LINDSEY A. PERRY
AUDITOR GENERAL

ARIZONA
AUDITOR GENERAL

MELANIE M. CHESNEY
DEPUTY AUDITOR GENERAL

April 12, 2022

The Honorable Karen Fann, President
Arizona State Senate

The Honorable Russell Bowers, Speaker
Arizona House of Representatives

Members of the Arizona Legislature

The Honorable Doug Ducey, Governor

Mr. Farhad Moghimi, Executive Director
Pima Association of Governments/
Regional Transportation Authority

Transmitted herewith is a report, *A Performance Audit of the Pima Association of Governments Regional Transportation Authority Plan*. This audit was conducted by the independent firm Sjoberg Evashenk Consulting, Inc. under contract with the Arizona Auditor General and was in response to the requirements of Arizona Revised Statutes §41-1279.03.

As outlined in its response, the Pima Association of Governments and the Regional Transportation Authority agree with and plan to implement all the recommendations.

Sincerely,

Lindsey A. Perry

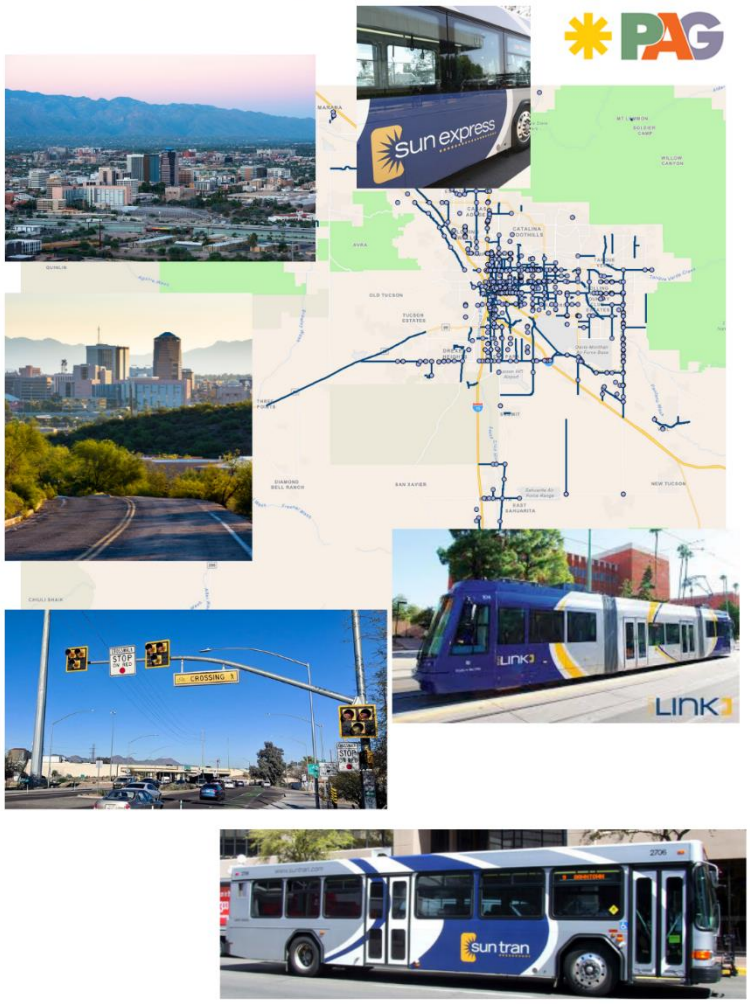
Lindsey A. Perry, CPA, CFE
Auditor General

cc: Pima Association of Governments Regional Council Members
Regional Transportation Authority Board Members
Pima County Board of Supervisors
Mr. John Halikowski, Director, Arizona Department of Transportation

Pima Association of Governments
Regional Transportation Authority Plan
Fiscal Year 2022 Performance Audit

RTA Regional Transportation Authority

RTA PLAN



PAG

ADOT

MARANA AZ

ORO VALLEY ARIZONA FOUNDED 1974

PASCUA YAQUI TRIBE ARIZONA

PIMA COUNTY

TOWN OF Sahuarita

CITY OF TUCSON

SOUTH TUCSON

April 2022

SJOBERG EVASHENK CONSULTING, INC

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SJOBERG EVASHENK
CONSULTING, INC

April 1, 2022

Lindsey Perry, Auditor General
2910 N. 44th Street, Suite 410
Phoenix, AZ 85018

Dear Ms. Perry:

Sjoberg Evashenk Consulting is pleased to submit our report for the *Fiscal Year 2022 Pima Association of Governments Regional Transportation Authority Plan* performance audit in response to Arizona Revised Statutes §41-1279.03(A)(6) and the Regional Transportation Authority Plan (RTA Plan) excise sales tax passed in May 2006. The audit focused on the past and planned expenditures of the RTA Plan and system performance in relieving congestion and improving mobility looking at roadway, safety, environmental and economic vitatlity, and transit projects as funded through RTA Plan revenues.

Overall, the planned RTA Plan projects were generally completed as planned or were in-progress towards completion with just four years remaining in the tax measure lifecycle to assist with mobility and congestion efforts. Yet, as of December 2021, there was a funding gap of approximately $149 million—or 12 percent of the remaining $1.2 billion needed to fulfill RTA Plan promises that the Pima Association of Governments and local jurisdictions are working together toward solutions to bridge the gap. Moreover, spending on RTA Plan projects had mixed results with regard to mobility and congestion with performance that mostly aligned with or outpaced comparable areas we reviewed. Further, roadway crashes decreased systemwide and on road segments where RTA Plan projects that we reviewed were completed. Yet, fatalities increased for drivers, bicyclists, and pedestrians. To address safety, the Pima Association of Governments and Arizona Department of Transportation developed a multitude of strategies centered on project engineering, education, and technology.

We appreciate the professionalism and cooperation we received from all those who assisted us throughout the course of the audit including the Pima Association of Governments, Regional Transportation Authority, Arizona Department of Transportation, City of Tucson, and the other local jurisdictions. Also, we thank you for the opportunity to have been of service to the Office of the Auditor General as it has been our pleasure to work with you and your staff.

Respectfully Submitted,

CMBrady

Catherine Brady, Partner
Sjoberg Evashenk Consulting, Inc.

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Table of Contents

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REPORT HIGHLIGHTS

In 2006, Pima County voters passed a one-half cent sales-tax measure dedicated to a variety of transportation-related projects that sunsets on June 30, 2026. With the passage, voters approved investments in roadways, safety, environmental and economic vitality, and transit projects as part of the Regional Transportation Authority (RTA) Plan (RTA Plan) to enhance mobility and safety, reduce congestion, and provide multimodal choices as part of the transportation system in Pima County. These projects are planned, funded, implemented, and operated by several entities in Pima County including the Pima Association of Governments (PAG), RTA, Arizona Department of Transportation (ADOT), and eight local jurisdictional cities, towns, and native nations and Pima County. Sjoberg Evashenk Consulting, Inc. was hired by the Arizona Auditor General to conduct an independent performance audit of the expenditures of the RTA Plan projects between July 1, 2016 and June 30, 2021 to determine their impact on solving transportation problems within Pima County. Results are as follows.

Were Promised RTA Plan Projects Delivered as Expected and Will Remaining Projects be Completed as Planned?

RTA Plan projects were generally completed as planned and realized many accomplishments. Specifically, of the 51 RTA Plan projects envisioned in 2006, 45 improvements—or 88 percent—were completed or in progress as of June 30, 2021.[1] The majority of remaining projects are scheduled to be started within the RTA Plan timeframe as promised.

ROADWAY IMPROVEMENT PROJECTS

- Of the 35 RTA Plan Roadway projects, 15 projects have been implemented and 14 were underway.
- Completed projects resulted in 169 new lane-miles, 4 railroad overpasses and underpasses, 194 intersection improvements, and a variety of other enhancements.
- Six roadway projects have not yet been started, but are scheduled to start, as promised, before the RTA Plan sunsets on June 30, 2026.
- Roadway projects were completed on schedule with minor delays or continue to mostly be on schedule and will not affect overall delivery of the RTA Plan.

SAFETY PROJECTS

- All five RTA Plan safety element projects were completed including:
  - Safety features across 194 intersections.

ENVIRONMENTAL & ECONOMIC VITALITY PROJECTS

- The RTA Plan's Environmental and Economic Vitality element had two of three projects completed that included 179 miles of pedestrian sidewalks, 366 miles of bike lanes, and multiple wildlife studies and crossings.
- One of the three RTA Plan Environmental and Economic Vitality projects relates to providing resources to local businesses that were impacted by the construction of RTA Plan projects through consulting services to identify strategies and developing tools to keep the business open during construction. This assistance has been provided to over 9,000 local businesses and is on-going until the RTA Plan sunsets, or dedicated RTA Plan funding is exhausted.

TRANSIT PROJECTS

- All eight RTA Plan Transit element projects were completed and included:
  - Capital projects: 3 maintenance storage facilities, 7 park and ride transit centers, and a modern streetcar.

[1] These 51 RTA Plan projects were split into more than 1,000 individual project segments as of June 30, 2021.

- 76 Pedestrian crossings.
- 139 Bus pullouts, rail crossings, bridge improvements.
- Technology such as controllers, wireless communications, and adaptive traffic management for 71 signal projects.

- Operations: Service was expanded with 21 weekday routes, 23 weekend routes, and boundary extensions for paratransit services with routes modified based on ridership demand and available funding.

Have RTA Plan Projects been On Budget and Is Funding Sufficient to start Remaining Projects Before the RTA Plan Sunsets on June 30, 2026?

While past projects completed have experienced some cost overruns, variances were explained and ultimately funded by local jurisdictions. Yet, as of December 2021, there was a funding gap of approximately $149 million—or 12 percent of the remaining $1.2 billion needed to fulfill RTA Plan promises. PAG and local jurisdictions are working toward solutions to bridge the gap.

Capital Project Budgets

- Completed roadway projects experienced cost overruns causing variances from planned budgets ranging from 9 percent to 94 percent.
- Reasons for cost variations included scope increases, unforeseen conditions, and cost escalation—all typical and similar to challenges experienced by other transportation entities across the nation and recent industry trends of rising construction costs.

Remaining Costs to Complete

- As of June 30, 2021, there is an estimated $1.2 billion needed for remaining in-progress projects and projects not started in addition to covering related bond debt service and administrative costs.

Funding Available and Funding Gap

- $1.054 billion in sales tax and other state, local, and federal funds have been committed to cover approximately 88 percent of the remaining RTA Plan costs.
- As of December 2021, there is a funding gap remaining of approximately $149 million representing 12 percent of the remaining costs.
- Funding is needed for 11 roadway projects—where individual cost increases resulted in gaps ranging from approximately $2 million to more than $64 million.

Efforts to Address Funding Gap

- To cover the gap and secure funding to complete or start remaining projects in alignment with the RTA Plan promises, RTA is working with the local jurisdictions.
- Discussions include securing additional local funding, raising more revenue through future sales-tax extension, reducing scope on projects, or delaying the start of some projects.

Recommendations

To strengthen management of total RTA Plan project costs and funding available to mitigate potential funding gaps, RTA should:

1. On an annual or more frequent basis, require RTA member jurisdictions to submit complete capital project cost estimates and actual expenditure data from regional and local sources. RTA should monitor and summarize the revised cost estimates in addition to all available funding sources to pay for project costs to further enhance RTA's gap analysis.
2. Continue working with local jurisdictions to secure needed non-RTA funding for RTA Plan projects before and after the end of the RTA Plan on June 30, 2026.

Did Mobility Increase and Congestion Decrease in Pima County based on Available Data?

Performance results were mixed. Because performance cannot be specifically linked to individual RTA Plan projects, we assessed performance regionally at the Tucson Urban Area or Pima County level. We used data most relevant to the RTA Plan geographical area available within our July 1, 2016 through June 30, 2021 audit period to the extent practical. Overall, we found fewer vehicle miles traveled, increased travel time to work, and less congestion in the region when considering hours of delay.[2] Also, while we found bridges were in good condition, results were mixed when assessing pavement condition.

Vehicle-Miles-of-Travel

- Vehicle miles traveled per capita for Pima County decreased by 10 percent from 22.5 miles per 100,000 population in calendar year 2016 to 20.2 miles in 2019—suggesting lower levels of congestion.[3] This trend generally aligned with 2 of the 4 counties reviewed.[4]

Hours of Delay

- Tucson Urban Area's hours of delay decreased from 50 hours per commuter in calendar year 2019 to 21 hours per commuter in calendar year 2020—yet, some of the decrease has anecdotally been attributed to COVID-19.
- These results were lower than other urban areas we reviewed and improved from prior performance where the Tucson Urban Area was in the top 10 medium-sized urban areas for most annual hours of delay per auto commuter.

Travel Time to Work

- In Pima County, daily total minutes of travel time to work slightly increased by 2.9 percent from 24.4 minutes in calendar year 2016 to 25.1 minutes in calendar year 2019. This result was higher than all but one other county reviewed, although Pima County's rate of increase was lower than the rate of increase for most other peers.

Pavement and Bridge Condition

- Pavement condition across Pima County varied with results ranging from poor to good depending on the local area. Rutted roadways or pavement potholes negatively impact driving conditions by requiring reduced speeds, while smooth roadway surfaces allow for safer driving.
- Bridge condition improved between calendar years 2017 and 2021—growing from 61 percent in 2017 in good condition to 67 percent of the 1,000+ bridges in good condition by 2021.

Performance Measurement

- PAG improved its performance measurement system by setting performance goals and establishing targets, but performance results used computer-modeled data to predict outcomes—rather than actual performance statistics.
- Actual data is critical to enable true measurement of performance. Because it can be costly to purchase, we recommend that PAG considers partnering with others to obtain actual performance data in addition to other suggestions for enhanced performance measurement.

Recommendations

To continue improving its performance measurement framework and provide additional accountability, PAG and RTA should consider the following:

3. Formally study and quantify the cost-benefit of obtaining raw performance data including the cost of dedicating resources for data refinement, validation, analysis, and reporting.

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[2] While performance outcomes may have been impacted by COVID-19, there were no authoritative studies available. One leading industry expert, the Texas A&M Transportation Institute noted in its 2021 Urban Mobility Report that the effects of the COVID-19 pandemic on urban transportation systems is not yet clear and, while delay was less in 2020, it is too soon to draw conclusions based on pandemic travel patterns.

[3] Vehicle miles traveled measures the volume of traffic on roadways where a lower vehicle-miles-of travel rate indicates that a traveler would experience less congestion because there are fewer vehicles on the road.

[4] We compared the Tucson Urban Area and Pima County, where relevant, with other comparable areas including Albuquerque, New Mexico; Bakersfield, California; Colorado Springs, Colorado; El Paso, Texas; Fresno, California; and Salt Lake City, Utah.

4. Consider avenues for obtaining actual data such as partnering with other regional or state partners to acquire and prioritize certain key data for performance assessment, in addition to developing a plan with timelines to pursue these avenues, so that performance can better be assessed.

5. If modeled data continues to be used for performance measurement, provide sampling and validation of the model output to ensure accuracy of the modeled data. Alternately, provide supplemental or contextual information to the PAG Regional Council and RTA Board of Directors regarding data limitations and caveats on actual versus modeled data.

How Safe are Pima County Roadways for Drivers, Bicyclists, and Pedestrians based on Available Data?

Traveler safety is a critical component of the RTA Plan through its designated projects to protect travelers, but it also improves mobility through the free-flow of traffic without incident. In the past five years, roadway crashes have fallen in areas with RTA Plan improvements and systemwide, but rates of roadway fatalities have increased. These trends generally aligned with other entities reviewed.[5] While several RTA Plan projects involved spending on safety features, outcomes cannot be directly attributed to individual projects. Instead, various factors contribute to safety results with many incidents attributed to driver behavior such as impaired driving or speed. To address these outcomes, PAG and ADOT developed strategic safety plans with strategies such as mapping safer alternate routes for bicyclists and pedestrians.

Roadway Crashes and Fatalities

- Along four roadway segments we reviewed with completed RTA Plan projects, crashes decreased between 48 and 70 percent during the RTA Plan period.
- Across Pima County systemwide, total roadway crashes decreased by 24 percent from 11,646 crashes in calendar year 2016 to 8,841 crashes in calendar year 2020.
- The rate of roadway fatalities per one million vehicle miles traveled increased 53 percent over the same period.
- Many fatalities in Pima County and nationally were caused by driver behavior from impaired driving, lack of restraints, and speeding.
- Trends for total crashes and rate of roadway fatalities at other counties reviewed did not follow a consistent pattern—some aligned with Pima County's results, while others experienced better results.

Bicycle Crashes and Fatalities

- Total count of bicycle crashes decreased, but the rate of bicycle fatalities increased 35 percent from 4.92 fatalities per million population in calendar year 2016 to 6.68 fatalities per million population in calendar 2020.
- When compared to 4 of the 6 other counties reviewed where data was available, the Pima County rate of fatalities in 2020 was higher than all but one county.

Pedestrian Crashes and Fatalities

- Pedestrian fatalities are generally intersection related, involved alcohol, and occurred more frequently at night.
- Pima County had higher rates of pedestrian fatalities by 2020 than all but one of the 4 peer counties reviewed with 2020 data.

Actions to Address Safety

- Although many causes for fatalities relate to driver behavior outside their control, PAG and RTA are working with ADOT and local jurisdictions on several strategies increasing roadway visibility for drivers, implementing protected pedestrian crossings, and targeting prevention of distracted commuting.

[5] We compared roadway statistics to (1) Denver County, Colorado; (2) El Paso County, Colorado; (3) El Paso County, Texas; (4) Fresno County, California; (5) Kern County, California, and (6) Salt Lake County, Utah. However, there were limitations with 2020 data not available for some of the counties.

Has Transit Contributed to Mobility and Congestion Relief in the PAG/RTA Region?

Transit generally performed reliably and more efficiently than other transit operators reviewed serving as a viable choice for riders and helping relieve pressure off the system to enhance mobility. Yet, performance results were mixed. For instance, ridership declined between fiscal years 2017 and 2021, but on-time performance averaged 92 percent or higher for bus, streetcar, and paratransit. Transit was generally safe with fewer preventable accidents and declining security incidents—except for a sharp increase in 2021. Rider complaint trends varied between bus, streetcar, and paratransit.

Transit Ridership

- Between fiscal years 2017 and 2021, total bus ridership decreased by 34 percent.
- Sun Link streetcar ridership decreased 51 percent and Sun Van paratransit declined 50 percent between fiscal years 2017 and 2021.[6]
- Decreases were attributed to COVID-19 concerns and people no longer commuting to work.
- To address declining ridership, Sun Tran increased marketing and implemented a fare-free policy in response to COVID-19 to encourage riders to feel safe riding in transit vehicles and using service.

Bus Transit Efficiency & Reliability

- Sun Tran bus transit was more efficient than peers across many metrics, including lower average operating costs per boarding at $4.07 compared to the peer average of $7.03—although efficiency metrics were negatively impacted by lower ridership and fare-free policy.[7]
- Sun Tran bus service was on-time 92 percent of the time, or greater—consistently meeting on-time performance goals.
- Miles between bus breakdowns steadily increased from approximately 11,700 in fiscal year 2018 to nearly 23,000 by fiscal year 2021.

Transit Preventable Accidents

- Preventable accidents involving bus, streetcar, and paratransit decreased 84 percent, 83 percent, and 95 percent, respectively.
- Performance met safety goals in some years across transit types, but not in all years.

Streetcar Efficiency & Reliability

- With significant decreases in ridership, Sun Link streetcar's operational performance metrics suffered.
- The Sun Link streetcar was reliable completing more than 98 percent of scheduled trips with stable levels of vehicle breakdown.
- As a result of fewer riders and the fare-free policy, operating costs per boarding increased 104 percent and subsidy per boarding increased 134 percent between fiscal years 2018 and 2021.

Paratransit Efficiency & Reliability

- On average, Sun Van paratransit reliably completed nearly 96 percent of appointments on time—although breakdowns varied.
- Like both bus transit and streetcar performance, Sun Van paratransit experienced increased operating costs and higher subsidies per boarding.

Bus Transit Security Incidents

- After years of decline since fiscal year 2017, Sun Tran bus transit security incidents increased to 0.06 incidents per 100,000 revenue miles in fiscal year 2021—attributed to COVID-19 challenges.

[6] Sun Tran refers to the Tucson Transit Management, LLC dba Sun Tran and Sun Van, and Tucson Streetcar LL dba Sun Link is a corporation held by the City of Tucson that operates its transit service.

[7] We compared service to six peer entities: (1) Sacramento Regional Transit District; (2) New Orleans Regional Transit Authority; (3) Central Oklahoma Transportation and Parking Authority; (4) City of El Paso's Mass Transit Department (Sun Metro); (5) City of Albuquerque Transit Department (ABQ Ride); and (6) Kansas City Area Transportation Authority.

Transit Rider Satisfaction

- Across the transit network, Sun Tran bus complaints increased steadily over the period, while Sun Link streetcar decreased and Sun Link paratransit remained generally stable. Specifcically, we found:
  - Valid bus compaints rose 56 percent from nearly 420 to slightly over 650 between fiscal years 2017 and 2021. Most complaints were due to mask complaints, riders feeling unsafe, and general frustration due to the pandemic.
  - Streetcar complaints decreased from 162 complaints in 2017 to 27 complaints in 2021.
  - Paratransit complaints were relatively stable with 0.34 complaints per one thousand trips in fiscal year 2021 compared to 0.38 complaints in fiscal year 2017.

Introduction and Background

In accordance with Arizona Revised Statutes (A.R.S.) §41-1279.03(A)(6), this performance audit reviewed transportation improvement projects identified in the Regional Transportation Authority Plan (RTA Plan) and funded by a 2006 Pima County voter-passed sales tax set to expire in June 2026. Specifically, we reviewed past and future planned expenditures of the RTA Plan projects and whether the projects have achieved or can be expected to achieve the intended outcomes communicated to voters including reduced traffic congestion, increased safety, and enhanced environment and economic vitality of the region. Refer to the Scope and Methodology Section of this report.

Regional Transportation Authority Plan and Projects

In 2006, voters passed a county-wide transportation excise tax of one half-cent, levied on state taxable items, as the primary funding source for the RTA Plan in Pima County. The measure was expected to generate approximately $2 billion in revenue (in 2006 constant dollars) over the 20-year period between fiscal years 2007 and 2026 combined with approximately $400 million of local, state, and federal funds to implement a variety of projects related to roadway, safety, environmental and economic vitality, and transit improvements as shown in Exhibit 1.[8] The RTA Plan further specifies that if project costs exceed the amounts in the RTA Plan as approved by voters, funding the difference becomes the responsibility of the local jurisdiction in charge of delivering the project—regardless whether the increase is due to rising construction costs or project scope changes.

Many of the RTA Plan projects involved capital construction activities to improve or build intersections, bikeways, sidewalks, bus pullouts, park-and-ride transit centers, and the downtown street car. Other RTA Plan projects involved the purchase and installation of equipment to upgrade or synchronize traffic signals, funds for critical wildlife linkages impacted by the transportation network, and operational funds to expand transit service and frequency. Finally, one RTA Plan program, the MainStreet Business Assistance Program, provided small business assistance—including consulting services for strategies and tools to keep businesses open during construction—to those entities on Main Street in the City of Tucson affected by the RTA Plan projects.

Together, these capital projects, operational assistance, and programs were intended to increase mobility, reduce congestion, enhance safety, and provide multimodal choices for traveler through the mix of projects. These projects were identified by RTA technical and citizen committees prior to 2006 and then vetted and approved through public stakeholder sessions. The RTA Plan projects work in concert across jurisdictions considering all modes of transportation to achieve performance results across the larger transportation network, not just at an individual project's limited boundary.

[8] Also, refer to Appendix B for a Universe of all RTA Plan projects with completion and budget status as of June 30, 2021.

EXHIBIT 1. LISTING OF RTA PLAN PROJECTS WITHIN ELEMENT CATEGORIES

RTA PLAN PROJECTS LIST

I. ROADWAY ELEMENT

1. Tangerine Road: I-10 to La Cañada Drive
2. Camino de Mañana: Tangerine Road to Linda Vista Boulevard
3. Twin Peaks Road: Silverbell Road to I-10
4. La Cholla Boulevard: Tangerine Road to Magee Road
5. Silverbell Road: Ina Road to Grant Road
6. Railroad Overpass at Ina Road East of I-10
7. Magee Road/Cortaro Farms Road: La Canada Drive to Thornydale Road
8. Sunset Road: Silverbell Road to River Road
9. Ruthrauff Road at I-10 and UPRR Overpass
10. La Cholla Boulevard: River Road to Ruthrauff Road
11. La Cañada Drive: Calle Concordia to River Road
12. Magee Road: Oracle Road to La Canada Drive
13. 1st Avenue: Orange Grove Road to Ina Road
14. 1st Avenue: River Road to Grant Road
15. UPRR Underpass at Grant Road
16. Downtown Links/I-10 to Broadway Boulevard
17. Broadway Boulevard: Euclid Avenue to Country Club Road
18. Grant Road: Oracle Road to Swan Road
19. 22nd Street: I-10 to Tucson Boulevard/Barraza Aviation Parkway
20. Barraza Aviation Parkway: Palo Verde Boulevard to I-10
21. Valencia Road: Ajo Way to Mark Road
22. Irvington Road: Santa Cruz River East of I-19
23. Valencia Road: I-19 to Alvernon Way
24. Valencia Road: Alvernon Way to Kolb Road
25. Valancia Road: Kolb Road to Houghton Road
26. Kolb Road: Connection to Sabino Canyon Road
27. Tanque Verde Road: Catalina Highway to Houghton Road
28. Speedway Boulevard: Camino Seco to Houghton Road
29. Broadway Boulevard: Camino Secto to Houghton Road
30. 22nd Street: Camino Seco to Houghton Road
31. Harrison Road: Golf Links Road to Irvington Road
32. Houghton Road: I-10 to Tanque Verde Road
33. Wilmot Road: North of Sahuarita Road
34. Sahuarita Road: I-19 to Country Club Road
35. I-19 Frontage Road: Canoa Ranch Road to Continental Road

II. SAFETY ELEMENT

36. Intersection Safety & Capacity Improvements
37. Elderly & Pedestrian Safety Improvements
38. Transit Corridor Bus Pullouts
39. At-grade Railroad Safety/Bridge Deficiencies
40. Signal Technology Upgrades

III. ENVIRONMENTAL & ECONOMIC VITALITY ELEMENT

41. Greenways, Pathways, Bikeways and Sidewalks
42. Transportation-related Critical Wildlife Linkages
43. Small Business Assistance

IV. TRANSIT ELEMENT

44. Weekday Evening Bus Service Expansion
45. Weekend Bus Service Expansion
46. Bus Frequency & Area Expansion (incl. maintenance facility)
47. Special Needs Transit for Elderly & Disabled Citizens
48. Neighborhood Circulator Bus Systems
49. Express Service Expansion
50. Downtown/University High-Capacity Transit (Streetcar)
51. Park & Ride Transit Centers

Note: Camino de Mañana was renamed to Twin Peaks Road.

Source: RTA Ballot & Publicity Pamphlet, Special Election, May 16, 2006.

Note: As is typical for transportation improvements, the original 51 RTA Plan projects are being delivered in multiple discrete project segments or phases. As of June 30, 2021, there were 1,089 individual project segments—although the number of segments continually contracts or expands depending on project needs based on project engineering, environmental circumstances, or local travel volume and demand.

Entities Involved with the RTA Plan

Two primary entities are involved with transportation planning in Pima County—the Pima Association of Governments (PAG) and the Regional Transportation Authority (RTA). PAG was established in 1970 and became the region's federally designated metropolitan planning organization in 1973 to address transportation planning at the regional level. In 1985, enacted legislation permitted the creation of the RTA in Pima County with responsibility to call a countywide special election to approve a transportation excise tax. Moreover, the Arizona Legislature reestablished the RTA in 2004 with the purpose of developing a regional transportation plan and acting as the fiscal manager of the transportation plan. Per Arizona Revised Statutes §48-5302(D), the Executive Director of PAG also serves as the Executive Director of the RTA with the management of RTA provided by PAG through a memorandum of understanding between the two entities.

While RTA is responsible for developing the RTA Plan, several other local entities partner to implement, operate, and monitor projects and programs funded through the RTA Plan as shown in Exhibit 2. The City of Tucson is a significant partner implementing many of the RTA Plan roadway and safety projects with responsibility for operating most RTA Plan transit operations as part of the region's transit network. Other local jurisdictions—including Pima County; City of South Tucson; Towns of Marana, Oro Valley, and Sahuarita; Pascua Yaqui Tribe; and Tohono O'odham Nation—implement RTA Plan roadway, safety, or environmental projects in addition to the Arizona Department of Transportation (ADOT) that assists and coordinates on projects along the state's freeway system. These local partners plan, design, and construct the capital projects funded by the RTA Plan in collaboration with RTA as the funding entity under individual written intergovernmental agreements for each RTA Plan project defining responsibilities, project scope, budget, and schedule among other provisions.

