and the Pajarito Corridor (Figure 34).

Schedules

The five internal shuttles are scheduled to run approximately from 6:00am to 9:00am in the mornings and from 3:00pm to 6:30pm in the evenings, with exact times coordinated with the schedules of NMDOT Park and Ride routes and the Atomic City Transit pulse. Figure 35 shows the estimated number of employees that could arrive at the Transit Center during a given time period, based on the ACT and NMDOT scheduled arrival times, with buses assumed to eventually be 70% full. These scheduled arrival times are spaced out approximately every half hour, so LANL should have a series of internal shuttles that meet these public transit buses roughly every half hour to bring people to their technical areas.

Figure 33 LANL Internal & Hybrid Shuttles – Peak Periods

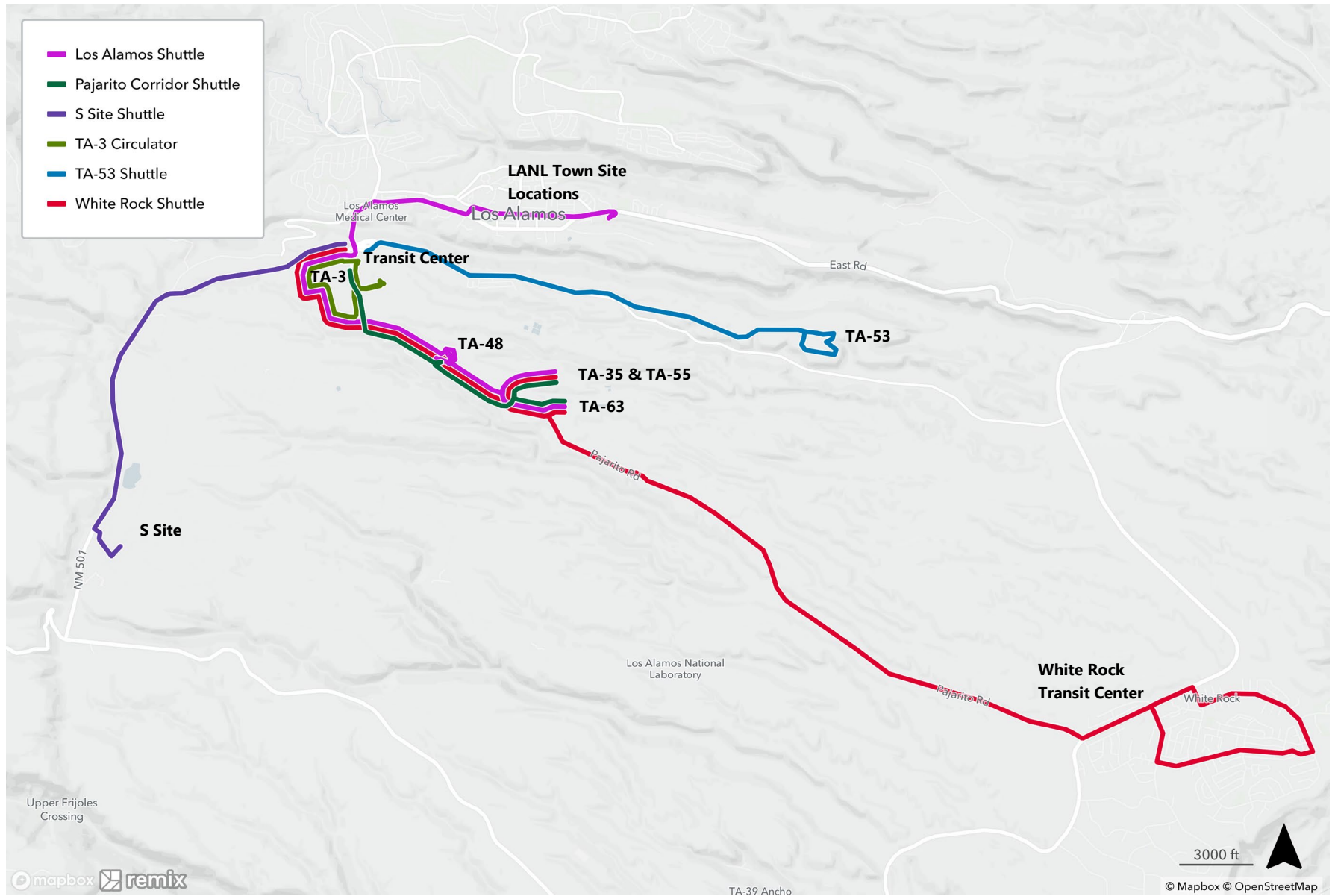
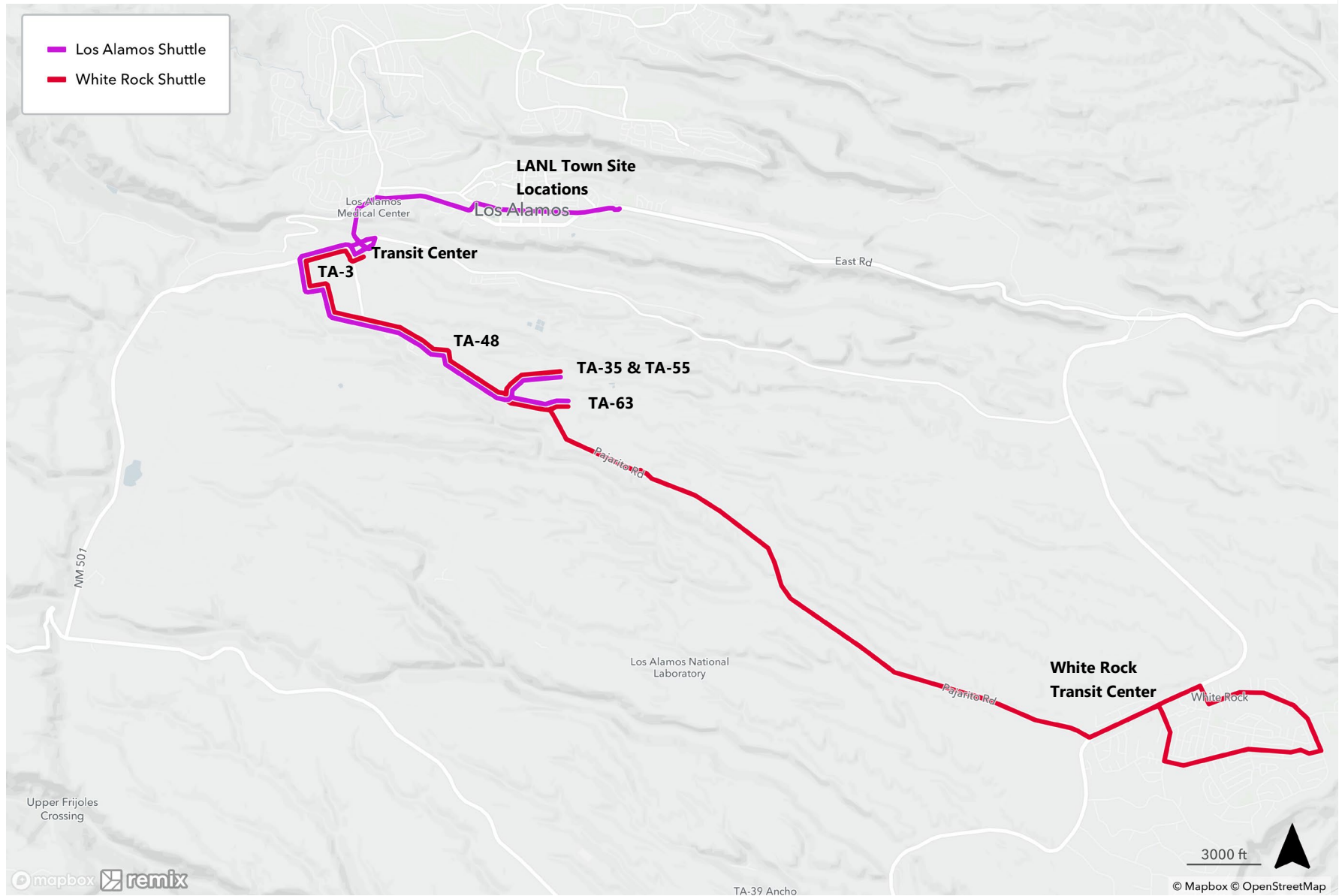


Figure 34 LANL Internal & Hybrid Shuttles - Midday



Many of the TA-3 and Pajarito Corridor employees arriving during each of these time periods can take the White Rock Hybrid Shuttle, which will run every 10 to 12 minutes between the Transit Center and White Rock, via TA-3 and the Pajarito Corridor. Figure 35 shows the additional shuttles that would be needed on top of the White Rock Hybrid Shuttle in order to connect the estimated number of employees to the technical areas. These shuttles are assumed to seat fifteen people, with at least one shuttle on each of the routes per time period (two for on-demand to guarantee adequate coverage). TA-3 and Pajarito Corridor need additional shuttles to meet the greater number of people going to these TAs.

