

The City of Chandler

2023 USDOT ATTAIN Application

Volume 1. Technical Application

Project TRANSCEND

February 2, 2024



Section I. Cover Page

Project Name	Project TRANSCEND
Eligible Entity Applying to Receive Federal Funding	The City of Chandler
Total Project Cost (from all sources)	\$8,218,538
ATTAIN Request	\$6,574,830 Please refer to Attachment B for an itemized budget and Vol 2., Exhibit 1 for letters of local match commitment.
Are matching funds restricted to a specific project component? If so, which one?	No
State(s) in which the project is located	Arizona
Is the project currently programmed in the: • Transportation Improvement Program • Statewide Transportation Improvement Program • MPO Long Range Transportation Plan • State Long Range Transportation Plan	While the project is not currently programmed in the TIP, Chandler has confirmed with its MPO, the Maricopa Association of Governments (MAG) that the City can include the project in the next TIP round should they be awarded. Please see MAG's letter of support in Attachment A. Recommendations for innovative mobility solutions are also listed in Chandler's 2019 Transportation Master Plan and the joint Chandler/Valley Metro Price Road Flexible Transit Study (see footnotes ¹²).
Technologies Proposed to Be Deployed (briefly list)	- Integrated Transit Trip Planning and Booking Platform (Fixed route, AV microtransit, and conventional microtransit) - Automated Vehicle Deployment - Rider Facing Booking Portal
Will the project use connected vehicle technologies? If so, which technologies will be used—for instance, will the project use: • DSRC/5.9 GHz spectrum? • Cellular/4G/5G communications? • Another connectivity technology? (please specify e.g., bluetooth, RFID, etc.) If the connectivity technology has yet to be determined, please specify "TBD".	The May Mobility Automated Vehicles will use 4G/5G communications.
Will the project use automated driving system technologies?	Yes
Rural Considerations: a) Is the project serving a rural area? A rural area is an area with a population of less than 50,000 residents (according to the 2010 census) b) If yes, how much ATTAIN funding is being requested to be put toward serving the rural area?	No

¹https://www.chandleraz.gov/sites/default/files/Chandler-TMP_Final-Report_01-09-20_lr.pdf

²https://vulcan-production.nyc3.cdn.digitaloceanspaces.com/projects/downloads/price-road-flexible-transit-study/price_road_flexible_transit_study_rpt_final.pdf

Table of Contents

Section I – Cover Page.....	2
Section II – Project Narrative.....	3
Project Summary.....	4
Geographic Area.....	5
Real-World Issues and Challenges.....	7
Program Vision, ATTAIN Goals, and DOT Focus Areas.....	10
Transportation Systems and Services.....	15
Deployment Plan and Project Schedule.....	16
Obstacles to Deployment, Regulations and Exemptions.....	19
Quantifiable System Performance Improvements.....	20
ATTAIN Program Areas.....	22
Leveraging Existing Investments	26
Buy America Act.....	26
Technology Summary.....	26
Automated Driving System-Equipped Vehicle Safety.....	27
Section III – Management Structure.....	28
Applicant Organization.....	28
Partnership Plan.....	28
Proposed Subcontractors.....	28
Flow Chart.....	31
Section IV – Staffing Description.....	31
Key Personnel.....	31
Primary Point of Contact.....	32

Section II. Project Narrative

Project Summary

Project Summary: The City of Chandler pursues a \$6,574,830 ATTAIN grant to elevate the City's on-demand microtransit service "Chandler Flex" through Project TRANSCEND, integrating Automated Driving System (ADS)-equipped vehicles (AVs) and facilitating the integration of the Chandler Flex Rider App with the Valley Metro Regional App. Project TRANSCEND is designed for the local context: it focuses on the City's vulnerable communities (K-12 and college level students and those living in low-income census blocks) and accommodation of the area's extreme temperatures, ensuring climate-sensitive, affordable, accessible, efficient transportation.

Project Overview: Existing transit services in the City of Chandler include fixed-route transit services provided by the regional transit authority, Valley Metro, as well as the Chandler Flex on-demand microtransit service. Chandler Flex was created to fill critical gaps in the existing Valley Metro bus system, as much of the Chandler area lacks access to frequent service. Since its launch in July 2022, Chandler Flex has facilitated over 50,000 trips, with more than half related to school commutes. Despite its positive impact, Chandler Flex faces challenges in meeting rising demand, yielding longer wait times and difficulties in fulfilling trip requests. Furthermore, the lack of integration with the Valley Metro network can lead to confusion and inconvenience for residents using both fixed-route and microtransit. As temperatures continue to rise throughout the region, Chandler Flex aims to maintain and expand its essential role, especially for those most at risk from extreme heat, by providing a reliable and safe transportation option.

Project TRANSCEND will deploy two key technological advancements:

1. **Launch AVs in the Flex Fleet:** The grant will pave the way for the incorporation of 5 hybrid-electric AVs into the Chandler Flex fleet. These AVs will operate within the following census tracts, all identified as disadvantaged by the USDOT Climate and Economic Justice Screening Tool and the ETC Explorer Tool:
 - a. 04013523002, where 13% of households do not have access to a vehicle;
 - b. 04013522903, where 65% of the population lives at or below 200% of the federal poverty line; and
 - c. 04013523104, where 13% of people ages 25 years or older do not have a high school diploma. This community is also in the 90th percentile for share of households where no one over age 14 speaks English very well.
2. **Integration of Regional Trip Planning Apps:** Grant funding will also enable the integration of the Chandler Flex Rider App with the Valley Metro Regional app. Both interfaces will empower riders to plan and pay for their trips across modes (fixed route, microtransit, and AV microtransit), promoting a more connected and efficient transportation system at the regional level.

The proposal recognizes the critical need to protect Chandler's most vulnerable residents, especially students, from the city's extreme temperatures. The City plans to leverage technology and innovation to develop a transportation system that focuses on both efficient movement and the well-being of its users. To support these objectives and better understand their effectiveness, the City has included funding for a research and evaluation

study in its proposal. This study will be conducted by CALSTART, in collaboration with Arizona State University (ASU) and the Arizona Commerce Authority (ACA), and will evaluate how Project TRANSCEND tackles key issues such as mobility, safety, and environmental concerns.

Project TRANSCEND supports the following objectives and outcomes:

- 287,000 residents living in Chandler will experience improved transportation
- 91,100 residents (living within the Chandler Flex zone) will be directly served with on-demand Chandler Flex services, including 56% of residents who identify as non-white or Hispanic/Latino and 11% who currently live in poverty;
- 31,500 (living in the Project TRANSCEND AV zone) will be directly served with on-demand AV Chandler Flex services, including 75% who identify as non-white or Hispanic/Latino and 23% who currently live in poverty;
- 3 Areas of Persistent Poverty census tracts will be served with on-demand AV Chandler Flex services;
- Increase Chandler Flex monthly ridership to over 4,000 trips across the entire service (inclusive of both microtransit and AV microtransit);
- Replace SOV trips (50% of AV trips would have otherwise been served by SOVs)
- Provision of an estimated 36,000 AV trips over the course of the three-year project term;
- Deep-link integration of the Chandler Flex app with the Valley Metro Regional App to facilitate intermodal trip planning and payment; and
- Publish a final report that analyzes the safety, mobility, and environmental impacts of Project TRANSCEND

Geographic Area

Project TRANSCEND's (Transforming Regional Automated Navigation for Student Commutes and Environmental Deterrents) will be deployed in Chandler, Arizona, an urban hub within Maricopa County that covers 65 square miles and is home to 287,000 residents. The city area plays a crucial role as a regional employment center and economic driver within the Phoenix urbanized area. Based on the 2020 census, Chandler is a melting pot with 45% of residents identifying as a minority (non-white or of Hispanic/Latino descent). Socio-economic data reveals an 8% poverty rate, while 24% of the population is under 18, slightly exceeding the national average of 22%.

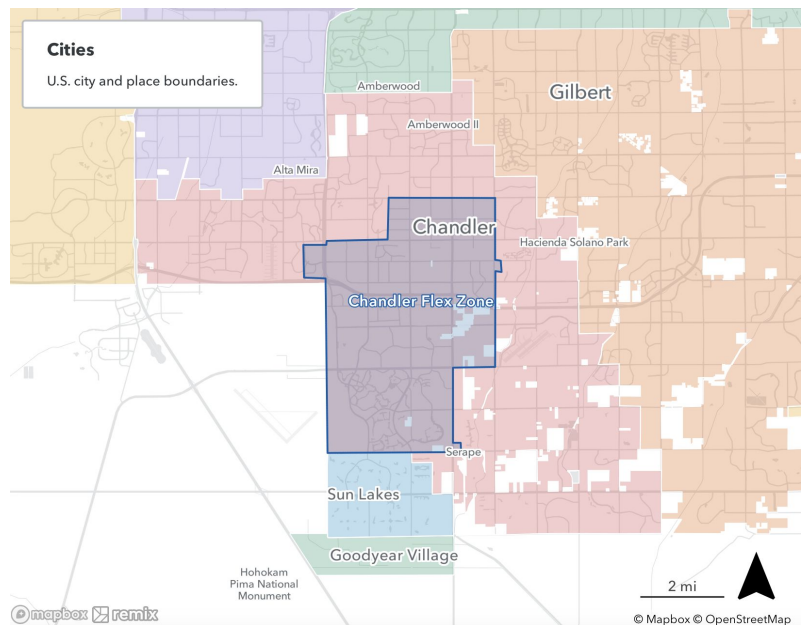


Figure 1: Chandler Flex Zone Boundary and City of Chandler Boundaries

In July 2022, the city responded to community mobility challenges by introducing the Chandler Flex microtransit service, located in a 21-square mile zone within the city. The primary objectives were to expand transportation access, foster regional connectivity, and enhance overall transportation equity. Within the Chandler Flex zone, 56% of residents identify as non-white or Hispanic/Latino, and 11% currently live in poverty. Since its inception, Chandler Flex has proven to be a vital transportation solution, serving over 3,000 riders on a monthly basis.

A key impetus behind the service's establishment was the digitization and expansion of the transit network, specifically to complement K-12 school transportation needs. Within the Chandler Flex zone, there is a dedicated 2-square mile section that exclusively serves student travel to and from schools. To date, student ridership constitutes over 50% of the monthly Chandler Flex trips. The student zone is also home to two low-income census blocks (04013523002, 04013522903; also Areas of Persistent Poverty census blocks). Meaningfully, 75% of the population in this zone identify as non-white or Hispanic/Latino, and 23% currently live in poverty.

The proposed AV services under Project TRANSCEND will operate within this “student zone”, (AVs will be available to both students and the general population) as well as the adjacent two square miles in downtown Chandler. The TRANSCEND zone is home to three low-income and AoPP census blocks (04013523002, 04013522903, and 04013523104). The AVs will also make connections to Chandler Gilbert Community College (CGCC) to facilitate workforce development and training opportunities. Please refer to the table and maps below.

Table 1: Demographics

Demographic	City of Chandler	Chandler Flex Zone	Chandler Flex, School Only Zone	Project TRANSCEND Zone
% of the population that identifies as non-white or Hispanic/Latino	45%	56%	75%	72%
Percentage of the population living in poverty	8%	11%	23%	21%
Areas of Persistent Poverty Census Blocks	3 total (04013523002, 04013522903, and 04013523104)	3 total (04013523002, 04013522903, and 04013523104)	2 total (04013523002, 04013522903)	3 total (04013523002, 04013522903, and 04013523104)

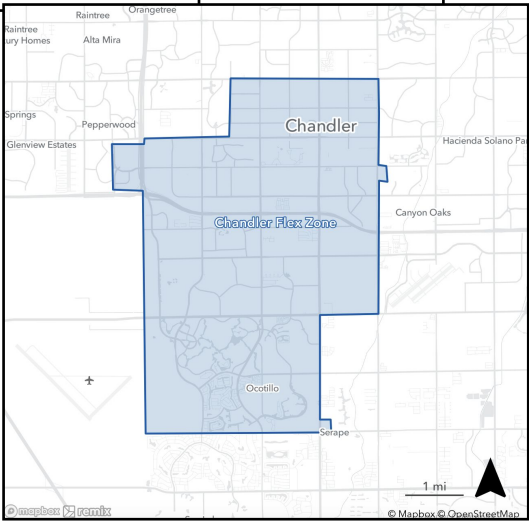


Figure 2: Chandler Flex Zone Boundary

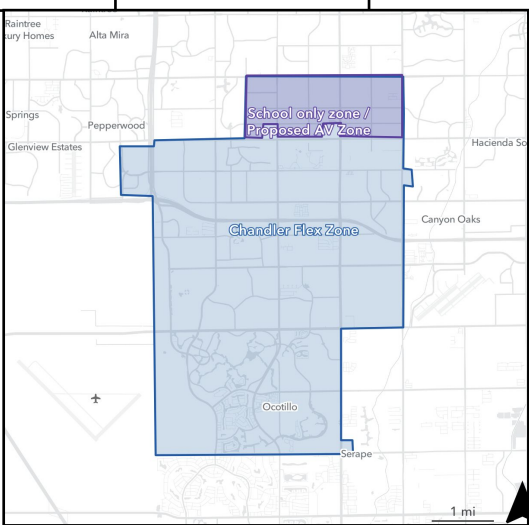


Figure 3: Chandler Flex + School Only Zone

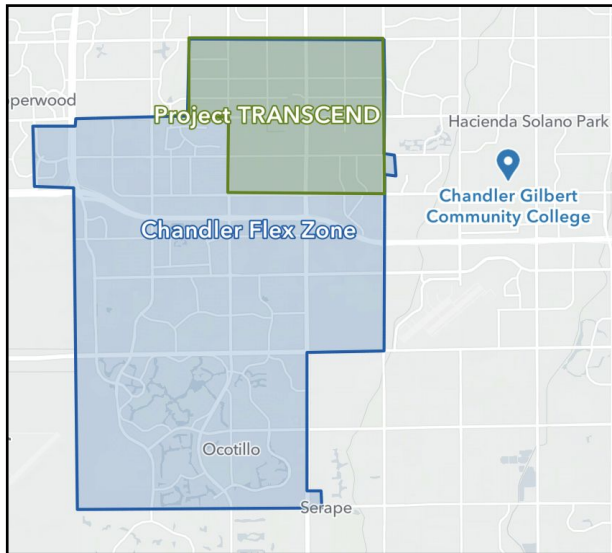


Figure 4: Chandler Flex and Project TRANSCEND Zones

Real-World Issues and Challenges

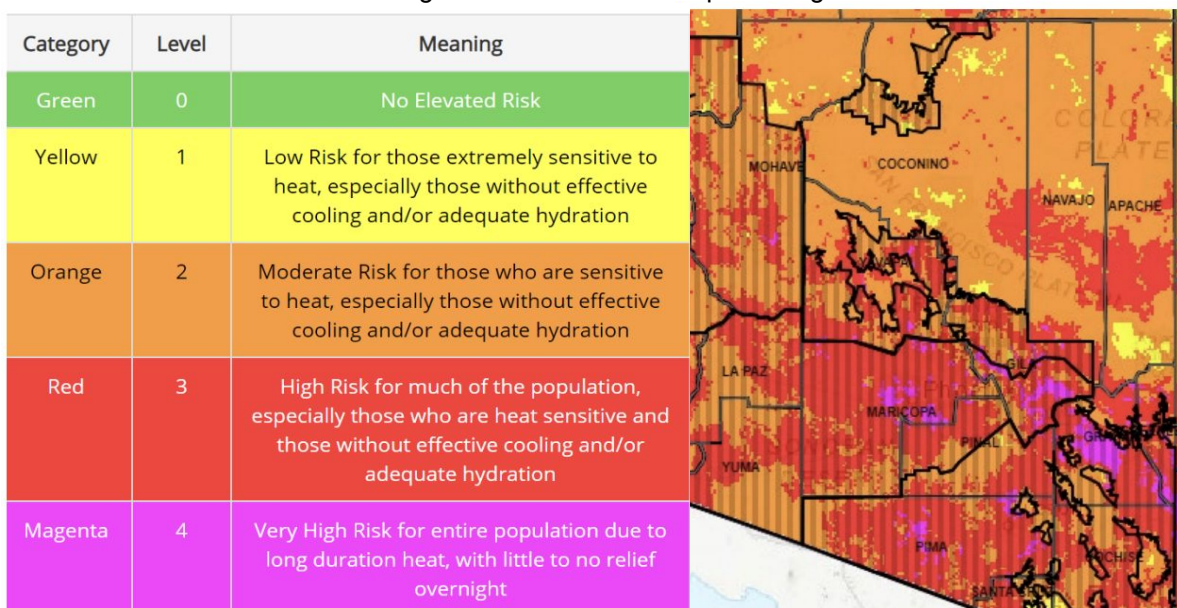
Chandler, an urban hub, is experiencing a growing demand for innovative transportation solutions. The real-world challenges faced by the Chandler community that prompt the need for Project TRANSCEND can be categorized in three main ways:

- A. **Safety Challenges:** Includes heat-related safety issues as well as rising collision rates in Maricopa County. Key concerns include the heightened vulnerability of certain groups (e.g., students) to extreme heat, the urban heat island effect, and the difficulties encountered during transit in high temperatures;
- B. **Environmental Challenges:** Heavy reliance on single-occupancy vehicles (SOVs), contributing to traffic congestion and higher emissions; and
- C. **Mobility Challenges:** Lack of connected transportation infrastructure throughout the City, resulting in unreliable travel experiences and inefficient transportation connections.

