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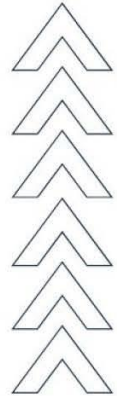
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2023



TRANSPORTATION PLAN

Los Alamos National Laboratory

Fiscal Year 2023

UIDO-PLAN-004-R0



 LANL Utilities and Infrastructure



EXECUTIVE SUMMARY

Los Alamos National Laboratory's (LANL's) mission expansion is expected to increase the workforce population (badge holders) to more than 18,000 by 2028. Before the COVID-19 pandemic, traffic congestion was notable and was impeding commuting workers in the forms of traffic congestion, travel delay, inconvenience, frustration, and time lost hunting for parking near an office location or programmatic operation.

The Laboratory transportation strategy is moving toward transit-based commuting and not status quo expansion of onsite parking and roadways to serve this growing workforce. This plan addresses a multi-faceted transit and transportation solution.



The body of the plan describes each aspect of this solution and concludes with a recommended set of Fiscal Year 2023 (FY23) investments planned as next steps toward implementation. The broad strategy is to offer agility and program depth for services and systems that can enable LANL to confidently invest, monitor performance, seek participant feedback, and make necessary adjustments.

In FY23, LANL will focus on the following.

- Improving internal transit connections
- Piloting express bussing from a remote lot
- Implementing formal carpool and vanpool programs and assisting with ride matching
- Offering incentives to encourage behavior change
- Managing parking

The transportation plan is designed to reduce the number of employee-owned single-occupancy vehicles (SOVs) brought onsite, especially in the Pajarito Corridor, to meet LANL's expanding plutonium mission while minimizing the capital infrastructure investment that would otherwise be necessary. There are three main benefits to this approach: (1) it is timely to meet the mission needs for new employees, (2) it allows for land to be used cost effectively and directly for new mission-essential facilities, and (3) it ultimately improves traffic safety by reducing congestion. A secondary benefit is that this plan will reduce greenhouse gas emissions from employee commuting.

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LIST OF ACRONYMS

ACT	Atomic City Transit
ADA	Americans with Disabilities Act
ALDWP	Associate Laboratory Directorate for Weapons Production
CDL	Commercial Driver's License
E-2	Process Modeling and Analysis Group
EM	Emergency Management Division
EV	Electric Vehicle
FOD	Facility Operations Director
FY	Fiscal Year
GOV	Government-Owned Vehicle
HOV	High-Occupancy Vehicle
IFPROG	Institutional Infrastructure Programs Office
INL	Idaho National Laboratory
IRS	Internal Revenue Service
KPI	Key Performance Indicator
LAC	Los Alamos County
LANL	Los Alamos National Laboratory
LOG	Logistics Division
M&O	Management and Operating
NA-LA	Los Alamos Field Office
NCRTD	North Central Regional Transit District
NMDOT	New Mexico Department of Transportation
NNSA	National Nuclear Security Administration
PA	Protection Area
PPY	Pits Per Year
SOV	Single-Occupancy Vehicle
TA	Technical Area
TIP	Transportation Incentive Program

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TTI	Texas A&M Transportation Institute
UI	Utilities and Infrastructure Division
VAP	Vehicle Access Portal
VMT	Vehicle Miles Traveled

1.0 CHALLENGES AND EXISTING CONDITIONS

Transit and transportation planning begins with a firm grasp of available planning work, quantities of staff and vehicles involved, growth expectations and constraints, and an understanding of organizational roles and staff and leadership sentiment.

1.1 Traffic Congestion Observations

Los Alamos National Laboratory (LANL) has experienced more than 50% workforce (badge holders) growth over the past 10 years from 9,500 in 2013 to nearly 15,000 today. See Figure 1.

Just before LANL closed because of COVID-19 pandemic restrictions in March 2020, traffic congestion was evident, especially in the afternoon exit commute along Diamond Drive and the approaches to NM 4 and the East Jemez Road intersection. Traffic congestion and delays for our commuters and business operations have a negative impact on many levels.

The advent of telecommuting, hybrid work schedules, and staggered shifts for Technical Area 55 (TA-55) staff has ameliorated congestion post-COVID-19. We forecast a nominal return-to-work progression as shown in Figures 2 and 3 for staff who telecommute or report to work onsite. The actual measurements in Figures 2 and 3 are based on recent accountability surveys.

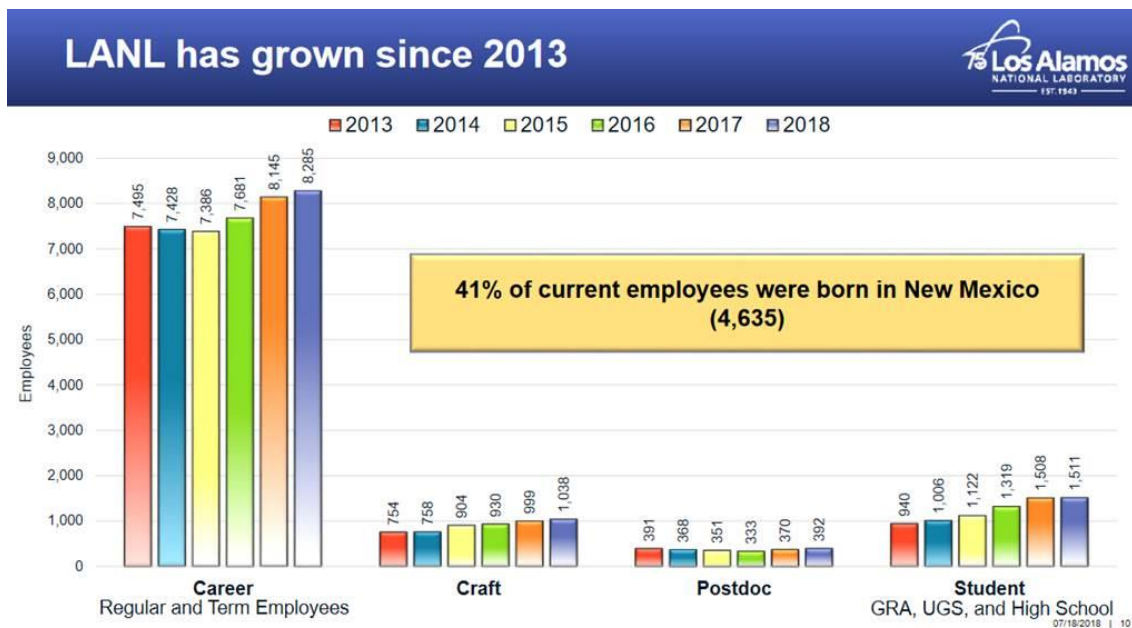


Figure 1. Historical LANL workforce numbers.

