

# Transit Comprehensive Operational Analysis

Final Report | 2024



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# Introduction

The Tucson regional transit Comprehensive Operational Analysis (COA) is an opportunity to improve transit options in the Greater Tucson area to create a more equitable, effective, and efficient transit network. It reviewed and evaluated the Sun Tran, Sun Link, Sun Express, and Sun Shuttle services and developed a Final Plan for improving the overall transit network in a series of phases over the next few years. The plan is resource-neutral, meaning that it reallocates the transit systems' existing hours and miles of service into a new configuration that better responds to local mobility needs. This Final Report provides an overview of the Final Recommendations and Service Plan as well as a summary of the data and public input that informed the development of recommendations. The report is organized with the following sections:

## Overview of Existing Conditions

- Market Analysis – understanding of population, employment, and demographic patterns that may affect transit demand; understanding of regional travel patterns; analysis of the built environment and its impact on transit service.
- Service Evaluation – understanding of the performance of current transit services; review of ridership trends, route-level performance, community transit access, and strengths and weaknesses of current service delivery.
- Public and Stakeholder Engagement Phase I – outreach to the public, riders, and stakeholders included a survey and in-person meetings to solicit input for potential service changes.

## Draft Plan Development

- Guiding Principles – the framework in which the draft and final plans were created, and which governed the development of the network.
- Draft Service Plan Overview – the draft service plan was developed based on the findings from the overview of Existing Conditions as well as input from the Public and Stakeholder Engagement Phase I efforts.
- Public and Stakeholder Engagement Phase II – outreach to the public, riders, and stakeholders to solicit input on the draft recommendations.

## Final Plan Overview

- Alignment Improvements – description of major proposed alignment changes.
- Frequency and Span Improvements – summary of major proposed frequency and span changes by route and day type.
- Access Improvements – summary of changes in access to frequent transit service by demographic group.
- Final Plan Impacts – overview of stops with decreased access.
- Phasing the Plan – based on the final plan and resources to ensure that each phase is cost neutral.
- Financial Plan – summary of the estimated resources and operational costs associated with the final plan
- Title VI Analysis – ensuring that the final plan does not place a disproportionate burden on low-income populations or a disparate impact on minority populations.
- Public Engagement Phase III – outreach to the public to inform them of the final service plan

## Service Monitoring

- Proposed strategies that Sun Tran and Sun Shuttle can use to monitor and improve service performance.

**FIGURE 1: SUN TRAN BUS AT TOHONO T'ADAI TRANSIT CENTER**



# Overview of Existing Conditions

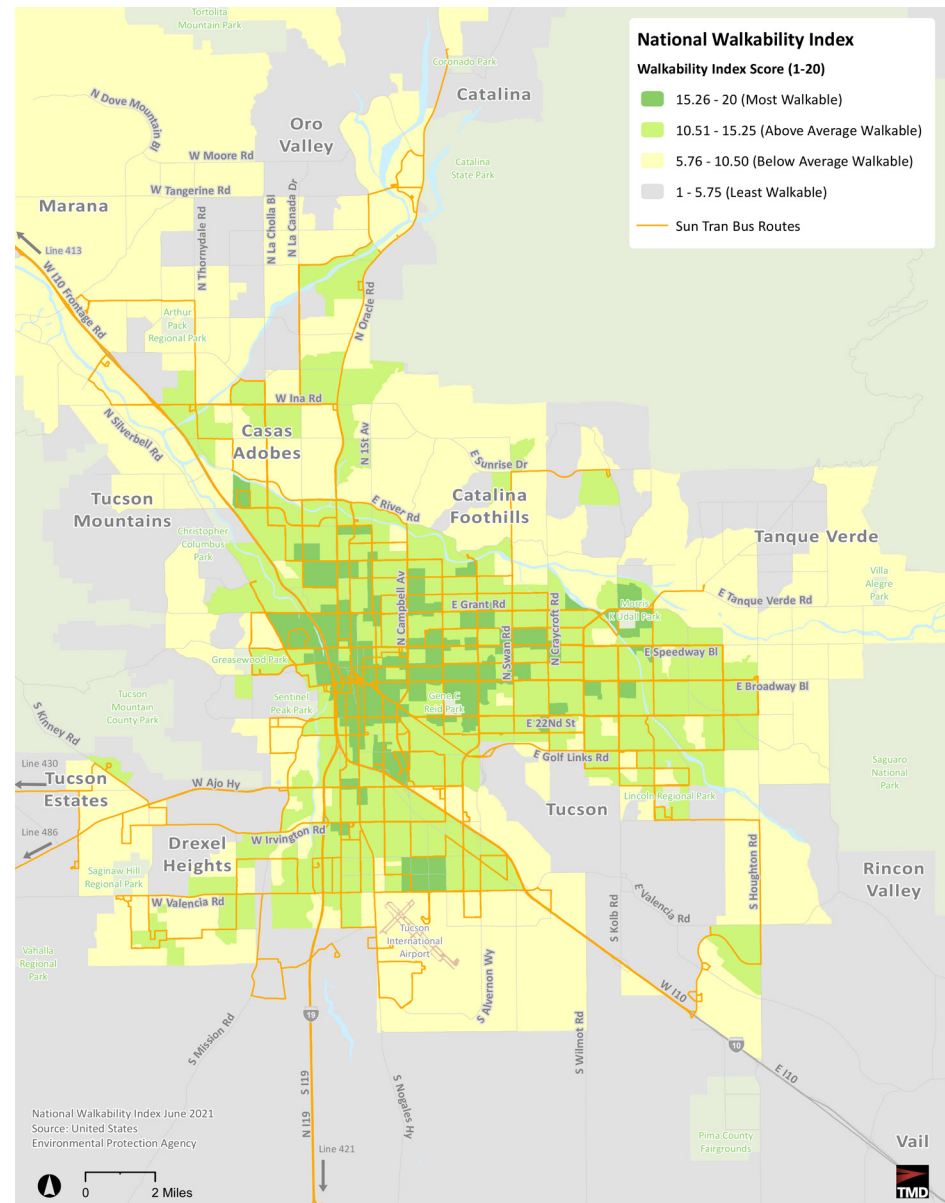
The COA began with a comprehensive look at current market conditions, demand for transit service, and performance of existing Sun Tran, Sun Shuttle, Sun Express, and Sun Link services. Detailed information can be found in Appendix A: Milestone One Report (Market Assessment) and Appendix B: Milestone Two Report (Service Evaluation) documents.

## Market Assessment

The Milestone One report examined current market conditions to understand the demand for transit in Greater Tucson with the following key takeaways:

- **Built Environment:** The City of Tucson has a strong half-mile major street grid which presents an ideal environment for transit service. Straight, direct routes spaced a half-mile apart minimize travel distance to transit while allowing for direct routes to major destinations. A grid structure means anyone can get anywhere in the city with, at most, one transfer. Developments outside of the core grid are more difficult to serve efficiently with transit – walking distances are longer, destinations are more spread out, and the community must make choices in which major streets should be served. As the population grows and development moves outwards, transit staff will have to make an increasing number of decisions on how to effectively provide transit service in these areas. Additionally, from Figure 2, the above average walkability score that covers the majority of the City of Tucson and Sun Tran routes means that accessing the bus is relatively easy for the 95% of riders who walk to access their first transit stop and final destination.
- **Transit Propensity:** The current transit network provides good coverage to densities of populations more likely to use public transit. However, transit service decreases south of I-10, with lower service frequencies and less direct routes. This is an area with a very high minority (predominantly Hispanic) population that is likely underserved by the current transit system.
- **Downtown and University of Arizona:** While Downtown Tucson and the University of Arizona are the focus of many transit routes, these zones only generate 5% of trips across all modes made throughout the region. Increased transit connections outside of the central downtown area may allow for more direct travel between major trip generators.

FIGURE 2: NATIONAL WALKABILITY INDEX



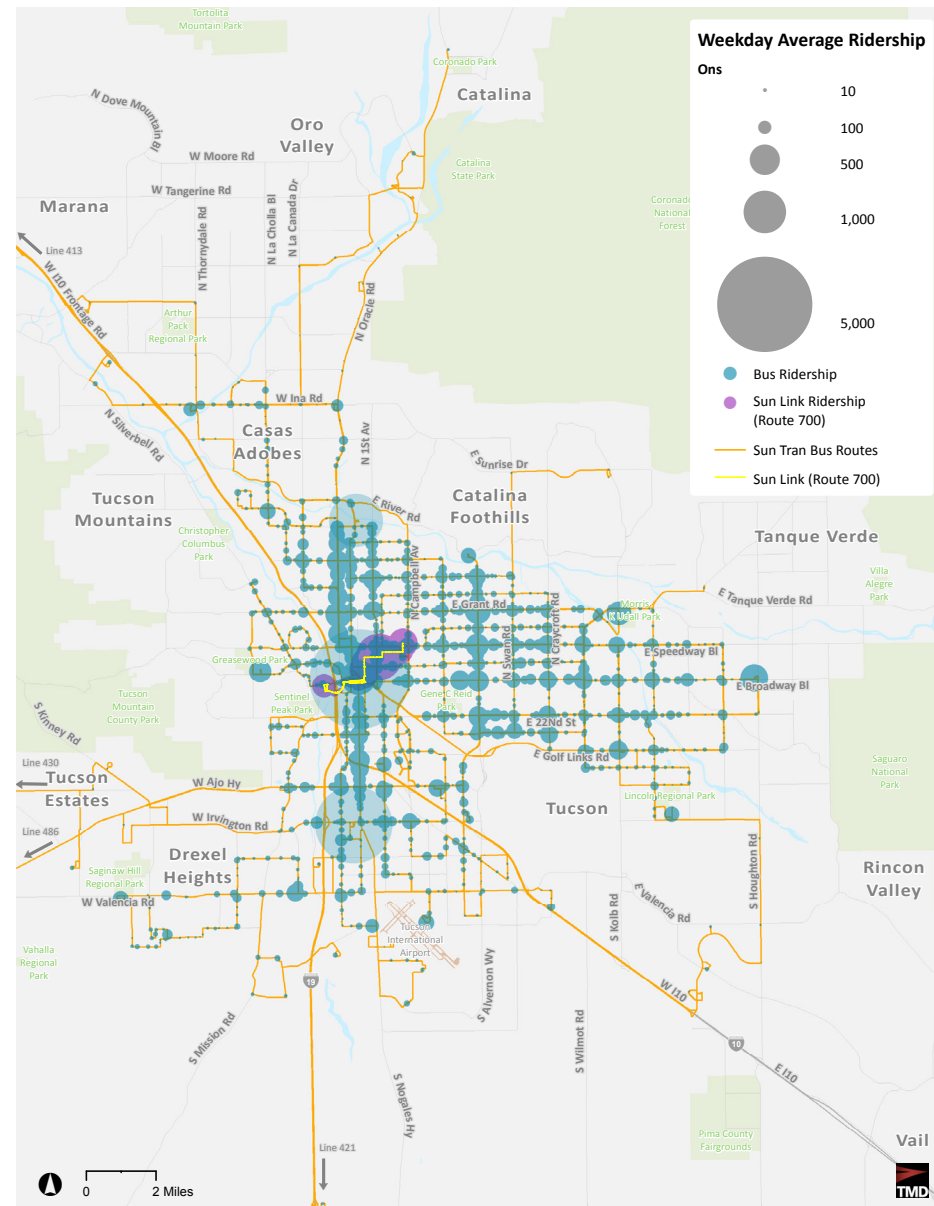
- **Majority of Trips are Discretionary:** Transit has historically focused on serving work and school trips, but these only account for 15% of all trips being made in the region, only half the amount of shopping trips. Work and school trips are the easiest to complete using transit – these trips are the same every day, and they are often the longest trips people make since there is little choice in their location. Discretionary trips for shopping, dining out, or socializing are harder to complete on transit because they tend to be more spontaneous and have different destinations each time, which generally requires advance planning. The transit system can work to attract more riders for discretionary travel by improving frequencies to make transit options more convenient and more time-competitive with other modes.

## Service Evaluation

The Milestone Two report examined current service performance to understand the strengths of operation, ridership patterns, and opportunities for improvement in existing transit services with the following key takeaways:

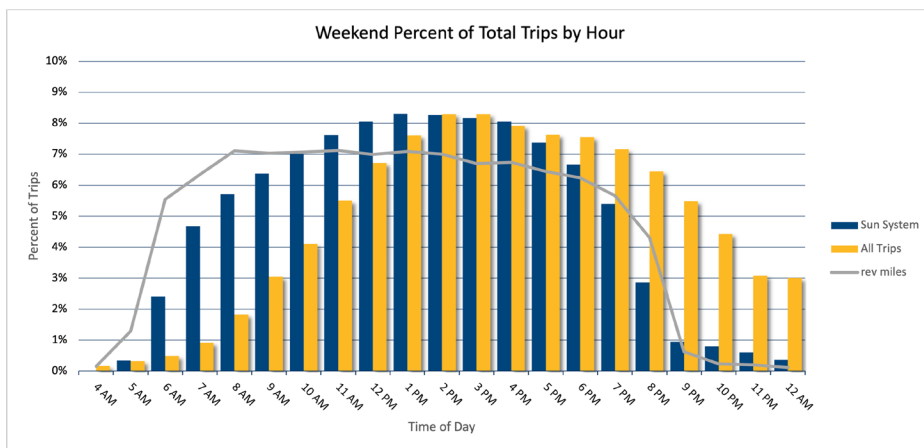
- **Strong Grid Performance:** Overall, Sun Tran has strong route performance, carrying an average of 24.5 passengers per hour (pph). The grid design of the street network allows for straight, direct routes that can be operated efficiently with few deviations. High-frequency routes in the core of the grid tend to have higher productivity than those with lower frequencies away from the urban center. The strong performance of these routes forms a solid foundation for a robust high-frequency transit network. In Figure 3 the stops with the most ridership are also the stops that are along the mile grid system, this includes routes 7, 8 and 9, compared to routes 1, 3 and 5, which have lower ridership and are on the half-mile.
- **Need for Additional Weekend Service:** Lack of weekend service—both in frequency and span—greatly affects the use of the system. The topmost requested service improvement in the 2022 onboard rider survey was more weekend service. With weekend service levels roughly half of what they are on weekdays, it is much harder for riders to rely on transit. There are roughly 90% as many trips across all modes being made on weekends as compared to weekdays, but transit only provides about 50% as much service. Additional weekend service is needed such that frequent riders can conveniently use transit for mobility every day of the week.

**FIGURE 3: WEEKDAY AVERAGE RIDERSHIP**





**FIGURE 4: WEEKEND PERCENT OF TOTAL TRIPS BY HOUR**



- **Clockface Headway vs. Efficiency:** All Sun Tran routes operate on clockface headways (15, 20, 30, or 60 minutes). This is great for helping passengers remember the schedules and for timing connections at transfer centers. However, forcing routes to fit within certain cycle times can create inefficiencies in scheduling by requiring complicated interlines with other routes or excess layover at the end of the line. In a resource-constrained environment, there is a tradeoff between maintaining clockface headways and scheduling to maximize efficiency to free up resources for investment elsewhere in the network.
- **Transit Centers:** In a truly grid system, transfers take place on-street where routes intersect. Sun Tran is organized such that most transfers take place at three major transfer hubs (Ronstadt Transit Center, Tohono T'adai Transit Center, and Roy Laos Transit Center). Rider behavior shows a preference for transferring at a transit center rather than on-street. In some cases, riders travel farther than necessary to transfer at a transit center when they had a earlier opportunity to connect with another route on-street. Needing to have routes converge at a hub inevitably results in considerable overlap between routes and can add running time and cost if routes must deviate out of their natural path to serve a hub. However, encouraging more on-street transfers may be difficult without the additional investment in pedestrian amenities that allow riders to feel safe waiting at and crossing intersections.

- **Role of Sun On Demand:** Sun On Demand currently operates in two zones providing curb-to-curb service in areas with minimal fixed route availability. While these services helped Sun Tran save on fixed-route costs by replacing portions of fixed-route service with on-demand service, they are relatively low-performing, carrying only 10 to 20 riders a day. In both zones, limited fixed-route service still operates, and many trips start and end along another bus route. The fixed-route service in these zones is also low-performing, and there may be some opportunities to further consolidate the services to gain more efficiency and optimize the use of resources.

## Public and Stakeholder Engagement – Phase I

A robust community outreach effort is critical to developing a successful plan that proposes changes to the bus network. The COA included three rounds of public engagement events. Phase I focused on collecting input from riders, non-riders, and stakeholders on what attributes of the Transit networks could be improved while Phase II collected input on draft recommended route and schedule changes (See Public and Stakeholder Engagement – Phase II). There was a third and final phase of public outreach outside the scope of the COA proposal, added at the direction of City of Tucson leadership. The purpose of Phase III was to inform the community about the Final Recommendations and Service Plan following revisions made based on community input in Phase II. Detailed information on the events and input from each phase can be found in Appendix C: Transit COA Outreach Phase I Summary, Appendix D: Transit COA Outreach Phase II Summary, and Appendix F: Public Input Report Phase III Summary.

Phase I events were held from January-April 2023 and included six pop-up events at major transit center and ridership locations, one virtual stakeholder meeting, two virtual public meetings, and three open house events at Mission Manor Park, Sosa-Carillo-Fremont House Museum, and the Fred Archer Center. Additionally, a Phase I survey was distributed to riders and community members asking about their current transit use habits and opinions on Sun Tran services. A total of 387 survey responses were collected, as well as around 200 comments collected through the website or at the events.








Primarily, the survey found that 43% of riders rank more frequent service as their top desired service improvement, followed by 17% cost of fares, 10% more weekend service, 8% shorter travel times, 7% reliable service, 6% longer operating hours, 5% shorter walks to bus stops, and 4% fewer transfers.

The survey also asked respondents what time of week it is most important to have longer service hours, and 59% requested later service on weekend evenings. This overwhelming majority reflects the limited span of many routes on weekends, with some ending as early as 6 or 7 pm. The Phase I survey identified key priorities for service investment – more frequent service and service later into the evenings on weekends – and the draft plan focused on emphasizing these improvements.

**FIGURE 5: WHAT SERVICE IMPROVEMENT IS MOST IMPORTANT TO YOU?**

### What Service Improvement is Most Important to You?

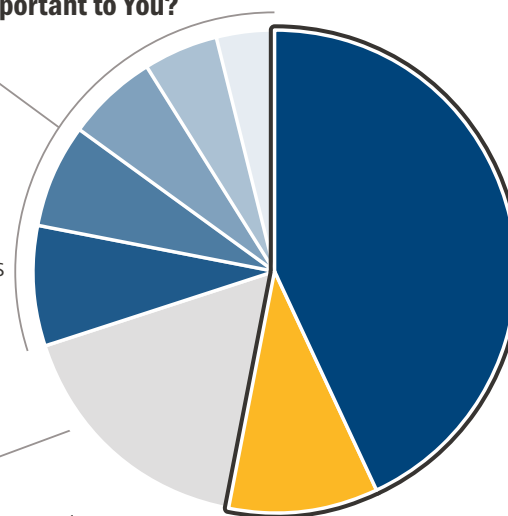
The remaining **30%** of riders prioritized:

-  8% - shorter travel times
-  7% - reliable/on-time service
-  6% - longer operating hours
-  5% - shorter walks to bus stops
-  4% - fewer transfers

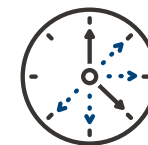


**17%**

of riders are concerned about the cost of fares



**53%** of riders ranked additional service as most important.



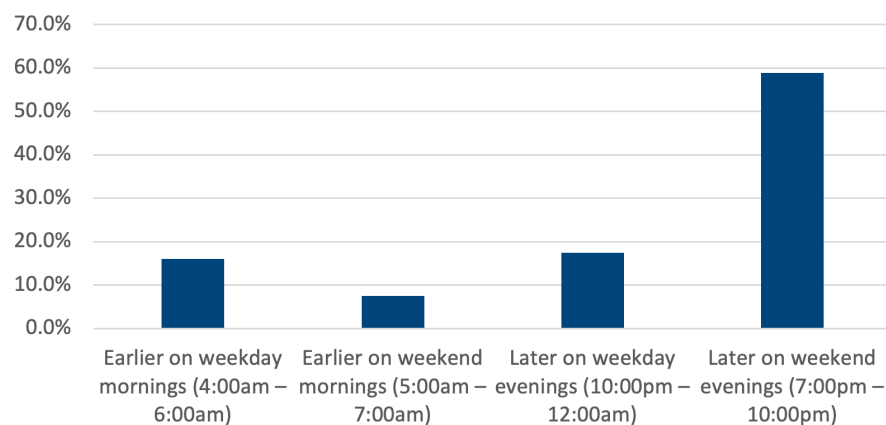
**43%** of riders want more frequent service



**10%** of riders requested more weekend service

**FIGURE 6: WHAT TIME OF THE WEEK IS MOST IMPORTANT FOR SUN TRAN TO PROVIDE LONGER HOURS?**

### What time of the week is it MOST important for Sun Systems transit to provide longer hours?



# Plan Development

## Guiding Principles

The Sun Tran Comprehensive Operational Analysis (COA) Draft and Final Plans were developed by incorporating the findings from the Market Assessment, Service Evaluation, and the key takeaways from the Public Engagement efforts. To develop individual route recommendations, it is important to establish overarching guiding principles for the development of the network. The guiding principles for the COA Plan are as follows:

**Realign routes to provide more direct rides to key destinations.** The Sun Tran bus network is designed as hybrid between a hub-and-spoke and grid system. The city streets are primarily designed around a one-mile grid, and bus routes are designed to operate north/south and east/west along major arterial roadways. In a true grid, riders should be able to reach most destinations with a single transfer and can transfer on-street at major intersections. Sun Tran also operates three major transit centers that account for 20% of daily boarding activity and serve as major transfer hubs between routes. With the current system design, many routes are forced to terminate at transit centers, especially on the south side. While this helps make transferring convenient, it also forces the need for additional transfers, since corridors are broken up, disrupting riders' trips. ***The COA plan focuses on maintaining corridor integrity so riders can complete trips along a single corridor without having to transfer.***

**Invest in high-frequency 15+ minute service on key corridors.** Frequency of service is the number one factor that encourages transit ridership, and 43% of riders listed more frequent service as their top desired service improvement. At frequencies of 15 minutes, buses come often enough that most people will simply show up at a stop without consulting a schedule. Being able to use transit service spontaneously without excessive trip planning makes it more convenient and more attractive. Since Tucson's bus system is heavily designed around a grid, most riders will need to transfer at least once to complete their trip. Frequency becomes even more important when riders are transferring, because they cannot plan their arrival at the stop but desire minimal wait times between trips. ***The COA plan emphasizes building a network of frequent routes, building off Sun Tran's existing Frequent Transit Network (FTN). Under the Final Plan, six routes are proposed to have all-day 15-minute service on weekdays, serving 30% of current Sun Tran riders, increasing***

***from five routes in the existing network.***

**Improve access and quality of service for traditionally underserved communities.** Provision of affordable and accessible transportation options is critical for maintaining a high quality of life. One goal of the COA is to expand public mobility options to traditionally underserved communities, providing transit opportunities where private automobile access is typically lower, and residents are generally more reliant on public transportation. This expansion includes not just additional frequency, but also a much broader service span, providing access to service later in the evenings outside of 9-5 job shifts to help those working second and third shifts. ***In the existing full network, 14% of minorities and 20% of low-income residents have access to 15-minute service within a half-mile; in the Final Plan, 22% of minorities and 30% of low-income residents will have access to 15-minute service within a half-mile.***

**Extend service hours to 11 pm on weekdays and 10 pm on weekends.** Short service spans limit rider ability to use the transit network for all of their trips. With many residents working second and third shift jobs, transit services must be available not just to get them to work, but to get them home from work in the late evening or early morning as well. Longer service spans also benefit residents wishing to use the bus for recreation purposes on weekends and in the evenings, especially around Downtown and the U of A campus. Some lower ridership routes have service ending as early as 6 p.m. or 7 p.m., and the Plan attempted to increase the span to a minimum of 9 p.m. on the majority of routes. ***The Final Plan increases evening hours for 11 Sun Tran routes on weekdays, 22 routes on Saturdays, and 19 routes on Sundays.***

**Add frequency on weekends so transit is more convenient for people working service jobs, shopping, and recreation.** Sun Tran currently operates about 50% of weekday service levels on weekends, with most routes seeing a decrease in frequency from 30 to 60 minutes. Previous surveys have found high demand for additional weekend service. With many residents working service jobs, they need to have the same transportation options available to them seven days a week, and reduced weekend service levels could greatly lengthen travel times for weekend commuters. For riders who do not work on weekends, most trips are discretionary and can be made at any time. For these types of trips frequency becomes more important. Riders want to travel when it's convenient for them rather than having to plan their entire day around the bus schedule. ***The Final Plan increases Saturday service by 7.3% and Sunday service by 18.3%.***

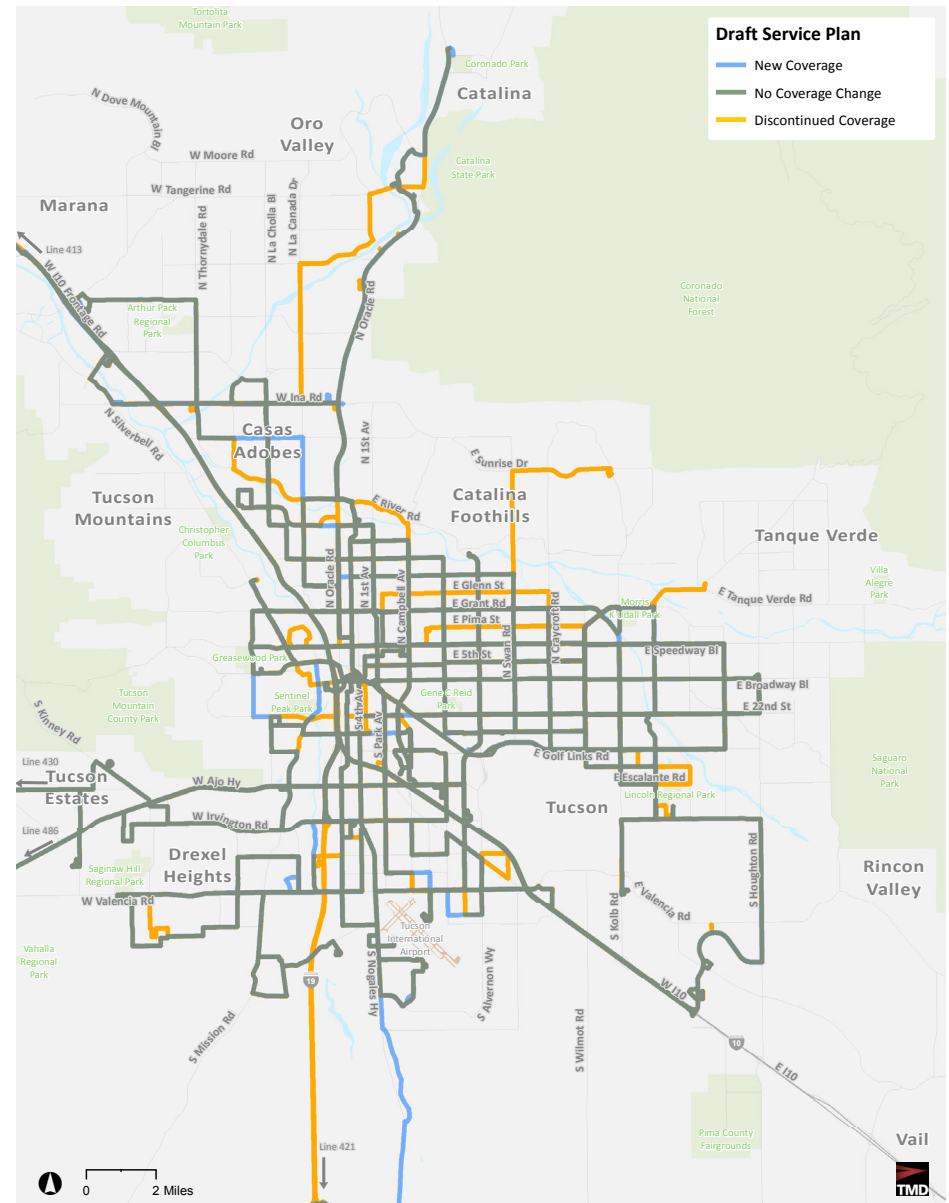
The Final Service Plan for the COA is cost-neutral, reallocating Sun Tran's existing resources. One inevitable tradeoff is that improving frequencies and extending service spans requires additional resources that must come from elsewhere in the network. To afford these improvements, the network design identified multiple strategies for improving efficiency to make the most use out of available resources. These strategies included:

- **Minimizing service overlap and duplication:** In a true grid system where each route operates north/south or east/west on its own street, there is very minimal overlap in routes. However, in Sun Tran's system, the convergence of routes at major transit centers leads to a lot of overlap on the surrounding streets, and there are many examples of routes operating on the same streets or very close to one another. The Plan proposes to discontinue routes or route segments where the overlap was concluded to be competing for riders.
- **Adjusting route scheduling to reduce inefficiency:** Sun Tran operates all routes on a clockface headway, meaning that trips are an even 15, 20, 30, or 60 minutes apart. The regular schedules are clean and easy for riders to remember. However, forcing routes to stick to these exact headways can be inefficient, leading to excess layover time where the bus sits idle at the end of its route before starting its return trip. Where there were current inefficiencies, the Plan adjusts frequencies to non-clockface headways to avoid needing an additional vehicle to operate the route. It also makes use of route interlines where a single bus may operate on two different routes.
- **Increase routes passing through (or by) transit centers:** With the current design, few routes pass through a transit center. Rather, routes terminate at the transit center with riders forced to transfer to a new route, even if they are traveling along the same corridor. This has its benefits – routes can be more easily timed to arrive/depart the transit center at certain times, and transit centers are often better-equipped with operator facilities than other end-of-line locations – but it can also be inefficient if buses are forced to deviate from a direct path or if the resulting running time is inefficient and causes excessive layover. The Plan merges some routes to create a single route that travels through a transit center. In some cases, the Plan also strategically reduces out-of-direction deviations to serve transit centers, while encouraging on-street transfers.

## Draft Service Plan Overview

The Draft Service Plan was developed based on the findings from the existing conditions analyses and the key takeaways from the Phase I outreach efforts.

**FIGURE 7: DRAFT SERVICE PLAN**



Using the guiding principles outlined above, the Draft Service Plan focused on providing robust expansions in frequency and span, especially on evening and weekends to address rider priorities. To do so, it recommended focusing frequency service on the one-mile grid while discontinuing intermediate routes every half mile. The frequency vs. coverage trade-off is well-known across the transit industry – given limited resources, agencies have the choice of having fewer routes but more frequent service or more routes with less frequent service. The Draft Service Plan took a frequency-based approach, concentrating more resources in a fewer number of routes. This primarily included the recommendation to discontinue service on portions of Routes 1-Glenn/Swan, 3-6<sup>th</sup> St/Wilmot, and 5-Pima/W. Speedway which operate at the half-mile intervals between proposed 15-minute corridors on Grant Rd, Speedway Blvd, and Broadway Blvd.

In addition, the Draft Service Plan proposed route modifications that moved the network more towards a grid design and away from a hub-and-spoke system with less reliance on transfers at transit centers. Changes included introducing a new north-south route along Wilmot Rd which currently does not have continuous service as well as a new westside connector route linking communities west of I-10 without requiring a downtown transfer.

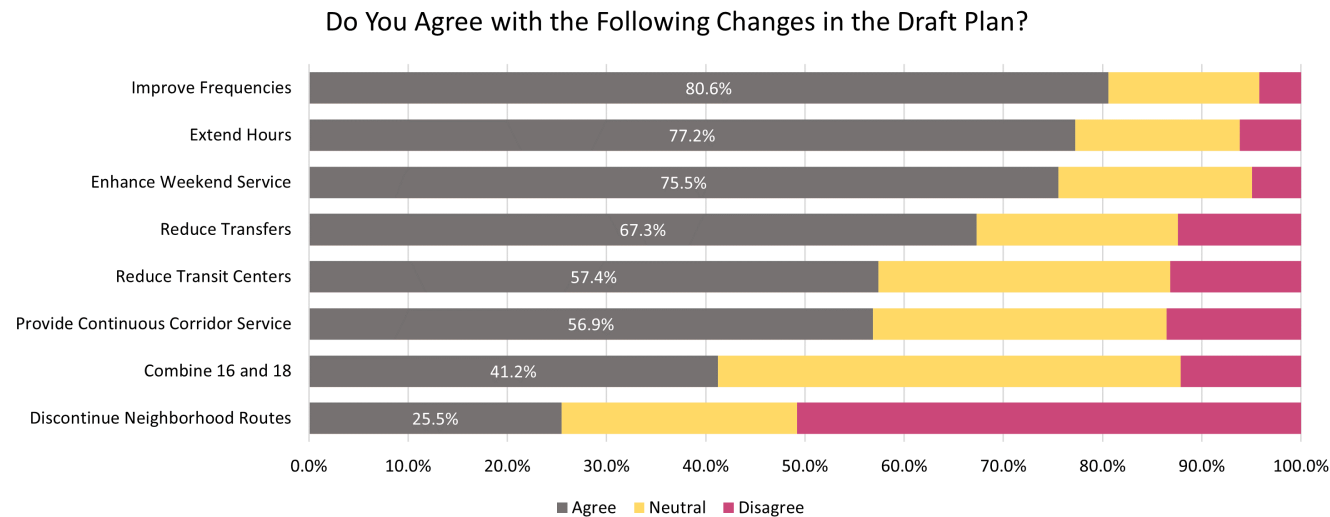
The Draft Service Plan recommendations were shared with riders and the general public in late summer 2023.

## Public and Stakeholder Engagement – Phase II

The second round of community outreach events took place from July-October 2023 and shared draft service concepts for each route in the Sun Tran, Sun Express, and Sun Shuttle networks. Events included three pop-ups at the transit centers, one virtual stakeholder meeting, two virtual public meetings, 13 in-person town hall meetings, one meeting with Sun Tran employees and operators, and seven briefings with elected officials. In total, almost 3,000 comments were collected, of which 2,534 came from survey responses, with the remaining coming from website comments and community events. More information on the outreach events and public comments can be found in Appendix D: Transit COA Outreach Phase II Summary.