EXHIBIT 2. ENTITIES INVOLVED WITH THE IMPLEMENTATION OF THE RTA PLAN

Source: RTA Board Resolution No. 2006-04, May 16, 2006.

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Scope and Methodology

Sjoberg Evashenk Consulting, Inc. was hired by the Arizona Auditor General to conduct an independent performance audit of the Pima Association of Governments' (PAG) Regional Transportation Authority Plan (RTA Plan) of Pima County. Arizona Revised Statutes (A.R.S.) §41-1279.03(A)(6) requires a performance audit in the tenth year and in each fifth year thereafter in which a county transportation excise tax is in effect. Specifically, we were asked to:

1. Review past RTA Plan expenditures and projects for fiscal years 2017 through 2021 to determine their impact on solving transportation problems within the county as required by A.R.S. §41-1279.03(A)(6)(a) and (b);
2. Examine future planned expenditures and projects for fiscal years 2022 through 2026 to determine their impact in solving transportation problems within the county as required by A.R.S. §41-1279.03(A)(6)(a) and (b);
3. Assess regional transportation fund deposits, expenditures, distributions, and bond activity for compliance with statutory requirements outlined in A.R.S. §48-5307(F)(G), A.R.S. §48-5308(A)(C)(D)(F), and A.R.S. §48-5348; and
4. Make recommendations, as required by A.R.S. §41-1279.03(A)(6)(a) and (b), to ensure the intended outcomes are being achieved, public monies and resources are being used efficiently and effectively, and there is proper management of the RTA Plan, its projects, and expenditures.

Also, as part of this audit, we were asked to compare budgeted costs to actual costs, projected start and completion dates to actual start and completion dates, and consistency of voter-approved RTA Plan projects to the RTA Plan projects as implemented. Additionally, we were asked to assess whether performance measures are being used and the quality of those measures; determine whether RTA Plan entities have effectively utilized various multimodal management tools; and identify any factors that may impact whether the RTA Plan outcomes are being met.

To meet the audit's objectives, we conducted a series of in-depth audit tasks involving data mining and analysis; documentary examinations; peer comparison; data verification; and interviews with PAG, Regional Transportation Authority (RTA), Arizona Department of Transportation, and the City of Tucson. Appendix A provides the detailed methodology employed on this audit.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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Chapter 1: RTA Plan Projects were Generally Completed as Planned and Majority of Remaining Projects are Scheduled to Start within RTA Plan Time Frame as Promised

With the RTA Plan nearing the end of its funding horizon on June 30, 2026, we found that the Pima Association of Governments (PAG), Regional Transportation Authority (RTA), and its local jurisdictional partners made improvements related to roadways, safety, the environment and economy, and transit that were generally in line with what was promised to voters in 2006. This included projects being implemented with the same general scopes as outlined in the RTA Plan and within the general timelines as planned.[9]

As of June 30, 2021, most of the 51 RTA Plan projects were complete or in-progress with just six projects not yet started. For 30 of the 51 projects that were completed, more than 169 miles of new lanes, 194 intersection improvements, 366 new bike lanes, a modern streetcar, and millions of dollars in transit service operations were delivered or provided, among other accomplishments. Most of these projects were delivered on schedule or with minimal delays.

While original project scopes were generally accomplished, PAG, RTA, and local jurisdictions made revisions to some projects under the RTA Plan to address shifting travel demand needs as well as funding challenges—primarily from the 2008 Great Recession. With less than five years remaining in the RTA Plan sales tax collection timeframe, most projects in-progress were scheduled to start construction by fiscal year 2026 as pledged.[10] Like several other local sales-tax funded transportation improvements in the country, the RTA Plan allows projects scheduled in the final years of the plan to be "completed" or "open to traffic" past the program's sunset deadline—as long as construction starts prior to the end of the RTA Plan on June 30, 2026.

Many of the RTA Plan Projects were Implemented or In-Progress as Planned

The RTA Plan funded a variety of transportation improvements across 51 projects divided into Roadway, Safety, Environmental and Economic Vitality, and Transit elements. These planned improvements included capital projects on roadways and the transit network, business consulting assistance to small businesses impacted by RTA Plan construction activities, and operational funds for transit services. Thus, some RTA Plan "projects" are not typical capital construction projects with an as-built, or open to traffic completion date. Rather, these projects will be considered complete at the end of the RTA Plan timeframe in fiscal year 2026 when funding is exhausted.

With less than five years of the RTA Plan timeframe remaining, we found many projects were completed or progressing appropriately as envisioned in the RTA Plan. Refer to a summary of projects completed in Exhibit 3 and detail for those projects in Appendix B.[11] Specifically, of the 51 RTA Plan Improvements, 30 were fully implemented and included widened roadway corridors such as Valencia Road and La Cholla

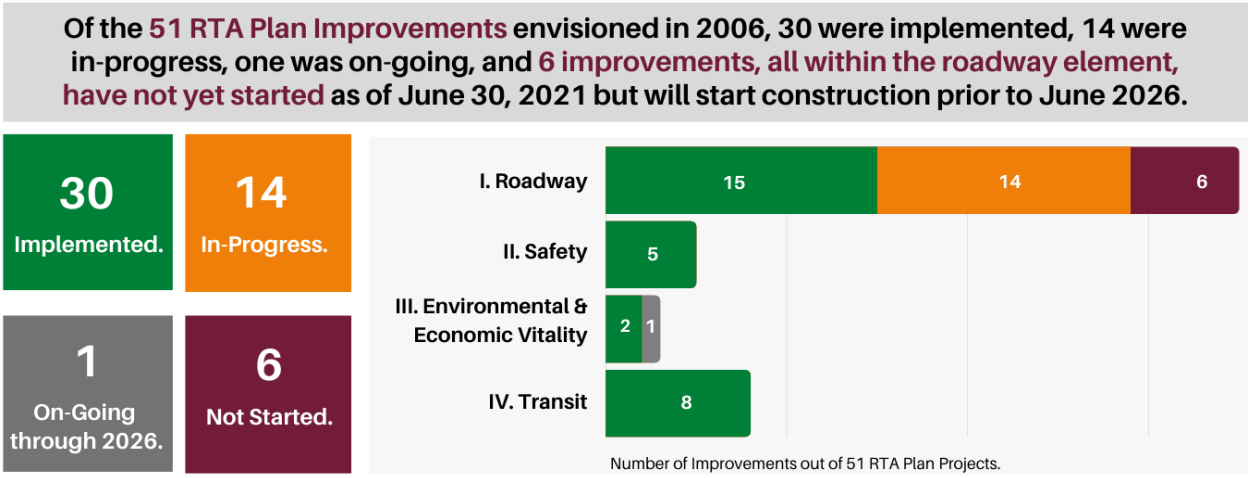
[9] Refer to Chapters 3, 4, and 5 for an assessment of RTA Plan performance related to mobility, congestion, and safety.

[10] Fiscal year 2026 = July 1, 2025 through June 30, 2026.

[11] Appendix B provides a universe of all 51 RTA Plan improvements with completion and budget status as of June 30, 2021.

Boulevard, expansion of weekday and weekend transit services, and improved roadway safety for pedestrians through signalized pedestrian crossings. An additional 14 roadway improvements were in various stages of completion ranging from design to construction. There was also one RTA Plan component related to providing assistance to local small businesses impacted by construction projects—these efforts will continue through the end of sales tax measure in fiscal year 2026 or when the amount allocated is consumed. Lastly, there were six planned improvements—all roadway projects—that have not started as of June 30, 2021, but were generally anticipated to start construction before the RTA Plan sunsets. We found that RTA Plan projects delivered were generally implemented as envisioned in original project scopes.

EXHIBIT 3. STATUS OF 51 RTA PLAN IMPROVEMENTS AS OF JUNE 30, 2021



Source: RTA Web Portal data, as of June 30, 2021.

Note: **Implemented** = All components of the RTA Plan project have been completed with roadways open to traffic, safety and environmental improvements in place, and transit services provided with no further improvements expected. **In-Progress** = For roadway only, where at least one segment of the main RTA Plan project is still ongoing (e.g., in construction, design, or preliminary engineering). **On-Going** = Only one project related to business consulting assistance for small local businesses impacted by construction activities. The funding continues until the RTA Plan ends or funding is exhausted—whichever occurs first. **Not Started** = For roadway only, where the RTA Plan project did not yet have activity.

Completed Roadway Projects were Mostly Delivered as Planned

As of June 30, 2021, PAG, RTA, and its local partners completed or had in-progress 29 of the 35 RTA Plan Roadway projects. Of those 29 roadway projects, 15 were fully completed with all features open to traffic as envisioned by the RTA Plan. In one instance, for RTA Plan Project 2 (Camino de Mañana: Tangerine Road to Linda Vista Boulevard), RTA and its local partners expanded initial scope and delivered more than initially envisioned.[12] In addition to completing the planned new roadway, the Town of Marana expanded the project's scope to widen the proposed new roadway from a "new 2 and 4-lane roadway" to a consistent 4-lane roadway and to include large animal wildlife underpasses and protective fencing.

[12] We reviewed information from an internal RTA database (RTA Web), publicly reported information such as the RTA Annual Report, completed project reports available on https://rtamobility.com/who-we-are/publications-documents/, RTA Board packets, PAG-provided records and spreadsheets of project progress, and aerial views on Google Maps to validate a sample of projects' scope implementation, at a high-level, where data was available. Intersections reviewed include Camino Verde/Valencia, La Cholla/Overton, and Ina Road/Silverbell Road.

As highlighted in the prior 2017 RTA Plan performance audit conducted by Sjoberg Evashenk Consulting, Inc. on behalf of the Arizona Office of the Auditor General, RTA Plan Project 17 (Broadway Boulevard: Euclid Avenue to Country Club Road) experienced a major scope change in 2014 with bus pullouts being constructed rather than dedicated bus lanes as planned and approved by voters.[13] Yet, the decision was extensively vetted as required by RTA Plan policies with ultimate action taken by the RTA Board.

While we found that RTA Plan projects completed as of June 30, 2021 generally fulfilled the scope presented to voters in 2006 with any deviations from the original plan publicly discussed and decided, there always remains the possibility that currently in-progress or not yet started projects could change scope from the original RTA Plan due to change in traveler transportation needs or funding not materializing as projected. However, based on RTA Board and committee meeting materials, the RTA appears to be fully committed towards delivering the exact scope of the ballot and is extensively deliberating any modifications to original scopes.

RTA Plan Safety Projects and Environmental/Economic Vitality Projects Aligned with Initial Plans

All five of the RTA Plan Safety projects and two of the three Environmental and Economic Vitality projects were completed and generally implemented consistent with original scopes. One of the Environmental and Economic Vitality projects—RTA Plan Project 43 for Small Business Assistance—was still on-going.

For RTA Plan Safety projects, certain intersections we reviewed were delivered as planned implementing safety features such as traffic circles, turn lanes, traffic signals, pedestrian ramps, reconfiguring or adding island medians, and pavement reconstructions. For example, RTA Plan Project 36 (Intersection of Camino Verde and Valencia), that called for the widening of Camino Verde to improve safety by providing dedicated turn lanes, was delivered as initially scoped as shown in Exhibit 4.

EXHIBIT 4. INTERSECTION OF CAMINO VERDE AND VALENCIA, BEFORE AND AFTER (COMPLETED FISCAL YEAR 2010)

Source: Left aerial photo is the "before" picture for RTA Ballot No.36 Completed Project Report from https://rtamobility.com/who-we-are/publications-documents/. Right aerial photo is the "after" picture from Google Maps accessed January 2022.

Additionally, RTA Plan Projects 37 through 39 called for a variety of safety enhancements for the elderly and pedestrians including improvements such as accessible ramps, sidewalk improvements, elimination of

[13] See report titled Pima Association of Governments-Regional Transportation Authority Plan Performance Audit issued on April 2017 available at the Arizona Auditor General website at https://www.azauditor.gov/sites/default/files/ 17-CR1_Report.pdf.

barriers to bus stops, and signalized crosswalks such as the one shown in Exhibit 5. For a sample of projects reviewed, we found projects were generally implemented in accordance with project scopes. Further, we found that safety improvements delivered for RTA Plan Project 40 (Signalization Technology) adhered to the original scope pledged to design, build, operate, and monitor various signal technology including transportation system communications and emergency management systems.

EXHIBIT 5. PEDESTRIAN SIGNAL CROSSING EXAMPLE, EUCLID AVENUE AND 9TH STREET

Source: Streetview photo is of pedestrian High Intensity Activated Crosswalk (HAWK) from Google Maps, accessed January 2022.

Numerous types of other safety improvements were reported as completed under RTA Plan Project 40 including a Traffic Signal Wireless Communication System, a Traffic Signals Operations Program, and uninterruptible power supply for intersection traffic signals to ensure intersection signals function properly for the safe flow of traffic and appropriate safe crossing of bicyclists and pedestrians.

Similarly, for two of the three RTA Plan Environmental and Economic Vitality projects completed, support of completing projects within original scope was also evident. For instance, the scope for "Transportation-related Critical Wildlife Linkages" (RTA Plan 42) pledged funding for the design and construction of wildlife crossing improvements including the creation of access routes through roadway bridges and underpasses as well as for the installation of fencing to guide animal movement. According to an internal RTA database, there were approximately 17 subprojects where crossings or other improvements were made in addition to the completion of wildlife studies such as the Pima County Wildlife Connectivity Assessment and the Tangerine Road Wildlife Linkages Study.

Transit Projects Completed Generally Aligned with the RTA Plan

The RTA Plan funded a series of eight transit projects including capital construction projects building a high-capacity modern streetcar system, new park-and-ride transit centers, and improved bus stops. Additional transit operational service projects included expanding bus routes, bus frequency, and paratransit services to enhance the rider experience, improve mobility, and increase service efficiency.[14]

[14] The RTA Plan included the following eight transit projects: (1) RTA Plan Project 44 (Weekday Evening Bus Service Expansion), (2) RTA Plan 45 (Weekend Bus Service Expansion), (3) RTA Plan 46 (Bus Frequency and Area Service Expansion), (4) RTA Plan 47 (Special Needs Transit for Elderly and Disabled Citizens), (5) RTA Plan 48 (Neighborhood Circulator Bus Systems), (6) RTA Plan 49 (Express Service Expansion), (7) RTA Plan 50 (Downtown/ University High-Capacity Transit Streetcar), and (8) RTA Plan 51 (Park & Ride Transit Centers).

In general, all eight RTA Plan Transit element projects were completed and aligned with the original pledged intent of the RTA Plan projects' scope or planned operations—although some changes were made based on transit service planning efforts as described later in this section. For instance, RTA Plan Transit capital construction projects completed include the downtown modern streetcar (RTA Plan Project 50), a maintenance storage facility (RTA Plan Project 46), and several park-and-ride transit centers (RTA Plan Project 51)—all capital construction projects completed prior to the start of our audit period on July 1, 2016.

The remaining promised transit projects provided operational service funds to expand service. While several routes were initially expanded as pledged by the RTA Plan, additional transit growth in the region was not sustainable due to declining sales-tax revenues after the 2008 Great Recession that resulted in limited ongoing funding for transit service expansions. The reduced funding combined with changing bus service demographics and ridership demand patterns required service routes to remain fluid. As a result, only minimal operational funding will be allocated to RTA Plan Transit projects after fiscal year 2022.[15]

Specifically, for transit operational projects, we found:

- ✓ **RTA Plan Projects 44, 45, 47, and 49 (Service Expansions and Special Need Services).** Under these projects, RTA provided funds for transit operations to increase the frequency of bus stops and routes, expand weekday evening and weekend bus service, and provide additional transit service to the elderly and disabled citizens. While generally promised services and routes were expanded to meet the spirit of the RTA plan pledge, these projects did not deliver as much as originally anticipated mostly because of changing travel demand and funding.
- ✓ **RTA Plan Project 46 (Bus Frequency and Service Area Expansion).** Nine route frequencies were increased through fiscal year 2020. While additional routes were initially envisioned, the City of Tucson noted that full expansion did not occur because there was not sufficient ridership demand for those routes as determined through its service planning efforts.
- ✓ **RTA Plan Project 48 (Neighborhood Circulator Bus Systems).** While plans called for the implementation of four circulator vehicles designed to take riders a short-distance around a specific area with major destinations, the RTA implemented the Sun Shuttle service instead to meet the need and provide connections. Thus, the purpose of the RTA Plan project was still met—just with a different, but similar transit solution.

Route Changes Made Through Thorough Service Planning Processes

To make changes to the RTA Plan Transit operational elements, the City of Tucson employed a thorough service planning process that involved evaluating routes based on ridership and various operational performance metrics such as fare revenue and other route service coverage to balance ongoing transit needs with available funding from the RTA Plan. This involved annually evaluating bus routes performance, identifying routes to be changed based on demand and performance, conducting public hearings to recommend changes and seek approval from city leaders, and distributing necessary reports on proposed service changes to the public—all activities in alignment with leading transit planning best practices.

[15] All RTA Plan capital construction transit projects were completed; thus, only funds for transit operations were impacted.

This consideration of performance, needs, and funding to adjust routes and frequency of service occurred on an annual basis. Specifically, the City of Tucson used performance data to monitor underperforming routes or routes reaching capacity to make revisions, increase or decrease service levels, or expand or eliminate service as warranted. Routes were evaluated against various performance measures to identify routes that are above average, average, or underperforming. Once the City of Tucson Transit staff evaluated the RTA Plan-funded routes, it presented any recommended service or route changes to the City's Transit Task Force for review and approval. Moreover, proposed route or service changes are subject to public outreach and local hearings led by the City of Tucson, in addition to RTA Board of Directors, City Mayor, and City Council review and approval.

RTA Plan Commitments On Track to be Delivered In Accordance with Plan Promises

In addition to 51 projects planned for completion in the RTA Plan, RTA established several outputs or accomplishments to be achieved through the projects with specific numbers of new roadway lane miles, park and ride centers, miles of sidewalk, and intersection safety improvements just to name a few. We found that with approximately 75 percent of the RTA Plan timeline elapsed, the level of RTA and its local partners' accomplishments was generally on-track as of June 30, 2021. Percent completion for the various RTA Plan improvement categories mostly ranged from nearly 70 percent to 100 percent complete as shown in Exhibit 6. Some RTA Plan areas did not pledge a specific accomplishment or quantity of planned improvements; thus, we could not assess the pace of completion.

The one RTA Plan area that has not kept pace are the planned grade separations at railroad crossings where a roadway is re-aligned over or under a railway, by constructing a bridge or underpass, to increase safety at railroad crossings for drivers, pedestrian, and bicyclists. While 10 grade crossings were initially planned, only four grade separations have been constructed as of June 30, 2021. This is not a concern because the remaining six grade separations were not scheduled to start until the final period of the RTA Plan between July 1, 2021 and June 30, 2026. Thus, promised improvements are projected to meet or exceed most pledged commitments by the time the sales tax extension ends in 2026.

EXHIBIT 6. COMPARISON OF RTA PLAN PLEDGES TO ACTUAL ACCOMPLISHMENTS, AS OF JUNE 30, 2021

Corresponding RTA Project	Pledged Improvement Examples	Pledged Quantity	Accomplishment as of June 30, 2021	% of Pledge Completed
Roadway Improvement Element				
RTA 1-35	• Constructing new-lane miles and widening lanes, bike lanes, medians, bike lanes, culverts, curbs, bridges, ADA sidewalks, street lighting, and drainage improvements	• 200 Lane-Miles • No Others Specified	• 169 Lane-Miles	• 84.5%
	• New or improved rail crossings by constructing bridges or underpasses for drivers, bicyclists, or pedestrians (specifically in scope for RTA Plan Projects 3, 6, 8, 9, 15,16, 19, 24, 32)	• 10 Rail Grade Separations (A)	• 4 Rail Grade Separations (A)	• 40%(A)
	• Intersection Improvements	• 200 Intersections	• 194 Intersections	• 97%

Corresponding RTA Project	Pledged Improvement Examples	Pledged Quantity	Accomplishment as of June 30, 2021	% of Pledge Completed
Safety Improvement Element				
RTA 36	Additional intersection safety and capacity improvements, not included in the roadway element	200 Intersections	194 Intersections	97%
RTA 37	Elderly and pedestrian safety improvements with an emphasis on safe routes to schools and improved mobility for disabled citizens	80 Pedestrian Crossings[B]	76 Pedestrian Crossings	95%
RTA 38	Bus pullouts	200 Bus Pullouts	139 Bus Pullouts	69.5%
RTA 39	Railroad safety improvements and bridge deficiency improvements	None Specified	• 6 At-Grade Rail Crossings • 8 Bridge Deficiency Improvements	-
RTA 40	Traffic signal technology upgrades to improve intersection traffic flow	None Specified	71 Improvements such as upgraded controllers, wireless communications equipment and service, adaptive traffic management hardware	-
Environmental & Economic Vitality Element				
RTA 41	• Connections of greenways, pathways, bikeways, and sidewalks • Bicycle lanes and multi-use paths	• 250 Miles of sidewalks • 550 Miles of bike lanes	• 179 Miles of sidewalks • 366 Miles of bike lanes	• 72% • 67%
RTA 42	Transportation-Related Critical Wildlife Linkages	None Specified	17 Subprojects where wildlife studies, crossings, or other improvements were conducted	-
RTA 43	Small Business Assistance in form of services provided to help sustain business operations during RTA Plan roadway construction	None Specified	Assistance to approximately 9,000 local businesses	-
Transit Element				
RTA 44	Weekday Evening Bus Service Expansion	None Specified	21 Routes increased weekday evening service	-
RTA 45	Weekend Bus Service Expansion	None Specified	23 Routes increased weekend service	-
RTA 46	Bus maintenance storage facilities	3 Facilities	3 Facilities	100%
RTA 47	Special Needs Transit Service	None Specified	Service area expanded beyond ADA complimentary paratransit area	-
RTA 48	Urban Circulator Service	None Specified	• Shuttle routes established in Oro Valley, Marana, Tucson, unincorporated Pima County, Green Valley/Sahuarita and Ajo. • 3 Public Dial-a-Ride areas	-
RTA 49	Express Bus Service Expansion	None Specified	12 Express Routes	-
RTA 50	Downtown/University high-capacity streetcar	1 Streetcar	1 Streetcar	100%
RTA 51	Park & Ride Transit Centers	6 Transit Centers	7 Transit Centers	100%

Source: Publicly available documents on website, internal tracking spreadsheets provided by PAG, and RTA Web data as of June 30, 2021.

Note: [A] The RTA Plan envisioned construction for the 10 railroad crossings to commence during all periods of the plan with the remaining six crossings anticipated to start construction prior to June 2026. [B] The ballot did not specify elderly and safety improvement outputs, but other RTA documents noted that 80 pedestrian crossings were pledged.

For instance, for the RTA Plan Roadway element, local jurisdictions completed 84.5 percent—or 169 miles out of 200 planned lane-miles—by June 30, 2021. Similarly, for one RTA Plan Safety element (RTA Plan Project 38), 69.5 percent—or 139 bus pullouts of 200 planned bus pullouts—were built. Additional accomplishments were noted under the RTA Plan Environmental and Economic Vitality element with 72 percent of sidewalk miles and 67 percent of bike lane miles completed. Lastly, examples of completed RTA Plan Transit improvements include seven park and ride centers and the completion of a modern streetcar.

While the RTA Plan pledged each project would begin construction in predetermined time periods, it did not require completion before the tax measure ends in fiscal year 2026. Given the progress made to date and that most of the pledged improvements and accomplishments have been implemented, there is no overall concern that planned accomplishments are not on track to be delivered. In addition, based on RTA Board and committee meetings, it appears that the RTA continues to take seriously the commitment to deliver project scope as promised to voters in 2006.

RTA Plan Roadway Projects were Mostly Completed On-Schedule, with In-Progress Projects Expected to Meet RTA Plan Implementation Timelines As Well

Since the RTA Plan Roadway projects comprise most of the RTA Plan and the other categorical/transit projects either did not have set schedules in the RTA Plan or will be considered complete once funds are spent down, we only reviewed schedule performance for roadway capital construction projects. While it is common for capital construction to experience some delay given the complicated coordination needed between contractors, permitting, utility relocation, and staging activities, extensive project delays can add significant additional costs if projects run too far off scheduled timelines.

For the RTA Plan Roadway projects reviewed, we found that while there were some schedule variances in terms of RTA planned construction schedules compared to actual construction schedules. Those delays did not negatively impact the overall delivery of the RTA Plan. Further, the six RTA Plan projects that have not yet started are anticipated to start construction prior to the RTA Plan end on June 30, 2026.[16]

Although Some Completed Projects Experienced Implementation Delays, These Schedule Challenges Did Not Affect Overall Delivery of the RTA Plan

To understand whether RTA Plan projects were being delivered according to schedule, we reviewed 12 roadway project segments completed during our audit period. At a high-level, we compared open to traffic dates to RTA Plan expected completion dates to determine whether those completed projects were implemented as planned. While a few projects experienced some delay, the length was not significant and project segments were ultimately completed within RTA Plan timeframes as shown in Exhibit 7.

[16] There was only one RTA Plan Roadway project—RTA Plan Project 20 (Barraza/Aviation Parkway)—where the RTA Plan had not envisioned construction to be part of the plan. For that project, construction is not anticipated to start until after the RTA Plan end.

EXHIBIT 7. COMPARISON OF PLANNED COMPLETION TO OPEN TO TRAFFIC DATES FOR 12 PROJECT SEGMENTS COMPLETED DURING FISCAL YEARS 2017 THROUGH 2021

#	RTA Plan ID	RTA Ballot Project Name	Scheduled Completion	Actual Completion	Length of Delay
1	**1**	Tangerine Road: I-10 to La Cañada Drive—Segment Phase 1	August 2018	October 2018	2 months
2	**4**	La Cholla Boulevard: Tangerine Road to Magee Road—Segment Phase 2	August 2020	September 2020	1 month
3	**6**	Railroad Overpass at Ina Road—All Segments	UTD	September 2019	UTD
4	**8**	Sunset Road: Silverbell Road to River Road- Segment Phase 1	March 2017	April 2017	1 month
5	**18**	Grant Road: Oracle Road to Swan Road-Segment Phase 2 (A)	July 2018	October 2018	3 months
6	**21**	Valencia Road: Ajo Way to Mark Road—All Segments(A)	February 2016	April 2016	2 months
7			January 2020	August 2020	7 months
8	**24**	Valencia Road: Alvernon Way to Kolb Road-Segment Phase 2	June 2019	July 2019	1 month
9	**29**	Broadway Boulevard: Camino Seco to Houghton Road	January 2020	March 2020	2 months
10	**32**	Houghton Road: I-10 to Tanque Verde-Segments Phase 4 & 5	UTD	March 2019	UTD
11			UTD	February 2020	UTD
12	**33**	Wilmot North of Sahuarita Road-All Segments (B)	November 2017	June 2017	No Delay

Source: RTA Plan and RTA Intergovernmental Agreements with local jurisdictions.

Note: UTD =Unable to determine as PAG did not have data available since the projects were combined under existing ADOT projects. (A) Although there were delays between planned completion and actual completion as memorialized in RTA's intergovernmental agreements with the local jurisdictions, there were no issues since the RTA Plan only required construction to start during the period and the segments were completed (B) Project was substantially completed in June 2017, but intersection reconstruction will be completed in 2022.

Some In-Progress Project Segments Encountered Start Delays, but Are Still Within RTA Plans

With 15 years of the 20-year RTA Plan timeframe elapsed, we also reviewed schedule performance for roadway projects in-progress as of June 30, 2021 to determine if current construction schedules may affect the timely delivery of these projects. Specifically, we compared construction start date targets noted in the RTA Plan with current project schedules to assess whether in-progress projects are on track to be implemented as planned. The RTA Plan scheduled construction over four distinct 5-year periods as follows:

- ✓ 1st Period = July 1, 2006 through June 30, 2011
- ✓ 2nd Period = July 1, 2011 through June 30, 2016
- ✓ 3rd Period = July 1, 2016 through June 30, 2021
- ✓ 4th Period = July 1, 2021 through June 30, 2026

Of the 14 RTA Plan Roadway projects that were in-progress as of June 30, 2021, there were four projects with segments that did not meet the targeted construction start timeframe envisioned in the RTA Plan. Specifically, RTA Plan Projects 14, 15, 19, and 32 had planned construction start dates in the 3rd Period of the RTA Plan, but still had certain project segments that were in the planning or design phase as of June 30, 2021 and had not yet started construction—largely due to scope changes that required additional time for preliminary engineering, design, or coordination with federal entities as shown in Exhibit 8 and described in the bullets that follow.[17]

[17] Refer to Appendix B for a complete universe and status of all 51 RTA Plan improvements.