Safety Challenges: Disproportionate impacts of heat on priority groups and during transit

The City of Chandler, located in Maricopa County, Arizona, faces severe heat-related safety concerns, primarily due to its extreme temperatures and the urban heat island effect. This area records an average of 110 days per year with temperatures above 100°F, posing significant risks, especially to vulnerable groups like younger students. Children are more susceptible to heat-related illnesses due to their physiological characteristics, such as higher surface area-to-body mass ratios and lower sweating capacities. These factors underscore the need for specific strategies to ensure safe transit for this demographic.³

Figure 5: Arizona Heat Map and Legend



³<https://www.azdhs.gov/documents/preparedness/epidemiology-disease-control/extreme-weather/heat/managing-extreme-heat-recommendations-for-schools.pdf>

The challenges faced by Chandler residents due to heat are compounded by limited cooling options during travel. Many rely on air conditioning in personal vehicles, but this comes with financial strains, such as maintenance and higher fuel costs, particularly during summer traffic. Public transportation users often endure thermal discomfort at transit stops, which lack adequate shade and feature hot metal benches. This uncomfortable environment leads to significant impacts on daily life, including missing school, work, and other appointments due to the challenges posed by extreme heat. These issues highlight the importance of developing heat-sensitive solutions in public transportation to improve residents' mobility, comfort, and access to essential services.

A review of existing policies in the City of Phoenix indicates a significant gap in addressing heat-related transportation issues. An ASU study “Are State and Local Policies Addressing Community Concerns about Extreme Heat?” identified 51 regional policies related to heat. Notably, very few of these policies addressed transportation strategies.

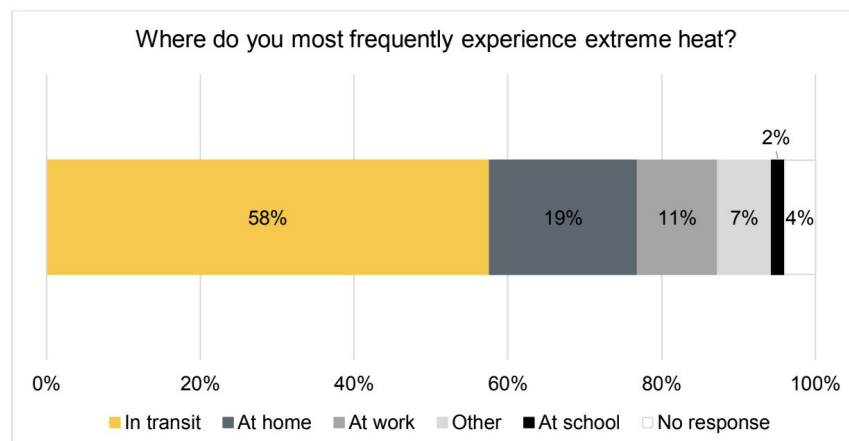
Finally, Project TRANSCEND's implementation of AV technology in Chandler's transportation infrastructure directly addresses the city's urgent need for enhanced safety outcomes, in light of the alarmingly high crash rates reported by the National Highway Traffic Safety Administration (NHTSA) in Maricopa County. According to NHTSA, Maricopa County, AZ has extremely high crash rates, constituting 71.65% of all crashes statewide and 52.04% of fatal accidents statewide. In Chandler alone, annual fatal crashes rose from 14 to 19 between 2019 and 2022. Additionally, according to the ETC Explorer Tool, within census tract 04013523002, traffic fatalities are estimated to be 6.50 per 100k people between 2017-2021—considerably higher than nearby communities. AVs hold the potential to reduce such crashes.

Environmental Challenges: Heavy Reliance on SOVs

In Chandler, the over-reliance on SOVs presents significant environmental challenges. SOVs contribute to traffic congestion, increase emissions, and as a result, hinder the efficiency and appeal of public transportation systems, ultimately impacting the city's sustainability and quality of life.

Extreme heat significantly impacts public transit usage in the city, leading to a preference for SOVs. A recent ASU survey reveals that 60% of community members selected public transit as the number one place they experience excessive heat, with home being the second most common location for heat-related discomfort at a distant 19%. As a result of the extreme heat experienced during transportation, 90% of respondents said that they resort to personal vehicles, friends', family's, or co-workers' vehicles as their primary mode of transportation, leaving only 10% who selected public transportation, carpooling, walking, biking, and taxis or ride-sharing services.⁴

Figure 6: Survey Response Data



⁴https://morrisoninstitute.asu.edu/sites/default/files/are_state_and_local_policies_addressing_community_concerns_about_extreme_heat.pdf

Additionally, the daily experiences of Chandler residents highlight a strong preference for SOVs over public transit, primarily due to the inefficiencies of the current public transportation system. For instance, a journey from Chandler High School in the north to Hamilton High School in the south takes about 90 minutes or even multiple hours using public transportation. This includes a nearly 2-mile walk to access the transit system. In contrast, traveling the same distance by car takes about 10 minutes. As a result, most families opt for SOVs. This reliance on private vehicles causes significant congestion around schools during pick-up and drop-off times, leading to extended travel times, frequent tardiness, and increased local emissions.

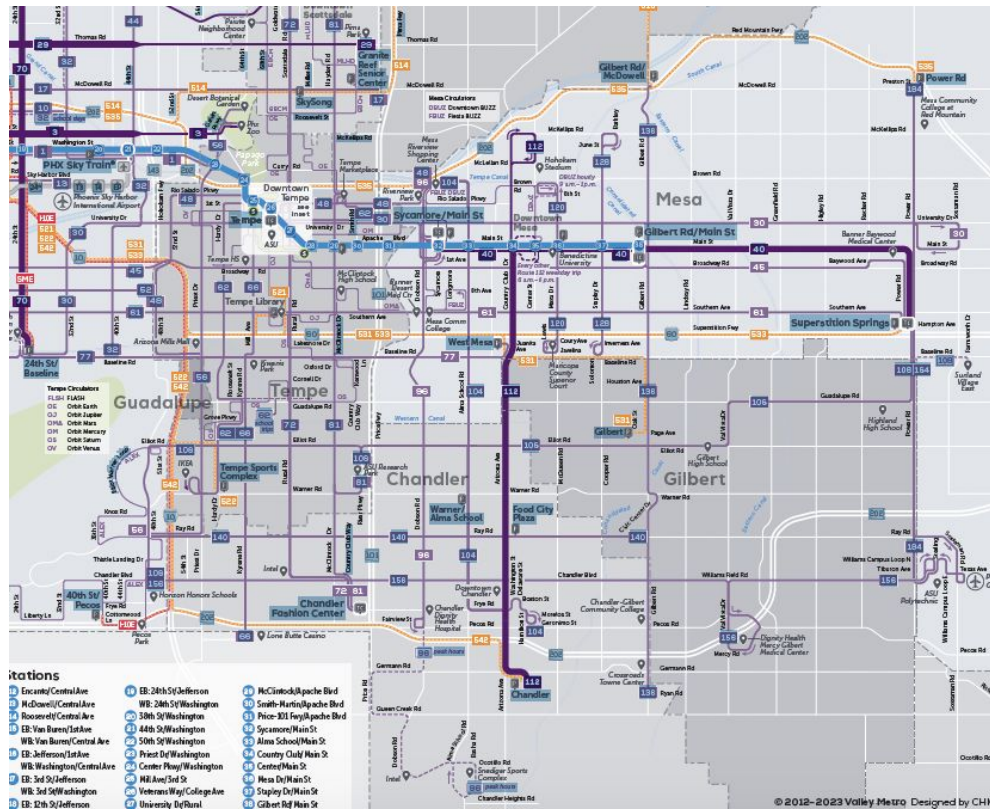
Traffic congestion is a prominent issue in Chandler, notably along major routes like Interstate 10, where residents often face lengthy delays, especially when traveling to areas like Casa Grande (south of Chandler). The City has attempted to address this through various lane expansion projects, including on Chandler Heights Road, Queen Creek Road, and Cooper Road. However, the effectiveness of these infrastructure improvements is limited without a corresponding decrease in the use of SOVs.

Mobility Challenges: Lack of Integrated Transportation Infrastructure

In Chandler, mobility challenges are significantly influenced by the lack of integrated transportation infrastructure. The city's transit services include the Chandler Flex microtransit service and fixed-route transit services provided by Valley Metro. Valley Metro's fixed-route bus system in Chandler covers over 50 miles, offering local and express services, and connects to Mesa's light rail, which extends service to Tempe and Phoenix.

The Chandler Flex microtransit service was introduced to address the gaps in Chandler's transit service, particularly in areas with infrequent transit. Within Chandler, only one bus route (the 112) operates with frequent 15 minute headways, as indicated by thick purple lines on the below transit map. In contrast, the Chandler Flex service allows for on-demand, shared rides, emphasizing K-12 student need but open to all residents.

However, despite Chandler Flex's role in bridging transit gaps, its effectiveness in improving mobility is limited by its lack of integration with the Valley Metro Regional App. This lack of connection between microtransit and fixed-route services through a single booking and payment app presents a major barrier to efficient transit use. Users relying on both Chandler Flex and Valley Metro services face a fragmented transportation experience, needing to navigate two separate systems for coordination, booking, and payment. This disjointed process can lead to inefficiencies and discourage the use of one or both services. The goal of establishing a cohesive, user-friendly transit network in Chandler is hindered by this lack of integration, highlighting the need for a more unified approach to improve the city's transportation ecosystem.



Program Vision, ATTAIN Goals, and DOT Focus Areas

Program Vision

Project TRANSCEND is a collaboration between public and private entities, aiming to tackle transportation challenges in Chandler, with a particular focus on K-12 and CGCC students and heat-related transportation barriers. Key partners include:

- The City of Chandler, serving as the grant recipient and project leader;
- Via Transportation, serving as the operations and software provider for the Chandler Flex service; and software provider for Project TRANSCEND;
- May Mobility, serving as the operations provider for Project TRANSCEND; and
- Arizona State University, Arizona Commerce Authority, and CALSTART, jointly serving as the research and evaluation team

Project TRANSCEND builds upon the success of the Chandler Flex service to introduce 5 hybrid-electric AVs into the fleet. These AVs will operate within an area in Chandler identified as having significant need, encompassing three Areas of Persistent Poverty census blocks and serving transit-dependent and heat-sensitive groups, students in particular. Project TRANSCEND will broaden access within the “school-only” zone, allowing the general population to access the AVs for non-school-related trips. Finally, TRANSCEND AVs will make connections to CGCC to facilitate training opportunities and workforce development in the AV space. The integration of AVs into Chandler's microtransit service represents a notable advancement in public transit innovation. While existing AV technology, including in Arizona, has predominantly focused on private robotaxi applications, this deployment aims to democratize AVs for sustainable, affordable, and convenient public transit. Beyond AVs, the grant will also enable the integration of the Chandler Flex Rider App with the Valley Metro Regional app. Both interfaces will empower riders to plan and pay for their trips on either app, promoting a more connected and efficient transportation system at the regional level.

ATTAIN Goals

In addition to achieving the above objectives, Project TRANSCEND will successfully advance ATTAIN's Program Goals, as outlined below.

(1) Reduction in the number and severity of traffic crashes and an increase in driver, passenger, and pedestrian safety;

Integrating automated driving systems into Chandler's public transportation holds promise to substantially diminish both the frequency and severity of SOV collisions, significantly enhancing overall road safety.

(2) Delivery of economic benefits by reducing delays, improving system performance and throughput, and providing for the efficient and reliable movement of people, goods, and services;

Residents of Chandler experience long and increasing commutes, often due to congestion or inefficient connections to regional transit. By providing Chandler residents with a reliable transportation solution that arrives in minutes, individuals will be able to cut down on commute times and travel to school and work more efficiently.

(3) Demonstration, quantification, and evaluation of the impact of these advanced technologies, strategies, and applications towards improved safety, efficiency, equity, and sustainable movement of people and goods;

The Project TRANSCEND team will have access to data sets to analyze service efficiency over time. This will include dashboards such as operation metrics (cost per hour, riders served per hour), rider experience metrics (rider satisfaction rating, number of repeat users), and rider growth metrics (number of daily rides, number of unique riders) all of which can be shared with FHWA and other transit operators throughout the country. Additionally, the application is supported by a strong research team (composed of ASU, ACA, and CALSTART) who will be responsible for producing a report on TRANSCEND's safety, mobility, and environmental impacts. These findings will also be shared with FHWA at the end of the three-year project term.

(4) Improvement in the mobility of people and goods;

Project TRANSCEND will enhance individual mobility in Chandler, particularly focusing on providing better access to vital locations such as schools, transit hubs, and essential services. This project is especially significant considering Chandler's extreme summer heat, which often impedes mobility. By facilitating easier, more comfortable transit during these challenging periods, TRANSCEND will not only ensure consistent access to essential services and educational institutions but also improve the overall quality of life for all students and residents alike.

(5) Improvement in the durability and extension of the life of transportation infrastructure;

One of the greatest threats to transportation infrastructure (highways and local streets) is the excess of SOVs on the road. Chandler Flex is designed to support modeshift and encourage individuals to use accessible transit instead of SOVs, thus reducing the number of vehicles on the road and extending the life of existing transportation infrastructure.

(6) Reduced costs and improved return on investments, including through the enhanced use of existing transportation capacity;

Project TRANSCEND effectively reduces costs and boosts return on investments by enhancing transportation efficiency and leveraging existing resources. Expanding service coverage increases accessibility and ridership, generating higher revenues. The project integrates AVs and conventional vehicles under one service, leading to improved punctuality, shorter wait times, and reduced travel durations, which heighten customer satisfaction and increase overall usage. Advanced app integration with existing transit infrastructure maximizes the use of current capacities, minimizing the need for new investments. The use of AVs can further lower operating costs in the future due to labor cost savings.

(7) Protection of the environment and delivery of environmental benefits that alleviate congestion and streamline traffic flow;

The project will enable significant environmental benefits by unlocking the full suite of regional transit options, using real-time data to direct riders to the most cost effective and sustainable mode for their journey. For instance, the service has been designed to ensure that riders who request trips that can be served efficiently by existing fixed-route buses are routed directly to those services. The software will instruct riders to use the existing bus and rail services for those trips, ensuring that the microtransit service does not “cannibalize” existing transit services. This will limit congestion and improve traffic flow by making all transit modes more efficient and accessible, reducing the need for SOV trips and increasing the number of riders carried by existing transit services. The microtransit vehicles and AVs will also be hybrid-electric, contributing to further emissions reduction.

(8) Measurement and improvement of the operational performance of the applicable transportation networks

Chandler aims to enhance operational performance for riders and administrators and will closely monitor key metrics throughout the project. These include average passenger wait time, trip duration, the number of intermodal connections made, and intermodal ticket purchases, along with other critical performance indicators. This approach ensures continuous improvement in service efficiency and user experience.

(9) Collection, dissemination, and use of real-time transportation-related information including, but not limited to work zone, weather, transit, and paratransit, to improve mobility, reduce congestion, and provide for more efficient and accessible, and integrated transportation, including access to safe, reliable, and affordable connections to employment, education, healthcare, freight facilities, and other services

Project TRANSCEND will collect real-time service data to inform service improvements and increase safe, reliable, and affordable connections to various points of interest throughout the region. AVs generate vast amounts of data that can be utilized to further refine transportation system management. This data can provide insights into traffic patterns, peak travel times, and passenger preferences, allowing for more informed decision-making and resource allocation.