Respondents were asked whether they agreed or disagreed with a series of major changes within the Draft Service Plan. The change with the most agreement was “Improving frequencies on major corridors” with 80.6% of respondents selecting “Strongly Agree” or “Agree”, closely followed by “Extending service hours to 11 p.m. on some weekday routes and 10 p.m. on some weekend routes” at 77.2% and “Doubling the number of weekend routes operating every 30 minutes” at 75.5%. The change with the least agreement was “Discontinuing service on neighborhood roads to provide more frequent service on major streets,” with only a quarter of respondents agreeing with this change.

FIGURE 8: DO YOU AGREE WITH THE FOLLOWING CHANGES IN THE DRAFT PLAN?



While many respondents were excited about additional frequencies and longer service hours, a substantial number were concerned about proposed route discontinuations or realignments. In fact, 27% of all 3,000 comments received referred to the proposed discontinuation of portions of Routes 1-Glenn/Swan, 3-6<sup>th</sup> St/Wilmot, or 5-Pima/W. Speedway. Based on the comments received through this effort, the project team made a significant number of changes between the Draft Plan and Final Plan. Many of these changes focused on restoring service to areas proposed for discontinuation under the draft plan and include the following:



**TABLE 1: CHANGES BETWEEN THE DRAFT AND FINAL RECOMMENDATIONS**

Route	Draft Recommendation	Final Recommendation
<b>1-Glenn/Swan</b>	Discontinue Route 1 to focus on 1-mile grid spacing, reinvesting the resources into higher frequencies on surrounding routes. Service on Swan would be covered by a new Route 31, and service on Glenn would be completely discontinued.	Do not discontinue service; switch route tails with Route 34 and operate north/south on Craycroft Rd instead of Swan Rd.
<b>2-Pueblo Gardens</b>	Extend service westward along E 29 <sup>th</sup> St to Cholla High School, providing east/west crosstown service.	Maintain existing alignment between Downtown and Banner-University Medical Center due to concerns over losing direct connections to Downtown/RTC.
<b>3-6<sup>th</sup> St/Wilmot</b>	Discontinue Route 3 to focus on 1-mile grid spacing, reinvesting the resources into higher frequencies on surrounding routes.	Do not discontinue service; restore current alignment except the deviation to Camino Seco.
<b>5-Pima/W. Speedway</b>	Discontinue Route 5 to focus on 1-mile grid spacing, reinvesting the resources into higher frequencies on surrounding routes.	Do not discontinue service; restore current alignment.
<b>9-Grant/Kolb</b>	Route 9 would operate along Grant Rd, assuming service on Park Ave from discontinued Route 1 and service on Craycroft Rd from Route 34. It would overlap with new Route 39 to provide 15-minute service on Grant Rd between Park Ave and Craycroft Rd.	Extend current alignment south on Kolb to PCC East on Grant and Kolb. Coupled with the extension in alignment, weekday frequency would decrease to 30 minutes.
<b>21-W. Congress St./Silverbell</b>	Create a new north/south crosstown route on the west side of I-10 by merging Routes 21 and 23. The route would operate from Silverbell Rd to W Valencia Rd, connecting major shopping destinations.	Maintain existing Route 21 alignment due to concerns about losing direction connections into Downtown/RTC via the Congress St corridor.
<b>23-Mission</b>	Create a new north/south crosstown route on the west side of I-10 by merging Routes 21 and 23. The route would operate from Silverbell Rd to W Valencia Rd, connecting major shopping destinations.	Maintain existing Route 23 alignment due to concerns about losing direction connections into Downtown/RTC.
<b>31-Swan/Ft. Lowell *New*</b>	Create a new Route 31 combining the segment on Fort Lowell from Route 34 and segment on Swan Rd from Route 1.	Do not introduce a new route.
<b>33-Wilmot *New*</b>	Create a new Route 33 between Udall Transit Station and PCC East on Wilmot Rd.	Do not introduce a new route; restore Route 3 to its current alignment.
<b>34 – Fort Lowell/Craycroft</b>	Discontinue Route 34. New Route 31 would operate on Swan Rd and Craycroft would be covered by the modified Route 9.	Do not discontinue Route 34; switch route tails with Route 1 and operate north/south on Swan Rd instead of Craycroft Rd.
<b>39-Grant/Kolb *New*</b>	Create a new Route 39 that would operate between PCC West and PCC East along Grant Rd and Kolb Rd. It would overlap with Route 9 to provide 15-minute service on portions of Grant Rd.	Keep in Final Plan as Route 9.
<b>105X-Foothills/Downtown</b>	Discontinue due to low ridership and overlap with other, more frequent routes.	Maintain existing Route 105X service levels.
<b>109X-Catalina Hwy</b>	New eastern terminus at Udall Transit Station. Increase service to operate bi-directionally and provide additional service during school bell times.	Maintain existing Route 109X service levels.

The Final Service Plan put back a lot of routes and route segments originally proposed for discontinuation. The Draft Service Plan sought to maximize investment in additional frequencies and spans by spacing routes farther apart and reducing duplication. In a cost-neutral scenario, this means that restoring service to these routes limited the number of potential frequency and span improvements. Should the City of Tucson have funding available to invest in additional service hours, the following is a list of priority frequency and span improvements.

- **Route 16** – 10-minute service weekdays and 15-minute service on Sundays. The S 6<sup>th</sup> Ave/Oracle Rd corridor forms the backbone of the Sun Tran bus network. Investing in high frequency service will encourage additional trip-making and reduce transfer wait times.
- **Route 9** – 15-minute weekday service on Grant Rd. Grant is one mile north of Speedway and should eventually become part of the core 15-minute frequent grid.
- **Route 29** – 15-minute service on weekdays and 20-minute service on weekends. With the realignment, this should become the primary route in the southern part of the service area, and it warrants higher frequency service.
- **Route 21** – 30-minute Sunday service.
- **Route 34** – 30-minute weekend service.
- **Minimum Sunday service span** – first trip at 7:00 am, last trip at 9:00 pm.
- **Minimum Saturday service span** – first trip at 6:00 am, last trip at 10:00 pm.



# Final Plan Overview

The Final Service Plan proposes significant improvements to the Sun Tran, Sun Express, and Sun Shuttle networks, affecting almost every route. The modifications made between the Draft Service Plan and Final Service Plan resulted in a stronger proposal that makes desired service improvements while maintaining critical network coverage. Details on individual route changes can be found in Appendix E: Individual Route Recommendations.

## Alignment Improvements

While overall network coverage is not proposed to change significantly, there are a number of alignment changes intended to reduce transfer wait times, connect higher-performing route segments, or streamline operations. Major route alignment changes include:

**Route 1 – Glenn/Swan and Route 34 – Craycroft/Fort Lowell:** Routes 1 and 34 are swapping route segments on Swan Rd and Craycroft Rd to give higher service frequency to higher ridership segments. Route 1 will now operate on Glenn St and Craycroft Rd, and Route 34 will now operate on Fort Lowell Rd and Swan Rd.

**Route 8 – Broadway:** Route 8 will no longer split at Wilmot Rd, and all trips will extend east to Houghton Park and Ride.

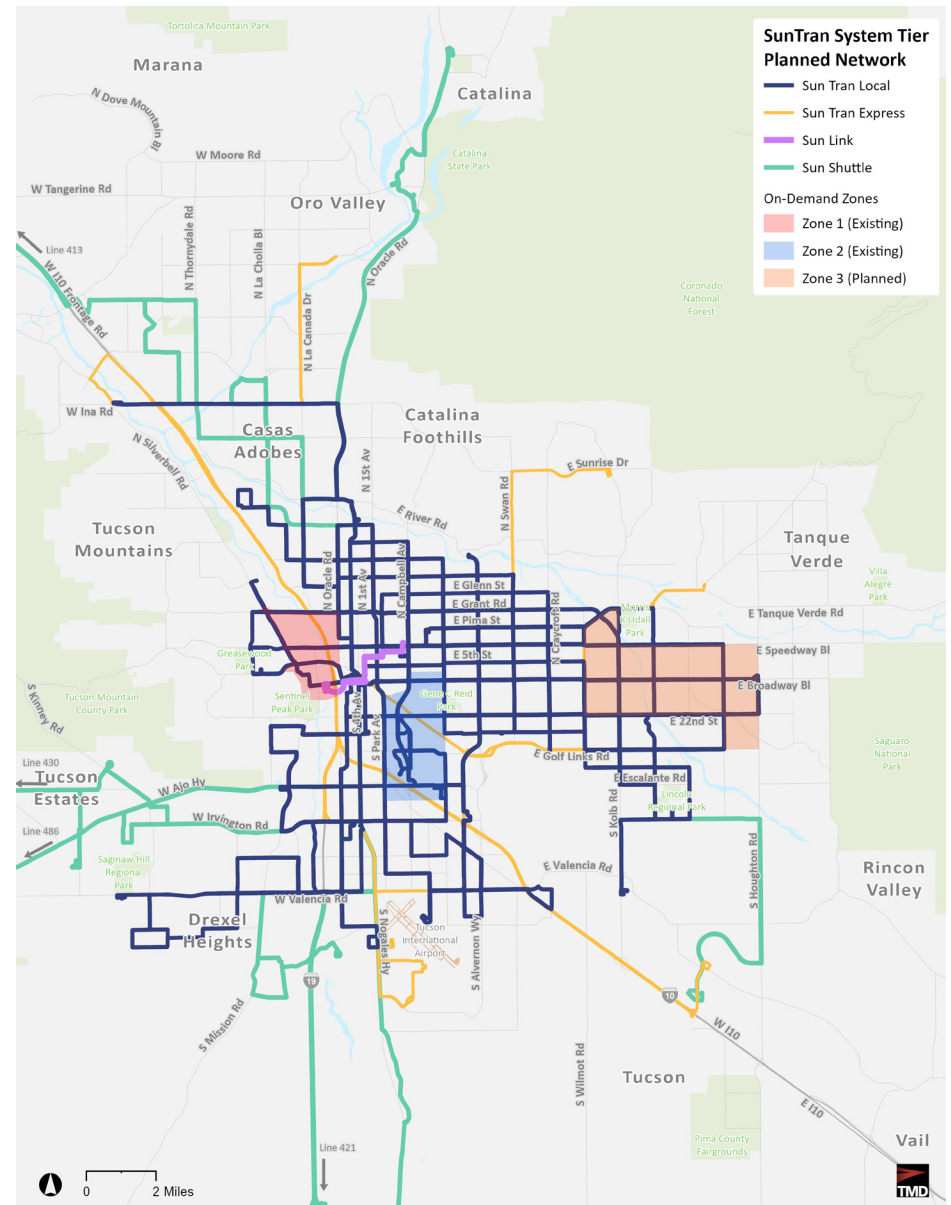
**Route 9 – Grant/Kolb:** Route 9 will be extended south along Kolb Rd to provide one continuous service between PCC West and PCC East.

**Route 11 – Alvernon and Route 50 – Ajo Way:** The western branch of Route 11 will operate along Ajo Way to Mission Rd while Route 50 is proposed to be discontinued.

**Route 12 – 10<sup>th</sup>/12<sup>th</sup> Ave and Route 24 – S 12<sup>th</sup> Ave:** Routes 12 and 24 will be merged into one continuous route along S 12<sup>th</sup> Ave reducing the need for riders to transfer in order to travel into Downtown Tucson.

**Route 16 – Oracle/Ina and Route 18 – S 6<sup>th</sup> Ave:** Routes 16 and 18 will be merged into one continuous new Route 16 along Oracle Rd and S 6<sup>th</sup> Ave, connecting all three major transit centers along a single route. Routes 16 and 18 currently have the highest number of daily transfers between them (over 500), so this change will reduce the need for riders to transfer. With this change, the segment of current Route 16 north of Tohono T'adai Transit Center along Ina Rd will become a new Route 62-Ina Rd.

FIGURE 9: SUN TRAN SYSTEM TIER PROPOSED NETWORK





**Route 19 – Stone Ave:** Route 19 is proposed to be discontinued with the increase in service on adjacent Routes 16-Oracle Rd and 6-Euclid. However, final recommendations for Route 19 will not be determined until a Locally Preferred Alternative (LPA) has been selected for the Tucson Rapid Transit project. Furthermore, any proposed changes to the group of routes impacted by the Tucson Rapid Transit project, including routes 1, 10, 16, 18, 19 and 34, should be reevaluated pending further development of the project.

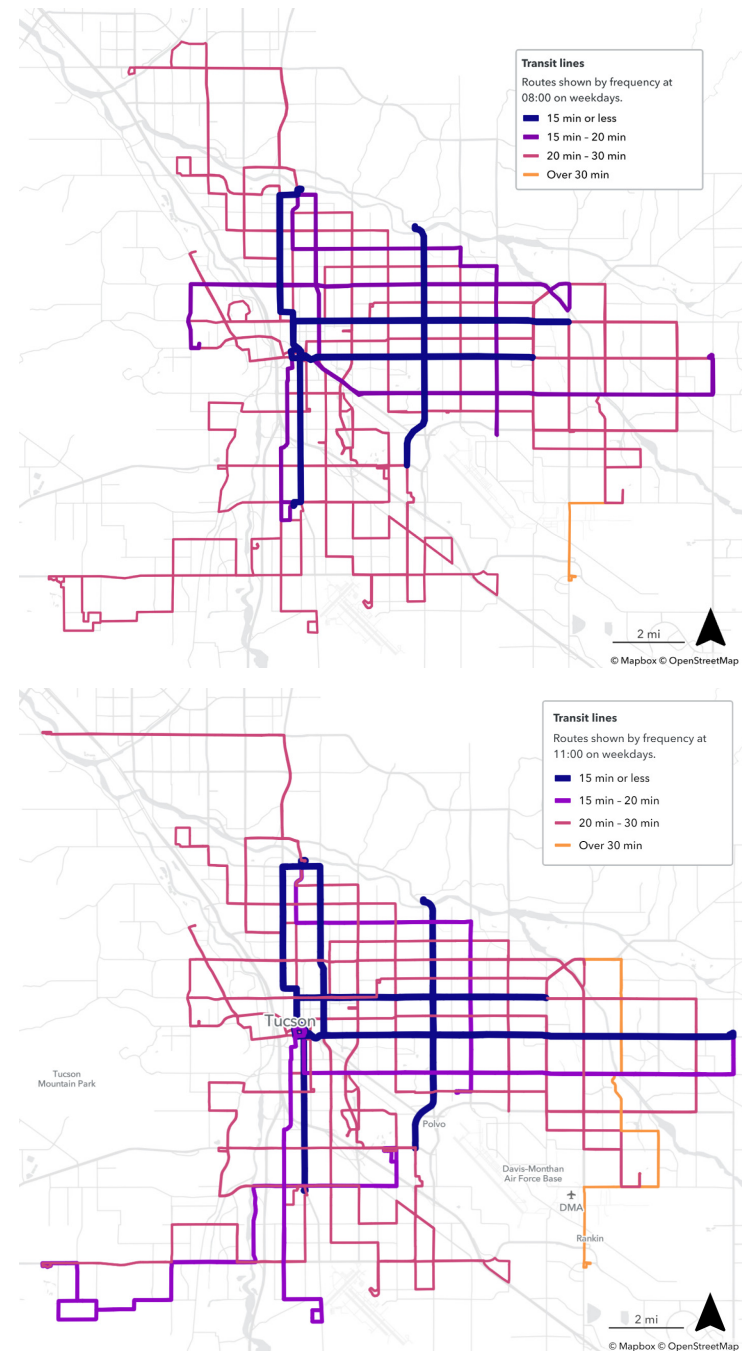
**Route 22 – El Rio/W. Speedway:** Route 22 is proposed to be discontinued due to service duplication with Route 5-Pima/W. Speedway on Speedway Blvd and Sun on Demand Zone 2.

**Route 2 – Pueblo Gardens, Route 27 – Midvale Park, Route 29 – Valencia:** Route 29 is proposed to be extended east to Banner-University Medical Center (BUMC) South campus to provide continuous service along Irvington Rd. It is also proposed to be realigned to serve Tucson Spectrum shopping destinations and the PCC Desert Vista campus along S Calle Santa Cruz, providing a direct connection between local residential communities, major shopping and education centers, and major transit transfer points. With this change, Route 2 would be truncated at BUMC South to reduce overlap between BUMC South and Roy Lao Transit Center. Concurrently, Route 27 would be modified to serve a portion of S 6<sup>th</sup> Ave, swapping route segments with Route 29.

## Frequency and Span Improvements

Improvements to route frequencies and spans across the week were a major rider priority. The guiding principles stressed the importance of having a network of 15-minute routes that riders can use spontaneously to travel throughout the service area. They also emphasized the importance of a robust span of service, giving riders flexibility to use transit throughout the day for a variety of trips. The following is an overview of key network frequency and span improvements, while Figures 11-13 detail proposed frequencies by hour of the day and day of week. By comparing the existing and proposed scenarios, the charts clearly show where service improvements have been made.

**FIGURE 10: FREQUENCY BY ROUTE CHANGES FROM THE EXISTING TO FINAL NETWORK**





## Improved Frequencies

### WEEKDAYS

- 15-min weekday service on 6-Euclid and 8-Broadway east of Wilmot
- 20-min weekday service on 29-Valencia, 24-S 12<sup>th</sup> Ave, and Swan (portion of Route 34)
- 30-minute peak service on Sun Shuttle Route 401 between Oro Valley and Ronstadt Transit Center

### SATURDAYS

- 30-min service on Route 7-22<sup>nd</sup> St, S 12<sup>th</sup> Ave segment of Route 12, Route 29-Valencia, and Swan Rd segment of Route 34

### SUNDAYS

- 15-min service on Route 8-Broadway
- 30-min service on 6-Euclid, 7-22<sup>nd</sup> St, S 12<sup>th</sup> Ave segment of Route 12, 25-S Park Ave, 29-Valencia, and Swan Rd segment of Route 34

## Improved Spans

### WEEKDAYS

- 11 routes received at least one hour later span of service
- New routes with service until midnight include Routes 6, 8, 9, 11, 24, and 25 as well as service on Ajo Way and Kolb Rd.
- New routes with service until 11 p.m.: 2, 10, and 27
- Route 5 has 4 more hours of weekday span than it does in the existing network.
- Route 37 has an additional hour of weekday span
- 7 routes gained an additional hour of weekday morning span: 4, 5, 7, 16, 18, 25, and service on Ajo Way.

### SATURDAY

- 22 Sun Tran routes have at least one additional hour of evening span.

### SUNDAY

- 19 Sun Tran Routes have at least one additional hour of evening span.

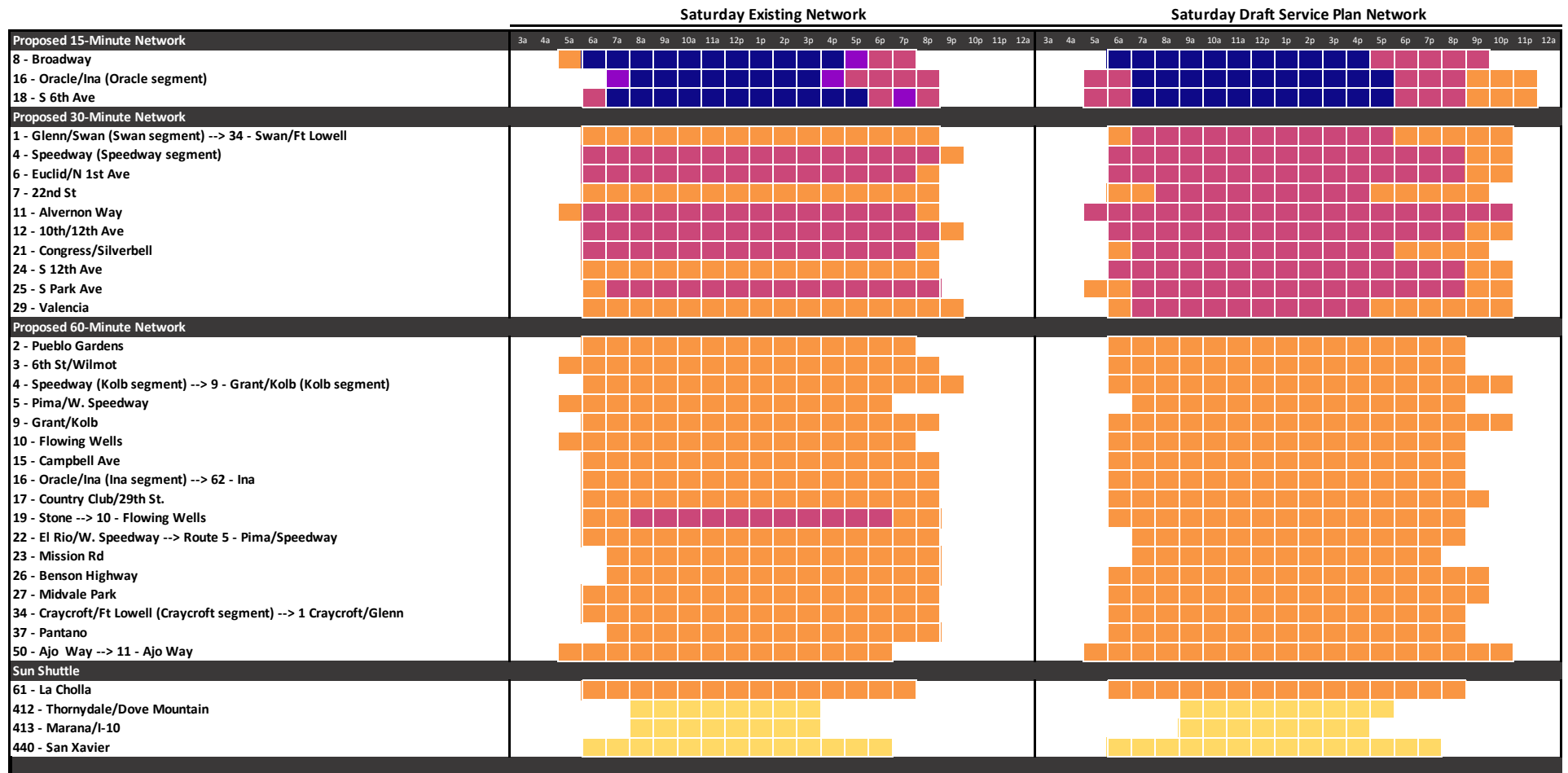
**FIGURE 11: CHANGES TO WEEKDAY FREQUENCY**



Routes on some streets have been renumbered as indicated with the "-->" symbol. For example, the Route 1 segment previously operating on Swan Rd will now be covered by Route 34.

■ 15+ Minute Service  
 ■ 20-Minute Service  
 ■ 30-Minute Service  
 ■ 31-60-Minute Service  
 ■ 60+ Minute Service

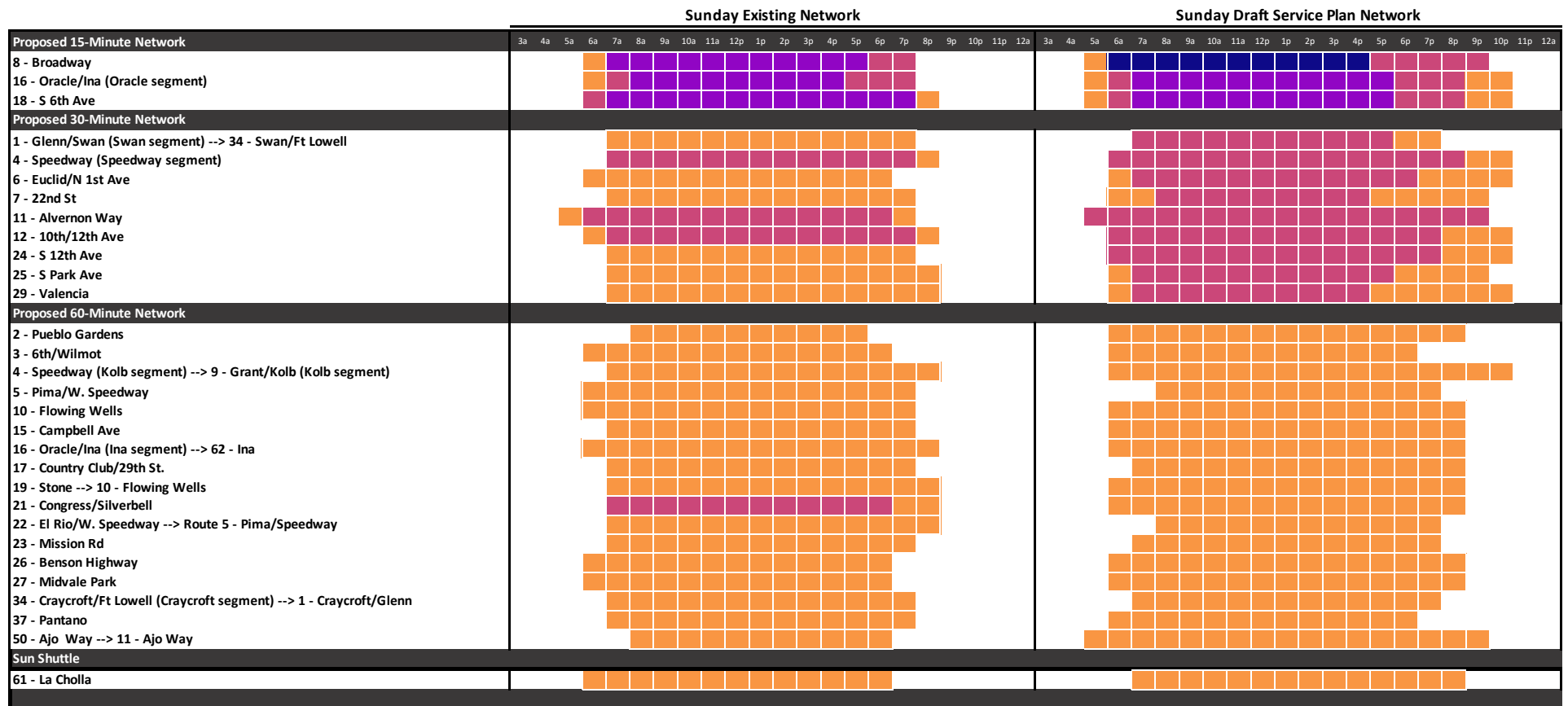
**FIGURE 12: CHANGES TO SATURDAY FREQUENCY**



Routes on some streets have been renumbered as indicated with the "-->" symbol. For example, the Route 1 segment previously operating on Swan Rd will now be covered by Route 34.

■ 15+ Minute Service  
 ■ 20-Minute Service  
 ■ 30-Minute Service  
 ■ 31-60-Minute Service  
 ■ 60+ Minute Service

**FIGURE 13: CHANGES TO SUNDAY FREQUENCY**



Routes on some streets have been renumbered as indicated with the "-->" symbol. For example, the Route 1 segment previously operating on Swan Rd will now be covered by Route 34.

■ 15+ Minute Service  
 ■ 20-Minute Service  
 ■ 30-Minute Service  
 ■ 31-60-Minute Service  
 ■ 60+ Minute Service



# Access Improvements

The proposed Final Service Plan improves access to transit in Greater Tucson, especially for traditionally underserved communities. Overall, the number of residents within a half-mile of a bus stop with 15-minute or better service on weekdays increased from 111,947 people to 169,740, a 52% increase. Zero-vehicle households saw the greatest percentage point increase in access to frequent service, which is important given that zero-vehicle households are much more likely to rely on transit. Additionally, 514,282 residents would now have access within a half-mile of the full network compared to 499,625 in the existing network, a 2% increase. Similarly, on Saturdays, there was a 28% increase in the number of residents within a half-mile of a bus stop with 30-minute or better service, from 28% to 35% of the population. There was an even larger change on Sundays with a 50% increase in the number of residents within a half-mile of a bus stop, from 22% to 34% of the population.

**TABLE 2: ACCESS IMPROVEMENTS TO 15 MINUTES OR BETTER SERVICE**

Weekday Access within a Half-Mile to Frequent Service – 15 minutes or better				
Demographic Group	Existing		Planned	
	#	%	#	%
Total Population	111,947	13%	169,740	20%
Total Jobs	99,882	28%	140,296	39%
Youth (Under 18)	17,749	10%	32,024	18%
Young Adult (18-24)	25,888	24%	29,200	27%
Senior (65+)	15,948	11%	26,837	18%
Minority	58,689	14%	93,924	22%
Low-Income	29,667	21%	41,893	30%
Zero-vehicle	8,705	30%	11,652	40%

**TABLE 3: ACCESS IMPROVEMENTS TO THE FULL NETWORK**

Weekday Access within a Half-Mile to Full Network				
Demographic Group	Existing		Planned	
	#	%	#	%
Total Population	499,625	60%	514,282	61%
Total Jobs	240,659	68%	240,552	68%
Youth (Under 18)	103,075	59%	106,180	61%
Young Adult (18-24)	77,687	71%	79,696	73%
Senior (65+)	77,889	52%	80,114	54%
Minority	287,880	66%	296,326	68%
Low-Income	107,619	77%	110,195	79%
Zero-vehicle	23,718	82%	24,232	84%

**TABLE 4: SATURDAY ACCESS IMPROVEMENTS**

Saturday Access within a Half-Mile to 30-Minute Service				
Demographic Group	Existing		Planned	
	#	%	#	%
Total Population	231,686	28%	297,619	35%
Total Jobs	166,322	47%	192,767	54%
Youth (Under 18)	45,504	26%	61,846	35%
Young Adult (18-24)	37,779	34%	47,965	44%
Senior (65+)	36,063	24%	44,971	30%
Minority	134,804	31%	181,785	42%
Low-Income	55,351	39%	72,199	52%
Zero-vehicle	14,649	51%	16,901	58%

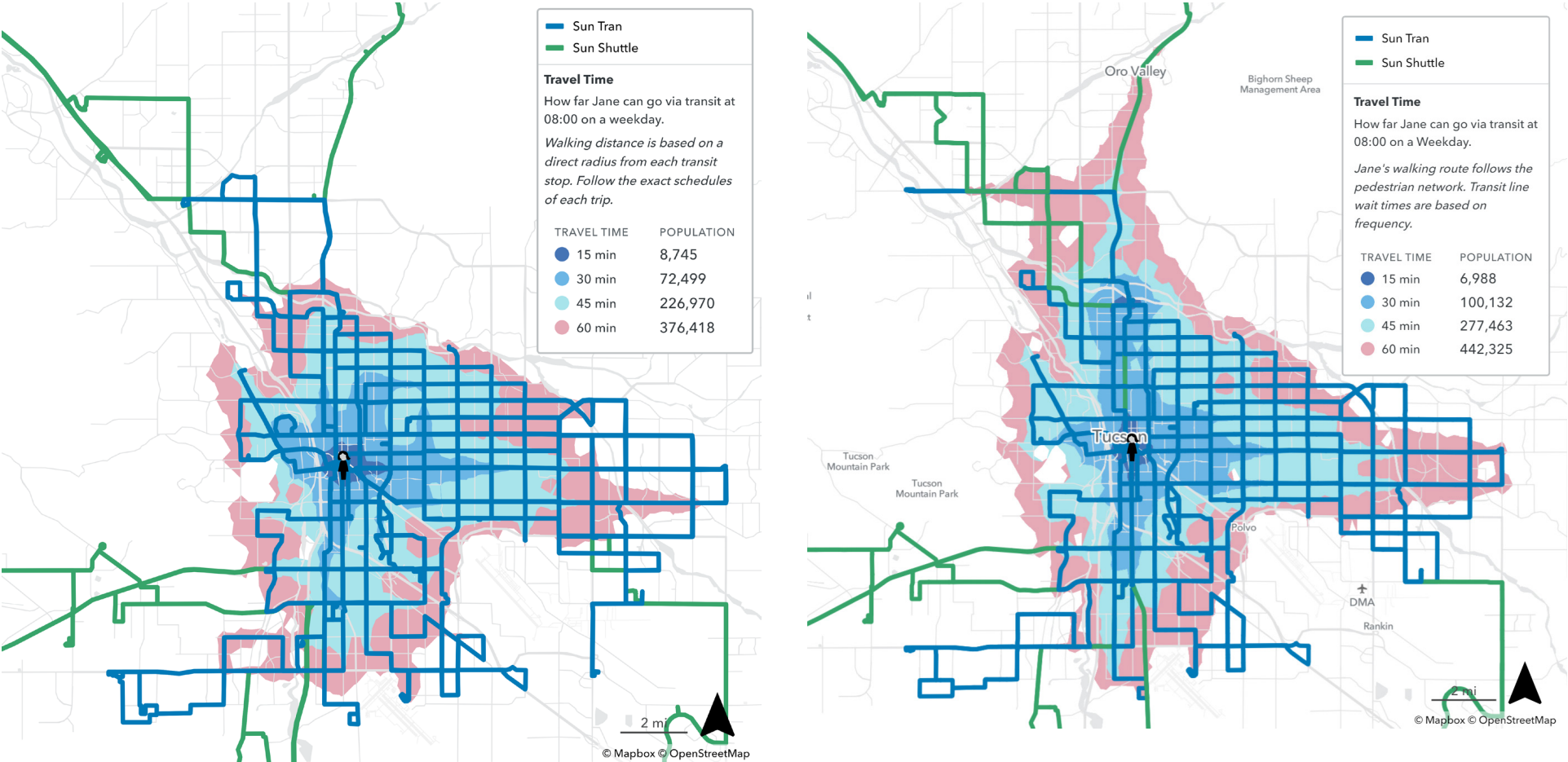
**TABLE 5: SUNDAY ACCESS IMPROVEMENTS**

Sunday Access within a Half-Mile to 30-Minute Service				
Demographic Group	Existing		Planned	
	#	%	#	%
Total Population	187,740	22%	282,156	34%
Total Jobs	150,895	42%	184,534	52%
Youth (Under 18)	37,127	21%	58,836	34%
Young Adult (18-24)	26,717	24%	45,246	41%
Senior (65+)	31,549	21%	42,584	29%
Minority	103,611	24%	170,363	39%
Low-Income	42,909	31%	68,619	49%
Zero-vehicle	11,993	41%	16,070	56%

The plan improves not just physical access to more frequent service but reduces travel times as well. The following maps show how far someone can travel on transit in a certain amount of time under the existing and proposed network. The dark blue area represents how far a rider would get in 15 minutes, medium blue in 30 minutes, light blue in 45 minutes, and the pink is within 60 minutes.

