T2050 LONG-TERM PERFORMANCE METRICS REPORT

JANUARY 2016 – DECEMBER 2020

PHOENIX TRANSPORTATION 2050

MOVING PHOENIX FORWARD

MESSAGE FROM LEADERSHIP

"T2050 is more than a transportation plan; it's a comprehensive infrastructure investment in our community. Phoenix is one of the fastest-growing cities in the country and it is critical that we build a multimodal transit plan which is reflective of our residents and meets the needs of every individual to thrive," said Mayor Kate Gallego. "While 2020 was a different year than we expected, the city of Phoenix forged ahead to meet more goals than ever before. By adding more bus stop shelters for shade, starting our cool pavement pilot project, and continuing the expansion of light rail, we took key actions. We will continue to do so to ensure that robust, inclusive transportation options for Phoenix become a reality."

Mayor Kate Gallego

"The first five years of T2050 have resulted in some major accomplishments with a long-term plan that will transform Phoenix's transportation infrastructure. More than ever, this plan has proven to be resilient and agile when it comes to improving Phoenix's transit system and streets. From the beginning, the Citizens Transportation Commission has served in an oversight role, delivering on the vision of the voter-approved plan and providing a voice to the residents of Phoenix. The Commission members are honored to represent our fellow citizens in delivering transportation results that benefit us today and long into the future."

Commissioner Jennifer Mellor
Chair, Citizens Transportation Commission

CONTENTS

OVERVIEW

Phoenix's 35-year Transportation 2050 (T2050) plan dedicates revenue to improving transit service and the street network throughout the city. On Aug. 25, 2015, Phoenix voters approved Proposition 104, which replaced the previous 0.4% sales tax with a 0.7% sales tax. Additionally, the plan is funded by federal, regional and local sources. The new sales tax became effective Jan. 1, 2016, and allocates 70 cents of each $100 spent to the city's transportation needs. Approximately 86% of funds are dedicated to public transit and 14% to supplement street maintenance and improvement funds.

A significant value of T2050 is the ability of the city to sustainably prepare and manage the transportation system for growth. In the first 5 years of T2050, between 2016 and 2020, an additional 91,000 people moved to Phoenix, bringing the city's population to approximately 1.7 million. Simultaneous job growth during that same time brought 97,000 new jobs, for a total of 937,000 jobs in the city as of 2020.

This report details the progress made toward achieving the T2050 program goals during the first 5 years of the 35-year program. Achievements are shared as data points showcasing how the funding and plan decisions matter for Phoenix.

Performance Measures and Outcomes

The city continually collects and analyzes data to measure the performance of its programmatic efforts on the transportation system and the impacts and benefits of the program to residents and commuters. To measure progress toward achieving the goals of the T2050 program, performance measures were identified in three focus areas: transit, streets and citywide.

	TRANSIT	STREETS	CITYWIDE
T2050 Program Outcomes	• Improve Access • Optimize Transit Ridership • Increase Satisfaction	• Improve Reliability • Create Multimodal Options • Increase Satisfaction	• Improve Mobility and Access • Increase Safety • Maintain Quality of Infrastructure • Improve Public Perception • Support Economic Development

The outcomes described by the performance measures represent the progress of the T2050 program so far. This report documents those outcomes and provides supporting data and graphical representations. The metrics in this report use 2016 as the baseline year for comparison on continual progress.

Due to the diverse range of metrics, data sources and collection methods, tabulations vary from 4½ to 5½ years and are reported either in fiscal or calendar years. Detailed year-to-year data based on fiscal year can be found in the published annual reports.

Impact of COVID-19

The contagious new virus, COVID-19, resulted in a global pandemic beginning in 2020 that significantly shifted consumer demands. Many of the effects are not yet completely understood. Travel patterns changed due to social distancing and ridership numbers steeply declined.

Programmatic Objectives

The citywide sales tax authorized by voter-approved Proposition 104 went into effect on Jan. 1, 2016. Shortly thereafter, the T2050 Leadership Team, composed of a deputy city manager and the directors and deputy directors of the Street Transportation and Public Transit departments, established short- and long-term goals based on the ballot language and objectives of the program. While these goals are anticipated to evolve as the program progresses, the city places emphasis on regularly measuring and reporting progress.

The program's long-term, 35-year goals and status of completion as of the date of this report are listed to the right.

Short-term performance metrics measure inventory of **what** the program has accomplished and are numerical; for example, the number of new streetlights or miles of light rail service. Short-term metrics are measured annually and documented in the T2050 annual progress reports.

Long-term performance metrics measure **why** the improvements are made and are objective in nature; for example, enhancing multimodal options or improving user satisfaction. Long-term performance is measured every 5 years and is documented in the T2050 Long-Term Performance Metrics Report.

5-year progress	Program 35-year Goals
	CONTINUE local bus, RAPID commuter bus, neighborhood circulator and Dial-a-Ride service **FOR 35 YEARS**
	PROVIDE 15-MINUTE FREQUENCY on half of all bus routes
	EXTEND & ADD new RAPID service
	PURCHASE NEW buses and Dial-a-Ride vehicles
	EXTEND bus and Dial-a-Ride service hours **TO MATCH LIGHT RAIL HOURS**
	EXTEND & ADD BUS SERVICE to unserved major streets
	ADD NEW circulator service
	BUILD NEW park-and-ride lots
	BUILD additional bus bays
	CONTINUE 17 MILES of light rail service
	PROVIDE 75 MILES of new bus rapid transit service
	ADD 42 MILES of new light rail in Phoenix
	BUILD NEW light rail station at 50th Street (completed April 25, 2019)
	680 MILES of new overlays on arterial/major streets
	2,000 new streetlights
	$240 MILLION for new roads and upgraded bridges
	1,080 MILES of new bike lanes
	135 MILES of new sidewalks
	ENHANCE technology

Below expected target | Approaching expected target | At or above expected target

T2050 Program Goals

Focus Areas

TRANSIT

Performance Metrics

- Percentage of people living near a transit stop or high-frequency transit stop
- Percentage of people working near a transit stop or high-frequency transit stop
- Bus and light rail on-time performance
- Quantity of bus stop shade structures
- Quantity of transit user contacts/ complaints
- Transit user survey satisfaction results
- Light rail ridership
- Bus ridership
- Dial-a-Ride ridership
- Resident satisfaction survey
- Quantity of bus bays

T2050 Program Outcomes

- **Improve Access**
- **Optimize Transit Ridership**
- **Increase Satisfaction**

STREETS

Performance Metrics

- Quantity of left-turn arrows
- Quantity of traffic signals
- Quantity of pavement
- Quantity of LED street sign improvements
- Quantity of new bike lanes
- Quantity of new sidewalks
- Quantity of new/replaced sidewalk ramps
- Bike and pedestrian facility use

T2050 Program Outcomes

- **Improve Reliability**
- **Create Multimodal Options**
- **Increase Satisfaction**

CITYWIDE

Performance Metrics

- Path/trail wayfinding sign installation
- Mobility Access Program and recommendations
- Transit ADA compliance and accessibility
- Quantity of HAWK crossings
- Quantity of traffic signals
- Transit enforcement unit
- Fare enforcement zone
- Signal pole repainting
- Pavement maintenance
- Transit vehicle/facilities maintenance
- Resident perception
- Tourist economic contributions
- Quantity of new street lighting
- Achieving Transit Accessibility Now
- Labor retention, GDP and high-capacity transit (HCT) corridor investment

T2050 Program Outcomes

- **Improve Mobility and Access**
- **Increase Safety**
- **Maintain Quality of Infrastructure**
- **Improve Public Perception**
- **Support Economic Development**

TRANSIT

Performance Metrics

- Percentage of people living near a transit stop or high-frequency transit stop
- Percentage of people working near a transit stop or high-frequency transit stop
- Bus and light rail on-time performance
- Quantity of bus stop shade structures
- Quantity of transit user complaints
- Transit user survey satisfaction
- Light rail ridership
- Bus ridership
- Dial-a-Ride ridership
- Resident satisfaction survey
- Quantity of bus bays

T2050 Program Outcomes

- **Improve Access**
- **Optimize Transit Ridership**
- **Increase Satisfaction**

An array of transit services is available in Phoenix. In addition to commonly known fixed-route bus and light rail services, transit options also include neighborhood circulators, Rapid/Express commuter routes, and complementary paratransit service (Dial-a-Ride/DAR).

The Phoenix Public Transit Department (PTD) coordinates with Valley Metro, the regional public transportation authority that provides coordinated transit services to riders in the metro area. PTD is dedicated to moving transit riders in a safe, efficient and convenient manner via the regional transit network.

Trends in resident access to transit, rider satisfaction and transit ridership in Phoenix were measured to understand how the T2050 program has enhanced the transit system over its first 5-years. These metrics were chosen to consistently evaluate how the Phoenix transit system meets the city's transit needs and demand over 5-year intervals.

T2050 supports increased frequency and extended local bus routes because improving access is an integral T2050 program outcome.

Optimizing transit ridership is a T2050 program outcome measured, in part, by light rail ridership.

COVID-19 Response

On March 30, 2020, Executive Order 2020-18 was issued in Arizona limiting the use of public transit services to only the movement of individuals participating in essential activities and work functions. Public transit was identified as a critical service, as it provides transportation to essential service workers throughout the region.

The health and safety of staff members, contractors, community members and the traveling public are a top priority of PTD. Beginning in April 2020, transit service changes were implemented, including reductions to light rail, Express, RAPID and local bus services. Seating on buses was limited and passengers were required to board through the back door only. On April 11, 2020, transit hours of service were reduced by approximately 10% on a weekly basis. Effective June 20, 2020, face coverings were required for transit passengers.

COVID-19 had an implied impact on transit ridership data during 2020; however, no direct correlation or causation is concluded in this report's findings.

Improve Access

Improved transit services have provided the access and frequency on which many residents and commuters rely. The combination of extended service hours, increased frequency of service, extended routes and new routes has resulted in a more holistic transit network serving the growing Phoenix population.

The population of Phoenix has steadily grown since 2016, adding approximately 91,000 residents through 2020. As the city continues to grow in both population and jobs, the transit network must be maintained and evolve to provide for a larger demand in service and access.

To maintain transit network efficiency, network coverage and density must grow with the population. A measure for understanding if the network is keeping pace with annual population growth is the number of bus stops added as base infrastructure to route extensions and service areas. **Figure 1** shows the percentage of residents and jobs within one-half mile of typical transit service routes from 2016 to 2020.

PTD defines high-frequency transit routes as routes within the greater bus network with higher service demand and improved service frequency (i.e., the number of buses servicing a stop per service hour). **Figure 2** shows the percentage of residents and jobs within one-half mile of high-frequency transit routes in Phoenix from 2016 to 2020. Both figures demonstrate that even with significant population and employment increases, access to transit is maintained.