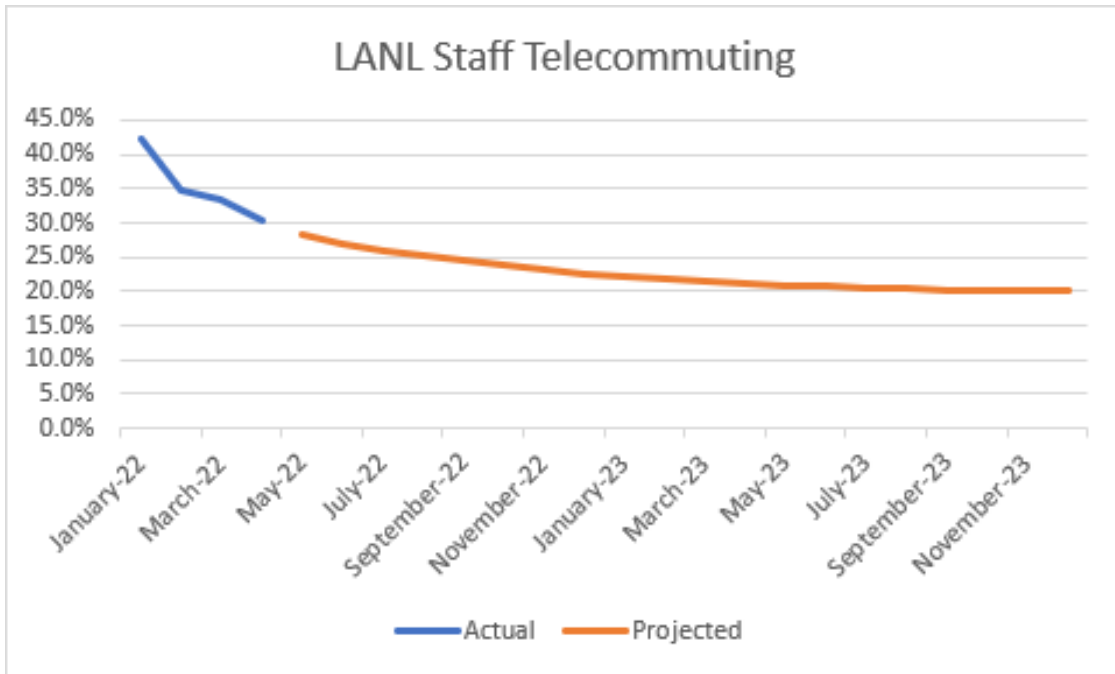


Figure 2. Projection of telecommuting (20%).

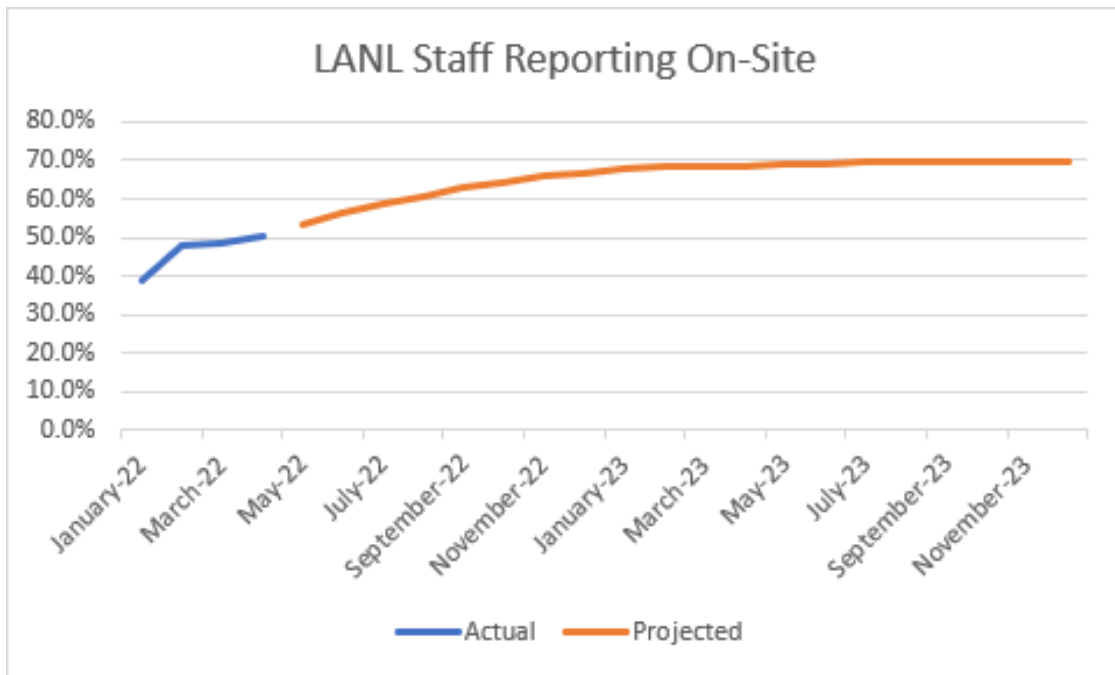


Figure 3. Projection of staff reporting onsite (70%).

LANL's 2019 Parking Study (UI-RPT-038-R0) indicated the parking inventory in TA-3 and the Pajarito Corridor (see Figures 4 and 5).

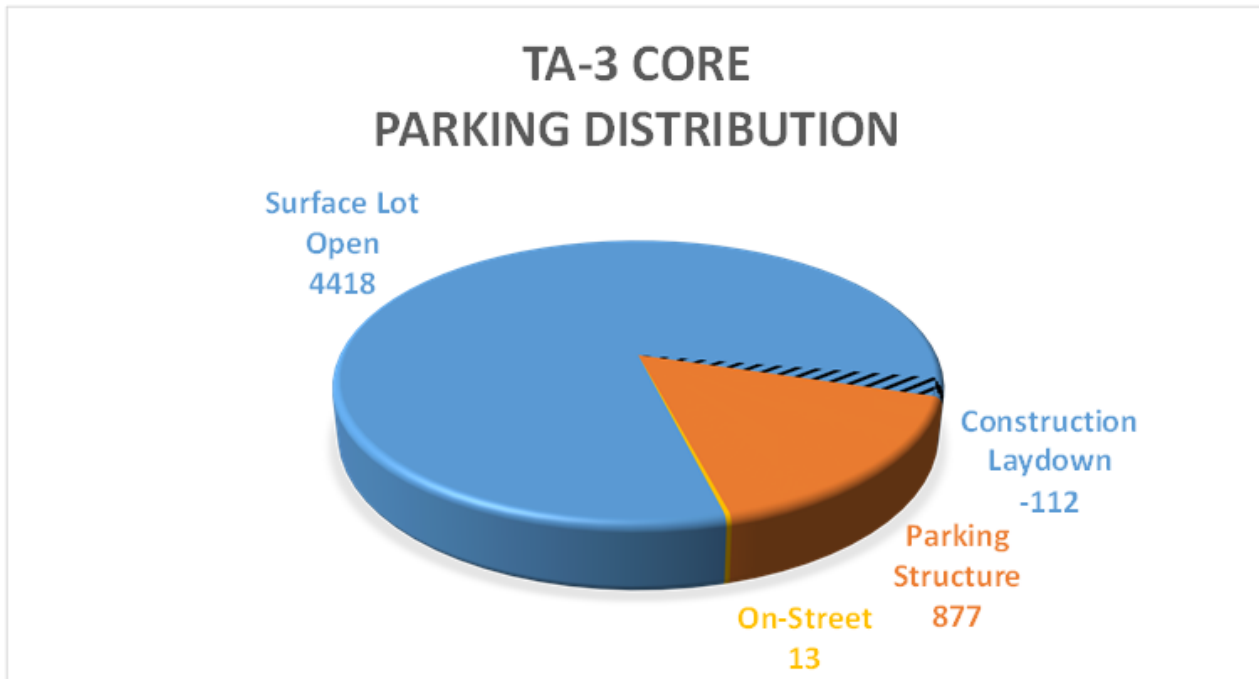


Figure 4. Parking inventory from 2019 Parking Study, TA-3 Core.

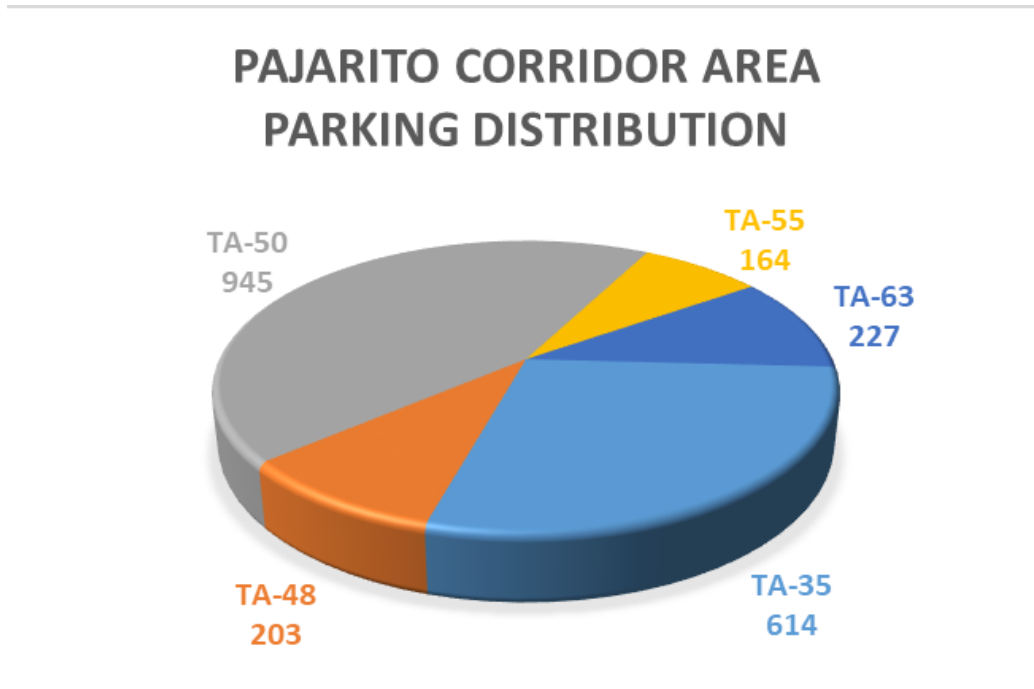


Figure 5. Parking inventory from 2019 Parking Study, Pajarito Corridor.