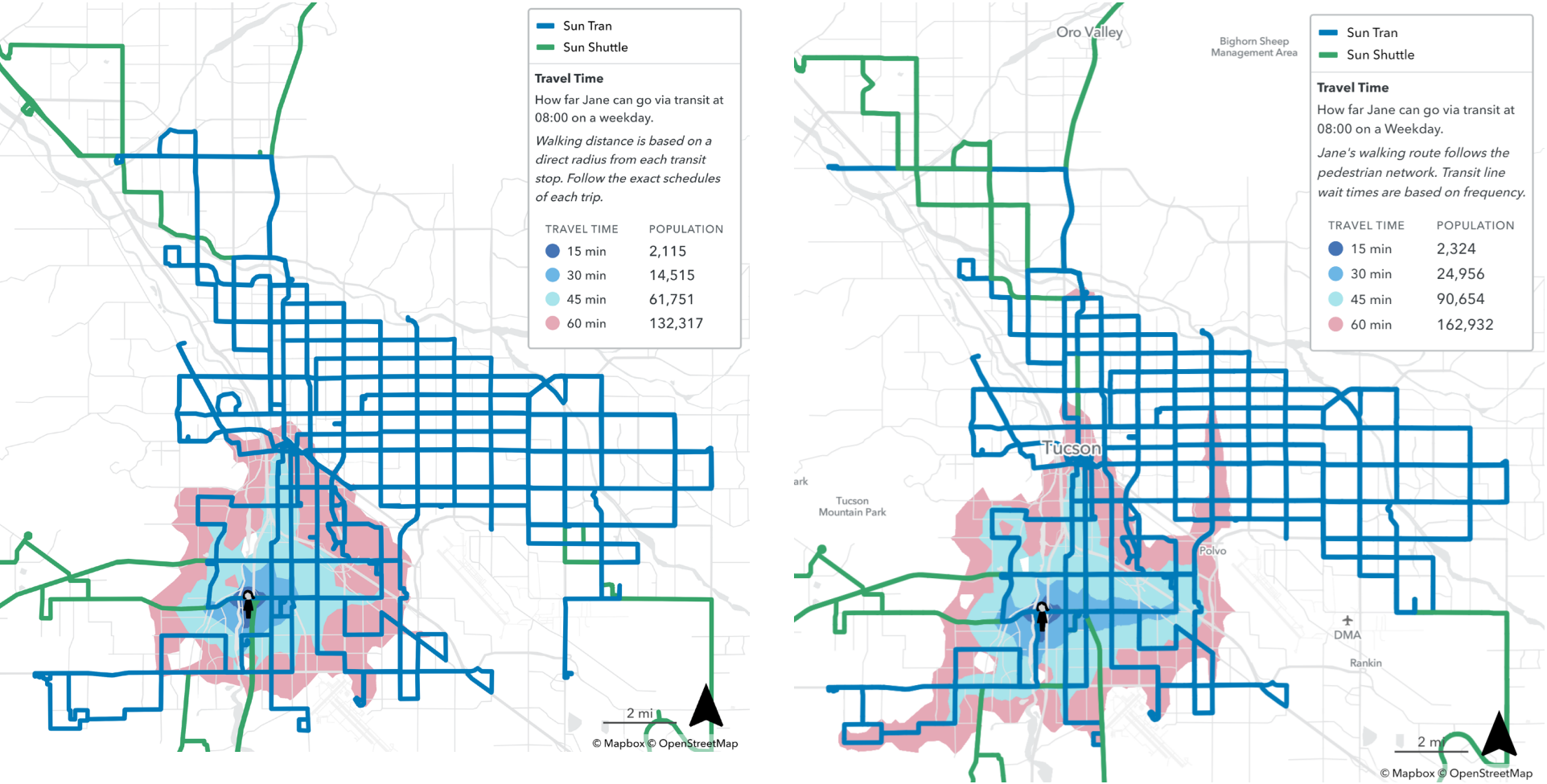
**Ronstadt Transit Center:** Figure 14 shows a person starting at Ronstadt Transit Center (RTC) at 8:00am on an average weekday. From the current network to the final proposed network there is a dramatic increase in the number of people that would have access to more of the city within each time frame by using Sun Tran and Sun Shuttle routes. In the existing network, only 376,000 people have access to RTC within one hour, in the final plan that number increases by 17% to 442,000 people. More importantly, there is a 39% increase in the number of people who have access within 30 minutes, showing the network-wide benefits of increasing frequencies and merging routes.

FIGURE 14: TRAVEL TIME FROM RTC EXISTING AND FINAL NETWORK



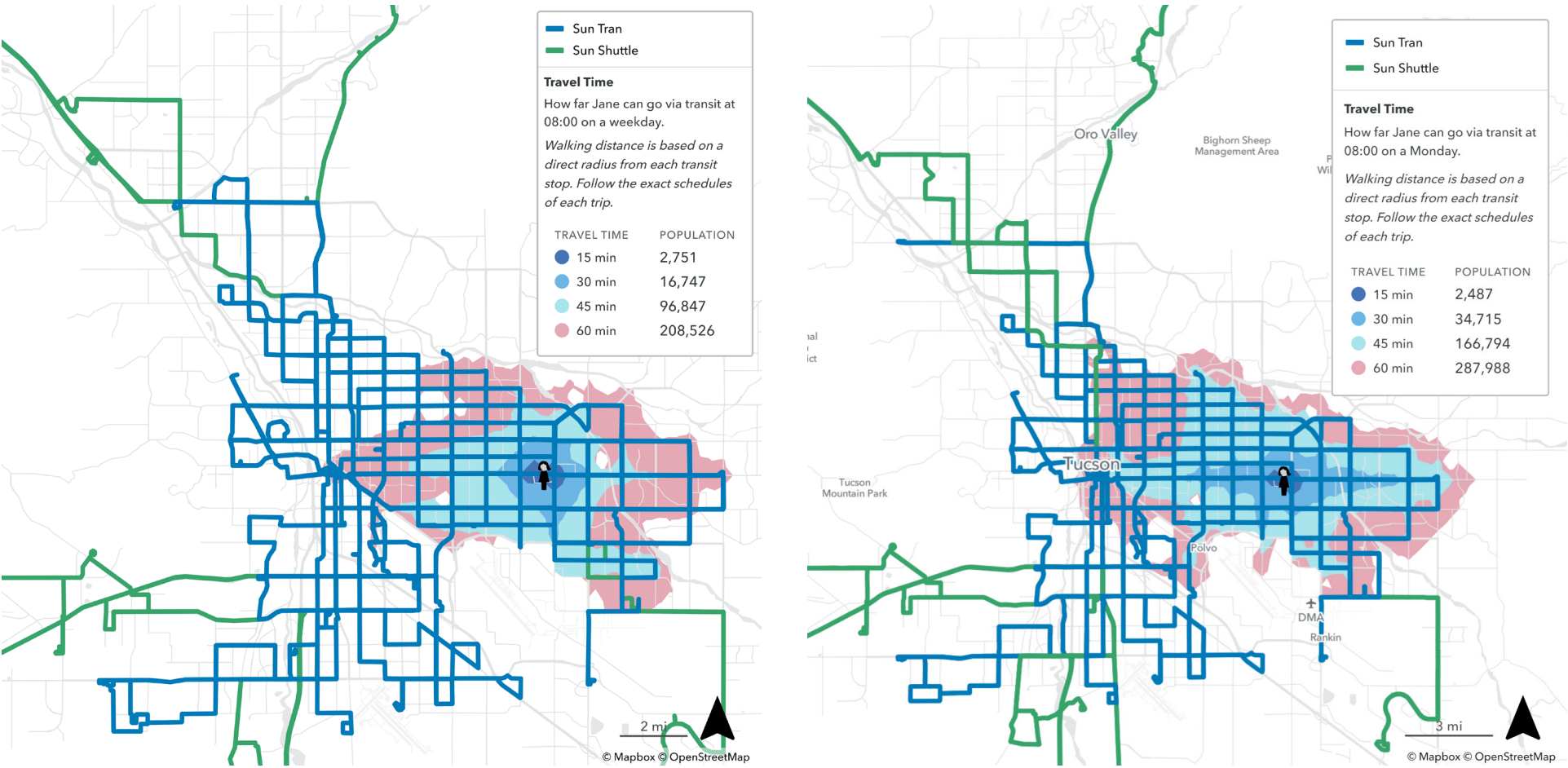
**Tucson Spectrum Shopping Center:** A similar analysis shows how far an average rider can travel from Tucson Spectrum in the existing and proposed final network. In the existing network 132,000 people can access the shopping center within an hour, and in the final proposed network, that increases by 23% to 163,000 people. This increase is primarily due to creating a stronger Route 29-Valencia that links up population centers with key destinations and increasing frequency on this route from 30 to 20 minutes. The population accessible within 30 minutes more than doubles.

**FIGURE 15: TRAVEL TIME FROM THE TUCSON SPECTRUM EXISTING AND FINAL NETWORK**



**Park Place Mall:** Finally, there is a 50% increase in the number of people accessible from the Park Place Mall within one hour on transit, primarily due to the increase in service frequency from 30 to 15 minutes on Broadway east of Wilmot. The population accessible within 30 minutes doubles.

**FIGURE 16: ACCESS FROM PARK PLACE MALL EXISTING AND FINAL NETWORK**



## Capital Improvements

To ensure the success of this COA Plan, certain capital improvements are required to support the transit network. The first is ensuring that major intersections have appropriate pedestrian infrastructure to support accessing bus stops and facilitating clean and efficient transfers. This includes sidewalks, signalized crosswalks, and bus stop amenities. Additionally, a traffic signal at

the intersection of W Irvington Rd and the Roy Laos Transit Center entrance would be required for routes to the west of the transit center to stop. Currently, routes make a one mile loop around the block west of LTC to make the left turning, adding hours and miles needed to operate these routes which could be saved by the addition of a traffic signal.



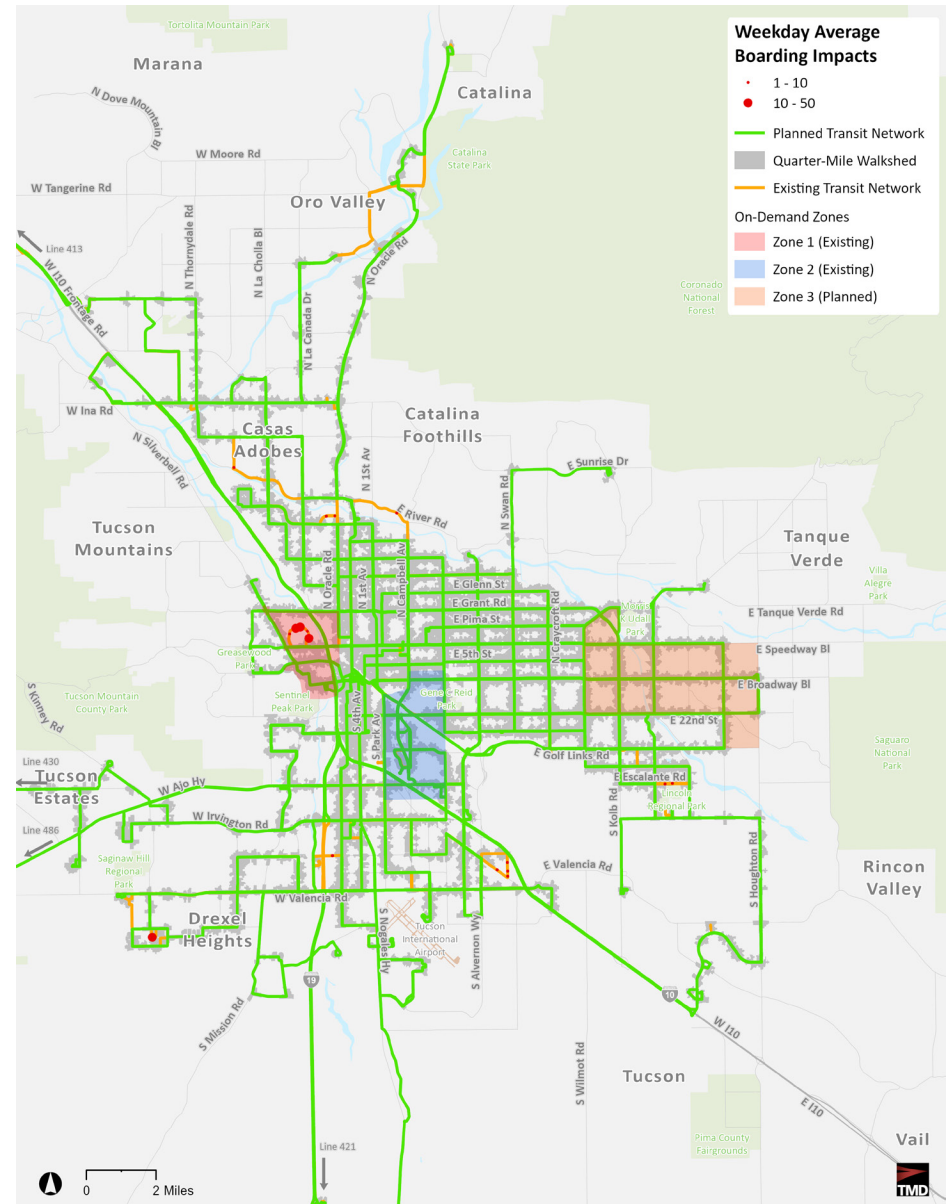
# Final Plan Impacts

The following route numbers are recommended for permanent discontinuation. In many cases, the route is merged with another route and takes on a new route number. While there is no loss of coverage, riders will need to look for information under a new route number. Many of these routes were either low performing compared to the routes or overlapped with other services.

- Route 18 – merged with Route 16
- Route 19 – proposed for discontinuation due to proximity to higher performing, higher frequency routes; however, any changes to Route 19 should be re-evaluated once a Locally Preferred Alternative (LPA) has been selected for the Tucson Rapid Transit project
- Route 22 – overlap with Sun On Demand and Route 5
- Route 24 – merged with Route 12
- Route 50 – merged with the Ajo Way alignment of Route 11
- Route 102X – merged into new Route 124X
- Route 103X – discontinued due to low ridership, majority of the route is covered by local service
- Route 104X – merged into new Route 124X
- Route 107X – merged with Route 401
- Route 108X – merged with Route 8
- Route 203X – merged into new Route 205X
- Route 204X – merged into new Route 205X

Overall, there are 38 bus stops used by 131 riders that will no longer be within a quarter mile of fixed-route bus service, representing 0.2% of systemwide boardings. However, 60% of riders are on Route 22-El Rio which is entirely within the boundaries of the Sun On Demand microtransit Zone 1.

FIGURE 17: WEEKDAY AVERAGE BOARDING IMPACTS





# Phasing the Plan

Because the plan recommends changes to almost every route in the system, the changes should be implemented in incremental phases so as not to overwhelm riders and operators with too many changes at once. It is important for certain changes to be phased together so that there are not any gaps in service coverage. For example, the recommendation to cut back Route 2 from Laos Transit Center to Banner University – Medical Center South should be implemented at the same time that Route 29 is extended from Laos Transit Center to BUMC South in order to preserve coverage along Irvington Rd between these two destinations. While the overall service plan is resource-neutral, it is also important to ensure that each phase is resource-neutral as well to balance labor and resource requirements. The Plan can be implemented in two primary phases, and each phase may be implemented over a series of scheduling changes. The first phase will focus on lower impact routing and scheduling changes that are not dependent on future construction projects while the second includes changes on the higher ridership routes and some more significant alignment restructuring. This is a proposed phasing plan and may change based on needs at the time of implementation. However, Table 6 outlines which routes must be changed together.

Sun Tran and the City of Tucson will conduct targeted outreach efforts with each service change to inform riders of the planned changes. Each phase will require its own public hearing before any changes are implemented.

## Phase 1

Route 2, 3, 12, 15, 17, 21, 22, 23, 24, 25, 26, 27, 29, 37, 61, 102X, 103X, 104X, 124X, 201X, 203X, 204X, 205X, 412, 413, 421, 450

## Phase 2

Route 1, 4, 6, 7, 8, 9, 10, 11, 16, 18, 19, 34, 50, 62, 107X, 108X, MOD3, 401

The change for Route 7 is contingent on the completion of the 22<sup>nd</sup> Street Bridge over the Union Pacific Railroad (UPRR). It is slated for Phase 2, but timing may be delayed depending on the construction schedule. Similarly, the elimination of Route 19 is dependent on the evolution of the Tucson Rapid Transit project along Stone Ave and timing and final plans for this project are still to be determined.

**TABLE 6: FINAL PLAN PHASING**

Group	Phase	Routes Included	Description
Irvington Rd	Phase 1	Routes 2, 26, 27, 29	Route 29 must be extended along Irvington Rd to BUMC South at the same time that Route 2 is cut back from Laos Transit Center to BUMC South to preserve coverage on Irvington Rd. At the same time, Route 27 must be modified to pick up Route 29's segment on S 6 <sup>th</sup> Ave. Since Routes 26 and 27 are interlined, Route 26 must also be changed at this time.
Pantano	Phase 1	Routes 3, 37	Swap coverage on Stella Rd and Camino Seco.
Oracle Corridor	Phase 2	Routes 6, 10, 16, 18, 19, 62	Modifications to the Oracle Rd, Stone Ave, and Euclid Ave corridors should be made at the same time to maintain high frequencies on the north/south portion of the grid.
Craycroft/Swan	Phase 2	Routes 1, 34	Swap coverage on Swan Rd and Craycroft Rd.
Broadway Corridor	Phase 2	Routes 4, 8, 9, 108X, MOD3	When the Broadway corridor service enhancements are implemented, it will have wider stop spacing which will replace the need for 108X and add the need for the Mobility on Demand zone. The Broadway corridor will no longer split operations onto Wilmot, so at this time Route 4 will assume operation on Wilmot and Route 9 will replace Route 4 operations on Kolb.
Ajo Way	Phase 2	Routes 11, 50	Route 11's branch to Laos Transit Center must be restructured to serve Ajo Way at the same time that Route 50 is discontinued in order to preserve coverage on Ajo Way.
Oro Valley	Phase 2	Routes 107X, 401	Route 107X is merged into additional service on Route 401.

# Financial Plan

The Final Plan is cost-neutral, reallocating existing resources. The following table summarizes the estimated resources and operating costs calculated using unit costs per revenue hour and revenue mile.<sup>1</sup> While this plan may be implemented over several years, the operating cost estimates reflect 2023 marginal operating costs per hour and mile. While estimates of revenue hours and miles are a good way to compare existing services with the Final Service Plan, they are not a perfect reflection of the cost of operation. As the plan is implemented, additional efficiencies in operator and vehicle scheduling may be found that affect the final cost. The costs are split out between the City of Tucson and RTA, which includes Jurisdictional IGAs. While many routes are jointly funded by both entities, this Plan only breaks out costs for the routes that are fully funded by RTA and Jurisdictional IGAs (which includes all Sun Shuttle routes, Route 61, and all Sun Express routes except 108X and 201X). Table 7 shows existing and proposed annual revenue hours, annual revenue miles, and annual operating costs.

**TABLE 7: FINANCIAL PLAN**

	Existing Revenue Hours	Final Plan Revenue Hours	Existing Revenue Miles	Final Plan Revenue Miles	Existing Operating Cost	Final Plan Operating Cost	Change in Cost
City of Tucson	598,600	595,700	7,125,400	7,234,800	\$61,595,700	\$61,930,100	\$334,400
RTA (Fully Funded)	50,200	57,200	888,700	971,800	\$5,109,200	\$5,410,500	\$301,300

## Title VI Analysis

The Federal Transit Administration Title VI Circular, C 4702.1B requires transit agencies of Sun Tran's size to review proposed service changes to ensure they do not place a disproportionate burden on low-income populations or a disparate impact on minority populations. It is also important to review routes individually, to ensure that no one change has an adverse impact. Sun Tran defines a "major service change" as any change in service from the previous fiscal year that would add or eliminate more than 25% of an individual route or combination of routes' revenue miles or revenue hours. Table 8 shows the estimated annual change in revenue hours and revenue miles by route or route pair and identifies which are major service changes. In cases where two routes are merged into one (such as Routes 12 and 24), the analysis looks at the routes together rather than separately since changing a route number does not directly impact service levels.

<sup>1</sup> Unit operating cost assumptions: Sun Tran \$71.36/revenue hour and \$2.65/revenue mile; Sun Shuttle \$4.83/revenue mile; current Route 61 operation by City of Tucson before conversion to Sun Shuttle \$9.25/revenue mile; new Sun On Demand zone \$122.13/revenue hour.

TABLE 8: TITLE VI MAJOR SERVICE CHANGE ANALYSIS

Route	Existing Annual Revenue Hours	Proposed Annual Revenue Hours	Percent Change	Existing Annual Revenue Miles	Proposed Annual Revenue miles	Percent Change	Major Service Change?
1/34 merge	48,076	48,382	0.6%	534,076	546,351	2.3%	
2/29 merge	37,235	48,306	29.7%	480,784	617,108	28.4%	Yes
3	30,867	24,384	-21.0%	382,371	296,170	-22.5%	
4	45,084	45,410	0.7%	490,217	490,609	0.1%	
5	16,328	17,128	4.9%	201,571	214,100	6.2%	
6	22,835	28,421	24.5%	183,904	235,760	28.2%	Yes
7	24,202	27,940	15.4%	331,916	386,690	16.5%	
8/108X merge	42,065	39,126	-7.0%	478,408	540,135	12.9%	
9	26,937	31,620	17.4%	358,594	383,948	7.1%	
10	14,177	15,251	7.6%	166,134	179,535	8.1%	
11/50 merge	47,348	43,643	-7.8%	580,566	522,829	-9.9%	
15	18,396	18,600	1.1%	241,452	267,552	10.8%	
17	35,587	34,858	-2.0%	480,335	475,928	-0.9%	
16/18 merge (incl. 62)	58,189	50,401	-13.4%	591,478	610,570	3.2%	
19	9,852	-	-100.0%	98,222	-	-100.0%	Yes
21	10,182	9,924	-2.5%	113,346	108,071	-4.7%	
22	5,423	-	-100.0%	64,741	-	-100.0%	Yes
23	19,385	18,925	-2.4%	225,429	204,820	-9.1%	
12/24 merge	22,641	22,672	0.1%	286,591	307,398	7.3%	
25	21,752	21,924	0.8%	245,948	226,100	-8.1%	
26	12,404	14,498	16.9%	198,789	213,685	7.5%	
27	15,952	14,498	-9.1%	220,450	213,685	-3.1%	
37	12,132	11,889	-2.0%	142,605	155,604	9.1%	
61	10,687	9,242	-13.5%	138,512	141,403	2.1%	
401/107X merge	7,089	13,770	94.2%	107,218	183,814	71.4%	Yes
412	3,736	3,783	1.3%	72,577	72,129	-0.6%	
413	3,612	3,476	-3.8%	86,882	95,540	10.0%	
421	6,945	9,945	43.2%	145,235	143,131	-1.4%	
430	3,332	3,332	0.0%	63,748	63,748	0.0%	
440	4,412	4,412	0.0%	55,091	55,091	0.0%	

Route	Existing Annual Revenue Hours	Proposed Annual Revenue Hours	Percent Change	Existing Annual Revenue Miles	Proposed Annual Revenue miles	Percent Change	Major Service Change?
450	3,264	3,315	1.6%	64,372	67,115	4.3%	
101X	570	570	0.0%	13,409	13,409	0.0%	
103X	740	-	-100.0%	8,920	-	-100.0%	Yes
105X	400	400	0.0%	7,376	7,395	0.3%	
108X	310	-	-100.0%	6,231	-	-100.0%	Yes
109X	327	327	0.0%	6,496	6,496	0.0%	
110X	553	553	0.0%	18,440	18,440	0.0%	
102X, 104X, 124X	769	974	26.6%	19,407	25,755	32.7%	Yes
201X	1,517	1,020	-32.8%	27,414	25,128	-8.3%	Yes
203X, 204X, 205X	3,812	3,060	-19.7%	80,997	78,285	-3.3%	

For routes that will have a major service change, the next step is to determine whether these changes have an adverse impact on minority and low-income populations. This is done by determining whether the population living within walking distance of the route has a higher percentage of minority or low-income populations than the service area as a whole. If the difference is greater than 20%, Sun Tran's Title VI policy indicates that there is a disproportionate impact placed on these populations (disproportionate burden on low-income populations and disparate impact on minority populations). However, the composition of the nearby population does not always reflect the characteristics of a route's riders. A route may travel through an affluent area but carry a higher proportion of low-income riders. For this reason, it is also important to examine route ridership demographics based on on-board survey data. Using the 2022 on-board survey data, it is possible to calculate percentage of riders on each route who identify as a minority or come from a low-income household.<sup>2</sup>

<sup>2</sup> Federal poverty guidelines create definitions of who falls below the poverty line by correlating annual household income and household size. The survey asked questions on annual household income based on a range (in order to ensure a higher response rate). To be conservative, a respondent was considered to be low-income if the lower end of the income range they selected and their household size placed them below the poverty line.



As shown in Table 9, there are no disproportionate burdens placed on low-income populations. For routes experiencing a major service change, the percent of the population living within a quarter-mile of the route qualifying as low-income is never greater than 20% of the system average. Similarly, the percentage of riders that are low-income is never greater than 20% more than the system ridership average.

**TABLE 9: TITLE VI DISPROPORTIONATE BURDEN ANALYSIS**

Route	Population within ¼ mile that is low income	Difference to service area average of 17.7%	Percent of riders that are low income	Difference to ridership average of 50.8%	Disproportionate burden on low-income populations?
2/29	24.7%	7.0%	50.5%	-0.3%	No
6	36.1%	18.4%	60.2%	9.4%	No
19	34.3%	16.6%	62.1%	11.3%	No
22	27.5%	9.8%	63.6%	12.8%	No
401/107X	8.3%	-9.4%	66.7% on 401 0.0% on 107X	15.9%	No
421	29.5%	11.8%	46.7%	-4.1%	No
102X	18.1%	0.4%	0.0%	-50.8%	No
103X	20.1%	2.4%	0.0%	-50.8%	No
104X	33.5%	15.8%	0.0%	-50.8%	No
108X	18.8%	1.1%	0.0%	-50.8%	No
102X, 104X, 124X	15.4%	-2.3%	0.0%	-50.8%	No
201X	13.9%	-3.8%	0.0%	-50.8%	No

As shown in Table 10, there are some potential disparate impacts placed on minority populations. On average, 54% of the service area is a minority, and many routes serve populations that are over 85% minority households.

**TABLE 10: TITLE VI DISPARATE IMPACT ANALYSIS**

Route	Population within ¼ mile that is minority	Difference to service area average of 54.0%	Minority route (from previous onboard survey analysis)	Disparate impact on minority populations?
2/29	90.1%	36.1%	Yes	Yes
6	51.9%	-2.1%	Yes	Yes
19	65.2%	11.2%	No	No
22	74.9%	20.9%	No	Yes
401/107X	27.7%	-26.3%	401-N/A, 107X-No	Yes
421	78.7%	24.7%	Data not available	Yes
103X	37.6%	-16.4%	No	No
108X	39.6%	-14.4%	No	No
102X, 104X, 124X	37.8%	-16.2%	No	No
201X	46.4%	-7.6%	No	No

Below is an explanation of the change in the population within a ¼ mile that is minority and the transit services that are available:

**Route 2 – Pueblo Gardens/Route 29 – Valencia:** This route is merged with Route 29 at Banner-University Medical Center (BUMC) South, which will pick up the route segment between BUMC South and Roy Laos Transit Center (LTC). Some riders traveling south of BUMC South on Route 2 may have an additional transfer as part of their trip. However, riders boarding the route between LTC and BUMC South (43% of Route 2 weekday boardings) will benefit from additional frequency on Route 29 (increase from 30 to 20 minutes on weekdays and 60 to 30 minutes on weekends).

**Route 6 – Euclid/N. 1<sup>st</sup> Ave:** Route 6 is categorized as a minority route based on on-board survey data. While the route is undergoing a major service change, the change is to improve weekday frequency from 20 to 15 minutes, so there would be an overall benefit to minority populations.

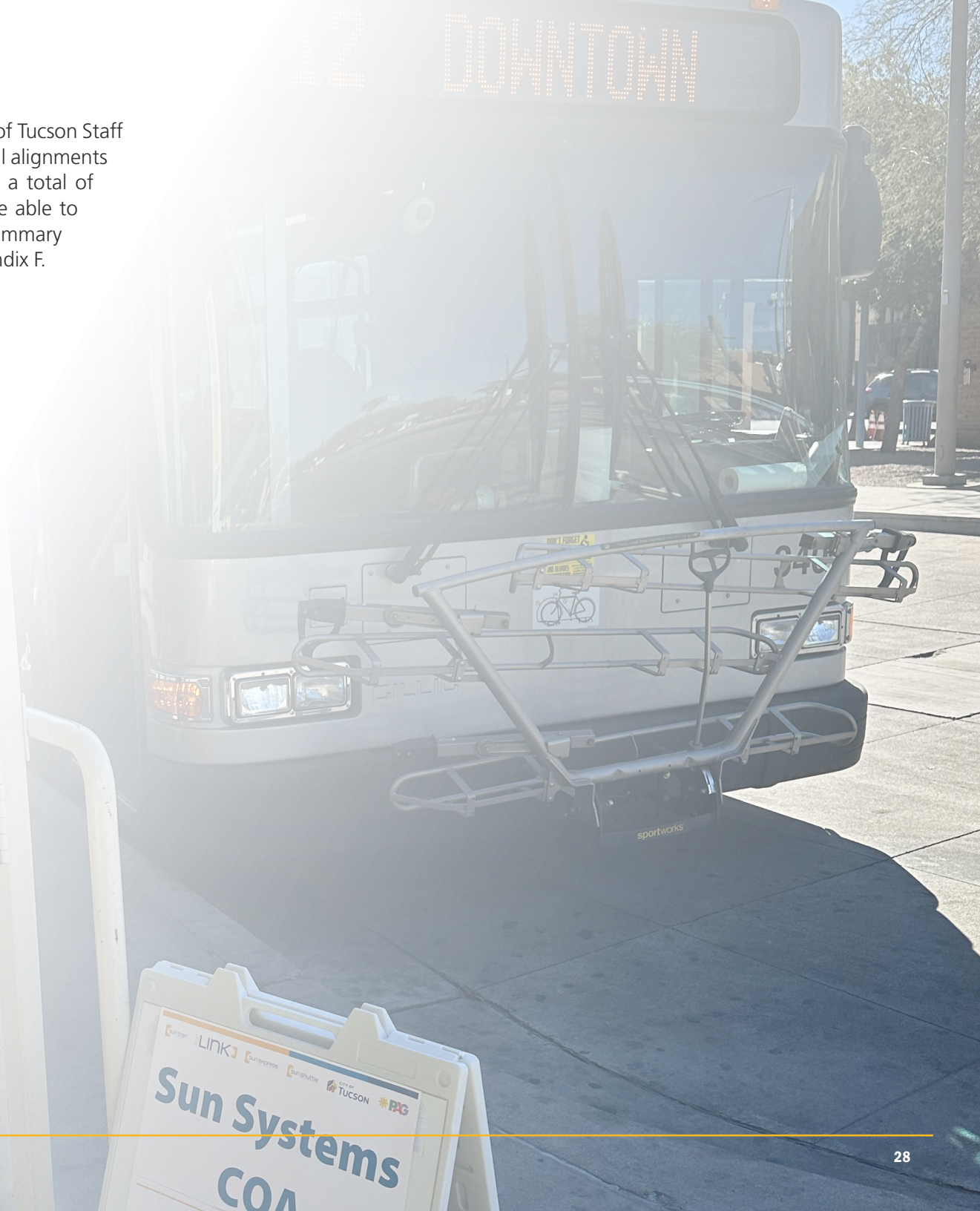
**Route 22 – El Rio/W. Speedway:** Route 22 is proposed to be discontinued due to overlap with Route 5 and the Sun on Demand zone. While this route is above average for minorities based on surrounding population, it is not classified as a minority route based on actual ridership demographics. All riders on the route have an alternative option of riding Route 5 or the On Demand zone. While Route 5 does not directly serve Downtown Tucson, riders can use Sun On Demand for a direct trip to Ronstadt Transit Center.

**Route 401/107X – Oro Valley:** Route 401 is proposed to see substantial service increases with direct service into Downtown Tucson and increased frequencies. This change does result in a disparate impact on minority populations by giving a larger benefit to a non-minority route. Sun Shuttle can mitigate this impact by conducting targeted outreach efforts to minority communities within Oro Valley to inform them about the additional available service as well as by prioritizing other minority routes for future investment as more funding becomes available.

**Route 421 – Green Valley / Sahuarita:** This route is proposed to be rerouted to Nogales Hwy instead of the I-19 freeway in order to provide new transit service to the Summit community. Because the operating speed on local streets is slower than operating on the highway, the route's overall running time will be longer even though the mileage is roughly the same. In order to keep frequencies the same, an additional vehicle will need to be added to this route, resulting in the greater than 25% change in revenue hours. Riders on this route may experience longer travel times into Tucson, but there will be new transit access provided in the Summit community, where 64% of the population identifies as Hispanic or Latino.

## Public Engagement – Phase III

After the finalization of the Service Plan, Sun Tran and City of Tucson Staff held seven “COA Walk-Through Sessions” to share the final alignments and proposed service levels for the network. There were a total of 80 attendees spread across the seven meetings who were able to discuss the proposed changes with project staff. The full summary report of this phase of engagement can be found in Appendix F.





# Service Monitoring

The Final Service Plan proposes significant changes to the Sun Tran, Sun Express, and Sun Shuttle networks. With changes in route alignments, riders may need to use different routes or transfer in different places. Merging two routes into one in order to reduce transfers may initially reflect a decrease in unlinked boardings, or total boardings on an individual vehicle. In the absence of fare collection, it is difficult for Sun Tran to track transfer activity and monitor linked boardings. This is an important distinction, because a resulting decrease in unlinked boardings upon implementation should not automatically be seen as fewer people riding the system. It will be critical for Sun Tran to frequently monitor route ridership and performance on a monthly basis in the year following the service changes to address potential issues such as:

- **Overcrowding:** Successful service changes should result in an increase in ridership. While adding frequency also adds capacity, Sun Tran should monitor onboard loads to ensure that an increase in demand does not result in significant overcrowding. In some cases, headways were reduced on certain corridor segments, and Sun Tran should also monitor loads on these segments to ensure the remaining trips provide enough capacity to accommodate the ridership.
- **On-time Performance:** All proposed route alignments were driven by operators and tested to ensure they could be completed in the estimated amount of time. However, running time adjustments are often required when introducing new route alignments once traffic and ridership patterns are better established. Sun Tran should monitor on-time performance to ensure the new route alignments have adequate running time.
- **Route Productivity:** A route's performance can be measured by looking at productivity defined as passengers carried per revenue hour of service. Given that each route has a different length and offers a different level of service, normalizing ridership against the amount of service that is provided allows for direct comparisons between very different routes. Routes with a frequency increase may see an initial drop in productivity – the revenue hours increase immediately while it can take a while for ridership levels to respond to new service. Sun Tran should monitor individual route productivity to ensure routes do not see a substantial drop in performance. If routes are found to be underperforming, Sun Tran can follow the steps outlined below.