Maintaining Population Coverage

Figure 1 – City Bus Network

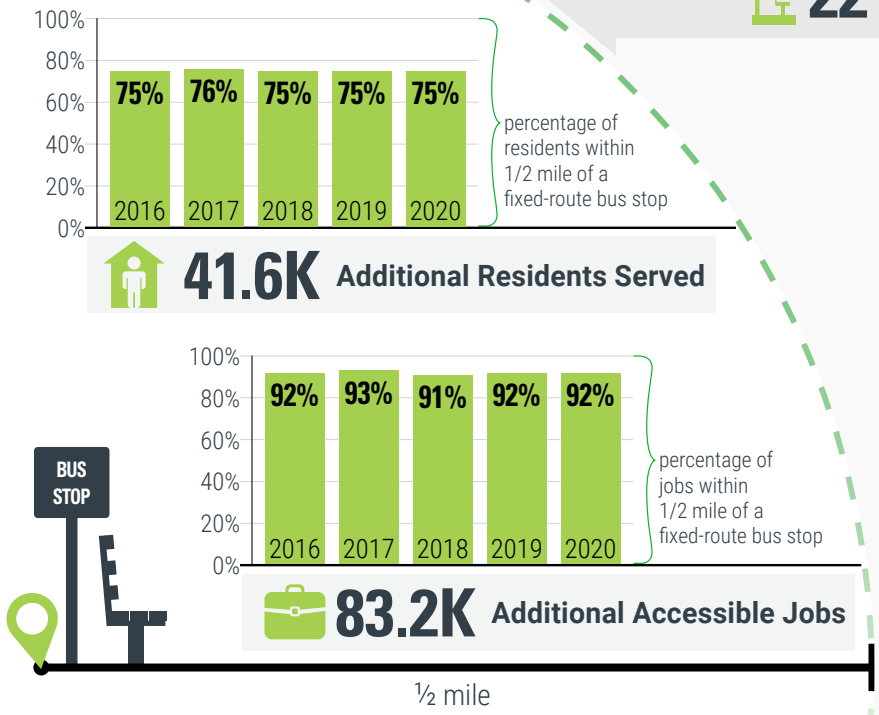
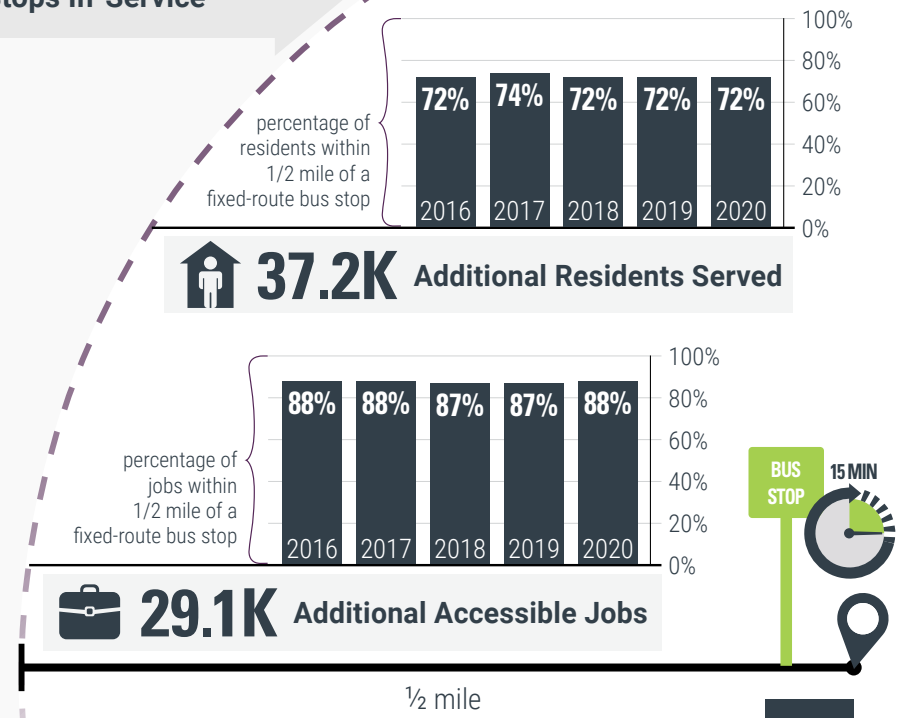


Figure 2 – High Frequency Bus Stop Network



Optimize Transit Ridership

Transit ridership is a standardized metric derived from boarding data collected across the transit system. Ridership numbers are used to inform decision makers on the performance of transit systems depending on the area serviced, frequency, route and mode available.

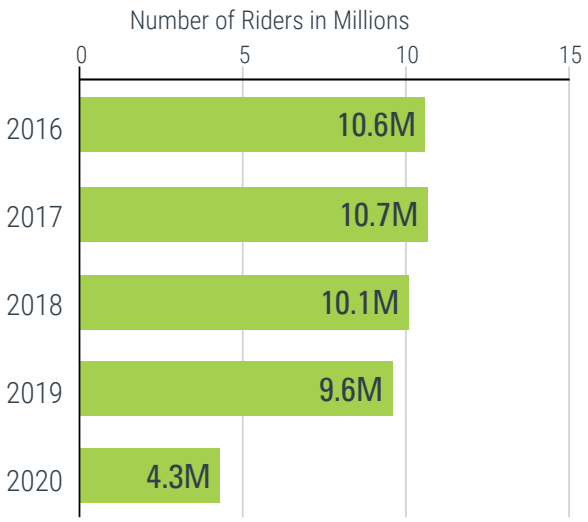
Current modes of transit are bus, light rail transit (LRT) and Dial-a-Ride service. As the most prominent service, bus ridership makes up 76% of ridership for the entire transit network; LRT provides 23% of ridership; and Dial-a-Ride contributes about 1% of ridership (for the 5-year period of 2016-2020).

Bus transit leads transit ridership in Phoenix, as seen in **Figure 3**, due to the extensive and accessible network of bus routes and stops. The service frequency of buses has strategically increased along with existing service route extensions and the addition of new routes.

LRT is a critical component of the transit infrastructure in Phoenix. Since its launch in December 2008, the system has undergone two extensions and far exceeded original ridership projections. There are currently three planned extensions of LRT within Phoenix. Ridership numbers for LRT are shown in **Figure 4**.

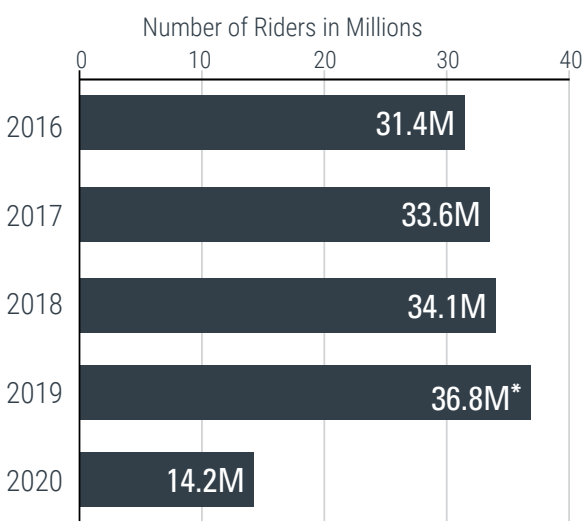
Dial-a-Ride service is an equitable transit mode servicing those unable to utilize local bus service due to a disability. This service is committed to providing a safe and convenient transportation option suitable to those in need of Americans with Disabilities Act (ADA) paratransit services. With growing opportunities and an activity center accessible to disabled populations, the Dial-a-Ride service will continue to support transportation needs. Dial-a-Ride ridership in Phoenix is shown on **Figure 5**.

Figure 3 – LRT Ridership



45.2M Total LRT Ridership

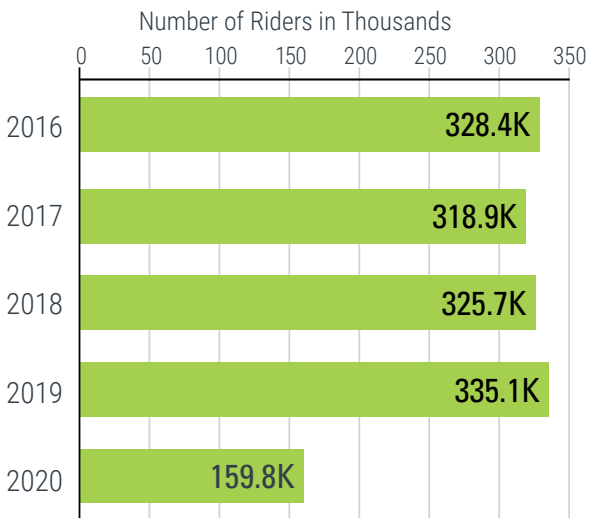
Figure 4 – Bus Ridership



150.1M Total Bus Ridership

*Information for 2019 reflects the transition period for the implementation of a new data recording system.

Figure 5 – DAR Ridership



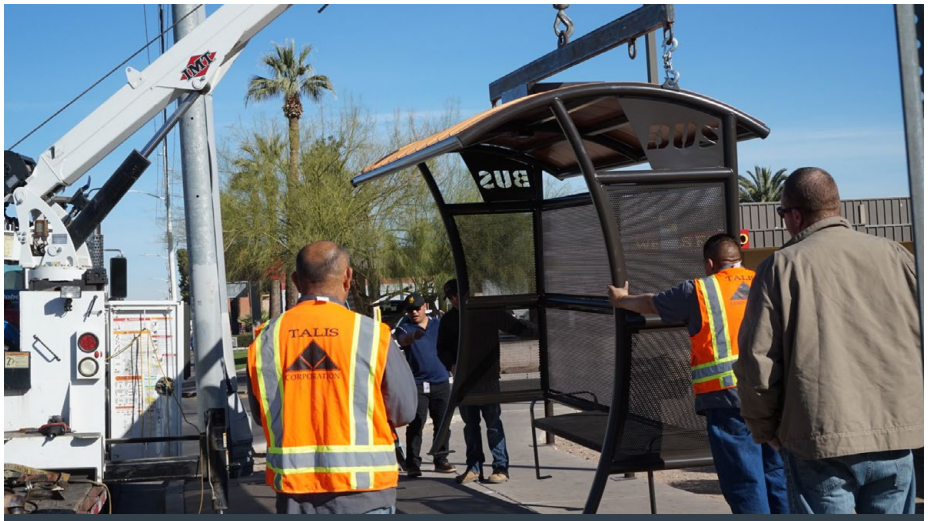
1.5M Total DAR Ridership

Increase Satisfaction

Measuring rider satisfaction provides the valuable feedback needed to continue to implement the program's goals of comfort at stations and stops from shade structures, installation of bus bays and on-time performance of transit vehicles. Ridership satisfaction is obtained by public satisfaction surveys.

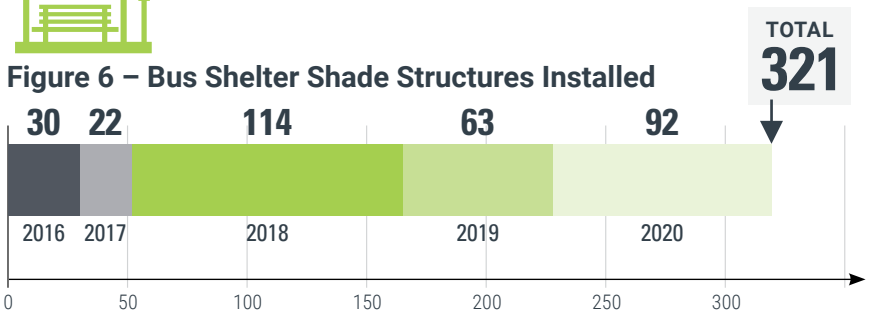
Bus shelter shade structures at stops provide protection from common local environmental elements, such as extreme heat and seasonal monsoons. Some structures are also illuminated to provide increased user visibility and perceived safety. As of 2020, there were 4,009 bus stops in Phoenix. **Figure 6** depicts the number of new bus shelter shade structures installed with T2050 funding. Additionally, bus bays are being added to multiple station locations for safer loading and unloading of passengers with a reduced impact on through traffic.

The punctual arrival of vehicles is a determining factor in meeting the riders' satisfaction with the service. **Figure 7** displays the percentage of on-time arrivals for each transit modes.



Shaded bus stops increase user satisfaction, an important T2050 program outcome.