The inventory of parking has changed since the release of the 2019 Parking Study with the addition of two 450-space parking garages and minor changes to surface parking. However, the total quantity of available parking (7,350 spaces) is far smaller than the current workforce of 15,000 if all employees arrive by single-occupancy vehicle (SOV).

It is projected that across LANL, the number of LANL badge holders is forecast to grow to approximately 18,000 by planning year 2028. Table 1 gives a rough breakdown of commute arrivals. Not all badge holders travel to the site. For this plan, the workforce directly involved in transit and parking in our most congested areas includes 6,200 in the Pajarito Corridor, 4,800 in the TA-3 Core, and a projected 3,600 staff that will continue to telecommute, work from satellite offices, or work a hybrid schedule (post-COVID-19 pandemic). Keep in mind that these are estimates that will change as we receive new employment data.

Table 1. Projected LANL Workforce (2028).

Total workforce (badge holders)	18,000
Pajarito Corridor arrivals	6,200
TA-3 arrivals	4,800
Other arrivals	1,600
Hybrid/telecommute (20%)	3,600
Offsite, not commuting (10%)	1,800

Projected growth in Los Alamos County (LAC) housing stock is expected to be modest. Therefore, the commute origin for most of the expected workforce growth is outside of LAC, primarily in the Santa Fe and Albuquerque metropolitan areas.

1.2 Staff and Leadership Engagement

Leading up to the drafting of this plan, LANL transportation program staff solicited feedback from management and workforce rank and file. We conducted management engagement meetings in February 2022, several surveys, focus group meetings in June 2022, gave a number of well attended transportation program briefings, published a story map of the developing plan, and received 135 emails with 350 suggestions and concerns. It is worth mentioning that staff and management comments were respectful, enlightened, and most appreciated.

Figure 6 emphasizes several of the most prevalent themes from the constructive comments received and considered during plan development. The feedback and response from employees have been very strong, suggesting that staff are interested in alternative commuting options.

1.4 Roles and Responsibilities

Transit and transportation program management involves a teaming relationship among the following organizations.

- The **UI Facility Operations Director (FOD)** is responsible for program and funding development, staffing of Transportation Director and Traffic System Engineer functions, establishing performance objectives, owning oversight for transportation real property, modeling, and traffic performance management.
- The **Institutional Infrastructure Programs Office (IFPROG)** is responsible for verifying that transit and transportation plans align with the Campus Master Plan and with mission requirements.
- The **Logistics (LOG) Division** is responsible for equipment procurement and operations, taxi and shuttle drivers and maintenance, service delivery, and performance measurement and feedback.

2.0 ALTERNATIVE TRANSPORTATION ANALYSIS

Triad National Security partner TTI was subcontracted in Fiscal Year 2022 (FY22) to provide transit and transportation analysis and support. This section summarizes key information from their work and anticipated support through FY23.

2.1 Key Observations

TTI made the following key observations.

- Available parking is constrained in the Pajarito Corridor and TA-3; new parking additions should be located east of the Rio Grande.
- A major behavioral change for LANL employees is necessary, and positive commute opportunities are key to recruiting and retention efforts. This is particularly important with limited housing options close to LANL.
- Leveraging federal (non-NNSA), state, and local funding is critical to allow LANL transportation resources to go further.
- The LANL internal circulation program must shift from a taxi service to a municipal transit system model.
- Balance must be maintained between parking availability, traffic performance, and transit services.
- LANL may have to move beyond incentives and messaging toward assigned/restricted parking and enforcement to achieve the sea change in worker travel and parking behaviors necessary to attain program objectives.

2.2 Analysis

TTI is performing several analyses in support of transit and transportation planning for LANL. We expect the outcome of this analysis to continue to drive refinements to future implementation plans.

2.2.1 *Economics*

TTI is developing our understanding of how LANL funds paid-in salaries and how the procurement of goods and services flows within the regional and state economy. This influx of financial resources allows for local and state agencies to provide public services that serve the greater good and in many ways support LANL staff and business operations. Understanding this relationship in the context of transportation provides external stakeholders with a window into the value that LANL brings to the regional economy and the benefit that a well-developed transportation infrastructure and transit solution can bring to enhance the economic development of Northern New Mexico.

2.2.2 *Traffic Origin and Destination*

TTI has been gathering information about the origins and destinations of LANL commuters and vehicle traffic on the LANL site and along the adjacent roads that feed into LANL. Sources for this information include connected vehicle data, monitoring of Bluetooth signals from vehicles passing roadside instruments, and old-fashioned tube counters placed in the roadway. Together, these data form a baseline of traffic movement under present geometric and demand conditions.

2.2.3 *Traffic Model*

TTI has been building a detailed micro-simulation model for this baseline traffic movement with a model called VISSIM. Their planned work will inject planned traffic changes to the calibrated baseline. With VISSIM, we can model future conditions, including temporary detours, lane additions, intersection phases of construction, and changes to the vehicle mix (trade SOVs for carpools, vanpools, buses, bicycles, or pedestrians), to visualize the effects on travel time, length of the queue at intersections and turning lanes, etc. Advanced applications of VISSIM analysis include modeling of exhaust emissions and coordination of traffic signals to optimize traffic capacity during modes of operations (morning, evening, midday, and emergency evacuation).

2.2.4 *Bus Route Design*

TTI is planning to begin bus route design and optimization with specific modeling software to calculate how onsite routes will function with designated stops and coordination of rider transfers to and from offsite buses.

2.3 Transportation Demand Management—A Tiered Approach

TTI, with LANL forecasting input, has prepared a tabulation of workers and vehicles by type that captures the origin of commute trips and work location or destination. The information in this section summarizes this analysis and includes the tools that LANL can use to manage the use of alternative transportation by employees.

2.3.1 Transit

The function of transit in demand management is to concentrate ridership and reduce parking demand. Transit buses can range in size from Dial-A-Ride taxis, vans, and low-entrance city buses to motor coaches for long trips.

- Transit can involve public buses that drop LANL employees at a transit center.
- Direct buses (public or charter) can collect employees from remote parking in a commute region and drop them off near a LANL work destination after passing through a vehicle access portal (VAP).
- Internal buses that operate within or near the LANL security boundary can move employees from a public bus drop point to an internal LANL destination.
- Taxi or Dial-A-Ride small-capacity vehicles can respond when requested for trips outside the service provided by internal or direct buses.
- Transit vehicles do not require a parking space near the destination or work location and have the greatest potential to reduce traffic congestion, parking demand, and traffic-related pollutant emissions.
- A transit van can carry 12 to 20 passengers, a low-entry city bus can carry 34 or more passengers, and a motor coach can typically carry 56 passengers.

2.3.2 High-Occupancy Vehicles

Carpools are commute arrivals with two or more passengers. Vanpools are commute arrivals with five or more passengers. These vehicles concentrate ridership to a lesser degree than bus solutions but at a lower capital cost. Carpools and vanpools provide more convenient solutions in lower density areas that are not cost-effectively served by a bus-oriented transit solution. High-occupancy vehicle (HOV) parking space near the destination or work location can serve as an incentive for employees to organize this solution.