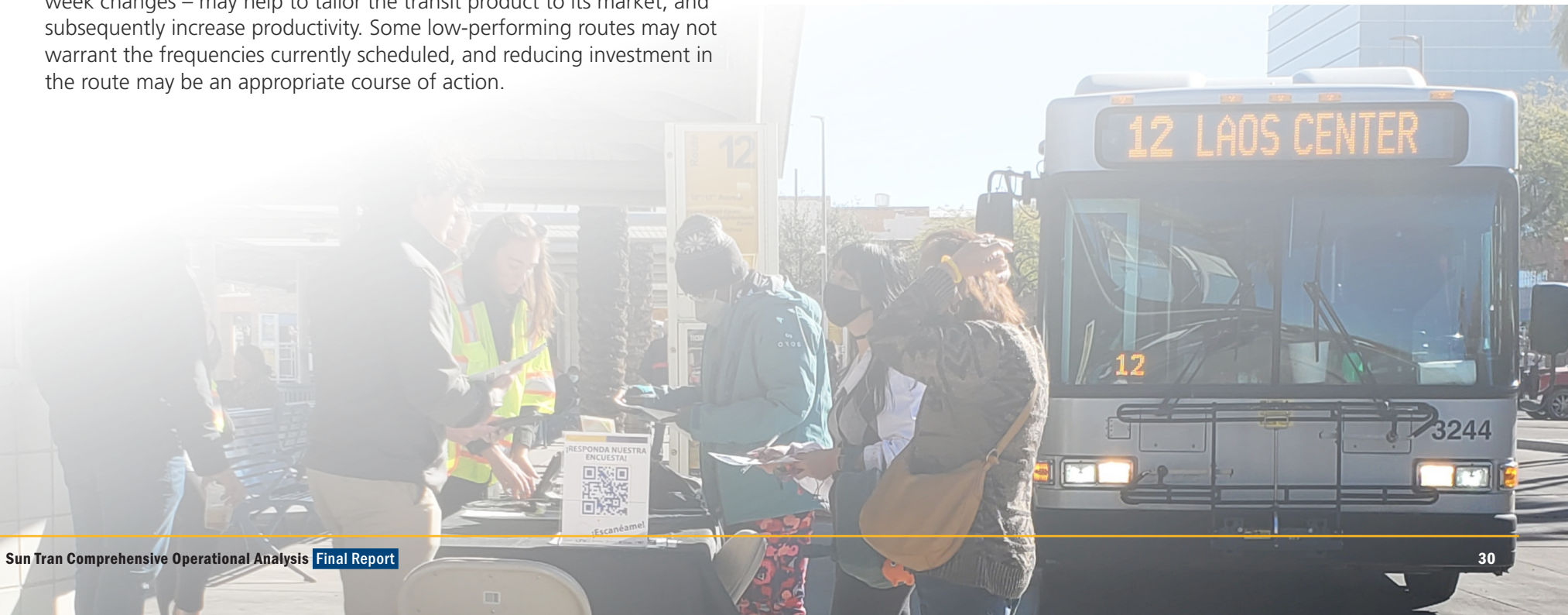




# Route Performance Monitoring

The Sun Tran Service Standards document outlines target performance metrics for each route in the network. It documents clear steps for addressing high-performing and low-performing services. In regard to the proposed COA service changes, Sun Tran should identify any routes that experience an unexpected decrease in productivity. If a route is not performing as expected, Sun Tran should look at the following:

- **Segment Level Analysis:** A segment level analysis of a low-performing service may highlight a specific portion of the route that significantly reduces the overall performance, causing it to perform below the standard for its service class. If a low-performing segment is identified, it can be modified to attempt to raise productivity for the route as a whole. However, if the results of a segment level analysis turn out to be inconclusive, modifications to the entire route should be considered.
- **Operational Analysis:** Often the difference between meeting and failing minimum performance standards is inefficient use of vehicle resources. Realigning service to cover only critical segments or eliminating unnecessary delay (e.g. deviations) are ways to reduce travel time and save resources, thereby raising performance levels while retaining ridership.
- **Change in Service Levels:** Adjusting the service levels of a low-performing route – by any combination of frequency, span, or day of week changes – may help to tailor the transit product to its market, and subsequently increase productivity. Some low-performing routes may not warrant the frequencies currently scheduled, and reducing investment in the route may be an appropriate course of action.
- **Targeted Marketing:** Marketing tactics can help to raise the public awareness of a route in need of remedial action. Poor ridership may be a result of a lack of public knowledge of a route, and investing in marketing can reverse this trend, especially in concert with planned service adjustments. This is especially the case for concentrated market groups like employment centers, shopping districts, schools, hospitals, agencies, and other major destinations.
- **Targeted Rider Outreach:** Low ridership may be a result of a lack of public knowledge of a route, especially where a route has undergone significant alignment or scheduling changes. Targeted outreach can help riders understand the changes or identify alternative itineraries they can use to complete their trips. Onboard surveys and rider interviews are methods for gaining valuable information on how a route can be improved or other aspects of a service that may be holding back ridership growth.



# Individual Route Recommendations

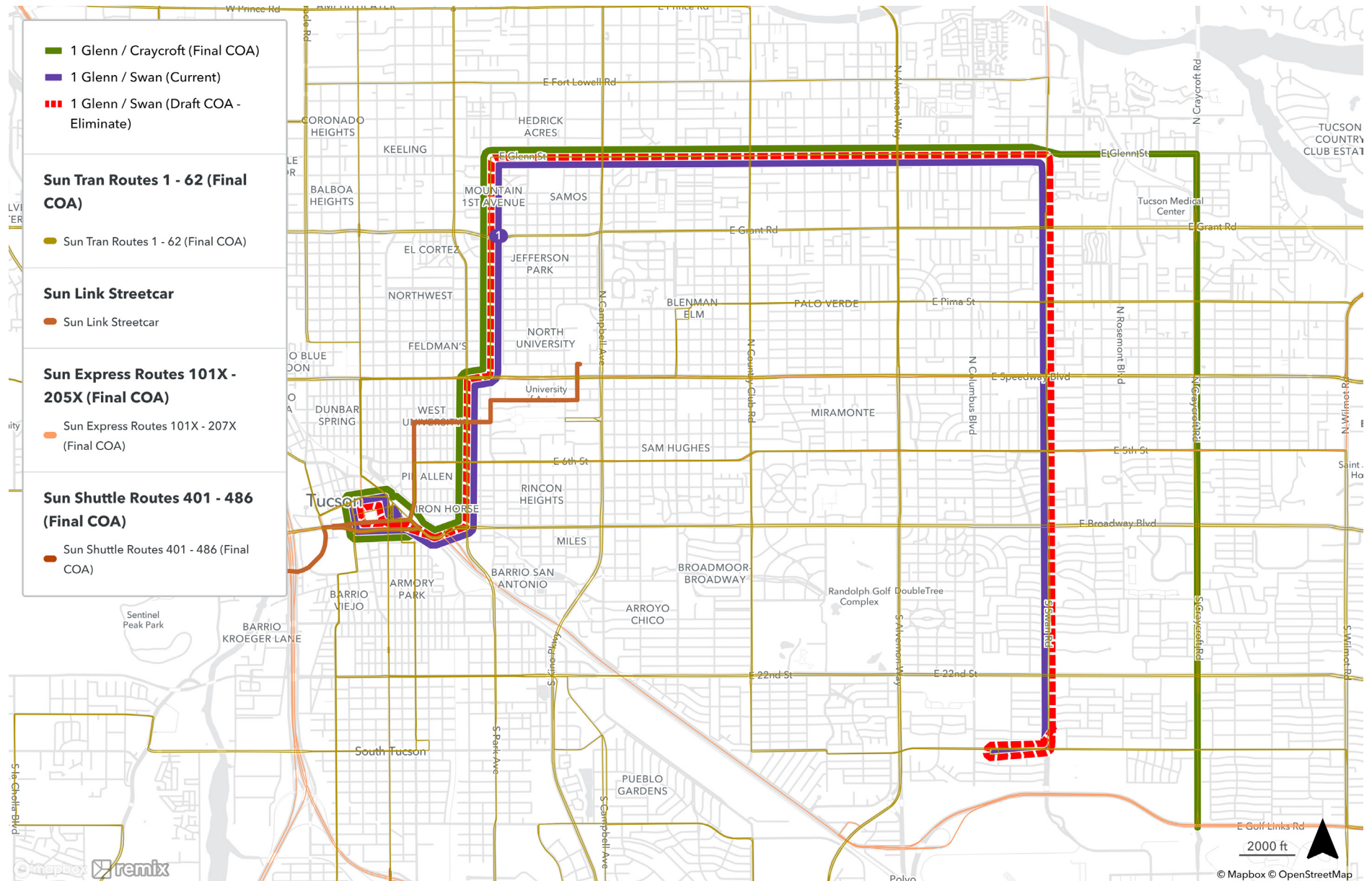
This section includes details on the individual route alignment, frequency, and span recommendations. Maps for each route show the current route alignment in purple and the final proposed alignment in green. The maps also show the proposed alignment from the draft network that was shared with the public for comment shown in blue. Routes proposed to be discontinued are shown in red.

## Routes

<b>Route 1</b> – Craycroft / Glenn . . . . .	<b>32</b>	<b>Route 50</b> – Ajo . . . . .	<b>59</b>
<b>Route 2</b> – Pueblo Gardens . . . . .	<b>33</b>	<b>Route 61</b> – La Cholla . . . . .	<b>60</b>
<b>Route 3</b> – 6 <sup>th</sup> and Wilmot. . . . .	<b>34</b>	<b>Route 62</b> – Ina . . . . .	<b>61</b>
<b>Route 4</b> – E Speedway . . . . .	<b>35</b>	<b>Route 101X</b> – Golf Links - Downtown . . . . .	<b>62</b>
<b>Route 5</b> – Pima / Speedway . . . . .	<b>36</b>	<b>Route 102X</b> – Northwest - UA . . . . .	<b>63</b>
<b>Route 6</b> – Euclid . . . . .	<b>37</b>	<b>Route 103X</b> – Northwest-Downtown. . . . .	<b>64</b>
<b>Route 7</b> – 22 <sup>nd</sup> St. . . . .	<b>38</b>	<b>Route 104X</b> – Marana-Downtown . . . . .	<b>65</b>
<b>Route 8</b> – Broadway . . . . .	<b>39</b>	<b>Route 105X</b> – Foothills-Downtown . . . . .	<b>66</b>
<b>Route 9</b> – Grant / Kolb . . . . .	<b>40</b>	<b>Route 107X</b> – Oro Valley-Downtown . . . . .	<b>67</b>
<b>Route 10</b> – Flowing Wells . . . . .	<b>41</b>	<b>Route 108X</b> – Broadway - Downtown . . . . .	<b>68</b>
<b>Route 11</b> – Alvernon / Ajo . . . . .	<b>42</b>	<b>Route 109X</b> – Catalina Hwy-Downtown . . . . .	<b>69</b>
<b>Route 12</b> – 10 <sup>th</sup> / 12 <sup>th</sup> Ave . . . . .	<b>43</b>	<b>Route 110X</b> – Rita Ranch-Downtown. . . . .	<b>70</b>
<b>Route 15</b> – Campbell. . . . .	<b>44</b>	<b>*Route 124X</b> – (New) Northwest-Downtown. . . . .	<b>71</b>
<b>Route 16</b> – Oracle / Ina . . . . .	<b>45</b>	<b>Route 201X</b> – Eastside-Aero Park. . . . .	<b>72</b>
<b>Route 17</b> – Country Club / 29 <sup>th</sup> . . . . .	<b>46</b>	<b>Routes 203X</b> – Oro Valley-Aero Park . . . . .	<b>73</b>
<b>Route 18</b> – Oracle / S 6 <sup>th</sup> Ave . . . . .	<b>47</b>	<b>Route 204X</b> – Northwest-Aero Park . . . . .	<b>74</b>
<b>Route 19</b> – Stone. . . . .	<b>48</b>	<b>*Route 205X</b> – (New) Northwest-Raytheon. . . . .	<b>75</b>
<b>Route 21</b> – W Congress / Silverbell . . . . .	<b>49</b>	<b>Route 401</b> – N Oracle / Catalina . . . . .	<b>76</b>
<b>Route 22</b> – El Rio / W Speedway . . . . .	<b>50</b>	<b>Route 412</b> – Thornydale / Orange Grove . . . . .	<b>77</b>
<b>Route 23</b> – Mission. . . . .	<b>51</b>	<b>Route 413</b> – Marana / I-10 . . . . .	<b>78</b>
<b>Route 24</b> – S 12 <sup>th</sup> Ave . . . . .	<b>52</b>	<b>Route 421</b> – Green Valley / Sahuarita . . . . .	<b>79</b>
<b>Route 25</b> – S Park . . . . .	<b>53</b>	<b>Route 430</b> – Tucson Estates. . . . .	<b>80</b>
<b>Route 26</b> – Benson Hwy . . . . .	<b>54</b>	<b>Route 440</b> – San Xavier. . . . .	<b>81</b>
<b>Route 27</b> – Valencia . . . . .	<b>55</b>	<b>Route 450</b> – Southeast Tucson / Rita Ranch . . . . .	<b>82</b>
<b>Route 29</b> – Midvale Park / Irvington. . . . .	<b>56</b>	<b>Route 486</b> – Ajo . . . . .	<b>83</b>
<b>Route 34</b> – Swan / Ft Lowell . . . . .	<b>57</b>	<b>Route 700</b> – Sun Link. . . . .	<b>84</b>
<b>Route 37</b> – Pantano . . . . .	<b>58</b>		

## Route 1 – Craycroft/ Glenn

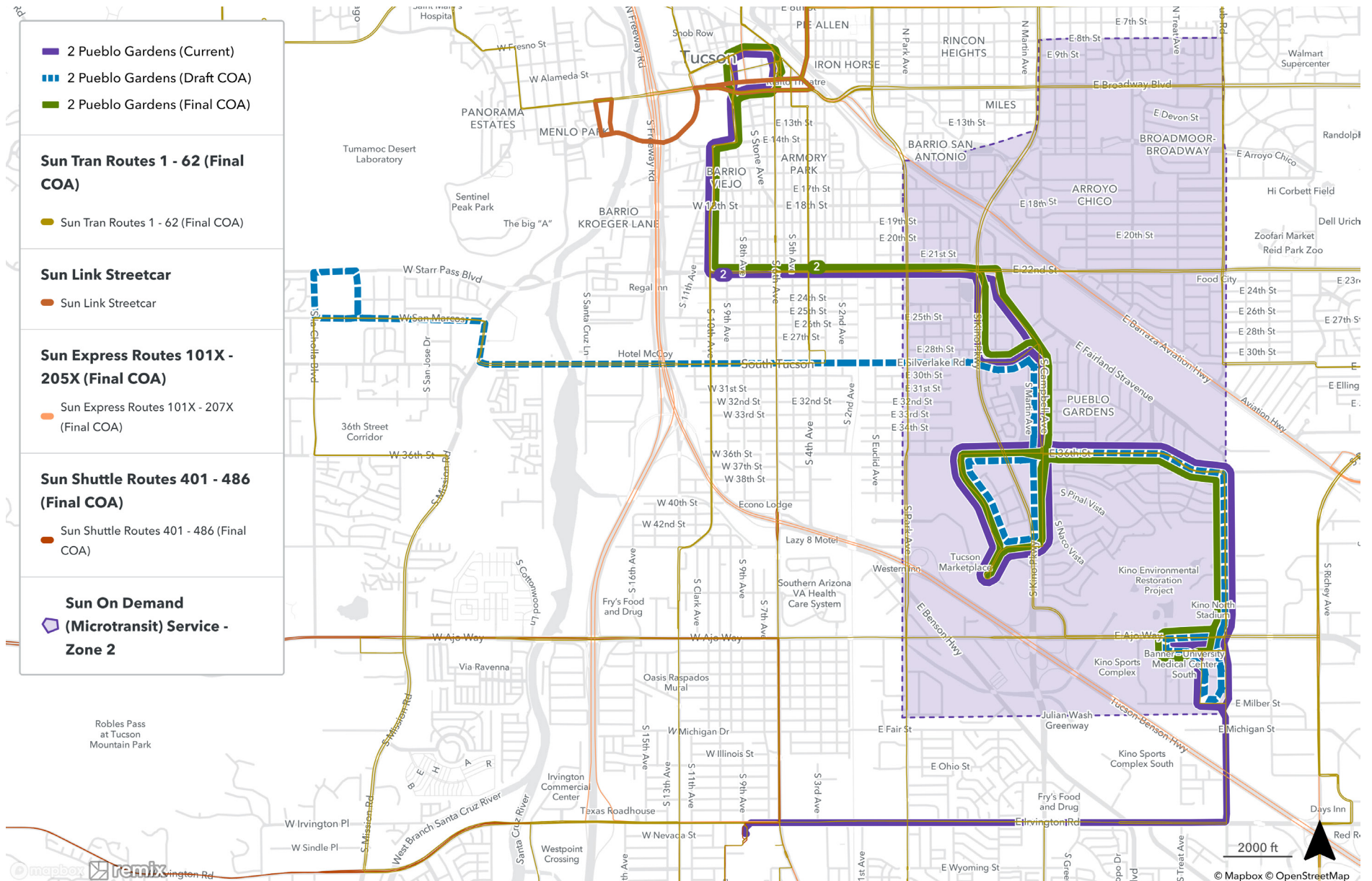
Route 1's alignment is proposed to change. The route will operate the same from Downtown to the intersection of Glenn and Swan. Instead of turning south on Swan, the route will continue on Glenn St to Craycroft Rd, serving Davis-Monthan Airforce base and ending at 29<sup>th</sup> and Craycroft, assuming this leg of existing Route 34. Service hours and frequency will be comparable to current service, with an additional hour of service on weekends.





## Route 2 – Pueblo Gardens

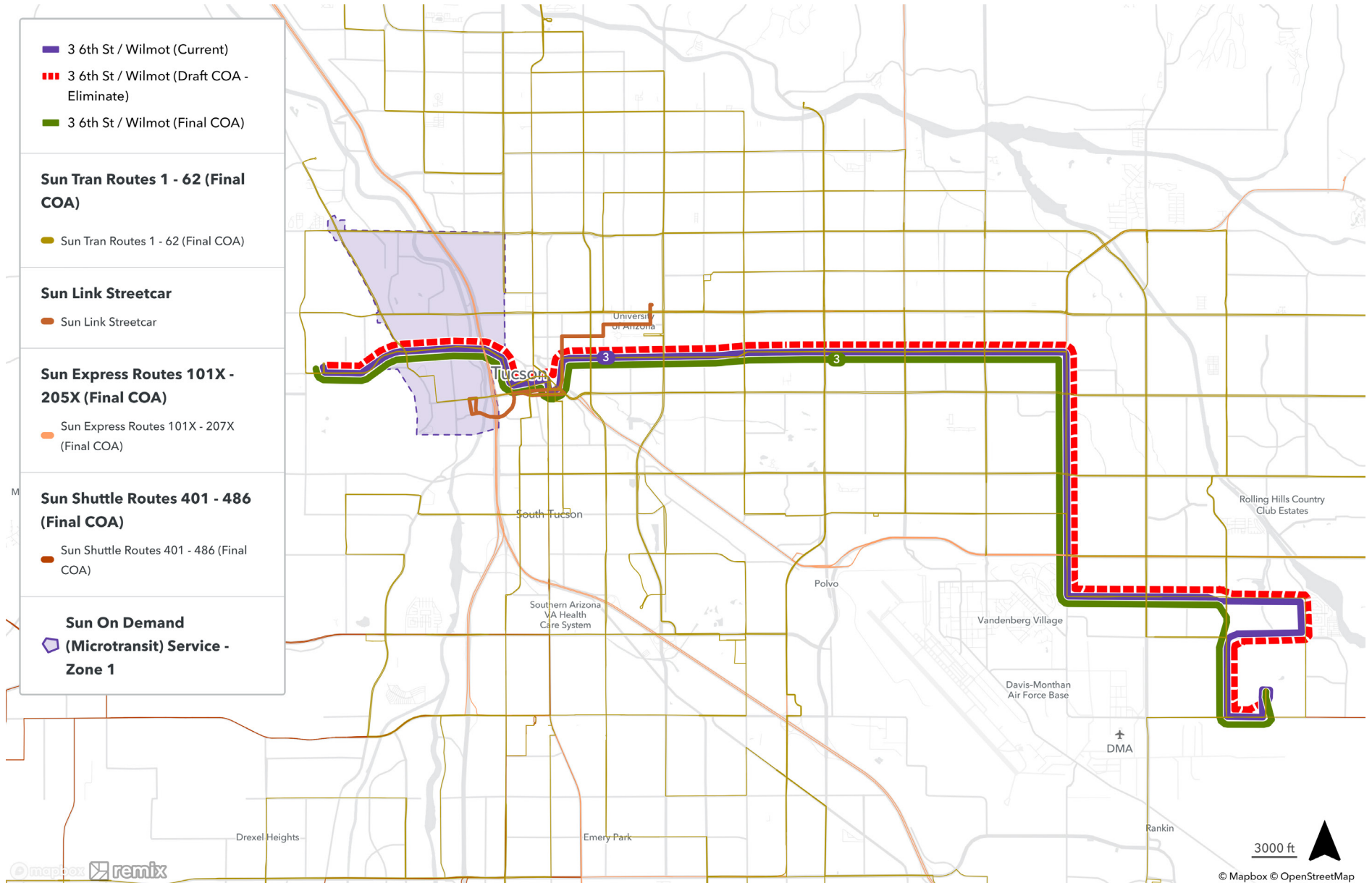
Route 2 will be shortened to end at Banner-University Medical Center (BUMC) South, with this segment being picked up by Route 29. At BUMC, riders will have the opportunity to transfer to Routes 11, 12, 15, 16, 25, and 29 and can use many of these routes to access Laos Transit Center. This route will see a significant extension of service span on weekends, operating an additional four hours on Sundays.





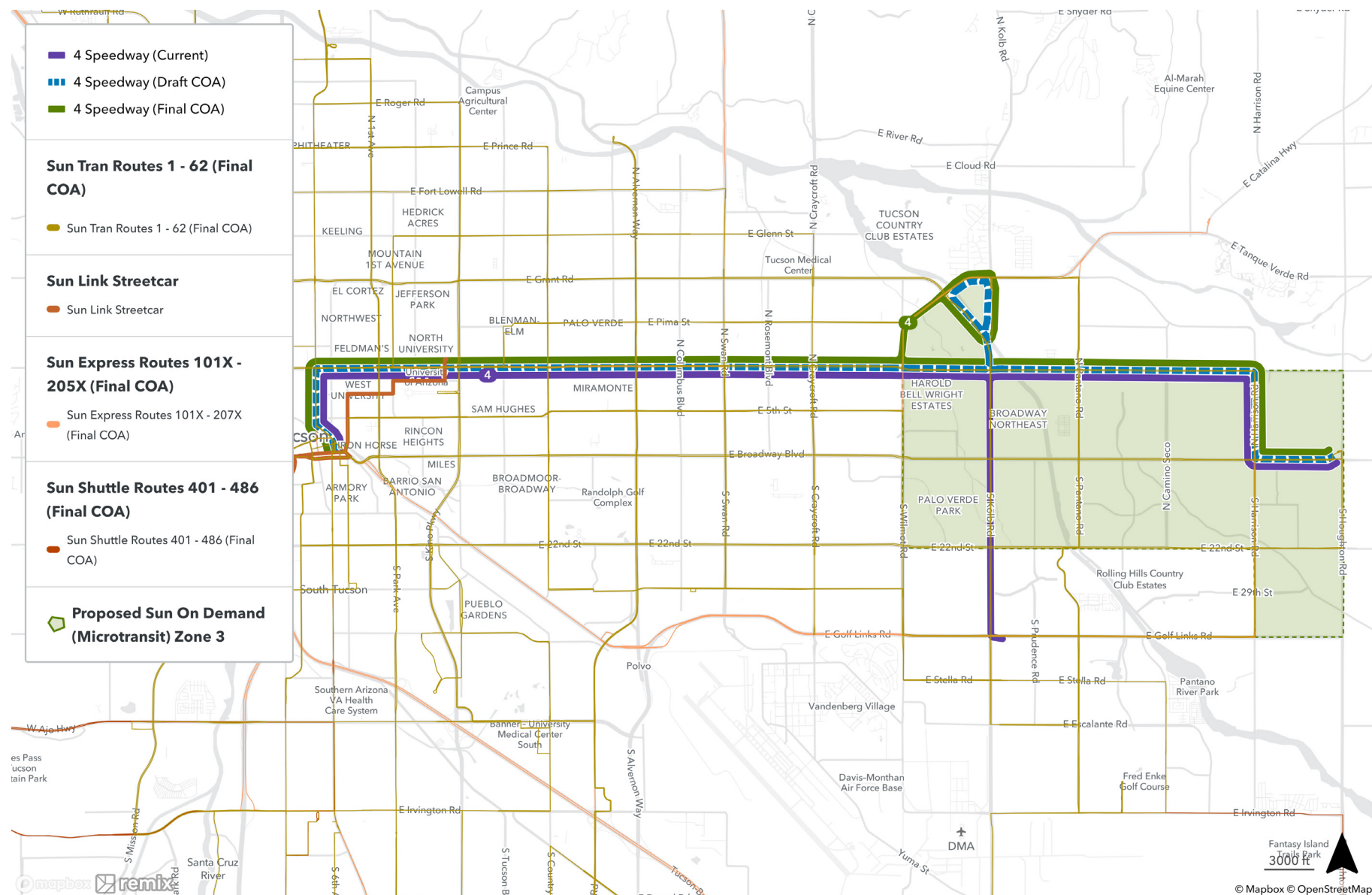
## Route 3 – 6<sup>th</sup> and Wilmot

Route 3 will operate from PCC East to PCC West as it does today. The deviation on Stella Rd. to Camino Seco and Escalante will be eliminated due to low ridership. Part of this deviation will be covered by proposed Route 37.



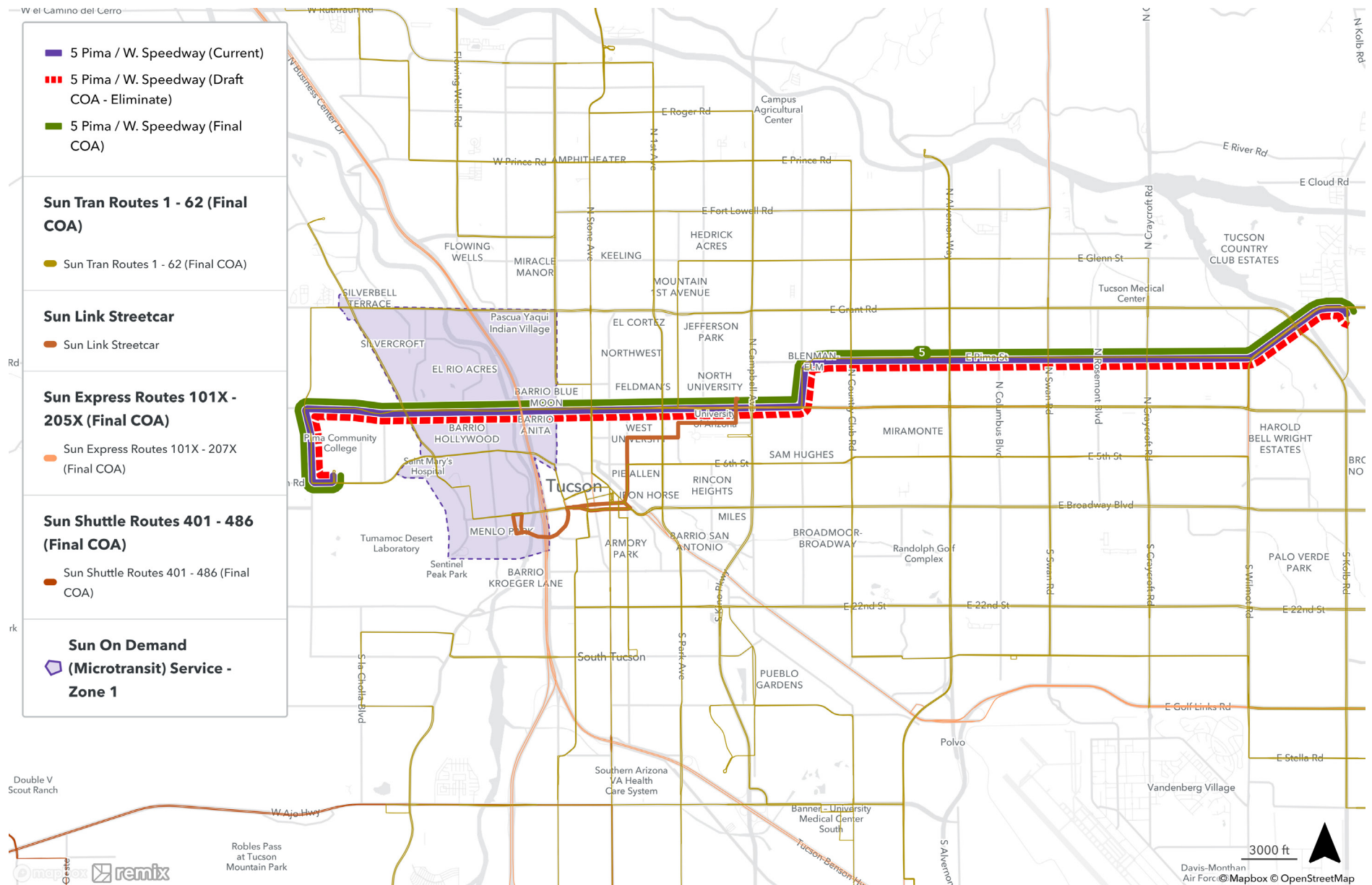
## Route 4 – E Speedway

Route 4 will operate between Downtown Ronstadt Transit Center (RTC) and Houghton Park and Ride. 15-minute service will be provided on weekdays between RTC and Wilmot Rd. East of Wilmot Rd, every other trip will serve Udall Transit Station and Houghton Park and Ride, serving each destination once every 30 minutes. This route will see a significant expansion in service span, operating until 12 am on weekdays and 11 pm on weekends. The portion of the route on Kolb will be served by a modified Route 9.



## Route 5 – Pima / Speedway

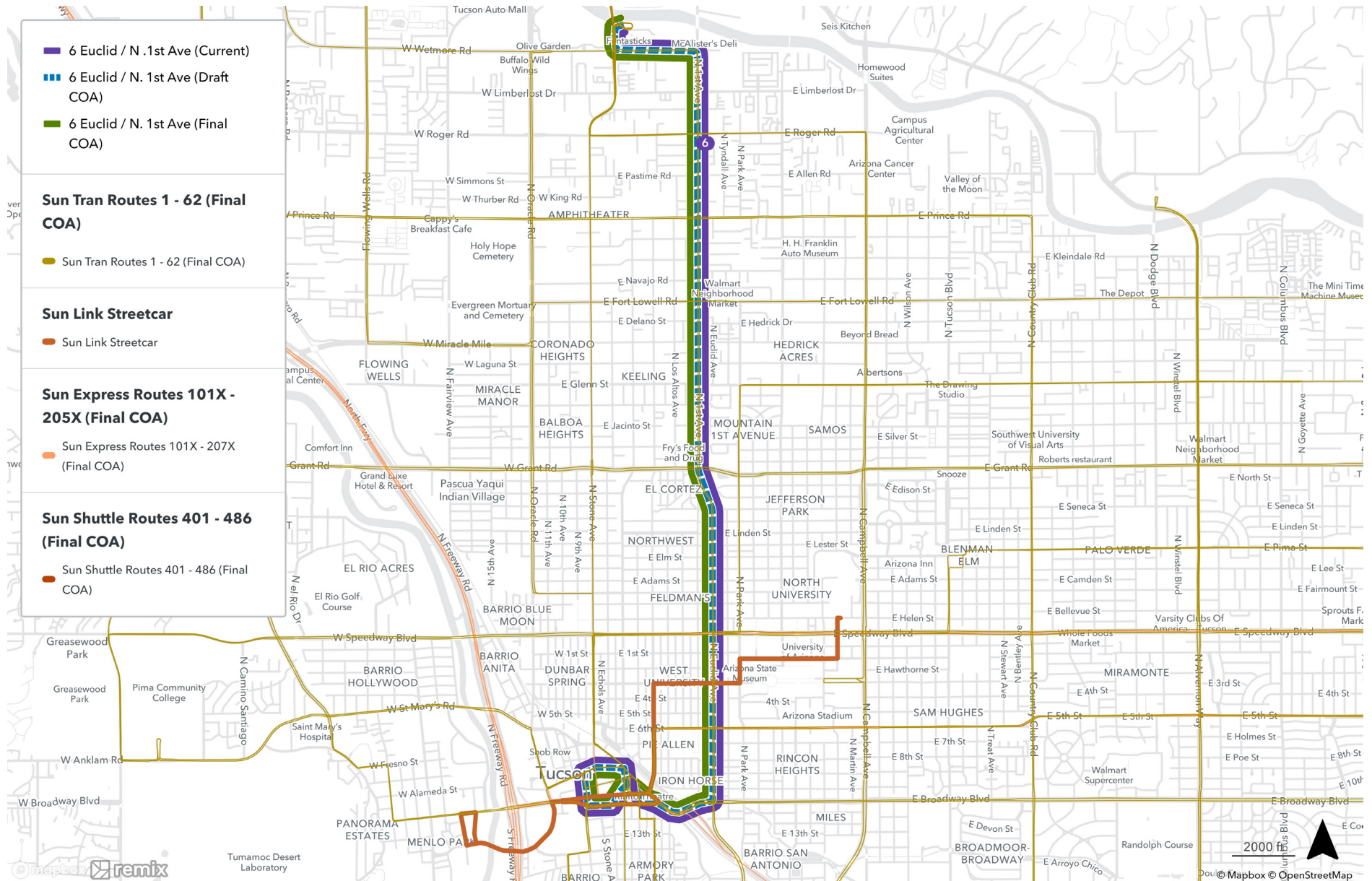
There is no proposed alignment change for Route 5. Service will operate later into the evenings, operating until 9 pm on weekday and Saturdays.