Figure 35 Internal Shuttles and Public Transit Arrival Times

Public Transit Arrival Time at LANL	Estimated Employees Arriving	Number of Shuttles Waiting at Transit Center				
		TA-3	Pajarito Corridor	TA-53	S-Site	On-Demand
6:11-6:12 AM	70	1	2	1	1	2
6:20-6:30 AM	225	3	8	1	1	2
6:55-7:02 AM	201	2	6	1	1	2
7:22-7:30 AM	190	2	5	1	1	2
7:50-8:03 AM	166	1	5	1	1	2
8:25-8:31 AM	155	1	4	1	1	2
8:42 AM	35	1	1	1	1	2
8:55 AM	96	1	3	1	1	2

Operating Characteristics and Vehicle Needs

As shown in Figure 36, each of the five internal shuttle routes have different estimated roundtrip running times, based on their roundtrip distance and the average speeds on each corridor. The TA-3, TA-53, and S-Site shuttles can run one cycle in under 30 minutes, which means that they are able to come back to the transit center to pick up new passengers during each of the peak time periods listed in Figure 35. The Pajarito Corridor shuttle, however, takes over 30 minutes to run, which means that each vehicle can only pick up passengers every other time period, and double the vehicles are needed.

Figure 36 Internal Shuttles Operating Characteristics

	TA-3	Pajarito Corridor	TA-53	S-Site	On-Demand
Roundtrip Distance (miles)	2.7	8.3	8.9	8.3	N/A
Average Speed (MPH)	13.2	13.2	20.0	20.0	15.0
Minimum Cycle Time (min)	12	37	27	25	N/A

When ridership increases to the full expected amount, the project team estimates that 21 fifteen-passenger vehicles (or larger) will be needed to serve everyone coming in on public transit, with three vehicles assigned to TA-3, 14 to the Pajarito Corridor, one to TA-53, 1 to S-Site, and two to on-demand (Figure 37). Larger, 25 or 30-passenger vehicles can also be used for TA-3 and the Pajarito Corridor, to decrease the number of vehicles and drivers needed. It may also increase passenger comfort and minimize the requirement to wait for the next vehicle.

Today, LANL either owns or has on order 18 fifteen-passenger shuttles, six 28-passenger vehicles, two 26-passenger vehicles, and 3 20-passenger vehicles that are not identified for use in the hybrid shuttles. These 29 vehicles can meet the need for all internal shuttles while also providing spares. When obtaining additional vehicles, it is recommended to fill the gap with larger vehicles so that fewer vehicles need purchasing and fewer operators are required.

This study did not explore the needs of protocol service. Protocol offers shuttle service to outside individuals and groups moving around LANL campus. This service also needs to be considered for number of vehicles, operators, and facilities.

With so many internal and hybrid shuttles serving the Transit Center in short periods, the Los Alamos Transit Center located on LANL property adjacent to TA-3 will need to be expanded. The existing facilities and the expansion would provide adequate boarding space for this level of service.

Implementation Schedule

These internal shuttles are designed to bring public transit riders to their work areas, and thus the number of shuttles deployed can scale up as public transit ridership increases. As shown in Figure 37, LANL can start implementing this new internal shuttle network with fewer vehicles. LANL should work with NMDOT and ACT to continue to monitor public transit ridership, to determine when additional or larger vehicles may be needed on a route.

Figure 37 Internal Shuttles Vehicles Roll Out

	TA-3	Pajarito Corridor	TA-53	S-Site	On-Demand	Total Internal Shuttle Vehicles
Near Term	1	6	1	1	2	11
Full Build Out	3	14	1	1	2	21

IMPLEMENTATION CHALLENGES

Operator Shortage

Nationally, transit providers are experiencing an operator shortage. This plan calls for increasing both public transit operators and LANL transit operators. Without operators, this plan cannot be implemented. There are several strategies LANL and its partners can pursue:

- **Pay competitive salaries** – Transit operators used to live a solidly middle-class lifestyle, but most operator salaries have not kept pace with cost of living. Paying an attractive wage from the get-go, with opportunity for raises and other types of advancement, can help attract workers.
- **Work hours and scheduling** – Split-shifts and mandated overtime make it very difficult for operators to maintain a work-life balance. Unattractive schedules like this are often assigned to newer operators, causing them to leave the job. Scheduling appealing shifts with regular work weeks can help attract operators.
- **Facilities** – Making sure operators have clean bathrooms, comfortable break rooms, and access to water and food is vital to attracting employees and showing them the respect they deserve. Lack of bathrooms along routes is particularly troublesome for women and contributes to the large gender gap in transit operators.
- **Focus on carpooling/vanpooling.** This plan reviews where and when LANL employees are traveling to and from, which can also be used to match employees in carpools and vanpools. Carpool and vanpool drivers are employees themselves, and do not need to be paid additional salaries. They also provide their own vehicles or get them through the state program. Focusing on incentivizing employees to carpool and vanpool can relieve the need for LANL-run Long Distance Shuttles, although the internal and hybrid shuttles will still be needed for employees without their own car to travel around LANL and to the training and other facilities in Los Alamos and White Rock.

TRANSIT FACILITIES

PARK AND RIDE LOTS

Employees riding LANL services from Albuquerque, Rio Rancho, Santa Fe, Española, and Pojoaque are all expected to drive alone to park and board the LANL Long-Distance Shuttles. At full build out, that will require a total of 2,485 total parking spots. While LANL has secured 200 spots at Cities of Gold Casino and is in conversation with several other parking lot owners in the Albuquerque metro area, many other parking spots will need to be identified (see Figure 38).

Figure 38 Park and Ride Parking Spot Needs

Area	Total Parking Spots Needed	Identified/Potential Lots
ABQ/Rio Rancho	560	▪ Black Mesa Casino/San Felipe lot already identified ▪ Potential Municipal Lot in Rio Rancho ▪ Potential Santa Ana Lot
Española	560	▪ Developing a lot at Puye Cliffs Welcome Center identified as possibility with San Ildefonso Pueblo ▪ Totavi could be developed
Pojoaque	595 (200 identified)	▪ Cities of Gold secure lot already in use for Pojoaque Pilot, 200 spots identified

Santa Fe	805	▪ Possible lots include: - Tesuque Casino - Camel Rock Movie Studio - Unused NM-599 Station Spaces - Unused spaces at the Capitol Building - Santa Fe Place
Total	2,485	-



Santa Fe Place, Wednesday June 21, 2023, Credit: Nearmap

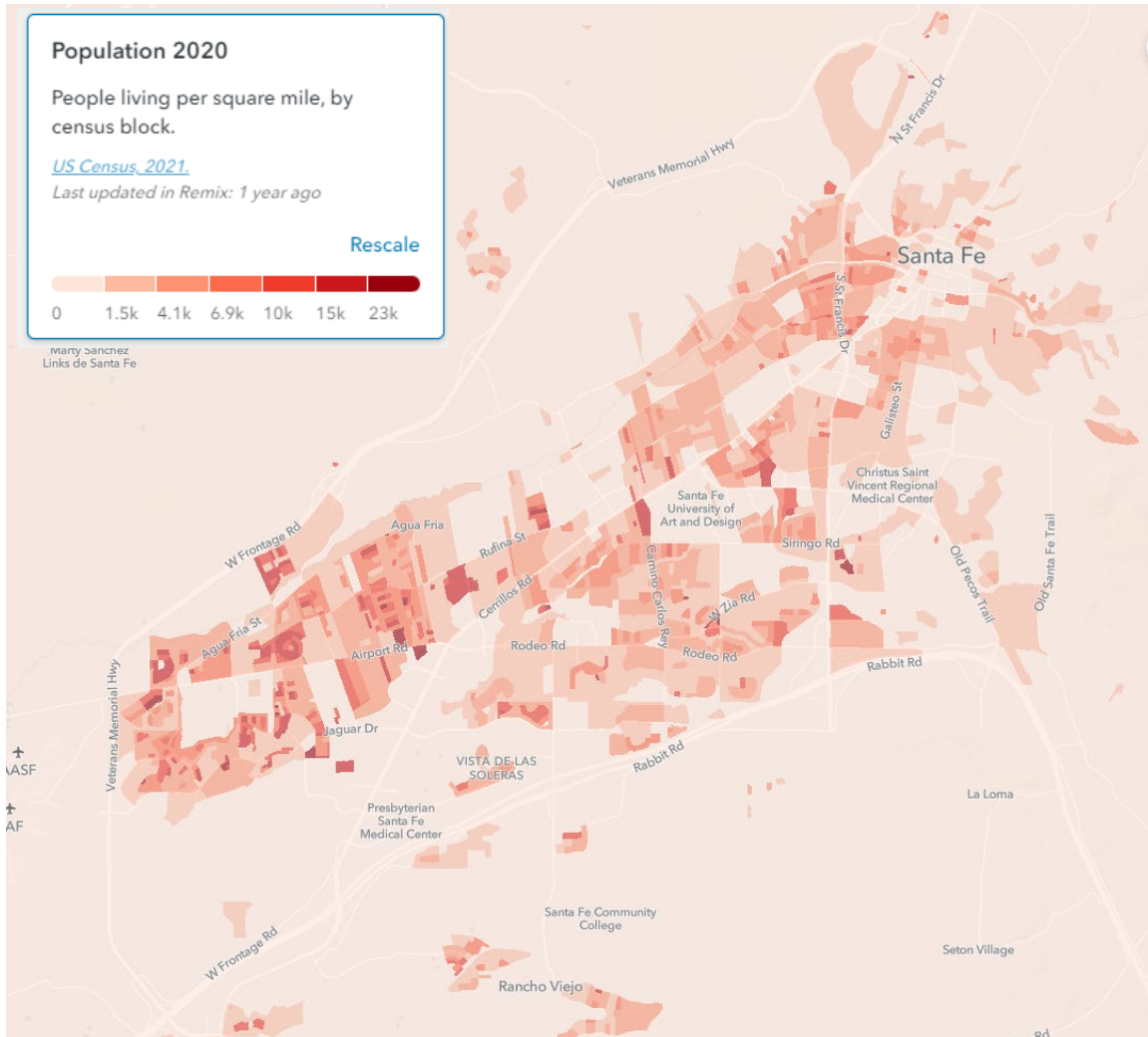
While striking agreements with multiple parties may be difficult, there are many underutilized parking lots that LANL can consider using near commuters' homes. The above aerial taken on June 21, 2023, shows hundreds of unused parking spots at Santa Fe Place. Identifying underused lots is less expensive and has less of an environmental impact than developing new lots.