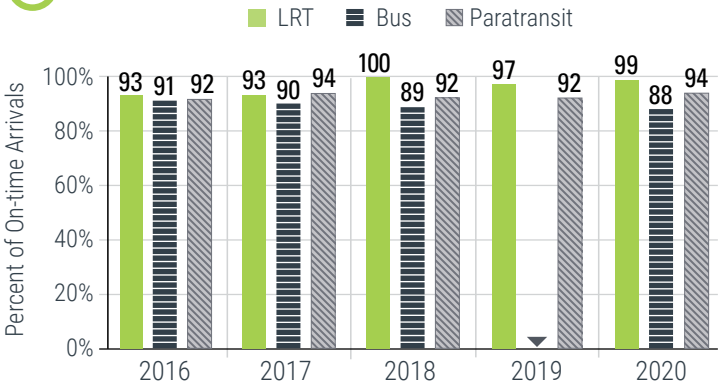
Figure 6 – Bus Shelter Shade Structures Installed



6*
Bus Bays Installed

*As measured from January 2016 to June 2020.

Figure 7 – On-Time Performance of Transit Vehicles



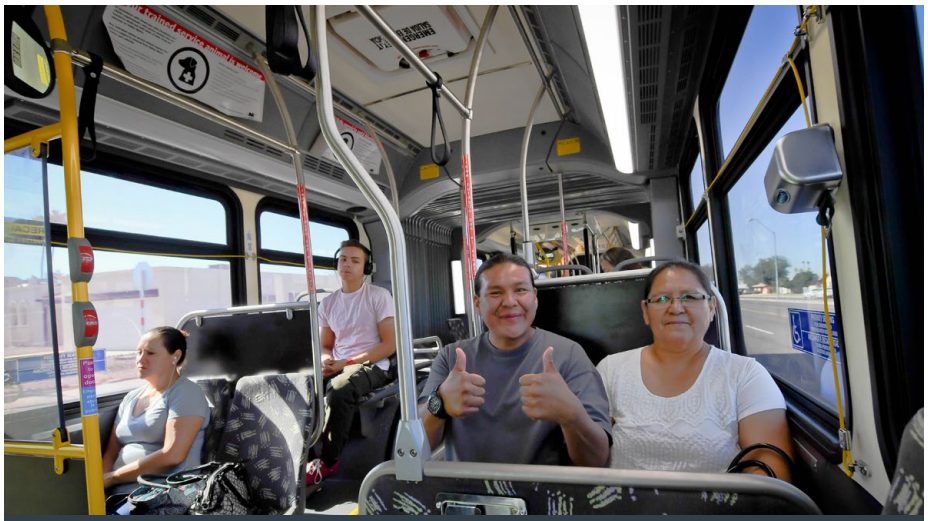
96%
On-Time Transit Vehicles

Bus information for 2019 is not available due to the transition period for the implementation of a new data recording system.

The measurement of passenger contacts and complaints is an industry standard for understanding the rider satisfaction with the overall transit experience. The total number of complaints are counted per 100,000 boardings. The number of rider complaints for City of Phoenix transit service are shown in **Figure 8**.

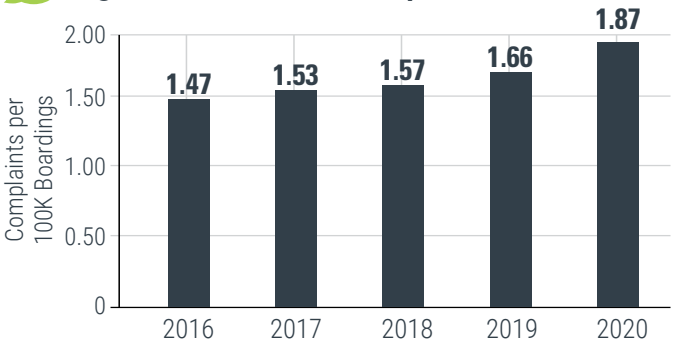
Ridership satisfaction, presented for the Phoenix metropolitan area in **Figure 9,** is the result of a survey that canvassed public transit riders using the Valley Metro transit system. This figure shows results for the full geographical reach of Valley Metro, beyond city boundaries. Further information about the Valley Metro transit system can be found at valleymetro.org. The ridership satisfaction metric is used to measure the progress of ridership satisfaction throughout the T2050 program lifespan.

Figure 10 shows how respondents indicated their satisfaction with individual aspects of the transit service experience. This survey was conducted between December 2019 and January 2020 to establish a baseline for T2050 awareness and satisfaction. The survey will be administered every 5 years to gauge levels of resident satisfaction as the program continues.



Feedback provided in the Transit User and Resident Satisfaction surveys help track the T2050 program outcome of increasing satisfaction.

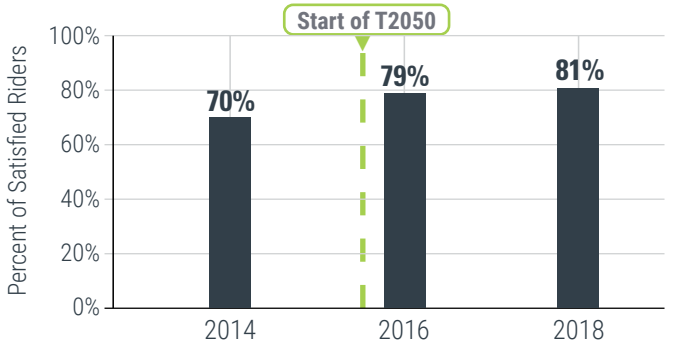
Figure 8 – Bus User Complaints



1.62
Average Complaints per 100K Boardings

Figure 9 – Valley Metro Ridership Satisfaction

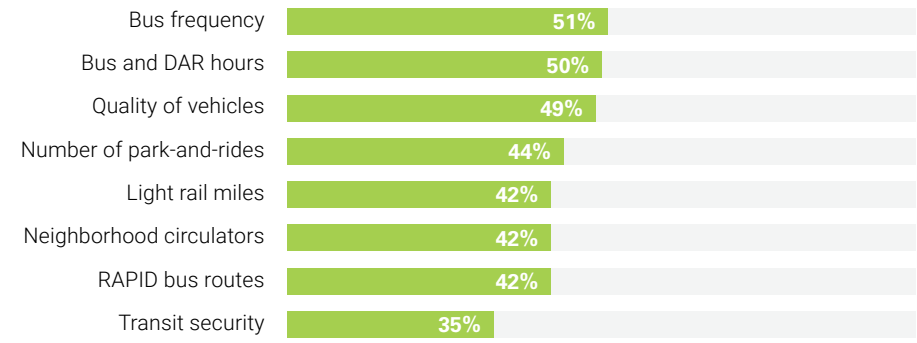
Summary of 4 and 5 ratings, on scale of 1 to 5



11%
Increase in Ridership Satisfaction

Figure 10 – Resident Satisfaction with Transit

Summary of 4 and 5 ratings, on scale of 1 to 5 — 4= "Satisfied" — 5 = "Very Satisfied"



STREETS

Performance Metrics

- Quantity of left-turn arrows
- Quantity of traffic signals
- Quantity of pavement
- Quantity of LED street sign improvements
- Quantity of new bike lanes
- Quantity of new sidewalks
- Quantity of new/replaced sidewalk ramps
- Bike and pedestrian facility use

T2050 Program Outcomes

- **Improve Reliability**
- **Create Multimodal Options**
- **Increase Satisfaction**

T2050 street infrastructure goals are the responsibility of the Street Transportation Department. The department is dedicated to moving people—including pedestrians, bicyclists and motorists—and goods in a safe, efficient and convenient manner via the street network.

While paving and maintaining roads is the foundation of these services, the department is also responsible for all street-related infrastructure such as street signs, traffic signals, streetlights, bikeways, ADA ramps and sidewalks. Other essential functions include report review for private development projects, landscaping within the city right-of-way, construction inspections, materials testing and the use of geographic information system software for desktop, survey and web-based mapping analysis. Additional information is available at phoenix.gov/streets.

Improving reliability is a T2050 program outcome that requires closely tracking the quality of infrastructure improvements made throughout the city.

COVID-19 Response

Considered an essential city service, the department continued with most projects despite COVID-19. Street paving projects have continued as programmed, as have pothole patching, sign replacement, lane striping, traffic signal servicing and installation, streetlight repair and other projects. The public health crisis forced adjustments to schedules and changes to construction crew operations and precautions, but the work continues. COVID-19 had an implied impact on various streets projects and resulting data for 2020, but no direct correlation or causation is concluded in the report findings.

Improve Reliability

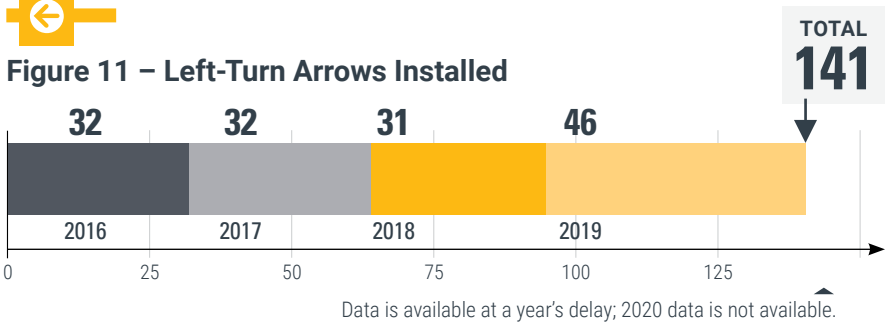
The reliability of the Phoenix street network is measured to maintain user satisfaction and safety. Maintaining safe and reliable roadway infrastructure ensures a consistent experience and an improved level of service for all roadway users.

Methods employed to meet reliability goals include the addition of left-turn arrows at existing traffic signals; installation of new traffic signals where average daily traffic patterns, pedestrian counts warrant and funding is available; and installation of signals with advanced detection hardware.

Left-turn arrows provide either a dedicated turning segment of signal timing phases or controlled flashing yellows as an option for varying traffic and roadway conditions. **Figure 11** shows the number of left-turn arrows added to the existing transportation signal network.

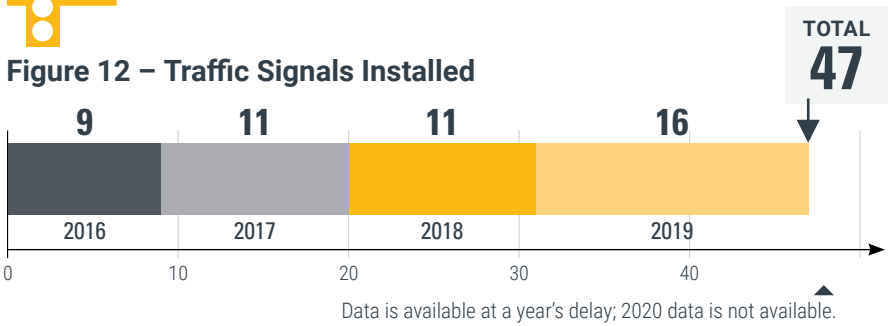
New traffic signals are added to the network as traffic increases at an intersection due to increasing intensity of land uses or through traffic. **Figure 12** shows the number of new traffic signals installed since T2050 began. Signals are now being equipped with advanced detection hardware for increased efficiency.

Figure 11 – Left-Turn Arrows Installed



Data is available at a year's delay; 2020 data is not available.

Figure 12 – Traffic Signals Installed



Data is available at a year's delay; 2020 data is not available.

4* **Signals with Advanced Detection Installed**

*As measured from January 2016 to June 2020.

Create Multimodal Options

The city made a commitment through T2050 to increase multimodal mobility options. This is measured through the addition of new bike lanes, sidewalks and ADA-compliant ramps.

The addition of new bike lanes and sidewalks allows for greater connectivity between neighborhoods and main thoroughfares. Designating right-of-way for non-motorist commuters improves safety and can reduce congestion. The addition of bike lanes can result in narrowed vehicular traffic lane widths and reduced traffic speeds, and can better delineate motorized and non-motorized roadway users.