(10) Facilitating account-based payments for transportation access and services and integrate payment systems across modes

Both the Chandler Flex and Valley Metro apps will allow for account-based payments to utilize the AV service. The apps will facilitate account-based payments; riders have the option to pay with their credit and debit cards, PayPal, among other potential fare systems. Additionally, passengers will have access to contactless open payments and full end-to-end visibility with GTFS-feed integration for riders seeking out multimodal trips via both Valley Metro fixed route and Chandler Flex. This will reduce friction for the rider and improve the overall rider experience by enabling the individual to simultaneously book various modes of transportation through a “one-stop shop” app.

(11) Monitoring transportation assets to improve infrastructure management, reduce maintenance costs, prioritize investment decisions, and ensure a state of good repair

The project will provide valuable service and performance data that will enable smart and more data-driven decisions on resource planning and maintenance (e.g., identifying locations that require road maintenance, identifying if a traffic sign is obscured or damaged, etc).

(12) Accelerated deployment of V2V, V2I, vehicle-to-pedestrian, and technologies associated with automated vehicle applications and other advanced technologies

The introduction of AVs is expected to accelerate efficiency in transportation by optimizing route management and reducing travel times. AVs, equipped with advanced sensors and AI algorithms, can navigate traffic more effectively and potentially decrease the incidence of accidents caused by human error. Additionally, the project not only introduces innovative automated vehicle technology but also aims to ensure its accessibility to the city's most vulnerable and disadvantaged populations.

(13) Integration of advanced technologies into transportation system management and operations

The integration of the Chandler Flex Rider App with the Valley Metro Regional App will allow for a more efficient user experience, enabling easy planning and booking of transit across different modes of transportation. The combined use of these apps, along with the data generated by AVs, can lead to improved synchronization of transportation services. This integration can enhance real-time updates, route optimization, and passenger notifications, thus improving overall system responsiveness.

(14) Reproducibility of successful systems and services for technology and knowledge transfer to other locations facing similar challenges

The City of Chandler is poised to be a transportation leader across the state and throughout the country. Project TRANSCEND will provide insights that expand the public transportation industry's understanding of AVs, building on an existing body of research that includes the FTA-funded Valley Metro/ASU/Waymo Study and the North Carolina Department of Transportation (NCDOT) Connected Autonomous Shuttle Study.⁵⁶ In tracking key metrics over time—including revenue vehicle hours/miles, vehicle hours/miles, unlinked passenger trips/boardings, and passenger miles—Chandler and the research team will offer a blueprint for other transit operators in their shared goal to improve quality and cost efficiency.

(15) N/A

DOT Focus Areas

Project TRANSCEND will successfully advance DOT Focus Areas, as outlined below.

- 1) **State of Good Repair:** Project TRANSCEND will significantly enhance Chandler's public transportation system by introducing 5 new vehicles into the Chandler Flex fleet. This initiative not only adds to the overall vehicle count but also substantially reduces the average age of the existing fleet. Moreover, the incorporation of AVs into the fleet serves as a catalyst for broader improvements in the city's infrastructure. The City, along with other public entities, will be motivated to enhance the compatibility of roadways with AVs. This includes addressing fundamental aspects such as clear lane markings, uniform pavement without potholes, properly functioning and visible traffic signals, and legible signs. By instigating these improvements, Project TRANSCEND not only transforms the public transit experience but also contributes significantly to maintaining the overall state of good repair for the City of Chandler.

⁵<https://www.transit.dot.gov/sites/fta.dot.gov/files/2021-09/FTA-Report-No-0198%20REVISED.pdf>

⁶<https://www.ncdot.gov/divisions/integrated-mobility/innovation/cassi/Documents/cassi-ncdot-cary-final-report.pdf>

- 2) Integration of Intelligent Transportation Systems with the Smart Grid and other energy distribution and charging systems: N/A
- 3) Advanced public transportation systems: Project TRANSCEND will introduce AVs into the Chandler Flex fleet, thus leading to a new level of precision and predictability in public transportation. The vehicles, in conjunction with advanced on-demand routing software, will optimize routes, reduce delays, and enhance overall system efficiency, ensuring a more reliable and timely service for passengers. Additionally, the potential for increased safety through AVs make the implementation of these technologies a transformative step toward creating a truly advanced public transportation system. Integrated booking and payment platforms will streamline the user experience, allowing passengers to plan journeys, make payments, and access various modes of transportation through one app. This will not only simplify the process for users but also foster a more efficient and sustainable public transportation system.
- 4) Efficiency of Freight Movement: N/A
- 5) Rural Opportunities to Use Transportation for Economic Success (ROUTES) Initiative: N/A
- 6) Complete Trip Program: The implementation of May Mobility's AV, the Toyota Sienna Autono-MaaS, aligns with the objectives of the Complete Trip program, as the vehicle is specifically designed for mass transit use, featuring an automatic ramp that complies with the ADA. When an accessible ride is requested through the Chandler Flex rider app, May's shuttle can accommodate one wheelchair user along with two additional riders. Upon launch, the vehicles will likely retain a "driving attendant" in the vehicle who will not only ensure ADA compliance but also provide assistance according to ADA standards and perform necessary safety and security measures.

Over time, the project (led by the City and Via's Community Engagement Team) will continue to assess the impacts and effectiveness of accessible technologies by soliciting input from users with mobility impairments. This will involve soliciting input from advocacy groups, individuals with disabilities, and relevant organizations to understand their specific needs and challenges. Collaborative workshops, surveys, and feedback sessions will be organized to gather insights on the user experience. Regular and open communication channels will be established to ensure ongoing engagement and feedback, allowing the project team to continuously refine and improve the accessibility features of the AV, ensuring it aligns with the evolving needs of the community.

- 7) Data Availability: The data generated from Via's routing and software platform as well as the integrated booking apps will enable informed choices in route planning, resource allocation, and service improvements. To facilitate data collection and sharing, Project TRANSCEND's research team will collect and analyze key metrics on safety, mobility, and environmental impacts over the 3-year deployment period and will publish its findings in a publicly available report at the end of the contract term.

Transportation Systems and Services

The transportation systems and services included in TRANSCEND encompass a comprehensive suite of tools and applications including:

- **Chandler Flex Rider App:** An integral part of the project, the Rider App or “Chandler Flex App” is fully accessible and aims to drive service adoption by delivering a superior user experience. It features QR code scanning for driverless rider verification, on-hand customer support, and post-ride feedback and surveys. Designed with accessibility at the forefront, the app accommodates the needs of individuals with visual, audio, cognitive, or mobility challenges.
- **Via Software:** The project incorporates Via's proprietary algorithms on each vehicle (both conventional and AV). The software is designed to enhance vehicle utilization, reduce travel time, and efficiently serve riders.
- **VOC (Via Operations Center):** The Via Operations Center (VOC) serves as a fleet management tool, enabling the efficient deployment of both AVs and conventional vehicles within a single service. Operators can manage deployments and access an analytics portal designed for reporting to regulatory bodies such as the USDOT.

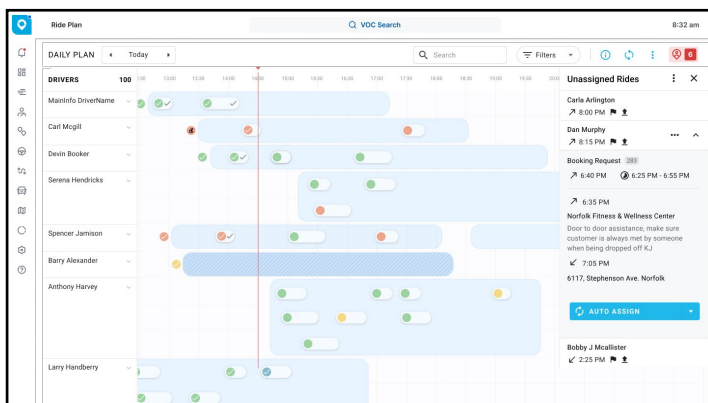


Figure 8: VOC Ride Plan

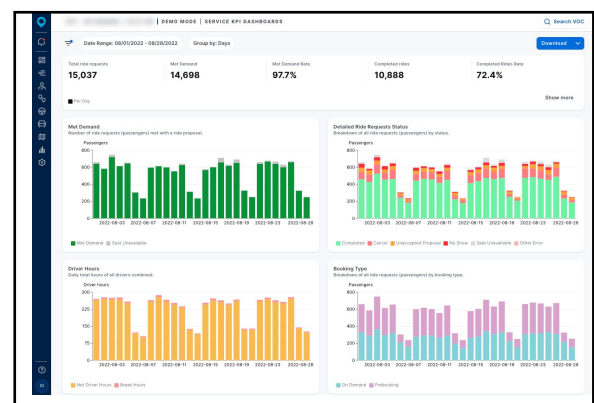


Figure 9: VOC Data Dashboard

- **May Mobility Automated Driving System-equipped Vehicles (AV):** The project incorporates May Mobility's automotive-grade, hybrid electric vehicle, the Toyota Sienna Autono-MaaS, which is well-suited for microtransit. Capable of navigating mixed traffic on public roads in full autonomy with speed limits of up to 35 mph, it can seat up to 5 passengers. One AV within the fleet will also be wheelchair accessible. Via and May Mobility have collaboratively launched 6 on-demand transit services since 2021, providing over 50,000 AV rides across the United States.
- **May Mobility's Automated Driving System-equipped Driving Technology:** May's technology operates in mixed traffic on public streets in multiple locations today. Its patented Multi-Policy Decision-Making (MPDM) algorithm is at its core. Rather than requiring a playbook for every possible roadway scenario, MPDM uses simulations as its “imagination” to safely navigate city streets. MPDM uses thousands of simulations per second to predict the behaviors of all agents (vehicles, pedestrians, bicycles, animals, etc.) in the AV's environment. It uses these simulations to determine the best course of action based on safety, passenger comfort, and predictability for other road users.



Figure 10: May Mobility Automated Vehicle

- App with Integration Capabilities:** The Chandler Flex and Valley Metro Regional apps will remain distinct, but users will have the ability to book all available transit services, including AV and conventional microtransit and fixed-route options, on either app. This means that whether using the Chandler Flex app or the Valley Metro app, riders can conveniently schedule trips across both services. See below for an example of an intermodal trip proposal on a microtransit Rider App.

Deployment Plan and Project Schedule

The deployment plan for Project TRANSCEND in Chandler is structured to implement and maintain advanced and integrated transportation technologies in Chandler. The plan emphasizes safety, community engagement, continuous improvement, and scalability, aiming for long-term sustainability and replication of success in other regions.

Phase 0: Service Planning & Design (Month 1 - Month 3):

The Service Planning & Design Phase will incorporate the signing of all contracts and the activation of grant funds. Concurrently, project

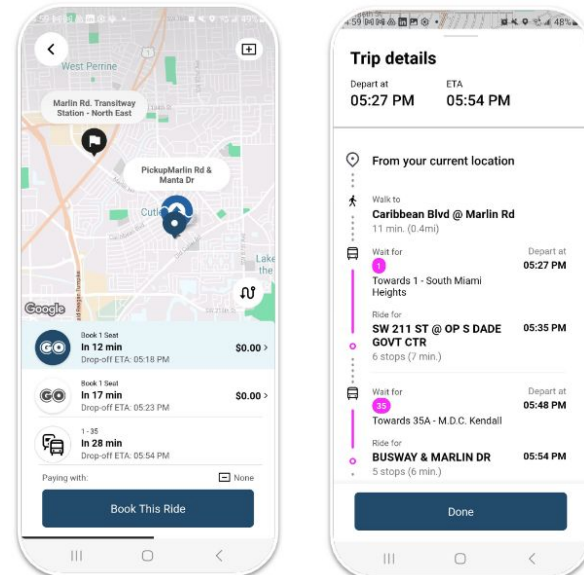


Figure 11: Intermodal Trip Proposal on Via App

partners will craft a comprehensive service design plan, outlining the integration of AVs into the Chandler Flex service. This phase is pivotal for establishing a collaborative framework with key partners Via Transportation and May Mobility, defining their roles and responsibilities, and setting up robust project management structures. A significant portion of this phase will also be dedicated to initiating technology assessments and procuring the necessary hardware and software resources essential for the project's backbone.

Deliverables:

- Execution of contracts and activation of grant funds.
- Development of a comprehensive service design plan, integrating AVs into Chandler Flex service.
- Establishment of a collaborative framework with Via Transportation, May Mobility, CALSTART, ASU, and ACA, including defined roles and responsibilities
- Initiation of technology assessments and procurement of essential hardware and software resources.

Phase 1: Technology Integration (Month 2 - Month 6):

During this phase, project partners will focus on scoping the integration of the Chandler Flex app with the Valley Metro Regional app, ensuring a user-friendly, cohesive digital experience for passengers. This phase will also include integrating the AVs with Via's technology to enable seamless communication of ride data between the two technology systems.

Deliverables:

- Scoping and integration of the Chandler Flex app with the Valley Metro Regional app
- Integration of AVs with Via's technology for efficient ride data communication.
- Development of a cohesive digital experience for passengers

Phase 2: Research Study Kick-Off and Data Collection Plan (Month 3 - Month 5)

CALSTART, ACA, and ASU will work with the City of Chandler, Via, and May Mobility to identify primary variables and develop a detailed test plan to describe the data collection and technical analysis work. A secure and safe data collection and storage process will be identified and implemented. Data sources include but are not limited to: the Via platform, capital/operating/maintenance costs, City of Chandler transit and equity KPIs.

Deliverables:

- Identification of primary variables for the research study.
- Development of a detailed test plan for data collection and technical analysis.
- Establishment of a secure and efficient data collection and storage process.
- Gathering of data from various sources including the Via platform, cost metrics, and city transit KPIs.

Phase 3: AV Technology Testing (Month 3- Month 5):

As Project TRANSCEND prepares for deployment in Chandler, this next phase will encompass rigorous testing and customization of AVs. A strong emphasis will be placed on providing robust climate control systems within the AVs, crucial for Chandler's extreme temperatures. In addition, May Mobility will also build in accessible features for people with disabilities for a comfortable rider experience. The introduction of real-time monitoring systems will be a key feature, providing live updates on weather and traffic conditions, thereby enhancing safety and operational efficiency.

The testing regimen begins with closed-course track testing, where AV performance is evaluated in controlled environments. May Mobility will lead this effort, using their advanced simulation platforms for in-vehicle software validation and rigorous track testing. These simulations aim to ensure that the vehicles can safely and effectively navigate the intended Operational Design Domain (ODD). Following successful simulations and track tests, AVs will be tested on local roads to generate high-definition maps, adhering to strict safety protocols. This stage will also involve proactive vehicle inspection to guarantee adherence to high safety and performance standards.

Deliverables:

- Closed-course track testing of AVs led by May Mobility.
- Advanced simulation platforms for in-vehicle software validation.
- Real-time monitoring systems development for weather and traffic updates.
- Road testing of AVs for high-definition mapping and safety protocol adherence.
- Proactive vehicle inspection for safety and performance standards.

Phase 4: Training and Community Development (Month 4- Month 6):

This phase is multifaceted, encompassing comprehensive training programs for staff and active community engagement. Project partners will roll out extensive training programs for city staff, designed to equip personnel with essential skills and knowledge for managing the new systems and vehicles. Training will cover various aspects of operations, safety protocols, and customer service, ensuring a well-prepared team for the project's launch.

Alongside training exercises, the City of Chandler, in collaboration with Via's Marketing and Community Engagement teams, will embark on a robust community outreach campaign. This campaign aims to raise public awareness about Project TRANSCEND, highlighting its benefits and operational details. Educational outreach activities, distribution of informational materials, and surveys will be key strategies in this campaign. These initiatives are crucial for building public trust and enthusiasm for the new service and for gathering valuable feedback to fine-tune the service according to community needs and expectations.

Deliverables:

- Comprehensive training programs for city staff on new systems and vehicles.
- Robust community outreach campaign for public awareness of Project TRANSCEND.
- Distribution of educational materials and conducting surveys for community feedback.