There are also several ways to decrease the need for park and ride lot capacities:

- Incentivize carpooling to park and ride lots
- Run LANL shuttles through dense parts of each community so employees can walk rather than drive

- For instance, LANL shuttles could serve Airport Road, Cerrillos Road, and St. Francis Drive and hit some of the densest residential areas in the City of Santa Fe on a fairly direct route (see Figure 39).

Figure 39 Santa Fe Population Density



Security at Park and Ride Lots

Security concerns at park and ride lots are on the rise. With cars consistently parked all day, these remote locations can be prime targets for thievery, particularly of catalytic converters in cars. While these incidents are caused by larger societal issues beyond the transportation realm, LANL can employ the following strategies to increase security at park and ride lots:

- Physical barriers – fencing off the lot with automatic gates, preventing anyone without a LANL badge from entering
- Co-locating LANL and public transit services – this would enable easier transfers and more options for riders, as well as make any amenities that LANL builds available to public transit riders
- Siting Park and Rides near busy locations – burglaries are less likely to occur in areas where there are a lot of other people and businesses
- Unarmed patrols – whose presence can deter unwanted incidents

LOS ALAMOS TRANSIT CENTER

The Los Alamos Transit Center is located at the entrance of the LANL campus. Recommended improvements to the amenities and design of the Transit Center will help increase capacity and make the transit experience more comfortable.

Existing Transit Center Issues

The ACT Short-Range Transit Plan listed the following issues with the existing 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 SRTP recommends exploring locations in downtown Los Alamos to site a new transit center. This would not eliminate the need for the public commuter buses to still stop at LANL to drop off. ACT would be looking for a space that has parking for 10 buses, electric charging infrastructure, a large canopy, benches and trash receptacles, passenger information, a utility storage area, and lighting and natural landscaping. It is also possible to satisfy many of these issues through a new design at the existing location.

Potential Draft Expansion Site Design

As LANL expands its internal shuttles and transit agencies continue to add service, the Los Alamos Transit Center will require more capacity and amenities. Figure 41 shows a mockup of a potential new design, built in the lot next to the existing transit center. It has the following amenities:

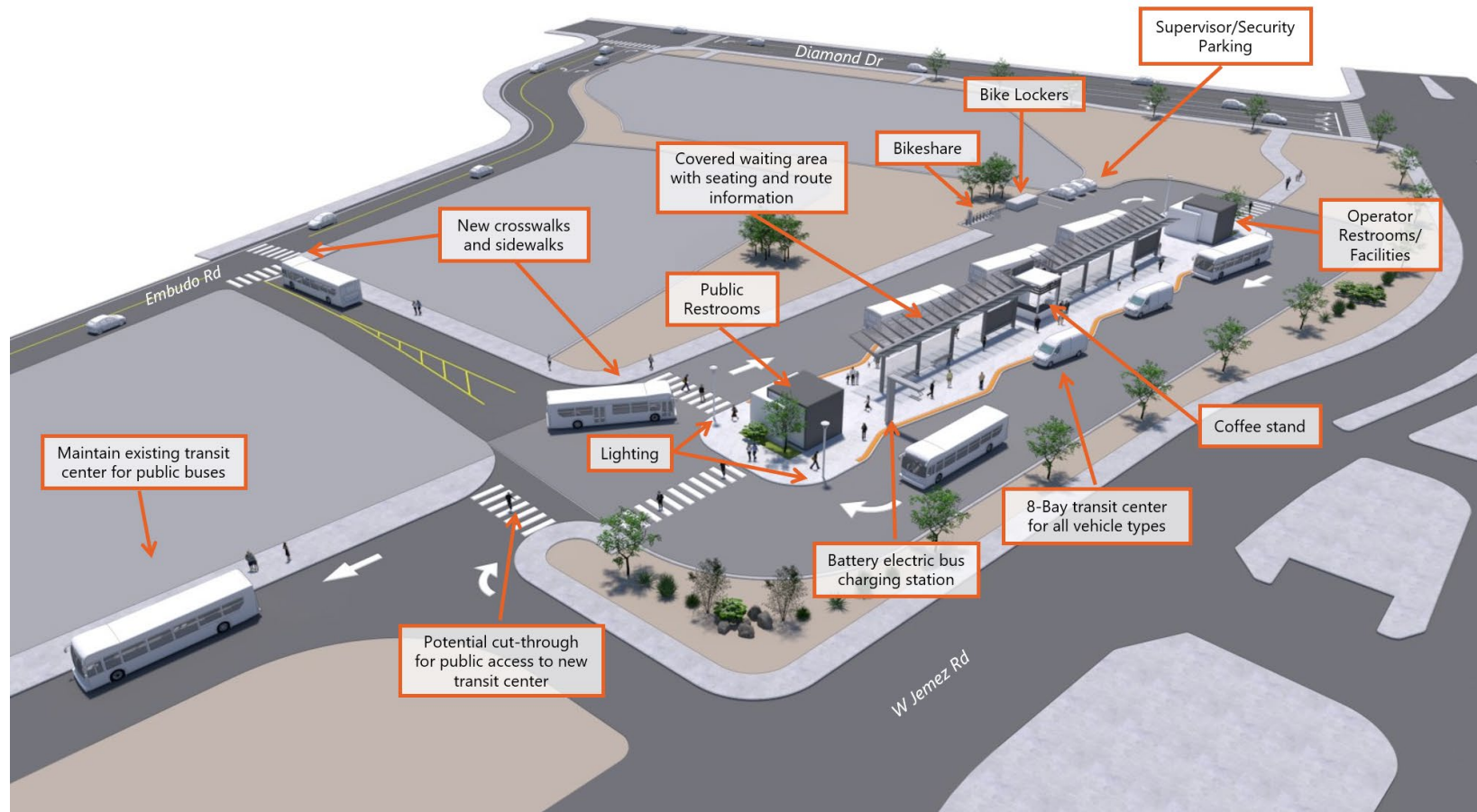
- Eight new bays for vehicles of all sizes, plus a cut through to the existing transit center where existing bays will be maintained
- Covered waiting area with seating and route information
- Public restrooms and operator restrooms/facilities
- Coffee stand or small retail
- Bike lockers and bikeshare
- Battery electric bus charging station
- Parking for supervisors and security personnel
- New crosswalks, sidewalks, and landscaping

Internal LANL vehicles would be able to use the new bays, and public transit vehicles would use the existing bays. As public transit service increases and electrifies, the transit vehicles would also be able to use the new bays and its chargers.

Figure 40 Los Alamos Transit Center



Figure 41 High-Level Design of Potential Expanded Transit Center



WHITE ROCK TRANSIT CENTER

A potential future White Rock Transit Center is a facility where NCRTD buses (and possibly ACT services) will meet the White Rock Shuttle. Based on the service levels discussed in this plan, the capacity of this facility will not need to be very large because NCRTD will serve two trips in each peak period.

The location for this facility has not been determined, however one possibility is locating it at the White Rock Visitor Center. The White Rock Visitor Center is already home to the Bandelier Bus Shelter. Los Alamos County is planning to redo this facility and build standalone restrooms. Food trucks are also planned to operate in the parking lot of the Visitor Center, which will be appealing to those who want to grab coffee or breakfast before boarding the White Rock Shuttle, or those who take the Shuttle to White Rock for lunch.

The stop on the opposite side of the street at SR4 & Sherwood also has a bus shelter and the two are connected by a high-quality pedestrian crossing.