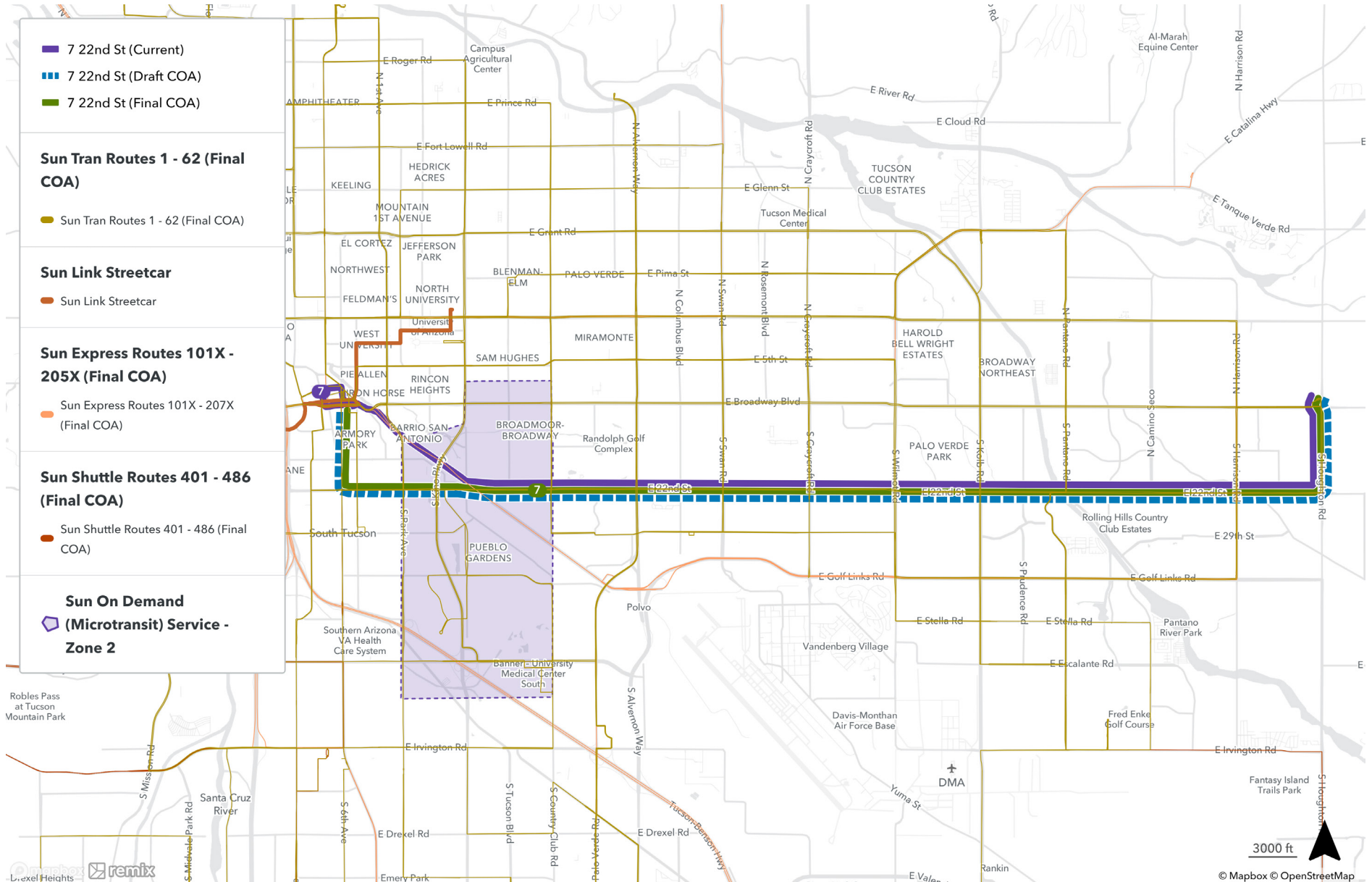
## Route 6 – Euclid

There are no proposed alignment changes for this route. It is recommended to increase weekday frequencies from 20 to 15 minutes on to help complete a frequent 15-minute network of 15-minute in Central Tucson. This route will also see significant expansion in service span, operating until 11 pm on weekends with an additional three hours of service.



## Route 7 - 22<sup>nd</sup> St

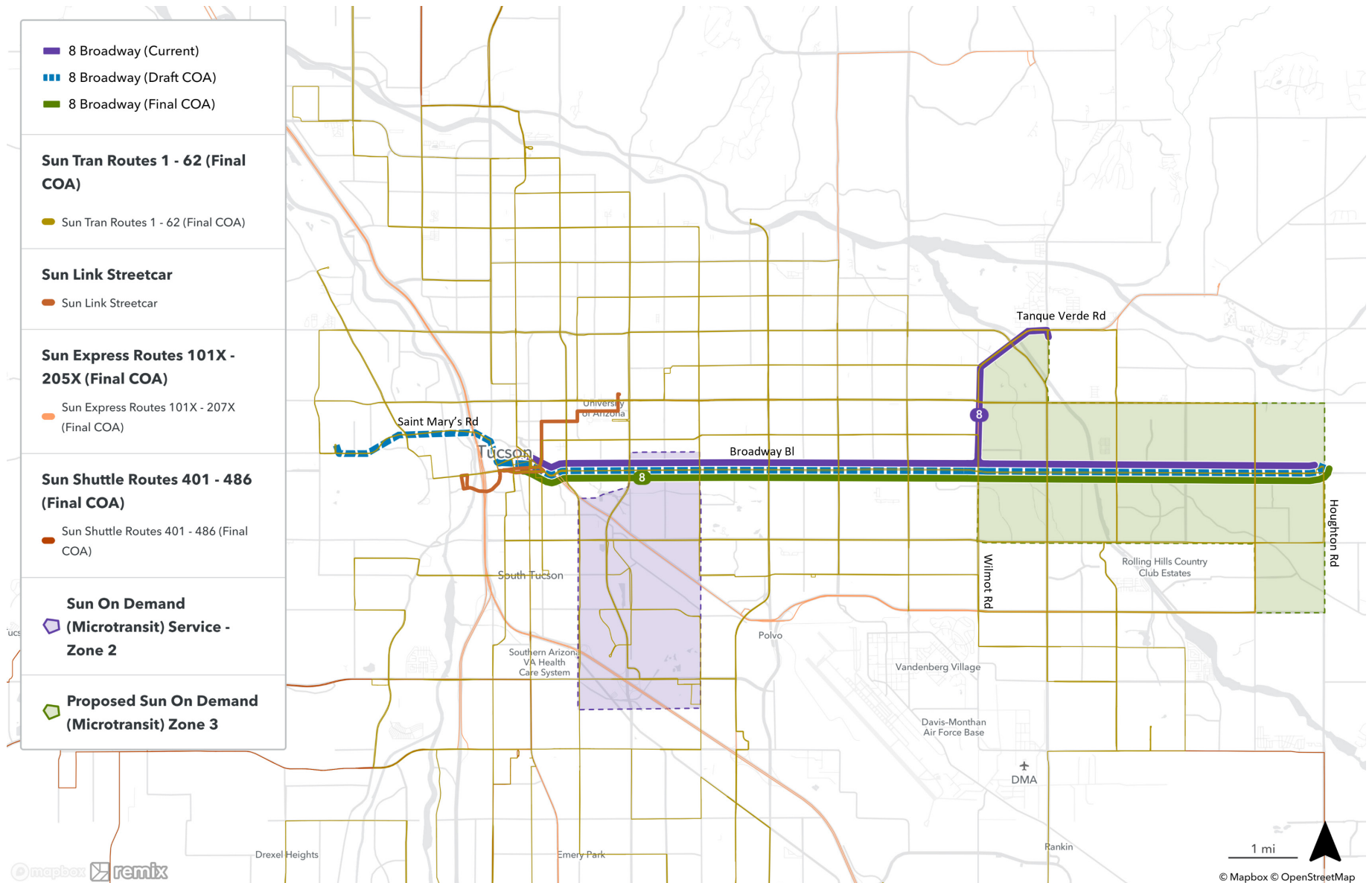
Route 7 is proposed to operate between Downtown Ronstadt Transit Center (RTC) and Houghton Park and Ride. To access Downtown, service will continue west on 22<sup>nd</sup> St to S 6<sup>th</sup> Ave rather than serving Barraza-Aviation Parkway. This change requires the completion of the 22<sup>nd</sup> Street bridge improvements between Kino Pw and Tucson Bl. This alignment will create new direct connections between the east side and the South Tucson vicinity without requiring riders to transfer at RTC.





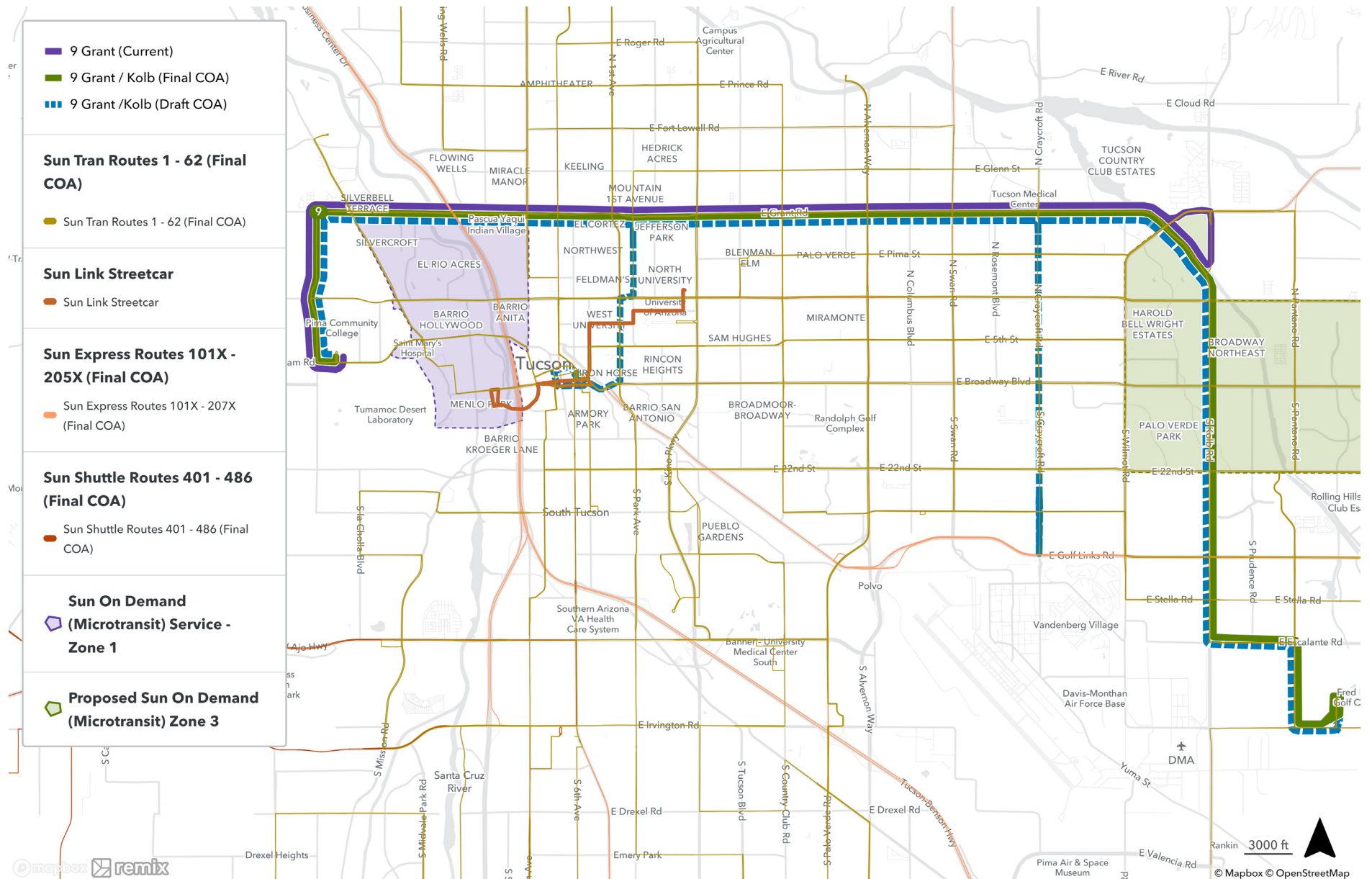
## Route 8 - Broadway

Prior to the COA, Sun Tran had plans to create a rapid bus service along Broadway with fewer stops that would provide faster speeds and shorter travel times. This plan has been incorporated into the COA. Once implemented, the route will provide 15-minute service between Downtown Ronstadt Transit Center (RTC) and Houghton Park and Ride. The current branch on Wilmot will be taken on by Route 4. The service will replace Route 108X, and service on Wilmot will be partially covered by Route 4. Since there would be fewer stops east of Wilmot Rd, Sun Tran would also introduce a new Mobility on Demand zone (Zone 3) at the same time.



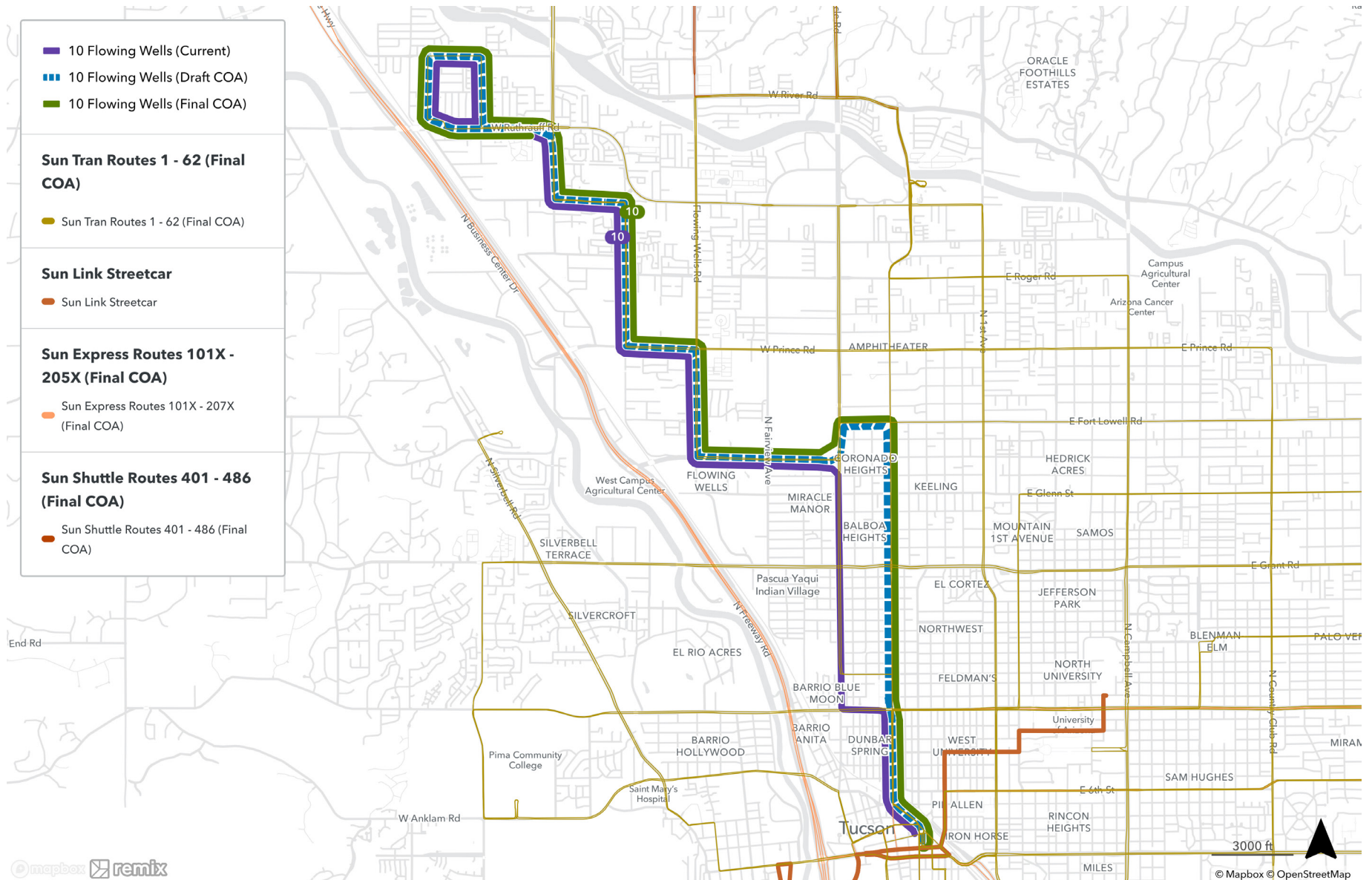
## Route 9 – Grant/ Kolb

Route 9 will now provide a direct trip for students and staff traveling between Pima Community College (PCC) East and West campuses via Grant Rd and Kolb Rd. Service spans would be greatly increased by three to five hours on the weekends with service ending at 11 pm. In a cost-neutral environment, service would operate every 30 minutes, but as resources become available, restoring 20-minute service should be prioritized.



## Route 10 – Flowing Wells

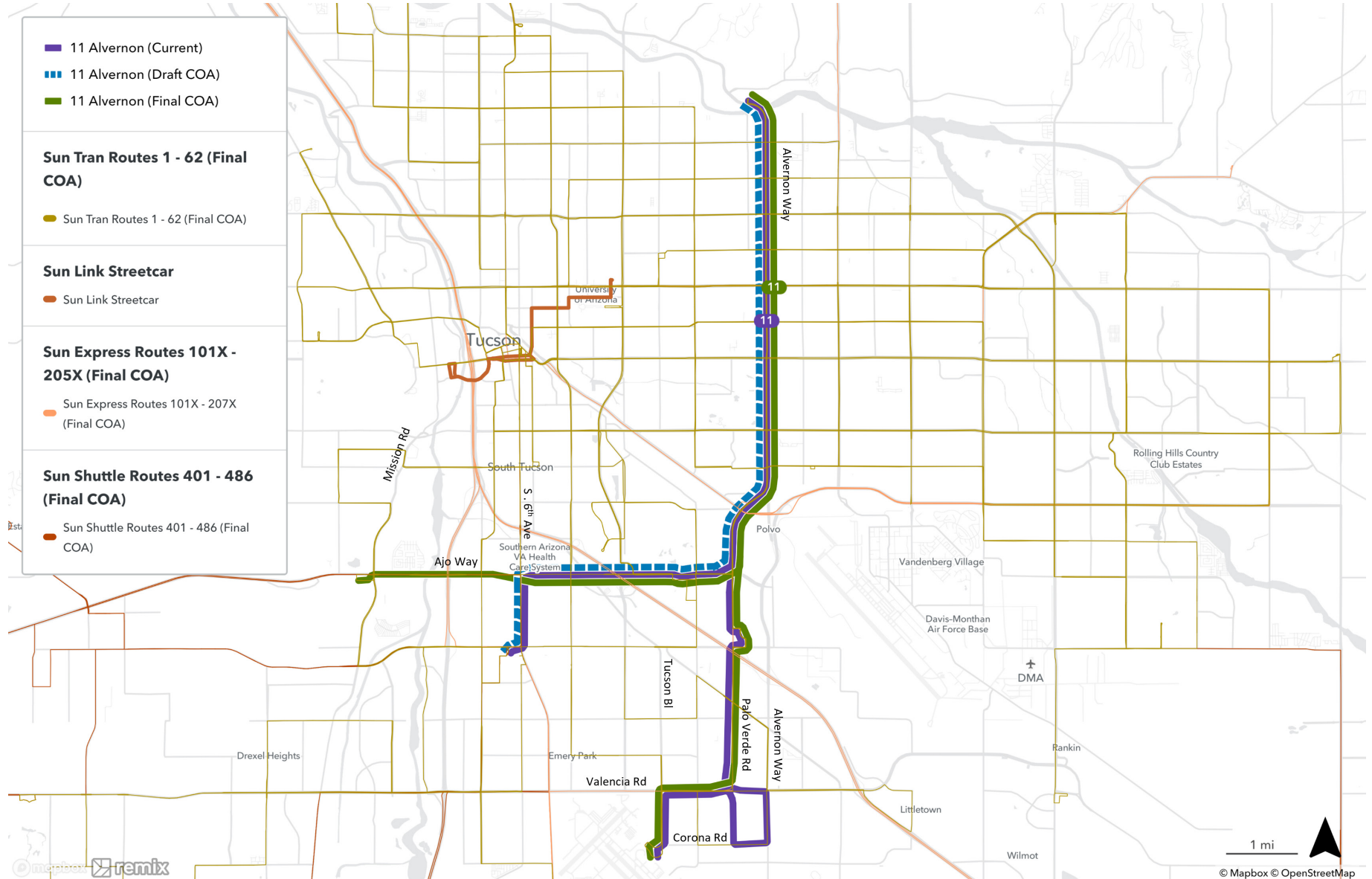
Route 10 is proposed to operate between Downtown Ronstadt Transit Center (RTC) and the vicinity of La Cholla Bl/Ruthrauff Rd. Rather than duplicating frequent service on Oracle Rd, Route 10 would shift east to operate on Stone Av (currently served by Route 19) between Fort Lowell Rd and W Franklin St. This recommendation should be reevaluated when there is a Locally Preferred Alternative for the Tucson Rapid Transit Project which is looking at the Stone Ave corridor. Service will be extended by two hours on all service days.





## Route 11 – Alvernon / Ajo

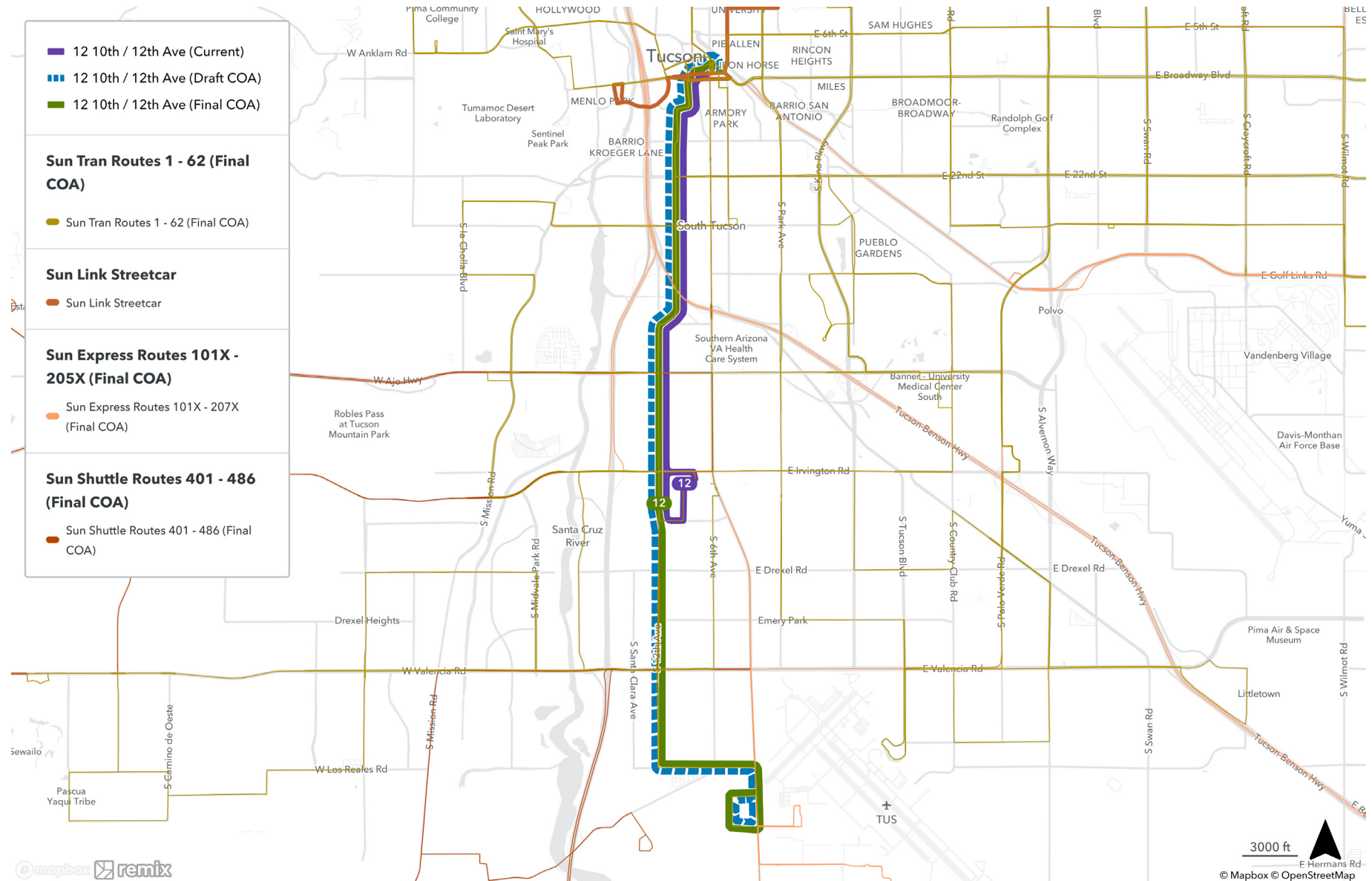
Route 11 is proposed to operate between the Tucson Jewish Community Center (JCC) and Ajo Way/Palo Verde Rd every 15 minutes on weekdays and 30 minutes on the weekend. South of Ajo Way/Palo Verde Rd, trips alternate between serving Tucson International Airport (TIA) and Ajo Way, ending just west of Mission Rd. The western extension of Route 11 along Ajo Way to Mission Rd will replace the existing Route 50 (Ajo Way). This route will no longer serve the Laos Transit Center, but riders can transfer to routes on S 6<sup>th</sup> Ave and S 12<sup>th</sup> Ave. Service will be extended by two hours on weekdays and three hours on weekends.





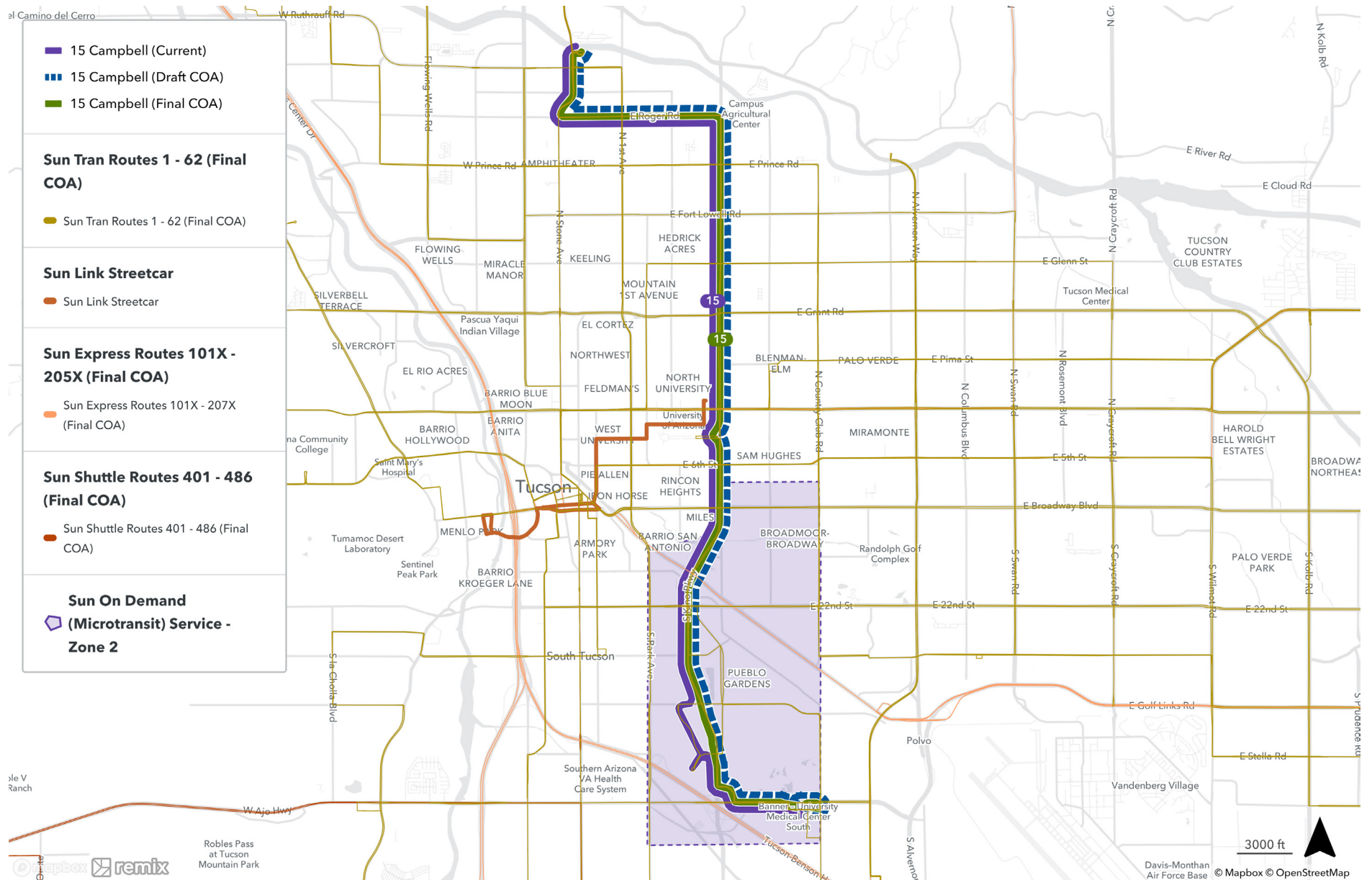
## Route 12- 10<sup>th</sup> / 12<sup>th</sup> Ave

Proposed Route 12 will operate between Downtown Ronstadt Transit Center (RTC) and Desert Diamond Casino, merging alignments with existing Route 24 (12<sup>th</sup> Av). It will operate via 10<sup>th</sup> Av to 12<sup>th</sup> Av to Los Reales Rd to Nogales Hwy/Topowa Dr. Service will operate every 30 minutes on weekdays and weekends. This route will not stop at Laos Transit Center. Service will be extended to 12 am on weekdays and 11 pm on weekends providing much needed late-night service in South Tucson.



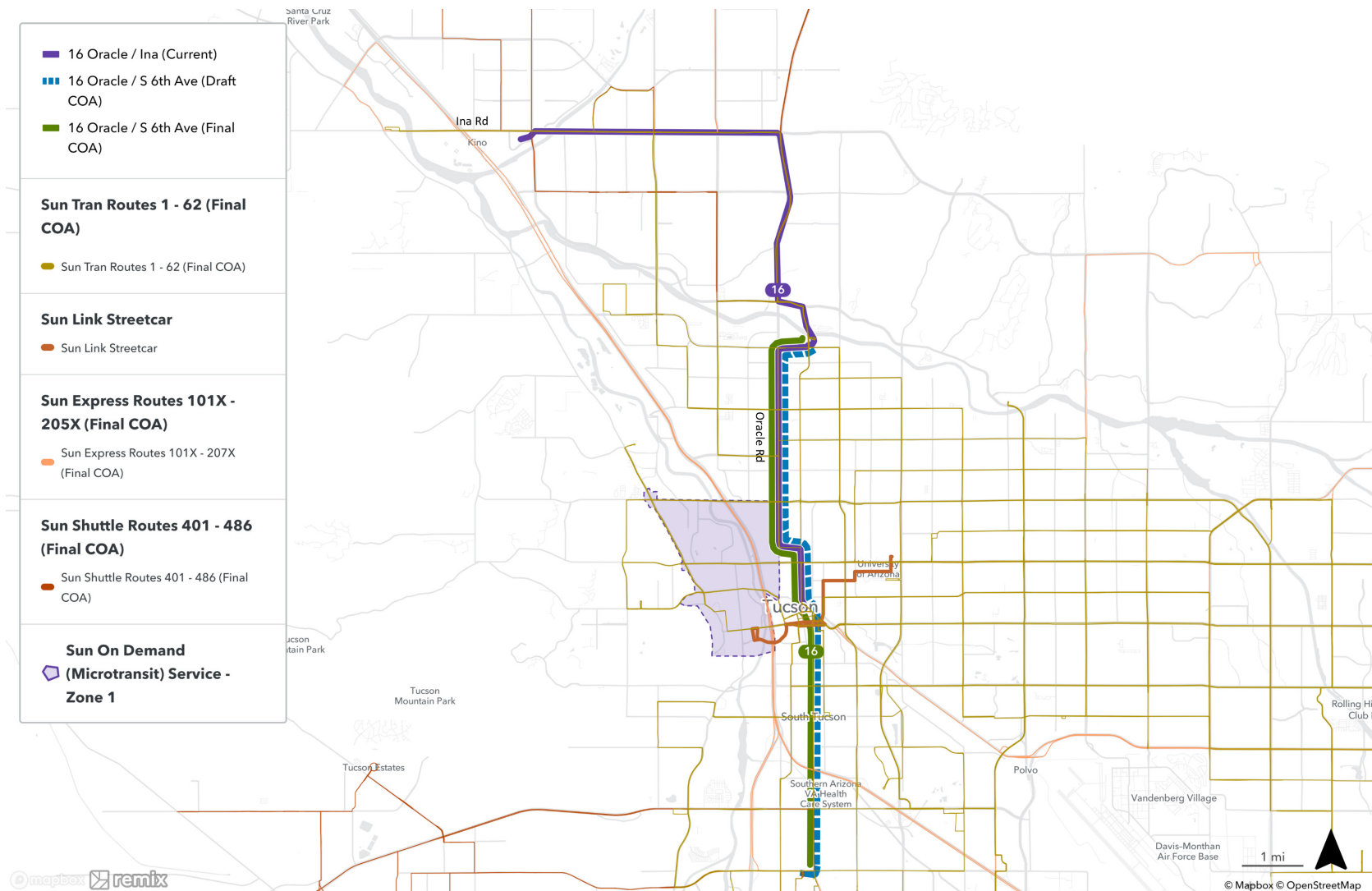
## Route 15 – Campbell

Proposed Route 15 will operate between Banner-University Medical Center (BUMC) South and Tohono T'adai Transit Center via Ajo Way to Kino Pw to Campbell Av to Roger Rd to Stone Av. Service will no longer deviate to UA Tech Park. The UA Tech Park is still accessible via the Sun On-Demand Zone or Route 2 (Pueblo Gardens). Service will be extended by three hours on Sundays until 9 pm.