Phase 5: In-Person Launch & Operations Support (Month 6):

During this phase, all partners will be present on-the-ground to perform final training and provide support during the initial launch period. Recognizing the challenges of introducing innovative AV services, Via places importance on face-to-face interactions to build trust in the new system. The in-person support will be complemented by a dedicated Partner Support Manager and 24/7 technical support to ensure ongoing assistance and operational efficiency for the City of Chandler's AV transportation service. This structured deployment plan aims to guarantee a successful launch and long-term operational success.

Deliverables:

- Final training sessions for staff before the launch.
- In-person support from partners during the initial launch.
- Provision of a dedicated Partner Support Manager and 24/7 technical support.

Phase 6: Project TRANSCEND Deployment, Long-Term Operation and Maintenance (Month 6 - Month 42, 3-year deployment period):

This phase is characterized by the implementation of a continuous monitoring and maintenance program, covering all technological components, including AVs and app interfaces. The project will regularly update its software and hardware systems, staying abreast of advancements in transportation technology. Continuous community feedback mechanisms will play a crucial role in assessing service satisfaction and identifying improvement areas. For instance, riders will receive targeted communications — including surveys, on-board feedback, and in-app push questions — asking for their input on an ongoing basis to improve services over time. This phase also includes regular training sessions for new staff and refresher courses for existing staff, ensuring a consistently high level of service delivery. A sustainable financial model for operations will be established, exploring avenues like public-private partnerships, fare adjustments, and additional grant opportunities. Regular review and update of safety and emergency response protocols will be undertaken to ensure the highest safety standards.

Deliverables:

- Continuous monitoring and maintenance program for all technological components.
- Regular software and hardware updates. Continuous community feedback mechanisms for service improvement.
- Regular training and refresher courses for staff.
- Development of a sustainable financial model for operations.
- Regular review of safety and emergency response protocols.

Phase 7: Data Evaluation and Final Report (Month 6 - Month 42. 3-year research period):

This is an ongoing phase that will see the continuous collection and analysis of data on ridership, service efficiency, safety incidents, and user satisfaction. The insights gleaned from this data will be instrumental in making informed decisions on service improvements, expansions, and policy formulations. Regular reports will be provided to stakeholders, including the City of Chandler, ATTAIN grant authorities, and the public, detailing the project's performance against set goals and benchmarks. The data collected will also be utilized to inform the academic research study led by CALSTART, ACA, and ASU. Final deliverables for that team will include design interventions such as an interactive guidebook, factsheets, infographics, or short videos, all with the goal of contributing to the broader knowledge base in the field of automated driving systems and integrated transportation systems. Please see Attachment C for a more detailed scope of work outlining the timeline for the research study.

Deliverables:

- Detailed scope of work outline for the research study timeline.
- Continuous collection and analysis of data on various performance metrics
- Regular reporting to stakeholders on project performance.
- Utilization of data for academic research study
- Production of design interventions like guidebooks, factsheets, and videos.

Obstacles to Deployment, Regulations and Exemptions

No regulatory obstacles are anticipated for the project, as May Mobility's AVs meet FMVSS requirements and do not require any NHTSA waiver for public road operation. In addition, Arizona's positive reception of previous AV deployments indicate a likely positive reception to the proposed project. May Mobility has been operating AV's on public roads in Arizona since April 2022 (specifically in Sun City). Additionally, the on-demand software platform (powered by Via) will have the capacity to present service data (including trip denials or missed trips) in the exact format requested by regulatory agencies, such as the National Transit Database (NTD), or American Disabilities Act (ADA). May Mobility holds permits to operate both with and without autonomous vehicles on public roads with a safety operator.

Project partners do not anticipate any legislative obstacles to deployment, as the State of Arizona has been proactive in establishing favorable legislation for AVs, dating back to 2015 when Governor Doug Ducey signed Executive Order 2015-09. This order outlined the state's process for the safe development and testing of autonomous and connected vehicle technologies. Subsequently, Executive Order 2018-04, titled "Advancing Autonomous Vehicle Testing and Operating; Prioritizing Public Safety," further regulates AVs, including fully automated ones, ensuring adherence to all relevant laws, including A.R.S. Title 28 (Transportation), and rules set by the Arizona Department of Transportation (ADOT) and the Department of Public Safety (DPS). Notably, in 2021, HB 2813 was passed, codifying key elements of Executive Order 2018-04 into state law.

Finally, project partners anticipate an easy adoption of the AV service, as Chandler and Maricopa County residents are accustomed to AVs in their everyday environment. A significant precursor to this project was the successful pilot program in 2016, where Valley Metro partnered with Waymo to integrate AVs into Valley Metro's RideChoice program. This initiative, designed to cater to paratransit-certified individuals and older adults, demonstrated high levels of safety and comfort among participants. With this positive precedent, project partners foresee a straightforward adoption of AV services in Project TRANSCEND, given the community's established acceptance and comfort with AVs.

Quantifiable System Performance Improvements

The project will achieve various quantifiable system performance improvements such as:

1. **Reducing Overall Costs:** The project will reduce costs for both the agency as well as local users of the service.

Administrative cost reduction: Automated booking, dispatch, and reassignment technology will lead to more administrative and cost efficiencies. The software will consolidate all workflows and service data (for both conventional and AV service) into one intuitive administrative console and efficiently manage service exceptions — significantly reducing delays, no shows, and missed trips. Even as Chandler's services grow, the project will reduce operating costs by automating service management and driving high vehicle utilization, resulting in better service using fewer vehicles, fewer miles traveled, and fewer dollars in comparison to new fixed route services in the area. Overall, Project TRANSCEND will enhance current transportation operations by providing service in areas where fixed route service is not cost-effective.

Rider cost savings: According to the 2017 American Public Transportation Association's (APTA) January Transit Savings Report, the average transit user can save \$9,738 annually when switching their daily commute from a single occupancy vehicle to public transit.⁷ Accounting for the fact that gas prices have fluctuated tremendously since 2017 (average gas price in 2022 was between \$4-\$5 compared to \$2-3 in 2017 according to USA Today) and discounting the cost savings to 2024 rates, an individual living in the identified service area who switches entirely from SOV-use to transit would save closer to \$13,827 annual savings in 2024.⁸⁹

2. **Optimizing System Efficiency:** Riders can expect a maximum 15-minute wait time and reasonable overall travel time. Chandler will be able to adjust parameters continually to prioritize efficient service. On average, the vehicle utilization (riders served per vehicle per hour) of Chandler Flex is 3.1, and that number is expected to increase as more riders take advantage of the service. The service has also been designed to ensure that riders who request trips that can be served efficiently by existing fixed-route buses are routed directly to those services. The software will instruct riders to use the existing bus and rail services for those trips, ensuring that the microtransit service does not "cannibalize" existing transit services. This will optimize the overall system by reducing the need for SOV trips and increasing the number of riders carried by existing transit services, thus limiting congestion and improving traffic flow.
3. **Improving Access to Transportation:** The project is designed to improve access to transportation by deploying effective on-demand microtransit in an area with limited public transit service and significant barriers to existing fixed route service. The proposed

⁷<https://www.metro-magazine.com/10034517/mass-transit-users-can-save-9-738-annually-says-apta-report>

⁸<https://www.usatoday.com/story/money/2022/05/17/why-gas-prices-continue-rise-record/9798086002/>

project will also offer proven solutions for coordinating multiple modes within a single, integrated platform to support network-wide connectivity. Through integration with publicly-available transit data (GTFS) feeds, the Chandler Flex App can display real-time schedule information about other modes including the Valley Metro fixed route bus schedule. Functionally, the Rider App will offer users multimodal trip proposals with real-time schedule information (e.g., walking distance, wait time, price, etc.). With this solution, Chandler will be able to drive efficient coordination and communication across all modes in the regional transit network. Chandler will also measure ridership increases, particularly along fixed routes that the Chandler Flex service connects to, to demonstrate the effectiveness of the service in increasing ridership across all transit services.

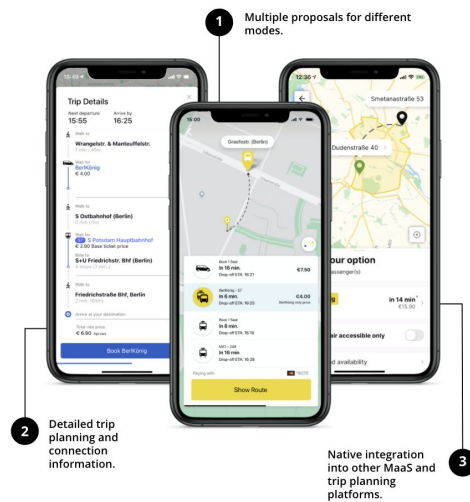


Figure 12:
Trip Planning
Scenario on
Via App

4. **Facilitating payment for Transportation:** Riders will have the ability to book and pay for their microtransit and fixed route trips on the app or by phone. In addition to offering credit card payment, the service will offer multiple payment options for passengers without bank accounts, including cash cards and electronic vouchers which may be purchased at convenient locations in Chandler's service area. For every trip booked, the rider will be able to see in-app notifications and messages, real-time vehicle and wait time tracking, and post-ride ratings. For those without access to a smartphone, a dispatcher will call the rider when the vehicle is approaching. In addition to the above system performance improvements, Project TRANSCEND will track the following metrics over the project term to continually assess performance (more metrics will be tracked for the purposes of the research study).

Key Metric	Suggested Benchmark	Data Source	Collection Frequency
Increased ridership on local public transit	At least 100 passenger boardings per weekday	Via data dashboard	Monthly
Improved air quality and reduced carbon emissions	Service should achieve lower emissions compared to the baseline scenario of replaced modes that would otherwise have been used for these trips	Via rider surveys on mode replacement (i.e., "how would you have completed this trip if Chandler Flex didn't exist?")	Annually
Improved rider satisfaction	Service should achieve average customer satisfaction of 3.5 out of 5 stars or better	Via data dashboard	Monthly

Improved on-time arrival rates (potentially school on-time arrival rates)	Service should achieve a 95% on-time arrival rate	Via data dashboard	Annually
Shorter passenger wait times and improved access to transportation services	Target average wait time (among all rides) should be in the range of 15 minutes for Chandler Flex. Compare Chandler Flex average waiting time vs. Valley Metro fixed-route average service frequency	Via data dashboard, Valley Metro bus schedules (ingested via GTFS files using Remix software)	Monthly
Compare AVs with conventional vehicles to obtain unique insights	The research team will set clear benchmarks during the deployment. KPIs will include rider satisfaction surveys, completed trips, pick-up wait times, on-time arrival, etc.	Via data dashboard, research team dashboard	Annually

Table 2: Sample of tracked KPIs

ATTAIN Program Areas

Safety: Project TRANSCEND, with its focus on safety-oriented features and strategies, is set to substantially improve safety in the Chandler community. This initiative will be particularly advantageous for K-12 students and other vulnerable groups, addressing safety concerns in the following integrated areas:

Protection from Extreme Temperatures: The project acknowledges the risks posed by Chandler's extreme temperatures and addresses these by equipping AVs with essential supplies like water and portable fans. These AVs will act as mobile safety havens, offering not just a climate-controlled environment to shield passengers from harsh outdoor conditions, but also as a safe and well-timed connection to other fixed route bus stops. Each AV in the Chandler Flex service will include a climate control system to provide a secure environment during extreme weather conditions, adapting operations such as air conditioning and route planning (to reduce required walk distance, for example) in response to changing weather, particularly during periods of excessive heat.

Reduction in Human-Error-Related Crashes: The AVs, equipped with advanced sensors, cameras, and AI algorithms, will effectively reduce crashes by detecting and responding to road situations more efficiently than human drivers. They will consistently adhere to traffic laws, such as speed limits and signals, thereby reducing the likelihood of human-error-related crashes and ensuring a safer road environment by minimizing risky driving behaviors like speeding and reckless driving. Additionally, AVs eliminate the risks associated with driver fatigue and impairment, common contributors to traffic accidents. These vehicles are capable of real-time predictive analysis and decision-making, adjusting operation preemptively in response to traffic and road conditions, and providing swift emergency responses.

Data-Driven Improvements in Transportation Safety: Project TRANSCEND will also offer data-driven improvements in transportation safety. The continuous collection and analysis of data from AVs facilitate the ongoing refinement of operational algorithms, leading to constant enhancements in safety features. This wealth of data also aids city planners and policymakers in making informed decisions about road infrastructure, traffic management, and pedestrian safety. Looking ahead, there is potential for AVs to integrate with city traffic control systems, allowing for more coordinated and efficient traffic management, which could further reduce accident rates.

Improved Safety in Student Transportation: The introduction of AVs in student transportation across the Chandler Unified School District will address safety concerns associated with traditional student transportation methods. Arizona's 2022 adoption of a new student

transportation law allows for more flexible busing options for K-12 schools, including the use of 11-to-15 passenger vans and the elimination of the requirement that all drivers hold a commercial driver's license. While this may lead to greater efficiency for school district's with a widely dispersed student population, concerns have arisen throughout the state regarding safety, particularly in rollover crashes. Notably, over half of the 235 people killed in such accidents in 11-to-15 passenger vans between 2010 and 2019 were ejected, and 69% were not wearing seatbelts. AVs can address this safety risk by eliminating the need for human drivers, incorporating electronic stability control, and refusing to start the vehicle without seatbelt verification, thus preventing the dangers associated with rollovers that are prevalent in other models.

Mobility: Project TRANSCEND is set to revolutionize mobility and equity in Chandler and produce the following benefits:

Enhanced Chandler Flex Service with AV Integration: This initiative involves integrating Autonomous Vehicles (AVs) into the existing Chandler Flex service, enhancing its capability to provide on-demand connections to essential locations like the Chandler Regional Medical Center, Tumbleweed Park, Northrop Grumman, City Hall, and more. The service also plays a pivotal role in facilitating first and last-mile mobility connections to various Valley Metro fixed route bus stops, including 542 Chandler Express, 72 Rural Rd, 112 Arizona Ave, 156 Chandler Blvd, and 140 Ray Rd.

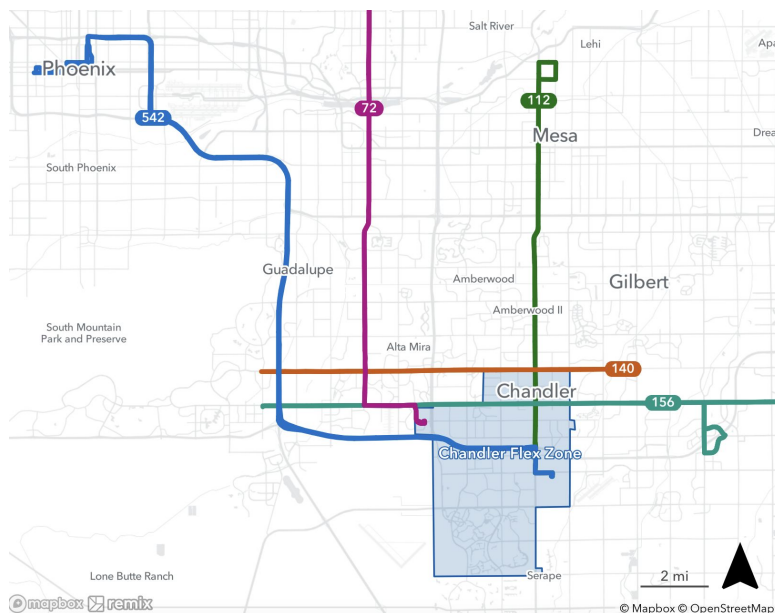


Figure 13: Active Valley Metro fixed route lines that run through Chandler + Chandler Flex zone

Improved Accessibility to High-Need Educational Institutions: Project TRANSCEND is a comprehensive initiative that targets equitable access to education, with a specific focus on Title I schools in the Chandler Flex zone, including Chandler High School and Willis Junior High School. This focus is crucial to ensure K-12 students from diverse socioeconomic backgrounds have uninterrupted and reliable access to educational opportunities. A major aspect of this initiative is addressing the issue of traffic congestion during school pickup and drop-off times, a notable problem at Chandler High School. Alleviating this congestion is key to improving daily mobility, enhancing student attendance, and boosting student performance. TRANSCEND supports the city's objective of reducing dependence on private vehicles for school commutes. Additionally, Project TRANSCEND will open up the Flex service to provide AV trips to CGCC, facilitating workforce development opportunities for college-level students in the automated technology sector.