Figure 42 White Rock Visitor Center and Current Bandelier Bus Shelter



Figure 43 SR4 & Sherwood Bus Shelter



Other possible locations for the White Rock Transit Center include:

- The Bonnie View Site (across the street from the Visitor Center)
- The Fire Station also on State Road 4
- Pajarito Road adjacent to the LANL gate

3 SERVICE MARKETING/ COMMUNICATIONS AND LANL PROGRAMING

Education on Travel Options

Communications and publicity are crucial to a successful transportation program, as people who do not know about travel options will not use them. All of the transit services discussed so far work together as a network, with multiple options that employees can use—options that supplement each other rather than compete. Potential strategies for educating employees on the travel options are listed below.

- New Employee Orientation – presenting to new employees can help encourage transit options before they have set a regular commuting routine.
- TA-Specific Meetings – where LANL staff can present options specific to that TA.
- Internal Newsletter – regular updates to keep people reminded about transit options.
- Online Information – an internal website where employees can access all of the information about commuting options. Additionally, pointing employees to the Los Alamos Public Transit Remix Map that will be kept updated on the NCRD website.
- Posters in Common Areas – such as lunch areas, building entrances, and large meeting rooms.

Education on travel options can be refined for specific employee groups based on two criteria: home location and work location. As shown in Figure 23, many employees will have at least two options for traveling between home and work and can choose what works best for their schedules that day. All employees will also have access to the vanpool program, which should be publicized alongside the transit options.

Publicity Materials

Well-designed publicity materials can help convey the travel options to LANL employees. Materials should both highlight the benefits of using alternative commute modes and convey enough details to help people ride transit, without overwhelming people with information. Figure 45 shows an example of the flyer for the Pojoaque Shuttle pilot.

Figure 44 Transit Options by Home and Work Locations

Home/Work	TA-03	Pajarito Corridor	S-Site	TA-53	Other
Los Alamos	- Atomic City Transit > TA-03, White Rock, or Los Alamos Shuttle - Los Alamos Shuttle	- Atomic City Transit > Pajarito Corridor, White Rock, or Los Alamos Shuttle - Los Alamos Shuttle	- Atomic City Transit > S-Site Shuttle - Los Alamos Shuttle to S-Site Shuttle	- Atomic City Transit > TA-53 Shuttle - Los Alamos Shuttle to TA-53 Shuttle	- Atomic City Transit > On Demand Shuttle - Los Alamos Shuttle > On Demand Shuttle
White Rock	- Atomic City Transit > TA-03, White Rock, or Los Alamos Shuttle - White Rock Shuttle	- Atomic City Transit > Pajarito Corridor, White Rock, or Los Alamos Shuttle - White Rock Shuttle	- Atomic City Transit > S-Site Shuttle - White Rock Shuttle > S-Site Shuttle	- Atomic City Transit > TA-53 Shuttle - White Rock Shuttle > TA-53 Shuttle	- Atomic City Transit > On Demand - White Rock Shuttle > On Demand Shuttle
Santa Fe	- NMDOT Blue or Purple Route > TA-03, White Rock, or Los Alamos Shuttle - Santa Fe Shuttle	- NMDOT Blue or Purple Route > Pajarito Corridor, White Rock, or Los Alamos Shuttle - Santa Fe Shuttle	NMDOT Blue or Purple Route > S-Site Shuttle	NMDOT Blue or Purple Route > TA-53 Shuttle	NMDOT Blue or Purple Route > On Demand Shuttle
Española	- NMDOT Green Route > TA-03, White Rock, or Los Alamos Shuttle - NCRTD Route 401 > White Rock Shuttle - Española Shuttle	- NMDOT Green Route > Pajarito Corridor, White Rock, or Los Alamos Shuttle - NCRTD Route 401 > White Rock Shuttle - Española Shuttle	NMDOT Green Route > S-Site Shuttle	NMDOT Green Route > TA-53 Shuttle	NMDOT Green Route > On Demand Shuttle
Pojoaque	- NMDOT Blue Route > TA-03, White Rock, or Los Alamos Shuttle - Pojoaque Shuttle	- NMDOT Blue Route > Pajarito Corridor, White Rock, or Los Alamos Shuttle - Pojoaque Shuttle	NMDOT Blue Route > S-Site Shuttle	NMDOT Blue Route > TA-53 Shuttle	NMDOT Blue Route > On Demand Shuttle
Albuquerque	- Rail Runner > NMDOT Purple Route > TA-03, White Rock, or Los Alamos Shuttle - Albuquerque Shuttle	- Rail Runner > NMDOT Purple Route > Pajarito Corridor, White Rock, or Los Alamos Shuttle - Albuquerque Shuttle	Rail Runner > NMDOT Purple Route > S-Site Shuttle	Rail Runner > NMDOT Purple Route > TA-53 Shuttle	Rail Runner > NMDOT Purple Route > On Demand Shuttle

Figure 45 Example Shuttle Flyer

FREE SHUTTLE

Pojoaque to TA-35 + TA-55



P GUARANTEED PARKING

Guaranteed, secured parking at Cities of Gold Casino.

DIRECT DROP OFF

Direct drop off at TA-35 & TA-55. No need to search for parking at LANL.

RECLAIMED TIME

Relax in the comfortable seats or connect to the Wifi and get some work done.

Monday-Thursday					
Morning			Afternoon		
Cities of Gold	TA-35-0002	TA-55-0400	TA-35-0002	TA-55-0400	Cities of Gold
5:00 a.m.	5:30 a.m.	5:33 a.m.	4:35 p.m.	4:38 p.m.	5:08 p.m.
6:10 a.m.	6:40 a.m.	6:43 a.m.	5:35 p.m.	5:38 p.m.	6:08 p.m.

Sign up and learn more about other shuttle and public transportation options here!

Save up to **\$250 a month in gas** & maintenance.

And **220-280 kg of CO2** equivalent in greenhouse gas emissions!

*Need to arrive or leave at a different time? Take the free shuttle in one direction and the Blue route in the other! The NMDOT Park and Ride Blue Route serves the same parking lot at Cities of Gold as the shuttle. Transfer at TA-3 to the LANL Taxi to get to TA-35 and TA-55. Blue Route Buses arrive to TA-3 in the morning at 6:20, 6:26, 7:05, 7:53, and 8:45 AM and leave TA-3 in the afternoon at 3:39, 4:34, 5:11, 6:32, and 8:39 PM.