EXHIBIT 8. KEY CONSTRUCTION START DELAY FACTORS FOR THE FOUR RTA PLAN ROADWAY PROJECTS WITH SEGMENTS THAT WERE DELAYED, AS OF JUNE 30, 2021

Key Factors Contributing towards Construction Start Delays

1st Avenue: River Road to Grant Road
(RTA Plan 14)

- **Scope Change:** River Bridge structural plans from 2019 no longer supported widening but required full bridge replacement.

UPPR Underpass at Grant Road
(RTA Plan 15)

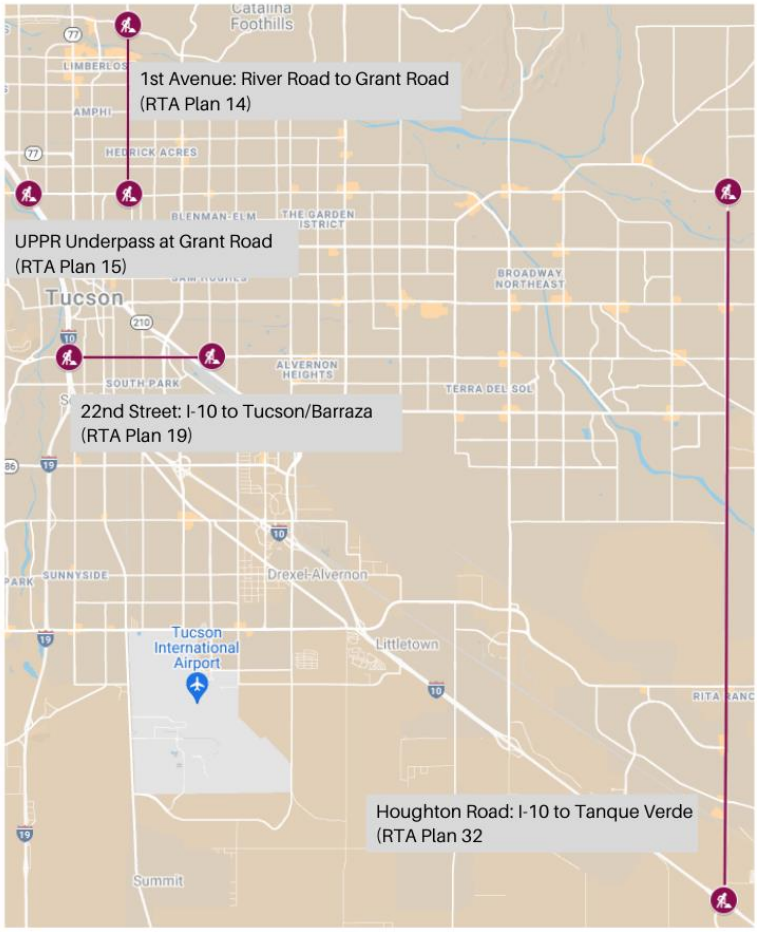
- **Scope Change:** Railroad coordination and requirement to keep railroad open during construction vs. closed as initially planned.

22nd Street: I-10 to Tucson/Barraza
(RTA Plan 19)

- **Unforseen Conditions:** Railroad design approval challenges.

Houghton Road: I-10 to Tanque Verde
(RTA Plan 32)

- **Unforseen Conditions:** Right-of-way delays and utility relocation challenges.



Source: PAG Transportation Improvement Plan Fiscal Year 2022-2026, May 2021; 2045 Regional Mobility and Accessibly Plan Cost Estimates, December 2019; interviews with PAG Staff; and data from local jurisdiction's websites.

For instance, neither RTA Plan Project 14 or 15 started construction in the period planned—however, they are still scheduled for a construction start within the overall RTA Plan lifecycle—as described in the bullets that follow.

- **1st Avenue: River Road to Grant Road Project (RTA Plan Project 14).** While the RTA Plan initially envisioned this project to start construction in the 3rd Period, current plans indicated that the project is in preliminary engineering with construction anticipated to start in the 4th Period, in fiscal year 2024.[18] When envisioned in the RTA Plan, the project's scope was to widen the roadway to

[18] RTA Plan capital construction projects are incorporated into the 20-year long-term transportation plan required by federal provisions and developed in concert with public input. The long-range plan is updated every three to five years to cover a rolling 20-year period in Pima County and sets forth general cost projections and construction start periods for all projects. Every two years, a short-range transportation plan is developed to update project costs, propose funding of those project costs, and establish more concrete periods for planned project start dates.

six lanes, provide bike lanes and sidewalks crossing the Rillito River at a cost of approximately $74 million. However, 2019 updated cost estimates based on draft structural plans prepared by the City of Tucson and used for long-range transportation planning, noted that the bridge over the Rillito River could not be widened and instead required total replacement. This unforeseen condition requiring a bridge replacement to ensure traveler safety not only delayed the construction schedule, but also increased the project budget to over $138 million—which further challenged available RTA Plan funding as discussed in Chapter 2.

- **UPRR Underpass at Grant Road Project (RTA Plan Project 15)**. Only slightly behind its planned construction start in the 3rd Period, this project was in final design as of June 30, 2021 and was scheduled to start construction in fiscal year 2022. The construction delay was generally due to railroad requirements to keep trains running during construction, which required some redesign work.

Unlike the two previous examples with no construction activity as of June 30, 2021, two other projects—RTA Plan Projects 19 and 32—had some activity where project segments were started as planned. However, there were still other segments that had a delayed start as described in the bullets that follow.

- **22nd Street: I-10 to Tucson/Barraza Project (RTA Plan Project 19)**. While construction was started and completed for segment phase 1, there were two remaining segment phases scheduled to start the 2nd and 3rd period that were delayed. One segment—phase 2 to construct an approximate one-mile roadway segment from Kino Parkway to Tucson Union Pacific Railroad viaduct was in design as of June 30, 2021. Yet, the remaining 0.75-mile phase 3 segment from I-10 to Kino Parkway is on hold and delayed due to railroad coordination issues.

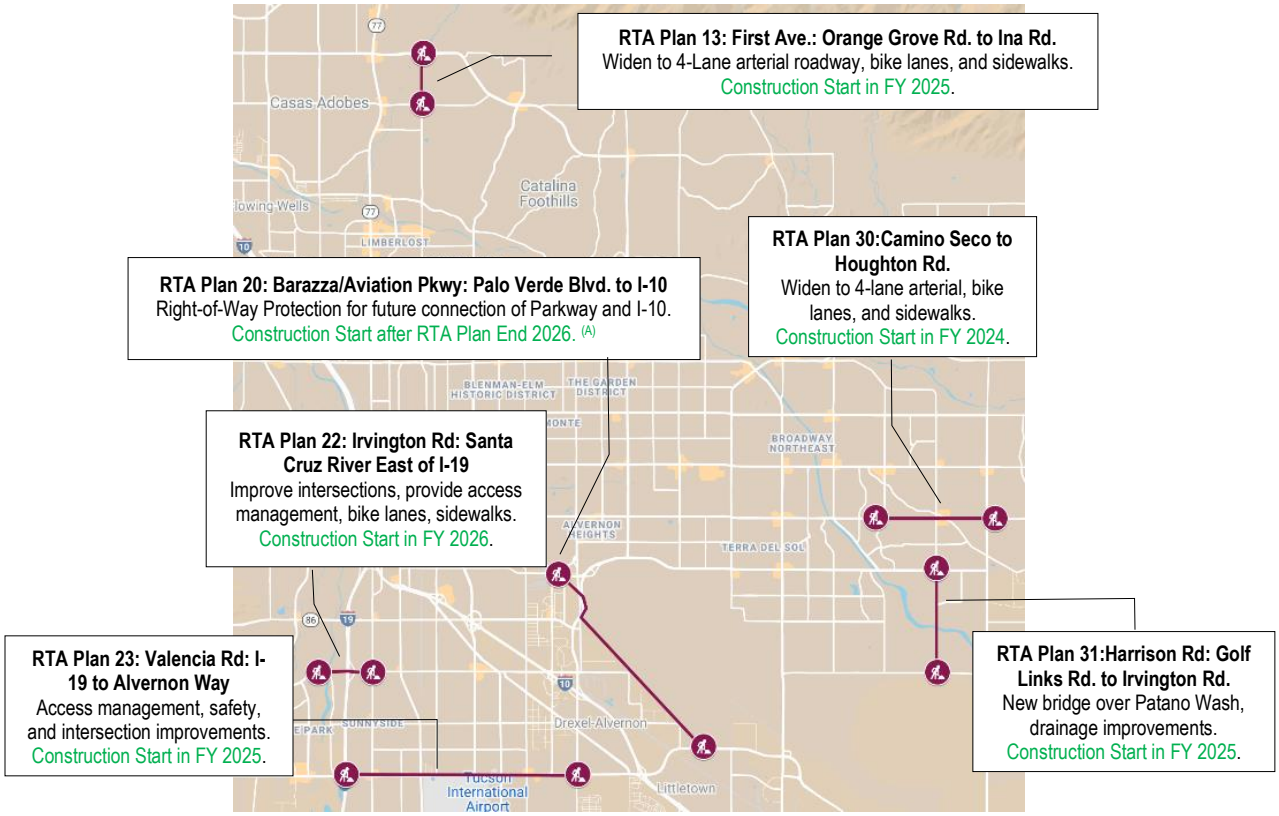
- **Houghton Road: I-10 to Tanque Verde Project (RTA Plan Project 32)**. As one of the largest RTA Plan Roadway projects, construction was scheduled to start in the 1st and 3rd periods of the RTA Plan. Most of the project segments were started as planned. In fact, six of the eight project segment phases started on schedule and were completed. Only two remaining project segments did not start construction in the planned scheduled periods with one of the phases—phase 7 Irvington to 22nd Street segment—currently in design. Thus, the only remaining delayed segment that has not yet started is phase 8—Broadway Boulevard to Tanque Verde Road—that involves a variety of improvements such as bike lanes, bus pull outs, multi-use pathways, and approximately 1.9 miles of roadway segments.

Despite these challenges, all four of these RTA Plan project segments are scheduled for construction to start in the last five-year period of the RTA Plan. Thus, the projects have scheduled dates that meet the overall RTA Plan implementation deadline of June 30, 2026.

Current Estimates Indicate that Remaining Six RTA Plan Roadway Projects Not Yet Started Do Not Have Schedule Issues at This Time

While six RTA Plan Roadway projects had not yet started as of June 30, 2021, the most recent short-range transportation plan included available funding and indicated that five of the six projects are on schedule to begin construction as planned—prior to the end of the RTA Plan on June 30, 2026 as shown in Exhibit 9.

EXHIBIT 9. ESTIMATED IMPLEMENTATION SCHEDULE FOR THE SIX RTA PLAN ROADWAY PROJECTS NOT STARTED, AS OF JUNE 30, 2021



Source: PAG Transportation Improvement Plan Fiscal Year 2022-2026, May 2021.

Note: (A) RTA Plan original commitment paid for design and right-of-way activities only, which were to start prior to RTA Plan end in fiscal year 2026.

While the RTA Plan generally intended most roadway projects to be constructed before June 30, 2026, certain projects were only planned to start during the RTA Plan timeline—not be "open for traffic" before the plan sunsets.

For one roadway project that has not yet started—Barraza/Aviation Parkway: Palo Verde Blvd. to I-10 (RTA Plan Project 20)—the RTA Plan only committed funding to pay for design and right-of-way activities with no construction activities intended to be paid for with sales-tax dollars. Like the other projects not yet started, short-term transportation planning documents estimate that right-of-way activities will start in fiscal year 2025—within the RTA Plan timeframe and, thus, fulfilling the RTA Plan pledge.

Chapter 2: While Funding is Reasonably Available for Many Remaining RTA Plan Projects, There is an Estimated $149 Million Funding Gap Affecting Eleven Projects

Project budgets have substantially increased over the last 15 years of the Regional Transportation Authority Plan (RTA Plan), with some projects experiencing cost overages. The latest sales tax revenue estimates as well as Pima Association of Governments (PAG) projections of federal, state, and other local revenues, show expectations that sufficient funding will be available for approximately 88 percent of the remaining RTA Plan project costs. Although RTA-pledged funding should materialize based on current revenue projection models, there is an estimated $149 million funding gap from the monies pledged by local jurisdictions as part of the RTA Plan. PAG is working with the impacted local jurisdictions on ways to address the gap, but those needed dollars will impact eleven RTA Plan projects if money is not realized.

While Project Expenditures Outpaced Budgets for a Variety of Reasons, Net Variances Were Not Substantial

In 2006, the Regional Transportation Authority (RTA) estimated the cost of the RTA Plan at $2.4 billion including the RTA-funded sales tax portion and local jurisdiction-funded portion.[19] Project costs have grown to an estimated $2.9 billion as of June 30, 2021 including money already spent and estimates of funds needed to complete projects using best available data.[20] The RTA Plan approved by voters acknowledged that cost increases due to inflation or scope changes were likely to occur; however, it also specified that any project costs exceeding the RTA Plan amounts were the responsibility of the local jurisdictions.

To assess project cost management, we compared budgeted cost to actual expenditures for the 15 completed RTA Plan Roadway projects where costs have been finalized and projects were closed out with no additional activity.[21] For comparison purposes, we adjusted the initial RTA Plan cost budgets for the 15 completed projects as originally calculated by RTA in 2006 constant dollars to account for inflation and allow for a more meaningful assessment between budgets and actual costs. While we found that half of the 15 completed projects reported expenses exceeding budgets adjusted for inflation, the overall net variance was only two percent as shown in Exhibit 10.

We investigated individual project cost overages of more than 10 percent and found the variances were generally linked to unprecedented and unexpected cost increases in construction and material costs over the last five years throughout the U.S. construction industry.[22] Projects with cost overages were also attributed to delivery challenges with right-of-way and utility relocations on specific projects. Additionally, other cost increases were explained by local jurisdictions adding scope and using non-RTA funds to pay for those improvements—which is allowable, although these costs are not required to be reported to RTA.

[19] The $2.4 billion RTA Plan was in nominal 2006 dollars. If escalated, the $2.4 billion is equivalent to $3.1 billion in 2021.

[20] The $2.9 billion total cost to complete the RTA Plan is in year of expenditure dollars.

[21] In-progress RTA Plan Roadway projects were not considered, since activity is ongoing and both budgets and costs may fluctuate along with any approved project scope adjustments.

[22] Rider Levett Bucknall (RLB), a construction estimation consultancy group, reported in its Q3 2021 North America Quarterly Construction Cost Report that the national construction cost index grew 20 percent from Q3 2017 (the beginning of our audit period) to Q3 2021.

EXHIBIT 10. COMPARISON OF BUDGET TO ACTUAL COSTS FOR COMPLETED ROADWAY PROJECTS, AS OF JUNE 30, 2021

#	RTA Plan ID	Name	Year Open to Public	Escalated 2006 Budgets [A]	Total Project Costs	Percent Variance	Reasons for Cost Overages Greater 10 Percent [B] [C]
1	2	Camino de Mañana: Tangerine to Linda Vista	Nov-10	$17M	$29.9M	76%	Original scope to complete roadway was augmented with additional lanes and animal wildlife protections. Excess costs were paid for by local jurisdiction.
2	3	Twin Peaks Road: Silverbell to I-10	Nov-10	$82.7M	$80.2M	-3%	-
3	4	La Cholla Boulevard: Tangerine to Magee	Sep-20	$ 62.1M	$51.9M	-16%	-
4	6	Railroad Overpass at Ina Road East of I-10 [D]	Sep-19	$69M	$50.6M	-27%	-
5	7	Magee Road / Cortaro Farms Road: La Cañada to Thornydale	Jul-13	$38.4M	$47.6M	24%	Original preliminary estimates were at preliminary engineering level. Once in design, the scope was augmented to include the realignment of Carmack Wash and the full extent of intersection improvements needed.
6	10	La Cholla Boulevard: Ruthrauff to River Road	Jul-11	$16.5M	$18M	9%	-
7	11	La Cañada Drive: Calle Concordia to River Road	May-15	$49.1M	$57.8M	18%	Unforeseen utility conflicts.
8	21	Valencia Road: Ajo to Mark	Aug-20	$ 49M	$46.7M	-5%	-
9	24	Valencia Road: Alvernon to Kolb	Jul-19	$58.7M	$55.2M	-6%	-
10	26	Kolb Road Connection with Sabino Canyon Road	Jan-17	$11.1M	$21.5M	94%	Unforeseen landfill mitigation costs. Available RTA funds from other projects were utilized to pay for the additional costs.
11	27	Tanque Verde Road: Catalina Highway to Houghton	Nov-11	$14.3M	$14M	-2%	-
12	28	Speedway Boulevard: Camino Seco to Houghton	Jun-12	$19.5M	$19.2M	-2%	-
13	29	Broadway Boulevard: Camino Seco to Houghton	Mar-20	$12.3M	$21M	71%	Unforeseen utility conflicts.
14	34	Sahuarita Road: I-19 to Country Club Road	May-15	$48M	$36.6M	-24%	-
15	35	I-19 Frontage Road	Feb-11	$13.3M	$23.6M	77%	Overage primarily relates to expenditures incurred prior to the start of the RTA Plan.
			Total	**$561M**	**$573.8M**	**2%**	

Source: Expenditure data from the RTA Ledger, PAG Transportation Improvement Ledger, and financial data reported by local jurisdictions. Escalation calculated using US national consumer price index of all cities, all consumers.

Notes: [A] The 2006 budgets were adjusted from 2006 dollars to dollars in the year the project was completed and open to the public using US national consumer price index. The percent change reflects the changes in costs between the adjusted budgets and the total project costs through June 30, 2021, which included all expenditures reported by RTA and local jurisdictions based on best available data. [B] Globally, cost increases were linked to unprecedented and unexpected cost increases in construction and material costs over the last five years throughout the U.S. construction industry. Additionally, local jurisdictions may add scope to RTA Plan projects for activities deemed ineligible for RTA reimbursement if the local jurisdictions can identify other funds to cover the additional costs. We requested and included this data in the total project cost column. Total costs may also include related project segments that were funded with non-RTA money and were completed prior to the RTA Plan. However, because this additional funded activity is not required to be reported to RTA, the corresponding budget figures are not adjusted. [C] The 10 percent threshold is a common benchmark used in public works construction when assessing reasonableness of overages. [D] Project ultimately received federal funds that eliminated the need for a portion of the allocated RTA funds. Some of the RTA funds initially allocated the project were transferred to RTA Plan Project 26 to pay for cost overruns.

For example, costs for RTA Plan Project 2 (Camino de Mañana: Tangerine to Linda Vista) were 76 percent over the revised budget estimates mostly from a significant scope increase to widen the proposed new roadway from a "new 2 and 4-lane roadway" to a consistent 4-lane roadway as well as add large animal wildlife underpasses and protective fencing. The variance related to the roadway scope was entirely covered with additional funds committed from the Town of Marana and the State of Arizona, while RTA Project 42 funds covered costs for the wildlife underpasses and fencing. These changes were vetted, approved, and communicated to the public during open meetings at PAG and RTA. In another example, we calculated a 94 percent variance between the inflation-adjusted budget for RTA Plan Project 26 (Kolb Road Connection with Sabino Canyon Road) and actual costs. This overage was mostly caused by unanticipated expenses from a previously unmapped landfill and its associated foundation system. Additionally, the variance for RTA Plan Project 29 (Broadway Boulevard: Camino Seco to Houghton Road) grew 71 percent largely from unforeseen utility conflicts where "as-is" maps used for design did not identify the project as being in areas owned by the utility requiring extra time and costs to negotiate the relocation of utilities with the external companies. Negotiating with utility companies can add significant costs as well as delays as right-of-way and relocation of utilities are settled.

While the project costs increased, there was no negative impact on the overall RTA Plan since overages on completed projects were covered through funds reallocated from other projects or through additional funding sources. However, there are projects still in-progress or that have not yet started where a funding gap currently exists as discussed later in this chapter.

Where overages occurred, PAG and RTA worked closely with local jurisdictions to cooperatively find funding solutions to budget challenges and provide additional sales tax contributions where eligible and when possible. As the entity responsible for the RTA Plan, RTA met on a regular basis with local jurisdictions implementing the capital projects to stay abreast of project status, help facilitate emerging issues, and coordinate solutions for schedule or funding challenges. Unless the RTA Board approves additional regional funding for RTA Plan projects, all funding needs beyond original ballot commitments were to be paid for by non-RTA sales-tax dollars. Although they are working with the local jurisdictions on a regular basis, PAG and RTA could request and capture complete capital project cost estimates and actual expenditure data in addition to all available funding sources from the local jurisdictions to strengthen on-going analysis of funding challenges.

Past Expenditures Complied with RTA Plan, Policies, and Statutes

As required by Arizona Revised Statutes (A.R.S.) §48-5307(F), the RTA established the regional transportation fund with three separate accounts to record activities—a bond account, bond proceeds account, and construction account. Further, in accordance with A.R.S. §48-5307(G), tax revenues were first deposited into the bond account with the remaining balances, after debt service, deposited in the construction account.

We reviewed a sample of 35 project expenditures from the construction account incurred during our audit period of July 1, 2016 through June 30, 2021 to assess whether the RTA and local jurisdictions spent RTA funds on projects and activities allowable by statute and in accordance with the RTA Plan and its policies. Specifically, we found project expenditure invoices were supported by underlying documentation and

allowable per statute, policies, and the RTA Plan. Our review of the transaction detail from the construction account for a sample of 35 projects revealed that all payments were made in compliance with regulations. Specifically, our testing revealed the following.

- ✓ Payment requests were complete and signed by a local representative per RTA policy;
- ✓ Reimbursement requests were reviewed and accurate;
- ✓ Project expenses were paid out of the designated construction account;
- ✓ Costs were allowable and supported per A.R.S. §48-5308(C); and
- ✓ Reimbursement requests were based upon executed intergovernmental agreements as required by RTA Board policy.

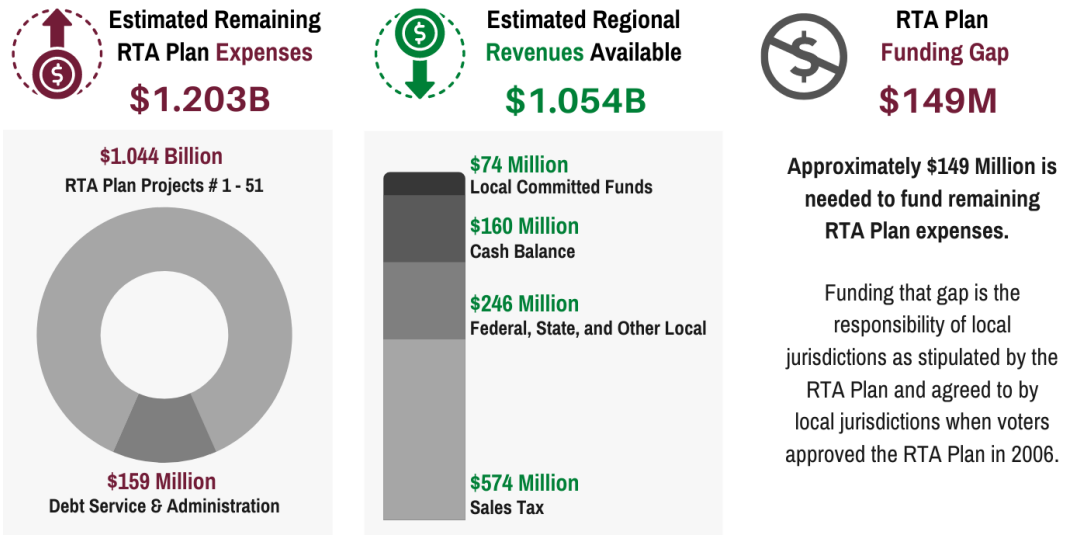
Additionally, we reviewed all bond account transactions incurred during our audit period of July 1, 2016 through June 30, 2021 and found bond account monies were appropriately used to pay bond holders in accordance with A.R.S. §48-5308(A). Specifically, our review of bank statements and the general ledger detail for both the bond principal and bond interest accounts did not reveal any payments other than those required to satisfy bond holders from the three bond issuances—Series 2011, Series 2014, and Series 2017 bond.

PAG Expects Sales Tax and Other Regional Dollars to be Available to Fund Remaining Projects, but Local Funding Gap Exists

As of December 2021, the estimated cost to complete the RTA Plan was $1.203 billion. While current projections show $1.054 billion of sales tax revenues and other regional funds are available to cover costs, there is still a $149 million shortfall as shown in Exhibit 11. PAG and its RTA Plan partners were aware of this funding gap and have been deliberating on options to bridge the gap as discussed later in this chapter.

According to the latest revenue projections prepared for the RTA by the University of Arizona Eller College of Management, remaining sales tax collections for Pima County are expected to generate approximately $574 million through the time the RTA Plan sunsets in 2026. Combined with other regional dollars estimated at $246 million and an available RTA 2021 fiscal year end cash balance of $160 million, there will be approximately $980 million in total sales tax and regional funds available to pay for remaining RTA Plan projects, administrative costs, and debt service. Additionally, there is approximately $74 million in local funds identified and committed in the region's short-term transportation plan for covering project needs.

EXHIBIT 11. LOCAL FUNDING GAP TO IMPLEMENT REMAINING RTA PLAN IMPROVEMENTS, AS OF DECEMBER 2021



Source: PAG Fiscal Year 2022-2026 Transportation Improvement Program, May 2021; RTA Internal Cash Flow Projections, October 2021; University of Arizona, Eller College of Management, Revenue Forecasting Model for Pima County RTA Update, September 2021; RTA Single Audit Report fiscal year 2021 issued December 2021.

Note: Estimated remaining RTA Plan expenses in 2019 dollars for projects and 2021 dollars for debt service and administration. Estimated regional revenues in 2021 dollars. Local funding gap amount in 2021 dollars. Also, see Appendix B for detail on specific amounts by project.

Debt and Cash Management Practices Aligned with Leading Practice

RTA practices for cash flow monitoring and bond debt management aligned with leading practices and remained similar since the prior RTA Plan performance audit conducted by Sjoberg Evashenk Consulting Inc. on behalf of the Arizona Office of the Auditor General in 2016.[23,24] RTA management perform monthly cash flow analyses to ensure projected funding aligns with project expenditure needs. These analyses are regularly shared at public RTA committee meetings with questions from committee members discussed and feedback incorporated into cash flow analyses before being approved by the RTA's Board of Directors.

Like other major capital improvement programs in the public sector, the RTA Plan anticipated the issuance of several revenue bonds over its 20-year life to finance project expenses and repay debt with sales tax revenues. Since 2006, the RTA has issued three bonds—$150 million each in fiscal year 2011 and fiscal year 2014, and nearly $69 million in fiscal year 2017. As of June 2021, the fiscal year 2011 bond has been paid off and debt service payments on the fiscal years 2014 and 2017 bonds totaling $148.7 million—or nearly $29.7 million annually—will end by the RTA Plan sunset in June 2026.

As of June 30, 2021, RTA's debt coverage service ratio was 3.35 meaning for every $1 in debt, there was a corresponding $3.35 available to repay the debt. This debt-coverage is significantly more than the RTA Board-established ratio of at least 2.0 and within range of other transportation planning entities we have

[23] Leading practice considered included but was not limited to guidance by the Government Finance Officers Association and Sjoberg Evashenk Consulting's transportation resources library.
[24] See report titled Pima Association of Governments—Regional Transportation Authority Plan Performance Audit issued in April 2017 available at the Arizona Auditor General website at https://www.azauditor.gov/sites/default/files/ 17-CR1_Report.pdf.

reviewed with ratios in the 1.99 to 6.5 range.[25] Thus, RTA's management of sales tax revenues is sufficiently sound to allow for RTA to fulfill debt repayment requirements as well as cover the RTA share of RTA plan project expenses through the end of the program.

Local Jurisdictions are Generally Responsible for Funding Gaps, and Deliberations were Underway to Bridge the Gap

While projections show that sales-tax revenue will be sufficient to meet RTA's funding commitment for the remaining projects in the RTA Plan, additional local funds are needed to bridge the gap between revised budgets and available local funding. According to RTA Plan Policies, Objectives, and Procedures agreed to by local jurisdictions, any costs over initial approved budgets set in intergovernmental agreements between RTA and the local jurisdictions are the responsibility of the local jurisdictions. Specifically, costs resulting from "scope additions and/or construction cost increases" are to be borne by the local jurisdiction responsible for leading a particular RTA Plan project.