2.3.3 Other Modes

Motorcycle, bicycle, other wheeled vehicle, and pedestrian travel reduce traffic congestion and parking space demand.

2.3.4 Shift Operations and Telecommute/Hybrid Work

The peak hour in the morning and afternoon frames traffic capacity and parking performance. Measures that shift the traffic burden away from the peak hour contribute to demand management. A shift schedule with a staggered arrival is a measure for reducing demand. Where business conditions allow, telecommuting or adoption of a hybrid work plan is also a demand-reducing measure.

2.3.5 Parking Demand Management

This plan addresses parking as a finite resource. Parking supply must satisfy Americans with Disabilities Act (ADA) code requirements, government-owned vehicle (GOV) assignments, and HOV demands first. Remaining available parking can be occupied by

electric vehicle (EV) SOVs and standard SOVs. Commute arrivals other than SOVs contribute to reducing parking demand for spaces within the Pajarito Corridor and TA-3 Core. Parking management will be needed to enforce the limited parking availability in densely populated areas. Parking in remote lots outside of these parking-limited areas does not contribute to parking demand and provides an alternative that can be coupled with transit or HOV solutions.

2.3.6 Incentives

TTI recognizes the crucial role of incentives and brings forward a wide range of options. Triad is engaged with NNSA NA-LA leadership in evaluating the allowability and implications of financial incentives, including total compensation and applicable Internal Revenue Service (IRS) regulations.

2.4 Two Commute Mode Strategies

Figures 7 and 8 summarize an accounting (or model) of commuter modes for the Pajarito Corridor. We show this comparison to give perspective to the magnitude of change that is necessary to accommodate workforce growth. In each figure, the known base case from FY20 is compared to two bounding future strategies.

2.4.1 Bounding Mode—Heavy Carpool/Vanpool

While honoring the constrained inventory of parking, the center column in Figures 8 and 9 indicates large growth in vanpools and carpools (not shown specifically) and a relative minor increase in bus arrivals. Bus arrivals for the Pajarito Corridor are limited to existing onsite taxi shuttles and new direct busing for construction subcontractors. Bus arrivals for TA-3 Core are limited to the base level of ACT and NMDOT Park & Ride buses. However, we assume that base-case bus arrivals will be more fully used (arriving buses are near capacity). This strategy relies on workforce adoption of vanpool, carpool, or filling buses presently funded by regional transit agencies.

2.4.2 Bounding Mode—Heavy Bus Transit

In contrast, the heavy transit strategy shows a continuation of our base-case 10% carpool participation rate, modest adoption of vanpools, modest growth in Park & Ride services, and extensive growth in direct bus arrivals into the Pajarito Corridor. We envision that direct bus trips will travel from expanded offsite parking east of the Rio Grande, through LANL VAPs, with direct drop-off near TA-55 entry control facilities and supporting offices.

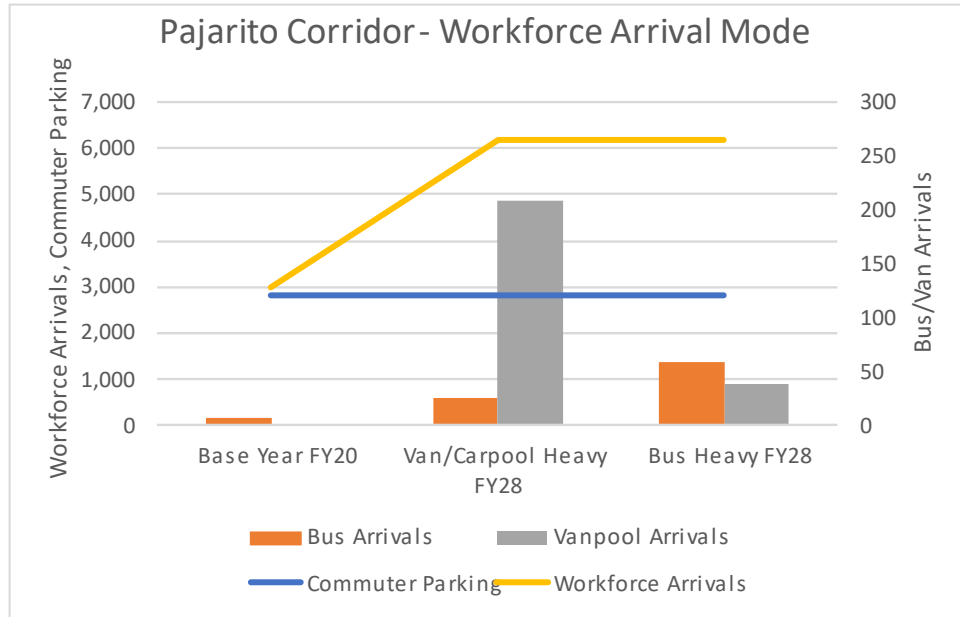


Figure 7. Bounding mode strategies, Pajarito Corridor.

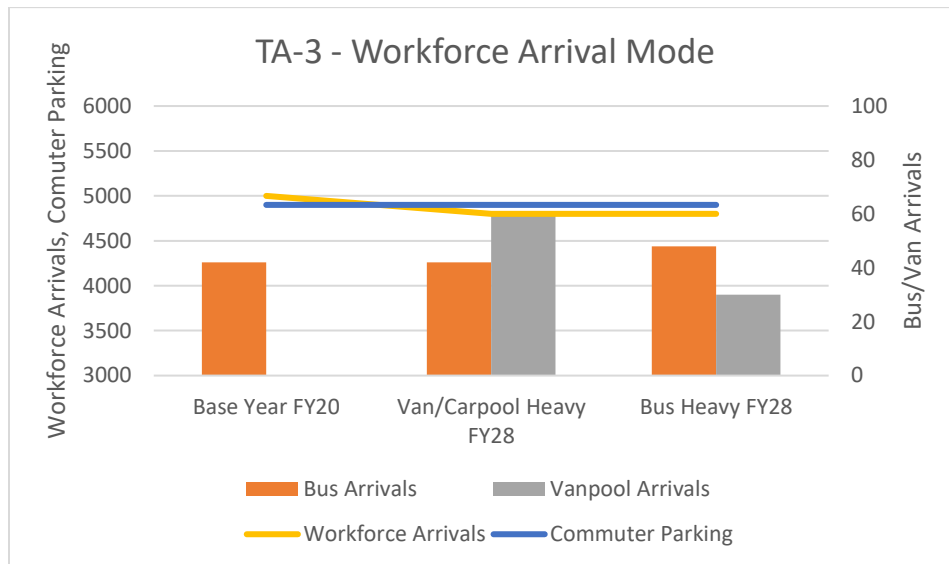


Figure 8. Bounding mode strategies, TA-3 Core.

2.5 North Central Regional Transit District Transit Implementation Study

Achieving the carpool and vanpool targets in the above scenarios will depend on outreach to recruit participants and possible incentives. Achieving the bus arrival targets in these scenarios will also require participation from our regional transit partners. In FY21, LANL, NMDOT, and NCRDT completed an options review for improvements to support the LANL commute. In early FY23, with joint funding from LANL and NMDOT, NCRDT will consider measures for implementing program changes.

3.0 FISCAL YEAR 2023 PRIORITIES

3.1 Plan Goals and Objectives

Early in the development planning for the Pajarito Corridor, it became evident that a strategy of building adequate parking for arriving SOVs near new office spaces and expansion of the roadways and intersections to accommodate traffic demand for serving planned growth is prohibitive. This is because of the limited available onsite land, construction resources, and indirect infrastructure investment funding available in the necessary timeframe.

Goal: Expand the availability of offsite parking, capacity, and use of transit participation to balance parking adequacy and manageable traffic congestion during peak-hour commuting periods.