The miles of new bike lanes installed are shown by year in **Figure 13**. Furthermore, new sidewalks serve to complete the street and provide a safer pedestrian realm. The miles of new sidewalks installed are shown in **Figure 14**.

Adding and replacing ADA ramps brings the city further into compliance with ADA standards. The ramps provide greater safety and accessibility for the disabled, elderly, visually impaired and limited-mobility populations. **Figure 15** illustrates the cumulative progress made toward reaching this T2050 goal.

Since 2018, 5-day bike counts were conducted in spring and fall for a sample size assessment of growth. **Figure 16** shows the total bike counts over the 5-day period in 40 locations across Phoenix.

Figure 13 – Miles of New Bike Lanes Installed

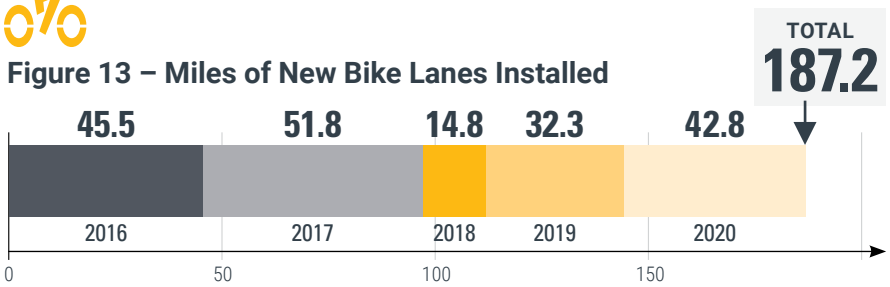
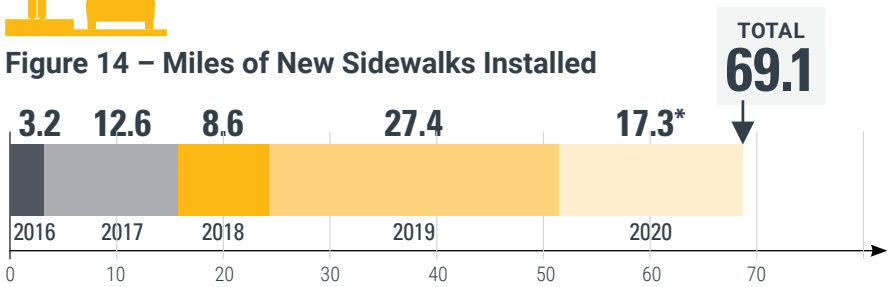
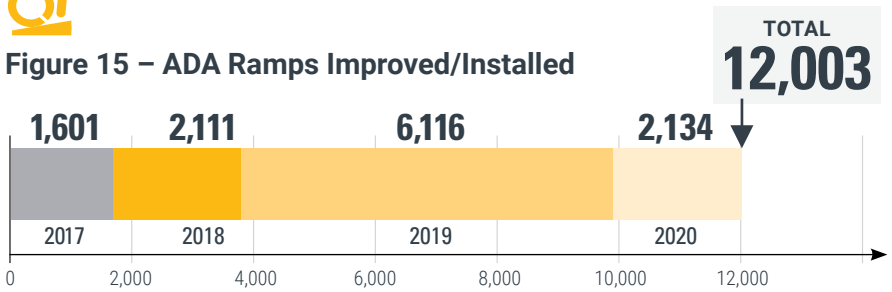


Figure 14 – Miles of New Sidewalks Installed



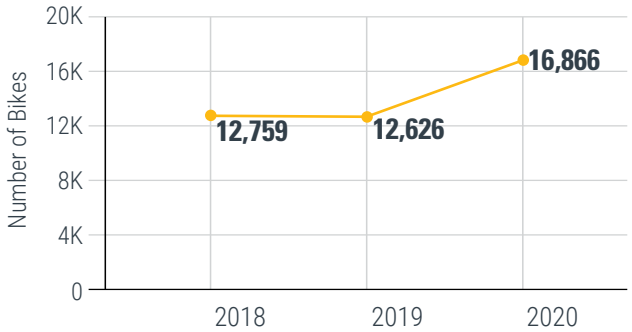
*The reported data is an estimate based on historic data from 2018 to 2019.

Figure 15 – ADA Ramps Improved/Installed



2016 data is not available for this metric.

Figure 16 – 5-Day Bike Counts at 40 Citywide Locations



19% Weekday | **47%** Weekend

Increase in Bike Counts since 2018

Increase Satisfaction

Understanding user satisfaction with transportation infrastructure is a key component to achieving T2050 goals. A user's general satisfaction can be implied from the growth in quality of street facilities and maintenance, as well as an increase in the wayfinding access provided to streets via illuminated street signs. Furthering their understanding of user's satisfaction, city staff conducted a phone survey that asked users how satisfied they were with multiple elements of the right-of-way allocation on city streets.

Street facility maintenance is managed through pavement preservation and mill and overlay projects. These projects provide the foundation for all modes of transportation to move seamlessly through the city and allow for the inclusion of multimodal facilities such as bike lanes, pedestrian crossings and ADA-compliant amenities in most projects.

Figures 17 and 18 show the accumulation of pavement overlays completed on local and arterial streets through T2050 funding.

The quality of pavement is tracked because pavement condition is an indicator of user satisfaction.

Figure 17 – Miles of Local Overlay Pavement Installed

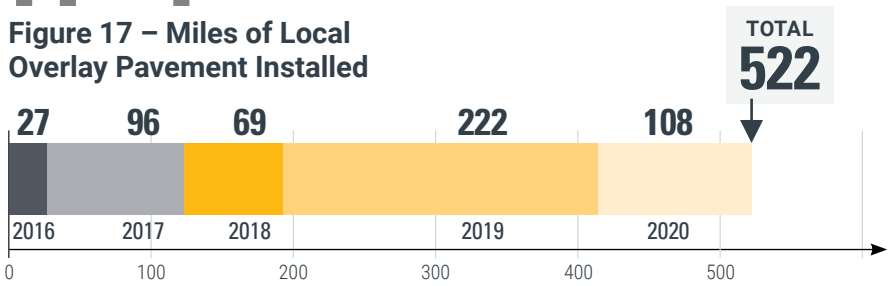
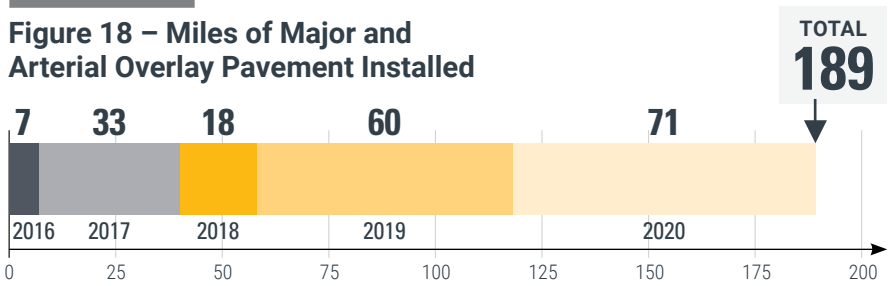


Figure 18 – Miles of Major and Arterial Overlay Pavement Installed

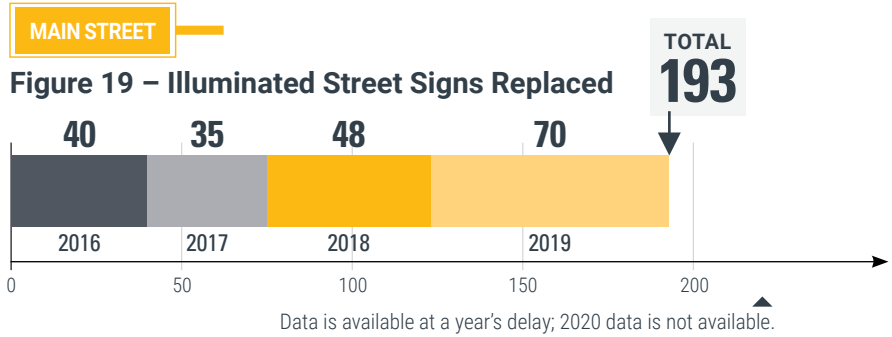


Illuminated street signs provide better visual guidance to motorists, cyclists and pedestrians, allowing all commuters to traverse the city more confidently outside of daylight hours. **Figure 19** shows the number of illuminated street signs installed since T2050 began.

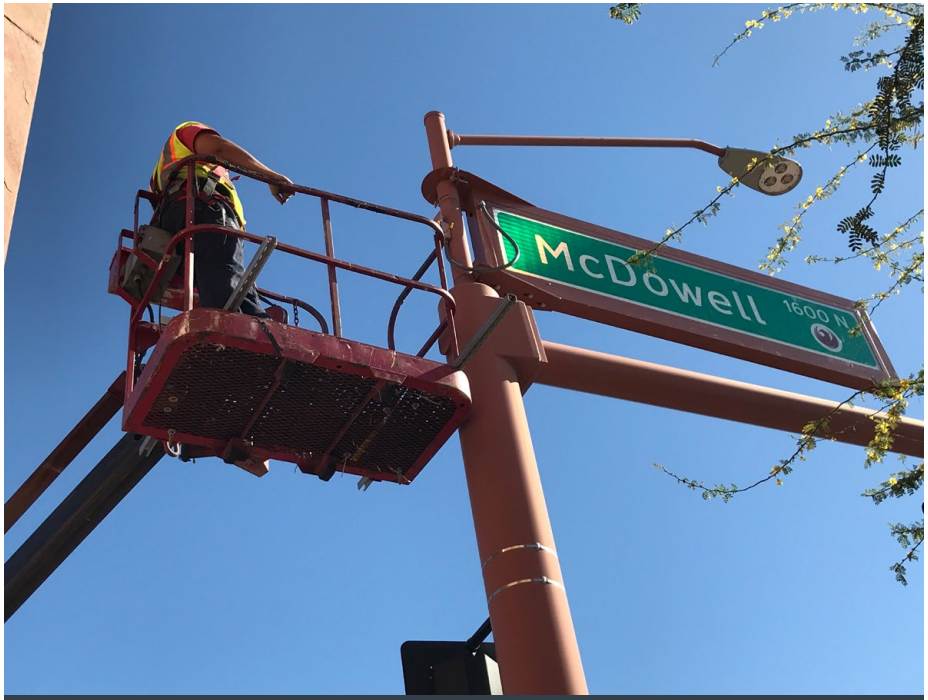
A phone survey was completed in 2020 to determine Phoenix residents' awareness of, and satisfaction with, the overall T2050 program so far. **Figure 20** summarizes the satisfaction rating for the improvements made to the streets network under T2050.

MAIN STREET

Figure 19 – Illuminated Street Signs Replaced

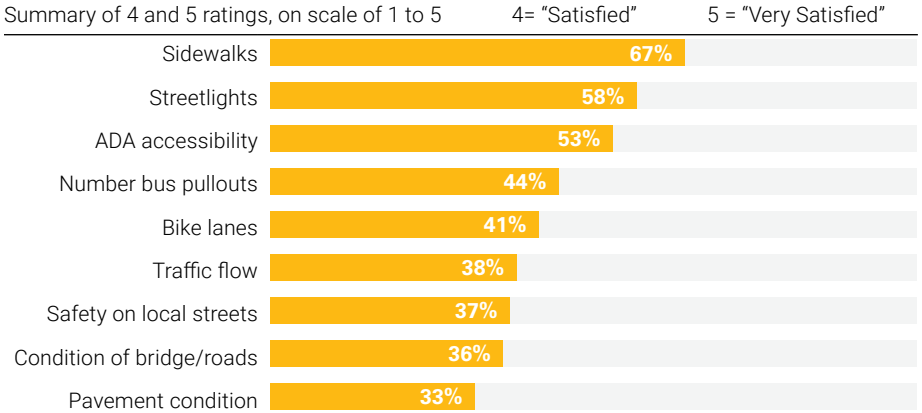


Data is available at a year's delay; 2020 data is not available.