As mentioned earlier in this chapter, the funding gap has been attributed to general cost increases since 2006 particularly with spikes in construction costs over the last few years at unprecedented levels—not just in Tucson, but across the Western U.S.[26] Other increases resulted from unforeseen conditions such as railroad and right-of-way issues that are typical capital project budgetary issues. These conditions are not necessarily within the control of a public entity, but can significantly impact project costs.

While we estimate the funding gap to be $149 million as of December 18, 2021, PAG estimated a different funding gap ranging between $88 million and $131 million.[27] Some of the difference is attributed to PAG's assumption that certain remaining project costs are not eligible under the RTA Plan and would need to be removed from the total costs to complete projects in the $1.2 billion range. Regardless, the calculation of the funding gap is a point-in-time assessment based on continually fluctuating cost estimates, revenue assumptions, project scopes, and in-progress project funding requests waiting for approval. As such, the precise funding gap amount is expected to change and continue to evolve as the RTA Plan is completed.

Nonetheless, RTA has been in discussion with the local jurisdictions to address the required local contribution needed to fill the gap and deliver the outstanding RTA Plan projects. RTA indicated it is reviewing project cost estimates and scopes with local jurisdictions and considering options to increase the RTA portion beyond the ballot commitment through any available fund balances or additional state and federal funds expected for the region as well as to raise additional funds for the projects through a future sales tax extension. Other options discussed included reducing scope on remaining projects, or if necessary, delaying the start of projects or phases of certain projects until after the RTA Plan timeframe. However, RTA does not prefer these options because they would be contrary to the promises made to voters. We recommend that RTA continue working collaboratively with the local jurisdictions to address and resolve the current funding gap before the end of the RTA Plan on June 30, 2026.

[25] Other entities where we reviewed debt service ratios included the San Diego Association of Governments and the Orange County Transportation Authority.

[26] Rider Levett Bucknall (RLB), a construction estimation consultancy group, reported in its Q3 2021 North America Quarterly Construction Cost Report that the national construction cost index grew 20 percent from Q3 2017 (the beginning of our audit period) to Q3 2021.

[27] Estimated $88 to $131 million shortfall as first presented to the Technical Management Committee on October 20, 2021.

Moreover, in preparation for the long-range transportation plan update in 2020 as well as the final period of the RTA Plan, the RTA Technical Management Committee created a Project Review Task Force Subcommittee to review status of active and upcoming projects, decide which projects to prioritize, identify specific funding challenges, and determine how to address funding gaps.[28] While the Project Review Task Force Subcommittee was formed in 2017 and reported efforts through September 2019, it informally suspended work following the onset of the pandemic and just recently reconvened in February 2022.

Funding Gap Affects Approximately 11 Roadway Projects that May Not be Completed as Planned

As shown in Exhibit 12, the local funding gap applies to 11 specific RTA Plan Roadway projects, putting those projects at risk of not being completed. These 11 projects comprised approximately $359 million of the remaining $1.044 billion in project costs estimated to complete the RTA Plan promises. With a combination of sales-tax and regional funds available for those projects, the local jurisdiction funding gap is $149 million.

EXHIBIT 12. ROADWAY PROJECTS WITH COSTS TO COMPLETE

#	RTA Plan ID	Name	Total Cost to Complete	Funding Committed as of December 14, 2021	Local Funding Still Needed
1	**1**	Tangerine Rd: I-10 to La Cañada	$ 63.8M	$ 34.5M	$ 29.3M
2	**5**	Silverbell Rd: Ina to Grant	$ 96.9M	$ 47.3M	$ 49.6M
3	**8**	Sunset Rd.: Silverbell to River Rd	$ 34M	$ 18M	$ 16M
4	**13**	First Ave: Orange Grove to Ina	$ 11.2M	$ 7.3M	$ 3.9M
5	**14**	First Ave: River Rd to Grant	$ 138.2M	$ 74.2M	$ 64M
6	**18**	Grant Rd: Oracle to Swan	$ 117M	$ 61.4M	$ 55.6M
7	**19**	22nd Street: I-10 to Tucson/Barraza-Aviation	$ 130.2M	$ 70.5M	$ 59.7M
8	**25**	Valencia Rd: Kolb to Houghton	$ 37.3M	$ 25.6M	$ 11.7M
9	**30**	22nd St: Camino Seco to Houghton	$ 25.7M	$ 9.1M	$ 16.6M
10	**31**	Harrison Rd.: Golf Links to Irvington	$ 8.3M	$ 6.2M	$ 2.1M
11	**32**	Houghton Rd.: I-10 to Tanque Verde	$ 97.8M	$ 47.5M	$ 50.3M
Sub-Total 11 RTA Plan Projects **with** Funding Challenges			$760.4M	$401.6M	$358.8M
Sub-Total RTA Plan Projects **without** Funding Challenges			+ $283.6M	+$283.6M	-
Total			**$1.044B**	**$685.2M**	**$358.8M**
RTA Plan Administrative Expenses and Debt Service			+ $159M		
Total Remaining RTA Plan Expenses			**$1.203B**		
Sales Tax Revenues Available			- $574M		
Expected Cashflow (including regional funds) as of November 2021 (A)			- $246M		
Available RTA Fund Balance as of June 30, 2021			- $160M		
Local funds programmed in the region's short-term transportation plan fiscal year 2022-2026			- $74M		
Remaining Gap of non-RTA Contributions Needed			**$149M**		

Source: Fiscal Year 2022-2026 Transportation Improvement Plan, PAG analysis on 2019 Regional Mobility and Accessibility Plan Cost Estimates, and project team estimates. Note: (A) Regional funds can include local development impact fees, federal funds, or other local funds.

[28] The RTA Technical Management Committee is a technical and policy advisory committee that monitors technical performance of the voter-approved RTA plan and provides input to the RTA's Citizens Accountability for Regional Transportation Committee, which provides oversight on the current RTA plan This subcommittee, comprised of local jurisdiction transportation directors among others, is charged with conducting value analysis studies of RTA projects and working with RTA member jurisdictions to review next steps based on status of active and upcoming RTA projects or identify any related project construction or funding requirement challenges or best practices.

With early discussions being held about a possible ballot measure to continue the sales tax after the RTA Plan expires on June 30, 2026, PAG and RTA should consider and be prepared to apply these lessons learned to the next measure in anticipation of similar cost and funding challenges that may occur as are typical with most major capital construction programs. Consideration of comprehensive collection, tracking, and regular assessment of all funding available for projects—both from sales-tax revenue and other sources—could benefit RTA and the local jurisdictions to have a more complete understanding and early identification of any funding challenges.

Recommendations

To strengthen management of total RTA Plan project costs and funding available to mitigate potential funding gaps, RTA should:

1. On an annual or more frequent basis, require RTA member jurisdictions to submit complete capital project cost estimates and actual expenditure data from regional and local sources. RTA should monitor and summarize the revised cost estimates in addition to all available funding sources to pay for project costs to futher enhance RTA's gap analysis.

2. Continue working with local jurisdictions to secure needed non-RTA funding for RTA Plan projects before and after the end of the RTA Plan on June 30, 2026.

Chapter 3: Roadway Congestion and Mobility Generally Improved Since 2016, Although PAG and RTA's Performance Measurement Could be Further Developed

The Regional Transportation Authority Plan (RTA Plan) projects were intended to help increase mobility and reduce congestion through roadway projects and multimodal transit projects.[29] While RTA Plan projects are important to the successful operation of Pima County roadways, we could not directly correlate the impact of specific projects on system performance since Pima Association of Governments (PAG), like most transportation organizations, did not comprehensively capture actual mobility or congestion data on a project-by-project basis as performance is considered and measured over larger areas. Thus, we reviewed systemwide performance at the Pima County or Tucson Urban Area level depending on the availability of data. Moreover, mobility and congestion outcomes may be impacted by various factors beyond RTA Plan projects such as the economy, employment, gas prices, housing and development, driver behavior and preference, use of rideshare service, and in recent years—the COVID-19 pandemic.

Results generally indicated there was less delay and minimal growth in congestion for Pima County and improved mobility between calendar years 2016 and 2020—or the most recent year that data was available.[30] When comparing performance in Pima County against peer counties, it is important to note that Pima County has one of the highest ratios of roadway miles to freeway miles compared to other regions making comparisons to others with a more balanced mix of roadways and freeways more challenging. Yet, Pima County had faster travel times and less hours of delay when compared to peer regions reviewed.[31] In terms of pavement and bridge condition that can affect mobility depending on the smoothness of the roadway, pavement results varied—although bridge condition was reported in good condition.

Although the Regional Transportation Authority (RTA) and its local jurisdictional partners have some influence over performance with how they design and construct a project, incorporate multimodal strategies to educate and inform travelers, or operate a transit alternative, there are many external factors outside their control that affect mobility and congestion such as driver behavior, economic events reducing revenues, and changing technology. Moreover, while it can be costly to implement a comprehensive performance measurement framework with actual data that must be analyzed and studied, PAG and RTA should consider options for obtaining actual and not modeled performance data, including exploring partnerships with other regional or state partners, to enhance its accountability to the RTA Plan and better measure performance.

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[29] Mobility and congestion can be measured in a multitude of ways based on different geographical areas, time of day, and other factors--thus, there is no one single measure used to assess performance. Performance fluctuates depending on the period assessed and definitive causes of outcomes can be difficult to determine, time-consuming to quantify, and require extensive analysis.

[30] Where data was available for calendar year 2020, we included it in our performance analysis.

[31] Peer entities reviewed throughout the audit include the following counties: Kern County, CA, Fresno County, CA, Denver, CO, El Paso County, TX, Bernalillo County, NM, El Paso County, CO, and the following cities: Albuquerque, NM, Bakersfield, CA, Colorado Springs, CO, Salt Lake City, UT, El Paso, TX-NM, Fresno, CA. For each reviewed performance measure, data from every peer county or city was not available. As such, auditors made comparisons against available comparable data which resulted in slightly varying numbers of comparisons between four to seven peer entities for individual metrics used.

Roadway Congestion and Mobility Experienced Mixed Results

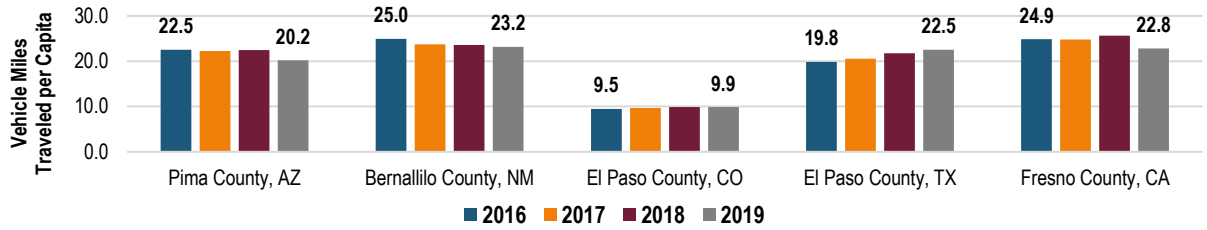
Mobility and congestion can be measured in a multitude of ways across different geographical areas, time of day, and other factors. For audit purposes, we reviewed vehicle miles traveled, delay, travel time, and travel time to work at the systemwide level because no data was available for the specific area comprised by the roadways where RTA Plan projects were funded. Some data was available for the entire Pima County region, while other data was only available for the Tucson Urban Area—both areas that included RTA Plan projects, but also captured freeway activity that was not funded by the RTA Plan.[32] Overall, there was generally less delay and minimal growth in congested roads in addition to improved mobility.

Fewer Vehicle Miles Traveled in Pima County Suggests Reduced Congestion that Generally Aligned with Others Reviewed

Vehicle miles traveled is a measure of the volume of traffic on the roadways. Generally, the fewer number of vehicles on the road, the less congestion a traveler would experience. Using ADOT data, the rate of daily vehicle miles traveled per capita (100,000 in population) for Pima County decreased 10 percent from 22.5 daily vehicle miles traveled in calendar year 2016 to 20.2 daily vehicle miles traveled in calendar year 2019—suggesting reduced levels of congestion with less vehicles on the road as shown in Exhibit 13.[33] While congestion can still exist at any level of vehicle miles traveled, the decrease in the rate over time can be an indicator that congestion has improved. This decrease in Pima County aligned with one of PAG's long term goals to reduce the number of vehicle miles traveled by 10 percent by 2045.[34]

When we compared Pima County performance to four other benchmark counties with available data, only two of the four peer counties showed decreased daily vehicle miles traveled—although not as large a decrease as Pima County. While we had data through calendar year 2020 for Pima County and El Paso County, Texas, we only had data through calendar year 2019 for the others reviewed—making comparisons more challenging.

EXHIBIT 13. PIMA COUNTY DAILY VEHICLE MILES TRAVELED PER CAPITA COMPARED WITH OTHER COUNTIES, CALENDAR YEARS 2016 TO 2019



Source: Pima County results calculated from ADOT vehicle miles traveled data provided by PAG. Other county data was gathered as follows. California Counties–Caltrans Highway Performance Monitoring System Data; Bernalillo County–University of New Mexico Annual Crash Reports; El Paso County (TX)–Department of Transportation DVMT Roadway Tables; Salt Lake County–Utah Department of Transportation VMT History Dashboard; Colorado Counties–Colorado Department of Transportation VMT data; US Census population data for each noted county. Calendar year 2020 data was only available for Pima County and El Paso County.

[32] U.S. Census urbanized areas are areas consisting of a central core and adjacent densely settled territory with 50,000 residents or more.

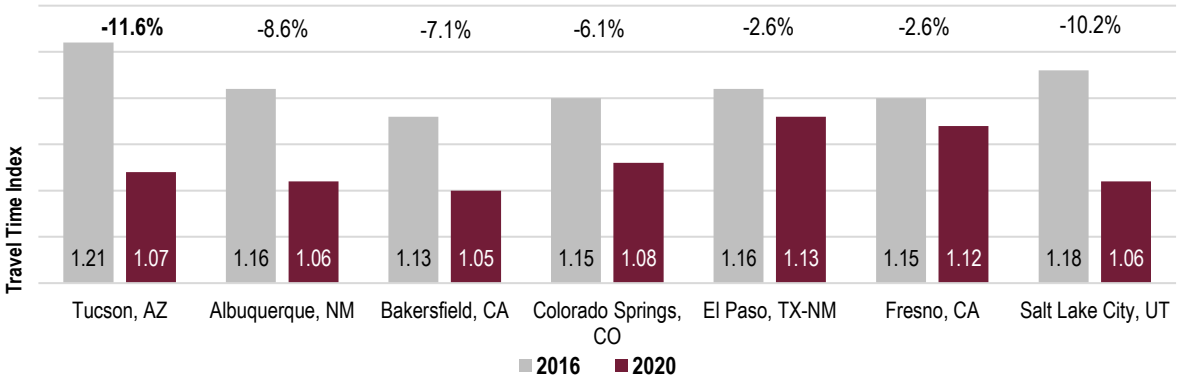
[33] Using PAG-described methodology, we calculated daily vehicles miles of travel per capita using data from ADOT, comparable entities' databases, and U.S. census population data.

[34] While PAG reported daily vehicle miles traveled per capita in its long-range transportation plan in 2020, it used data from different periods using 2014 through 2019 data which was modeled. The percent change reported showed a 1 percent increase which differs from our results.

Travel Time Index Indicated Less Congestion for the Tucson Urban Area Like Other Areas Reviewed

In terms of mobility, a travel time index is the ratio of peak-period travel time as compared to the free-flow travel time.[35] Performance data was only available at the Tucson Urban Area level—a geographical area that would encompass most of the RTA Plan projects, but would also capture freeway activity that was not funded by the RTA Plan. Based on the Texas A&M Transportation Institute's 2021 Urban Mobility Report, the Tucson Urban Area's travel time index showed the largest decreases at nearly 12 percent when compared to other benchmarked urban areas—from a 1.21 travel time index in 2016 to a 1.07 travel time index by 2020 as shown in Exhibit 14.[36] Tucson Urban Area's index of 1.21 means that a 30-minute trip during free flow conditions would have taken 36.3 minutes during peak congested conditions in 2016, while its index of 1.07 in 2020 indicates that the same 30-minute trip in free-flow conditions would have taken 32.1 minutes in peak traffic—thus, travel time was 4.2 minutes less by 2020. [37] While other urban areas showed decreases in their travel time indexes ranging from 2.6 percent to 10 percent, the Tucson Urban Area showed the most improvement.[38]

EXHIBIT 14. TUCSON URBAN AREA TRAVEL TIME INDEX AND RATE OF DECREASE COMPARED TO OTHER URBAN AREAS, CALENDAR YEARS 2016 AND 2020



Source: Texas A&M Transportation Institute, 2021 Urban Mobility Report. Calendar year 2021 data was not available.

[35] Travel time is typically measured using an "index" that calculates a ratio of how long a trip takes in a peak period compared to free-flow conditions—free-flow measures actual speeds driven during non-peak periods that could be faster than the posted speed limit or slower than the posted speed limit if there was congestion due to an accident, construction, or weather. Basically, the index considers and measures unexpected delay looking at how much longer, on average, travel takes during periods of congestion versus when there is only light traffic. This measure is computed for the morning commute peak period (6 a.m. to 9 a.m.) and the afternoon commute peak period (4 p.m. to 7 p.m.) on weekdays. For example, a travel time index of 1.25 means that for a 16-minute trip taken during free flow conditions, the same trip takes 20 minutes during the peak-period.

[36] Travel time index data is usually obtained from the Urban Congestion Report from the US Department of Transportation Federal Highway Administration that provides a snapshot of year-to-year trends. Because this data was not available for Tucson and comparable sized areas because the Urban Congestion Report only reports on larger metropolitical statistical areas, we used available external data from the Texas A&M University Transportation Institute's 2021 Urban Mobility Report. While there is some industry disagreement on methodologies used in the Urban Mobility Report, this data provides some indication of congestion performance across different regional areas. Additionally, the US Department of Transportation's Bureau of Transportation Statistics references and uses some Urban Mobility Report data on its website at https://www.bts.gov/content/travel-time-index.

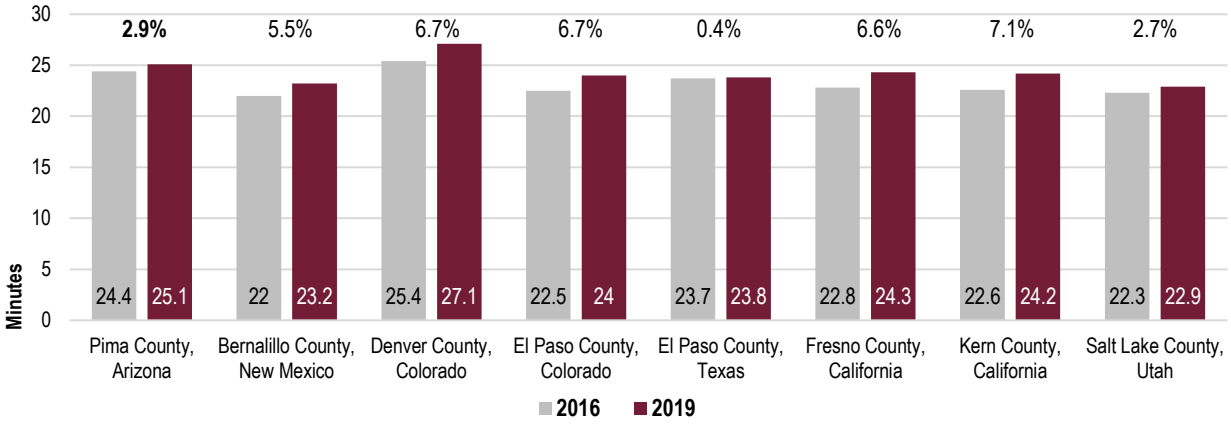
[37] The 2021 Texas A&M Urban Mobility Report noted that the effects of the COVID-19 pandemic on urban transportation systems is not yet clear and while delay was less in 2020, it is too soon to draw conclusions based on pandemic travel patterns.

[38] PAG used modeled data to predict the Travel Time Index, not actual travel performance data. PAG's Travel Time Index results differed from the Texas A&M data. Specifically, PAG's modeled data showed that from fiscal years 2016 to 2020 morning commute peak, Travel Time Index increased 0.63 percent. For the evening commute peak, Travel Time Index increased marginally 1 percent over the same time.

While Travel Time to Work Increased in Pima County, it Performed Better Than Other Counties Reviewed

Another metric of mobility uses the mean total minutes of travel time to work which measures the total number of minutes typically required to commute from home to work each day during the week divided by the number of workers (16 years old and over) who did not work at home.[39] Using federal American Community Survey Census data, the mean travel time to work in Pima County slightly increased by 2.9 percent from 24.4 minutes in calendar year 2016 to 25.1 minutes by calendar year 2019 as shown in Exhibit 15—the most recent year data was available. This increase generally aligned with travel time increases experienced by the seven other benchmark counties we reviewed. While El Paso, Texas only increased by a negligible 0.4 percent, most entities increased more than 5 percent. While Pima County's rate of increase was lower than five of seven peer counties, its travel time to work index of 25.1 in calendar 2019 was higher than all counties except for Denver County, Colorado.

EXHIBIT 15. PIMA COUNTY TRAVEL TIME TO WORK AND RATE OF INCREASE IN MINUTES COMPARED TO OTHER COUNTIES, CALENDAR YEARS 2016 AND 2019



Source: American Community Survey Census, Travel Time to Work Data. Calendar years 2020 and 2021 data was not available.

Hours of Delay in the Tucson Urban Area Improved and was Lower than Other Areas Reviewed

Congested roadways causing delays can be influenced by many factors including weather, traffic incidents, construction, or physical roadway design or capacity. For the Tucson Urban Area, we assessed congestion in terms of annual person hours of delay per commuter based on the Texas A&M Transportation Institute's 2021 Urban Mobility Report.[40] Generally, we found that the Tucson Urban Area's hours of delay decreased from calendar year 2019 to calendar year 2020, and the Tucson Urban Area's decrease was more significant than comparable urban areas reviewed.[41] While RTA Plan improvements focused on roadways and not freeways, the available congestion performance data for the Tucson Urban Area included hours of

[39] Metric captures travel time across all transportation options including single vehicle, carpool, or public transit except for taxi transit options.

[40] The Tucson Urban Area map is similar in boundaries to the U.S. Census Urbanized Area. When compared to the RTA Plan project limits, the Tucson Urban Area is substantially consistent—although not exact.

[41] Data from calendar years 2016 to 2018 was available, but the Texas A&M Transportation Institute noted that its methodology in computing its Urban Mobility report measures has changed year to year and cautioned that results from individual reports should not be used to calculate trends. Thus, we could not compare Tucson Urban Areas results to others across those years. In the 2021 Texas A&M Transportation Institute report presented hours of delay data for both 2019 and 2020 using the same methodology allowing for a comparison across those years.

delay for both freeways and streets. Nonetheless, this combined data provides some indicator of the area's performance since congested freeways can spill onto surface roadways when drivers look for alternate unclogged routes.

Specifically, in terms of delay experienced by commuters during morning commute and evening commute peak travel times, the Tucson Urban Area was ranked in the top 10 worst medium-sized urban areas for most annual hours of delay per auto commuter in calendar year 2019 with 50 hours per commuter annually. That result improved in calendar year 2020 and fell to the bottom third of 33 medium-sized urban areas with 21 annual hours of delay per auto commuter.[42] When we compared the Tucson Urban Area to six benchmark urban areas we reviewed, the Tucson Urban Area had lower levels of delay at 21 hours per commuter by calendar year 2020 than most of the peers except for Bakersfield, California as shown in Exhibit 16.

EXHIBIT 16. TUCSON URBAN AREA ANNUAL HOURS OF DELAY PER AUTO COMMUTER COMPARED TO OTHER URBAN AREAS, CALENDAR YEARS 2019 AND 2020

	Yearly Delay per Auto Commuter (In Hours)	
Urban Area	**2019**	**2020 (A)**
Albuquerque, Bernalillo County, NM	47	22
Bakersfield, Kern County, CA	26	11
Colorado Springs, El Paso County, CO	48	29
El Paso, TX	45	32
Fresno, Fresno County, CA	40	29
Salt Lake City, UT	46	26
Tucson, Pima County, AZ	**50**	**21**

Source: The Texas A&M Transportation Institute's 2021 Urban Mobility Report.

Note: (A) The 2021 Texas A&M Urban Mobility Report noted that the effects of the COVID-19 pandemic on urban transportation systems is not yet clear and, while delay was less in 2020, it is too soon to draw conclusions based on pandemic travel patterns.

Roadway Pavement Condition Showed Mixed Results, but Bridge Condition Improved

Pavement condition can be another indicator that can impact system performance as rutted roadways or pavement potholes can negatively affect driving conditions including the quality of the ride, ability for smooth flow and steady speed of driving, and safety on those roadways. Similarly, the health of bridge conditions is also important to regional safety and mobility allowing travelers to cross safely over bridges without incident. In general, we found pavement condition varied across local jurisdictions, but bridges seem to be in good state.

While there were no specific RTA elements solely dedicated to pavement improvement, the 35 RTA Plan Roadway projects involved some repaving of roads as part of planned scope such as when widening an intersection or adding bikes lanes. Additionally, bridge repair and new bridge construction was funded by the RTA Plan as part of scopes in certain RTA Plan Roadway projects and part of the RTA Plan Safety Element under Project 39 to improve bridge deficiencies.

[42] The 2021 Urban Mobility Report defines delay during commute peak travel time as the delays that occur between 6 a.m. and 10 a.m. for the morning peak period and 3 p.m. to 7 p.m. in the evening.

Pavement Condition Varied Across the Region

Pavement condition is measured and monitored locally by each of the jurisdictions using either an overall condition index or pavement condition index that is widely-accepted in industry.[43] With each index ranking pavement from very poor to excellent, we found results ranged from poor condition to good condition depending on the local jurisdiction.

While we requested pavement condition data from the eight local jurisdictions, we only received data from half of the entities—the City of Tucson, Pima County, and the Towns of Marana and Sahuarita. These areas were generally the more populated jurisdictions and comprised the majority of local roadways in Pima County; thus, the results provide some indication of roadway condition for the region. Responses from the City of Tucson indicated an average pavement condition in the poor range on its roads. Similarly, Pima County reported pavement condition in the fair range, on average, for the roadways it manages in the unincorporated areas. Conversely, both the Towns of Marana and Sahuarita reported an average pavement condition across its network in the very good category.

To address variances in local roadways and continue to improve pavement condition in 2021, PAG reconvened a Regional Pavement Management Task Force that was initially established in 2013. The task force was designed to facilitate PAG support for the local pavement needs including managing, maintaining, and improving pavement in the local jurisdictional areas. As part of its 2021 meeting, the City of Tucson took the lead and is planning on working with other jurisdictions to lend its pavement van so that pavement can be better assessed across the entire region. Although the task force is separate from RTA Plan efforts, RTA Plan Roadway projects could benefit from the coordinated activities.

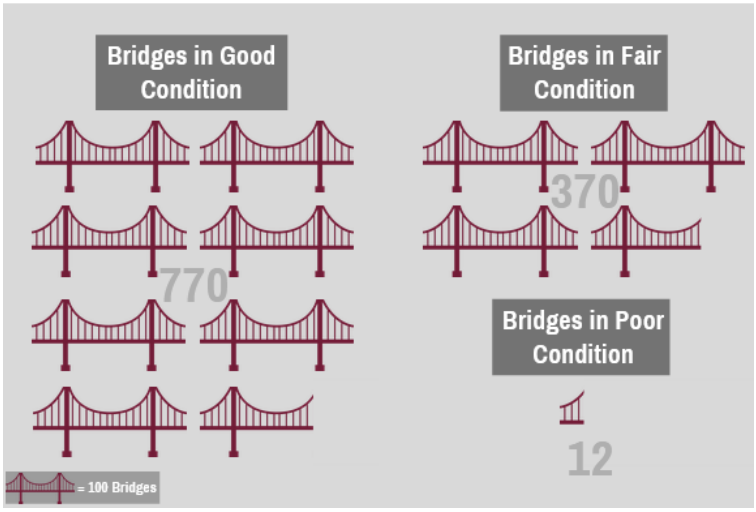
Bridge Condition Has Greatly Improved Between Calendar Years 2017 and 2021

Like pavement condition, the health and condition of bridges is generally tracked by both local jurisdictions or ADOT, depending on bridge size, and reported to the Federal Highway Administration as part of its National Bridge Inventory. As of June 30, 2021, there were 1,152 bridges in Pima County.