- **Objective 1:** Expand capacity and use of vanpools and carpools.
- **Objective 2:** Expand capacity, reliability, and use of bus transportation both regionally and within the LANL site that is convenient and time- and cost-advantaged over the baseline SOV commute.
- **Objective 3:** Pursue allowability for transit participation and SOV-alternative commuting incentives.
- **Objective 4:** Manage onsite parking demand to ensure no more than 90% use through directed parking assignments and migration to offsite parking.
- **Objective 5:** Provide traffic congestion mitigation to ensure that travel time during peak commute hours does not affect business operations. For example, travel time from TA-55 to free-flowing traffic on NM 502 should not exceed 10 minutes.
- **Objective 6:** Measure traffic and transit program performance directly, provide adequate service information to commuters, and convey information to LANL management to encourage agile application of business rules.

We expect to meet this goal and these objectives incrementally in stride with planned mission and workforce expansion and through a combination of equipment acquisitions, effective regional transit partnerships, infrastructure investment, and adoption of business rules and strategies.

Table 2 summarizes planned investments for FY23 and provides a brief context description of each investment and how it supports plan objectives.

Table 2. Investments.

Project	Timeline
Road Improvements with VISSIM	
East Jemez Road/NM 4	Q2–Q4
Pajarito roundabout	Q3-Q4
Diamond Drive expansion	Q4 (and FY24)
Pajarito/Pecos pedestrian bridge	Q4 (and FY 24)
Travel time message boards	Q2–Q4

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Project	Timeline
External Transit	
Transit implementation study	Q1–Q3
Transit schedule coordination	Q1–Q3
Employer-provided bus service pilot	Q4
Secure offsite Park & Ride lease/location	Q2
Internal Transit	
Rebrand taxi service	Q3
Peak service route planning	Q2
TA-3 circulator route planning	Q2
Pajarito Corridor route planning	Q2
On-demand service updates	Q3
Special service policy/procedures	Q2
TA-3 transit center plans	Q4
Begin next bus order	Q2
Driver and maintenance hiring incentives	Q1
Study Idaho National Laboratory (INL) model and determine if it works for LANL	Q1
Vanpool	
Execute Enterprise vanpool service agreement	Q1
Map employee zip codes with shifts and work locations for vanpool matches	Q2
Hold vanpool formation events for various LANL work groups	Q2
Carpool	
Select carpool matching vendor	Q3
Launch interim carpool matching solution until vendor is secured	Q1
Biking	
Pajarito Road bike lanes	Q3
Diamond Drive bike lanes	Q4
Bike route/bike path planning	Q2
Bike parking planning and updates	Q1
Bike racks/space on buses	Q2
E-bike share pilot	Q1–Q4
Incentives	
Identify HOV parking	Q1–Q4
Develop guaranteed ride back program	Q2
Subsidized bus passes	Q2
Vanpool subsidy	Q3
Cash incentive planning	Q4
Commute time incentive	Q1
Parking Management	
Revise parking policy	Q3
Evaluate university parking model	Q1
Identify HOV parking	Q2–Q4

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Project	Timeline
Performance Monitoring	
Develop key performance indicators (KPIs)	Q1
Create first quarterly KPI report	Q2
Communication and Outreach	
Create employee communication plan	Q1
Create expanded transportation website	Q1
Participate in new employee orientations	Q1
Develop employee outreach strategy	Q2
Develop transportation notification system for delayed or canceled services	Q3

3.2 Road Improvements

Several road improvement projects are planned for FY23 and FY24. The dates associated with the projects are preliminary and are subject to change. These projects will help reduce congestion and improve safety.

3.2.1 East Jemez Road and NM 4

Preliminary work on this \$15.5 million project will begin in October 2022, but traffic impacts are not expected until spring. Work in the fall will include setting up signage and traffic control for work on the shoulder in the northwest quadrant of the project, removing vegetation in the construction area, building fill slopes and extending the multi-plate drainage structure in the northwest quadrant of the construction area, and building retaining and other types of walls in the northwest quadrant of the project. There will be a break between December 2022 and March 2023.

Figure 9 shows planned capacity and safety improvements.

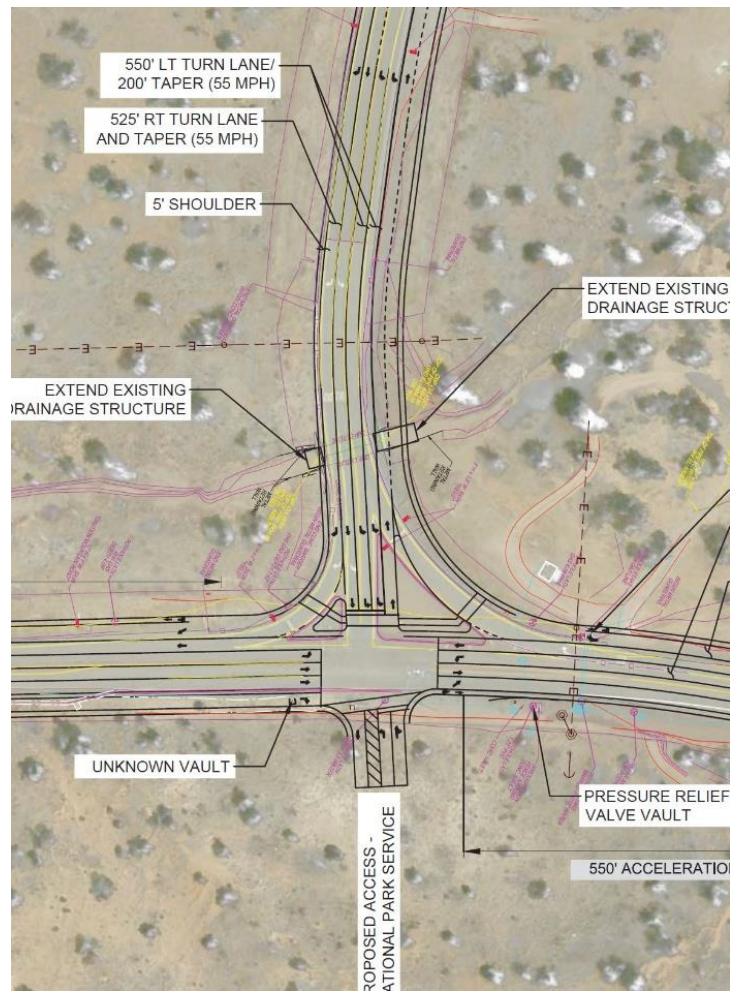


Figure 9. Planned intersection geometric layout.

Traffic control will be in place from March 2023 through November 2023. During this time, employees will be encouraged to use the alternative transportation options highlighted

in this plan to the greatest extent possible. LANL management should consider encouraging telework options when possible during this project.

When complete, this project will include a double left turn lane from East Jemez Road to eastbound NM 4, one straight lane through the intersection, and a right lane slip ramp to westbound NM 4 toward White Rock. From White Rock, eastbound NM 4 will include an extended left turn lane to East Jemez Road, two straight lanes through the intersection, and a right turn lane into a National Park Service parking lot.

3.2.2 Pajarito Roundabout

A roundabout is planned for the intersection of Diamond Drive and Pajarito Road. Construction is scheduled to begin in May 2023. LANL will work with subcontractors to coordinate this work with other projects.

In Figure 10, red dots indicate the location of the roundabout and Diamond Drive widening.



Figure 10. Location of roundabout and Diamond Drive widening.

3.2.3 Diamond Drive

This project is expected to be let at the end of FY23 with most of the work taking place in FY24. When complete, this project will widen Diamond Drive to two lanes in each direction between West Jemez Road and Pajarito Road. A bike lane in both directions will also be included for this project and will tie into new bike lanes on Pajarito Road.

3.2.4 Pajarito/Pecos Pedestrian Bridge

A new pedestrian overpass is planned that extends over Pajarito Road from the TA-50 parking garage to Pecos Drive. The overpass will improve pedestrian safety and improve traffic flow on Pajarito Road. Work on this project is currently scheduled to begin in October 2023.