Maintaining illuminated street signs are an integral part of improving network reliability.

Figure 20 – Resident Satisfaction with Streets



CITYWIDE

Performance Metrics

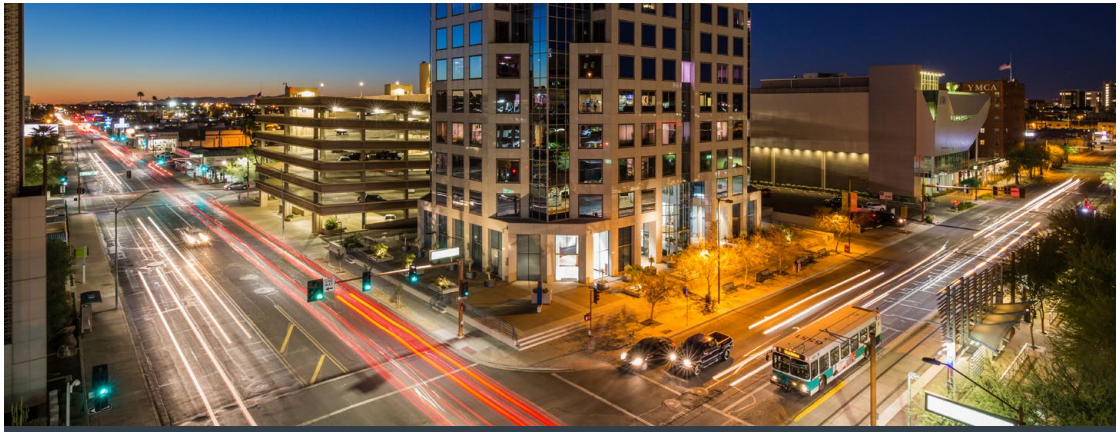
- Path/trail wayfinding sign installation
- Mobility Access Program and recommendations
- Transit ADA compliance and accessibility
- Quantity of HAWK crossings
- Quantity of traffic signals
- Transit enforcement unit
- Fare Enforcement Zone
- Signal pole repainting
- Pavement maintenance
- Transit vehicle/facilities maintenance
- Resident perception
- Tourist economic contributions
- Quantity of new street lighting
- Achieving Transit Accessibility Now
- Labor retention, GDP and HCT corridor investment

T2050 Program Outcomes

- **Improve Mobility and Access**
- **Increase Safety**
- **Maintain Quality of Infrastructure**
- **Improve Public Perception**
- **Support Economic Development**

The T2050 program serves the Phoenix community's transportation needs through its citywide projects and influences. T2050 revenues supplement other sources of transportation funding, allowing the city to accomplish more.

Through its first 5 years of implementation, the program has allowed both the Streets Transportation Department and PTD to improve transportation mobility and access, safety and infrastructure quality, and benefit the local economy. Through these improvements, T2050 leverages multi-departmental assets to stretch project funding further.



Supporting economic development is a key T2050 program outcome.

COVID-19 Response

The effects of COVID-19 are seen at a citywide level and are recorded in this section's metrics. The activities of both the Street Transportation Department and PTD are considered essential, and therefore have continued to serve the city during the global COVID-19 pandemic. COVID-19 had an implied impact on citywide data for 2020, but no direct correlation or causation is concluded in the report findings.

Improve Mobility and Access

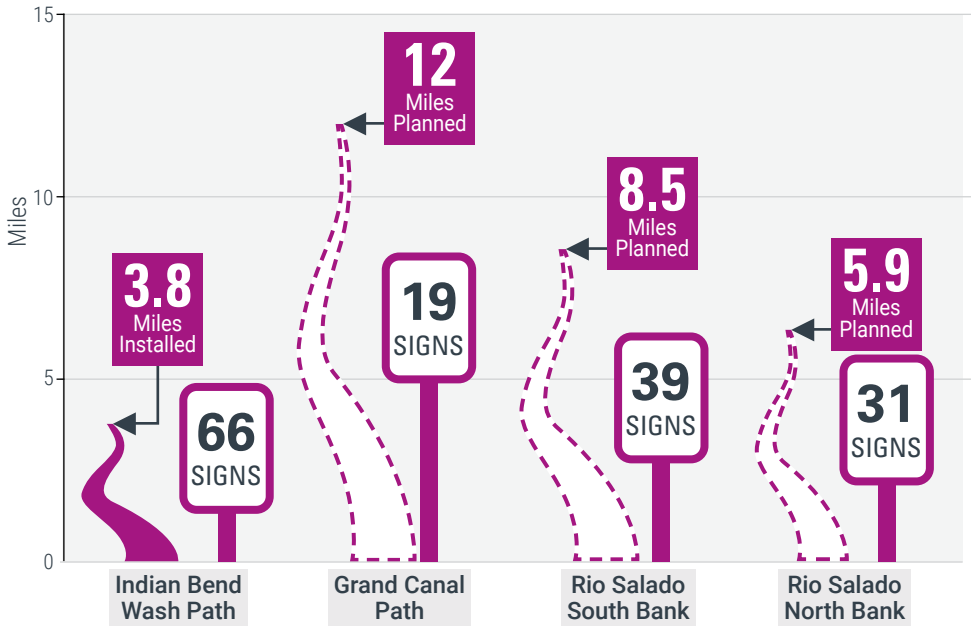
The T2050 program has supported a series of initiatives to improve the public's mobility and access to the Phoenix transportation network, including wayfinding projects, the mobility improvements program, bicycle on transit improvements and the ADA transition pilot project.

As part of a program of continuous monitoring and improvement, these projects were measured against citywide mobility and access performance measures to quantify their effectiveness in connecting more people to places of work, education and recreation and understand how they contribute to the transportation network.

To create a safe and predictable bicycle network that is easy to use and navigate, it was necessary to establish a unified regional wayfinding signage system. A Valley Path brandmark was created by the Maricopa Associations of Governments (MAG) with a sign design that provides a consistent and trusted look for wayfinding signs on all paths.

The T2050 program took advantage of this opportunity for connectivity across the region by increasing its signage development and installation efforts. The objectives of the wayfinding signage project also include identifying the best routes to destinations within the community, informing motorists when to use caution, supporting sustainable lifestyles and helping to reduce the biking skill "barrier to entry" for new bicyclists. The 5-year progress of the regional wayfinding signage system is shown in **Figure 21.**

Figure 21 – Path/Trail Wayfinding Improvements Installed



A regional goal for transit services is to increase accessibility to those who are mobility impaired. Achieving Transit Accessibility Now, a MAG initiative, is continuing to fund improvements in the region. As part of these grant-funded projects, the city is updating bus stops to be ADA-compliant.

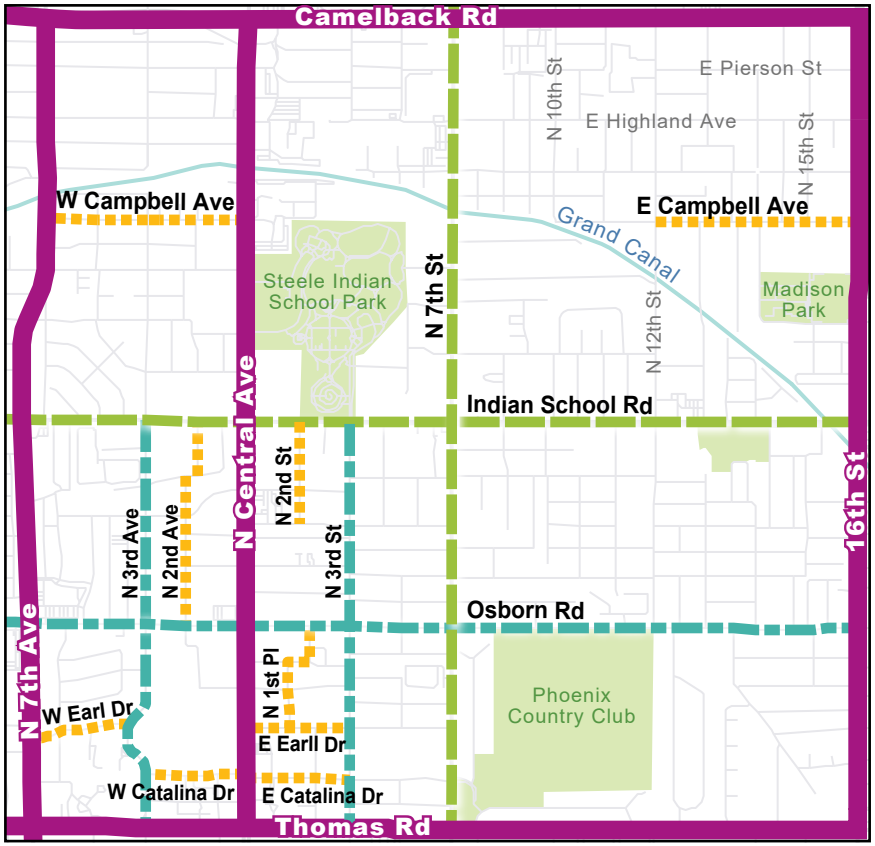
13 **Achieving Transit Accessibility Now (ATAN)** grant projects funded since T2050

85% **of Bus Stops are ADA-Compliant**

The city is consistently working to upgrade infrastructure and build facilities to meet ADA requirements. **Figure 22** illustrates the street segments that were evaluated for sidewalk width, curbs, truncated dome ramp landing pads, ramp grade and surface state of repair. This pilot project will aid the city in achieving its 12-year Curb Ramp Correction Program goals by starting to bring current curb ramps into federal ADA compliance. Collecting data on existing conditions starts the process of making improvements that reduce barriers to major life activities for all Phoenicians.

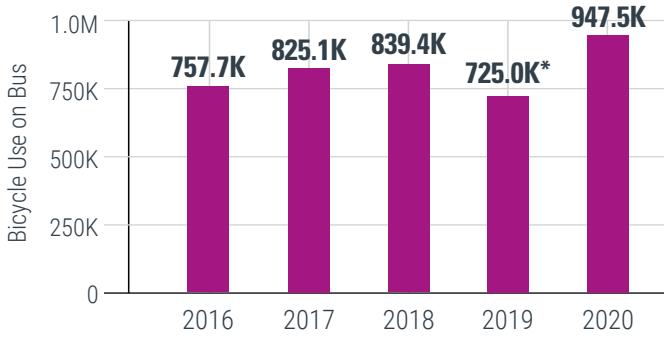
Figure 22 – ADA Compliance and Accessibility Pilot Project

Arterial	10.3
Collector	5.7
Major Arterial	4.2
Minor Collector	3.3
TOTAL MILES	23.5



The number of bicycles used in concert with the public transportation system is a good indicator of how well a multimodal system meets the unique needs of cyclists. Providing adequate storage for bicycles on the front of buses and in LRT trains increases travel options for these users. Currently, the number of bikes stowed on LRT is not a tracked metric. **Figure 23** shows the numbers of bicycles used on buses.

Figure 23 – Bicycle on Bus Usage



*Some information for 2019 is not available due to the transition period for the implementation of a new data recording system.