Socio-Economic Benefits: Project TRANSCEND aims to provide more affordable and accessible transportation options, especially for low-income residents. For instance, the project will offer no-cost fares to economically disadvantaged residents. By improving access to education and employment opportunities, the project will not only facilitate community development but also contribute to long-term socio-economic benefits. Enhanced mobility leads to better education and employment outcomes, higher incomes, and improved quality of life, fostering economic well-being for the community.

Engagement with Vulnerable Communities and Public Engagement Strategy: Moving forward, the City of Chandler will continue to work with community organizations, such as Improving Chandler Area Neighborhoods (ICAN) and AZCEND, to engage the most vulnerable residents and ensure the service remains equitable in design. Education and marketing efforts will be conducted through door-to-door canvassing in the AV-zone as well as the broader Chandler Flex zone, and the City will host community events to inform residents of the expanded AV service. The City fully anticipates high demand and utilization of the service and is determined to ensure that resources are able to meet efficiency goals that lead to a positive rider experience. The project team has designed a public engagement strategy to give riders and other stakeholders ample opportunities to provide feedback and ask questions before launch, and throughout the life of the project. We propose focusing outreach and engagement efforts on the following strategies:

1. **Convene stakeholders and conduct interviews:** The City will interview a range of stakeholders to understand perceived strengths/weaknesses in the current services; likely benefits of improving transit services, and; highest priorities for improving transit.
2. **Facilitate focus groups:** Open by invitation to specific groups, Chandler Flex will host focus groups to get insight on self identified barriers and concerns with AV service.
3. **Consult with community groups:** Working with community-based organizations including those focused on social services, common interests, faith-based and advocacy groups will give Chandler access to priority populations. These groups include: ICAN and AZCEND; among others.

As the community outreach plan evolves, it will be important to share concepts, strategies, and potential recommendations with the community to gather feedback and build buy-in.

Environmental Benefits: Project TRANSCEND's strategy to tackle climate change in Chandler combines several key approaches, offering multiple benefits:

Reduction in GHG Emissions and Promotion of Sustainable Commuting: In 2006, Arizona became one of the first states to develop a Climate Action Plan, which inspired Arizona counties and cities to develop climate plans and other policies of their own. In 2021, the City of Phoenix released its Climate Action Plan, which targets a 50% reduction in GHG emissions by 2030 and net-zero emissions by 2050.¹⁰ A central aspect of the Phoenix CAP is to shift commuting behaviors, increasing the use of walking, biking, transit, or car sharing to 40% by 2030. Despite these efforts, only 14% within the Chandler Flex zone opt for these sustainable commuting methods. Additionally, the transportation sector remains a significant contributor to GHG emissions in Phoenix, accounting for 47% of the city's emissions. Project TRANSCEND aims to change this by providing accessible, affordable transit options, and by promoting shared microtransit through AVs. This is further supported by the integration of the Chandler Flex app

¹⁰<https://www.phoenix.gov/oepsite/Documents/2021ClimateActionPlanEnglish.pdf>

with the Valley Metro app, streamlining the shift from single-occupancy vehicles. This multifaceted approach not only reduces SOV use but also decreases overall vehicle miles traveled, supporting Chandler's and the broader region's sustainability agenda and alleviating traffic congestion.

Hybrid Electric Vehicles and Building Climate Resilience: Project TRANSCEND's introduction of May Mobility's hybrid electric AVs into Chandler's transportation system is a pivotal step towards reducing greenhouse gas (GHG) emissions in the transportation sector. These hybrid electric vehicles are inherently more fuel-efficient and emit fewer GHGs than conventional gasoline-powered vehicles. This shift is particularly significant in urban settings like

Chandler, where the frequent starts and stops of city driving can significantly benefit from the efficiency of hybrid technology. By reducing reliance on conventional combustion engines, these vehicles (known for their low tailpipe emissions) contribute to a substantial decrease in carbon dioxide and other GHG emissions, and criteria-air pollutant emissions such as nitrogen oxides (NOx) and particulate matter (PM).

Workforce Development, Job Quality, and Wealth Creation

Project TRANSCEND offers substantial advantages for workforce development, job quality, and wealth creation.

Workforce Development: The integration of AV technology in Chandler's public transit system necessitates a workforce skilled in emerging technologies, creating demand for specialized training in areas like robotics, computer science, and engineering. This is in line with U.S. Bureau of Labor Statistics projections, which foresee an 11% growth in computer and information technology jobs from 2019 to 2029, significantly faster than the average for all occupations combined. Moreover, May Mobility will play a crucial role in organizing and hosting workforce development activities. These include conducting listening sessions, focus groups, and workshops to gauge workforce transportation needs, and developing career paths for local operators in roles such as site managers, technicians, ambassadors for customer support in fully driverless operations, and tele-assist operators for remote support. These initiatives will extend to CGCC students, particularly the pipeline of students connected to the CGCC AI Program. All CGCC students will begin to receive access to the Chandler Flex AV service (in traveling to and from campus from the existing Chandler Flex zone) should the City receive funding for this project.

Job Quality: The growth of high-tech jobs in the AV industry, often offering competitive salaries and career advancement opportunities, directly improves job quality. These jobs typically offer higher median wages than the median wage for all occupations. The workforce development initiatives by May Mobility further support this, aiming to support STEM and innovation career paths for CGCC students, and provide templates for creating higher-skilled, higher-paying job opportunities in Chandler, the Phoenix-metro area, and Arizona. May Mobility will work closely with the CGCC team to ensure that initiatives are aligned with existing curriculums.

Wealth Creation: Project TRANSCEND can indirectly contribute to wealth creation within the community. The introduction of AVs is likely to attract businesses and investments in related sectors, fostering an ecosystem of innovation and entrepreneurship. A study by Intel predicts that AVs could create a new "passenger economy," valuing it at \$7 trillion by 2050, indicating the vast potential for economic growth in this sector.

Leveraging Existing Investments

Chandler has a plan in place to leverage and optimize existing advanced transportation technology investments to ensure that the service complements and enhances the region's transportation infrastructure. This includes 1) creating a service that is intermodal by nature and 2) building off previous technology investments and statewide commitments to accelerate benefits in the region.

Intermodal Capabilities

Residents of Chandler currently have access to 5 fixed-route buses that operate in the northern portion of the Chandler Flex service area at 15-30 minute frequencies: 542 Chandler Express, 72 Rural Rd, 112 Arizona Ave, 156 Chandler Blvd, and 140 Ray Rd. Project TRANSCEND's app integration component has been designed to facilitate connections to these Valley Metro bus routes and in turn, increase access through transfers to higher frequency routes such as Route 112 on Arizona Avenue in Chandler and Mesa and high-speed rail stations on Main Street in Mesa and Apache Blvd in Tempe. Riders will have the ability to plan and pay for intermodal trips on both Chandler Flex and Valley Metro apps, thus expanding overall network coverage and increasing access to previously hard-to-reach places.

Previous Technology Investments

Given that May Mobility's vehicles are hybrid-electric, the City plans to leverage existing electric charging infrastructure. Currently, the City owns 25 charging stations. In downtown Chandler, 16 stations are open to the public near Dr. A.J. Chandler Park, City-owned parking garages and the Downtown Chandler Library. Nine other stations are used specifically for the City Fleet, including a new solar charging station.

Buy America Act

May Mobility has secured Buy America waivers for the Toyota Sienna Autono-MaaS in previous deployments. May will work with regulators and project stakeholders to comply with Federal regulators including FTA and FHWA processes for Buy America compliance.

Technology Summary	Addressed by Application
1. Advanced traveler information systems	Yes
2. Advanced transportation management technologies	Yes
3. Advanced transportation technologies to improve emergency evacuation and response by Federal, State, and local authorities	N/A
4. Infrastructure maintenance, monitoring, and condition assessment	Yes
5. Advanced public transportation systems	Yes
6. Transportation system performance data collection, analysis, and dissemination systems	Yes
7. Advanced safety systems, including V2V and V2I communications, technologies associated with automated vehicles, and other collision avoidance technologies, including systems using cellular technology	Yes

8. Integration of intelligent transportation systems with the Smart Grid and other energy distribution and charging systems	N/A
9. Integrated corridor management systems	N/A
10. Advanced parking reservation or variable pricing system or system to assist trucks locate available truck parking	N/A
11. Electronic pricing, toll collection, and payment systems	Yes
12. Technology that enhances high occupancy vehicle toll lanes, cordon pricing, or congestion pricing	N/A
13. Integration of transportation service payment systems	Yes
14. Advanced mobility and access technologies, such as dynamic ridesharing and information systems to support human services for elderly and disabled individuals	Yes
15. Retrofitting DSRC technology deployed as part of an existing pilot program to C-V2X technology, subject to the condition that the retrofitted technology operates only within the existing spectrum allocations for connected vehicle systems	N/A
16. Advanced transportation technologies, in accordance with the research areas described in section 6503 of title 49	Yes

Table 3: Technology Summary

Automated Driving System-Equipped Vehicle Safety

The vehicles will comply with all applicable safety requirements set by the NHTSA, the FTA, and the FMCSA as well as applicable regulations set by FMVSS and FMCSR. Please see below for additional detail.

- **Safety First:** May's shuttle is fully FMVSS-compliant and meets the highest standards for vehicle safety. With OEM quality hardware, complete sensor coverage, redundant safety features, and a purpose-built Drive by wire (Dbw) system that allows for attendant-free operations, this platform is built for the present and future of autonomous transportation.
- **Flexible & Accessible:** With a fully ADA-compliant automatic wheelchair accessible ramp and restraint system, May's shuttle can seat one wheelchair user plus two additional riders when an accessible ride is requested. When no wheelchair users are riding, flexible jump seats enable seating for up to 5 passengers.
- **Road-Ready, Today:** With an operating speed of 25-30 mph+ in autonomy, May Mobility's vehicles operate on public roads, in mixed traffic, and in complex environments. No additional infrastructure is required to deploy a May service as its vehicles use a unique vision-based approach to navigate through signalized intersections safely. Via and May Mobility have had zero accidents to date across their joint deployments.

Section III - Management Structure

Applicant Organization

The City of Chandler will serve as the primary administrator of the project and will contract with USDOT and other project partners (further detailed in the section below) to ensure a successful project deployment. Specifically, the City of Chandler's Transportation Policy Division will take lead on relationship management and project execution. The Transportation Policy Division is made up of three individuals who will contribute to this project: one Transportation Planning Manager and two Transportation Planning Coordinators. The Department has significant experience managing transportation funds (including CDBG funds) which will be leveraged to manage ATTAIN project funding.

Partnership Plan

The City of Chandler will serve as the primary administrator for the project. In addition to ensuring the demonstration's ongoing alignment with ATTAIN program objectives, Chandler will offer strong local partnerships, knowledge of local transportation infrastructure and public transit operations, leverage various existing communication channels to increase ridership, and deliver strategic guidance for the design and ongoing delivery of the project. Chandler will also serve as the financial and legal custodian, receiving funds and establishing formal contractual agreements with sub-applicants that outline financial terms and mutual expectations. All partners will be afforded the opportunity for multiple rounds of contract review. Please see the following section for an overview of each subcontractors' roles and responsibilities.

The strength of the Chandler ATTAIN project is rooted in a governance and decision-making framework that values collaboration and stakeholder input. Chandler recognizes the distinct roles and experience of each sub-applicant, which includes Via, May Mobility, CALSTART, ACA, and ASU. To foster an open and inclusive governance structure, Chandler has established regular meetings that are designed to accommodate the varying contributions of each partner. Weekly meetings with Via will ensure real-time understanding of operational updates, while bi-weekly meetings with Via and May will delve into project outcomes and community perception. Monthly meetings with the research team will be used to ensure that all partners have access to the required data and are on track with the identified milestones. Quarterly meetings with the entire team are dedicated to assessing service design changes and the project's overall impact.

To further address any potential inequities, the project will implement the following strategies:

- Adopt of a shared vision and goals document at the Kickoff Meeting to create a sense of common ownership;
- Leverage existing feedback loops;
- Distribute monthly progress reports to maintain transparency and accountability; and
- Establish clear communication channels with a primary point of contact for each subcontractor.

Proposed Subcontractors

The subcontractors for program operations will consist of Via Transportation, May Mobility, CALSTART, ACA, and ASU. Please see below for company profiles and an outline of their proposed responsibilities.

Via Transportation, Inc. ("Via") was established in 2012 with a simple yet ambitious mission: to build software that powers the world's most convenient and efficient mobility solutions. Over the past twelve years, Via has developed the most sophisticated technology and operational expertise for powering diverse mobility services, including microtransit, automated transit, paratransit, and school transportation. Via's transit technology has powered over 100 million rides around the world, working in partnership with over 600 cities, transit agencies, and departments of transportation in 40 countries. Via is the only mobility company with direct experience deploying AVs across a variety of vehicle form factors, geographies, and transit use cases to provide tens of thousands of on-demand, shared, and AV rides around the world. Via will continue to operate the Chandler Flex service on behalf of the City of Chandler, sourcing drivers and vehicles while providing the full microtransit technology suite along with rider marketing, customer support, fare collection, driver recruitment and training, fleet acquisition and maintenance, and ongoing data reporting and analysis tools. In addition, Via will supervise and advise on every aspect of Project TRANSCEND's service design and delivery, including the integration of AVs. Below is an overview of Via's roles and responsibilities:

- **Service Design:** Via's in-house team of service design experts and consultants will work closely with the City and May Mobility to finalize project goals, key KPIs, and service design, as well as manage the contracting process.
- **Launch:** Via's launch team will work closely with May Mobility to oversee the full end-to-end implementation of the automated driving system technology including mapping, integration, testing, quality assurance, and training of all relevant personnel.
- **Operations:** Via's operations team will work closely with the City and May Mobility to manage day-to-day operations. May Mobility has committed to hiring a dedicated site manager on the ground in Chandler.
- **Partner Success:** Via's designated Partner Success team member will be the day-to-day partner for Project TRANSCEND, orchestrating business review meetings, continuously monitoring service performance, and driving iterative improvements.
- **Rider Growth:** The service will be supported by Via's Rider Growth team to ensure ongoing service growth, cultivate strong partnerships with local community organizations, and identify opportunities for long term funding.

May Mobility was founded in 2017 with a vision to transform cities through automated transportation solutions that create a safer, greener, more accessible world. One of the first companies to deploy a publicly-available AV service, May's driving automation technology can navigate mixed traffic on city streets today. Since its founding, May has deployed its shuttles in nine cities across the United States and Japan and provided more than 325,000 publicly available rides. Below is an overview of May's roles and responsibilities:

- **Regulatory Approvals:** Typically, May's launch operations include obtaining the appropriate local, state, and federal regulatory approvals to operate an AV service in Chandler. However, given that May has already successfully obtained regulatory approval for operations in AZ, this step will not be necessary.
- **Site Operations:** May will hire local operations staff to run Project TRANSCEND, including site supervisors and AV operators (AVOs). The local operations teams will report up to a dedicated local Site Manager whose sole responsibility is the day-to-day operational success of the deployment. Specialists at May headquarters will support May's local teams, including experts in-vehicle hardware, driving automation technology, and field engineering. They will stay in regular contact with the Site Manager and monitor performance remotely. May will also source office space and garaging.

- **Central Operations Platform:** Via operation center hubs will provide dispatchers with live service information, service design levers, and data reports, while May Mobility will contribute additional AV-specific data reporting, including telemetry and autonomy performance.
- **Maintenance:** May's operations team will follow a daily checklist to guide each day of safe operations. Site supervisors will monitor service remotely through May's operations hub, a virtual interface that tracks the shuttle's location, sensor data, and overall health. In addition to regular maintenance on the vehicles, engineering teams will regularly improve the entire AV hardware and software package that makes up May's AVs. May's automated driving technology is upgraded as new technology develops, and the replacement of shuttle components provides technical improvements with economic feasibility. All updates/maintenance will be scheduled at regular intervals during off-periods when the shuttles are not in active service.