3.3 Continued Modeling and Analysis

In FY23, LANL will continue to work with TTI to use the VISSIM micro-simulation model to inject planned traffic changes to the calibrated baseline. VISSIM will model future conditions, including temporary detours, lane additions, intersection phases of construction, and changes to the vehicle mix (trade SOVs for carpools, vanpools, buses, bicycles, or pedestrians), to visualize the effects on travel time, length of the queue at intersections and turning lanes, etc.

3.4 Transit

3.4.1 External Transit

3.4.1.1 Transit Implementation Study

During FY22, LANL participated in a Transit Options Study conducted by Nelson/Nygaard with our transit partners (NMDOT, ACT, and NCRTD) to determine possible alternative commute options. In FY23, LANL will participate in the second phase of the study, which will help us and our transit partners prepare for the implementation of these services. Nelson/Nygaard will develop operational plans that will include suggested service levels (spans and frequencies) to meet the projected demand, integration with other transit services, projected operating costs, a suggested timeline, and steps for implementation. The study will provide projected capital costs of vehicles, amenities, and technology. Nelson/Nygaard will also study possible locations for future Park & Ride lots and transit centers. Additionally, a peer review will be conducted of other transit agencies that travel onto secure facilities to determine if such an option is feasible for LANL. The study is expected to be complete in late spring 2023.

3.4.1.2 Transit Schedule Coordination

In addition to the Nelson/Nygaard Transit Implementation Study, LANL will begin working with transit partners to share the most common arrival and departure times for employees, general origin/destination information, and other travel needs. This information will help in creating transit schedules that better align with employee shift times.

3.4.1.3 Employer-Provided Bus Service

Concurrently, LANL will move into the planning phase to establish a pilot bus service from a designated remote parking location to TA-55 and TA-60/03-38 after we receive concurrence from NA-LA. This will be a contracted service to provide bus transportation directly to the employee work location and a secure parking lot located off LANL property. The bus service pilot will allow LANL to evaluate the ability to provide transportation options for employees from a convenient offsite location that will encourage ridership. The initial phase will develop the security protocols for efficiently allowing express bussing into the Pajarito Corridor from an offsite location. The program will build up in FY23 and, by the end of FY24, is expected to reduce onsite vehicle traffic by 200 vehicles/day with 100 vehicles in the Pajarito Corridor areas in and adjacent to TA-55 with corresponding parking impacts. Figure 12 shows the proposed LANL bus routes from Nelson/Nygaard.

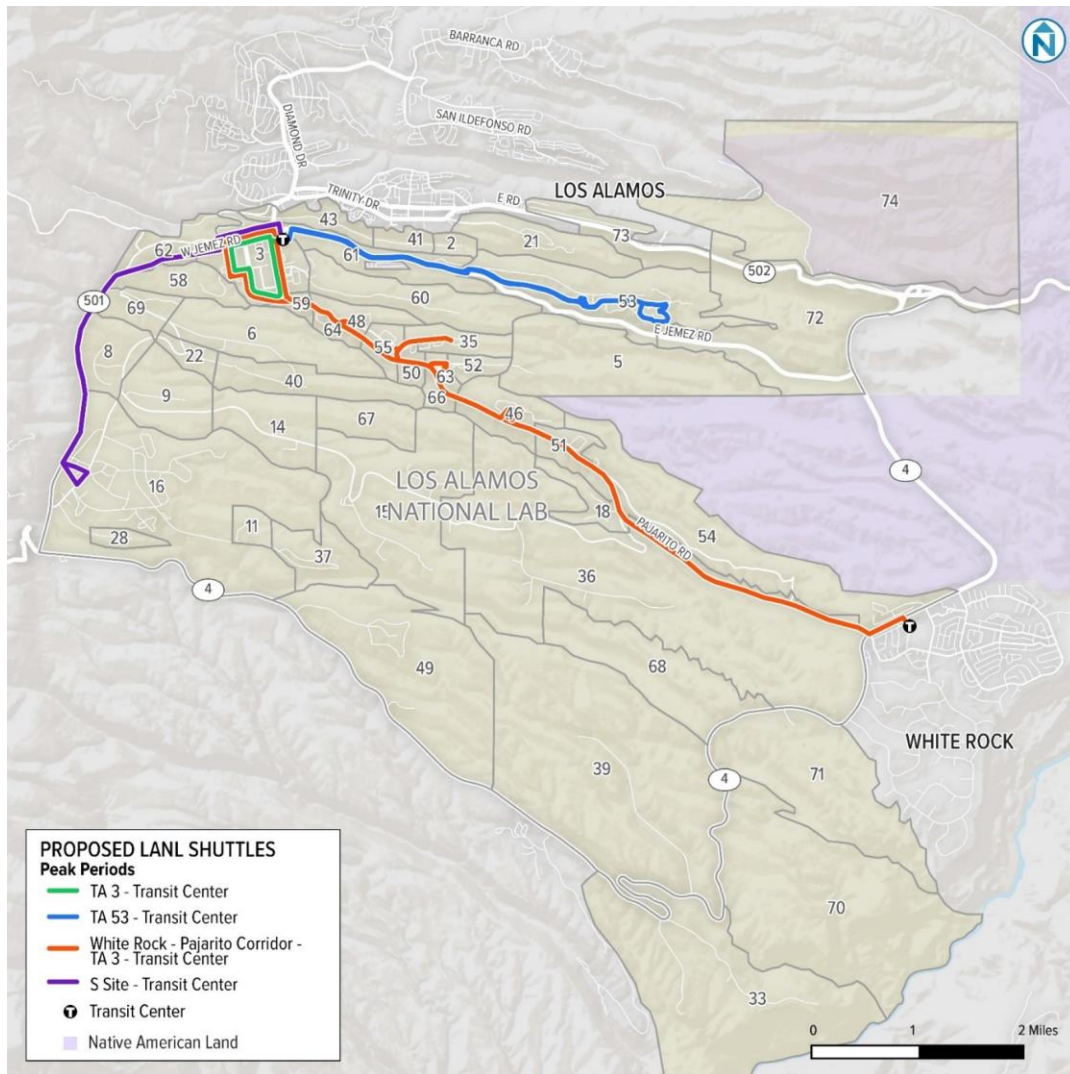


Figure 11. Excerpt from Nelson/Nygaard, proposed LANL bus routes.

3.4.2 Internal Transit

The LANL internal transit system is operated and maintained by LOG, and the service is branded as “taxi.” During FY23, UI will work closely with LOG to plan for a future fixed route transit expansion to meet the growing demand from new staff with limited parking options. As indicated in the TTI report, it is essential to provide reliable and consistent internal transit services to build the trust of current and future riders. FY23 priorities include the following.

3.4.2.1 Rebrand

As service increases to a municipal-type transit structure, the term “taxi” no longer fully describes the service. During FY23, the team will study, evaluate, and implement a new name, logo, and brand.

3.4.2.2 Peak Service

Currently, the morning peak commute is served entirely with on-demand service. Taxi shuttles leave the TA-3 transit center at scheduled times; however, the riders in those vehicles dictate where the shuttle will go. People wishing to pick up a shuttle from a place other than the transit center cannot do so until after 8:30 a.m. The on-demand service may still be the best solution to accommodate many of the morning passengers, but it may need to be combined with a circulator-type service to key locations. The proposed service will include a TA-3 circulator, a Pajarito Corridor circulator, and service to other key areas as determined by need and evaluated through taxi staff and surveys. Multiple vehicles on one route will be necessary to meet the transit need during peak times. Internal buses (taxis) will be scheduled to leave as soon as commuter buses arrive so passengers will not have to wait 10 to 20 minutes as they currently do. This service will depend on appropriate staffing levels and vehicle availability.

3.4.2.3 TA-3 Circulator

A TA-3 circulator with a route similar to what is currently in place will be established but will operate from 6 a.m. to 6 p.m. each weekday. The headways will be more frequent during peak times and about every 10 to 15 minutes during non-peak times.