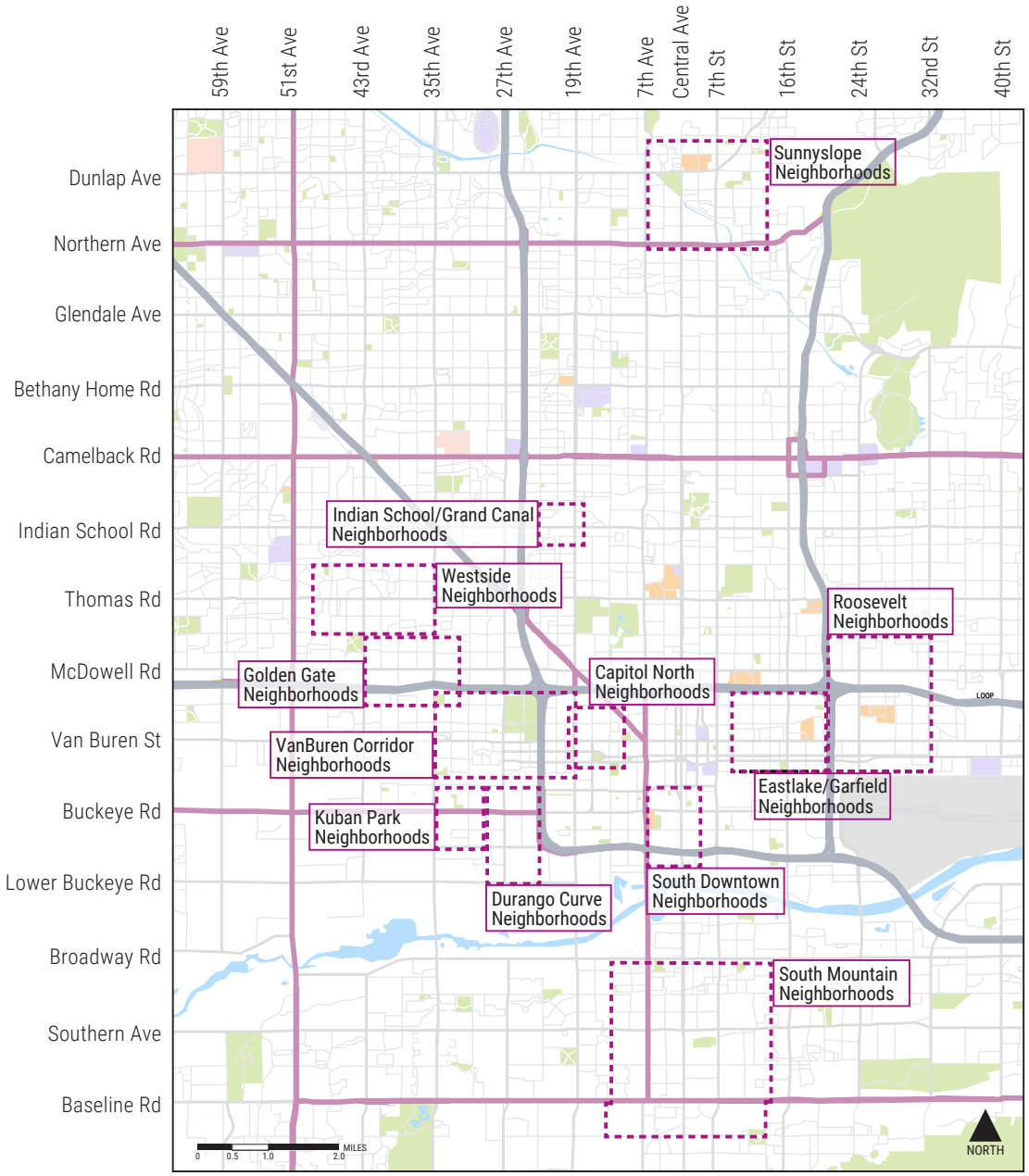
4.1M
Bicycle on Bus Usage

25% **Increase in Bike Usage on Bus**

As a complement to the ADA Transition Plan Pilot Project, the T2050 Mobility Improvements Program was established to improve mobility, safety and connectivity of all roadway users. Mobility studies were a major part of the program. Thirty-nine locations were identified for study at the inception of T2050; 13 studies launched at the beginning of 2017 and 12 are complete (**Figure 24**). Study areas were selected by analyzing data sets focusing on where people walk and ride bicycles most often, and where system deficiencies and/or gaps exist in the multimodal infrastructure.

The analysis of these study areas provided decision makers with information about the specific needs of neighborhoods. An existing conditions report was drafted for each neighborhood to provide a summary of on-the-ground-conditions. The reports included public outreach to key community members and also identified key destinations, existing pedestrian and bicycle networks, transit facilities, and zoning and land use dynamics. Recommendations for mobility solutions will focus on all streets, with an emphasis on providing safe, convenient ways for people of all ages and abilities to walk and bike to their important destinations.

Figure 24 – Mobility Assessment Program Study Completion



Increase Safety

To increase safety across the city, a multi-faceted approach of assessment and subsequent action has been implemented, with T2050 funding enabling the necessary improvements. Promoting a safe environment for all roadway users is of the utmost importance in transportation development decisions.

The citywide safety improvement performance measures consist of increased installation of pedestrian hybrid beacons (PHB) such as high-intensity activated crosswalk systems (HAWK), additional street lighting installation, reduction in transit vehicle crashes, reduction in overall transportation fatalities and injuries, addition of protected bike lanes, presence of transit enforcement units, increased public safety communication and fare enforcement. In combination, these performance measures account for a continuous focus on safety in the Phoenix transportation network.

The HAWK/PHB crossings are a recent development to improve pedestrian and bicycle safety at mid-block locations on arterial roads. They provide a dedicated and delineated space for crossing, with a painted crosswalk and streetlight to stop traffic. This provides an effective break in traffic for people to safely cross the road at a designated location. Increased funding for pedestrian and multimodal crossings enhances safety for these users. **Figure 25** shows the number of rapid flashing beacons and HAWK/PHB crossings installed.

Streetlights increase nighttime safety for all transportation facility users by providing higher levels of visibility. The installation of streetlights at bus stops and along sidewalks provides greater visibility to both vehicles and pedestrians. Newly installed streetlights now come standard with light-emitting diode (LED) lighting. These updated lights illuminate the streets approximately 53% more and reduce electricity needs, saving the city approximately $3.5 million annually. **Figure 26** displays the number of new streetlights installed annually since the T2050 program launch.

9 Rectangular Rapid Flash Beacon Crossings Installed

Figure 25 – HAWK/PHB Crossings Installed

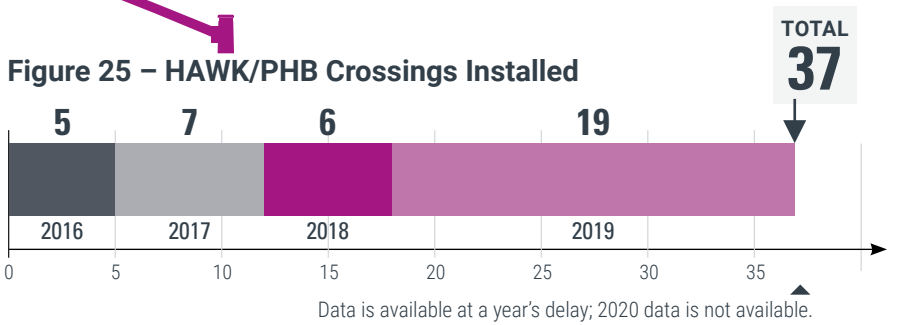
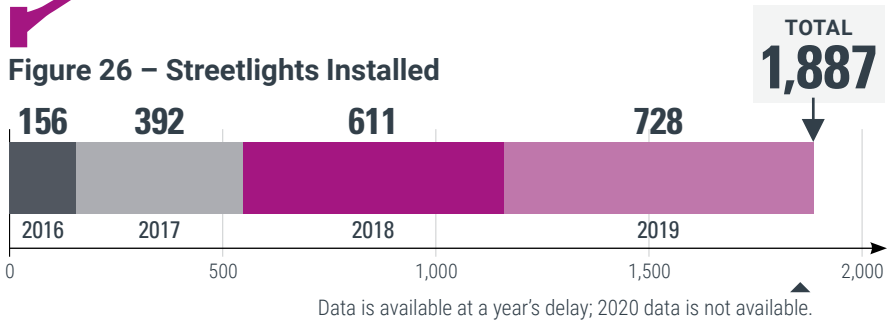


Figure 26 – Streetlights Installed



The level of safety on Phoenix roadways is measured by the number of fatalities and injuries by mode. As the growing Phoenix population brings more vehicle owners safety infrastructure such as HAWKS/PHBs, streetlights and multimodal safety infrastructure (e.g., protected bike lanes and sidewalks), all these improvements contribute to the ability to reduce instances of fatality or injury. **Figure 27** provides these key numbers for assessment of the overall safety in the Phoenix transportation landscape. More information regarding safety on Phoenix streets, is available on the city's safety topics page.

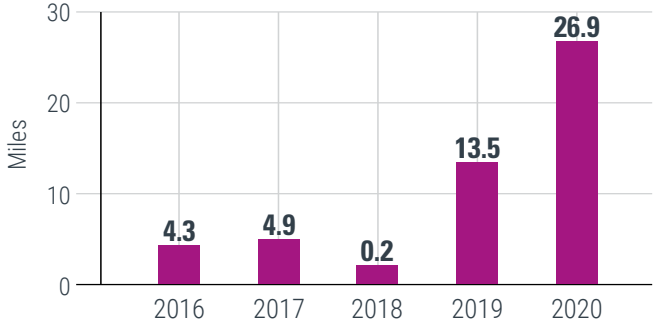
Since T2050's inaugural year, a primary goal has been to increase bicyclist safety. As bicycling is a common commuter mode of transportation, the development of protected bike lanes reduces instances of preventable crashes. T2050 provides the necessary investment to increase the level of active transportation mode choices. **Figure 28** shows miles of protected bike lanes added yearly.

T2050 funding provides safe crossings for pedestrians and bicyclists, one of the ways the program increases safety.

Figure 27 – 2016-2019 Safety Performance

	VEHICLE	BICYCLE	PEDESTRIAN
Fatalities	REDUCED 16%	REDUCED 17%	NO CHANGE
Injuries	REDUCED 18%	REDUCED 1%	7% INCREASED

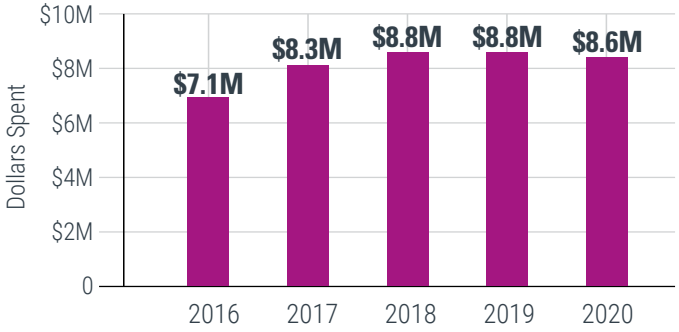
Figure 28 – Miles of Protected Bike Lanes Installed



50
Miles Installed

PTD received additional T2050 funding that enabled an increase in transit enforcement units. The presence and capabilities of these units to respond to incidents or provide support to local law enforcement elevates the state of perceived and real security at transit stations. These units provide an active safety component to the transit network and their budget can be seen in **Figure 29**.

Figure 29 – Transit Security Investment



$41.6M
Invested

Increasing safety is a T2050 citywide objective that requires investment across all transportation modes.

As part of Valley Metro's ***Respect the Ride*** code of conduct, fare zone striping was installed at each light rail station from October to December 2018. There are 38 stations along the 26 miles of LRT routes in the metropolitan region, of which 28 stations and 15 miles of LRT route are within Phoenix. The design **of Paid Fare Zones** includes brightly-colored sections painted onto the pavement, posted signage at entrances and, in some locations, physical barriers. Electronic ticket machines are located outside the zone as another indication that payment is required prior to entering the zone. The newly installed signs raise passenger awareness of the rules of riding.