In addition to the above two partners, the Project TRANSCEND's research team will consist of Arizona State University, Arizona Commerce Authority, and CALSTART. Below is an overview of their roles and responsibilities:

CALSTART is a national nonprofit whose model for change has proven effective, time and again, since its founding in 1992. CALSTART works with its member companies and agencies to build a high-tech clean-transportation industry that creates jobs, cuts air pollution and oil imports and curbs climate change. The organization works with the public and private sectors to knock down barriers to innovation, progress and drive the transportation industry to a clean and prosperous future. CALSTART accelerates the pace of technology and is a market building organization. Below is an overview of CALSTART's roles and responsibilities:

- **Project Management:** CALSTART will serve as the project manager for the research and evaluation portion of the project to assess the impact of AV technology on the efficiency, economics, and performance of the integrated transportation systems - Valley Metro, Chandler Flex, and Project TRANSCEND.
- **Equity Benefits and Outcomes:** CALSTART will focus on assessing the project's equity outcomes and benefits, especially as they pertain to students and individuals living with low-income.
- **Marketing and Community Engagement:** CALSTART will support the City of Chandler and Via's Marketing and Community Engagement teams to implement best practices, design engagement activities, and interview leadership at K-12 schools, CGCC, and other higher education schools in the Chandler Flex operating zone to uncover transportation gaps that Project TRANSCEND can address.
- **Publishable and Reusable Blueprint Materials:** CALSTART will manage the design of useful knowledge translation interventions to optimize this work's impact and advance the transportation sector in the United States.

The Arizona Commerce Authority (ACA) is the state's leading economic development organization with a streamlined mission to grow and strengthen Arizona's economy. The ACA uses a three-pronged approach to advance the overall economy: recruit, grow, create – *recruit* out-of-state companies to expand their operations in Arizona; work with existing companies to *grow* their business in Arizona and beyond; and partner with entrepreneurs and companies large and small to *create* new jobs and businesses in targeted industries. On-going research for this portion of the report will be led by Dr. Jeffrey Wishart from the ACA/Science Foundation Arizona (SFAz) (and who is also an adjunct at ASU). Below is an overview of ACA's roles and responsibilities:

- **Safety Benefits and Outcomes:** ACA will focus on assessing the project's safety outcomes and benefits. This assessment requires three (3) elements: metrics and measurement methods, evaluation methodology, and acceptance criteria and benchmark.

Arizona State University is a public four-year higher education institution. The university exemplifies a new prototype for the American public research university. At ASU, the culture of innovation and inclusion draws pioneering researchers to the faculty and attracts highly qualified students from all 50 states and more than 130 nations. ASU is expanding academic and entrepreneurial opportunities for every type of learner at all stages of life. Below is an overview of ACA's roles and responsibilities:

- **Environmental Benefits and Outcomes:** ACA will focus on assessing the project's environmental outcomes and benefits.

Flow Chart

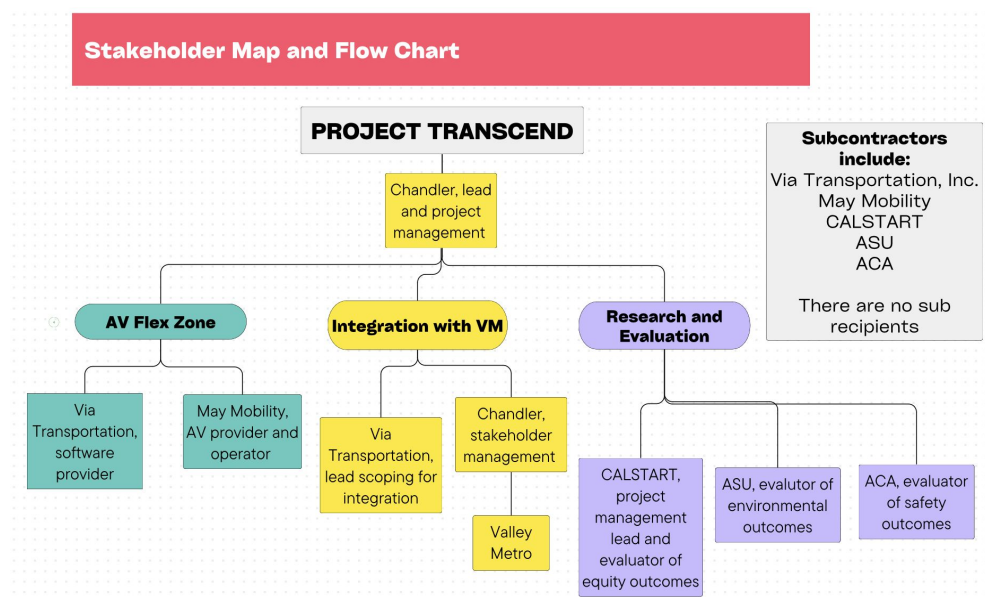


Figure 14:
Flow Chart

Section IV – Staffing Description

Key Personnel

Project TRANSCEND will be a collaborative effort involving representatives from various entities, including the City of Chandler, Via Transportation, May Mobility, Arizona Commerce Authority, Arizona State University, and CALSTART. Each entity and its selected team members has a demonstrated history of successful collaboration and the successful delivery of innovative transportation solutions. Please refer to the resumes exhibit which includes resumes for Key Personnel in addition to a few other resumes.

Organization	Name	Title	Role	Involvement
City of Chandler	Jason Crampton	Transportation Planning Manager	Program Manager	15%
City of Chandler	Nancy Jackson	Transportation Planning Coordinator	Assistant Program Manager	25%
Via Transportation, Inc.	Joe Martin	Partner Success Manager	Day-to-day oversight of Chandler Flex and Project TRANSCEND	40%
May Mobility	Taylor Gygi	Senior Business Development Manager	Day-to-day oversight of Project TRANSCEND	40%
CALSTART	Alise Crippen	Technical Project Manager II	Project Manager for the Research and Evaluation Team	30%

Table 4: Key Personnel for Project TRANSCEND

Primary Point of Contact

Jason Crampton, Transportation Planning Manager at the City of Chandler, will be the Program Manager on the project and will be responsible for coordinating amongst all parties. In addition, he will serve as the primary point of contact.

The following attachment is not included in the view since it is not a read-only PDF file.

Upon submission, this file will be transmitted to the Grantor without any data loss.

2. City of Chandler-Arizona-2023 and 2024-ATTAIN-Vol. 2.pdf

The following attachment is not included in the view since it is not a read-only PDF file.

Upon submission, this file will be transmitted to the Grantor without any data loss.

3. City of Chandler-Arizona-2023 and 2024-ATTAIN-Resumes.pdf

Project TRASCEND
City of Chandler
Application to 2024 USDOT ATTAIN Program

Attachment A, Letters of Support

Table of Contents

Organization	Signatory
1. Valley Metro	Jessica Mefford-Miller, CEO
2. United States Senate	Senator Mark Kelly and Senator Kyrsten Sinema
3. City of Phoenix	Jesús Sapien, Public Transit Director
4. Chandler Gilbert Community College	Jenna Kahl, Associate Vice President of Institutional Advancement
5. Chandler Unified School District	Dan Serrano, Executive Director of High Schools
6. Maricopa Association of Governments	Ed Zuercher, Executive Director
7. Downtown Chandler Community Partnership	Rebecca Hill, Executive Director
8. Chandler Chamber of Commerce	Terri Kimble, President & CEO
9. CALSTART	Jasna Tomić, Ph.D., Vice President
10. Arizona Chamber of Commerce	Sandra Watson, President & CEO
11. Arizona State University	Ram M. Pendyala, Professor and Director
12. Via Transportation, Inc.	Zack Wasserman, Chief Strategy Officer
13. May Mobility	Daisy Wall, Senior Director of Government Business



101 N. 1st Ave. Suite 1400
Phoenix, AZ 85003
valleymetro.org
602.253.5000

January 5, 2024

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Buttigieg:

On behalf of Valley Metro Regional Public Transportation Authority, I am writing in support of the City of Chandler's (Arizona) application to the 2023 Advanced Transportation Technology and Innovation (ATTAIN) Program recently released by the U.S. Department of Transportation (USDOT). This letter aims to highlight the key benefits of the proposed project, which seeks to enhance public transit by introducing autonomous vehicles (AVs) into the existing Chandler Flex service and implementing measures to safeguard against extreme heat conditions, particularly for students.

Since July 2022, the City of Chandler has demonstrated remarkable success with the introduction of the Chandler Flex microtransit service. This service has significantly improved student transportation, catering to over 3,000 riders monthly, with approximately 50% being students. The current application to the USDOT ATTAIN program seeks to elevate this success by integrating AVs into the Chandler Flex fleet.

If successfully secured, the grant will fund the expansion of Chandler Flex as well as the introduction of autonomous vehicles (AVs) into the service. This expansion will democratize the technology, benefiting not only students but also other individuals residing, working, and traveling within the zone, notably encompassing two low-income census blocks. The grant will also facilitate the seamless integration of the Chandler Flex Rider App into the Valley Metro Regional app, providing riders with a user-friendly interface to plan and pay for their trips efficiently. This integration will contribute to a more connected and streamlined transportation system at the regional level.

The integration of AVs into Chandler's microtransit service represents a significant leap in innovation for public transit. Unlike previous AV deployments in Arizona, which have predominantly focused on private robotaxis, this initiative aims to provide safe, affordable, and convenient public transit. By incorporating AVs into Chandler's existing public transit system and making them on-demand and shared, the project promotes environmental sustainability, safety, and extends the benefits of autonomous technology to disadvantaged and low-income riders. To analyze project success, the project will

also include an evaluation in collaboration with key stakeholders, including the Arizona Department of Commerce, Arizona State University, and CALSTART. The evaluation will rigorously assess AV performance (i.e., vehicle performance during extreme heat conditions), offering valuable insights and creating a replicable blueprint for similar transformative projects in other cities.

As the regional public transportation provider and owner of the Valley Metro regional transit app, Valley Metro is committed to supporting the City of Chandler's efforts associated with this project. Valley Metro has assisted Chandler's microtransit efforts in the past by conducting flexible transit studies that lay the initial framework for a new or expanded microtransit service. Valley Metro will continue to support Chandler by working together to scope out the requirements to integrate the Valley Metro app with the Chandler Flex app. Valley Metro is committed to enhancing the customer experience, which would be achieved in part by an integration of this kind.

This grant proposal extends beyond a mere investment in transportation; it signifies a commitment to progress, inclusivity, and the safety of the Chandler community. We strongly urge USDOT to support this initiative, as it aligns with the goals of advancing innovation in public transit.

Thank you for your consideration of this application.

Sincerely,

A handwritten signature in black ink, reading "Jessica Mefford-Miller". The signature is fluid and cursive, with the first name "Jessica" being more prominent.

Jessica Mefford-Miller
Chief Executive Officer

United States Senate
WASHINGTON, DC 20510-0309

January 26, 2024

Honorable Pete Buttigieg
Secretary
U.S. Department of Transportation
1200 New Jersey Ave, SE
Washington, D.C. 20590

Dear Secretary Buttigieg,

We write regarding the Advanced Transportation Technology and Innovation (ATTAIN) proposal submitted by the City of Chandler, Arizona for \$6 million in funding. Funding from this program will help the City of Chandler enhance public transit by introducing autonomous vehicles (AVs) into the existing Chandler Flex Service.

Since July 2022, the City of Chandler has demonstrated remarkable success with the introduction of the Chandler Flex micro transit service. This service has significantly improved student transportation, catering to over 3,000 riders monthly, with approximately 50 percent being students. The City of Chandler now seeks to build upon this success by integrating AVs into the Chandler Flex fleet. Unlike previous AV deployments in Arizona, which have predominantly focused on private robotaxis, this initiative aims to provide safe, affordable, and convenient public transit and extend those benefits to disadvantaged and low-income riders.

Programs such as ATTAIN will help the City of Chandler carry out its goal of introducing AVs to its micro transit and making transportation more accessible. This grant will also facilitate a seamless integration of the Chandler Flex Rider App into the Valley Metro Regional app, providing riders with a user-friendly interface to plan and pay for their trips efficiently. The project will also include an evaluation in collaboration with key stakeholders, including the Arizona Department of Commerce, Arizona State University, and CALSTART. The evaluation will rigorously assess AV performance (i.e., vehicle performance during extreme heat conditions), offering valuable insights and creating a replicable blueprint for similar transformative projects in other cities.

In accordance with all existing rules, regulations, and ethical guidelines, we respectfully request you give this proposal full and fair consideration as you make this important funding decision.

Sincerely,

A handwritten signature in blue ink that reads "Mark Kelly". The letters are cursive and fluid.

Mark Kelly
United States Senator

A handwritten signature in blue ink that reads "Kyrsten Si-". The signature is cursive and ends with a long horizontal stroke.

Kyrsten Sinema
United States Senator



February 2, 2024

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Buttigieg,

On behalf of the city of Phoenix, which is the region's designated recipient for Federal Transit Administration grant funding, I am writing in support of the city of Chandler's application to the 2023 Advanced Transportation Technology and Innovation (ATTAIN) Program, by the U.S. Department of Transportation. This project seeks to enhance public transit by introducing autonomous vehicles (AVs) into Chandler's existing Flex microtransit service, and implementing measures to safeguard against extreme heat conditions, particularly for students.

The Chandler Flex microtransit service started in July 2022 with a focus on improving student transportation. The service caters to over 3,000 riders monthly, approximately 50% are students. The grant will fund the expansion of Chandler Flex with the introduction of AVs into the service for those who reside, work and travel within the program's service zone, notably an area encompassing two low-income census blocks. The funding will facilitate the seamless integration of the Chandler Flex Rider App into the Valley Metro Regional app, providing Flex riders with a user-friendly interface to plan and pay for their trips efficiently. This integration will contribute to a more connected and streamlined transportation system at the regional level.

Previous AV deployments in Arizona focused on private "robotaxi" service, but by incorporating AVs into Chandler's existing public transit system and making them on-demand and shared, the project promotes environmental sustainability, safety, and extends the benefits of AV technology to disadvantaged and low-income riders. The project will collaborate with key stakeholders to assess AV performance, especially during extreme heat weather conditions, to gather information needed to create a blueprint for similar transformative projects in other cities.

This grant proposal extends beyond a mere investment in transportation; it signifies a commitment to progress, inclusivity, and the safety of the Chandler community. We strongly urge DOT to support this initiative, as it aligns with the goals of advancing innovation in public transit.

Thank you for your consideration of this application.

A handwritten signature in black ink, appearing to read "J. Sapien".

Jesús Sapien
Public Transit Director, City of Phoenix

cc:



CHANDLER-GILBERT COMMUNITY COLLEGE

A MARICOPA COMMUNITY COLLEGE

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

February 2, 2024

Dear Secretary Buttigieg,

On behalf of Chandler Gilbert Community College, I am writing in support of the City of Chandler's (Arizona) application to the 2023 Advanced Transportation Technology and Innovation (ATTAIN) Program recently released by the U.S. Department of Transportation. This letter aims to highlight the key benefits of the proposed project, which seeks to enhance public transit by introducing autonomous vehicles (AVs) into the existing Chandler Flex service and implementing measures to safeguard against extreme heat conditions, particularly for students.

Since July 2022, the City of Chandler has demonstrated remarkable success with the introduction of the Chandler Flex microtransit service. This service has significantly improved student transportation, catering to over 3,000 riders monthly, with approximately 50% being students. The current application to the USDOT ATTAIN program seeks to elevate this success by integrating AVs into the Chandler Flex fleet.

If successfully secured, the grant will fund the expansion of Chandler Flex as well as the introduction of autonomous vehicles (AVs) into the service. This expansion will democratize the technology, benefiting not only students but also other individuals residing, working, and traveling within the zone, notably encompassing two low-income census blocks. The grant will also facilitate the seamless integration of the Chandler Flex Rider App into the Valley Metro Regional app, providing riders with a user-friendly interface to plan and pay for their trips efficiently. This integration will contribute to a more connected and streamlined transportation system at the regional level.

The integration of AVs into Chandler's microtransit service represents a significant leap in innovation for public transit. Unlike previous AV deployments in Arizona, which have predominantly focused on private robotaxis, this initiative aims to provide safe, affordable, and convenient public transit. By incorporating AVs into Chandler's existing public transit system and making them on-demand and shared, the project promotes environmental sustainability, safety, and extends the benefits of autonomous technology to disadvantaged and low-income riders. To analyze project success, the project will also include an evaluation in collaboration with key stakeholders, including the Arizona Department of Commerce, Arizona State University, and CALSTART. The evaluation will rigorously assess AV performance (i.e., vehicle performance during extreme heat conditions), offering valuable insights and creating a replicable blueprint for similar transformative projects in other cities.