Of the 35 RTA Plan Roadway projects, ten projects specifically mentioned bridge additions or improvements in their original scope with at least seven of the ten projects having some work completed as of June 30, 2021. For example, RTA Plan Project 2 (Camino de Mañana: Tangerine Road to Linda Vista Boulevard) completed in 2020 and RTA Plan Project 26 (Kolb Road Connection with Sabino Canyon Road) completed in 2017 both included new bridges that impact the overall bridge condition. As shown in Exhibit 17, we found that only 12 bridges in Pima County, or slightly more than one percent, were in poor condition—a 71 percent improvement from calendar year 2017 where more than 3.5 percent of bridges were in poor condition. While the data reviewed did not identify the 12 specific bridges in poor condition, RTA Plan Project 39 allocated money for bridge deficiencies that may address the condition of these bridges. Moreover, approximately 67 percent of bridges across Pima County were in good condition as of June 30, 2021—up from a reported 61 percent in good condition in 2017.

[43] Pavement condition index and overall condition index are both numerical ratings for pavement condition based on the type and severity of distresses observed on the pavement surface, but the overall condition index is using an average of several measures, including the depth of rutting, smoothness of the surface, and cracking of the roadway surface.

EXHIBIT 17. PERCENT OF BRIDGES IN PIMA COUNTY IN POOR CONDITION, AS OF JUNE 30, 2021



Source: Federal Highway Administration National Bridge Inventory database.
Notes: Good, fair, and poor ratings based on various bridge condition factors using the lowest scoring element. Good Condition = lowest rating is greater than or equal to seven; Fair Condition = lowest rating is five or six; Poor Condition = lowest rating is less than or equal to four.

Multimodal Choices and Strategies Address Mobility and Congestion

Transportation planning agencies like PAG often use a variety of approaches to address mobility issues and mitigate congestion as there is no one solution or correct combination of strategies for addressing a region's transportation needs. Some involve capacity building approaches across multiple travel modes such as widening roadways, adding bicycle lanes, or implementing a streetcar system. According to PAG, it strives to provide multimodal choices and deliver seamless travel across all modes including vehicles, transit, bicycles, scooters through both traditional and alternate methods. In fact, the RTA Plan included a variety of projects to help enable multimodal mobility where people from different transportation modes—such as roadway vehicles, bicycles, and on foot—connected with bus transit or streetcar service. Further, all RTA Plan Roadway element projects have some elements of multimodal features such as sidewalks for pedestrians and bike lanes for bicyclists in addition to general multi-purpose lanes.

Other multimodal tools focus on managing mobility and congestion within an existing roadway configuration using technology—known as intelligent transportation systems—and multimodal coordination to manage traveler behavior. This technology can encompass roadway conduit, sensors, cameras, signals, controls, electronics, and telecommunication devices to collect and report traffic data. Techniques known as active traffic management bring together the technology tools with management of the technology to make real-time decisions on the roadways. While RTA did not deploy active traffic management techniques to allow real-time monitoring and responses, RTA Plan Project 40 set aside specific funds for activities such as signal technology upgrades to coordinate traffic signals across jurisdictions, updates of transportation communication networks to support incident response, and new electronic tools to compile and provide real-time trip information for travelers.

According to PAG and RTA, the local jurisdictions are responsible for managing the network and implementing multimodal activities with PAG and RTA's role being more of a coordinator and facilitator for the jurisdictions. Local efforts to date involved installing cameras to monitor traffic and respond to roadway incidents, intelligent transportation system planning, and studying dynamic message signs with real-time traveler information and real-time response to lane merging conditions—activities that could be paid in part with RTA funds. Combined with other roadway capital construction projects and transit operations like those funded by the RTA Plan, these technology-based and multimodal efforts assist with mobility and congestion goals.

PAG Improved its Performance Measurement System, but Further Development is Needed to Assess Regional Outcomes

Since the prior 2016 RTA Plan Performance Audit when a very limited performance evaluation system was in place, PAG strengthened its performance framework and approach for measuring performance outcomes and showing progress towards improved mobility and less congestion. Improvements included setting performance goals, establishing targets, and capturing performance related to regional mobility, congestion management, and travel time reliability.

Specifically, in May 2016, PAG established mobility and congestion performance goals and targets for the first time as part of the its most recent regional transportation plan that includes the remaining RTA Plan projects.[44] Each metric has a baseline measurement, current 2020 target, ultimate 2045 target, and description of desired trends. These baselines and measurements were developed using sophisticated computer modeling tools using current travel behavior to predict future travel patterns and demand through various inputs including traffic analysis on roadways economic data, population, and census data.

While computer modeled data is an important tool for transportation planning to predict future travel demand, it only represents estimated results and not actual performance outcomes for mobility and congestion. PAG practices mostly relied on computer-modeled data to measure performance outcomes, rather than capturing and using actual travel data. Part of its modeled travel analysis used actual speed, travel time, and traffic volume from federal sources to generate its modeled outputs, but data was limited to those highways and roadways classified as part of the national highway system.[45] Because actual travel data is necessary to capture true performance, additional efforts are needed to ensure that PAG can capture and report on actual congestion and mobility outcomes resulting from its transportation planning and local jurisdictional efforts, where possible.

However, we recognize that actual performance data and analysis can be labor intensive, time-consuming, and costly requiring sources such as detection technology in roadways or other wireless solutions to measure speed and delay. Alternately, actual travel data is available for purchase from private companies that use global positioning systems or other wireless methods to track and report on congestion or travel

[44] PAG's long-range regional transportation plan is called the 2045 Regional Mobility and Accessibility Plan.

[45] Performance data is required for federally funded freeways and roadways on the national highway system by the Moving Ahead for Progress in the 21st Century (MAP-21) Act of 2012 as continued under the Fixing America's Surface Transportation (FAST) Act of 2015. For this required federal reporting, PAG used actual data from the federal National Performance Management Research Data Set to calculate performance for a subset of roads in Pima County.

times that could possibly be leveraged to assist PAG and RTA with data.[46] Nonetheless, there can be a high cost to this private sector data and having staff resources to validate and integrate such data sources into existing tools to track and report on performance metrics. Private sector data can also have its own challenges with inaccurate data.[47]

At this point, PAG is comfortable using its modeled data to understand performance for its roadways—many of which comprise the RTA Plan project area—as they note using modeled data for performance planning is not uncommon in the transportation industry. Thus, PAG does not currently have any formal plans to obtain and use actual data to report on past performance. Yet, without actual data, PAG's reporting against targets does not represent real outcomes and makes it challenging to accurately assess whether it meets goals to reduce congestion and improve mobility.

Recognizing the potential cost of implementing a performance measurement system using actual data, PAG and RTA could study and quantify the cost-benefit of obtaining actual data including associated personnel costs for data analysis and pursue other avenues such as collaborating with or contracting with other partners to collect actual performance data. If PAG and RTA decide to continue with modeled data, they should disclose data limitations and caveats on actual versus modeled data when reporting on its performance results.

Recommendations

To continue improving its performance measurement framework and provide additional accountability, PAG and RTA should consider the following:

3. Formally study and quantify the cost-benefit of obtaining raw performance data including the cost of dedicating resources for data refinement, validation, analysis, and reporting.

4. Consider avenues for obtaining actual data such as partnering with other regional or state partners to acquire and prioritize certain key data for performance assessment, in addition to develop a plan with timelines to pursue these avenues so that performance can better be assessed.

5. If modeled data continues to be used for performance measurement, provide sampling and validation of the model output to ensure accuracy of the modeled data. Alternately, provide supplemental or contextual information to the PAG Regional Council and RTA Board of Directors regarding data limitations and caveats on actual versus modeled data.

[46] Private sector data sources can be based on global positioning system data or crowd-sourcing, and have enabled other agencies to analyze travel time reliability and congestion. Numerous companies have such data, including but not limited to, companies such as INRIX, Waze, TomTom, and Google.

[47] According to PAG, its data scientists found some inaccuracies and miscounting of bike performance data when it purchased third-party external performance data.

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Chapter 4: Roadway Crashes have Fallen, and RTA and its Partners have Strategies to Address Increased Fatality Trends

An efficient transportation system balances mobility with safety to ensure the free-flow of traffic without incident. The Regional Transportation Authority Plan (RTA Plan) funded a variety of regional transportation projects and services that both directly and indirectly focused on or considered safety implications during design, construction, and implementation of capital projects. For instance, the RTA Plan Safety Elements 36 through 40 focused on safety in the region, including signal upgrades, intersection and capacity improvements, and funds related to the elderly and pedestrians. While these improvements are important to safety on Pima County roadways, we cannot directly correlate the impact of specific projects on safety outcomes because data is captured for a larger segment of roadway and not on a project-by-project basis. Thus, we generally assessed performance systemwide at the county level—although we were able to evaluate some results for a sample of RTA Plan project segments.

There are, however, limitations to the impact transportation agencies can have on influencing safety performance outcomes such as crashes and fatalities due to external factors impacting safety such as driver behavior. As previously discussed in Chapter 3 of this report, while changed travel patterns during the COVID-19 pandemic may have impacted the number of and severity of roadway incidents, there was insufficient data available at the time of the audit to correlate pandemic impacts to safety performance outcomes.[48] Considering these limitations and external factors, the Arizona Department of Transportation (ADOT) and Pima Association of Governments (PAG) studies found that many roadway crashes were related to driver behavior with approximately 44 percent of fatal crashes indicating impaired driving and 31 percent of fatal crashes lacking safety restraints as factors. For Pima County, we found that the total number of roadway crashes declined between calendar years 2016 and 2020 for the project segments reviewed as well as systemwide, although the number of fatalities has increased. Likewise, bicyclists and pedestrians involved with crashes also experienced higher rates of fatalities based on population.

To address safety, the Pima Association of Governments (PAG) developed a Strategic Transportation Safety Plan in 2016 to study and reduce crashes among all transportation modes and facilities in the region.[49] Together with the City of Tucson, the Arizona Department of Transportation (ADOT), and other local jurisdictions, PAG and the Regional Transportation Authority (RTA) developed and implemented several strategies focused on safety with many efforts still currently in-progress.[50]

Safety Improved on Road Segments where RTA Plan Projects Reviewed were Done

To consider safety and whether there were any discernable impacts from completed RTA Plan projects, we selected four roadway segments completed and compared the percent change in crashes between 2008

[48] Audit fieldwork concluded in November 2021 and no further audit research and analysis on authoritative COVID-19 impact data was conducted after that time.

[49] According to the Federal Highway Administration, strategic transportation safety plans are documents that communicate narratives of transportation safety in jurisdictions and how the jurisdictions will address safety needs. These plans include activities and projects to address safety through the "Four Es"—Engineering, Education, Enforcement, and Emergency Medical Services.

[50] Crash factors were reported in the PAG's 2016 Strategic Transportation Safety Plan and were not necessarily mutually exclusive.

and 2020. For all segments reviewed, safety on the stretches of roadway reported significant improvement with roadway crashes decreasing approximately 48 to nearly 70 percent between calendar year 2008 and calendar year 2020 as shown in Exhibit 18.

EXHIBIT 18. PERCENT CHANGE IN TOTAL ROADWAY CRASHES FOR FOUR RTA PLAN PROJECTS REVIEWED, CALENDAR YEARS 2008 THROUGH 2020

RTA Plan ID	Roadway Segment	% Change in Total Crashes from 2008 to 2020 (A)
1	Tangerine Road: Dove Mountain Road to La Cañada Drive	-69.81%
11	La Cañada Drive: Calle Concordia to River Road	-48.33%
24	Valencia Road: Alvernon Way to Kolb Road	-65.81%
26	Kolb Extension to Sabino Canyon	-60.61%

Source: PAG provided safety data.

Note: (A) While each project started and completed construction in a different year, we compared crash data before a project started to data several years after the improvement completed to reduce potential data outliers that stemmed from travelers adjusting to new roads and conditions immediately after a project opens to traffic.

As with all RTA roadway projects, safety was considered during the design and construction of these project segments. For example, RTA Plan Project 26 construction included not only updated roadways, but also multiple bicycle and pedestrian paths for added safety. Additionally, RTA Plan Project 11 improved safety access by eliminating sources for roadway flooding and minimizing risk of accidents from excess water on the roadway. Further, the project also improved driver sight distance.

Pima County Roadway Crashes Decreased Systemwide, But Fatalities are on the Rise

Safety performance in Pima County revealed mixed results with roadway crashes showing a decrease, yet fatalities showing an increase.

Roadway Crashes Declined Between Calendar Years 2016 and 2020

During the audit period, both the total number of roadway crashes and the rate of crashes per million vehicle miles traveled decreased. Specifically, in Pima County, the total number of roadway crashes has gradually decreased between 2016 and 2020—from 11,646 crashes in calendar year 2016 to 8,841 crashes in calendar year 2020—a 24 percent decrease.[51]

Similarly, the rate of crashes per million vehicle miles traveled declined 22 percent from 1.39 crashes per million vehicle miles traveled in calendar year 2016 to 1.09 crashes per million vehicle miles traveled in calendar year 2020.[52] This decrease in the crash rate was similar to four counties we reviewed that also experienced decreased total crashes per million vehicle miles traveled ranging from 6 percent to

[51] While there was a decrease in the total number of crashes, PAG noted that the total number of crashes may not accurately represented in the official numbers due to the City of Tucson's Police Department policy to respond to property-damage only accidents.

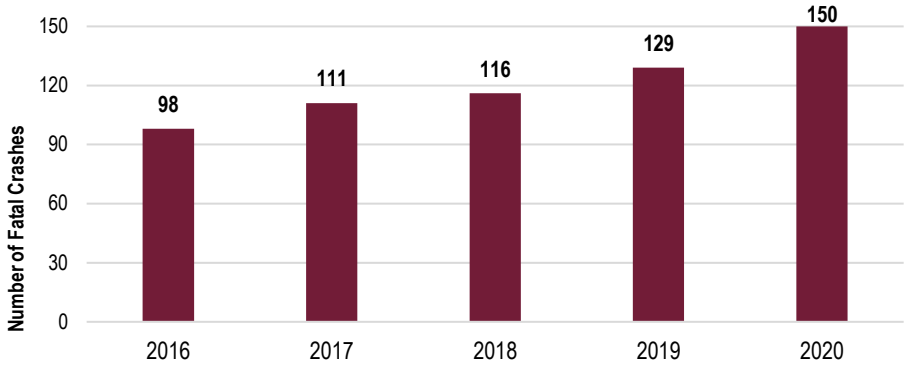
[52] Fatality rates consider vehicle miles of travel to normalize data for comparison over time and to other areas. According to the National Highway Traffic Safety Administration, the assumption is that higher levels of driving in an area increase the opportunities for collisions to occur and dividing the number of collisions or fatalities by vehicle miles of travel allows for comparisons across regions with varied amounts of vehicle miles of travel.

22 percent.[53] In contrast, three other counties we reviewed noted small increases in their rate of crashes ranging from four to ten percent.

Roadway Fatalities Increased Between Calendar Years 2016 and 2020

While the number of roadway crashes decreased, the number of roadway fatal crashes in Pima County increased by more than 53 percent rising from 98 fatalities in calendar year 2016 to 150 fatalities in calendar year 2020 as shown in Exhibit 19.

EXHIBIT 19. FATAL CRASHES IN PIMA COUNTY, CALENDAR YEARS 2016 THROUGH 2020



Source: ADOT "Crash Facts" Reports and ADOT VMT numbers provided by PAG.

Pima County's trend is inconsistent with nationwide trends that showed decreased fatalities through 2019 and only showing recent increases in 2020. According to the National Highway Transportation Safety Administration, the main causes of the national fatalities were impaired driving, speeding, and not wearing a seatbelt. These factors are similar to reasons for fatalities across the State of Arizona and cited as some key indicators for crashes in Pima County as well.[54]

Increased Systemwide Fatality Rates Generally Align with Comparable Counties Reviewed

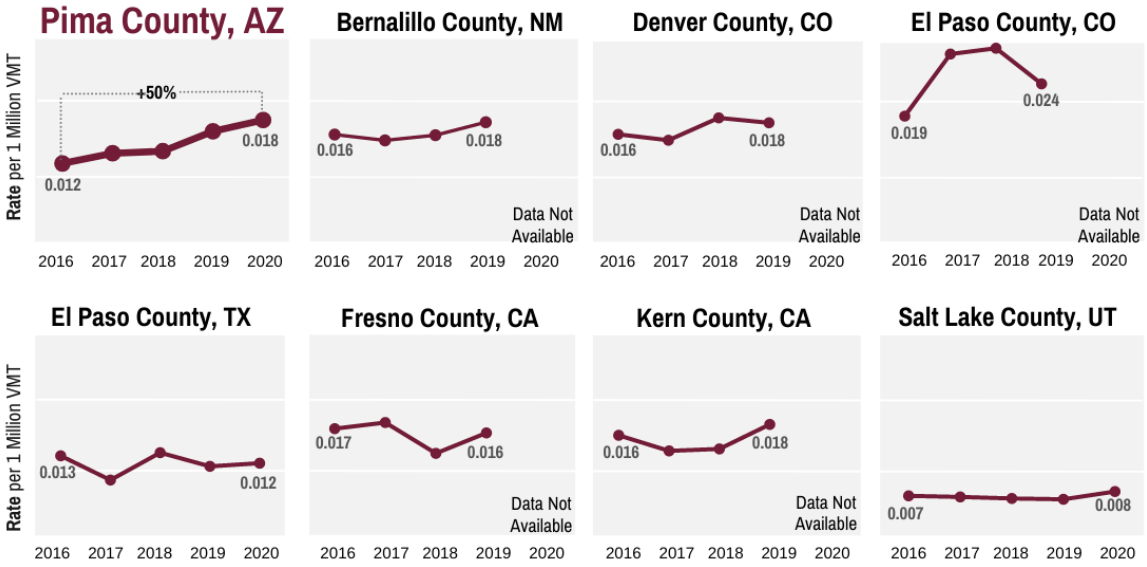
To benchmark Pima County's crash rates against others, we compared Pima County to seven counties in the Western United States. Initially, when comparing Pima County to peers in calendar year 2016, Pima County had the second lowest rate of roadway fatalities per one million vehicle miles traveled compared to peers as shown in Exhibit 20. However, by calendar year 2020 where data was available for two of the seven counties reviewed, Pima County's rate of roadway fatalities per one million vehicle miles traveled grew 50 percent and was higher than the two other counties.

[53] Seven peer counties included (1) Bernalillo County, New Mexico, (2) Denver County, Colorado, (3) El Paso County, Colorado, (4) El Paso County, Texas, (5) Fresno, California, (6) Kern County, California, and (7) Salt Lake County, Utah.

[54] Causal data is from ADOT's Strategic Traffic Safety Plan and PAG's Strategic Transportation Safety Plan 2016.

EXHIBIT 20. PIMA COUNTY FATALITY CRASH RATE PER ONE MILLION VMT COMPARED TO OTHER COUNTIES, CALENDAR YEARS 2016 THROUGH 2020

Fatalities have increased in Pima County between 2016 and 2020–unlike El Paso County, TX and Salt Lake County, UT where fatality rates remained flat over the same period. Other peer entities with data only available through 2019, generally experienced a similar upward trend in fatalities.



Source: ADOT's Accident Location Identification Surveillance System (ALISS) and ADOT VMT Numbers provided by PAG; California Counties – California Transportation Injury Mapping System and Caltrans Highway Performance Monitoring System Data; Bernalillo County – University of New Mexico Annual Crash Reports; El Paso County (TX)—Texas Department of Transportation Crash Report Online Purchase System, Texas Department of Transportation DVMT Roadway Tables; Salt Lake County – Utah Department of Public Safety, Utah Department of Transportation VMT History Dashboard; Colorado Counties – Colorado Department of Transportation Crash Reports and VMT data.

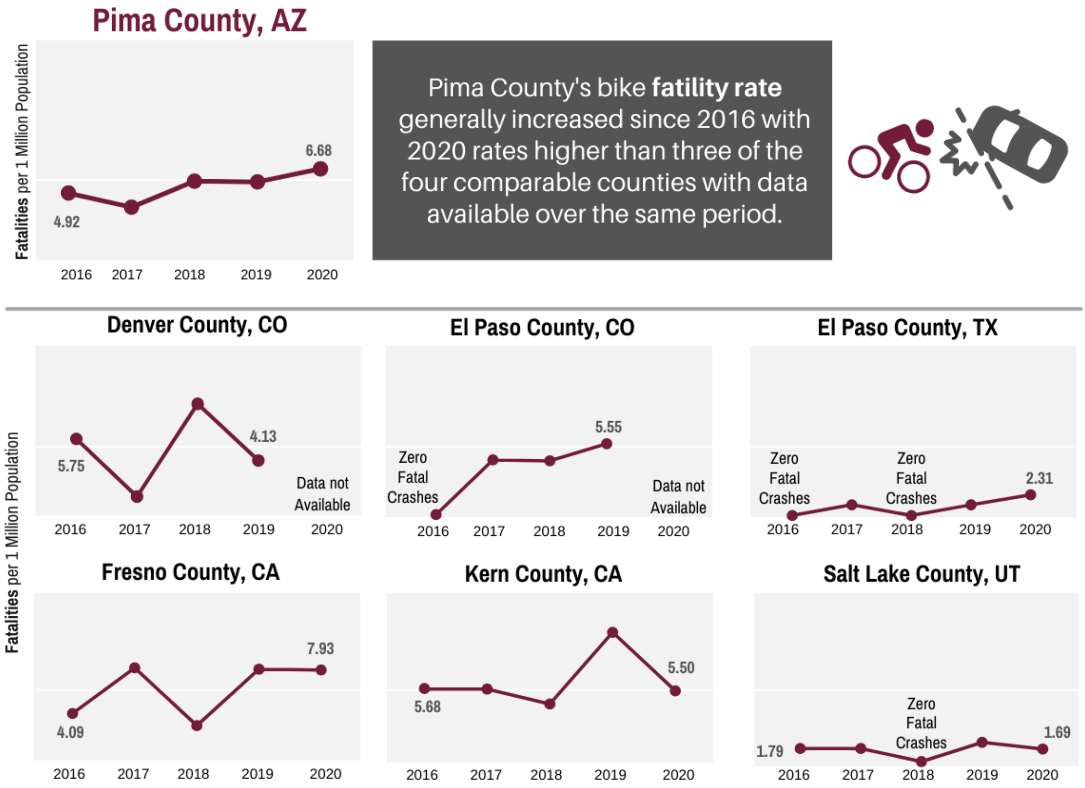
Note: Bernalillo County, New Mexico; El Paso County, Colorado; Fresno County, California; and Kern County, California only had either crash data, VMT data, or both only available through calendar year 2019.

Bicycle Crashes in Pima County Decreased, but Fatality Rate Increased and was Higher than Most Other Counties Reviewed

Between calendar years 2016 and 2020, bicycle crashes decreased in Pima County from 245 crashes in calendar year 2016 to 126 crashes by 2020—a decrease of 49 percent. However, bicycle fatalities from roadway vehicle collisions slightly increased during this same period from five bicyclist fatalities in calendar year 2016 to seven bicycle fatalities in 2020. These numbers correspond to a rate increase from 4.92 fatalities per one million population to 6.68 fatalities per one million population—a 36 percent increase as shown in Exhibit 21. When compared to six comparable counties, there were two other counties with data available over the same period—Fresno and Kern Counties in California—that generally experienced higher bicycle fatality rates than Pima County.[55]

[55] Fatality rates considered 100,000 population to normalize data for comparison over time and to other areas. We also compared the rates of fatalities per vehicle miles of travel as the National Highway Traffic Safety Administration's assumption is that higher levels of driving in an area increase the opportunities for collisions to occur and considering collisions or fatalities by vehicle miles of travel allows for comparisons across regions with varied amounts of vehicle miles of travel. These results aligned with rates using population and no different trends emerged.

EXHIBIT 21: PIMA COUNTY BIKE FATALITY RATE PER 1 MILLION POPULATION COMPARED TO OTHER COUNTIES REVIEWED, CALENDAR YEARS 2016 TO 2020



Source: ADOT's Accident Location Identification Surveillance System (ALISS) and Arizona Counties-ADOT Crash Reports, ADOT VMT Numbers provided by PAG; California Counties – California Transportation Injury Mapping System and Caltrans Highway Performance Monitoring System Data; El Paso County (TX)—Texas Department of Transportation Crash Report Online Purchase System, Texas Department of Transportation DVMT Roadway Tables; Salt Lake County – Utah Department of Public Safety, Utah Department of Transportation VMT History Dashboard; Colorado Counties – Colorado Department of Transportation Crash Reports and VMT data.

Although there are many dynamics that can affect bicycle fatality rates such as rider behavior or available protections on roadways, one influencing factor could be the number of travelers using bicycles to commute to work. When comparing the percent of workers over 16 years old who commute to work by bicycle, Pima County has a larger proportion of bicyclists that commute than most all peer counties we reviewed—other than Denver County, Colorado as shown in Exhibit 22. While Denver County's bicycle fatality rate was 72 percent lower than Pima County in 2019, there was no supplementary data available to us to explain why Denver County's fatality rate was lower than Pima County.

EXHIBIT 22. PIMA COUNTY PERCENTAGE OF WORKFORCE THAT COMMUTES TO WORK VIA BICYCLE COMPARED TO OTHER COUNTIES REVIEWED, CALENDAR YEAR 2019

County	Rank	Percent of Workforce Over 16 Years Old that Commute to Work by Bike
Denver County, CO	1	2.40%
Pima County, AZ	2	1.30%
El Paso County, CO	3	0.60%

County	Rank	Percent of Workforce Over 16 Years Old that Commute to Work by Bike
Salt Lake County, UT	3	0.60%
Fresno County, CA	5	0.30%
Kern County, CA	6	0.20%
El Paso County, TX	7	0.10%

Source: United States Census Bureau American Community Survey data at www.data.census.gov.

To address safety, PAG created a Strategic Transportation Safety Plan in 2016 where it identified bicyclists as vulnerable users and one of the most at-risk in the network. PAG noted a variety of strategies it would employ to better protect bicyclists including identifying high risk locations for potential implementation of enhanced bicycle crossings and installing additional controlled bike crossings. A combination of RTA and other regional funds are used to pay for safety strategies such as:

- Promoting use of helmets by all bicyclists, regardless of age
- Providing bicycle detection at signalized intersections, as part of RTA Plan Project 40
- Providing separated bike lanes, as part of RTA Plan Project 41

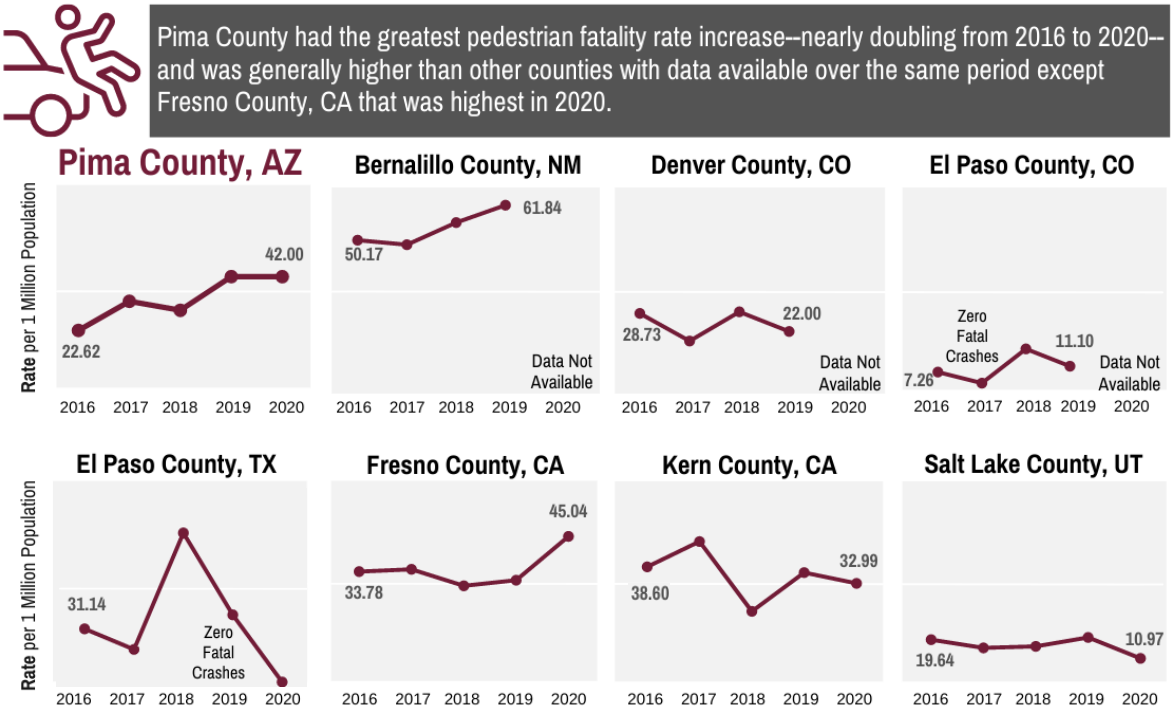
Further, all RTA Plan Roadway projects must incorporate bicyclist safety considerations into their initial design phases. For example, construction of RTA Plan Project 26 (Kolb Road Connection to Sabino Canyon Road) included new multiple paths, signals, and other bicycle facilities providing access to nearby parks. Additionally, RTA Plan Project 34 added bicycle lanes and sidewalks for the vulnerable users. More specifically, bicyclist safety was addressed in RTA Plan Project 41 (Greenways, Pathways, Bikeways, and Sidewalks) where 550 miles of bike lanes were promised. As discussed in Chapter 1 of this report, 366 miles of bike lanes were complete as of June 30, 2021.