28
Paid Fare Zones Installed

Maintain Quality of Infrastructure

The T2050 program allocates funds to the construction and maintenance of city streets. Each year, the Phoenix City Council approves a 5-year pavement maintenance program. The program balances current pavement conditions, appropriate types of pavement treatments and budget allocations. The Pavement Maintenance Conditions Report documents existing conditions, budget considerations and various pavement treatments utilized.

By increasing funding and improving a pavement treatment schedule, the funds from T2050 enabled the Street Transportation Department to treat one of the largest city road networks in the nation effectively. A growing increase in public support and funding have resulted in an accelerated pavement maintenance program, which has expedited the pavement maintenance schedules to achieve a more reliable city street network.

A well-maintained network lowers car maintenance cost for the public, increases traction during poor weather conditions, extends pavement service life and has long been a source of pride in Phoenix. **Figure 30** is a representation of the miles of pavement treatment completed on an annual basis since T2050 began.

Average pavement conditions, based on a citywide assessment, are summarized in **Figure 31**. The condition index is a total of the roads in service within Phoenix and the rating of condition. Roads rated from 90-100 are of a high quality in state of repair. Roads rated from 70-89 have been recently treated and meet state of good repair standards. Roads rated 45-69 are in fair condition and are serviceable. Roads rated below 44 are in poor or failing conditions and should be resurfaced or, in some cases, reconstructed.

Increases in T2050 funding drive a continued commitment to preserve the city's invested assets, such as traffic signal poles, to extend their service life. As an ongoing maintenance activity, T2050 funds the painting of signal poles as a fiscally responsible effort to prolong the functional lifespan of these assets by deterring the formation of rust. **Figure 32** displays the number of city signal poles that have been repainted since T2050 began.

Figure 30 – Miles of Pavement Treatments Completed

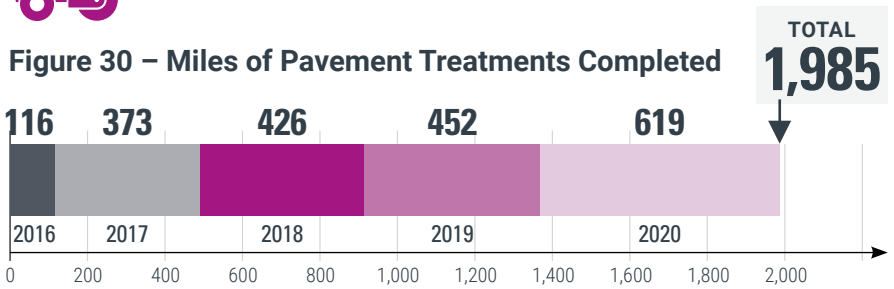
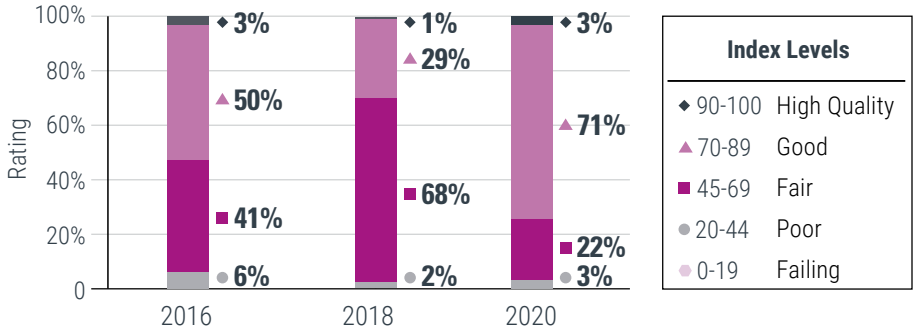


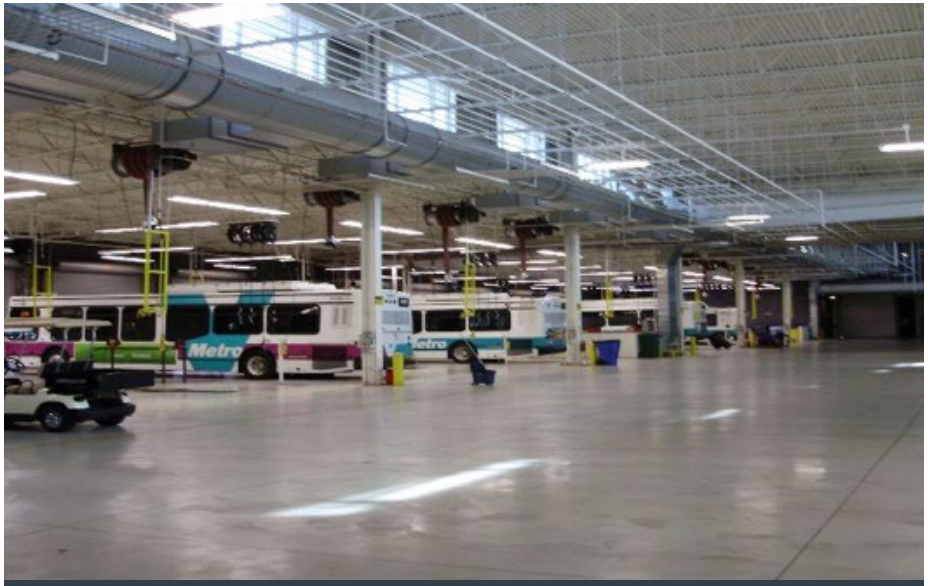
Figure 31 – Pavement Condition Index



T2050 funding has resulted in an increase of bus and facility maintenance. The effort has been guided by the Transit Asset Management Plan. The plan is a formal response to the Moving Ahead for Progress in the 21st Century (MAP-21) rule, which required the Federal Transit Administration to establish new asset management requirements for all grant recipients. The results of this new asset management plan are measured by the average miles between each service call (breakdowns) for bus transit, as shown in **Figure 33**.

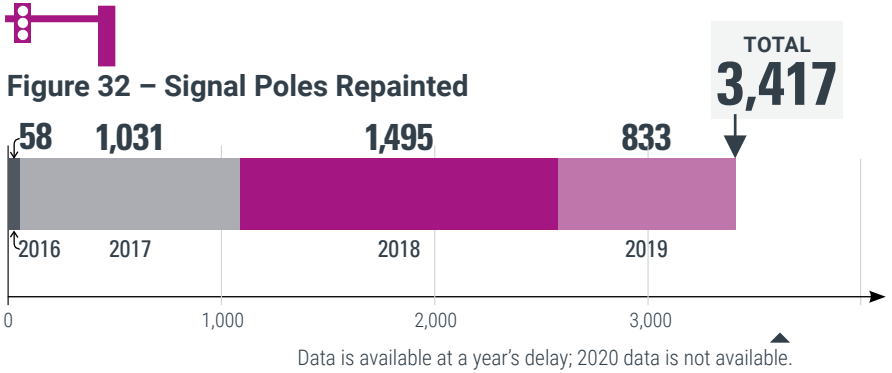
Support Economic Development

As part of the citywide performance measures, economic development activity and growth were measured by capital investments along T2050 high-capacity transit corridors (as defined in Proposition 104), labor trends and regional gross domestic product (GDP).



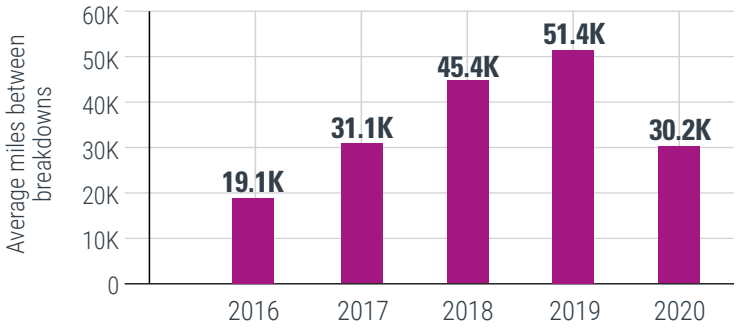
To meet the program outcome of maintaining quality infrastructure, T2050 funding includes bus and facility maintenance.

Figure 32 – Signal Poles Repainted



Data is available at a year's delay; 2020 data is not available.

Figure 33 – Bus and Paratransit Vehicle Maintenance



Improve Public Perception

A phone survey was conducted to measure Phoenix residents' awareness of, and satisfaction with, the T2050 program. **Figure 34** summarizes the survey results, including the public's satisfaction with the city's use of T2050 revenues, familiarity with the T2050 program and the quality of public transportation since T2050 began.

The surveying process concurrently gathered information on the public use of the streets network and infrastructure by asking respondents which mode they used the most over the past 5 years. These results are shown in **Figure 35**. Additionally, respondents were asked about changes in travel patterns. Responses are shown as a percentage of respondents who use a particular mode more than before.

Figure 34 – Resident Perception January 2020

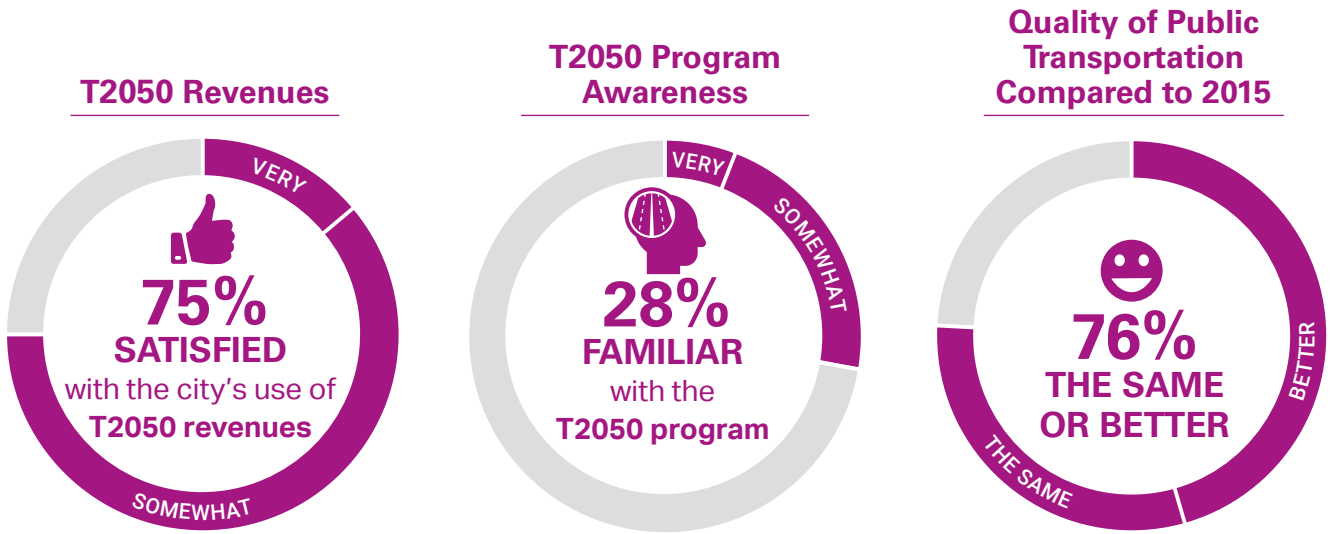
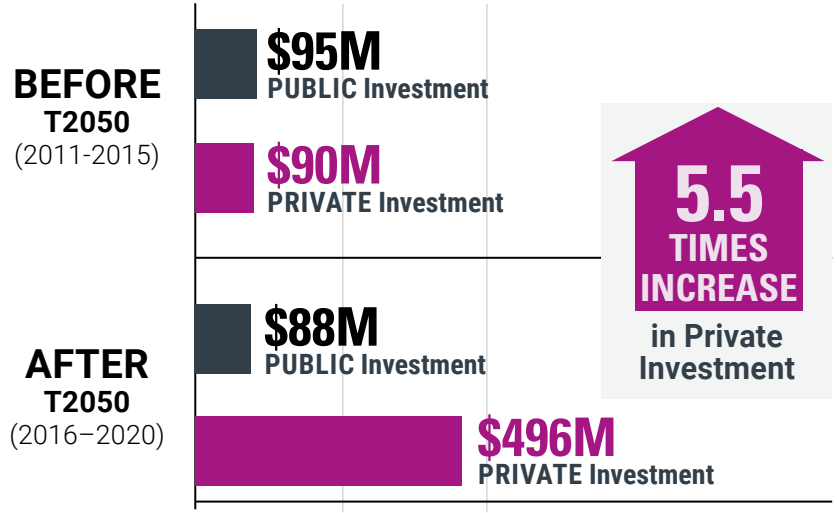