CHANDLER-GILBERT COMMUNITY COLLEGE

A MARICOPA COMMUNITY COLLEGE

Chandler Gilbert Community College students could greatly benefit from Chandler Flex transportation service. Additionally, the utilization of autonomous vehicles creates an interesting opportunity in which students will have the opportunity to experience and possibly research into new forms of high-technology transportation.

This grant proposal extends beyond a mere investment in transportation; it signifies a commitment to progress, inclusivity, and the safety of the Chandler community. We strongly urge USDOT to support this initiative, as it aligns with the goals of advancing innovation in public transit. Thank you for your consideration of this application. If you have any questions, please feel free to contact me at jenna.kahl@cgc.edu.

Jenna Kahl

Chandler-Gilbert Community College
MARICOPA COMMUNITY COLLEGES

Associate Vice President of Institutional Advancement
2626 E. Pecos Road, Chandler, AZ 85225



CHANDLER UNIFIED SCHOOL DISTRICT NO. 80

James T. Perry Administration Center • 1525 West Frye Road • Chandler, AZ 85224
(480) 812-7000 • FAX: (480) 224-9353

"Dedicated to Excellence"

Franklin R. Narducci, Superintendent

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

February 2, 2024

Dear Secretary Buttigieg,

On behalf of Chandler Unified School District, I am writing in support of the City of Chandler's (Arizona) application to the 2023 Advanced Transportation Technology and Innovation (ATTAIN) Program recently released by the U.S. Department of Transportation. This letter aims to highlight the key benefits of the proposed project, which seeks to enhance public transit by introducing autonomous vehicles (AVs) into the existing Chandler Flex service and implementing measures to safeguard against extreme heat conditions, particularly for students.

Since July 2022, the City of Chandler has demonstrated remarkable success with the introduction of the Chandler Flex microtransit service. This service has significantly improved student transportation, catering to over 3,000 riders monthly, with approximately 50% being students. The current application to the USDOT ATTAIN program seeks to elevate this success by integrating AVs into the Chandler Flex fleet.

If successfully secured, the grant will fund the expansion of Chandler Flex as well as the introduction of autonomous vehicles (AVs) into the service. This expansion will democratize the technology, benefiting not only students but also other individuals residing, working, and traveling within the zone, notably encompassing two low-income census blocks. The grant will also facilitate the seamless integration of the Chandler Flex Rider App into the Valley Metro Regional app, providing riders with a user-friendly interface to plan and pay for their trips efficiently. This integration will contribute to a more connected and streamlined transportation system at the regional level.

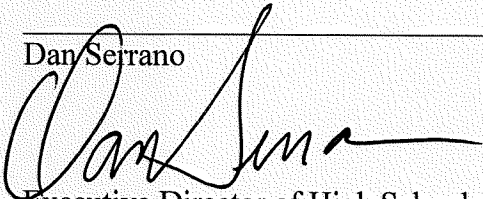
The integration of AVs into Chandler's microtransit service represents a significant leap in innovation for public transit. Unlike previous AV deployments in Arizona, which have predominantly focused on private robotaxis, this initiative aims to provide safe, affordable, and convenient public transit. By incorporating AVs into Chandler's existing public transit system and making them on-demand and shared, the project promotes environmental sustainability, safety, and extends the benefits of autonomous technology to disadvantaged and low-income riders. To analyze project success, the project will also include an evaluation in collaboration with key stakeholders, including the Arizona Department of Commerce, Arizona State

University, and CALSTART. The evaluation will rigorously assess AV performance (i.e., vehicle performance during extreme heat conditions), offering valuable insights and creating a replicable blueprint for similar transformative projects in other cities.

Chandler and Hamilton High School students currently utilize Chandler Flex to get to and from school when they need to access the school outside of normal bus hours or if they live outside of the normal bus service area. Many students have already benefited from the service, and an enhancement to the service would further benefit our students.

This grant proposal extends beyond a mere investment in transportation; it signifies a commitment to progress, inclusivity, and the safety of the Chandler community. We strongly urge USDOT to support this initiative, as it aligns with the goals of advancing innovation in public transit. Thank you for your consideration of this application. If you have any questions, please feel free to contact me at serrano.dan@cusd80.com.

Dan Serrano

A handwritten signature in black ink, appearing to read 'Dan Serrano', is written over a horizontal line.

Executive Director of High Schools
Chandler Unified School District
1525 West Frye Road
Chandler, AZ 85224

January 12, 2024

The Honorable Pete Buttigieg
Secretary, U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, D.C. 20590-0001

Dear Secretary Buttigieg:

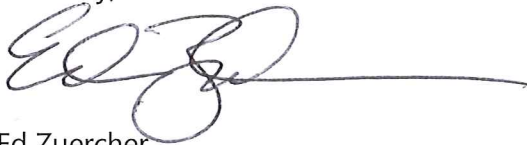
The Maricopa Association of Governments (MAG) is pleased to support the City of Chandler's application for the 2023 Advanced Transportation Technology and Innovation (ATTAIN) Program. The city's project seeks to enhance public transit by introducing autonomous vehicles (AVs) into the existing Chandler Flex microtransit service and implementing measures to safeguard against extreme heat conditions, particularly for students. MAG is the designated metropolitan planning organization for the greater Phoenix region.

In July 2022, the city introduced the Chandler Flex microtransit service. This service has significantly improved student transportation, catering to over 3,000 riders monthly, with approximately 50 percent being students. The project seeks to improve on this success by integrating AVs into the Chandler Flex fleet. The grant will also integrate the Chandler Flex Rider App into the Valley Metro Regional app, providing riders with a user-friendly interface to plan and pay for their trips efficiently. This integration will contribute to a more connected and streamlined transportation system at the regional level. The project will also have an evaluation component in collaboration with the Arizona Department of Commerce, Arizona State University, and CALSTART assessing the performance of AVs in the public transit system.

The project aligns with regional goals of safety, mobility, and responsiveness.

We appreciate your favorable consideration on this application.

Sincerely,



Ed Zuercher
Executive Director
Maricopa Association of Governments

Downtown Chandler Community Partnership
Rebecca Hill
Executive Director
100 W. Boston St., Suite 5
Chandler, AZ 85225

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

February 2, 2024

Dear Secretary Buttigieg,

On behalf of Downtown Chandler Community Partnership, I am writing in support of the City of Chandler's (Arizona) application to the 2023 Advanced Transportation Technology and Innovation (ATTAIN) Program recently released by the U.S. Department of Transportation. This letter aims to highlight the key benefits of the proposed project, which seeks to enhance public transit by introducing autonomous vehicles (AVs) into the existing Chandler Flex service and implementing measures to safeguard against extreme heat conditions, particularly for students.

Since July 2022, the City of Chandler has demonstrated remarkable success with the introduction of the Chandler Flex micro-transit service. This service has significantly improved student transportation, catering to over 3,000 riders monthly, with approximately 50% being students. The current application to the USDOT ATTAIN program seeks to elevate this success by integrating AVs into the Chandler Flex fleet.

If successfully secured, the grant will fund the expansion of Chandler Flex as well as the introduction of autonomous vehicles (AVs) into the service. This expansion will democratize the technology, benefiting not only students but also other individuals residing, working, and traveling within the zone, notably encompassing two low-income census blocks. The grant will also facilitate the seamless integration of the Chandler Flex Rider App into the Valley Metro Regional app, providing riders with a user-friendly interface to plan and pay for their trips efficiently. This integration will contribute to a more connected and streamlined transportation system at the regional level.

The integration of AVs into Chandler's micro-transit service represents a significant leap in innovation for public transit. Unlike previous AV deployments in Arizona, which have predominantly focused on private robo taxis, this initiative aims to provide safe, affordable, and convenient public transit. By incorporating AVs into Chandler's existing public transit system and making them on-demand and shared, the project promotes environmental sustainability, safety, and extends the benefits of autonomous technology to disadvantaged and low-income riders. To analyze project success, the project will also include an evaluation in collaboration with key stakeholders, including the Arizona Department of Commerce, Arizona State University, and CALSTART. The evaluation will rigorously assess AV performance (i.e., vehicle performance during extreme heat conditions), offering valuable insights and creating a replicable blueprint for similar transformative projects in other cities.

Downtown Chandler Community Partnership
Rebecca Hill
Executive Director
100 W. Boston St., Suite 5
Chandler, AZ 85225

This grant proposal extends beyond a mere investment in transportation; it signifies a commitment to progress, inclusivity, and the safety of the Chandler community. We strongly urge USDOT to support this initiative, as it aligns with the goals of advancing innovation in public transit. Thank you for your consideration of this application. If you have any questions, please feel free to contact me at rebecca@downtownchandler.org.

A handwritten signature in black ink that reads "Rebecca Hill". The signature is written in a cursive, flowing style. Below the signature is a horizontal line.

Rebecca Hill, Executive Director
Downtown Chandler Community Partnership (DCCP)
100 W. Boston St., Suite 5
Chandler, AZ 85225



February 2, 2024

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Buttigieg,

On behalf of Chandler Chamber of Commerce, I am writing in support of the City of Chandler's (Arizona) application to the 2023 Advanced Transportation Technology and Innovation (ATTAIN) Program recently released by the U.S. Department of Transportation. This letter aims to highlight the key benefits of the proposed project, which seeks to enhance public transit by introducing autonomous vehicles (AVs) into the existing Chandler Flex service and implementing measures to safeguard against extreme heat conditions, particularly for students.

Since July 2022, the City of Chandler has demonstrated remarkable success with the introduction of the Chandler Flex microtransit service. This service has significantly improved student transportation, catering to over 3,000 riders monthly, with approximately 50% being students. Moreover, Chandler Flex provides service to local industry professionals at businesses such as Microchip, Intel and Northrup Grumman. The current application to the USDOT ATTAIN program seeks to elevate this success by integrating AVs into the Chandler Flex fleet.

If successfully secured, the grant will fund the expansion of Chandler Flex as well as the introduction of autonomous vehicles (AVs) into the service. This expansion will democratize the technology, benefiting not only students but also other individuals residing, working, and traveling within the zone, notably encompassing two low-income census blocks. The grant will also facilitate the seamless integration of the Chandler Flex Rider App into the Valley Metro Regional app, providing riders with a user-friendly interface to plan and pay for their trips efficiently. This integration will contribute to a more connected and streamlined transportation system at the regional level.

The integration of AVs into Chandler's microtransit service represents a significant leap in innovation for public transit. Unlike previous AV deployments in Arizona, which have predominantly focused on private robotaxis, this initiative aims to provide safe, affordable, and convenient public transit. By incorporating AVs into Chandler's existing public transit system and making them on-demand and shared, the project promotes environmental sustainability, safety, and extends the benefits of autonomous technology to disadvantaged and low-income riders. To analyze project success, the project will also include an evaluation in collaboration



with key stakeholders, including the Arizona Department of Commerce, Arizona State University, and CALSTART. The evaluation will rigorously assess AV performance (i.e., vehicle performance during extreme heat conditions), offering valuable insights and creating a replicable blueprint for similar transformative projects in other cities.

This grant proposal extends beyond a mere investment in transportation; it signifies a commitment to progress, inclusivity, and the safety of the Chandler community. We strongly urge USDOT to support this initiative, as it aligns with the goals of advancing innovation in public transit. Thank you for your consideration of this application. If you have any questions, please feel free to contact me at Terri@ChandlerChamber.com.

A handwritten signature in black ink that reads 'Terri Kimble'. The signature is written in a cursive, flowing style.

Terri Kimble
President & CEO
Chandler Chamber of Commerce



The Honorable Pete Buttigieg
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

February 1, 2024

Dear Secretary Buttigieg:

**Clean Transportation
Technologies and Solutions**

www.calstart.org

Board of Directors

Mr. John Boesel
CALSTART

Mr. Yuri Freedman
Southern California Gas
Company

Mr. Andrei Greenawalt
Via

Ms. Karen Hamberg
Deloitte LLP
Chair Emeritus

Ms. Chelle Izzi
Walmart

Ms. Julia Grinshpun
JP Morgan

Mr. Mark Patten
NextEra Energy

Ms. Katie Sloan
Southern California Edison

Mr. Chris Stoddart
New Flyer of America

Ms. Cynthia Williams
Ford Motor Company

Mr. Bob Wyman
Earthshot

On behalf of CALSTART, I am writing in support of the City of Chandler's (Arizona) application to the 2023 Advanced Transportation Technology and Innovation (ATTAIN) Program recently released by the U.S. Department of Transportation. We believe Project TRANSEND will enhance public transit by introducing autonomous vehicles (AVs) into the existing Chandler Flex service and implement measures to safeguard against extreme heat conditions.

CALSTART is pleased to bring our industry leading expertise in transportation planning and equity, community engagement, and third-party technology validation to carry out key research efforts that will provide better understanding of the performance, economic, and accessibility impacts of Project TRANSEND. In line with CALSTART's mission of transforming transportation and accelerating the deployment and accessibility of innovative mobility solutions, Project TRANSEND's integration of AVs into Chandler's microtransit service represents a significant leap in innovation for public transit. While previous AV deployments in Arizona have predominantly focused on private robotaxis, this initiative aims to provide safe, affordable, and convenient public transit solutions. By incorporating AVs into Chandler's existing public transit system and making them on-demand and shared, the project promotes environmental sustainability, safety, and extends the benefits of autonomous technology to disadvantaged and low-income riders.

To measure project success, the project includes a robust evaluation phase. In collaboration with key stakeholders, Arizona Department of Commerce, and Arizona State University, the CALSTART team will assess AV performance (*i.e.*, mobility, safety, environmental benefits). The results of the evaluation will provide valuable insights that can be replicated for similar transformative projects in other cities.

This grant proposal extends beyond a mere investment in transportation; it signifies a commitment to progress, inclusivity, and the safety of the Chandler community. **We strongly urge USDOT to support this initiative, as it aligns with the goals of advancing innovation in public transit.**

Thank you for your consideration of this application. If you have any questions, please feel free to contact me at jtomic@calstart.org.

Sincerely,

Jasna Tomić, Ph.D.
Vice President

OFFICES IN :

48 S. Chester Ave PASADENA, CA 91106 | 1607 Cole Blvd. LAKEWOOD, CO 80401 | 67 35th St. 5th floor Ste B508 BROOKLYN, NY 11232 |
2600 Tenth Street, Suite 407, BERKELEY, CA 94710 | 200 E. Big Beaver TROY, MI 48083 | 168 Smolian Circle, SANTA ROSA BEACH, FL 32459

February 2, 2024

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Buttigieg,

On behalf of Arizona Commerce Authority (ACA), I am writing in support of the City of Chandler, Arizona's (Arizona) application to the 2023 U.S. Department of Transportation Advanced Transportation Technology and Innovation (ATTAIN) Program. This support letter highlights the key benefits of the proposed project, enhancing public transit by introducing automated vehicles (AVs) into the existing Chandler Flex service, and implementing measures to safeguard against extreme heat conditions, particularly for students.

Since July 2022, the City of Chandler has demonstrated remarkable success with the introduction of the Chandler Flex microtransit service. This service has significantly improved student transportation, catering to over 3,000 riders monthly, with approximately 50% being students. The USDOT ATTAIN program could elevate this success by integrating AVs into the Chandler Flex fleet.

If successfully secured, the This grant would fund the expansion of Chandler Flex as well as the introduction of autonomous vehicles (AVs) into the service. This expansion would democratize the technology, benefiting not only students but also other individuals residing, working, and traveling within the zone which encompasses two low-income census blocks. The grant would also facilitate the seamless integration of the Chandler Flex Rider App into the Valley Metro Regional app, providing riders with a user-friendly interface to plan and pay for their trips efficiently. This integration will contribute to a more connected and streamlined transportation system at the regional level.

The integration of AVs into Chandler's microtransit service represents a significant innovation for public transit. Unlike previous AV deployments in Arizona, many of which have focused on private robotaxis, this initiative aims to provide safe, affordable, and convenient public transit. By incorporating AVs into Chandler's existing public transit system and making them on-demand and shared, the project promotes environmental sustainability, safety, and extends the benefits of autonomous technology to disadvantaged and low-income riders. To analyze project success, the project will also include an evaluation in collaboration with key stakeholders, including the ACA, Arizona State University, and CALSTART. The evaluation will rigorously assess AV performance (i.e., mobility, safety, environmental benefits), offering valuable insights and creating a replicable blueprint for similar transformative projects in other cities.