3.4.2.4 Pajarito Corridor Circulator

LANL will evaluate the current Gold and Platinum taxi routes and determine if those routes need to be changed or if other stops need to be added. Transit studies and surveys will help determine where the stops will be located and whether multiple routes will be needed. LANL will also work with the Associate Laboratory Directorate for Weapons Production (ALDWP) to understand the transportation needs between TA-55 and other locations, including the New Employee Training Center, for staff who use alternative transportation.

3.4.2.5 On-Demand Service

Employees will still be able to call for on-demand rides, but these rides will be limited to areas where fixed-route service is not provided. The transit app will be able to be used on a mobile or desktop device will and allow people to schedule a ride similar to an Uber or Lyft. Employees can also call if they prefer. The app and desktop site will show where the bus or van is located, how far it is from the requested pick-up point, and the estimated time of arrival at destination.

3.4.2.6 Special Service

The LOG taxi service is currently used for several special service requests on and off LANL property such as protocol. These requests can come with little time to prepare and may force regular service cancelations. When staffing levels and vehicle availability are at maximum capacity, a new procedure will be implemented that includes a dedicated driver and vehicle being scheduled for this type of request.

3.4.3 Transit Infrastructure

To meet the growing demand for transit service, infrastructure investments will be necessary. The infrastructure will need to address both the arrival and departure of employees to the LANL campus and inter-LANL mobility. The Campus Master Plan and Transportation Teams will need to work together closely to ensure all needs are being met with an evolving landscape of road, building, and mission projects. Although most of the transit infrastructure investments will not take place in FY23, planning for future years will begin this FY.

3.4.3.1 TA-3 Infrastructure

To accommodate increased bus traffic, upgrades to the TA-3 transit center are needed. In FY23, preliminary design plans will be developed that showcase the transit center as a new gateway to LANL that includes an improved arrival experience that highlights LANL's history, landscape, culture, and role on the national security stage. A project of this magnitude will likely take several years between planning and construction. In the meantime, it will be critical to **make temporary improvements** to increase the capacity of additional external and internal buses to meet LANL needs.

In FY23, plans will be developed to expand the transit center into the adjacent overflow parking lot. This will allow for the construction of an additional bus island 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 from the VAP into the transit center that is timed with the light at West Jemez Road and Diamond Drive. Currently, buses arriving in the late afternoon and evening have difficulty crossing West Jemez Road to the transit center because of a stream of vehicles leaving LANL during their evening commute. 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.

3.4.3.2 Pajarito Corridor Infrastructure

During FY23, the team will identify locations where bus stops will be in the short-term and long-term plans in the Pajarito Corridor. These locations need to accommodate space for large commuter buses that could be coming onto LANL property to drop people closer to their worksites rather than making a transfer to a LANL shuttle or taxi. Planners also need to be cognizant of bus radius, so the buses have adequate space to turn around. The plan includes four to five bus pull-outs to accommodate bus parking in TA-55, TA-63, and TA-48.

3.4.4 *Fleet Management*

LANL has ordered 14 new buses for FY23. As part of the plan to expand transit options and transition the fleet to electric, an aggressive bus purchasing plan will be developed for FY24 and beyond. Beginning in FY24, bus purchase priorities will include accessibility features and net zero emissions. This will also be coupled with training of existing mechanics and hiring additional mechanics who can maintain an electric fleet.

There are currently 26 vehicles in the transit fleet that range in capacity from 5 passengers to 44 passengers. The most common vehicle type in the fleet is currently the 14-passenger Ford Transit van. The order for FY23 is shown in Table 3.

Table 3. Transit Fleet Order for FY23.

Vehicle Type	Quantity	Passenger Capacity
Passenger Van	7	14
Light Duty Shuttle Bus	1	20
Light Duty Shuttle Bus	2	24
Light Duty Shuttle Bus	2	20
Intercity Motorcoach	1	49
New Flyer Hydrogen Bus	1	34

3.4.5 *Driver and Maintenance Hiring Incentives*

LANL is expanding the transit program at a time when transit agencies around the country are experiencing an unprecedented shortage in drivers. According to the American Public Transportation Association, 9 out of 10 transit agencies are having difficulty hiring new employees, with nearly two thirds struggling to retain workers. Therefore, it will be important to offer competitive pay rates and hiring incentives to attract the best candidates. As a comparison, ACT in Los Alamos is offering drivers a \$1,500 new hire sign-on bonus and a pay rate of up to \$24 to \$27/hour that includes on-the-job commercial driver’s license (CDL) training and certification. NMDOT contracts with All Aboard America for the New Mexico Park & Ride service. They are currently offering a \$3,000 new hire sign-on bonus and a pay rate of up to \$25/hour that includes on-the-job CDL training and certification. During the next contract negotiations, it will be important to include hiring incentives that are, at a minimum, equivalent to our local transit partners.

In addition to the transit operators, mechanics will need to be hired to maintain the additional fleet. Mechanics will need to be trained on an expanding fleet that includes net zero emission vehicles and equipment. New and/or trained mechanics and drivers will need to be in place by the end of FY23 when the new buses arrive.

3.5 Vanpool

The TTI report shows three possible scenarios for LANL to achieve commuting goals and manage the parking availability through 2028. All three scenarios show significant vanpool participation. Even if transit is the primary source of future alternative commutes, TTI is showing that LANL will need to have at least 674 people participating in the vanpool program by 2028. If LANL chooses to focus on a vanpool/carpool-heavy scenario, then at least 2,108 employees will need to commute by vanpool by 2028.

In FY23, LANL will proceed with a formal vanpool program to help employees reduce their commuting costs and provide a more flexible, direct option to get to work. LANL will work with the NMDOT vanpool vendor, Enterprise, to help employees find five or more people who live near them and work the same schedule to share their commute. Interested employees can choose a new model SUV or minivan to lease on a month-to-month basis. NMDOT will provide a \$300- to \$450/month subsidy to help lower lease payments and commuting costs. Registered vanpools will receive a permit to park in a dedicated HOV space in a lot near their worksite. (See more details in Section 3.9, “Incentives,” and Section 3.10, “Parking Management.”)

3.6 Carpool

Carpooling will be a great option for employees who have trouble meeting the minimum occupancy requirements for a vanpool or for those who want to use their own vehicle. According to the 2022 Commute Survey, 10.1% of LANL employees carpool with other co-workers at least some of the time. Employees are often interested in carpooling but have difficulty finding employees who work the same schedule and also live near them. Therefore, in FY23, LANL will solicit for a carpool matching software, program, or service to help employees find carpool partners. As noted in Section 3.10, LANL will provide a specific lot or location for registered carpools.

3.7 Biking

During the public input for the draft transportation plan, 58 comments were received on biking options or biking infrastructure on LANL property. Improving the biking infrastructure will take time, but with improved lanes, trails, and parking options, biking can be a feasible source of transportation both for commuting and inter-LANL mobility. As repaving projects are planned over the next several years, it will be important to study the road and add dedicated bike lanes where possible.

3.7.1 Pajarito Road

In late fall 2022, a project to repave Pajarito Road between Diamond Drive and Pecos Drive will begin. As part of this project, a dedicated bike lane will be added to Pajarito Road in both directions. The bike lanes are expected to be completed in spring 2023.

3.7.2 Diamond Drive

As part of the Diamond Drive widening project that is expected to begin in FY24, a dedicated bike lane will be added in both directions between West Jemez Road and Pajarito Road. This will tie into the new bike lane that will be added on Pajarito Road.

3.7.3 Dedicated Trails

During FY23, UI Transportation will work with the Bicycle Safety Committee and other organizations to determine where paved bike trails will be most beneficial. A dedicated bike trail or path away from traffic is the safest way to travel by bike and encourages more people to use bikes.

3.7.4 Bike Parking

In FY23, UI Transportation will evaluate the bike parking options on LANL property and help determine where new bike racks and bike lockers should be located. UI purchased 20 new bike lockers to be added to the program in FY23. As part of this evaluation, LANL will also study the possibility of converting existing mechanical bike lockers to electronic lockers. A mechanical locker is one space dedicated to one user. An electronic bike locker can be used by anyone who has an electronic key card, thereby opening up the entire network for each user. This will promote biking as a transportation option to attend inter-LANL meetings. As part of the TA-3 transit center upgrades, it is recommended to include a group bike parking station. A bike station is an enclosed facility that can house 20 to 40 bikes (see Figure 14). Users will receive an electronic key card to access the facility and can then lock their bikes up to one of the racks inside the structure.