Yet, many of the top contributing factors relating to bicyclist fatalities were driver or rider behavior outside of PAG and RTA's direct control. These factors included vehicle impaired driving, vehicle road or lane departures, and bicyclists riding at nighttime and with no lighting.

Pima County Pedestrians Experienced Higher Rates of Fatalities That Were Consistent with Other Counties Reviewed

Between calendar years 2016 and 2020, the pedestrian fatality rate increased from 22.62 fatalities per million population in calendar year 2016 to a rate of 42 fatalities per million population in calendar year in 2020—an 86 percent increase. This increase aligned with Arizona statewide trends in pedestrian fatalities as well, although Pima County recorded a higher proportion of pedestrian fatalities than the state.

EXHIBIT 23: PIMA COUNTY PEDESTRIAN FATALITY CRASH RATE PER 1 MILLION POPULATION COMPARED TO OTHER COUNTIES REVIEWED, CALENDAR YEARS 2016 TO 2020



Source: Arizona Counties-ADOT Crash Reports and ADOT VMT numbers provided by PAG; California Counties – California Transportation Injury Mapping System and Caltrans Highway Performance Monitoring System Data; Bernalillo County – University of New Mexico Annual Crash Reports; El Paso County (TX)—Texas Department of Transportation Crash Report Online Purchase System, Texas Department of Transportation DVMT Roadway Tables; Salt Lake County – Utah Department of Public Safety, Utah Department of Transportation VMT History Dashboard; Colorado Counties – Colorado Department of Transportation Crash Reports and VMT data.

When comparing Pima County's fatal pedestrian crash rate to seven peer counties selected for review, Pima County was generally in the middle for the first three years. However, Pima County's pedestrian fatality rate significantly increased in calendar years 2019 and 2020 and was among the highest of the four comparable counties with data available in 2020, with only Fresno County, California having a higher rate. Yet, when compared to these other counties, Pima County ranked third in the percent of the workforce that commuted to work via walking which could have also impacted its higher pedestrian fatality rates. PAG performance staff reported that they have not yet identified reasons for the increased fatality rate in calendar years 2019 and 2020 because of the relative recentness of the increases.

In 2019, ADOT studied outcomes statewide and found pedestrian fatal and serious injuries were more commonly intersection related, had alcohol involved, and occurred more frequently at night. ADOT works with local jurisdictions by providing monies to address roadway safety concerns. Both PAG and ADOT recognized regional issues with pedestrian safety and have started to consider and implement strategies addressing the challenges through engineering, enforcement, and education efforts such as:

- Designing capital projects to consider pedestrian safety as part of traffic impact analyses to enhance sight distance and visibility between cars and pedestrians in addition to improve intersections with shorter or protected crossings for pedestrians.

- Implementing pedestrian safety corridors with enhanced signing and increased enforcement highlighting areas of pedestrian safety.
- Developing campaigns targeting the risks and prevention of distracted walking to educate pedestrians on being aware and safer while on roadways.

With Regional Studies Indicating Many Roadway Crashes and Injuries Caused by Driver Behavior, PAG Developed Strategies to Address Safety

While performance information tracks and measures the rate of roadways fatalities, both PAG and ADOT were actively working to address crashes and fatalities through a shared vision of zero deaths. ADOT developed statewide safety plan, most recently in 2020, and PAG created a regional strategic safety plan in 2016 studying the cause of crashes and injuries in addition to developing solutions to affect change.

According to PAG safety data, many fatalities were caused by driver behavior in Pima County between 2016 and 2020.[56] Causes included:

- Impaired driving: nearly 44 percent of fatalities.
- Lack of restraints (safety belt or helmet): 31 percent of fatalities.
- Speeding: 24 percent of fatalities.

While PAG has limited control over driver behavior-related outcomes, it developed potential strategies surrounding engineering, education, and messaging for the roadways to address safety issues for each of the emphasis areas identified in ADOT's Strategic Traffic Safety Program. One such strategy PAG relied heavily on was enhancing its roadway safety assessments which are formal examinations of user safety on a particular roadway that utilizes crash data, field reviews, and stakeholder comments to offer segment specific near-, mid-, and long-term improvements. Generally, these roadway safety assessments are completed during the design process of roadway improvements and have been used in the planning process on some RTA Plan Roadway projects such as RTA Plan Project 25.[57]

Additionally, PAG identified bicyclists and pedestrian safety as their number one priority emphasis area in its Strategic Transportation Safety Plan, implementing both engineering and education efforts to reduce accidents. As part of their annual safety program, PAG evaluates the number of bicycle incidents throughout the region to create a map of bike routes that may serve as alternative routes to corridors with a higher incidence rate along with safety tips such as how to carefully cross over rail tracks without incident. Additionally, PAG developed bicyclist and pedestrian safety plans and campaigns to educate bicyclists, pedestrians, and drivers on the road.

[56] PAG tracks safety data in the region through a safety dashboard—called Safety Explorer—based on level of safety service (LOSS). LOSS reflects how a roadway segment or an intersection is performing in reference to the expected frequency and severity of crashes predicted. The database contains crash data from ADOT and allows for project planning and report generation based on segment level from 2016 through 2020. Local jurisdictions and PAG have access to the system.

[57] For Phase 2 of RTA Plan Project 25 Valencia Road: Kolb to Houghton, a roadway safety assessment was completed in April 2021.

Chapter 5: While Transit Performance was Reliable, On-Time, and Generally More Efficient than Others Reviewed, Performance had Mixed Results

Because transit can transport more people through an area efficiently, transit can help reduce congestion and increase mobility when it is a viable choice for riders. To best relieve pressure off the transportation network, transit must be operationally efficient, of reliable quality in terms of on-time performance and few breakdowns, provide a positive rider experience, and be safe.

To help provide a viable transit choice for riders, several Regional Transportation Authority Plan (RTA Plan) projects were planned that funded both capital construction of a downtown streetcar to provide additional transit options and operational service projects to expand bus and paratransit service frequency, routes, and coverage areas for commuters, neighborhood riders, the elderly, and disabled. These operational projects provide funds for service expansions to cover costs such as transit vehicle purchases, operator salaries, cleaning and safety services, and vehicle maintenance. Additionally, the RTA Plan funded the construction of additional transit stations and bus stops to enhance rider satisfaction.

We found transit services were generally more efficient than other entities reviewed, reliably on-time, and satisfactory to riders for the metrics we analyzed.[58] However, other performance indicators showed mixed results. For instance, transit ridership overall has experienced a continuous decline between 2017 and 2021 with decreases of 56 percent systemwide. Additionally, operational efficiency performance metrics declined over the period reviewed—mostly due to drops in ridership and decreases in fare revenue, although ridership is largely impacted by the price of gasoline in addition to economic and public health factors external to the Regional Transportation Authority (RTA)'s control. Yet, even with the decreased performance, Pima County performed better than other transit operators we reviewed. Further, preventable accidents decreased between fiscal years 2017 and 2021—although security incidents and bus transit complaints spiked in fiscal year 2021 with issues mostly related to COVID-19 concerns.

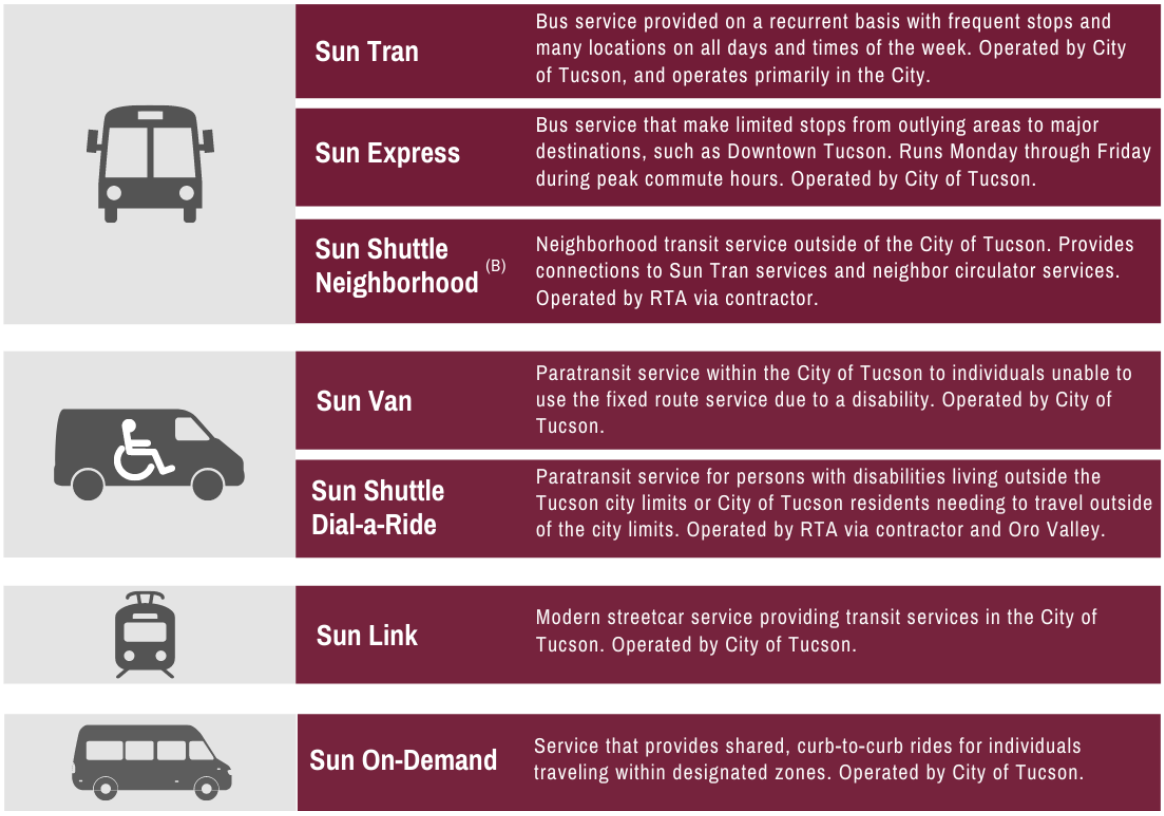
Nonetheless, the transit network enhanced by RTA Plan funds for bus, paratransit, and streetcar expansion seemed to be a viable choice for riders to help relieve pressure off the transportation system and improve mobility in the region.

[58] While there are other transit services in the region, such as Sun Shuttle Dial-a-Ride and Sun Shuttle Neighborhood (both paratransit services), we focused on Sun Tran's operations that were funded by RTA Plan Transit projects and have the largest reach in service. Sun Tran tracked and reported on a wide variety of performance measures at the system level, by bus route. For audit purposes, we focused on systemwide performance for ridership, standard operational metrics, on-time service, vehicle breakdowns, availability, and rider satisfaction. Additionally, we compared transit services to six peer entities: (1) Central Oklahoma Transportation and Parking Authority; (2) City of Albuquerque Transit Department (ABQ Ride); (3) City of El Paso's Mass Transit Department (Sun Metro); (4) Kansas City Area Transportation Authority; (5) New Orleans Regional Transit Authority; and (6) Sacramento Regional Transit District.

A Variety of Transit Options Operate Within Pima County

The City of Tucson and RTA contract with various vendors to operate and provide transit services in Pima County including Sun Tran fixed-route bus service, Sun Van paratransit, and Sun Link modern streetcar as shown in Exhibit 24.[59]

EXHIBIT 24. TRANSIT MODES OPERATED THROUGHOUT PIMA COUNTY [A]



Source: Data gathered from the City of Tucson and RTA websites.

Note: [A] Services that are operated by the City of Tucson are operated by the Tucson Transit Corporation, as detailed in footnote 59.
[B] Service provided to Ajo, Catalina, Green Valley, Marana, Oro Valley, Rita Ranch, Sahuarita, San Xavier, and Tucson Estates.

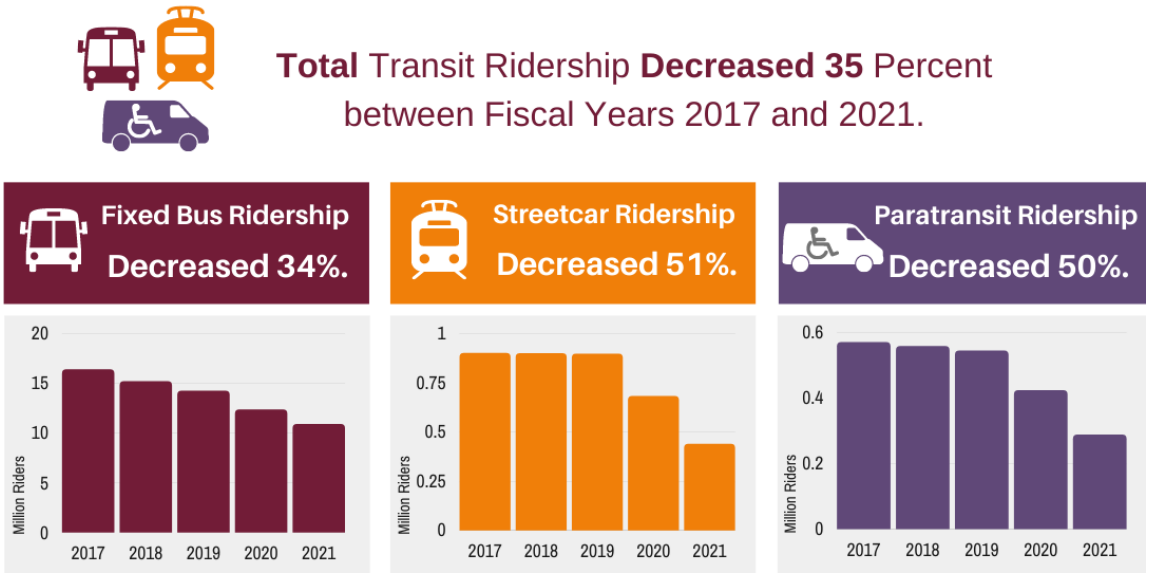
Transit Ridership Declined Over Time

Attracting ridership on transit vehicles is not only critical for reducing miles traveled using private vehicles, but is also important for the general efficiency of the transit system and maximizing transit investments. Although there were efforts to increase transit riders, there has been an overall decrease in ridership between fiscal years 2017 and 2021. As shown in Exhibit 25, there were 35 percent fewer riders across all modes of transit fiscal years 2017 and 2021. Ridership had been steadily declining since fiscal year 2017, but experienced a more dramatic 20.5 percent drop just between fiscal years 2020 and 2021. The decline

[59] Tucson Transit Management, LLC dba Sun Tran and Sun Van, and Tucson Streetcar LLC dba Sun Link is a corporation held by the City of Tucson that operates its transit services. The City of Tucson's charter does not allow employees to strike, so the City of Tucson created a corporation—Tucson Transit Corporation—as a separate entity to operate transit services and allow transit employee the right to unionize through collective bargaining agreements. Tucson Transit Management, LLC dba Sun Tran and Sun Van, and Tucson Streetcar LLC dba Sun Link are operated by the Tucson Transit Corporation. However, the City of Tucson owns all transit system assets.

was attributed by transit staff to COVID-19 concerns and people no longer commuting to a worksite. Nationally, transit ridership experienced similar declining trends, both before and during the COVID-19 pandemic—with previous trends largely cited as tied to the price of gasoline external to RTA or City of Tucson control.[60] Peer entities we reviewed also suffered ridership decreases, with a greater overall decline, on average.

EXHIBIT 25. TRANSIT RIDERSHIP BETWEEN FISCAL YEARS 2017 AND 2021



Source: Sun Tran Monthly Compliance Reports.

When looking at individual transit modes, the extent of decrease varies. For bus transit, ridership decreased 34 percent from approximately 16.4 million riders in fiscal year 2017 to 10.9 million riders in fiscal year 2021. Similarly, the Sun Link streetcar ridership also decreased—but more sharply with a 51 percent decrease between fiscal years 2017 and 2021. While there was a negligible decline during its first three years of operation, ridership for the Sun Link streetcar showed more significant decreases in fiscal year 2020 that resulted in more than 50 percent drop by fiscal year 2021. However, according to PAG and Sun Tran staff, as vaccines for COVID-19 have become more available and workers have been returning to the office, there appears to be a recovery in terms of ridership. In fact, bus ridership increased 19 percent and streetcar ridership increased 165 percent between June 2020 and June 2021.

Likewise, there was also a decrease in paratransit ridership. In fact, Sun Van's paratransit ridership decreased by 50 percent between fiscal years 2017 and 2021. Most of that drop occurred during the two years since the COVID-19 pandemic with ridership decreasing 45 percent in those years alone.

In June 2017, Sun Tran took steps to increase ridership on its bus and streetcar including:

- Ad campaigns and employing targeted marketing

[60] Studies on the impact of gas prices on transit usage include "Public Transportation Protects Americans from Gas Price Volatility," American Public Transportation Association, May 2012 and "Understanding Public Transit Ridership through Gasoline Demand: Case Study in San Francisco Bay Area, CA" Department of Economics, University of California, Berkely, April 2016.

- New campaign at the University for a new transit pass to attract more student riders
- Tracking and reviewing ridership on monthly basis to implement changes as needed

In specific response to COVID-19 for protecting riders and drivers, the City of Tucson voted in March 2020 to halt fare collection on all modes of transit. This strategy was aimed at keeping operator and riders at safe distances by avoiding contact through fare collection and increasing ridership if people felt safer on the transit vehicles.

Bus Transit Performance had Mixed Results, Although Service Was More Efficient Than Other Entities and Reliable

Due to its subsidized nature, bus transit must be efficient in terms of revenues generated and costs minimized as well as must be reliable and satisfactory to be a viable transportation option for travelers. For three specific bus routes reviewed, we found mixed performance results. Systemwide, Sun Tran bus transit was more efficient, reliable, and experienced fewer breakdowns than other transit operators reviewed.

RTA-funded Sun Tran Bus Routes Had Mixed Performance Results Over the Period Reviewed

For more insight on RTA-funded route performance, we selected three routes for detailed analysis chosen based on transit type, areas served, and related transit capital elements associated with the route—specifically, we reviewed Route 17 (Country Club/29th Street), Route 26 (Benson Highway), and Route 107x (Oro Valley – Downtown Express). While ridership declined across all projects, there were mixed results when looking at revenue service miles with two routes reviewed showing improvement and the remaining route reviewed experiencing declined service.[61]

For both Route 17 (Country Club/29th Street) and Route 26 (Benson Highway) expanded as part of RTA Plan 45, total ridership decreased between fiscal years 2018 and 2020, but partially recovered in fiscal year 2021 as shown in Exhibit 26. Compared to the 28 percent decrease in ridership experienced systemwide on the Sun Tran bus network from fiscal year 2018 to fiscal year 2021, Route 17 (Country Club/29th Street) and Route 26 (Benson Highway) performed better with only a three percent decrease in ridership. Moreover, both Route 17 (Country Club/29th Street) and Route 26 (Benson Highway) increased revenue service miles by approximately seven percent and three percent, respectively, between fiscal year 2018 and fiscal year 2021—results that outperformed Sun Tran systemwide bus performance that conversely experienced a decrease in revenue miles over the same period.

As an express route into Downtown Tucson, Route 107x (Oro Valley – Downtown Express) experienced large percent changes in ridership and service miles. In fact, ridership declined by 76.5 percent between

[61] Route 17, a fixed-route route from the Tohono Transit Center to the Broadway/Houghton Park-n-Ride, was chosen because it has three park-n-rides on its route and serves 12 separate destinations as part of one of Sun Tran's on-demand zones. Route 26, a fixed-route from Laos Transit Center to Littletown, was a smaller service area with one park-n-ride on the route and only serving seven destinations. Both Routes 17 and 26 also have a transit center on their route, and serve the City of Tucson primarily. Route 107x, an express route into downtown Tucson intended for commuting, that had one transit center on the route and two park-n-rides in addition to serving the Town of Oro Valley and the City of Tucson.

fiscal year 2018 and 2021—nearly three times the systemwide ridership decline of 28 percent. This route experienced a similar decrease in service miles as well.

EXHIBIT 26. ROUTE SPECIFIC PERFORMANCE FOR THREE RTA-FUNDED BUS ROUTES, FISCAL YEARS 2018 THROUGH 2021

Route		Fiscal Year 2018	Fiscal Year 2019	Fiscal Year 2020	Fiscal Year 2021	Percent Change Fiscal Years 2018 to 2021
Systemwide	Total Route Passengers	15,205,419	14,262,758	12,346,810	10,894,760	-28.35%
	Total Service Miles	8,458,300	8,235,672	8,206,957	7,902,895	-6.57%
17 Country Club/ 29th Street	Total Route Passengers	55,783	46,280	45,112	54,071	-3.07%
	Total Service Miles	43,165	40,550	43,909	46,233	7.11%
26 Benson Highway	Total Route Passengers	16,728	15,341	10,931	16,223	-3.02%
	Total Service Miles	16,700	16,337	17,673	17,259	3.35%
107x Oro Valley – Downtown Express	Total Route Passengers	1,762	1,738	152	414	-76.50%
	Total Service Miles	10,023	9,448	2,098	2,096	-79.09%

Source: Sun Tran Monthly Performance Reports.

Note: Data was not available for fiscal year 2017.

Although the Region's Performance Aligns with Others Reviewed, Ridership Drop and Fare-Free Policy Affected Transit Efficiency

When compared to several other entities we reviewed, Sun Tran bus transit performed better than peer averages operating with much lower costs per boarding at $4.07 compared to the peer average of $7.03 as shown in Exhibit 27.[62] Similarly, Sun Tran bus transit's operating cost per revenue mile was $7.07, on average, compared to the peer average of $9.87. Even operating under a fare-free policy for part of fiscal year 2020, Sun Tran bus transit average farebox recovery rate was about five percent greater than the peer average.

[62] Entities reviewed were (1) Albuquerque Transit Department (ABQ Ride), (2) Central Oklahoma Transportation and Parking Authority, (3) City of El Paso Sun Metro, (4) Kansas City Area Transportation Authority, (5) New Orleans Regional Transit Authority, and (6) Sacramento Regional Transit District. These entities were selected using the Florida Transit Information System's peer selection module, which looks at various service characteristics of transit systems and ranks other entities based on similarities. On average, peer transit agencies had a 34 percent decrease in ridership from fiscal year 2017 to fiscal year 2020.

EXHIBIT 27. BUS TRANSIT OPERATIONAL PERFORMANCE COMPARED TO PEER OPERATORS, FISCAL YEARS 2017 AND 2020

	Sun Tran FY 2017	Sun Tran FY 2020	Sun Tran Average	Peer Average	Sun Tran % Change FY 2017 to FY 2020	Peer % Change FY 2017 to FY 2020
Operating Cost per Revenue Mile	$6.85	$7.34	$7.07	$9.87	7%	17%
Boardings per Revenue Mile	1.99	1.50	1.76	1.48	-24%	-29%
Farebox Recovery	19%	14%	17%	12%	-28%	-42%
Operating Cost per Boarding	$3.44	$4.88	$4.07	$7.03	42%	65%
Subsidy per Boarding	$2.79	$4.22	$3.38	$6.21	51%	78%

Source: Sun Tran Monthly Performance and Monthly Compliance Reports, and Federal Transit Administration's National Transit Database.

Notes: Averages are 4-year average from 2017 to 2020. Boarding is a count of one passenger on the public transit vehicle. Revenue mile is a mile traveled when the vehicle is available to the public and there is an expectation of carrying passengers. Farebox recovery refers to the portion of a trip's operating expense covered by passenger fare revenue. Operating Cost per Revenue Mile = Operating Expenses/Annual Revenue Miles; Average Boardings per Revenue Mile = Total Boardings/Annual Revenue Miles; Farebox Recovery Ratio = Fare Revenue/Operating Expenses; Operating Cost Per Boarding = Operating Expenses/Total Boardings; Subsidy per Boarding = Operating Expenses net Fare Revenue/Total Boardings.

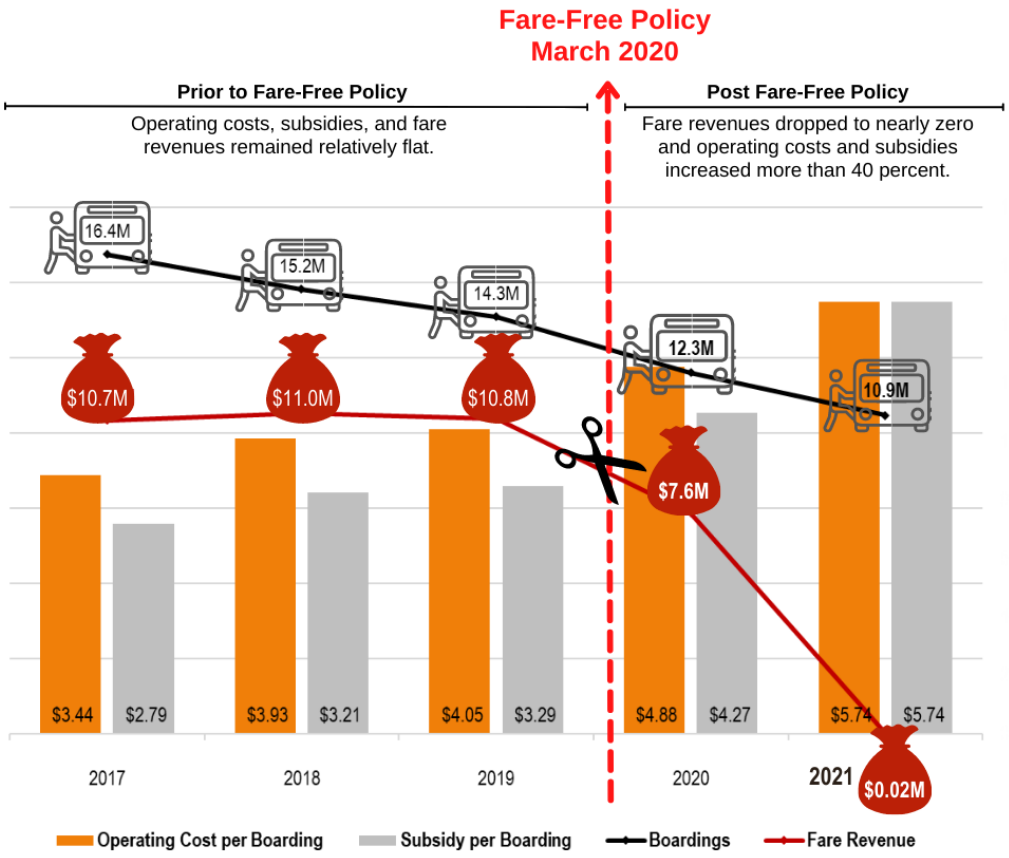
However, fare revenues were affected at the outset of COVID-19 pandemic in 2020, decreasing from approximately $10.7 million in fiscal year 2017 to only $15,600 by fiscal year 2021. This was not only a result of fewer riders, but also because the City of Tucson implemented a fare-free policy to better protect transit drivers and riders. The fare-free policy had a noticeably negative effect on transit operational performance and efficiency since revenue was not collected to subsidize costs. Due to the decrease in fare revenue, the subsidy per boarding for Sun Tran increased from $2.79 per boarding in fiscal year 2017 to $5.74 per boarding in fiscal year 2021 as shown in Exhibit 28. In December 2021, the City of Tucson extended the fare free policy until at least July 2022 which will continue to impact this performance metric.