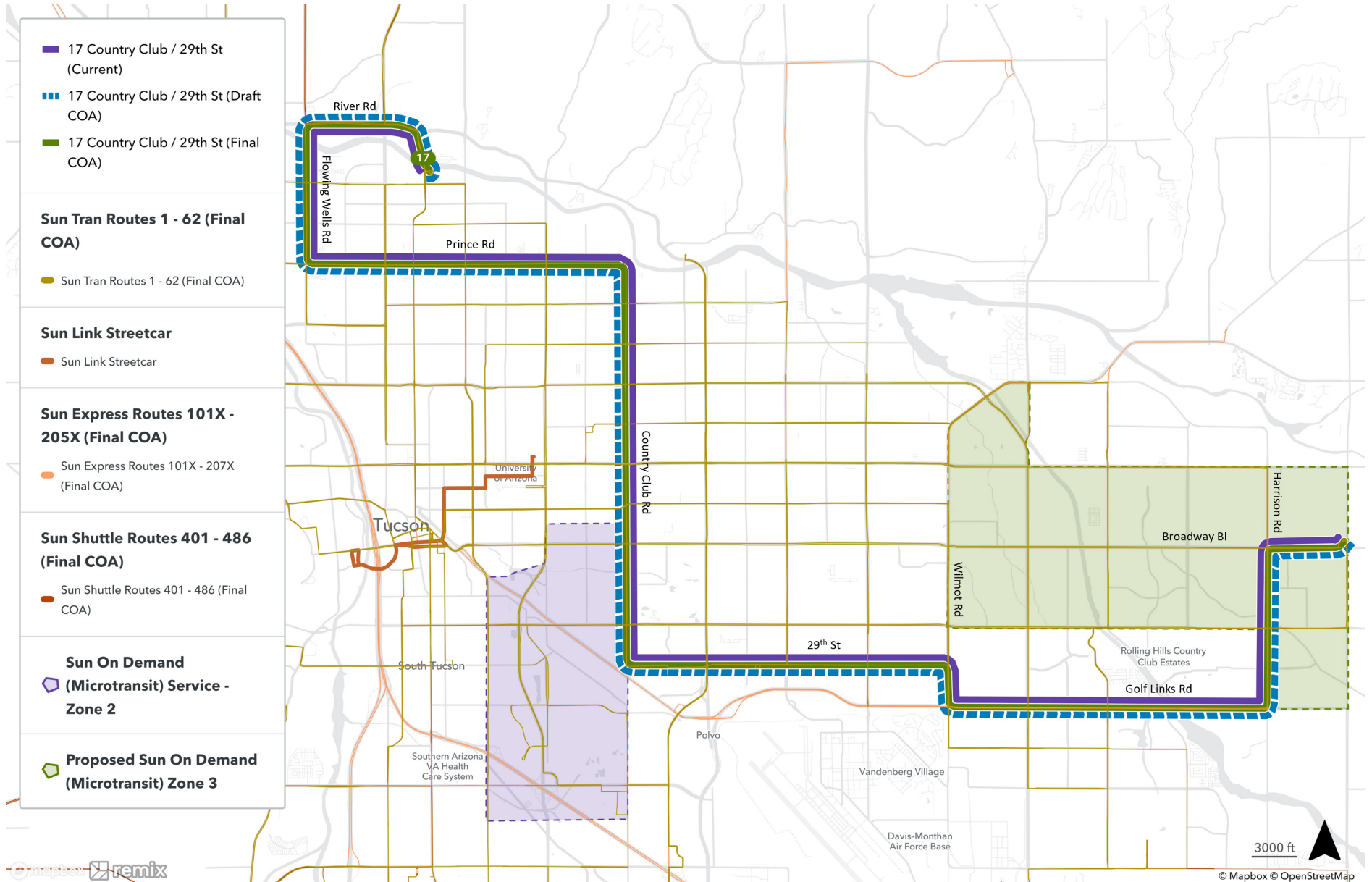
## Route 16 – Oracle/Ina

Route 16 will be merged with Route 18 to provide a single, direct, frequent service between Tohono T’adai Transit Center and Roy Lao Transit Center. Routes 16 and 18 currently account for the system’s largest transfer pair with over 500 transfers taking place each day. The continuous north-south service means that riders traveling through Downtown will no longer have to transfer, providing a better experience and shorter overall trip times. Service will be extended by over four hours on weekends operating until 12 am on Saturdays and 11 pm on Sundays. Combined, this corridor accounts for 12% of systemwide boardings. As resources become available, Sun Tran should target implementing 10-minute service along this high demand route. The segment on Oracle Rd north of River Rd, continuing to Ina Rd, will be served by the New Route 62. Implementation of this recommendation should not occur until the Locally Preferred Alternative for the Tucson Rapid Transit project is selected.



## Route 17 – Country Club / 29<sup>th</sup>

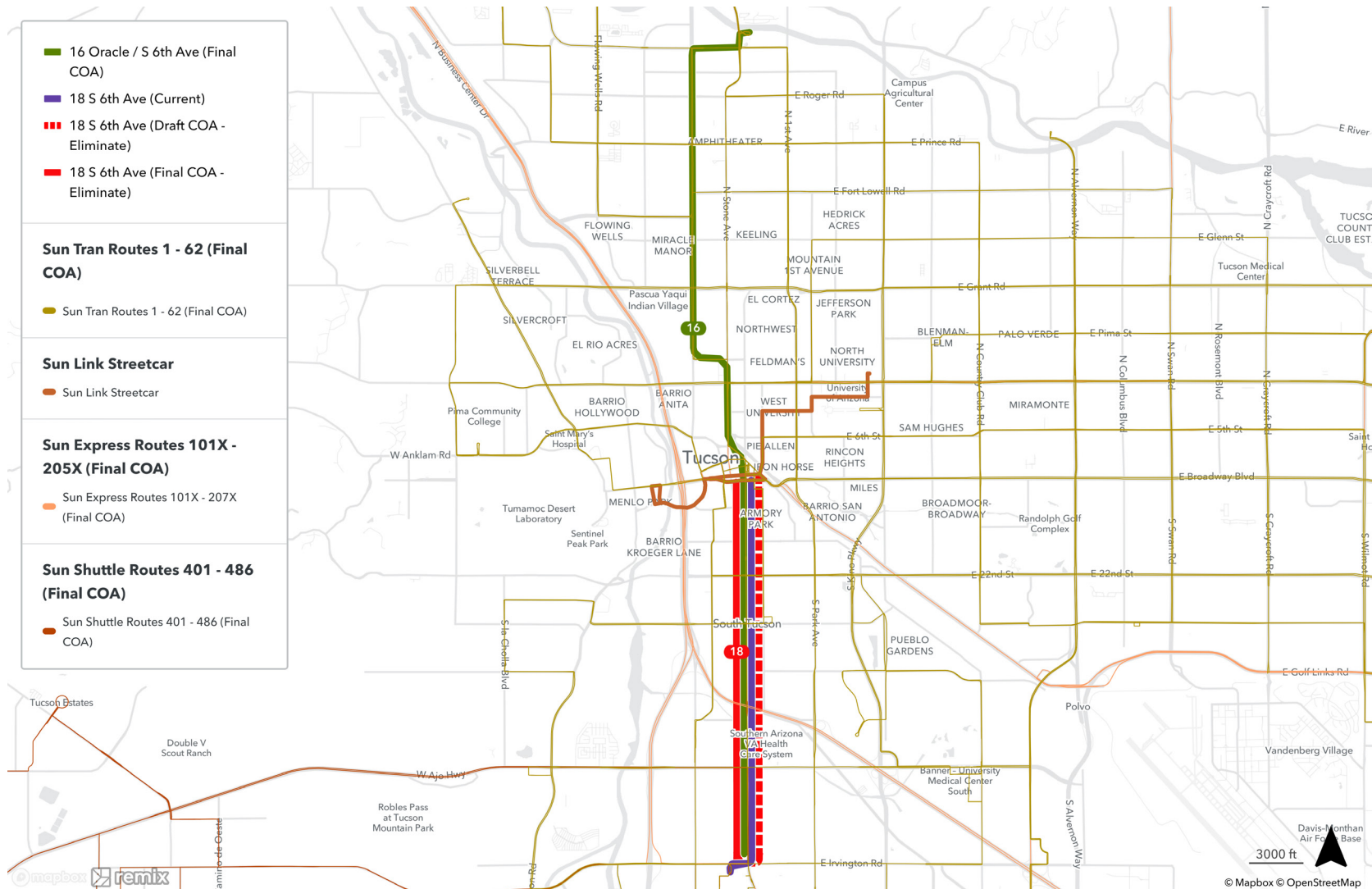
There are no proposed alignment or span changes for this route.





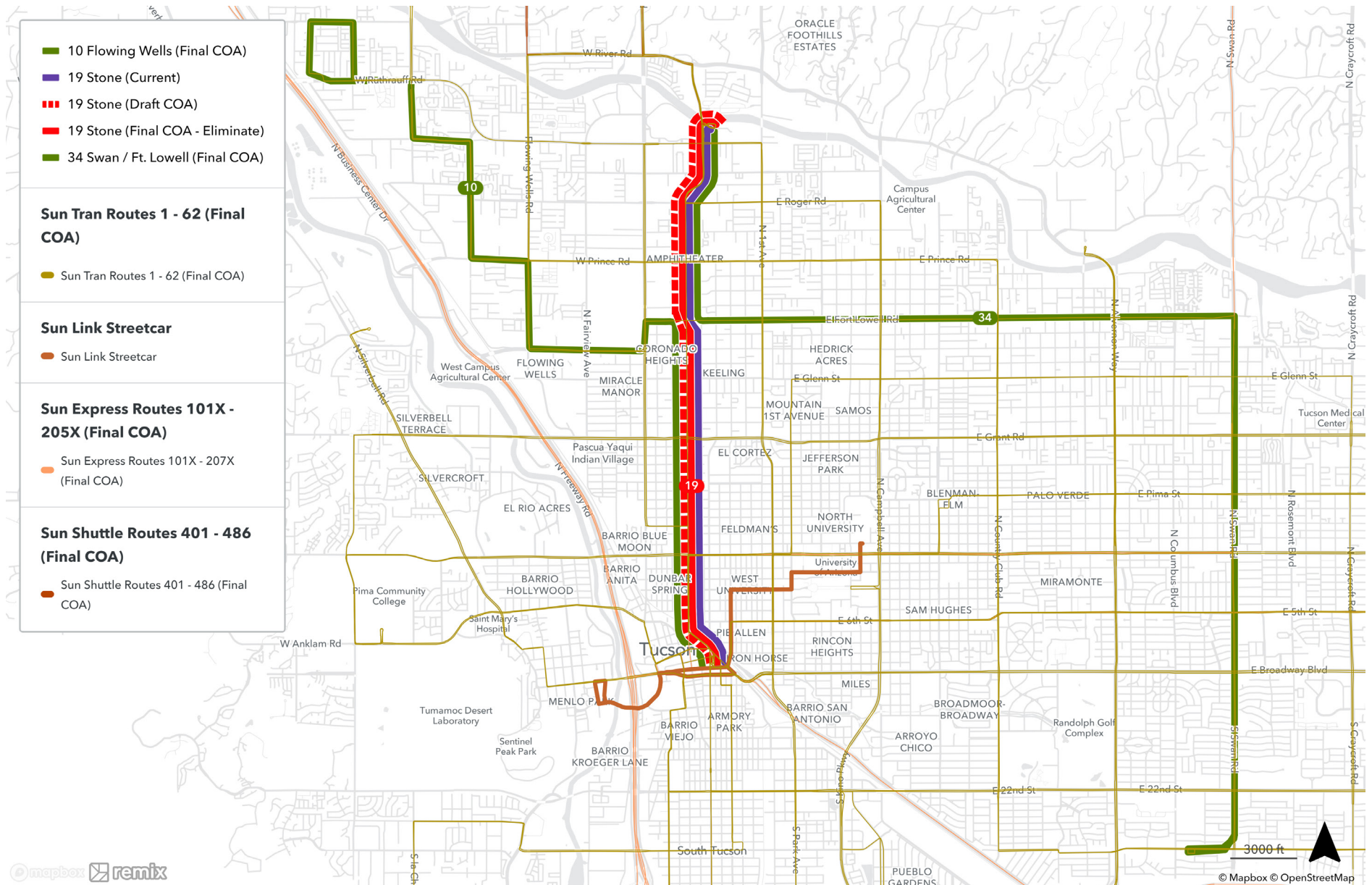
## Route 18 – Oracle / S 6<sup>th</sup> Ave

Route 18 will be merged into a new Route 16 to provide a single, direct, frequent service between Tohono T’adai Transit Center and Roy Lao Transit Center. Routes 16 and 18 currently account for the system’s largest transfer pair with over 500 transfers taking place each day. The continuous north-south service means that riders traveling through Downtown will no longer have to transfer, providing a better experience and shorter overall trip times. Service will be extended by over four hours on weekends operating until 12 am on Saturdays and 11 pm on Sundays. Combined, this corridor accounts for 12% of systemwide boardings. As resources become available, Sun Tran should target implementing 10-minute service along this high demand route. The segment on Oracle Rd north of River Rd, continuing to Ina Rd, will be served by the New Route 62. Implementation of this recommendation should not occur until the Locally Preferred Alternative for the Tucson Rapid Transit project is selected.



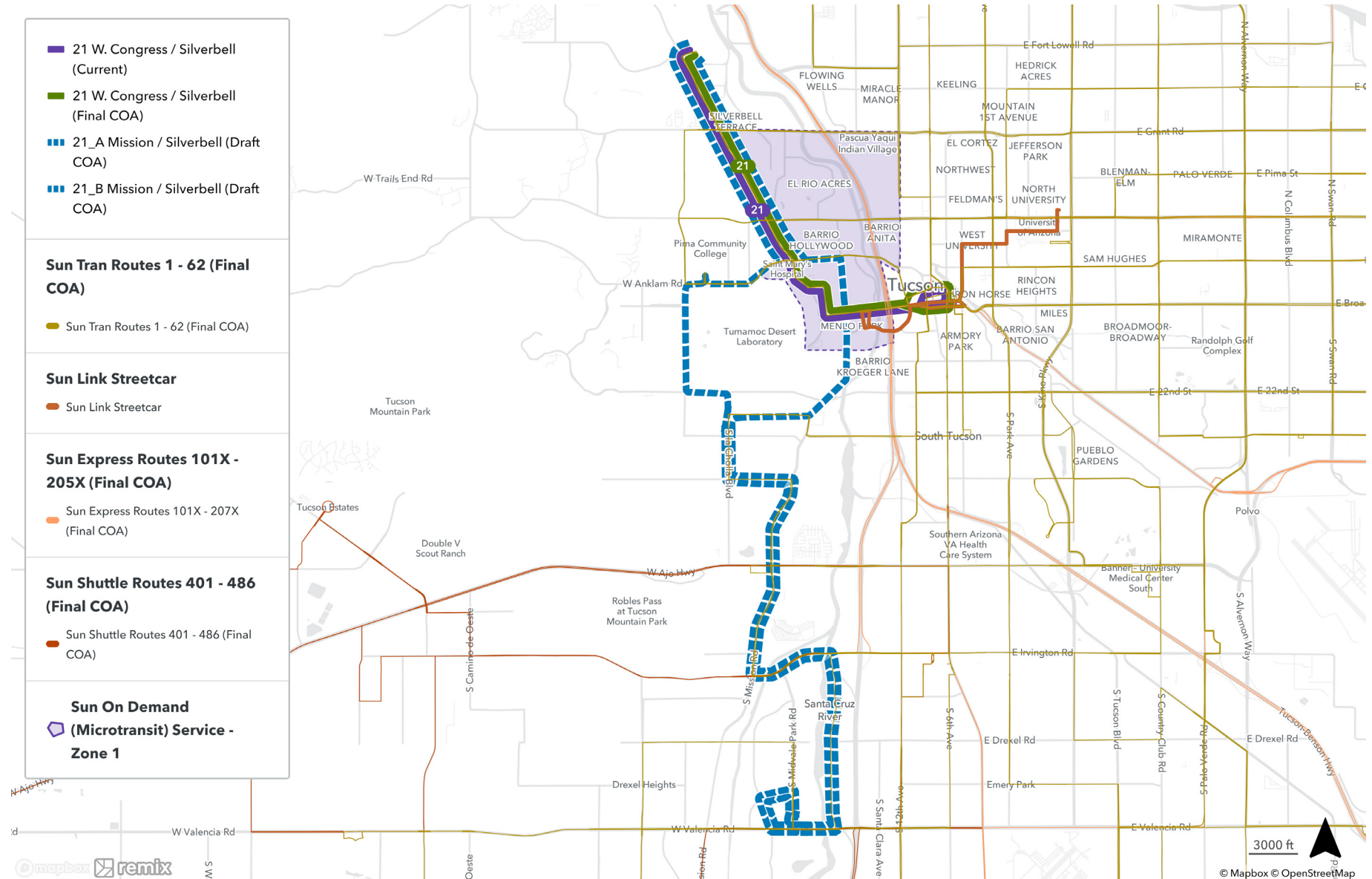
## Route 19 – Stone

Route 19 is proposed to be discontinued due to its proximity to higher-frequency service within walking distance. It competes for riders with surrounding routes carrying half the amount of riders as Route 6 on Euclid Av and one third the amount of riders as Route 16 on Oracle Rd. However, Route 19 should not be changed until a Locally Preferred Alternative is selected for the Tucson Rapid Transit project.



## Route 21 – W Congress / Silverbell

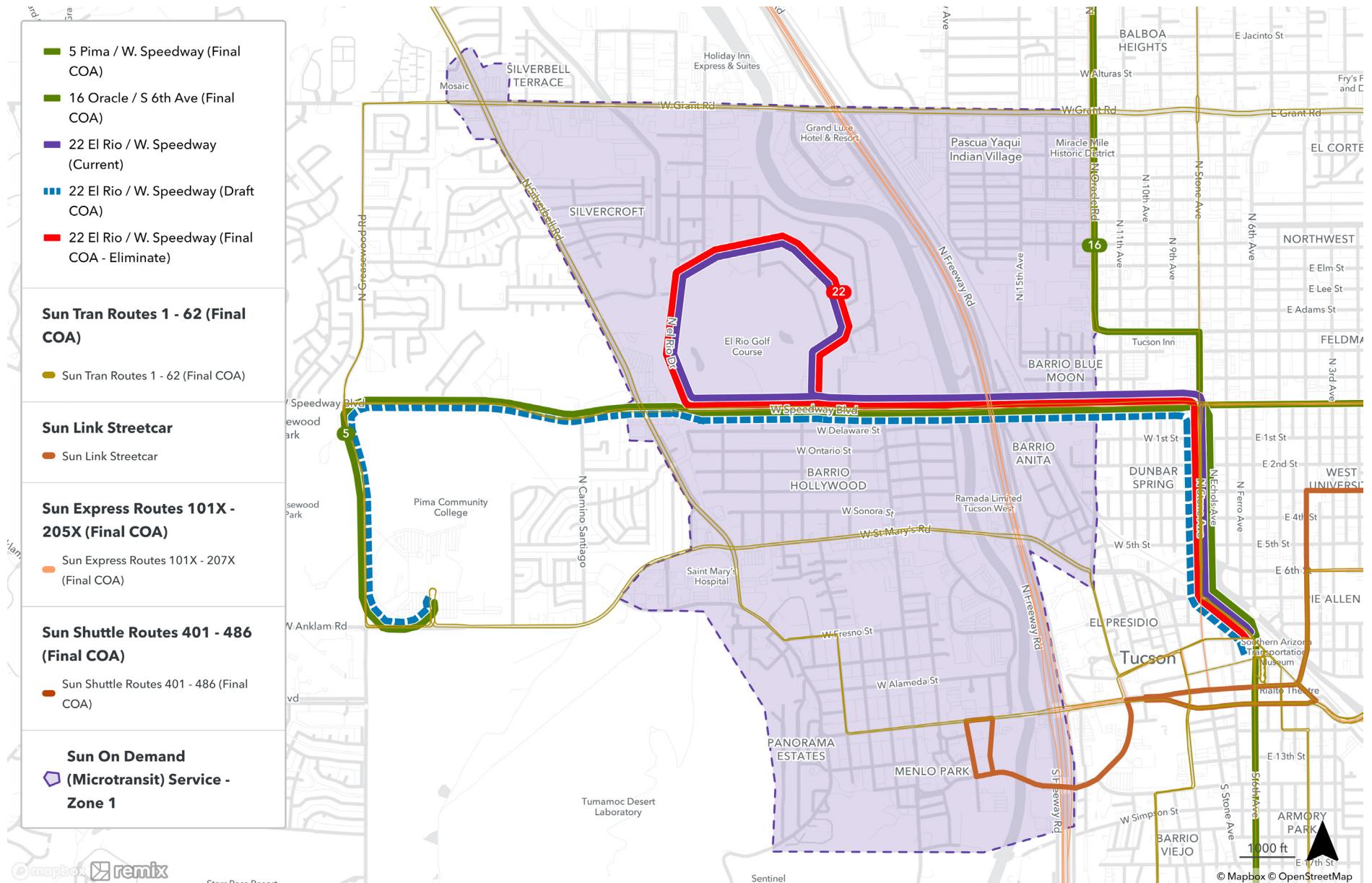
There are no proposed alignment changes for Route 21. Service will be extended by two hours across all day types. The draft plan explored alternatives to create a connector route with service south to Valencia. Two routing options were explored for this route with a 50-50 voting result from the community. Ultimately, riders on Silverbell did not want to lose direct access to Downtown, so there are no recommended alignment changes. In the future with additional funding, Sun Tran may want to visit the proposal to add an additional route on the westside without sacrificing direct connections into Downtown Tucson.





## Route 22 – El Rio / W Speedway

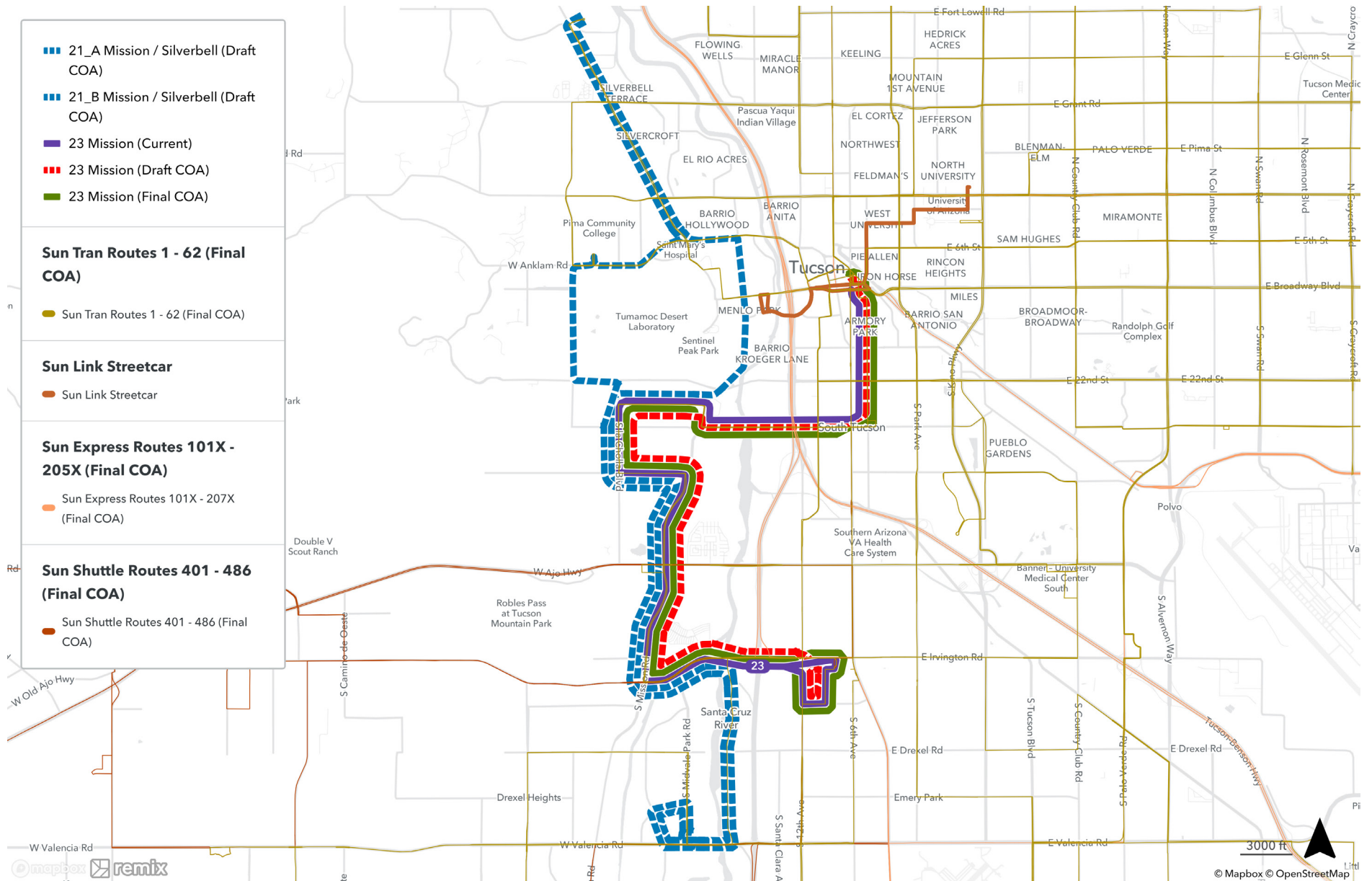
Route 22 is proposed to be discontinued. It has the lowest ridership out of all of the fixed routes in the system. The majority of the alignment overlaps with Route 5 on Speedway Blvd, for which there are no proposed changes. The unique area on El Rio Dr. is also served by the Mobility on Demand Zone 1, and riders can use this service for a direct ride to Ronstadt Transit Center.





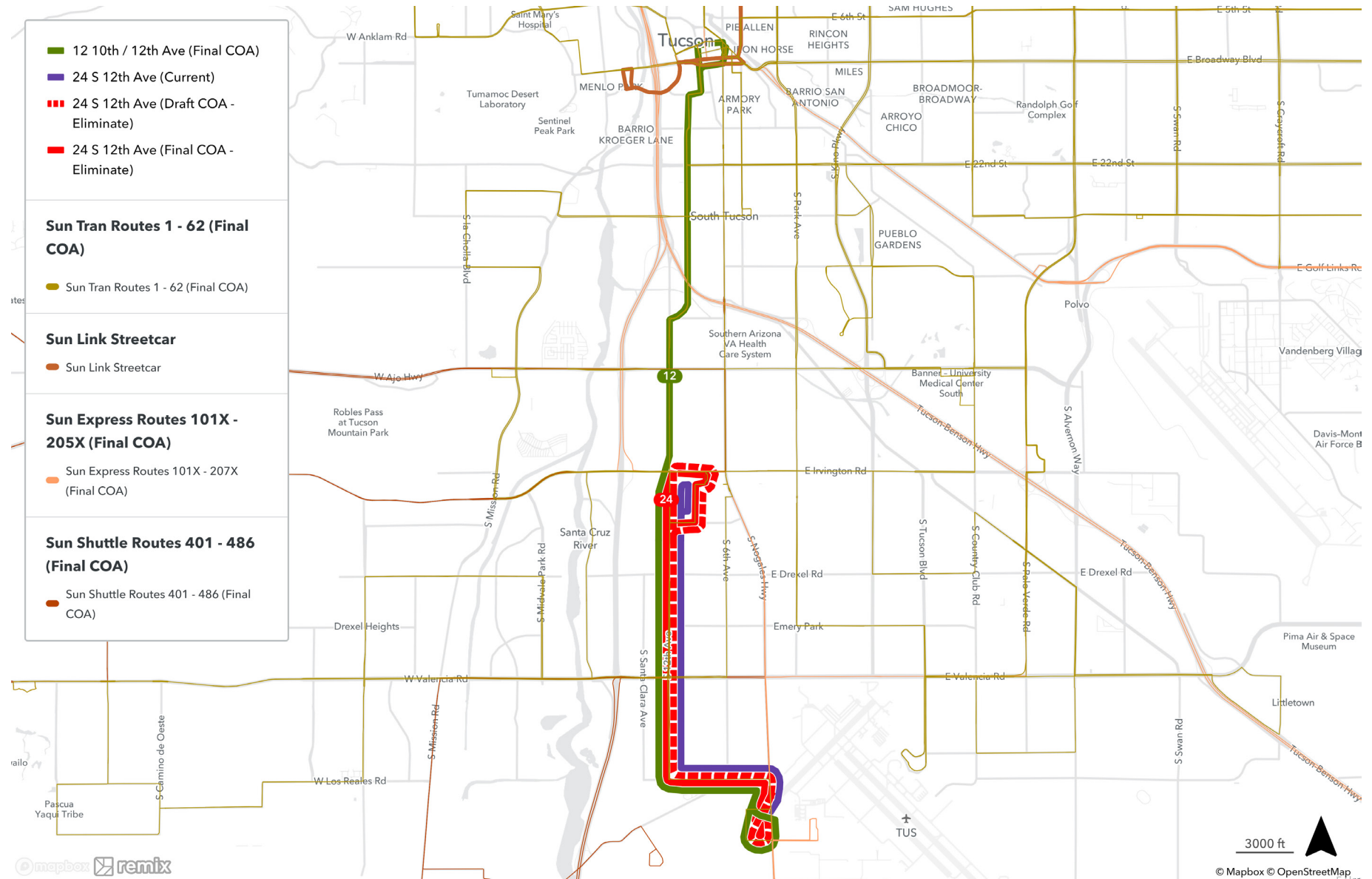
## Route 23 – Mission

There are no proposed alignment changes for Route 23, and it would operate two extra hours on Sunday evenings.



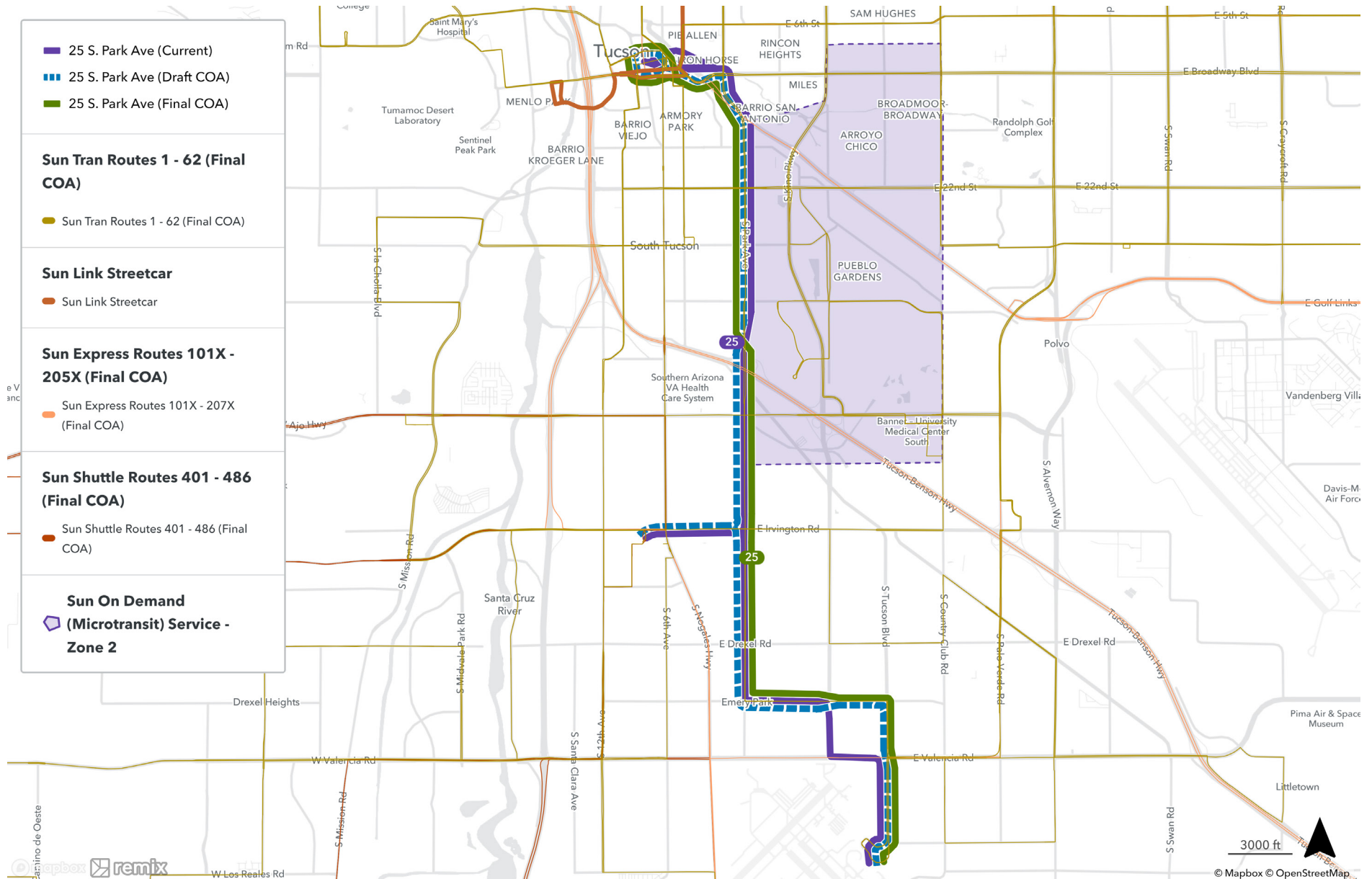
## Route 24 – S 12<sup>th</sup> Ave

Route 24 is proposed to merge with existing Route 12. Proposed Route 12 will operate between Downtown Ronstadt Transit Center (RTC) and Desert Diamond Casino, merging alignments with existing Route 24 (12<sup>th</sup> Av). It will operate via 10<sup>th</sup> Av to 12<sup>th</sup> Av to Los Reales Rd to Nogales Hwy/Topowa Dr. Service will operate every 30 minutes on weekdays and weekends. This route will not stop at Laos Transit Center. Service will be extended to 12 am on weekdays and 11 pm on weekends, providing much needed late-night service in South Tucson.