Figure 12. Example of a bike parking station.

3.7.5 e-Bike Share Pilot

The Sustainability Team has launched an e-bike share pilot program for FY23. There are five work divisions that have received an e-bike that their team can check out. The Sustainability Team will evaluate the use of the program in FY23 and determine if an expanded e-bike share program would be feasible for LANL in the future.

3.8 Telework

During the pandemic, LANL adopted new telework policies that allowed more employees to work from home or on a hybrid schedule. This shift significantly reduced traffic congestion and parking capacity. Even though more people are reporting to the office, it is recommended that teleworking remains an option that management can use to help reduce traffic congestion during large construction projects, such as the NM 4 and East Jemez Road intersection work. According to the 2022 Commute Survey, about 59% of LANL employees work onsite full time. The remaining 41% either work a hybrid schedule (24%) or telework most of the time (17%).

3.9 Incentives

As the TTI report indicates, reducing SOV use will be challenging and will require incentives to encourage people to choose an alternative commuting method. Some incentives that will be evaluated in FY23 are listed in the following subsections.

3.9.1 High-Occupancy Vehicle Parking

In FY23, UI Transportation will work with internal partners to develop a new HOV parking policy that identifies priority locations to encourage carpool and vanpool use. Registered carpools and vanpools will be assigned a parking location close to their worksite.

3.9.2 Guaranteed Ride Back

One of the top reasons people give for not using an alternative commute is wanting to have access to their vehicle in case of an emergency. In FY23, LANL will develop a proposal to operate a program that provides a ride back to an employee's parked car if they need to leave work because of an emergency or unplanned overtime. Possible ways this could be accomplished include (1) using the existing internal taxi service once staffing and vehicle levels can meet demand, (2) allowing employees to check out a GOV in these circumstances, and/or (3) having a contract with a rental car company to allow employees to use a vehicle for set number of times during the course of the year in these circumstances.

3.9.3 Subsidized Bus Passes

In FY23, LANL will explore the possibility of providing employees with a subsidized transit pass for use on the New Mexico Park & Ride the New Mexico Rail Runner Express. The cost of a monthly Park & Ride pass is \$90 and a combined Rail Runner + Park & Ride pass is \$150. By showing NMDOT that LANL has the ridership, they may be more likely to offer increased service.

3.9.4 Vanpool Subsidy

NMDOT provides a 33% subsidy for vanpools, which amounts to \$300 to \$450/month depending on the vehicle and the distance traveled. Vanpool leases typically cost between \$1,200 and \$1,500/month. To help encourage vanpool participation, in FY23, LANL will explore the possibility of an employer subsidy to help lower vanpool commute costs even further. Federal government employees are eligible for the Transportation Incentive Program (TIP), which provides up to \$280/month to each employee to help cover transit, vanpool, and parking expenses. Because LANL is part of Triad and staff are not federal employees, they are not currently eligible for this benefit. It will likely take

legislative action to make this change. In the meantime, LANL will explore how our funding sources can help pay for commuting expenses.

3.9.5 Cash Incentive

In FY23, LANL will explore possibilities to add this incentive in the future once the parking management goals are achieved. The strategy with this incentive is to offer a set amount (such as \$5) to each employee for every day they do not bring their vehicle to work. Over the course of a month, this could amount to approximately \$100, which would be enough to cover the Park & Ride monthly pass. The benefit of this incentive is that it could cover all modes, and LANL would not have to offer different incentives or subsidies by mode type.

3.9.6 Commute Time

In FY23, LANL will work with public transit partners to alter schedules to better align with employee shift times. However, it is unlikely that transit schedules will work perfectly for every employee. Therefore, it will be important for LANL managers to allow flexibility, when possible, for employees who use transit. To amount for a 9- or 10-hour workday, managers could allow employees to count some of their time on a transit commute as time worked if they are able to get tasks done on the bus. The entire transit commute is not intended to be used as time worked, but rather a portion of their commute could be used to check and respond to email and work on projects or reports that can be done on a laptop or a phone to make up 15 to 30 minutes of their time. This would be designed to help employees who want to use transit but need a little more time in their day to meet tight transit schedules.

3.10 Parking Management

In FY23, LANL will develop parking management strategies to help reduce SOV rates and encourage alternative transportation use. LANL will benchmark university models (e.g., Texas A&M) that have successfully deployed parking management as part of their commuting culture. According to TTI, this will be a challenging initiative, but if there is not a disciplined process for designating a parking area in a constrained environment, effective change will be difficult to achieve.

3.10.1 Parking Policy

In FY23, LANL will review the current parking policy and make recommendations for updates that align with the transportation plan. This will include elements of assigned parking locations, enforcement, and a “safety valve” to accommodate changes and unexpected conditions.

3.10.2 High-Occupancy Vehicle Parking

As indicated in other sections of this document, priority HOV parking will be important to help encourage carpool and vanpool use. In FY23, LANL will develop a new procedure for issuing HOV placards to employees. To date, many people have not turned in their expired placards and continue to use them, causing a lack of available HOV parking. As part of the new procedure, a notice will be issued that all placards will expire on a certain date (such

as December 31) and employees will need to apply for a new permit or placard. All current HOV parking will be evaluated, and additional spaces will be allocated in FY23.

3.11 Performance Monitoring

In early FY23, LANL will develop KPIs that will help measure the success of new transportation projects. These metrics will be reported monthly or quarterly. Possible metrics include public transit ridership, LANL taxi ridership, on-time performance, bus purchases, bus seating capacity, bus ADA capacity, parking lot capacity, HOV parking permits issued, number of vanpools, number of carpools, number of passengers per carpool/vanpool, vehicle miles traveled (VMT) reduced, greenhouse gas emissions reduced, miles of bike lanes available, miles of bike lanes added, miles of paved roads, miles of paved roads added, bike rack and bike locker capacity, bike rack and bike locker usage, e-bike use, incentives implemented, incentives used, and employee satisfaction.

3.12 Communication and Outreach

Communicating the available transportation options to employees and stakeholders is essential for making this program a success.

3.12.1 Employee Communications

There was a tremendous response when employees were asked to provide feedback for the draft transportation plan. More than 350 comments were received and over 700 people attended presentations with live questions and feedback gathered. In FY23, UI Transportation will work with LANL Communications to help tell the transportation story, solicit feedback, and report results. This will be accomplished through a dedicated Communications staff member being assigned to UI Transportation and Sustainability.

3.12.2 Transportation Site

On LANLInside, UI Transportation will create a dedicated page to keep employees informed about all “things” transportation. This may involve consolidation of some other pages such as Taxi, Traffic, and Parking so users can easily find transportation-related items in one place. Additional keyword search terms will be added so people can find the site easily. People will be able to go to this site and request a bike locker, request transit trip planning assistance, find a carpool or vanpool partner, find HOV parking, see the transit schedules, and see a list of upcoming road construction projects.

3.12.3 Employee Orientation

In FY23, UI will begin providing a “Commuting to LANL” presentation at new employee orientations. This presentation will highlight how to use the transit system, where to catch the bus, how to pay for a ticket, and how to connect from public transit to the LANL taxi service.

3.12.4 Employee Outreach

In FY23, UI Transportation will begin helping employees find the best commute option through in-person and virtual outreach events.

3.12.5 Employee Notifications

When things do not go as planned, there needs to be a way to communicate with employees about a disruption in service. During this growth process, it will be important

for employees to rely on the transit system and know in advance if a bus route will be delayed or cancelled. Similarly, employees need to be given notice if a parking lot will be closed or lanes will be closed because of construction. In FY23, LANL will develop a system to notify people in these circumstances. People can opt in to receive notifications or they can be signed up automatically when they register for a service. Communication methods could include emails, text messages, an automatic scrolling feed on the transportation website, or phone calls.