Similarly, operating costs per boarding between fiscal year 2017 and fiscal year 2021 was negatively impacted by ridership fluctuations and the no-fare policy. While operating costs were relatively flat between fiscal years 2017 and 2019 and only increased about eight percent during the last two years of our audit period, fewer transit riders resulted in higher per-passenger costs and the no-fare policy impacted subsidy per boarding.[63] The large decrease in fare revenue, due to the fare-free policy, as well as a decline in boardings affected operational metrics. Overall, these trends were impacted by ridership and fare policy, rather than inefficiencies associated with operations or expanded services that increased revenue miles.[64]

[63] Increased operating costs were mostly explained by additional expenses required for personal protective equipment, cleaning and sanitization activities, and labor as part of other mitigation efforts to address the COVID-19 pandemic.

[64] Revenue mile is the fare or other revenue received over a mile of service when a transit vehicle is available to the public and there is an expectation of carrying passengers.

EXHIBIT 28. IMPACT OF FARE-FREE POLICY AND RIDERSHIP ON SUN TRAN BUS OPERATING COST PER BOARDING AND SUBSIDY PER BOARDING PERFORMANCE, FISCAL YEARS 2017 THROUGH 2021



Source: Sun Tran Monthly Performance and Monthly Compliance Reports.

Bus Service was Reliable and On-Time

We measured the reliability of transit service by assessing the on-time performance of vehicles picking up riders at stated times, on average, systemwide. For the Sun Tran service area, bus transit was generally reliable each year of the audit period, with fixed-route bus service achieving 92 percent or greater on-time performance and consistently meeting its on-time performance goals, as shown in Exhibit 29.

EXHIBIT 29. SUN TRAN BUS TRANSIT ON-TIME PERFORMANCE AND COMPARISON AGAINST ANNUAL GOALS, FISCAL YEARS 2017 THROUGH 2021

Fiscal Year	On-Time Performance Percent Goal	On-Time Performance Percent Actual
2017	91.2 to 92	92.10
2018	92	93.20
2019	92	92.30
2020	92 to 93.9	93.60
2021	92 to 93.9	93.70

Source: Sun Tran Monthly Compliance Reports.

Fewer Bus Breakdowns Since Fiscal Year 2018 Improved Reliability

We also looked at the reliability of bus service in terms of the average revenue miles between road service calls for breakdowns during the audit period. As shown in Exhibit 30, the average revenue number of miles between road calls to fix inoperable vehicles steadily increased between fiscal years 2018 and 2021—thus, buses were breaking down less frequently and were more reliable. Moreover, for the years where goals were set, Sun Tran bus transit met its goals for miles between road calls with recent years outperforming goals by more than 43 percent. According to PAG transit staff, the Sun Tran corporation received federal "State of Good Repair" grants to assist with fleet maintenance, purchased new buses as part of the RTA Plan, and were consistent with their maintenance schedule over the period of audit. These efforts likely improved bus reliability by providing additional funds for maintenance, adding newer and more reliable buses to the fleet, and keeping older buses in the fleet well-maintained.

EXHIBIT 30: AVERAGE MILES BETWEEN BUS VEHICLE ROAD CALLS

Fiscal Year	Average Miles between Road Calls Goal	Average Miles between Road Calls Actual
2017	N/A	12,041
2018	N/A	11,739
2019	Exceed 13,000	14,374
2020	Exceed 13,000	18,497
2021	Exceed 13,000	22,909

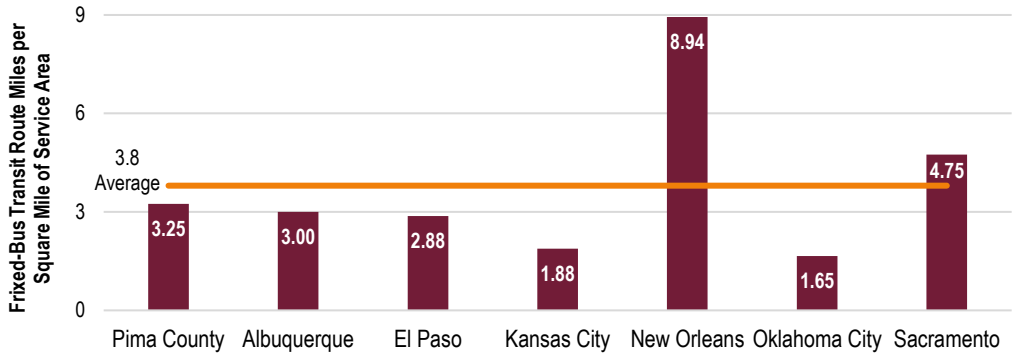
Source: Sun Tran Monthly Compliance Reports.

In addition to the number of miles between road calls increasing throughout the audit period, Sun Tran bus transit regularly met its goals for preventative maintenance services that help increase the useful life of bus vehicles and can lead to fewer vehicle breakdowns. Between fiscal years 2017 and 2021, there was only one month when Sun Tran bus service did not meet 100 percent of the scheduled maintenance for inspections on its bus vehicles. The average age of Sun Tran's bus fleet was been stable throughout the audit period, ranging from 6.89 years old in 2017 to 7.87 years old in 2021.

Bus Service Coverage Generally Aligned with Other Entities Reviewed

Transit service must also be available for riders to choose as an alternate transportation method. One measure of availability of transit service coverage compares the number of route miles provided against the square miles of the potential service area. When compared to peers for fiscal year 2019, Sun Tran's bus service coverage generally aligned with peers reviewed—some comparable entities had more coverage in their service area, while others had less coverage. As shown in Exhibit 31, Sun Tran operated 3.2 fixed-route bus transit miles per square mile of service area which generally aligned with peer average of 3.8 fixed route miles per square mile of service area.

EXHIBIT 31. BUS TRANSIT ROUTE MILES PER SQUARE MILE OF SERVICE AREA COMPARED WITH PEERS, FISCAL YEAR 2020



Source: Federal Transit Administration's National Transit Database.

Note: City of Albuquerque Transit Department (ABQ Ride; City of El Paso's Mass Transit Department (Sun Metro); Kansas City Area Transportation Authority; New Orleans Regional Transit Authority; Central Oklahoma Transportation and Parking Authority; Sacramento Regional Transit District.

Sun Link Streetcar was a Reliable Option for Travelers, but Operating Costs Increased Substantially

The Sun Link streetcar is a 3.9-mile modern streetcar that serves urban areas of Tucson, including business districts, University of Arizona, Downtown Tucson, and Tucson Convention Center. Although service was reliable, operating performance was impacted by ridership declines and reduced revenue.

Streetcar Served as a Reliable form of Downtown Transit

Streetcar reliability is measured by percent of trips completed, rather than on-time performance because Sun Link streetcar is trying to maintain the pacing of trips and pick-ups at scheduled intervals.[65] For the data available for fiscal years 2019 through 2021, the percent of trips completed remained stable averaging 98.31 percent over the audit period with a high in fiscal year 2021 of 98.7 percent.[66] Additionally, the miles between streetcar road calls remained generally stable over the audit period, ranging from 968 to 909, respectively, between fiscal years 2017 and 2021. Lastly, records indicate that the streetcar underwent almost all its scheduled maintenance, which likely aided in the reliability of the Sun Link streetcar. Between fiscal years 2019 and 2021, Sun Link streetcar was only late for 12 out of its 1,327 regularly scheduled maintenance, or less than one percent.

Fewer Riders on Streetcar Negatively Impacted Operational Efficiency

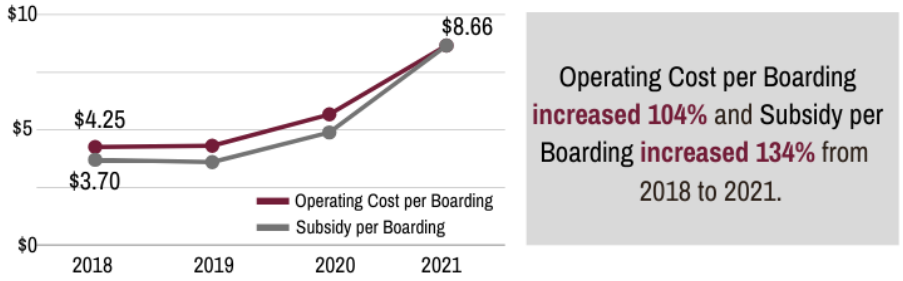
With significant decreases in ridership over the audit period, streetcar performance metrics worsened as shown in Exhibit 32. While operating costs negligibly changed between fiscal years 2018 and 2021, operating costs per boarding increased 104 percent from $4.25 in 2018 to $8.66 in 2021 and subsidy per

[65] Unlike bus transit which measures reliability by on-time performance because of the various delays associated with driving on the road (pedestrian crossings, roadway congestion, and passenger loading delays), the Sun Link streetcar operates on a fixed-track 10-, 15-, or 30-minute intervals based on the day and time of service. Therefore, Sun Link streetcar measures the percent of scheduled trips completed within the service operations of the streetcar.

[66] Data for Sun Link available beginning in fiscal year 2018 due to Sun Tran not being the operator of the streetcar prior to fiscal year 2018.

boarding increased 134 percent from $3.70 to $8.66 during the same period with the drop in ridership and no-fare revenue policies. However, while there was decreased ridership, revenue miles remained steady indicating that the streetcar remained in service.

EXHIBIT 32. SUN LINK OPERATING COST PER BOARDING AND SUBSIDY PER BOARDING, FISCAL YEARS 2018 THROUGH 2021



Source: Sun Tran Monthly Performance Reports.
Data only available beginning in fiscal year 2018 because streetcar was not operated by Sun Tran Corp at that time.

While we were able to compare bus transit service to peer operators, a similar analysis is not practical for the Sun Link streetcar because of the few comparable modern streetcars operating in the country. In fact, only Central Oklahoma Transportation and Parking Authority operated a similar modern streetcar which opened in 2018 and did not have sufficient data available for comparison. Other cities—including Portland, Oregon and Salt Lake City, Utah—operated modern streetcars as part of their transit network, but those areas were much larger and considered not suitable for comparison.

Although Sun Van Paratransit Services were Reliable, Operating Performance Declined In Recent Years

Operated within the City of Tucson's boundaries by Sun Van, paratransit service was reliable completing their on-demand pick-ups on-time. However, Sun Van ridership experienced significant declines that impacted its operating performance between fiscal years 2017 and 2021.

Sun Van Paratransit Service was Reliable and On-Time

We measured the reliability of paratransit service by assessing the on-time performance of vehicles picking up riders at stated times systemwide. On average, between fiscal years 2017 to 2021, Sun Van paratransit completed 96.64 percent of their scheduled pick-ups on time.

When looking at the average revenue miles between road calls to provide an additional indicator of reliability with higher number of miles indicating increased reliability, Sun Van paratransit results varied over the period reviewed. Specifically, the average revenue miles between road calls ranged from a peak of 194,755 miles in fiscal year 2017 to a low of 38,104 miles in fiscal year 2020—before again experiencing increased reliability in fiscal year 2021 with an average of 62,295 revenue miles between road calls.

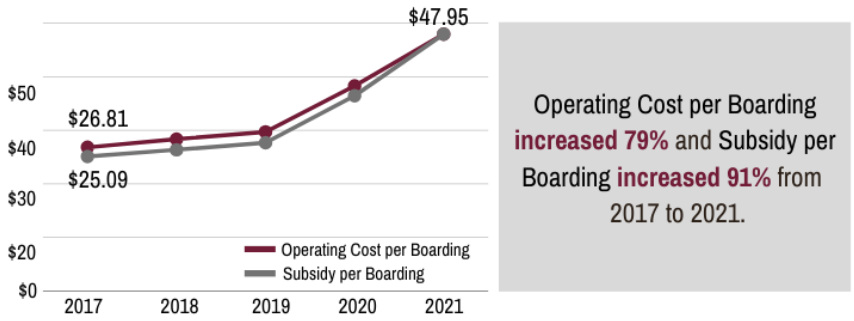
With its combined high percentage of on-time pickups and increasingly fewer road calls, Sun Van paratransit appears to be a reliable form of transit for the applicable demographic.

Decreased Ridership on Sun Van Paratransit Negatively Affected Operational Efficiency

Performance metrics for Sun Van paratransit operating cost per boarding and subsidy per boarding were significantly impacted by fewer riders and the City of Tucson's fare-free policy. Prior to fiscal year 2020, the operating costs were steadily increasing at an average rate of five percent, from more than $15 million to approximately $16.1 million on average, even with declines in ridership. By the end of fiscal year 2021, operating costs dropped 15 percent to approximately $13.8 million. This decrease was due to the limited operations and decreased revenue miles during 2020 and 2021 with the COVID-19 pandemic. Still, operating cost per boarding increased 79 percent over the audit period.

Similarly, fare revenues had been increasing between fiscal year 2017 and fiscal year 2019, but once the no-fare policy for Sun Van paratransit went into effect in March 2020, the decreased fare revenues negatively affected the farebox recovery ratio. The ratio decreased from 6.42 percent in 2017 to 4.75 percent in 2020 and then to zero percent in 2021. Combined with decreased riders, the low fare revenue had a substantial effect on subsidy per boarding—which increased 91 percent from $25.09 in fiscal year 2017 to $47.95 in fiscal year 2021 as shown in Exhibit 33. Because there was no fare revenue in fiscal year 2021, none of the operating costs were subsidized resulting in operating cost per boarding and subsidy per boarding registering the same value.

EXHIBIT 33. SUN VAN OPERATING COST PER BOARDING AND SUBSIDY PER BOARDING, FISCAL YEARS 2017 THROUGH 2021



Source: Sun Tran Monthly Performance Reports.

While Some Transit Service Had Fewer Complaints, Bus Rider Dissatisfaction Increased in Recent Years Since COVID-19

To assess passenger satisfaction, we looked at rates of valid passenger complaints.[67] While Sun Tran bus transit complaints increased steadily over the period, Sun Link streetcar complaints decreased and Sun Van paratransit remained stable.

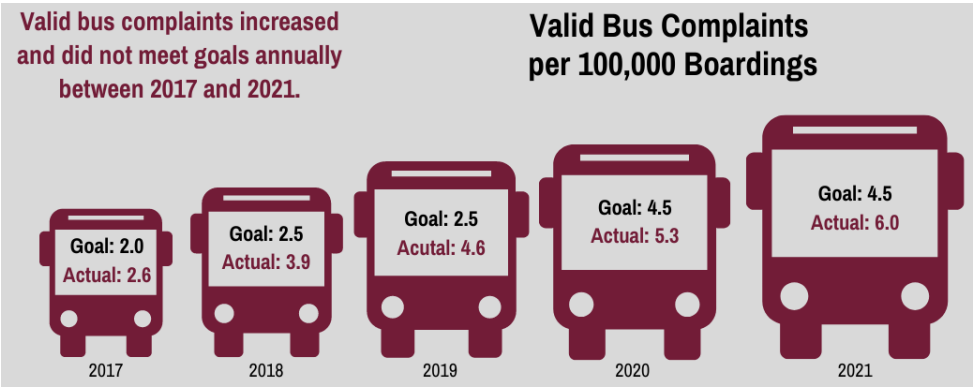
Sun Tran Bus Complaints Filed Increased Since fiscal year 2017

As shown in Exhibit 34, valid Sun Tran bus transit complaints steadily increased since fiscal year 2017 from 2.6 complaints per 100,000 boardings in fiscal year 2017 to 6 complaints per 100,000 boardings by fiscal

[67] Sun Tran valid complaints are defined as whether the complaint was the operator's fault, such as being off schedule, or a negative customer service interaction.

year 2021—higher than its goals for each year. Raw number of valid complaints received grew from nearly 420 to over 650 over the same timeframe. According to Sun Tran, this large increase was mostly due to issues arising from COVID-19 and the fare-free policy including difficulties enforcing mask policies, riders feeling unsafe with destination-less passengers, and general frustration due to the pandemic. Sun Tran operators investigate every complaint, document results, and respond to customers. To address these rising complaints, Sun Tran provides de-escalation training for their drivers and, when a complaint is received, the driver receives training on conflict resolution, customer service, and harassment prevention.

EXHIBIT 34. SUN TRAN VALID CUSTOMER COMPLAINTS PER 100,000 BOARDINGS, FISCAL YEARS 2017 THROUGH 2021



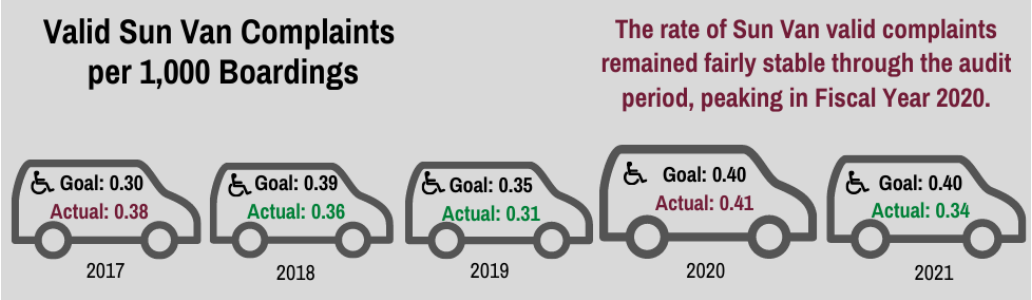
Source: Sun Tran Monthly Compliance Reports.

Sun Link Streetcar Riders and Sun Van Paratransit Passengers had Stable or Fewer Complaints

Over our audit period, both Sun Link streetcar and Sun Van paratransit performed well in terms of customer satisfaction. For instance, between fiscal years 2017 and 2021, Sun Link Streetcar reported a decline from 161 valid customer complaints in 2017 to 26 valid complaints in 2021. According to transit staff, one reason that Sun Link had fewer complaints during the pandemic was because of the extremely low ridership.

Similarly, Sun Van paratransit complaints remained stable over the same timeframe ranging from 0.38 complaints per one thousand trips in fiscal year 2017 to 0.34 complaints per one thousand trips in fiscal year 2021. Annual complaint goals were met for three of the five years in our audit period—fiscal years 2018, 2019, and 2021—as shown in Exhibit 35.

EXHIBIT 35. SUN VAN VALID CUSTOMER COMPLAINTS PER 1,000 BOARDINGS, FISCAL YEARS 2017 THROUGH 2021



Source: Sun Tran Monthly Compliance Reports.

Transit was Relatively Safe over the Five-Year Period Reviewed

To select transit as a viable transportation option, riders must feel safe using transit services. We measured transit safety in terms of preventable accidents as well as security incidents aboard vehicles. Between fiscal years 2017 and 2021, the rate of preventable accidents decreased across all transit types.[68] However, bus security incidents spiked in 2021 after several years of decline—although incidents were still lower than reported in fiscal year 2017.[69]

Preventable Accidents Decreased for Bus, Streetcar, and Paratransit

For Sun Tran bus service, the number of preventable accidents decreased from 0.57 accidents per 100,000 revenue miles in fiscal year 2017 to 0.09 accidents per 100,000 revenue miles in 2021—an 84 percent decline—as shown in Exhibit 36. Some of the decrease occurred between fiscal years 2020 and 2021 when vehicle miles traveled decreased in Pima County lowering the risk of accident hazards. However, in 2020, Sun Tran bus transit also ramped up safety protocols and implemented a variety of programs, including quarterly intersection and bike safety campaigns. In all but one fiscal year, the Sun Tran bus service met its goals in terms of preventable accidents.

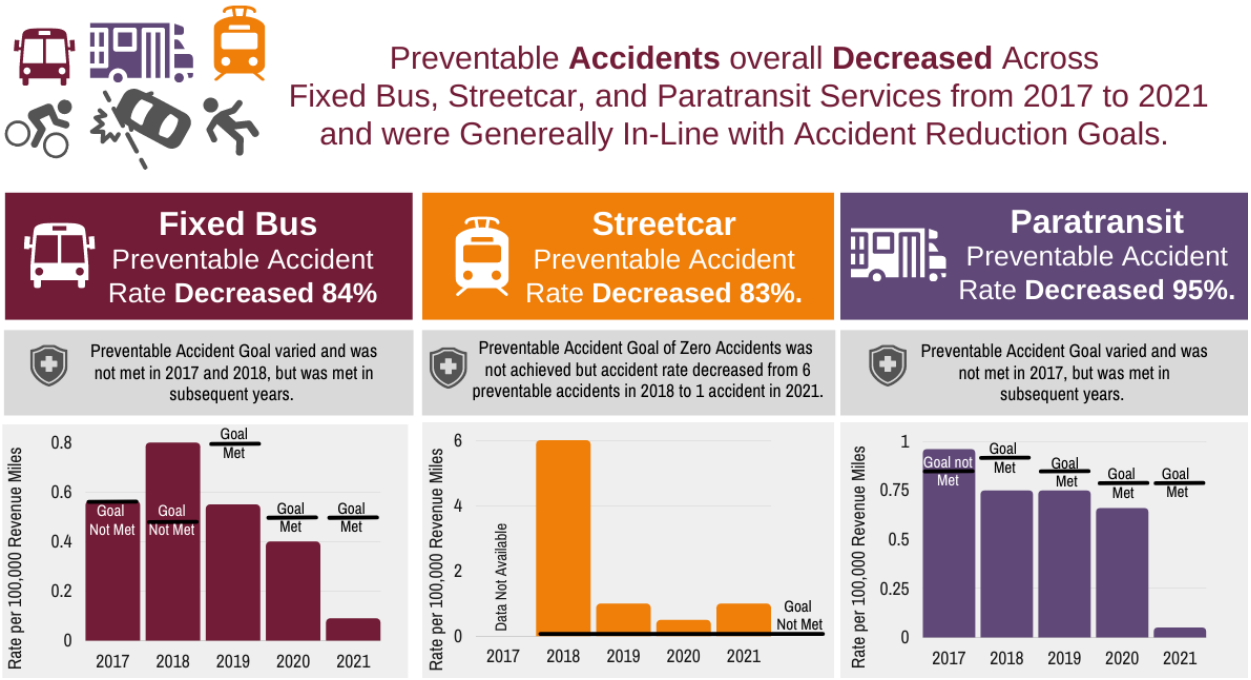
Similarly, Sun Link streetcar realized an 83 percent decline in preventable accidents per 100,000 revenue miles during the audit period. Specifically, the rate dropped from 6 preventable accidents per 100,000 revenue miles in fiscal year 2018 to just one preventable accident per 100,000 revenue miles in fiscal year 2021. Although the annual Sun Link streetcar goal of zero preventable accidents was not met, performance showed a 14 percent improvement.

Further, the Sun Van paratransit preventable accidents also decreased over the audit period from 0.96 preventable accidents per 100,00 revenue miles in fiscal year 2017 to 0.05 preventable accidents per 100,00 revenue miles in fiscal year 2021—a 95 percent decrease. While Sun Van paratransit did not meet its annual goal during fiscal year 2017, Sun Van paratransit surpassed its goal of 0.78 preventable accidents per 100,00 revenue miles each subsequent fiscal year.

[68] An accident is defined as any contact or collision between bus and another vehicle, a fixed object, or a person—whether or not there is damage or injury—or any instance in or near a transit vehicle which results in injury to a rider. The distinction between preventable and non-preventable is based on whether the driver did everything that reasonably could have been done to prevent the accident.

[69] Sun Tran defines a security incident as an assault or altercation that occurred during fixed-route operations or transit centers.

EXHIBIT 36. TRANSIT PREVENTABLE ACCIDENTS PER 100,000 REVENUE MILES AND GOALS SET, FISCAL YEARS 2017 THROUGH 2021

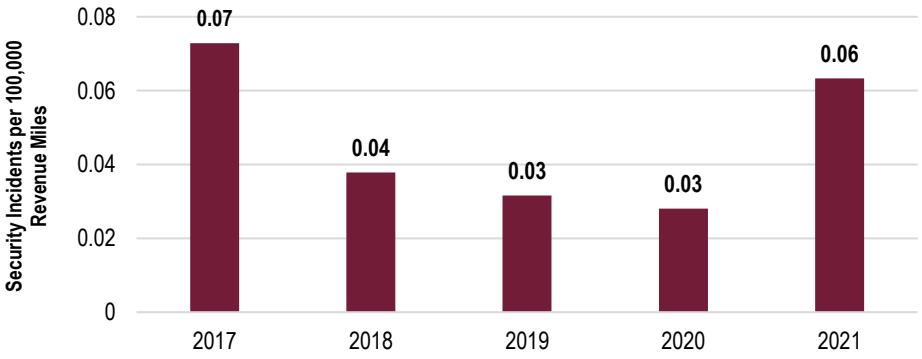


Source: Sun Tran Monthly Compliance Reports.

Trends for Security Incidents on Sun Tran Buses have Declined Since Fiscal year 2017, Although Fiscal Year 2021 Registered a Sharp Increase

For the Sun Tran bus transit, security incidents steadily decreased from 0.07 incidents per 100,000 revenue miles in fiscal year 2017 to 0.03 incidents per 100,000 revenue miles in fiscal year 2020. Yet, this trend was almost entirely reversed when in fiscal year 2021 the rate increased again to 0.06 incidents per 100,000 revenue miles, as shown in Exhibit 37.

EXHIBIT 37: FIXED-ROUTE BUS SECURITY INCIDENTS PER 100,000 REVENUE MILES, FISCAL YEARS 2017 THROUGH 2021



Source: Sun Tran Monthly Compliance Reports.

The increase in security incidents in fiscal year 2021 could be due to reported increased confrontations over mask policies and other COVID-19 protocols. Sun Tran bus transit is aware of these trends and has implemented efforts to curb the increased security incidents such as policies to only ask customers one-time to wear a mask and offer de-escalation training to their drivers. Additionally, Sun Tran reported recently receiving federal funds that will partially be used to address concerns with destination-less riders and potential security incidents.

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Appendix A: Detailed Audit Methodology

Sjoberg Evashenk Consulting, Inc. (SEC) was hired by the Arizona Auditor General to conduct an independent performance audit of the Pima Association of Governments' (PAG) Regional Transportation Authority Plan (RTA Plan) of Pima County. Specifically, we were asked to:

1. Review past RTA Plan expenditures and projects for fiscal years 2017 through 2021 to determine their impact on solving transportation problems within the county as required by Arizona Revised Statutes (A.R.S.) §41-1279.03(A)(6)(a) and (b);
2. Examine future planned expenditures and projects for fiscal years 2022 through 2026 to determine their impact in solving transportation problems within the county as required by A.R.S. §41-1279.03(A)(6)(a) and (b);
3. Assess regional transportation fund deposits, expenditures, distributions, and bond activity for compliance with statutory requirements outlined in A.R.S. §48-5307(F)(G), A.R.S. §48-5308(A)(C)(D)(F), and A.R.S. §48-5348; and
4. Make recommendations, as required by A.R.S. §41-1279.03(A)(6)(a) and (b), to ensure the intended outcomes are being achieved, public monies and resources are being used efficiently and effectively, and there is proper management of the RTA Plan, its projects, and expenditures.

To meet the audit's objectives, SEC performed the following audit steps:

- Interviewed management and staff from PAG, Regional Transportation Authority (RTA), Arizona Department of Transportation (ADOT), the City of Tucson, and processes regarding processes and controls over revenues and expenditures, data integrity and quality control over data, changes in project management or reporting methodology, and plans for remaining years of the RTA Plan as applicable. Other local jurisdictions—including the towns of Sahuarita, Oro Valley, and Marana—were contacted to provide data as needed.
- Examined RTA Plan spending and schedules over fiscal years 2017 through 2021 as well as expenditures planned for future fiscal years 2022 through 2026 to evaluate status—completed, in-progress, not started, deferred, or cancelled—and cost and scope of RTA Plan projects by:
    - Gathering budget and expenditure data, baselines and actual schedules, and scope from the 2045 Regional Mobility and Accessibility Plan, Fiscal year 2022-2026 Transportation Improvement Plan, RTA Plan Implementation Plan and Ballot, PAG's internal RTA Web database, and a variety of internal spreadsheets to establish the universe of all projects envisioned.
    - Capturing and summarizing outputs such as projects competed, miles added, intersections completed, and routes added for comparison with the RTA Plan in addition to validating data, where practical, with project data, fact sheets, and map tools.
    - Comparing original budgets to revised budgets for completed roadway projects and investigated variances.
    - Identifying and assessing in-progress projects and projects not started with funding challenges to identify gaps and activities to address funding gaps.

- Reviewing project segments completed during our audit period to assess schedule performance by comparing scheduled completion dates to actual completion dates.
- Considering all ongoing and not yet started projects to assess schedule performance by reviewing whether each project met pledged construction start targets per the RTA implementation plan and whether delays appeared to jeopardize overall delivery of the remaining plan.