The ACA is the State of Arizona's economic development organization with a focused mission to grow and strengthen Arizona's economy. The ACA has worked with the City of Chandler since its inception in 2011. For the proposed TRANSCEND project, ACA has extensive relevant experience to support its successful completion:

- Automated Vehicle Research and Deployments – The ACA commits to leverage its collaborations and expertise in the Institute of Automated Mobility and Science Foundation Arizona to contribute to the project's successful execution and evaluation plan, specifically in the Safety and Public Impact objective.
- Funding support – The ACA commits to an indirect contribution of \$48,944 in time and \$15,000 in resources over the 3-year program for a total of \$63,944 over the period of performance

This grant proposal is more than a mere investment in transportation. It signifies a commitment to progress, inclusivity, and safety in the community of Chandler. We strongly urge USDOT to support this initiative, as it aligns with the goals of advancing innovation in public transit. Thank you for your consideration of this application. If you have any questions, please feel free to contact me at sandraw@azcommerce.com.

Sincerely,

A handwritten signature in blue ink, appearing to read "S. Watson", with a long horizontal flourish extending to the right.

Sandra Watson
President & CEO
Arizona Commerce Authority
100 N. 7th Ave, Suite 400
Phoenix, AZ 85007

February 2, 2024

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Buttigieg,

On behalf of AZ Board of Regents on behalf of Arizona State University, I am writing in support of the City of Chandler's (Arizona) application to the 2023 Advanced Transportation Technology and Innovation (ATTAIN) Program recently released by the U.S. Department of Transportation. This letter aims to highlight the key benefits of the proposed project, which seeks to enhance public transit by introducing autonomous vehicles (AVs) into the existing Chandler Flex service and implementing measures to safeguard against extreme heat conditions, particularly for students.

Since July 2022, the City of Chandler has demonstrated remarkable success with the introduction of the Chandler Flex microtransit service. This service has significantly improved student transportation, catering to over 3,000 riders monthly, with approximately 50% being students. The current application to the USDOT ATTAIN program seeks to elevate this success by integrating AVs into the Chandler Flex fleet.

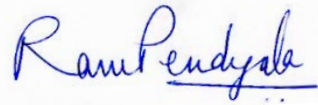
If successfully secured, the grant will fund the expansion of Chandler Flex as well as the introduction of autonomous vehicles (AVs) into the service. This expansion will democratize the technology, benefiting not only students but also other individuals residing, working, and traveling within the zone, notably encompassing two low-income census blocks. The grant will also facilitate the seamless integration of the Chandler Flex Rider App into the Valley Metro Regional app, providing riders with a user-friendly interface to plan and pay for their trips efficiently. This integration will contribute to a more connected and streamlined transportation system at the regional level.

The integration of AVs into Chandler's microtransit service represents a significant leap in innovation for public transit. Unlike previous AV deployments in Arizona, which have predominantly focused on private robotaxis, this initiative aims to provide safe, affordable, and convenient public transit. By incorporating AVs into Chandler's existing public transit system and making them on-demand and shared, the project promotes environmental sustainability, safety, and extends the benefits of autonomous technology to disadvantaged and low-income riders. To analyze project success, the project will also include an evaluation in collaboration with key stakeholders, including the Arizona Department of Commerce, Arizona State University, and CALSTART. The evaluation will rigorously assess AV performance (i.e., mobility, safety, environmental benefits), offering valuable insights and creating a replicable blueprint for similar transformative projects in other cities.

The Arizona State University research team, including multiple faculty members and three Ph.D. students, is poised to play a pivotal role in supporting the integration of autonomous vehicles (AVs) into Chandler's microtransit service. Our focus will be on conducting in-depth data analysis and user experience surveys, particularly assessing the AVs' impact on urban mobility, safety, and environmental sustainability. Collaborating closely with the City of Chandler and key stakeholders, we aim to provide insightful evaluations and practical recommendations to enhance both the technological and community aspects of this innovative public transit project, ensuring its effectiveness, accessibility, and alignment with sustainable urban development goals.

This grant proposal extends beyond a mere investment in transportation; it signifies a commitment to progress, inclusivity, and the safety of the Chandler community. We strongly urge USDOT to support this initiative, as it aligns with the goals of advancing innovation in public transit. Thank you for your consideration of this application. If you would like any additional information, please do not hesitate to call me at 480-297-8724 or reach me by e-mail at pendyala@asu.edu. Thank you very much for your time and consideration.

Sincerely,



Ram M. Pendyala
Professor and Director



February 2, 2024

The Honorable Pete Buttigieg
Secretary
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Buttigieg,

On behalf of Via Transportation, Inc. I am writing in support of the City of Chandler's (Arizona) application to the 2023 Advanced Transportation Technology and Innovation (ATTAIN) Program recently released by the U.S. Department of Transportation. This letter aims to highlight the key benefits of the proposed project, which seeks to enhance public transit by introducing autonomous vehicles (AVs) into the existing Chandler Flex service and implementing measures to safeguard against extreme heat conditions, particularly for students.

Since July 2022, Via has partnered with the City of Chandler to deliver the Chandler Flex microtransit service. This service has had tremendous success and has significantly improved student transportation, catering to over 3,000 riders monthly, with approximately 50% of those trips serving student pick-ups and drop-offs. The current application to the USDOT ATTAIN program seeks to elevate this success by integrating AVs into the Chandler Flex fleet.

If successfully secured, the grant will fund the expansion of Chandler Flex as well as the introduction of autonomous vehicles (AVs) into the service. This expansion will democratize the technology, benefiting not only students but also other individuals residing, working, and traveling within the zone, notably encompassing two low-income census blocks. The grant will also facilitate the seamless integration of the Chandler Flex Rider App into the Valley Metro Regional app, providing riders with a user-friendly interface to plan and pay for their trips efficiently. This integration will contribute to a more connected and streamlined transportation system at the regional level.

The integration of AVs into Chandler's microtransit service represents a significant leap in innovation for public transit. Unlike previous AV deployments in Arizona, which have predominantly focused on private robotaxis, this initiative aims to provide safe, affordable, and convenient public transit. By incorporating AVs into Chandler's existing public transit system and making them on-demand and shared, the project promotes environmental sustainability, safety, and extends the benefits of autonomous technology to disadvantaged and low-income riders. To analyze project success, the project will also include an evaluation in collaboration with key stakeholders, including the Arizona Department of Commerce, Arizona State University, and CALSTART. The evaluation will rigorously assess AV performance (i.e., mobility, safety, environmental benefits), offering valuable insights and creating a replicable blueprint for similar transformative projects in other cities.



Via partners with cities and transit agencies across the globe, harnessing the power of data to optimize networks of buses, shuttles, wheelchair accessible vehicles (WAVs), school buses, autonomous vehicles, electric vehicles, and more. Via powers over 600 TransitTech deployments globally and, for each of its deployments, Via configures its system to serve each partners' unique goals while bringing global expertise to bear on local challenges.

This grant proposal extends beyond a mere investment in transportation; it signifies a commitment to progress, inclusivity, and the safety of the Chandler community. We strongly urge USDOT to support this initiative, as it aligns with the goals of advancing innovation in public transit. Thank you for your consideration of this application. If you have any questions, please feel free to contact me at zack@ridewithvia.com

DocuSigned by:

Zack Wasserman

59BB4A4E225C423...

Zack Wasserman
Chief Strategy Officer
Via Transportation, Inc.



January 29, 2024

Honorable Pete Buttigieg
Secretary, U.S. Department of Transportation
1200 New Jersey Ave. SE
Washington, DC 20590

Dear Secretary Buttigieg and members of the USDOT ATTAIN grant review committee:

May Mobility would like to offer our strong support for the TRANSCEND (Transforming Regional Autonomous Navigation for Student Commutes and Environmental Deterrents) grant application to the United States Department of Transportation's Advanced Transportation Technology and Innovation (ATTAIN) program. The City of Chandler, Arizona is aimed at leveraging ATTAIN funds through the TRANSCEND project to elevate the on-demand microtransit service "Chandler Flex," which is intended to integrate autonomous vehicles (AVs) and facilitate the integration of the Chandler Flex Rider App with the Valley Metro Regional App. Focused on the city's vulnerable communities, particularly students, the project will launch in low-income census blocks and is designed to tackle extreme temperatures, ensuring climate-sensitive and efficient transportation.

May Mobility is an autonomous vehicle and technology company that works with cities and transit agencies to provide accessible, shared autonomous transportation. We operate FMVSS compliant, automotive-grade hybrid electric vehicles, utilizing the Toyota Sienna Autono-MaaS vehicles. We have also proven through other deployments, including a long standing deployment in Arizona, that our vehicles are capable of navigating mixed traffic environments autonomously on public roads. Through this grant initiative, we look forward to providing on-demand autonomous transportation and to scaling that operation in a way that provides value to underserved riders in Maricopa County. The City of Chandler will partner with May Mobility, Via, Maricopa County, and Valley Metro Regional Public Transportation Authority to deliver these services and connect transportation disadvantaged communities to essential needs and economic opportunity.

May Mobility is committed to supporting the successful delivery of the TRANSCEND program by participating as a key member of the project team. In addition to the key climate and extreme temperature-related objectives of the TRANSCEND program, we are also aware and committed to upholding additional ATTAIN program goals, including improvement in the mobility of people and goods in underserved communities, demonstration of the impact of advanced transportation technologies on equity and environmental justice, and incentivizing travelers to share trips.

Thank you for considering the TRANSCEND grant application for ATTAIN program funding.

Sincerely,

Daisy Wall, Senior Director of Government Business
May Mobility

The following attachment is not included in the view since it is not a read-only PDF file.

Upon submission, this file will be transmitted to the Grantor without any data loss.

5. City of Chandler-Arizona-2023 and 2024-ATTAIN-Attachment B.xlsx

Project TRANSCEND

Research and Evaluation Study, Scope of Work

1. Overview

Project TRANSCEND's Research and Evaluation Study, under the management of CALSTART, in collaboration with Arizona State University (ASU) and the Arizona Commerce Authority (ACA), aims to assess the project's impact on Chandler's transportation system. This integrated scope of work aligns the efforts of CALSTART, ASU, and ACA towards the unified goal of transforming Chandler's transportation landscape, emphasizing mobility, sustainability, and safety, with a special focus on the needs of students and other vulnerable groups.

2. Background

The ACA, with its research organizations the Institute of Automated Mobility (IAM) and Science Foundation Arizona (SFAz), has conducted AV research since 2018. One major research focus has been on AV safety, where key initiatives include: (1) the development of SAE J3237, an SAE Recommended Practice on driving assessment metrics that is in the balloting stage based on IAM and SFAz work, as well as (2) the Automated Vehicle Test and Evaluation Process (AV-TEP) Mission which is a safety case-based framework that can be used by AV developers and regulators to evaluate the safety of AVs during the development process and after deployment.¹ The ACA is collaborating with the project AV developer, May Mobility, to demonstrate the AV-TEP framework, comparing how the implementation will vary for industry AVs with IP concerns versus research AVs with open data platforms. These multi-year efforts and the wide expertise that has been developed will be leveraged for the current project.

3. Objectives

- **Mobility Enhancement:** Implement and assess the effectiveness of automated vehicle (AV) technology to improve mobility within the integrated transportation systems.
- **Environmental Sustainability:** Assess strategies to reduce emissions and traffic congestion and improve sustainable public transit.

¹ <https://www.sae.org/standards/content/j3237/>

- **Safety and Public Impact:** Assess the safety benefits of AV integration in Chandler's transportation system, particularly focusing on students' needs and well-being.

4. Stakeholders

CALSTART is a national nonprofit whose model for change has proven effective, time and again, since its founding in 1992. CALSTART works with its member companies and agencies to build a high-tech clean-transportation industry that creates jobs, cuts air pollution and oil imports and curbs climate change. The organization works with the public and private sectors to knock down barriers to innovation, progress and drive the transportation industry to a clean and prosperous future. CALSTART accelerates the pace of technology and is a market building organization. Below is an overview of CALSTART's roles and responsibilities:

- **Project Management:** CALSTART will serve as the project manager for the research and evaluation portion of the project to assess the impact of AV technology on the efficiency, economics, and performance of the integrated transportation systems - Valley Metro, Chandler Flex, and Project TRANSCEND.
- **Equity Benefits and Outcomes:** CALSTART will focus on assessing the project's equity outcomes and benefits, especially as they pertain to students and individuals living with low-income.
- **Marketing and Community Engagement:** CALSTART will support the City of Chandler and Via's Marketing and Community Engagement teams to implement best practices, design engagement activities, and interview leadership at K-12 schools, CGCC, and other higher education schools in the Chandler Flex operating zone to uncover transportation gaps that Project TRANSCEND can address.
- **Publishable and Reusable Blueprint Materials:** CALSTART will manage the design of useful knowledge translation interventions to optimize this work's impact and advance the transportation sector in the United States.

The Arizona Commerce Authority (ACA) is the State of Arizona's economic development organization with a streamlined mission to grow and strengthen Arizona's economy. The ACA uses a three-pronged approach to advance the overall economy: recruit, grow, create – *recruit* out-of-state companies to expand their operations in Arizona; work with existing companies to *grow* their business in Arizona and beyond; and partner with entrepreneurs and companies large and small to *create* new jobs and businesses in targeted industries. On-going research for this portion of the report will be led by Dr. Jeffrey Wishart from the ACA/Science Foundation Arizona (SFAz) (and who is also an adjunct at ASU). Below is an overview of ACA's roles and responsibilities:

- **Safety Benefits and Outcomes:** ACA will focus on assessing the project's safety outcomes and benefits. This assessment requires three (3) elements: metrics and measurement methods, evaluation methodology, and acceptance

criteria and benchmark.

Arizona State University is a public four-year higher education institution. The university exemplifies a new prototype for the American public research university. At ASU, the culture of innovation and inclusion draws pioneering researchers to the faculty and attracts highly qualified students from all 50 states and more than 130 nations. ASU is expanding academic and entrepreneurial opportunities for every type of learner at all stages of life. Below is an overview of ACA's roles and responsibilities:

- **Environmental Benefits and Outcomes:** ACA will focus on assessing the project's environmental outcomes and benefits.

5. Combined Detailed Tasks and Deliverables

Task 1: Project Management and Reporting (CALSTART)

- Regular coordination meetings
- Execution and monitoring of project objectives
- Quarterly reporting and invoicing
- Deliverable:
 - Comprehensive progress and final reports

Task 2: Data Collection and Analysis (CALSTART, ASU, and ACA)

- Develop and implement data collection test plans
- Data analysis on usage patterns, trip lengths, and economic impact
- Deliverable:
 - Quarterly data progress reports
 - Detailed Data Collection Test Plan

Task 3: Transportation Mobility Study (CALSTART)

- Develop a transportation mobility assessment methodology
- Evaluate transportation system connectivity and economics
- Deliverable:
 - Transportation Mobility Dashboard
 - Assessment Report

Task 4: Training Program Development and Environmental Evaluation (ASU)

- Develop training modules for transit and AV workforce
- Technical assistance for safety and environmental challenges
- Deliverable:
 - Training materials
 - Evaluation plans
 - Environmental impact reports

Task 5: Safety Objectives and Public Safety Impact Assessment (ACA)

- Development of safety metrics and measurement methods
- Evaluation of public safety impact

- Deliverable:
 - Public safety impact report

Task 6: School Engagement and Community Integration (CALSTART)

- Interviews and data collection from schools
- Design and implementation of community engagement activities
- Deliverables:
 - Blueprint for enhancing school transportation services and community engagement plans

Task 7: Design Interventions for Knowledge Transfer (CALSTART, ASU, and ACA)

- Establish and manage a Working Group
- Develop knowledge translation resources
- Deliverables:
 - Interactive guidebook
 - Factsheets
 - Infographic
 - Short videos

6. Timeline

Year 1

- Q1-Q2: Project initiation, team meetings, and data collection test plan development
- Q3-Q4: Implementation of data collection, initial school engagements, and training program development

Year 2

- Q1-Q2: Data analysis, mobility study commencement, and continued school engagements
- Q3-Q4: Progress reports, evaluation of initial safety metrics, and community engagement activities

Year 3

- Q1-Q2: Finalize mobility study, safety assessment, and knowledge translation materials
- Q3-Q4: Project wrap-up, final reporting, and dissemination of findings

7. Budget: 1,996,885

The full cost of the three-year budget for the Project TRANSCEND Research and Evaluation study is \$1,996,885. Please see Vol. 2 of this application for a detailed breakdown of the budget.