Figure 35 – Change in Transportation Choice

Figure 36 – Average Annual HCT Corridor Investment



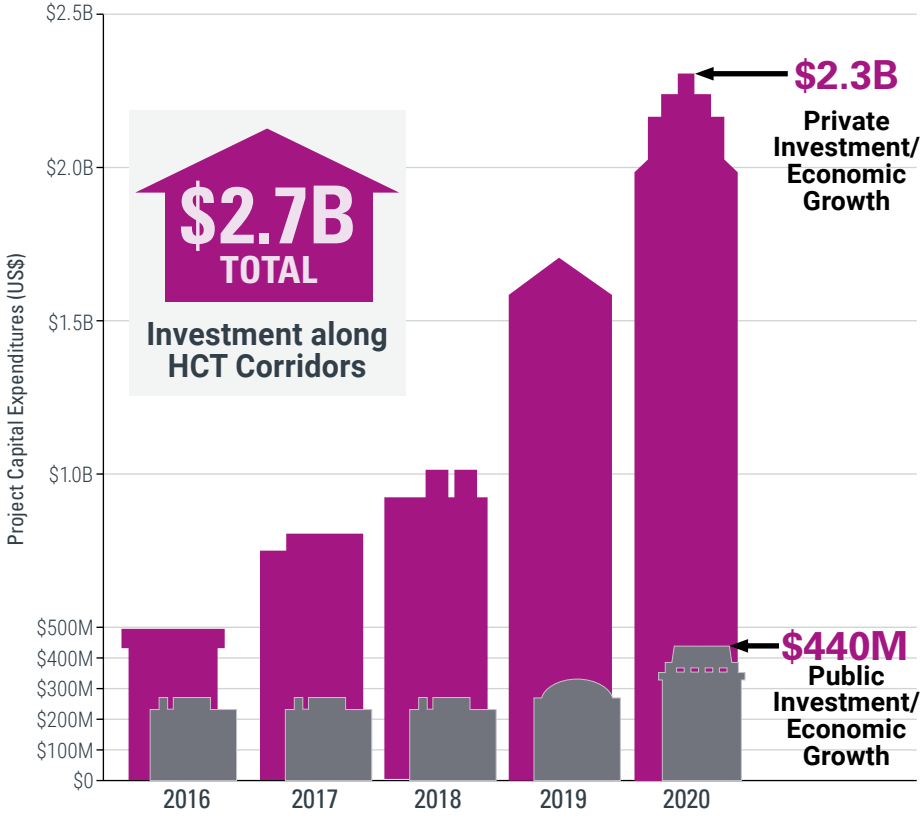
There is an enhanced effort to collect investment data along the corridors after the completion of HCT projects.

The city's level of transportation infrastructure growth and improvements is a contributor toward the overall economic metrics. It is important to identify correlations between infrastructure investment and economic growth by monitoring localized areas of transportation infrastructure improvements, collecting citywide labor trend data and identifying regional GDP trends. This data may be used to inform whether improved street infrastructure and/or new transit services from T2050 projects have had a positive correlation to the city's economic activity. The levels of annual high-capacity transit (HCT) corridor investment before and after T2050 are shown in **Figure 36**.

Initial public investment around the city is commonly followed by greater private investment. This trend has been identified in multiple cities with large public investments in HCT infrastructure, including LRT and bus rapid transit (BRT). The investments surrounding existing and future LRT and BRT corridors throughout Phoenix are shown in **Figure 37**.

GDP is a common marker of economic health for a metropolitan statistical area (MSA). An increase in GDP is correlated with capital

Figure 37 – Cumulative HCT Corridor Investment



There is an enhanced effort to collect investment data along the corridors after the completion of HCT projects.

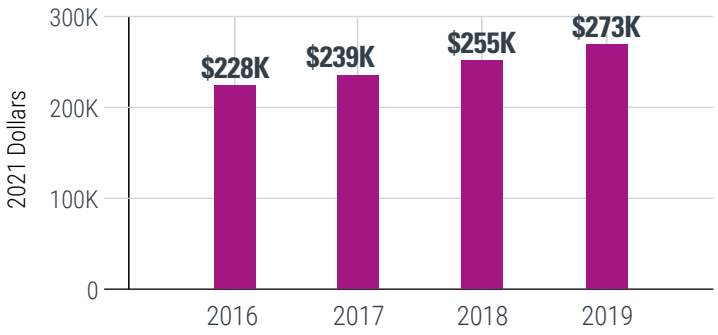
improvements that support the growth and quality of a regional transportation network. By providing safe and efficient means for the public to engage in the workforce, the overall economic status improves. The Phoenix-Mesa-Chandler MSA GDP is shown in **Figure 38**.

Labor statistics reveal the extended economic impacts of developing a robust and healthy transportation network. The maintenance of labor is accomplished by channeling public funds into infrastructure and providing an improved base network to move people and goods. **Figure 39** shows the number of people who maintained an occupation by year since the initiation of the T2050 program.

A goal of the T2050 program is to increase tourist spending on transportation through availability of new transportation options in the Phoenix metropolitan area. A visitor's ability to more easily navigate the city in a timely manner provides time savings and opportunity to visit more attractions or venues. **Figure 40** summarizes the annual tourist spending since T2050 began.

Improving mobility and access is an important T2050 program outcome because a world-class city requires a world-class transportation system.

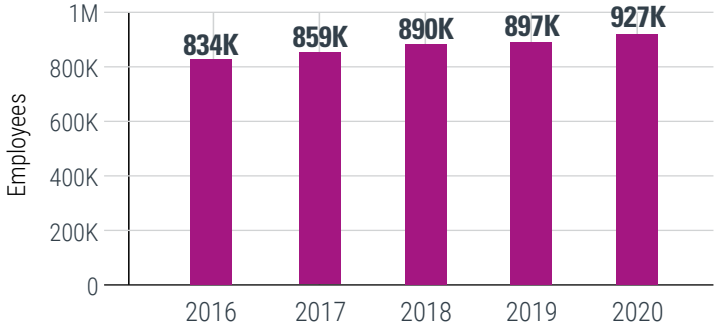
Figure 38 – Regional Gross Domestic Product (GDP)



As measured in the Phoenix-Mesa-Chandler MSA.

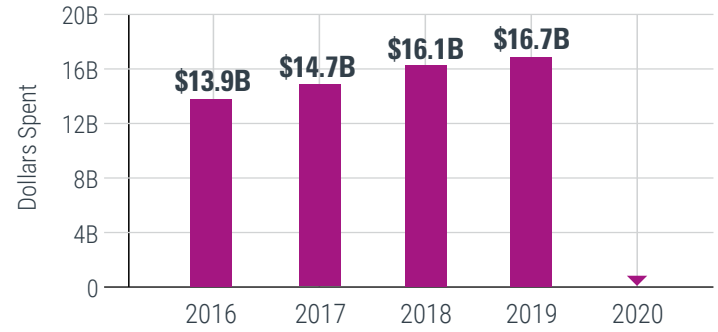
19%
Increase in GDP

Figure 39 – Labor Statistics



11%
Increase in Reported Employment

Figure 40 – Annual Tourist Spending



Data is available at a year's delay; 2020 data is not available.

20%
Increase in Tourist Spending

APPENDIX

Performance Metric Sources

	Performance Metric	Source
TRANSIT	Total employment	Community and Economic Development Department
	Percent working within one-half mile of a transit stop	Community and Economic Development Department and Public Transit Department
	Total population	Community and Economic Development Department
	Percent living within one-half mile of a transit Stop	Community and Economic Development Department and Public Transit Department
	Total employment	Community and Economic Development Department
	Percent working within one-half miles of a high-frequency bus stop	Community and Economic Development Department and Public Transit Department
	Total population	Community and Economic Development Department
	Percent living within one-half mile of a high-frequency bus stop	Community and Economic Development Department and Public Transit Department
	LRT on-time performance trends	Valley Metro
	Bus on-time performance trends	Public Transit Department
	DAR on-time performance	Public Transit Department
	Bus user complaints	Public Transit Department
	Ridership satisfaction	Valley Metro
	Shade structure	Public Transit Department
	Bus user complaints per 100k boardings	Public Transit Department
	LRT ridership	Valley Metro
	Bus ridership	Valley Metro
	Total ridership	Valley Metro
	DAR ridership	Valley Metro
	Total bus revenue miles	Public Transit Department
	Total LRT revenue miles	Valley Metro
	Total DAR revenue miles	Public Transit Department

	Performance Metric	Source
STREETS	New signals	Street Transportation Department
	Left-turn arrows added	Street Transportation Department
	Illuminated street name signs added	Street Transportation Department
	New major & arterial pavement overlay miles	Street Transportation Department
	New local pavement overlay miles	Street Transportation Department
	Bike counts @ 40 locations	T2050 Program Management Consultant (PMC) Bike/Ped Counts
	Bike counts @ 40 locations on weekends	T2050 PMC Bike/Ped Counts
	Bike counts @ 40 locations on weekdays	T2050 PMC Bike/Ped Counts
	ADA ramps (new or upgraded)	Street Transportation Department
	Bike lane miles installed	Street Transportation Department
	Miles of new sidewalks	Street Transportation Department
CITYWIDE	Bikes on transit usage	Valley Metro
	Mobility Assessment Program study completion	Street Transportation Department
	Total bus revenue miles	Public Transit Department
	Percent of bus stops ADA-compliant	Public Transit Department
	ATAN grants	Street Transportation Department
	Transit enforcement unit (cost)	Public Transit Department
	HAWKs	Street Transportation Department
	RRFB/CRFB	Street Transportation Department
	Streetlights added	Street Transportation Department
	Total vehicle fatalities per 100k residents	T2050 PMC Safety Analysis
	Total vehicle Injuries per 100k residents	T2050 PMC Safety Analysis
	Total pedestrian fatalities per 100k residents	T2050 PMC Safety Analysis
	Total pedestrian injuries per 100k residents	T2050 PMC Safety Analysis
	Total bike fatalities per 100k residents	T2050 PMC Safety Analysis
	Total bike injuries per 100k residents	T2050 PMC Safety Analysis
	Number of repainted signal poles	Street Transportation Department
	Average miles between transit vehicle breakdown	Public Transit Department
	Pavement condition index (CDI)	Street Transportation Department
	Total miles of pavement treatment	Street Transportation Department
	Capital improvement trends (MSA GDP)	Community and Economic Development Department
	Labor retention trends	Community and Economic Development Department
	Tourist direct travel spending on transportation (in billions)	Arizona Office of Tourism
	Light rail corridor investment (public)	Community and Economic Development Department
	Light rail corridor investment (private)	Community and Economic Development Department

For more information regarding the T2050 Program and its progress reports, please visit phoenix.gov/T2050/progress.

PHOENIX TRANSPORTATION 2050 MOVING PHOENIX FORWARD

T2050 Long-Term Performance Metrics Report