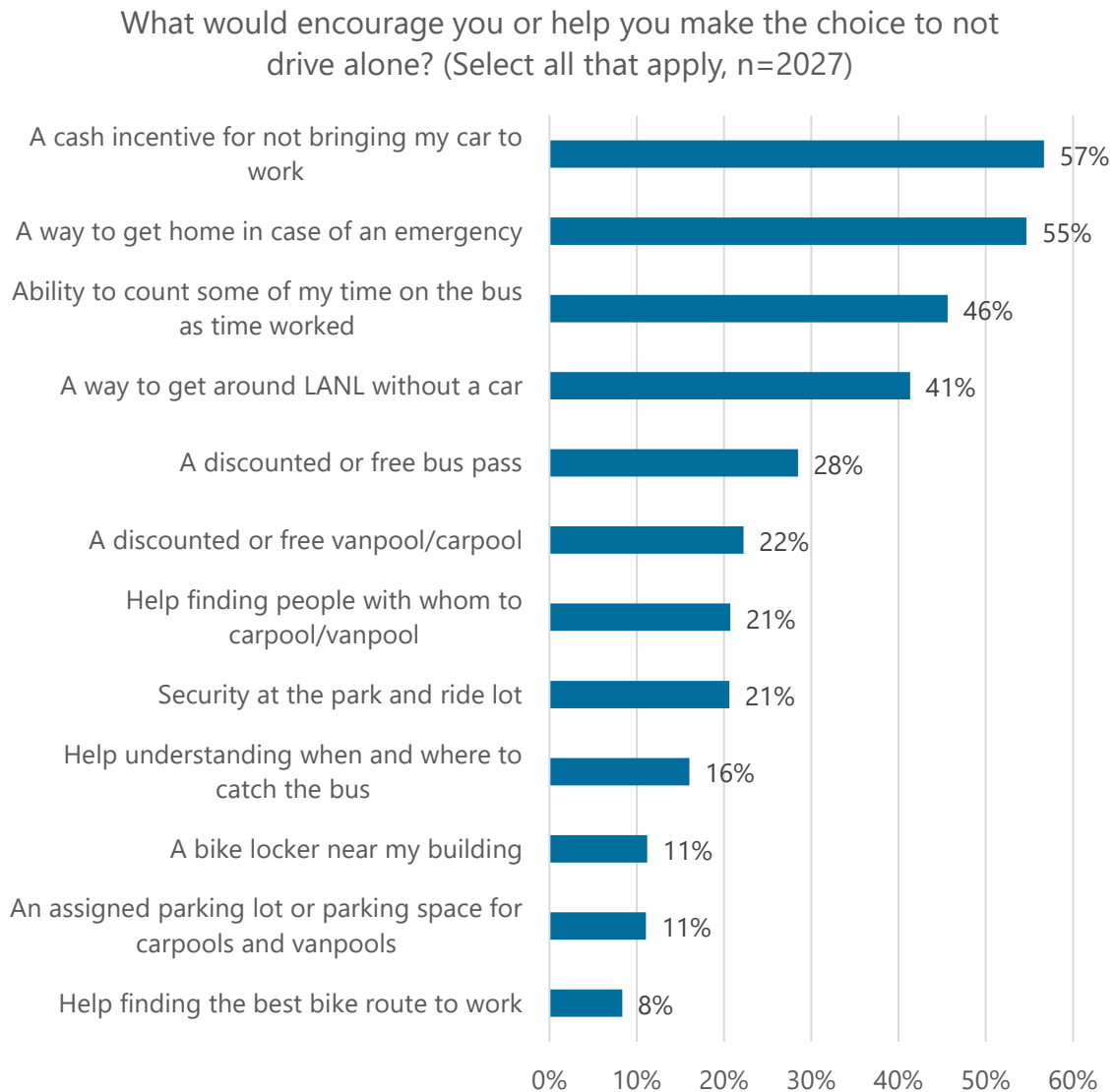
Overview of Programs

In addition to providing transit services, LANL is also working on expanding its programs and policies around transportation. Many of them respond directly to the employee survey and what would encourage employees not to drive alone (see Figure 46).

- A cash incentive for not bringing my car to work
 - LANL is investigating paying employees directly for not driving alone to work. Other national laboratories in the country have had great success with cash payments.
- A way to get home in case of emergency
 - If an emergency arises, LANL allows employees to take a government vehicle home overnight if they do not have their own on site
- Ability to count some of my time on the bus as time worked
 - LANL is working with supervisors on policies around this concept.
- A way to get around LANL without a car
 - The LANL internal and hybrid shuttles will allow employees to reach most locations without a car. Employees are also able to use government-owned vehicles. LANL is also piloting a bikeshare program that may be expanded.
- A discounted or free bus pass
 - LANL has approached and is in conversation with NMDOT about purchasing bulk passes and providing them at a discount or free to employees.
- Help finding people with whom to carpool/vanpool
 - LANL is working with Enterprise Commute to identify vanpooling matches
 - LANL employees can currently use an internal site – “Commuter’s Corner – to try to find carpool matches. LANL plans to release a RFP in FY24 to bring in carpool matching software.
- Security at park and ride lot
 - The Pajarito Express Pilot currently operates from Cities of Gold, where LANL provides all day security
- Help understanding when and where to catch the bus, and how to ride
 - LANL has recently expanded the team dedicated to its transportation services and is working on expanding communications and marketing around alternative transportation options. A result of this project is also a LANL focused regional transit map that will be hosted on NCRTD’s website.
- As assigned parking lot or parking space for carpools and vanpools

- LANL has recently updated its parking policy and will continue to do so in stages. With this new policy, some lots and garages can be designated for specific kinds of parking including carpool and vanpool parking. LANL will start piloting this in FY24.

Figure 46 Encouragement to Not Drive Alone

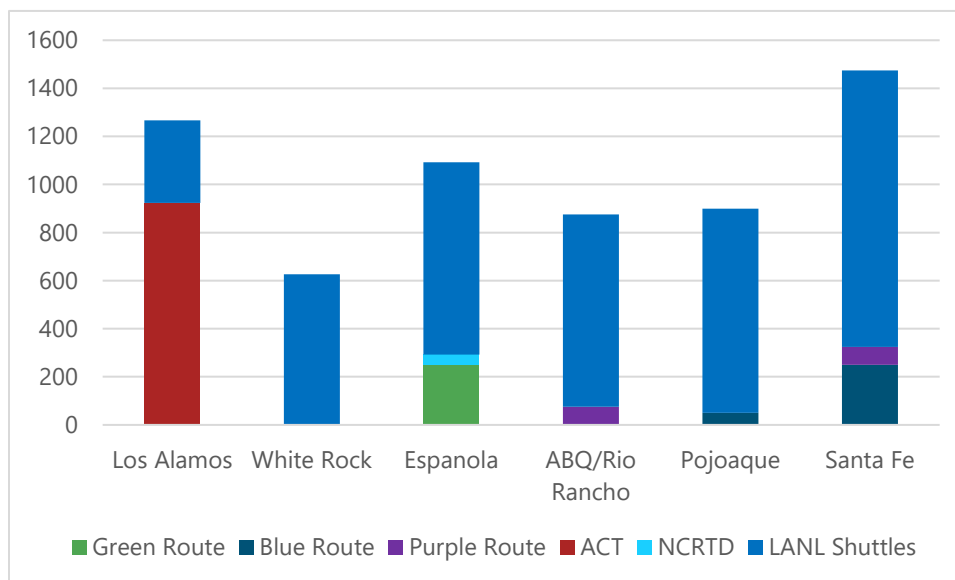


4 SUMMARY OF SERVICES

At full build out, it is assumed that public transit will provide approximately 27% of the 6,300-seat capacity needed to bring 4,500 LANL employees to and from work each day (assuming about 70% of seats are full). The rest will be provided by LANL by both long-distance shuttles and hybrid shuttles serving the six main areas where employees live (see Figure 44).

- **Atomic City Transit** is assumed to provide approximately the same capacity in both AM and PM peaks as it does today, although this service will be more convenient for those living in the Western Area than it is currently. While ACT will still serve White Rock, the White Rock Shuttle is assumed to take all LANL employees because of the time savings associated with traveling along the Pajarito Corridor.
- **NMDOT Park and Ride** is assumed to serve one additional Blue Route Trip in the AM peak by 2028. More service is possible if trips on Blue, Green, and Purple Routes are consistently 75% full, and any more service provided by NMDOT will relieve the need for LANL to provide services to Española, Pojoaque, and Santa Fe.
- **North Central Regional Transit District** is assumed to provide two morning and afternoon round trips between Española and White Rock.
- **LANL** will provide express park and ride style service from Española, Albuquerque, Santa Fe, and Pojoaque that employees will access in private vehicles. LANL will also provide hybrid shuttles serving Los Alamos and White Rock that employees can walk to and ride to the destination.

Figure 47 Public Transit and LANL Shuttle Capacity by Area at Full Build (2028)



Organization Interdependency

Many of the elements described in this plan require implementation by multiple organizations. Figure 48 describes the interdependencies.

Figure 48 Organizational Interdependency

	LANL	NCRTD	NMDOT	Los Alamos County/ACT
LANL's Needs from Other Organizations	-	Implement proposed Route 401 to bring commuters from Española to White Rock TC	- Increase service levels when certain trips reach 75% capacity - Confirm there is enough parking at each park and ride to support 70% full capacity - Add stops along routes (like Puye Cliffs) if new park and ride lots are identified - Potentially help expand Los Alamos TC - Consider alternative routing for some trips to White Rock TC while capacity of Los Alamos TC is being expanded	- Finish Transit Center studies for Los Alamos and White Rock and partner in designing those facilities. - Implement service in the 5-year SRTP - Continue to make zoning changes that allow for higher density housing and facilitate building new housing for expanded work force
NCRTD's Needs from Other Organizations	- Adjust White Rock Shuttle schedule to meet Route 401 when implemented - Coordinate service at secure parking facilities (as is done today at Cities of Gold)	-	-	Locate and approve site for White Rock TC. Build new amenities if needed.
NMDOT's Needs from Other Organizations	Coordinate service at secure parking facilities (as is done today at Cities of Gold)	-	-	Finish Transit Center studies for Los Alamos and White Rock and partner in designing those facilities.

Los Alamos County/ACT Needs from Other Organizations	▪ Continue conversation and provide funding details for expanded Los Alamos Transit Center	▪ Provide needs for White Rock TC (amenities, alternative fuel needs)	▪ Provide needs for Los Alamos and potentially White Rock TC (amenities, alternative fuel needs)	-
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5 APPENDIX

Home Location Profiles

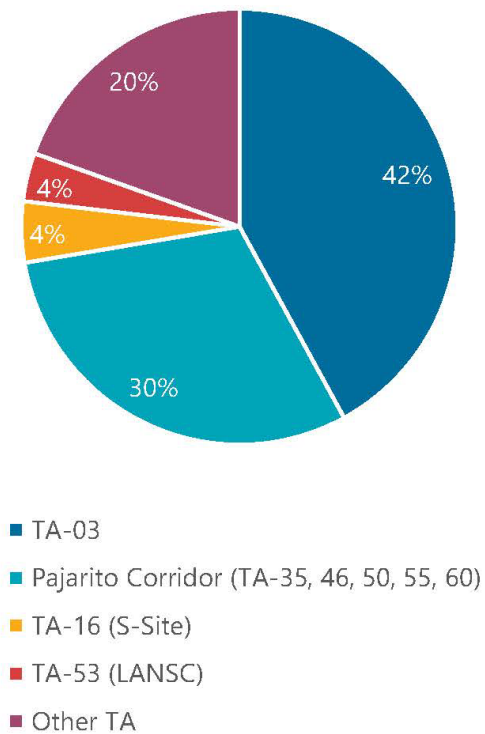
The following profiles describe by the major employee home location, where employees work, shift start and end times, and proportion willing to try a new commute choice based on the LANL employee survey. These profiles can help LANL and the transit agencies best match service to employee needs as new services are implemented.