## Route 25 – S Park

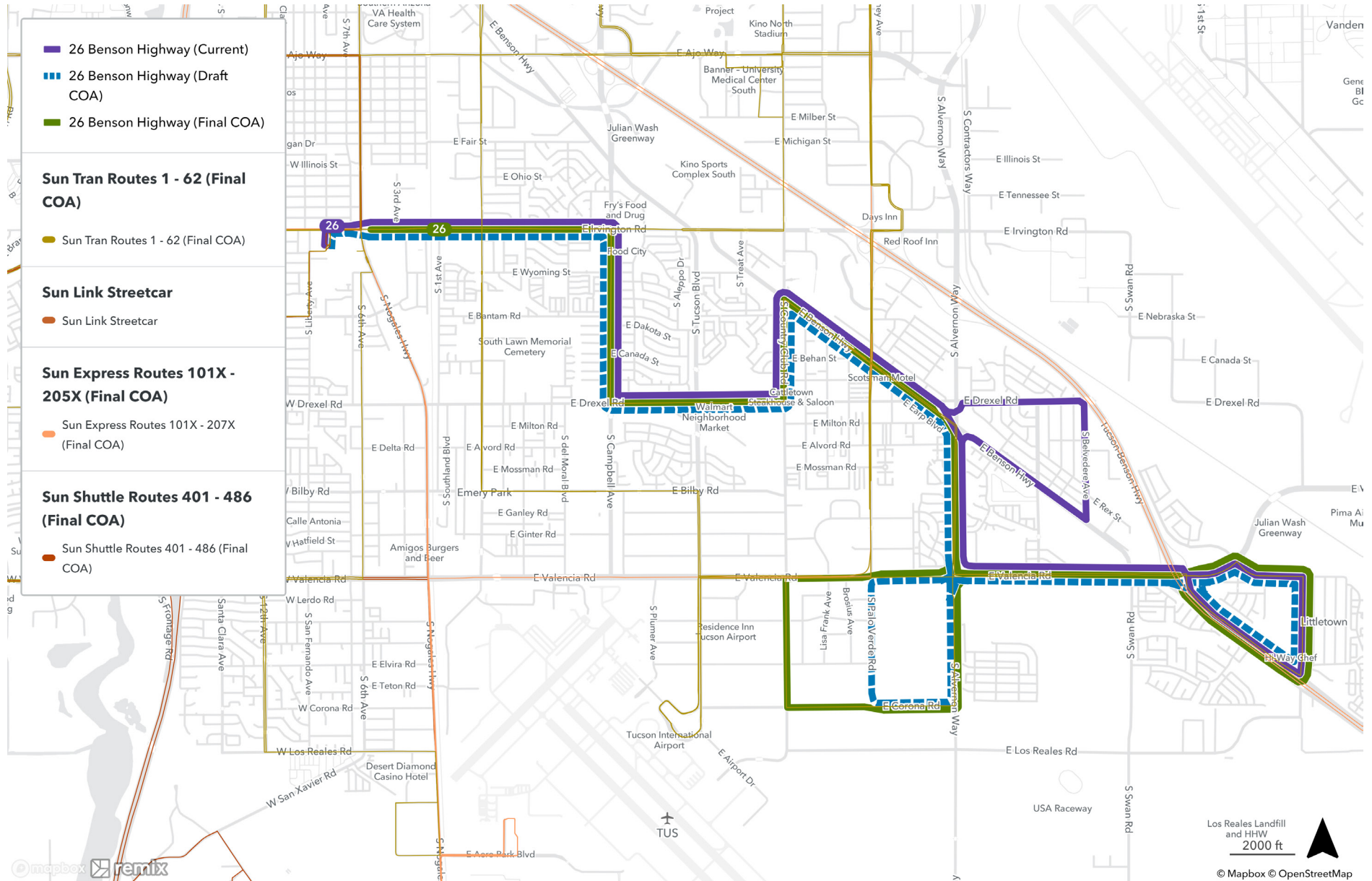
Route 25 is proposed to operate every 30 minutes on weekdays between Downtown Ronstadt Transit Center (RTC) and Tucson International Airport (TIA) via Congress St to Broadway Bl to Euclid Av to Park Av to Bilby Rd to Tucson Bl. Service will no longer deviate to serve Roy Lao Transit Center (LTC). Service will be extended to start earlier in the mornings and end later in the evenings to provide better access to the airport for employees and people trying to catch flights.





## Route 26 – Benson Hwy

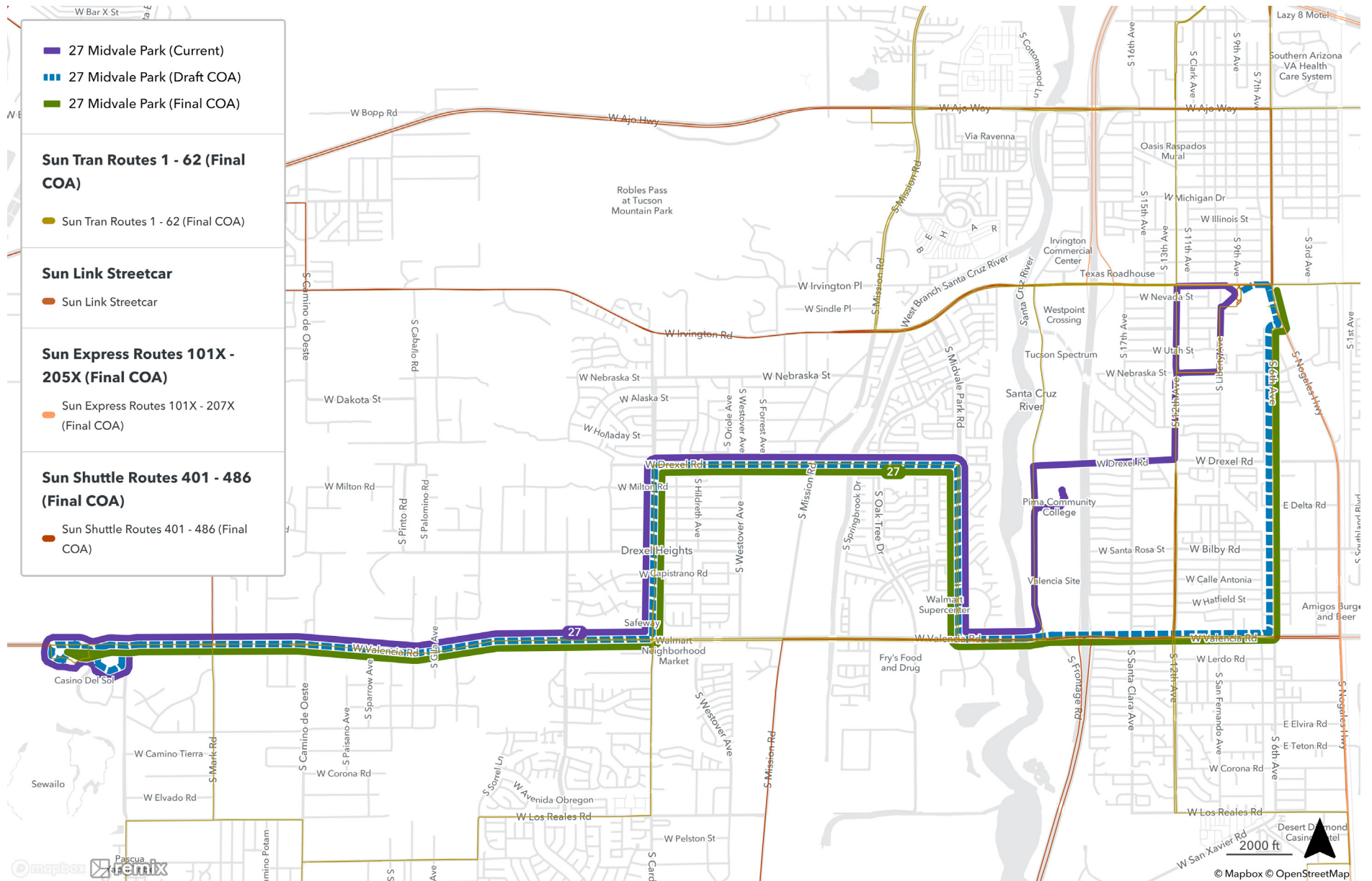
Route 26 is proposed to maintain most of its current alignment with a new deviation south of Valencia Rd to serve businesses off of E Corona Rd. Service will be discontinued on the loop east of Benson Hwy due to low ridership. The route will not deviate into Roy Lao Transit Center; rather, outside the transit center Route 26 will interline and become Route 27-Midvale Park, continuing service westward. Service will be extended by two hours to 9 pm on Sundays.





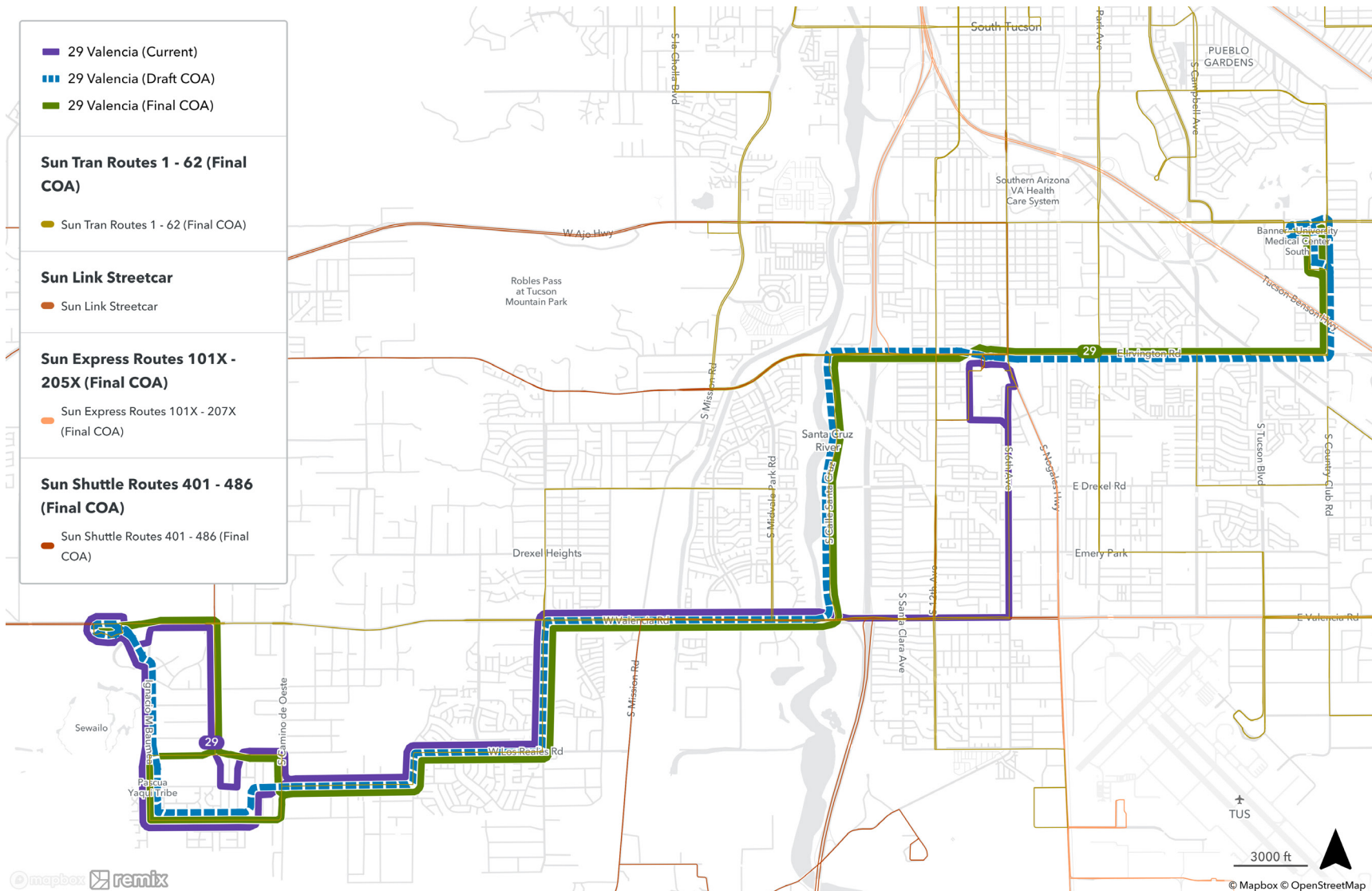
## Route 27 – Valencia

Route 27 will be restructured to operate along S 6<sup>th</sup> Ave, covering a segment of the existing Route 29. This alignment also provides a more streamlined route for riders traveling towards Irvington Rd and eliminates the out-of-direction movement to Pima Community College (PCC) Desert Vista which will be served by Route 29. Service will be extended by two hours on the weekends.



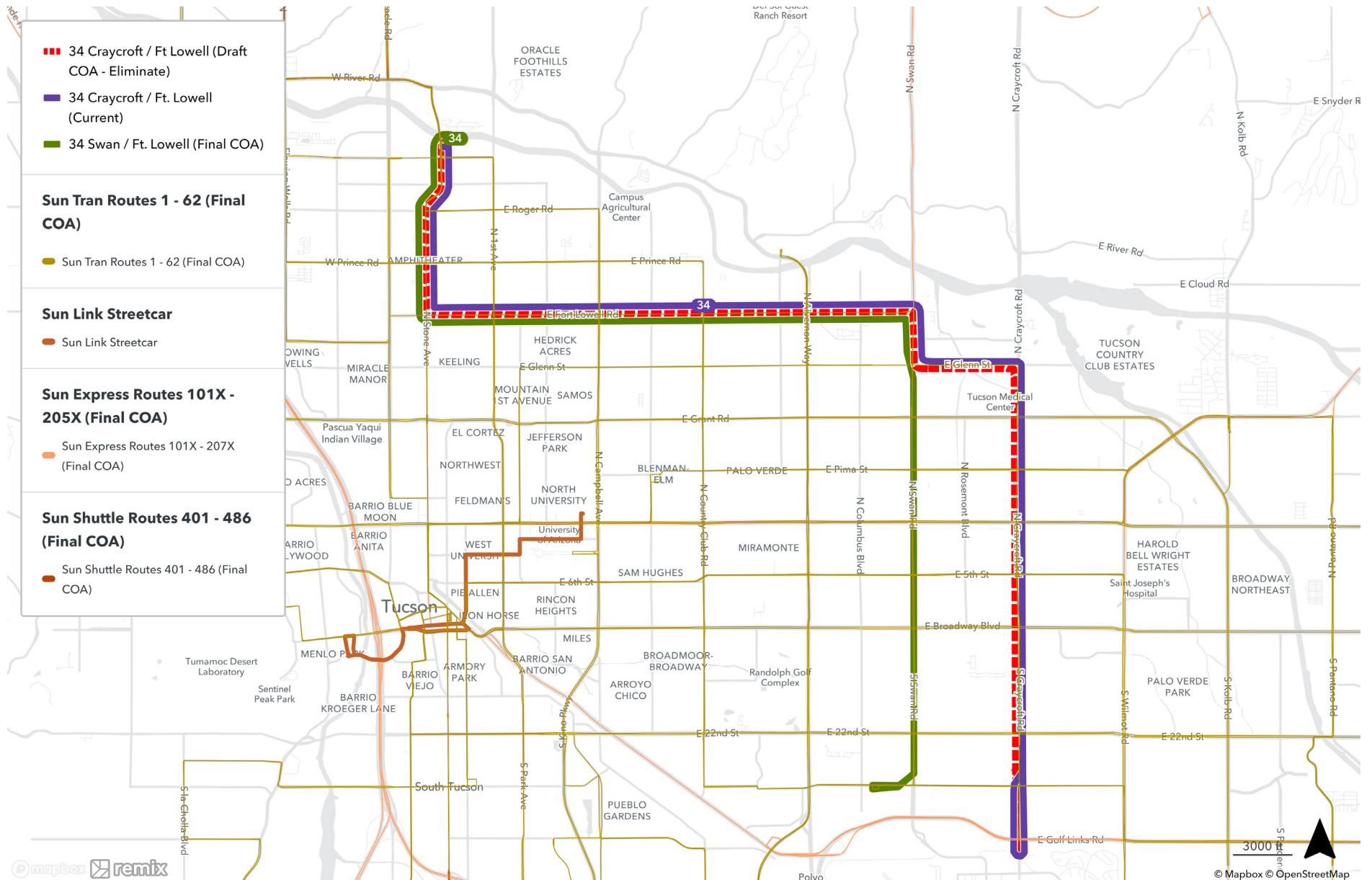
## Route 29 – Midvale Park/ Irvington

Route 29 will be restructured to become one of the core routes in the southern part of the service area, connecting major destinations. After serving Walmart on Valencia Rd, it will be re-routed north onto Calle Santa Cruz to serve Pima Community College (PCC) Desert Vista and Tucson Spectrum shopping destinations before continuing across Irvington Rd to Country Club Rd and ending at Banner-University Medical Center (BUMC) South. This new alignment will provide a direct east-west, continuous crosstown connection along Irvington Rd. The new connection at BUMC will also provide access to routes that will take riders to the eastside of Tucson. Service frequencies will greatly be improved, increasing from 30 to 20 minutes on weekdays and 60 to 30 minutes on weekends. The route will also see a three-hour longer span on Saturdays and four-hour longer span on Sundays.



## Route 34 – Swan / Ft Lowell

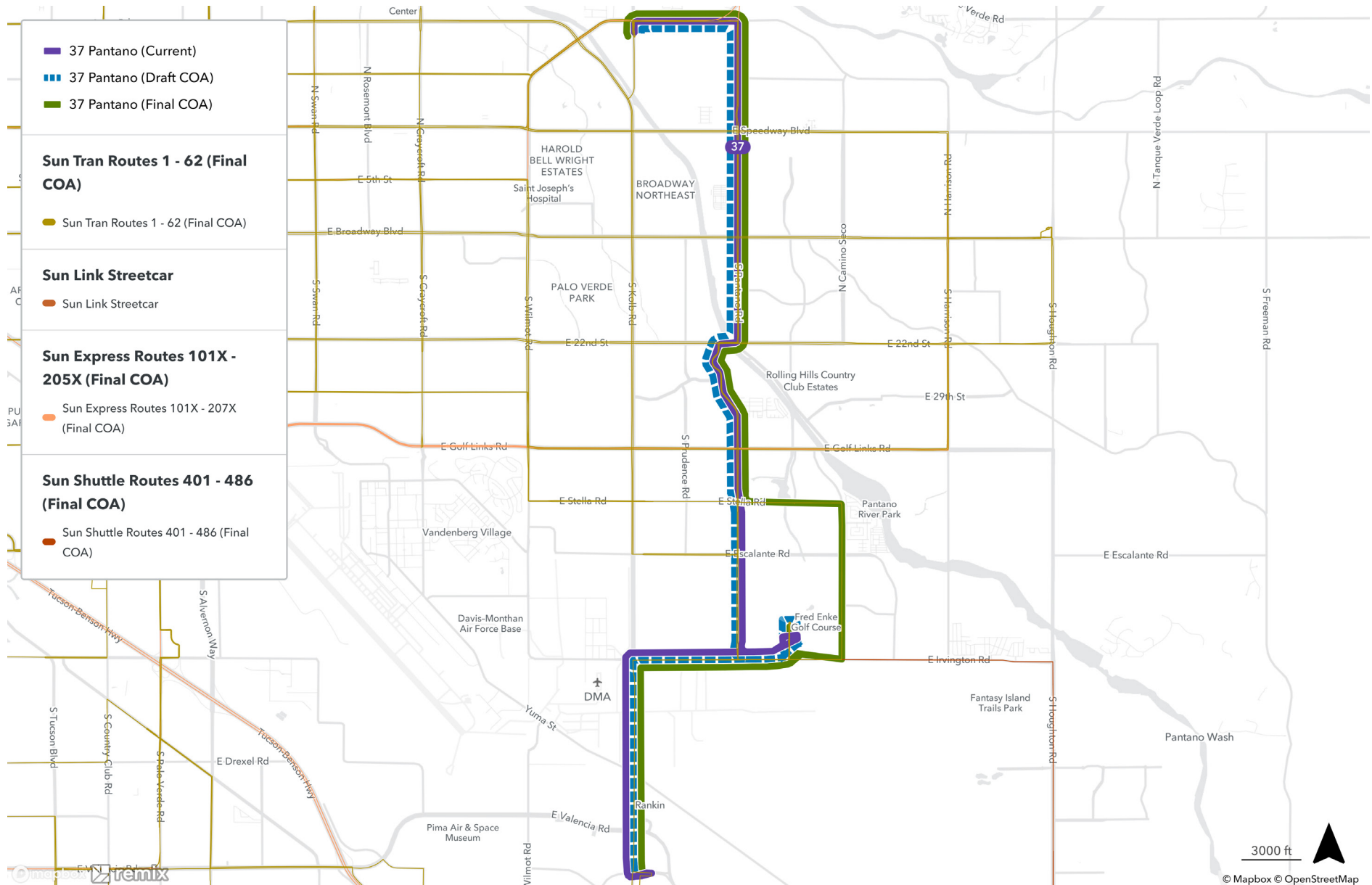
Route 34 will operate from Tohono T'adai Transit Center as it does today, and will continue on Fort Lowell Rd, but instead of turning south on Swan Rd and Glenn St to Craycroft, this route will cover the segment from Route 1 on Swan.





## Route 37 – Pantano

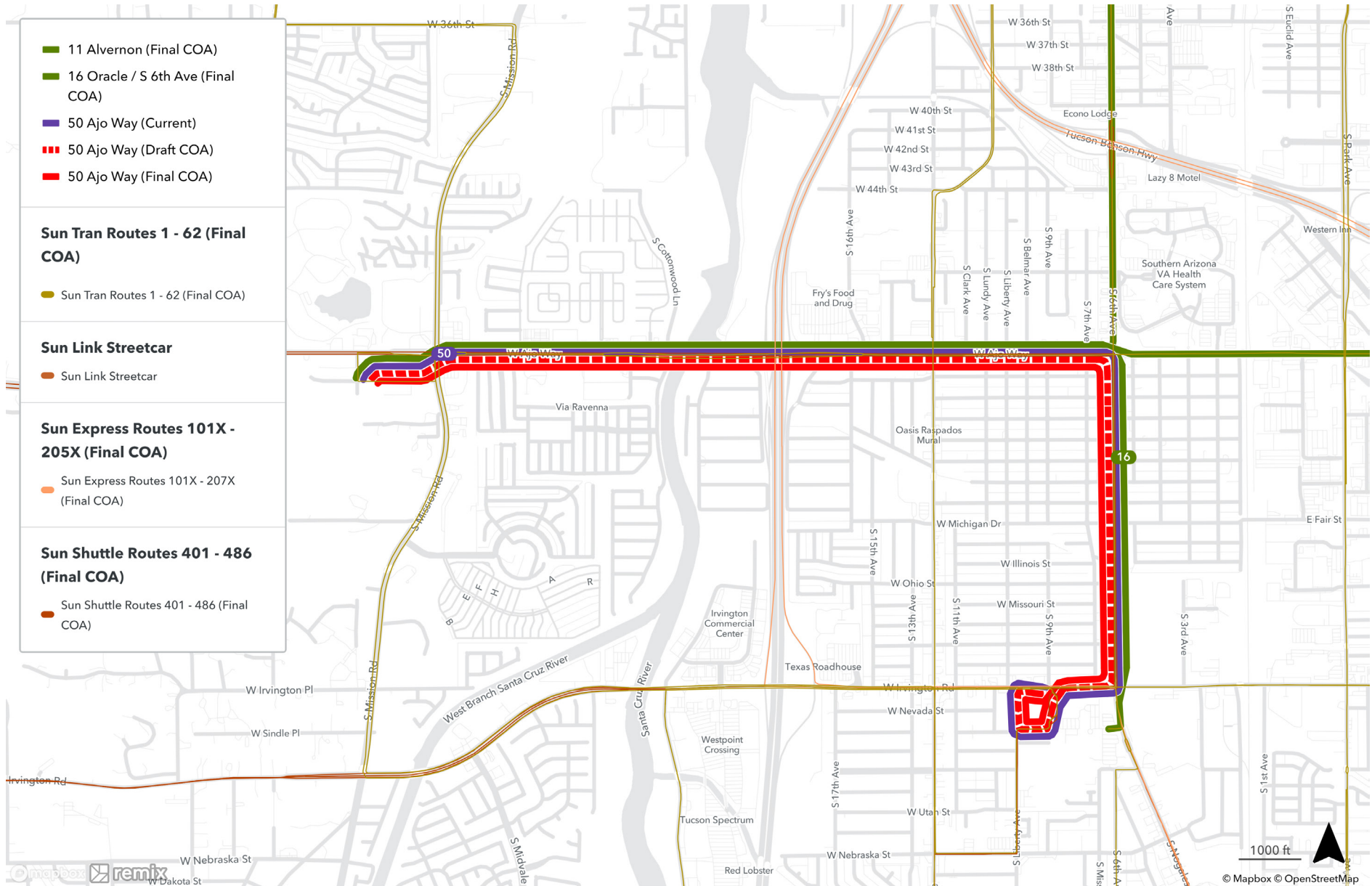
Route 37 will operate on the same alignment it does today, except instead of taking Pantano to Irvington to get to PCC East, the route will turn on Stella to Camino Seco and down to Irvington to increase coverage in the area and serve discontinued portions of Route 3. Frequency will be decreased from 30 to 40 minutes to allow resources to be used more efficiently and reduce excess layover time.





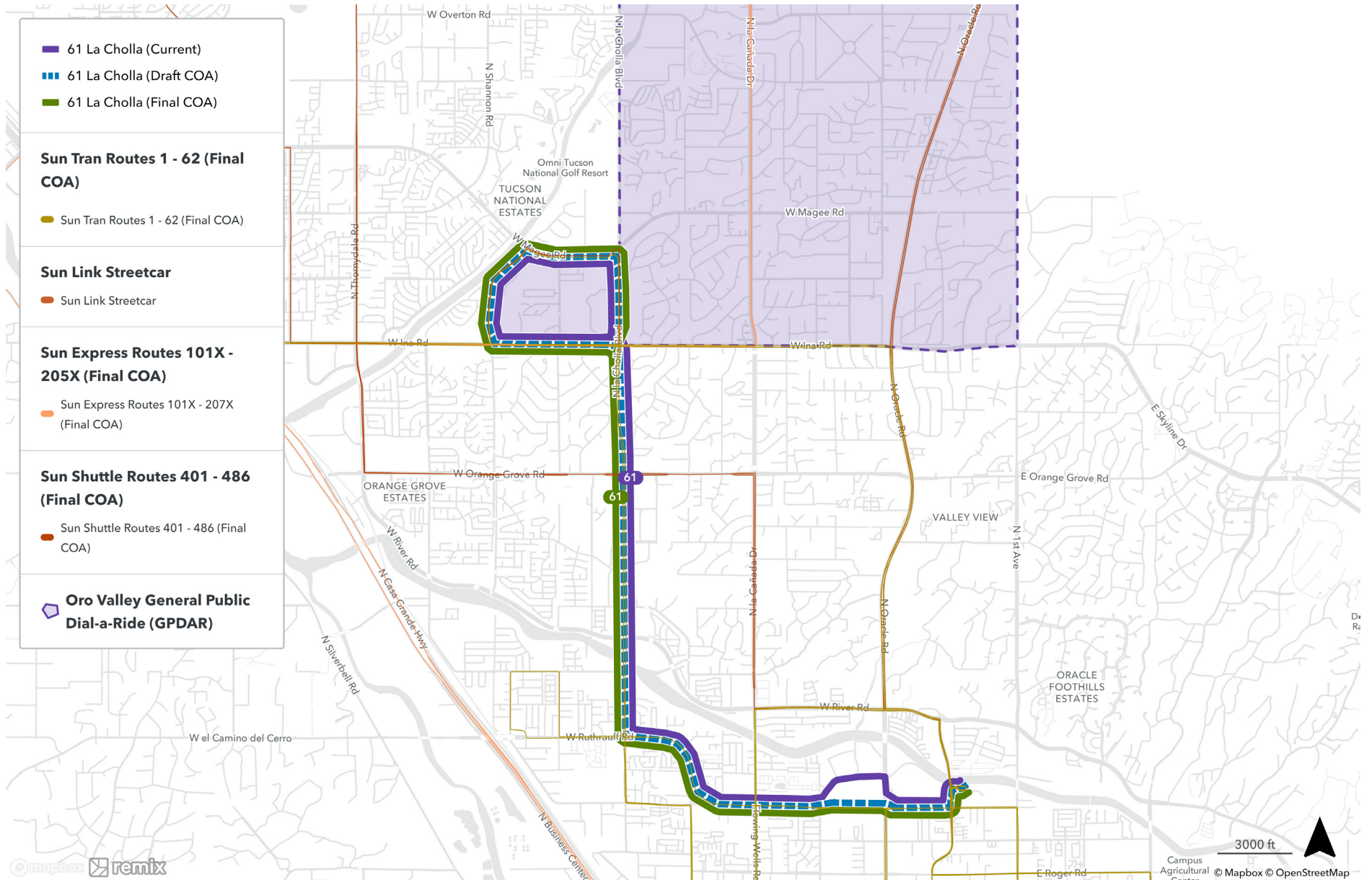
## Route 50 – Ajo

Route 50 is proposed to be discontinued. Service along Ajo Way between Mission Rd and S 6<sup>th</sup> Av will be covered by a western extension of Route 11. Coverage will be maintained on S 6<sup>th</sup> Av by Route 18.



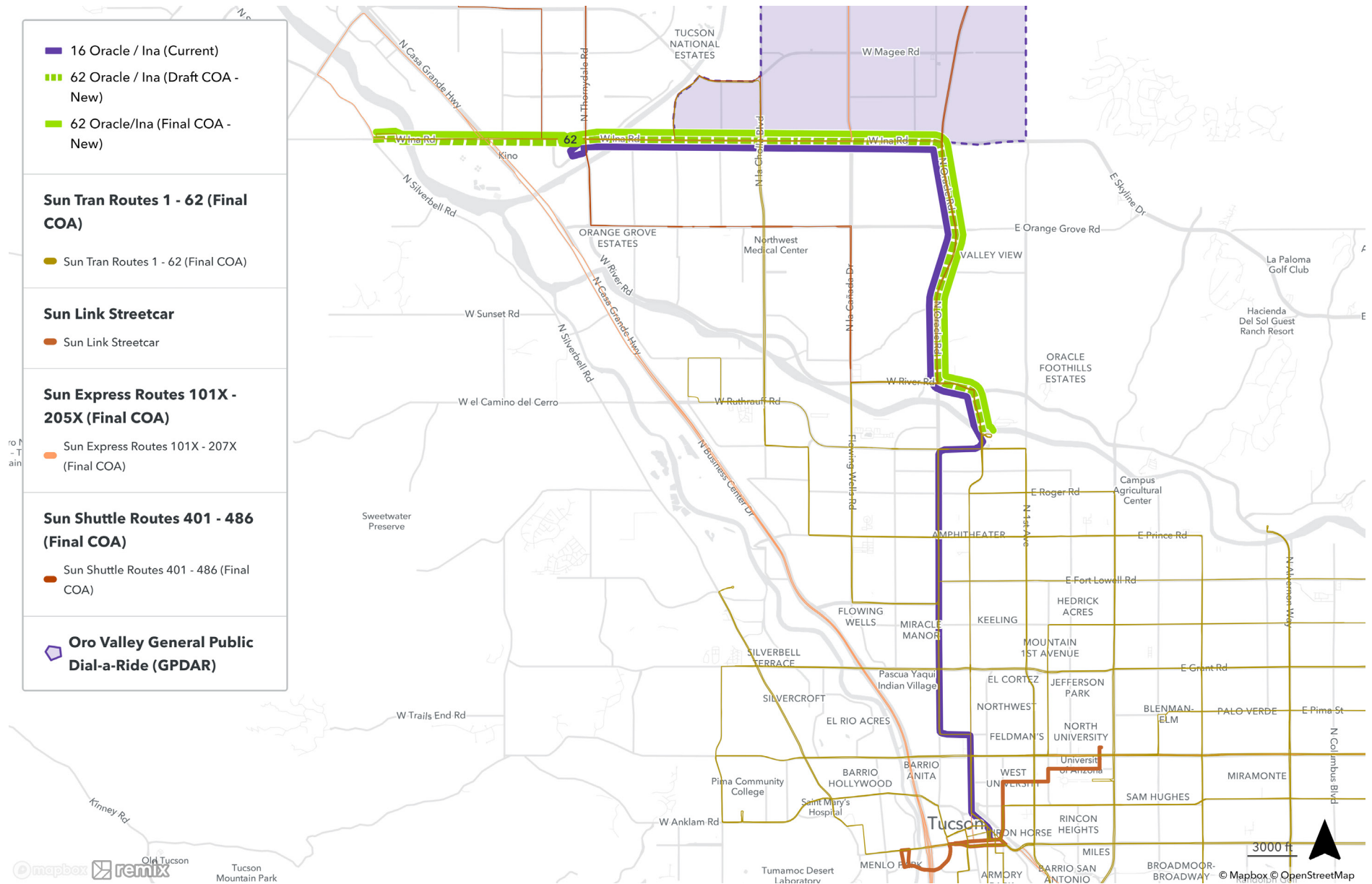
## Route 61 – La Cholla

Route 61 is recommended to be operated by Sun Shuttle to better match available resources with rider demand. The one alignment change is to continue straight along Wetmore Rd without deviating on Auto Mall Dr due to low ridership.