- Determined progress of implementation of performance measures and targets to track performance for mobility, congestion, and safety by reviewing PAG/RTA's internal annual performance measure reports against measures described in the 2045 Regional Mobility and Accessibility Plan.
- Evaluated PAG/RTA performance measurement framework including target setting and data related to models and outcomes.
- Assessed performance outcomes related to mobility, congestion, pavement and bridge condition, transit efficiency, and safety by performing the following:
  - Focused on certain systemwide performance metrics from the multitude of performance data and metrics available; namely, delay, travel time, and fatalities involving vehicles.
  - Identified comparable public entities to compare Pima County's and the Tucson Metropolitan Statistical Area's safety and roadway performance. Entities were selected for comparison based on geographic location, population, and input from PAG.
  - Reviewed and compared PAG-provided modeled data outcomes for roadway performance to publicly available comparable outcomes as reported by other entities and sources such as ADOT, the Texas A&M Transportation Institute's 2021 Urban Mobility Report, and the American Community Survey Census.
  - Contacted local jurisdictions in Pima County to determine how pavement condition is measured, how often it is measured, and the status of the jurisdiction's pavement over the audit period.
  - Reviewed the Federal Highway Administration's National Bridge Inventory categorization of bridges in Pima County over the audit period to determine bridge condition in the county.
  - Assessed transit operational efficiency statistics (such as operating costs, farebox recovery, and subsidies), on-time performance, mechanical failures, preventable accidents, safety incidents, and complaints.
  - Identified comparable public transit entities to compare Sun Tran's fixed-route bus system operational performance. Entities were selected for comparison based on the peer-tool from the Florida Transit Information System, which ranks transit entities based on similarities of a variety of characteristics.
  - Attempted to use the same geographical area and years within our audit period, but specific performance metric data captured by ADOT, the National Transit Database, and

the U.S. Census reported data differently by county level, urban area, state level, or transit entity service area level as well as by different calendar years, fiscal years, or points in time. Further, not all data was available for all comparable entities for all years within the audit period.

  - Worked with the varying methodologies used by entities to collect data and report by different geographical regions (city, county, or urban area), travel modes (roadways, bicyclists, or pedestrians), time periods (monthly, calendar year, or fiscal year), or details (detailed counts, summary, or averages). Some metrics could not be easily compared, such as when comparing transit to peer agencies for on-time performance and rider satisfaction due to differing data collection methodologies and agency standards.
  - Attempted to capture and analyze raw data sorted for analysis; however, some entities only offered data in pre-structured canned reports or available for individual segments or routes through interactive maps without summary data.
  - Used the most recent data available—although there was often a time lag from when data was captured to when data was reported for review from the various local, state, or federal sources.
  - Compared performance to state and national trends, where practical.
  - Studied completed RTA Plan project impacts on performance results as well as whether projects planned were in areas where performance had declined or concerns were noted.

- Reviewed and identified any changes in approach to revenue forecasting and cost estimation projections, assumptions, estimates, funding mix, model inputs, and process.
- Used the latest forecasting model to identify sales tax revenue predictions through the end of the measure in 2026 and compare available funding with costs estimated to complete remaining in-progress and not-yet started RTA projects.
- Assessed debt service and cash flow analyses to ensure projected funding available aligns with estimated costs required to complete RTA plan projects.
- Selected and tested 35 expenditures from the construction account for compliance with Arizona statutes and whether funds were spent on activities allowed by statue and RTA policies.
- Reviewed bond account and bond proceed transactions between July 1, 2016 and June 30, 2021 to ensure payments were appropriate in accordance with statute.
- Evaluated use of multimodal management tools to relieve congestion and improve mobility through efforts such as variety of multimodal choices and intelligent transportation systems such as messaging signs and incident response.
- Followed up on audit recommendations from the prior RTA Plan Performance Audit issued in 2016 to determine status and activities to date.

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Appendix B: RTA Plan Project Universe and Status

The RTA Plan proposed 51 projects spanning Roadway, Safety, Environmental and Economic Vitality, and Transit elements with numerous types of improvements planned within each project. Types of improvements include widening and constructing lanes, adding bike lanes, bridges, improving or construction intersections, upgrading signal technology, constructing wildlife crossings, providing small business assistance, expanding bus route services, and more. In Exhibit 39, we provide completion and budget status of each RTA Plan project. Exhibit 38 describes the key definitions in understanding the status of the universe.

EXHIBIT 38. EXPLANATIONS FOR THE RTA PLAN PROJECT LISTING SHOWN AT EXHIBIT 39.

<table>
<tr><th>Description</th><th>Explanation</th></tr>
<tr><td>RTA Plan Ballot ID</td><td>Original plan project number assigned in the 2006 ballot.</td></tr>
<tr><td>Status</td><td>Status is as of June 30, 2021, based on data from the RTA Web Portal through June 30, 2021:
Complete= No more capital construction or improvements will be implemented and is open to the public. Operational and administrative funds may still be spent.
In Progress= At least one segment or subproject is in design, engineering, construction, or other ongoing stage of delivery.
Not Started= No work has occurred yet on the project nor funds spent.</td></tr>
<tr><td>Year Open</td><td>The year the improvement opened to traffic or, for in-progress projects, the year it was estimated to open as of June 2021. For projects that were in-progress and estimated open dates were unknown due to funding challenges or estimates not yet provided by member jurisdictions, year open was marked as to-be-determined (TBD).</td></tr>
<tr><td>2006 Budget</td><td>The original 2006 budget in nominal 2006 dollars, not including escalation for inflation.</td></tr>
<tr><td>Escalated 2006 Budget</td><td>Original 2006 budgets were escalated to the year that the project was complete and open to the public using national U.S. consumer price indices (CPI) of all consumers in all US cities as shown in the table below. If the project was not yet started or in-progress as of June 30, 2021, the 2006 budget was escalated to the year 2021 because it was the latest year of CPI available and most relevant escalation reference point. All values were rounded to nearest 100 thousand in our analysis and presented to the nearest millionth in Exhibit 39.

For example, RTA Plan Project 4 was open to the public in 2020. The average CPI (from January to December) from 2006 was 201.592 and the original 2006 budget was $48.3 million. The average CPI from 2020 was 258.81. Using an escalation formula of (New CPI divided by Old CPI) times Original Budget = New Escalated Cost, we calculated a new escalated budget for RTA Plan Project 4 to be $62.1 million.

<table>
<tr><th>Year</th><th>2006</th><th>2007</th><th>2008</th><th>2009</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th></tr>
<tr><td rowspan="3">Average CPI</td><td>201.592</td><td>207.342</td><td>215.303</td><td>214.537</td><td>218.056</td><td>224.939</td><td>229.594</td><td>232.957</td></tr>
<tr><th>2014</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th><th>2020</th><th>2021</th></tr>
<tr><td>236.736</td><td>237.017</td><td>240.007</td><td>245.12</td><td>251.107</td><td>255.657</td><td>258.811</td><td>270.258</td></tr>
</table>
Source: U.S. Bureau of Labor Statistics, CPI for All Urban Consumers, U.S. City Average</td></tr>
<tr><td>Expenditures</td><td>All expenditures spent on each project as reported by PAG and member jurisdictions based on best available data through June 30, 2021. PAG provided expenditures of RTA funds were derived from the RTA ledger, and where member jurisdictions did not provide expenditure data to auditors, auditors used PAG provided best known expenditures from the short-term transportation improvement plan ledger. Four member jurisdictions provided expenditure data including ADOT, Marana, Oro Valley, and Tucson. All values were rounded to nearest 100 thousand in our analysis and presented to the nearest millionth in Exhibit 39.</td></tr>
</table>

Description	Explanation
Remaining Cost to Complete	Funds needed to deliver the remainder of the project based on RTA Plan scopes as of December 2021. These numbers are derived from PAG-provided calculation of an external firm's cost estimates from 2019 performed on all projects in the long-range regional transportation plan that included RTA Plan projects, dollars programmed in the fiscal year 2022-2026 transportation improvement plan, and other assumptions of known funding. These costs are a point in time assessment and are subject to change. All values were rounded to nearest 100 thousand in our analysis and presented to the nearest millionth in Exhibit 39.
Total Estimated Revised Cost of Project	This is the sum of expenditures through June 30, 2021 and remaining costs to complete presented in year of expenditure dollars. All values were rounded to nearest 100 thousand in our analysis and presented to the nearest millionth in Exhibit 39.

EXHIBIT 39. STATUS OF ORIGINAL RTA PLAN PROJECTS, AS OF JUNE 30, 2021

RTA Plan Ballot ID	Project Name	Status as of June 30, 2021	Year Open	2006 Budget (RTA & non-RTA $)	Escalated 2006 Budget	Expenditures as of June 30, 2021	Remaining Cost to Complete as of December 14, 2021	Total Estimated Revised Cost ((YOE) as of December 14, 2021
I. Roadway Element								
1	**Tangerine Rd: I-10 to La Cañada**	In Progress	TBD [A]	$74.2M	$99.5M	$61.3M	$63.8M	$125.1M
	Phase 1: Dove Mountain – La Cañada	Complete	Aug-18					
	Phase 2A: I-10, east	Design	TBD					
2	**Camino de Mañana: Tangerine to Linda Vista**	Complete	Nov-10	$15.7M	$17M	$29.9M	-	$29.9M
3	**Twin Peaks Rd: Silverbell to I-10**	Complete	Nov-10	$76.4M	$82.7M	$80.2M	-	$80.2M
4	**La Cholla Blvd: Tangerine to Magee**	Complete	Sep-20	$48.3M	$62.1M	$51.9M	-	$51.9M
	Phase 1: Magee to Overton	Complete	May-14					
	Phase 2: Overton to Tangerine	Complete	Sep-20					
5	**Silverbell Rd: Ina to Grant**	In Progress	TBD [A]	$57.1M	$76.5M	$22.2M	$96.9M	$119.1M
	Phase 1: Grant to Goret	Complete	Jan-17					
	Phase 2: Goret to El Camino del Cerro	ROW	TBD					
6	**Railroad Overpass at Ina Road East of I-10**	Complete	Sep-19	$54.4M	$69M	$39.2M	-	$39.2M
7	**Magee Rd/Cortaro Farms Rd: La Cañada to Thornydale**	Complete	Jul-13	$33.3M	$38.4M	$47.6M	-	$47.6M
	Phase 1: La Cañada to Mona Lisa	Complete	Apr-13					
	Phase 2: Mona Lisa to Thornydale	Complete	Jul-13					
8	**Sunset Rd.: Silverbell to River Rd**	In Progress	TBD [A]	$22.8M	$30.5M	$16.5M	$34M	$50.4M
	Phase 1: Silverbell to I-10	Complete	Apr-17					
	Phase 2: I-10 to River Road	Design	TBD					
9	**Ruthrauff Rd at I-10 and Railroad Overpass**	In-Progress [B]	Oct-21	$59.4M	$79.6M	$116M	$27.6M	$143.6M
10	**La Cholla Blvd: Ruthrauff to River Rd**	Complete	Jul-11	$14.8M	$16.5M	$18M	-	$1.8M
11	**La Cañada Dr.: Calle Concordia to River Rd**	Complete	May-15	$41.7M	$49.1M	$57.8M	-	$57.8M
	Phase 1: Ina to Calle Concordia	Complete	Dec-12					
	Phase 2: River to Ina	Complete	May-15					
12	**Magee Rd: La Cañada to Oracle**	In Progress[C]	Mar-23	$9.6M	$12.9M	$19.9M	-	$19.9M
13	**First Ave: Orange Grove to Ina**	Not Started	TBD [A]	$7.3M	$9.7M	$0	$11.2M	$11.2M
14	**First Ave: River Rd to Grant**	In Progress	TBD [A]	$74.4M	$99.7M	$200M	$138.2M	$138.4M
15	**Railroad Underpass at Grant Rd**	In Progress	TBD	$37.7M	$50.5M	$900M	$32M	$32.9M
16	**Downtown Links: I-10 to Broadway**	In Progress	Spring 2023	$84.7M	$113.5M	$63.6M	$51M	$114.5M
	Phase 1: Storm Drain	Complete	May-12					
	Phase 2: St. Mary's, I-10 – Church Avenue	Complete	Apr-14					

RTA Plan Ballot ID	Project Name	Status as of June 30, 2021	Year Open	2006 Budget (RTA & non-RTA $)	Escalated 2006 Budget	Expenditures as of June 30, 2021	Remaining Cost to Complete as of December 14, 2021	Total Estimated Revised Cost ((YOE) as of December 14, 2021
	Phase 3: 6th Street/Stevens Ave, St Mary's to Broadway	Construction	TBD					
17	**Broadway Blvd: Euclid to Country Club**	In Progress	**Early 2022**	$71.3M	$95.6M	$64.1M	-	$64.1M
18	**Grant Rd: Oracle to Swan**	In Progress	**TBD** (A)	$166.9M	$223.7M	$119.7M	$117M	$236.7M
	Phase 1: Oracle to Stone	Complete	Oct-13					
	Phase 2: Stone to Park	Complete	Oct-18					
	Phase 3/4: Swan to Palo Verde	Design	TBD					
	Phase 5/6: Palo Verde to Park	Design	TBD					
19	**22nd Street: I-10 to Tucson/Barraza-Aviation**	In Progress	**TBD** (A)	$108M	$144.7M	$49.3M	$130.3M	$179.6M
	Phase 1: Kino Grade Separated Intersection	Complete	Oct-15					
	Phase 2: Kino to Tucson UPRR viaduct	Design	TBD					
	Phase 3: Kino to I-10	On hold	TBD					
20	**Barraza-Aviation Pkwy: Palo Verde to I-10**	Not Started	**TBD**	$19.6M	$26.3M	-	$20.8M	$20.8M
21	**Valencia Rd: Ajo to Mark**	Complete	**Aug-20**	$38.2M	$49M	$46.9M	-	$46.9M
	Phase 1: Mark to Wade	Complete	Apr-16					
	Phase 2: Wade to Ajo	Complete	Aug-20					
22	**Irvington Rd, Santa Cruz River East of I-19**	Not Started	**TBD**	$9.8M	$13.1M	$0	$9.8M	$9.8M
23	**Valencia Rd: I-19 to Alvernon**	Not Started	**TBD**	$9.8M	$13.1M	$0	$9.8M	$9.8M
24	**Valencia Rd.: Alvernon to Kolb**	Complete	**Jul-19**	$46.3M	$58.7M	$55.2M	-	$55.2M
	Phase 1: Alvernon to Wilmot	Complete	Nov-15					
	Phase 2: Wilmot through Kolb	Complete	Jul-19					
25	**Valencia Rd: Kolb to Houghton**	In Progress	**TBD** (A)	$34.9M	$46.8M	$7.7M	$37.4M	$45.1M
	Phase 1: Kolb	Complete	Jul-19					
	Phase 2: Houghton	Design	TBD					
26	**Kolb Rd Connection with Sabino Canyon Rd**	Complete	**Jan-17**	$9.1M	$11.1M	$21.3M	-	$21.3M
	Phase 1: Sabino Canyon/Tanque Verde intersection	Complete	Aug-12					
	Phase 2: Sabino Canyon Road extension and bridges	Complete	Jan-17					
27	**Tanque Verde Rd: Catalina Highway to Houghton**	Complete	**Nov-11**	$12.8M	$14.3M	$14M	-	$14M
28	**Speedway Blvd: Camino Seco to Houghton**	Complete	**Jun-12**	$17.1M	$19.5M	$19.2M	-	$19.2M
29	**Broadway Blvd: Camino Seco to Houghton**	Complete	**Mar-20**	$9.6M	$12.3M	$21M	-	$21M
30	**22nd St: Camino Seco to Houghton**	Not Started	**TBD** (A)	$9.1M	$12.2M	$0	$25.7M	$25.7M
31	**Harrison Rd.: Golf Links to Irvington**	Not Started	**TBD** (A)	$6.2M	$8.3M	$0	$8.3M	$8.3M
32	**Houghton Rd.: I-10 to Tanque Verde**	In Progress	**TBD** (A)	$160.6M	$215.4M	$159.4M	$97.8M	$257.2M
	Phase 1: Mary Ann Cleveland/Old Vail intersection	Complete	Jun-10					
	Phase 2: Irvington to Valencia	Complete	Jun-14					
	Phase 3: Broadway intersection; Broadway to 22nd	Complete	Oct-16					
	Phase 4: UPRR Bridge to Mary Ann Cleveland	Complete	Mar-19					
	Phase 5: I-10 to UPRR Bridge	Complete	Nov-19					
	Phase 6: Valencia to Mary Ann Cleveland	Construction	TBD					
	Phase 7: Irvington to 22nd Street	Design	TBD					
	Phase 8: Broadway to Tanque Verde	Not Started	TBD					
33	**Wilmot Rd North of Sahuarita Rd**	In Progress(C)	**Spring 2022**	$9.8M	$13.1M	$6.8M	$2.6M	$9.4M
34	**Sahuarita Rd: I-19 to Country Club Rd**	Complete	**May-15**	$40.8M	$48M	$36.6M	-	$36.6M

RTA Plan Ballot ID	Project Name	Status as of June 30, 2021	Year Open	2006 Budget (RTA & non-RTA $)	Escalated 2006 Budget	Expenditures as of June 30, 2021	Remaining Cost to Complete as of December 14, 2021	Total Estimated Revised Cost ((YOE) as of December 14, 2021
	Phase 1: I-19 to La Villita	Complete	Feb-11					
	Phase 2: La Villita to Country Club	Complete	May-15					
35	**I-19 Frontage Rd**	**Complete**	**Feb-11**	$11.9M	$13.3M	$23.6M	-	$23.6M
	II. Safety Element							
36	**Intersection Safety and Capacity Improvement**	**Complete**	**2026** (D)	$100M	$134.1M	$69.5M	$2M	$71.5M
37	**Elderly and Pedestrian Safety Improvement**	**Complete**		$20M	$26.8M	$15.5M	$0.2M	$15.7M
38	**Transit Corridor Bus Pullouts**	**Complete**		$30M	$40.2M	$13.8M	-	$13.8M
39	**At-grade Railroad Safety and Bridge Deficiencies**	**Complete**		$15M	$20.1M	$10M	-	$10M
40	**Signal Technology Upgrades**	**Complete**		$15M	$20.1M	$8.1M	$2.3M	$10.4
	III. Environmental & Economic Vitality Element							
41	**Greenways, Pathways, Bikeways & Sidewalks**	**Complete**	**2026** (D)	$60M	$80,400	$31.3M	$2.9M	$34.2M
42	**Transportation-related Critical Wildlife Linkages**	**Complete**		$45M	$60,300	$15.1M	$7.8M	$23M
43	**Small Business Assistance**	**On-Going**		$10M	$13,400	$7.4M	$2.3M	$9.7M
	IV. Transit Element							
44	**Sun Tran - Weekday Evening Service Expansion**	**Complete**	**2026** (D)	$37.7M	$50.6M	$28.9M	$15.1M	$44M
45	**Sun Tran - Weekend Service Expansion**	**Complete**		$19.2M	$25.7M	$14.2M	$8.6M	$22.9M
46	**Bus Frequency and Area Expansion**	**Complete**		$178.2M	$238.9M	$106.3M	$11.7M	$117.9M
47	**Special Needs Transit for Elderly and Disabled**	**Complete**		$108.8M	$145.9M	$89.5M	$56.9M	$146.4M
48	**Neighborhood Circulator Bus Systems**	**Complete**		$24.9M	$33.3M	$35.4M	$20.5M	$55.8M
49	**Express Service Expansion**	**Complete**		$62.6M	$83.9M	$19.7M	-	$19.7M
50	**Downtown/University High-Capacity Transit (Streetcar)**	**Construction Complete** but Operational Funding On-Going	**Jul-14**	$162.7M	$191.1M	$85.8M	-	$85.8M
51	**Park & Ride Transit Centers**	**Complete**	**N/A**	$14.7M	$19.7M	$3M	-	$3M
	Grand Total			**$2.4B**	**$3.1 B**	**$1.8 B**	**$1.044 B**	**$2.9 B**
	Complete/Implemented	**30**						
	In-Progress	**14**						
	On-Going	**1**						
	Not Started	**6**						
	Total	**51**						

Note: (A) TBD = Estimated date for project completion depends on when funding needs are addressed. These 11 projects are part of the funding gap as noted in Exhibit 10. (B) RTA Plan Project 9 was completed October 2021 after the close of our audit period. (C) RTA Plan Projects 12 and 33 were substantially completed in November 2015 and June 2017, respectively, but remaining RTA funds were used to do additional intersection work on top of the original scope that were still in progress as of June 30, 2021. (D) Categorical and transit projects have various services and improvements, but projects will not be considered "open" or completed until 2026 when remaining sales tax commitments are spent down and the RTA Plan sunsets.

Appendix C: Auditee Response

April 1, 2022

Ms. Catherine Brady, Director
Sjoberg Evanshenk Consulting
455 Capitol Mall, Suite 700
Sacramento, CA 95814

Re: Pima Association of Governments – Regional Transportation Authority Plan
Fiscal Year 2022 Performance Audit

Dear Ms. Brady:

We have reviewed the recommendations within the above-referenced Performance Audit Report, and our responses are noted following each recommendation:

To strengthen management of total RTA Plan project costs and funding available to mitigate potential funding gaps, RTA should:

Recommendation 1: *On an annual or more frequent basis, require member jurisdictions to submit complete capital project cost estimates and actual expenditure data from regional and local sources. RTA should monitor and summarize the revised cost estimates in addition to all available funding sources to pay for project costs to further enhance RTA's gap analysis.*

Response:

The Auditor General's finding is agreed to, and the audit recommendation will be implemented.

Despite collecting lower-than-anticipated RTA sales tax revenues due to the great recession, the RTA Board demonstrated the capability to fund all the RTA roadway element projects at the voter-approved ballot amounts, as promised, by using non-RTA regional funds.

In the face of new economic and financial uncertainty, it is now even more important that all the RTA partners adhere to RTA plan principles and honor the integrity of the

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Pima Association of Governments 1 E. Broadway, Suite 401, Tucson, AZ 85701 (520) 792-1093 [tel] (520) 620-6981 [fax] PAGregion.com [web]

promises made years ago to the citizens of this region. The RTA Board has demonstrated strong leadership and urges our members to stay the course in any potential future challenges that may occur in delivery of the remaining RTA projects.

The RTA is actively working with its member agencies to update cost estimates and secure the needed non-RTA revenue resources for cost increases. The RTA will enhance these efforts by requiring regular, accurate reporting by the lead agencies of all non-RTA funding spent on all RTA projects.

The recommendations will be implemented by RTA staff through a comprehensive review of the existing intergovernmental agreements and followed by a request for the lead agencies to confirm their expenses/commitments of non-RTA funding, as shown in the voter-approved RTA plan, or to pledge additional needed non-RTA funding to cover ineligible project costs or incremental cost increases due to locally preferred project scope changes, pursuant to RTA statutes.

Recommendation 2: *Continue working with local jurisdictions to secure needed non-RTA funding for RTA Plan projects before and after the end of the RTA Plan on June 30, 2026.*

Response:

The Auditor General's finding is agreed to, and the audit recommendation will be implemented.

The recommendation will be implemented by RTA staff through a formal request, pursuant to the executed intergovernmental agreements and the board-approved Administrative Code for the lead agencies to confirm:

- lead agencies' pledged local funding commitments as shown in the voter-approved RTA plan
- other committed or officially earmarked local funds to each project
- availability of additional local funding or non-RTA funding needed to complete each project
- commitment of local funds for incremental cost increases due to locally preferred scope expansions

Additionally, the RTA will continue to identify ineligible project costs in its updates to the funding needs analysis report, such as utility expenses that are the sole responsibility of the utility providers (public or private) for roadway improvements. Utility improvement costs shall not be funded by the RTA or other regional transportation funds already committed to the RTA projects, unless confirmed prior rights exist for the utility's use of the rights of ways.

Similarly, floodplain improvements, water and wastewater improvements, or utility relocation costs and all ancillary costs for design, construction and risks associated with

non-RTA related improvements are not eligible RTA expenses, per RTA legislation, and must be borne by each respective responsible entity causing the cost increase.

Also, incremental cost increases due to the locally preferred scope changes are the responsibility of the local entity pursuant to the RTA statutes and will not be borne by the RTA.

The RTA has a fiduciary duty to spend RTA funds per state laws governing the use of RTA tax revenues.

At its sole discretion, however, the RTA Board may consider providing supplemental funding only for eligible RTA-approved expenses and in compliance with the voter-approved RTA project scope elements.

To continue improving its performance measurement framework and provide additional accountability, PAG and RTA should consider the following:

Recommendation 3: *Formally study and quantify the cost-benefit of obtaining raw performance data including the cost of dedicating resources for data refinement, validation, analysis, and reporting.*

Response:

The Auditor General's finding is agreed to, and the audit recommendation will be implemented.

PAG will be reviewing commercially available performance data sets and the validity of the data, as well as the cost of enhancing direct collection of data.

Recommendation 4: *Consider avenues for obtaining actual data such as partnering with other regional or state partners to acquire and prioritize certain key data for performance assessment, in addition to develop a plan with timelines to pursue these avenues so that performance can better be assessed.*

Response:

The Auditor General's finding is agreed to, and the audit recommendation will be implemented.

PAG will continue to consider how it may obtain additional key data to enhance its performance assessment activities.

Recommendation 5: *If modeled data continues to be used for performance measurement, provide sampling and validation of the model output to ensure accuracy of the modeled data. Alternately, provide supplemental or contextual information to the*

PAG Regional Council and RTA Board of Directors regarding data limitations and caveats on actual versus modeled data.

Response:

The Auditor General's finding is agreed to, and the audit recommendation will be implemented.

Model sampling and validation is an ongoing and iterative process. As such, limitations on the use of data will be underscored by PAG. Similarly, data will be clearly identified as either modeled or observed/collected when used for performance measurement reporting for additional context.

We look forward to presenting RTA's progress to the public and state legislators for the second time in the short 15-year life of the RTA plan implementation. As the RTA entered its 15th year, Senate President Karen Fann recognized the RTA's ability to honor its promises to the voters as confirmed in the 10-year performance audit. (Please see attached letter.)

With the RTA's record of keeping our promises, it is anticipated that the voters will once again embrace future investments in our regional mobility and accessibility to enhance the performance of the region's transportation infrastructure.

In closing, we want to thank the audit team as well as the Auditor General and staff from the Auditor General's office for their hard work and dedication in conducting a comprehensive audit and providing a detailed report for PAG and the RTA to use to continue to meet the RTA's statutory and fiduciary duties and deliver on the RTA's promise to the voters.

Sincerely,

Farhad Moghimi, P.E.
Executive Director

cc: RTA Board of Directors
PAG Regional Council
Dale Chapman, Director of Performance Audit Division, Arizona Auditor General
Dot Reinhard, Performance Auditor Manager, Arizona Auditor General

Attachment

KAREN FANN
SENATE PRESIDENT
FIFTY-FOURTH LEGISLATURE
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DISTRICT 1

COMMITTEES:
Rules, Chairman

Arizona State Senate

April 20, 2020

Dear Regional Transportation Authority Board of Directors:

During the Regional Transportation Authority's (RTA) educational campaign in 2006 for a 20-year regional transportation plan and sales tax initiative, the RTA Board of Directors was crystal clear about its intention to deliver to voters the projects identified in the proposed plan.

The RTA Board signed a pledge to maintain the projects as identified in the plan presented to the voters. The pledge was met with positive support from RTA stakeholders and the community, and the voters in the region ultimately agreed that the RTA can be trusted to deliver by approving the plan with a 3-2 margin.

These same voters were previously contemptuous of trusting the government to use their tax dollars as promised — tens of millions of tax dollars — spent on nonessential programs. With the pledge and clear mandate from voters, the RTA promised to be transparent and accountable to the wishes of the voters.

That promise has since guided every action by the RTA Board and the Pima Association of Governments' Regional Council, which manages the RTA to deliver RTA projects, especially during the 2008 Great Recession and amid other challenges.

As the mandatory, independent 10-year state performance review of the RTA concluded, both PAG and RTA leadership stepped up to the plate with good policies that were financially prudent to honor their promise to voters to deliver projects.

So, kudos to you and your executive team for keeping your word to the voters. With the passage of the 2006 RTA plan, the greater Tucson region put jobs and economic growth as a priority. The success of the RTA has paid off for your communities.

As you enter the 15th year of RTA plan implementation in FY 2020-21, the remaining years of RTA plan implementation will be even more critical for the region to work together and honor the will of the voters, as they begin to decide how to meet the needs of the region for the next 20 years.

By far, your steadfast balanced budgeting policy that focuses on delivery of priority projects and services has served your region well. I encourage you to stay the course to carry forward the fiscally responsible model of your success.

Sincerely,

Karen Fann
PRESIDENT
Arizona State Senate