HOME LOCATION PROFILE

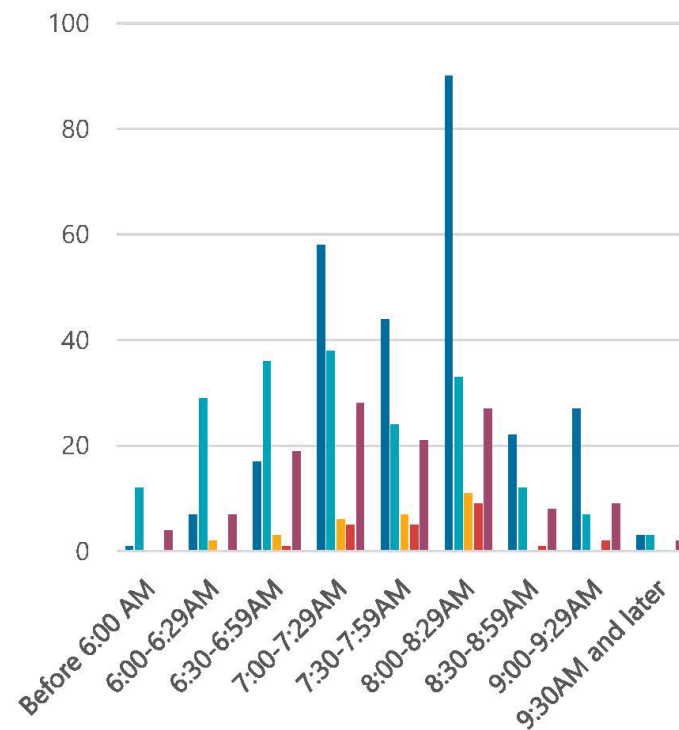
Los Alamos

27% of survey respondents are from Los Alamos
72% of whom are willing to try a new commute choice

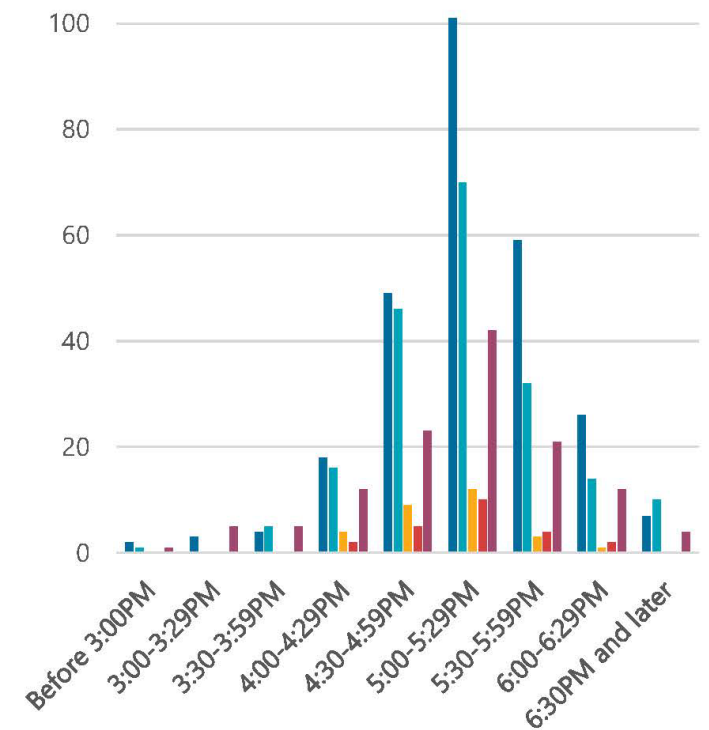
Work Locations



Start Times



End Times

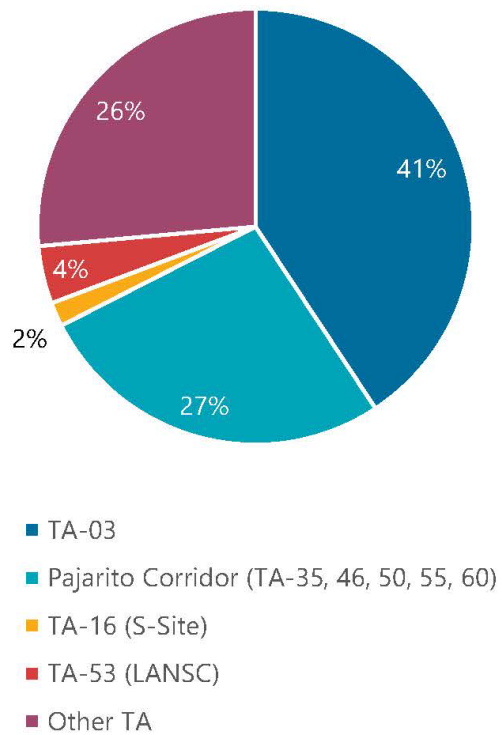


HOME LOCATION PROFILE

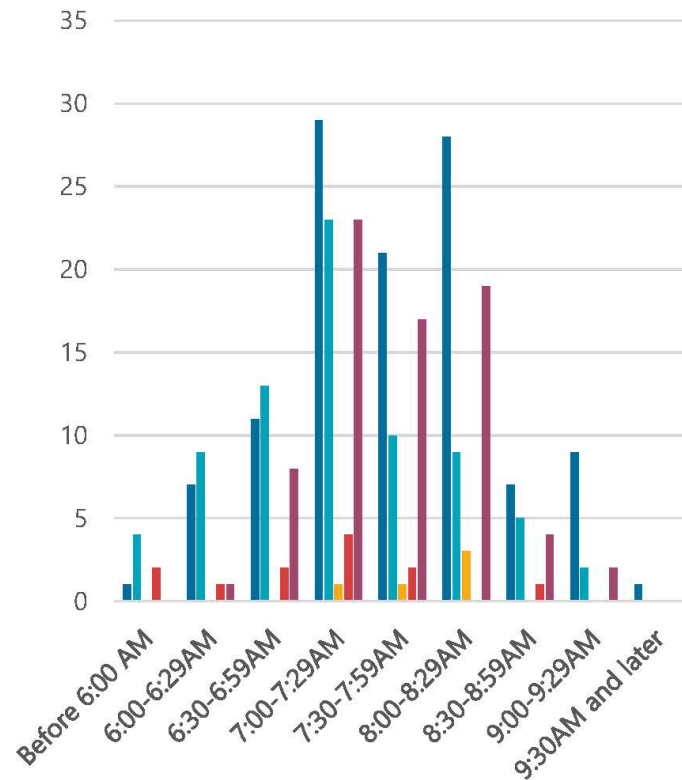
White Rock

12% of survey respondents are from White Rock
70% of whom are willing to try a new commute choice

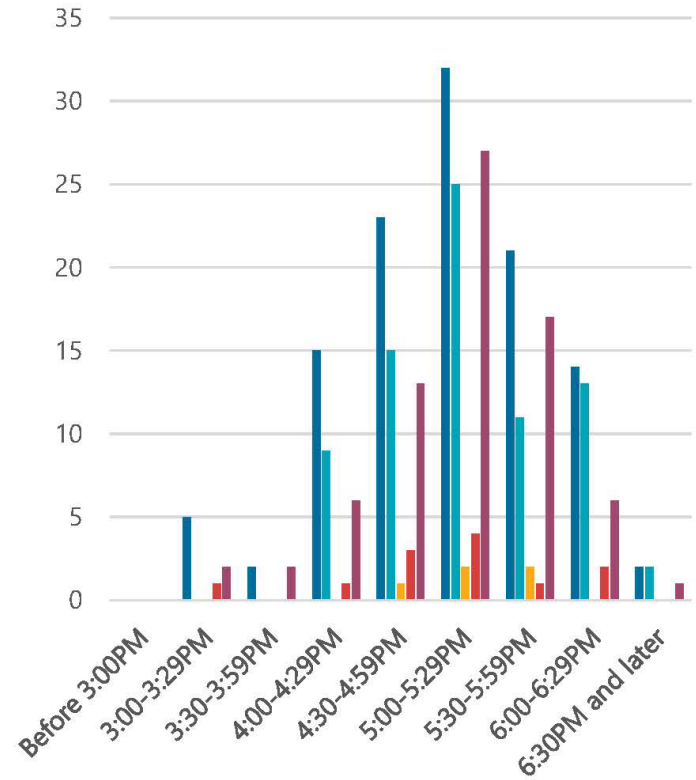
Work Locations



Start Times



End Times

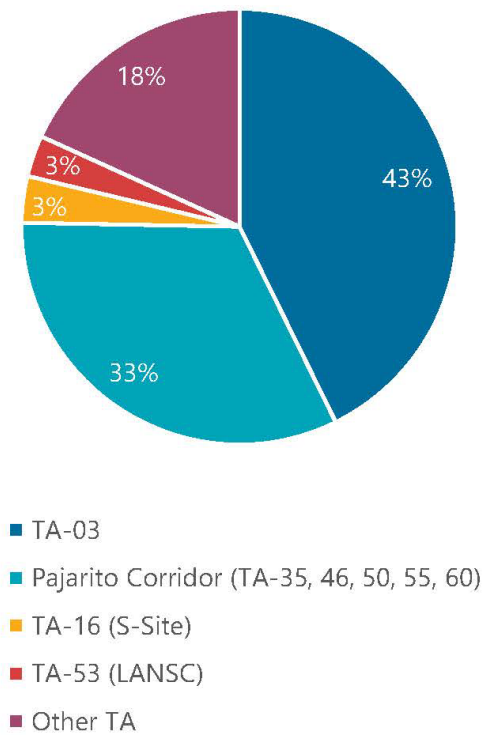


HOME LOCATION PROFILE

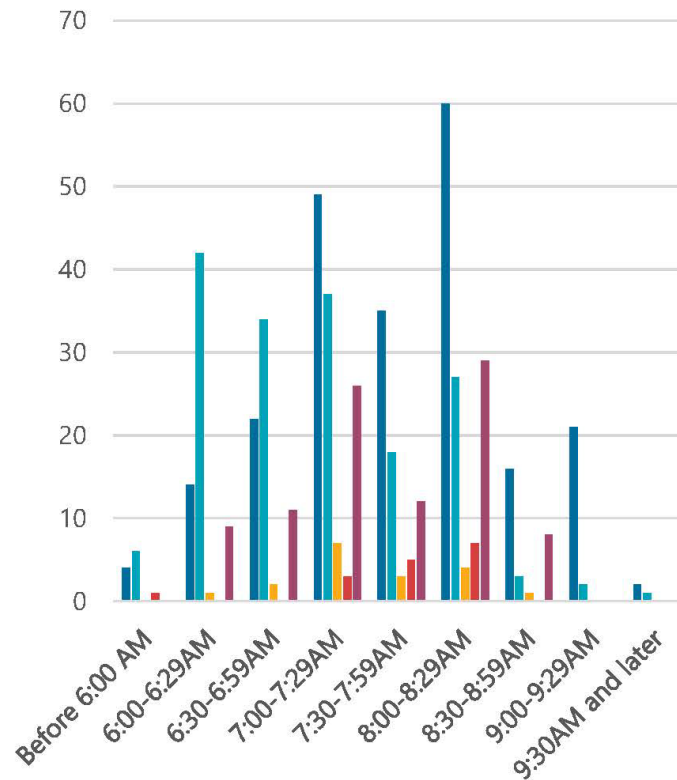
Santa Fe

22% of survey respondents are from Santa Fe
81% of whom are willing to try a new commute choice

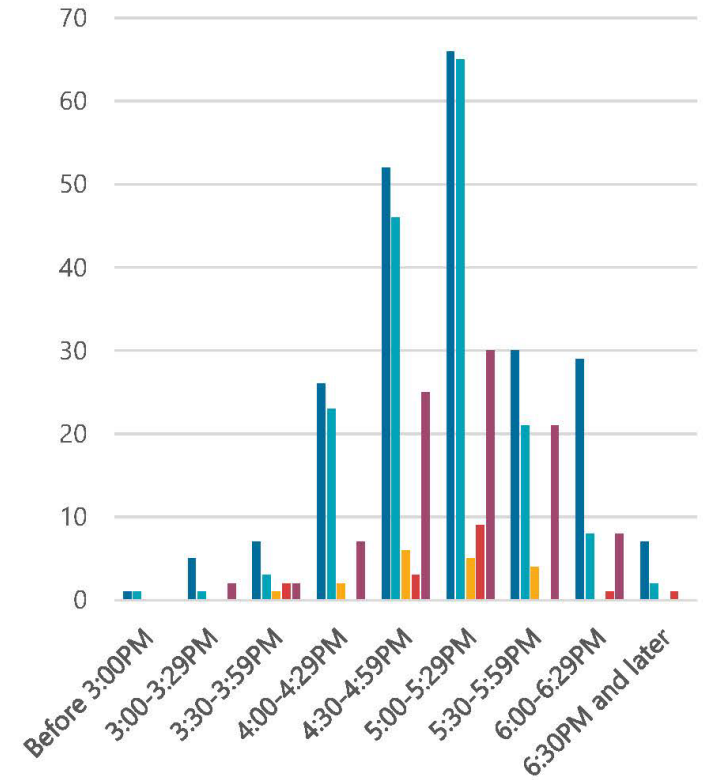
Work Locations



Start Times



End Times

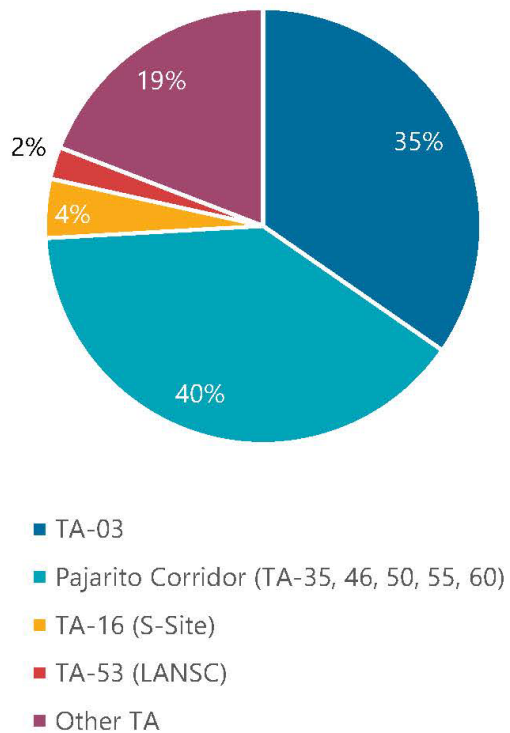


HOME LOCATION PROFILE

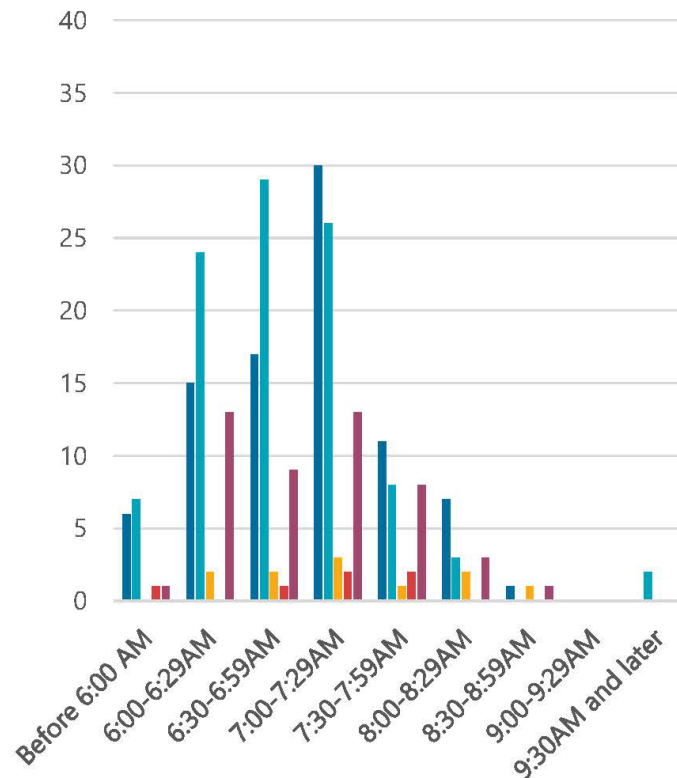
Albuquerque

11% of survey respondents are from Albuquerque
78% of whom are willing to try a new commute choice

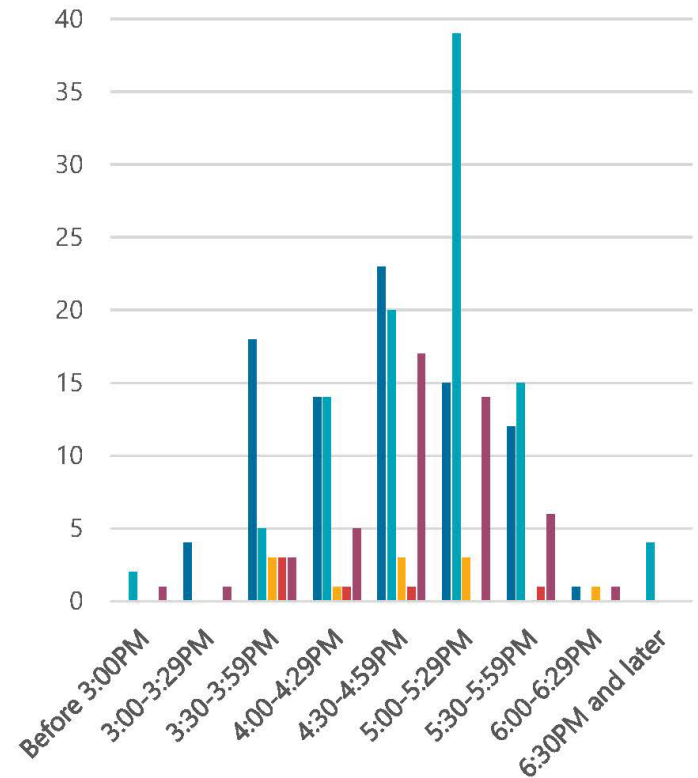
Work Locations



Start Times



End Times

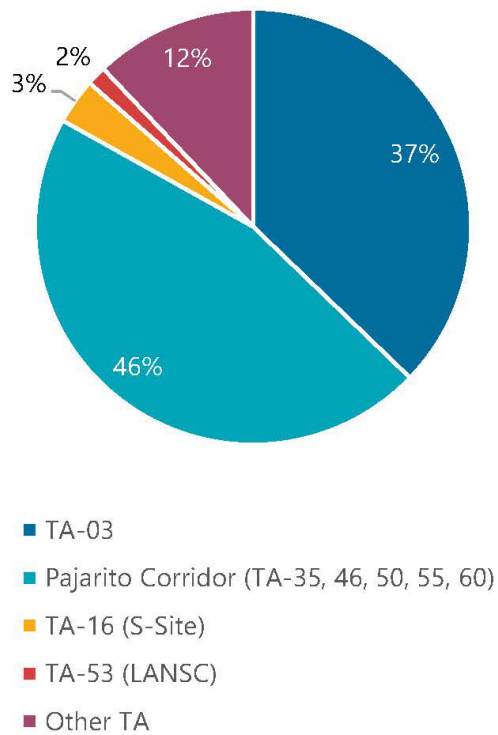


HOME LOCATION PROFILE

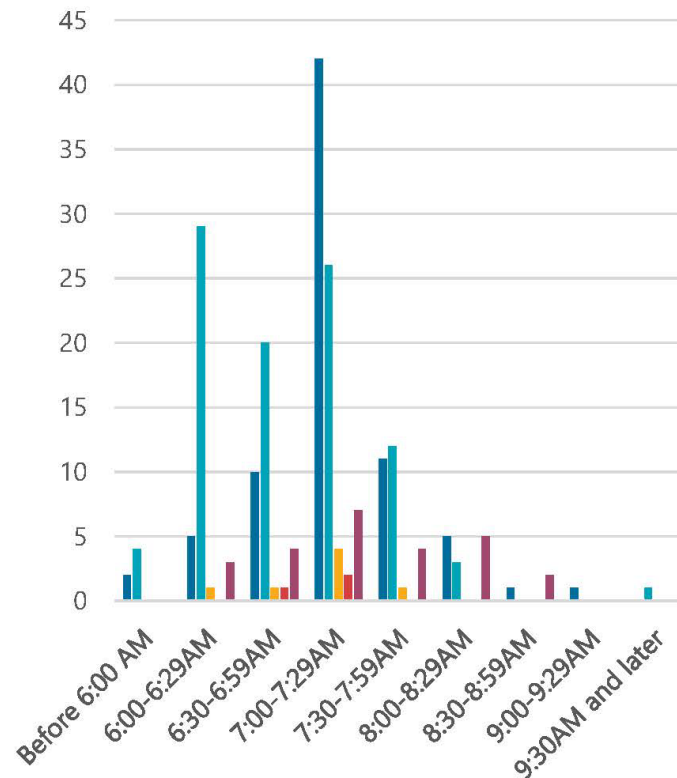
Española

9% of survey respondents are from Española
46% of whom are willing to try a new commute choice

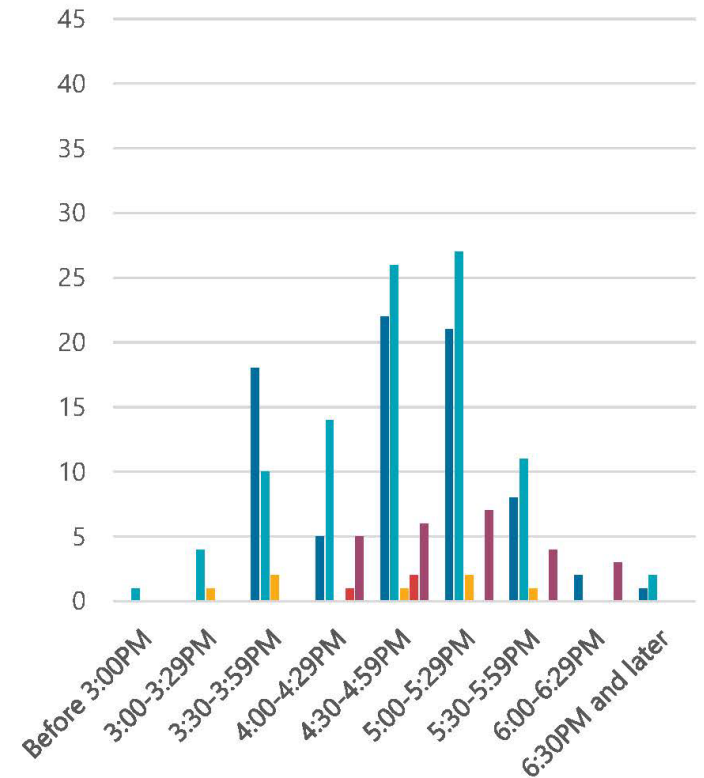
Work Locations



Start Times



End Times

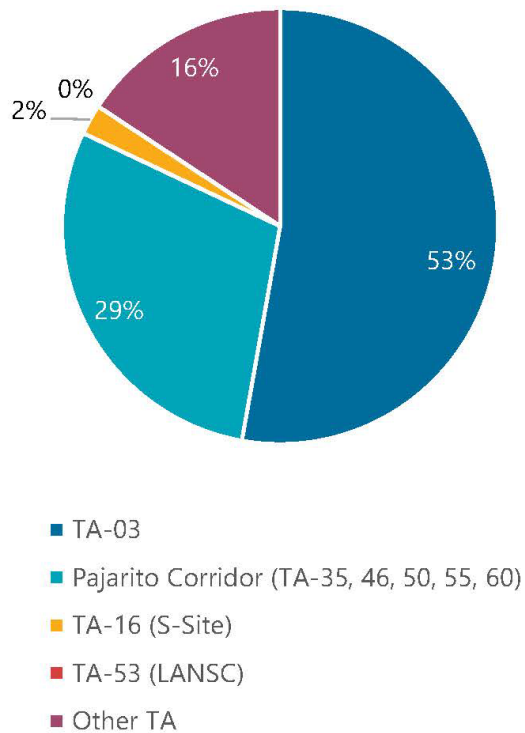


HOME LOCATION PROFILE

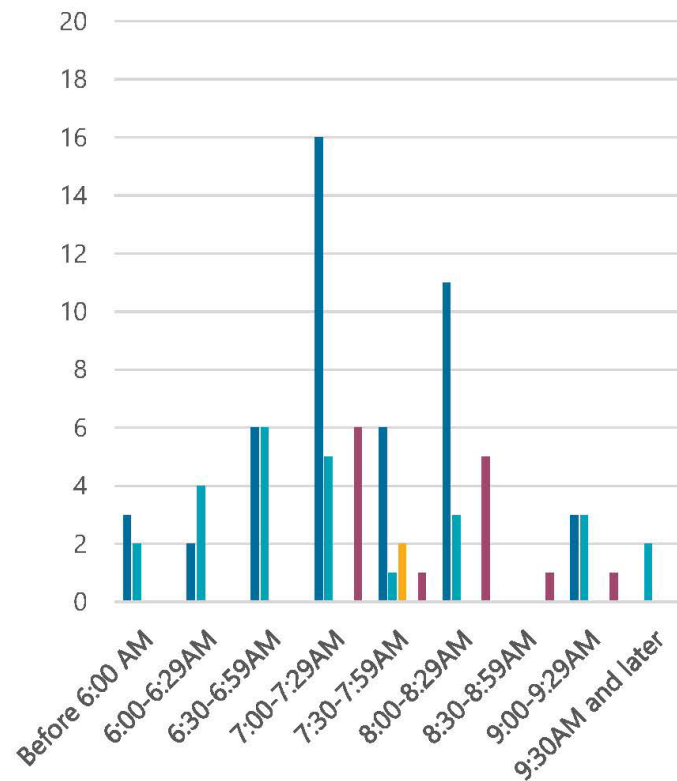
Pojoaque

4% of survey respondents are from Pojoaque
62% of whom are willing to try a new commute choice

Work Locations



Start Times



End Times