## Route 62 – Ina

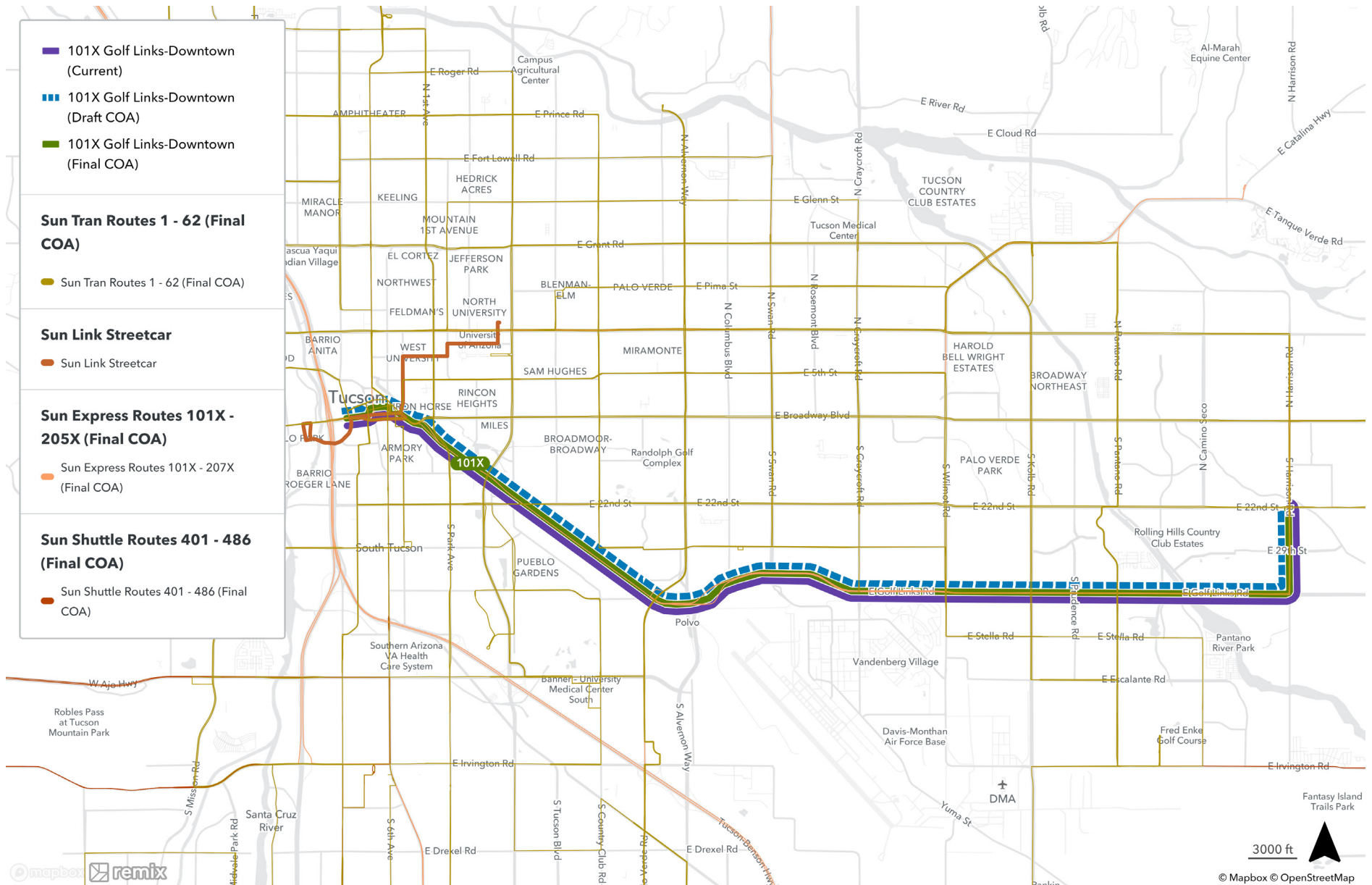
The New Route 62 will take over the segment of Route 16 north of Tohono T'adai Transit Center. It will start at Tohono T'adai Transit Center and end at the new Amazon facility at Ina Rd/Silverbell Rd. It will operate similar service levels to the existing portion of Route 16 on Ina Rd.





## Route 101X – Golf Links - Downtown

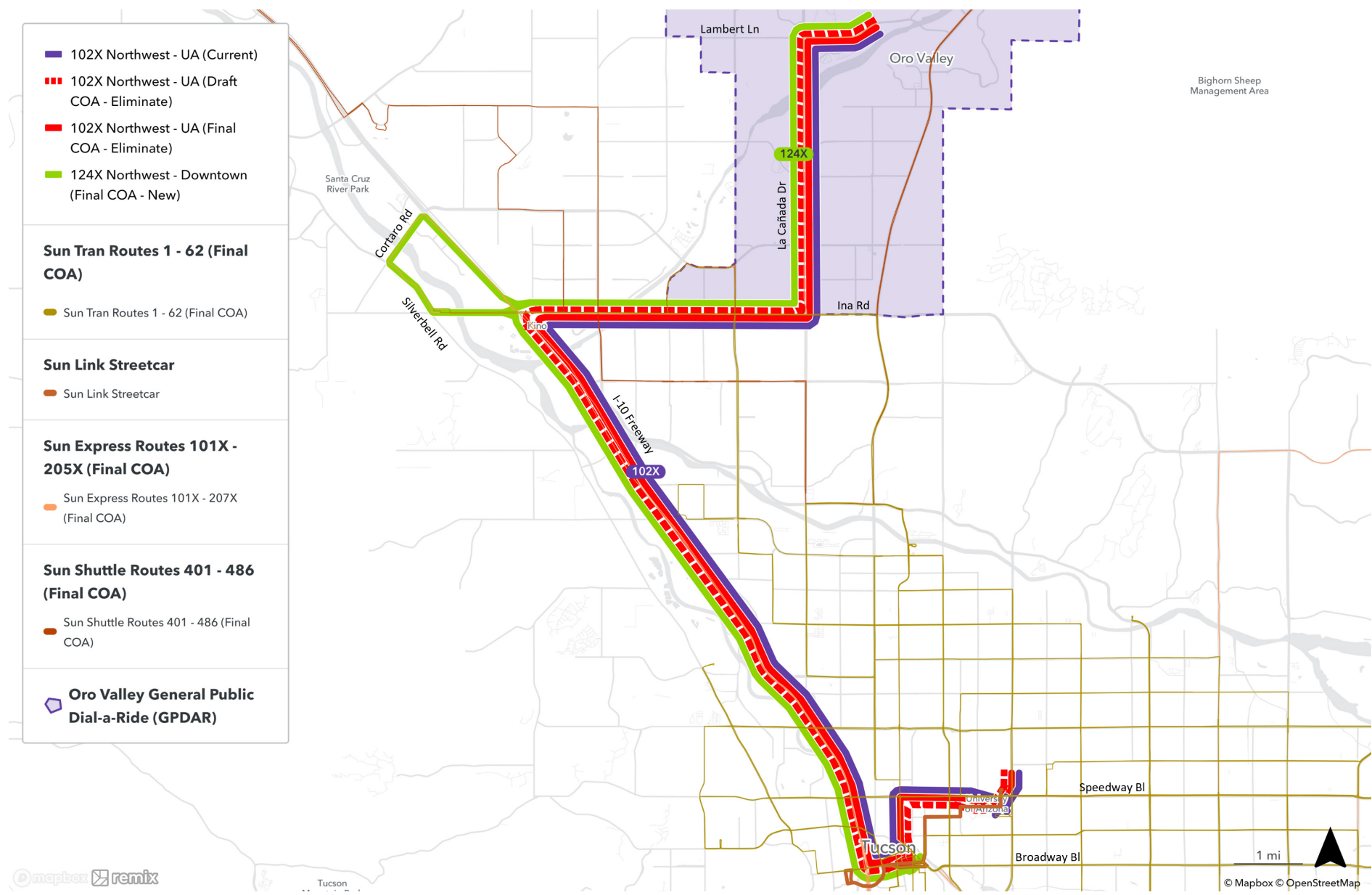
There are no proposed alignment or frequency changes for this route.





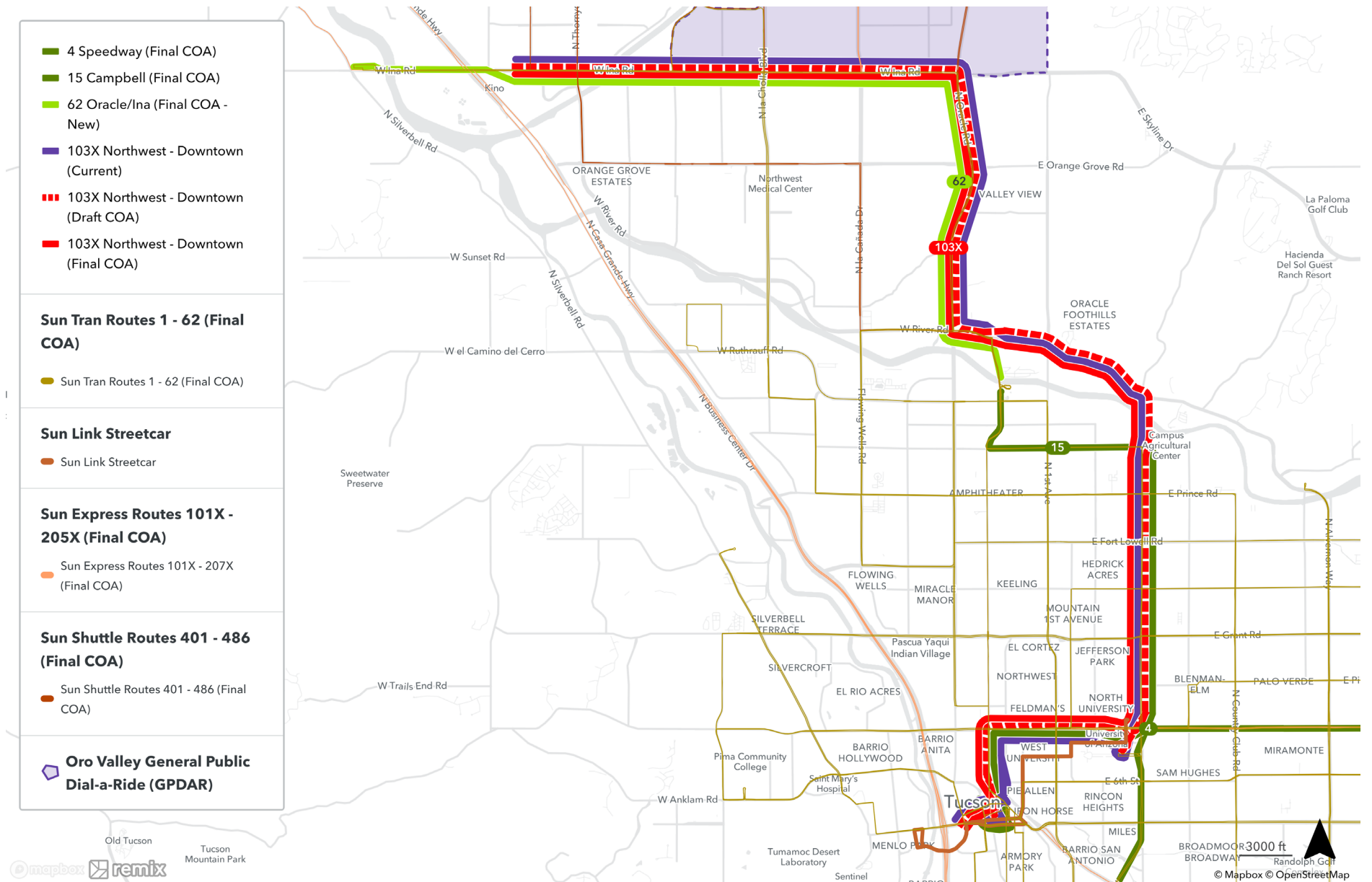
## Route 102X - Northwest - UA

Route 102X is proposed to be discontinued. Resources will be combined into more frequent service on new Route 124X.



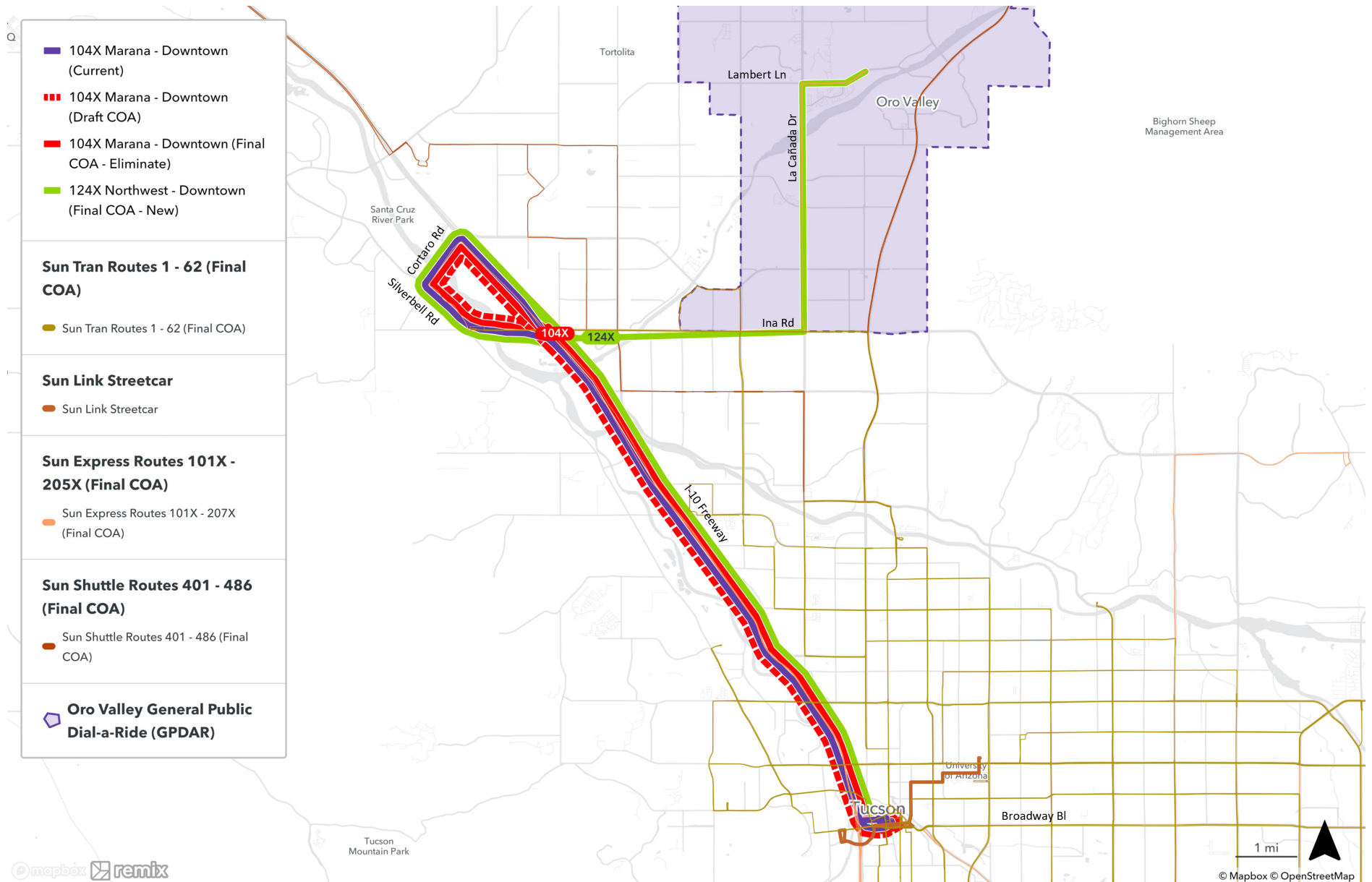
## Route 103X – Northwest-Downtown

Route 103X is recommended to be discontinued due to overlap with other more frequent routes (Routes 4, 15, and the new 62) and low ridership.



## Route 104X - Marana-Downtown

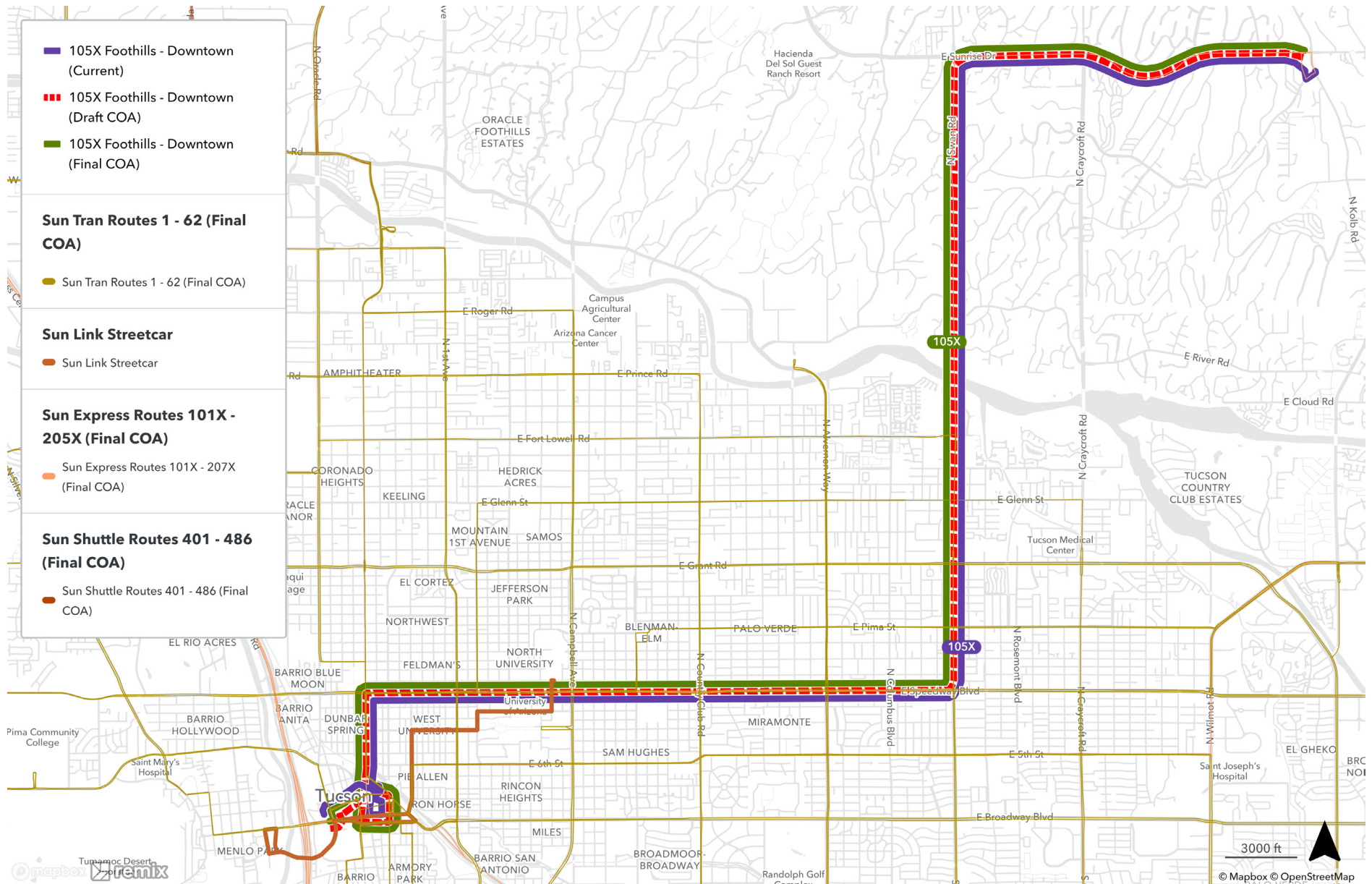
Route 104X is proposed to be discontinued. Resources will be combined into more frequent service on the new Route 124X.





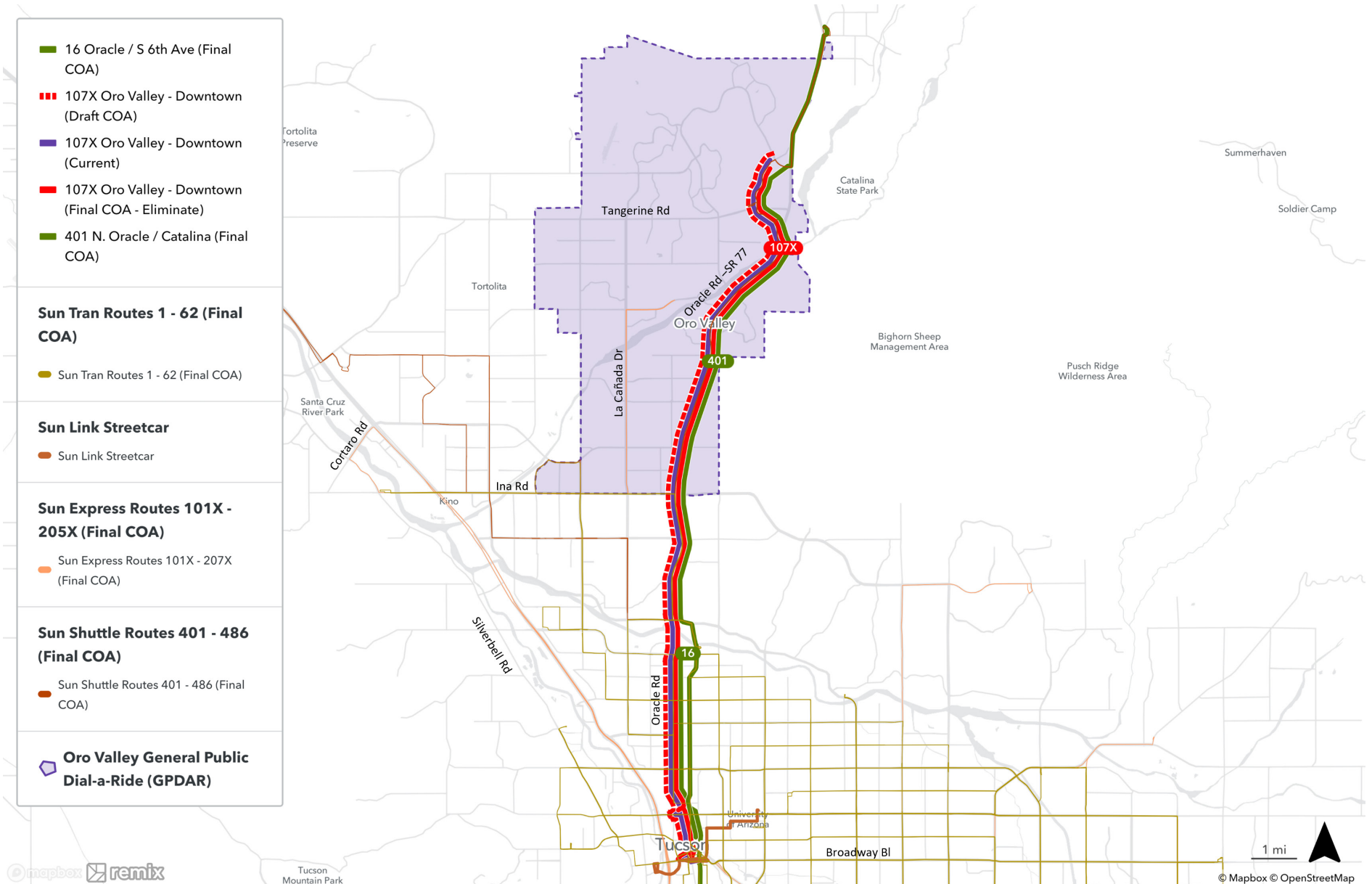
## Route 105X – Foothills-Downtown

There are no proposed alignment or frequency changes for Route 105X.



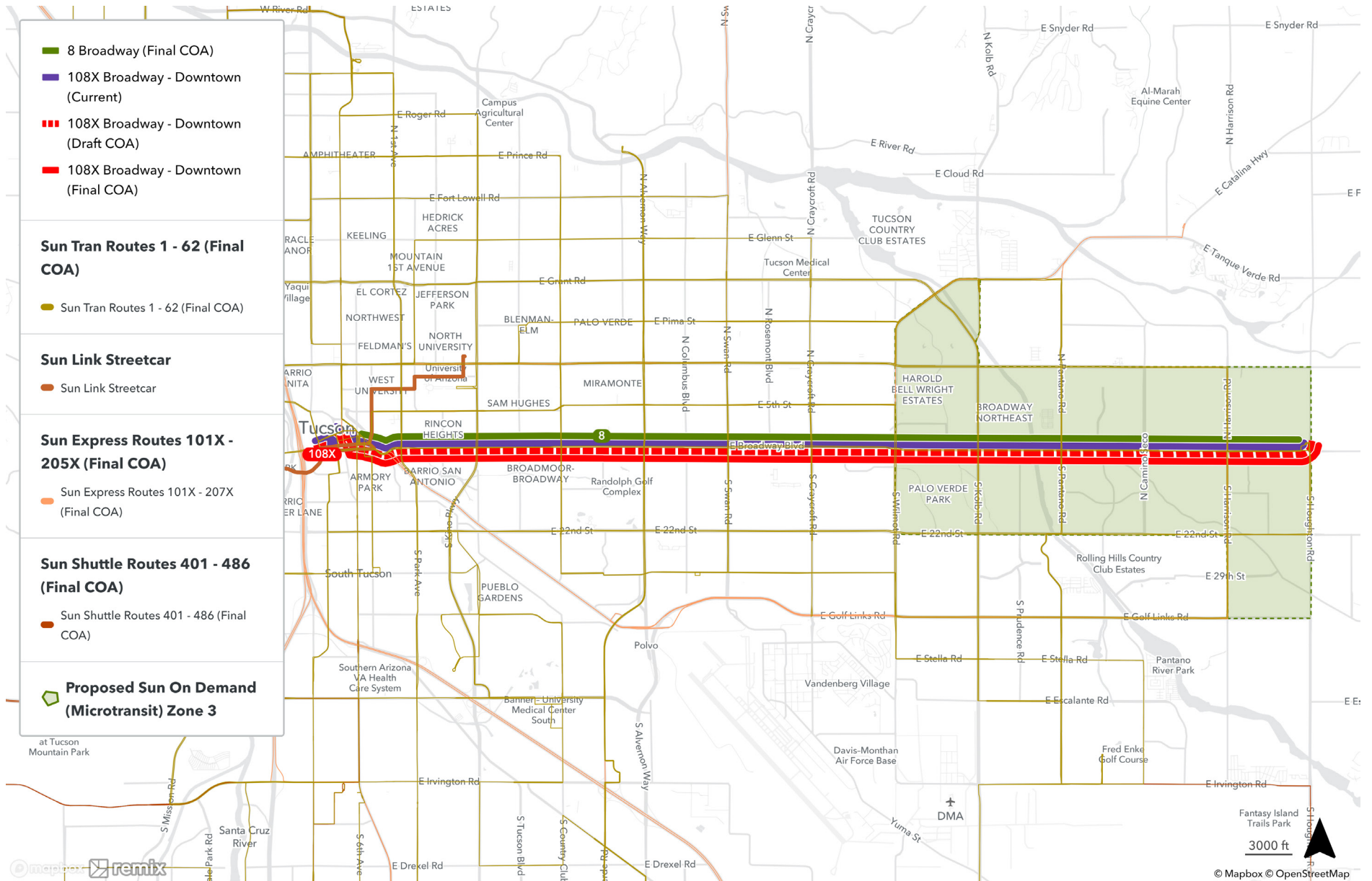
## Route 107X – Oro Valley-Downtown

Trips on Route 107X will be combined with Sun Shuttle Route 401. Peak service trips will be operated to Ronstadt Transit Center to reduce transfers on long-distance trips, and off-peak trips will end at Tohono T’adai Transit Center (TTC) where riders will have access to 15-minute service on Oracle Rd via transfers to Route 16.



## Route 108X - Broadway - Downtown

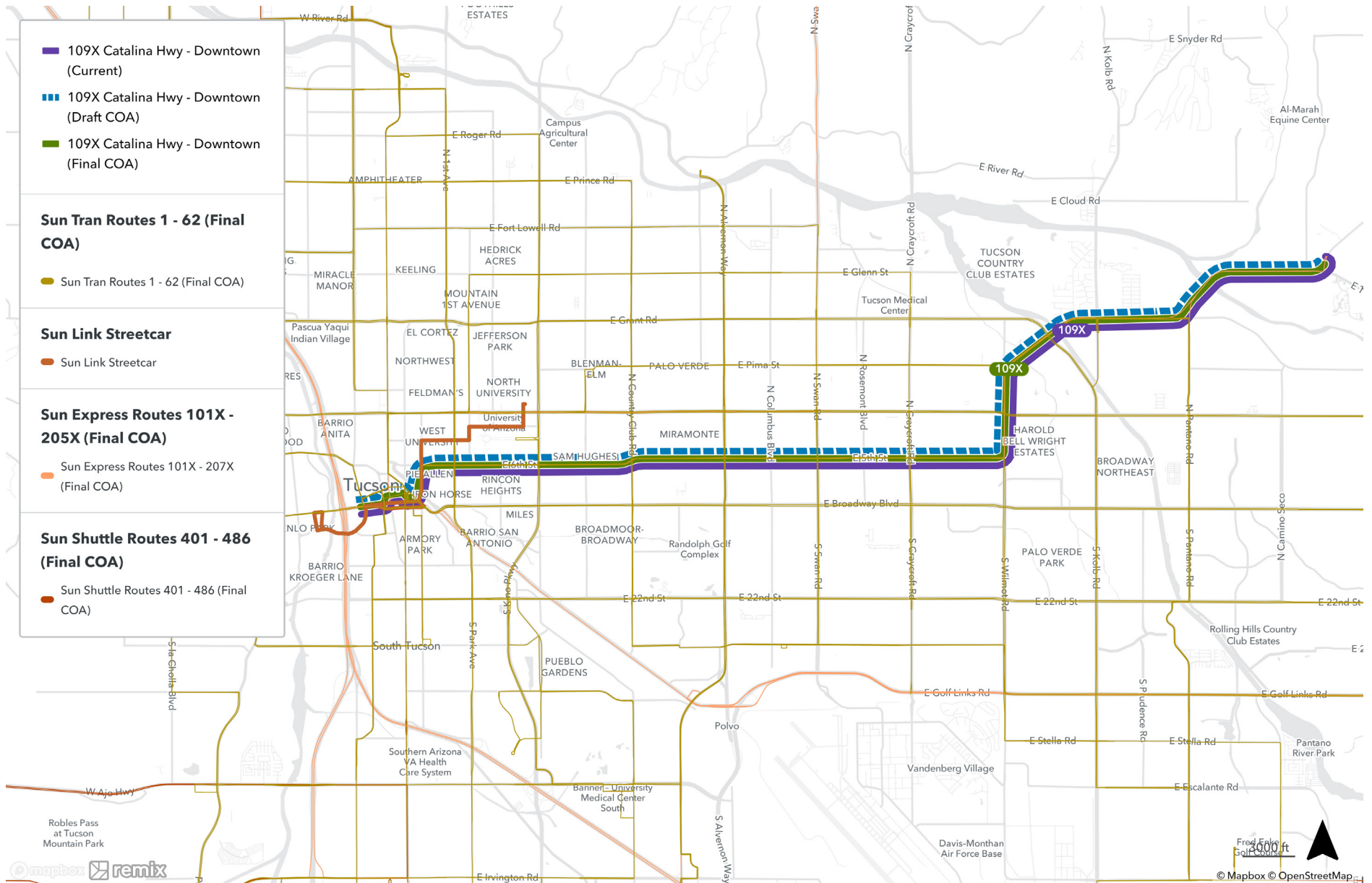
Route 108X is recommended to be discontinued due to overlap with service on Route 8-Broadway which is seeing an increase in frequency to every 15 minutes between Houghton Park and Ride and Downtown Ronstadt Transit Center.





## Route 109X – Catalina Hwy-Downtown

There is no proposed alignment or frequency changes for this route.





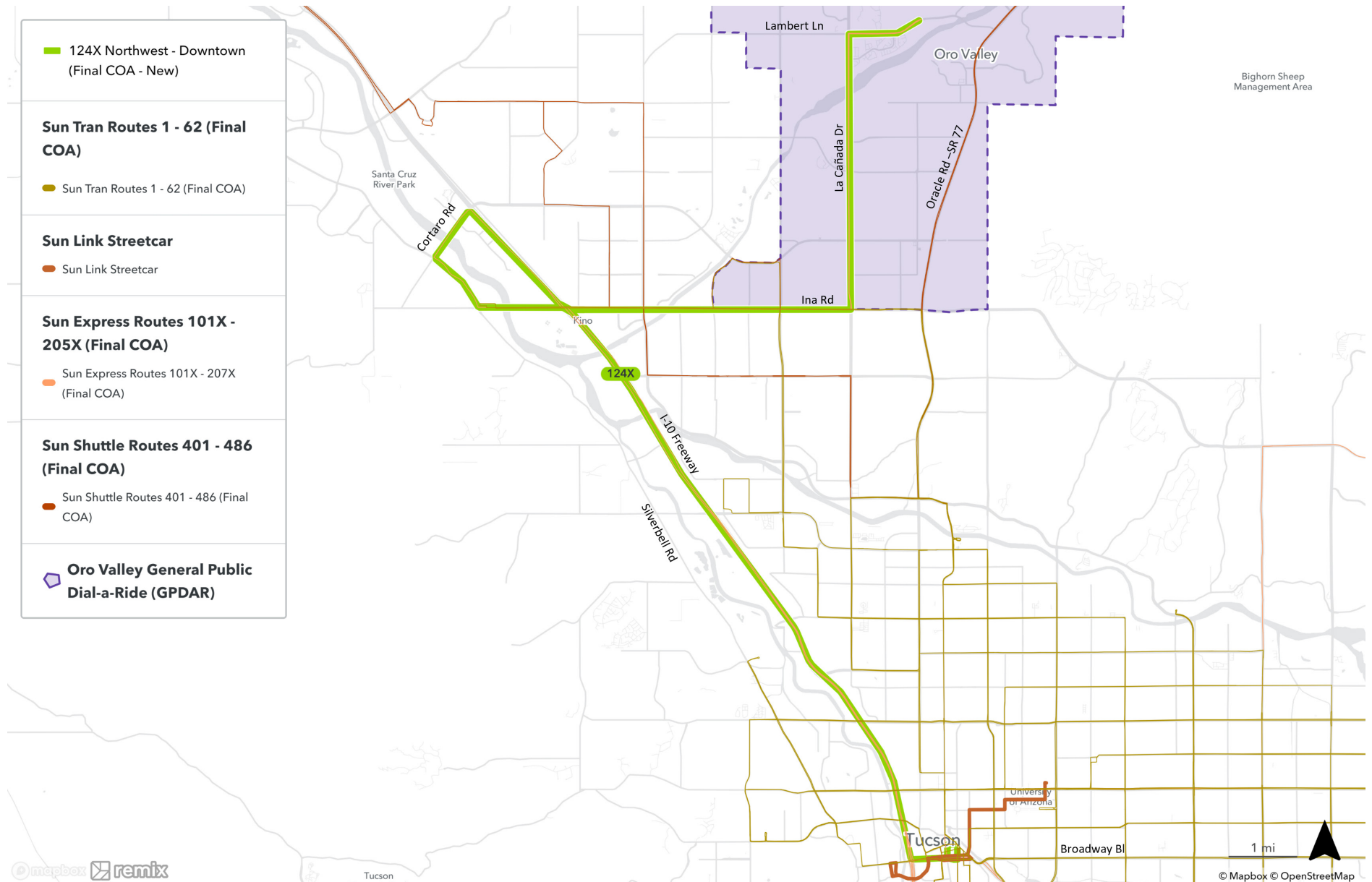
## Route 110X - Rita Ranch-Downtown

There are no proposed alignment or frequency changes for this route.



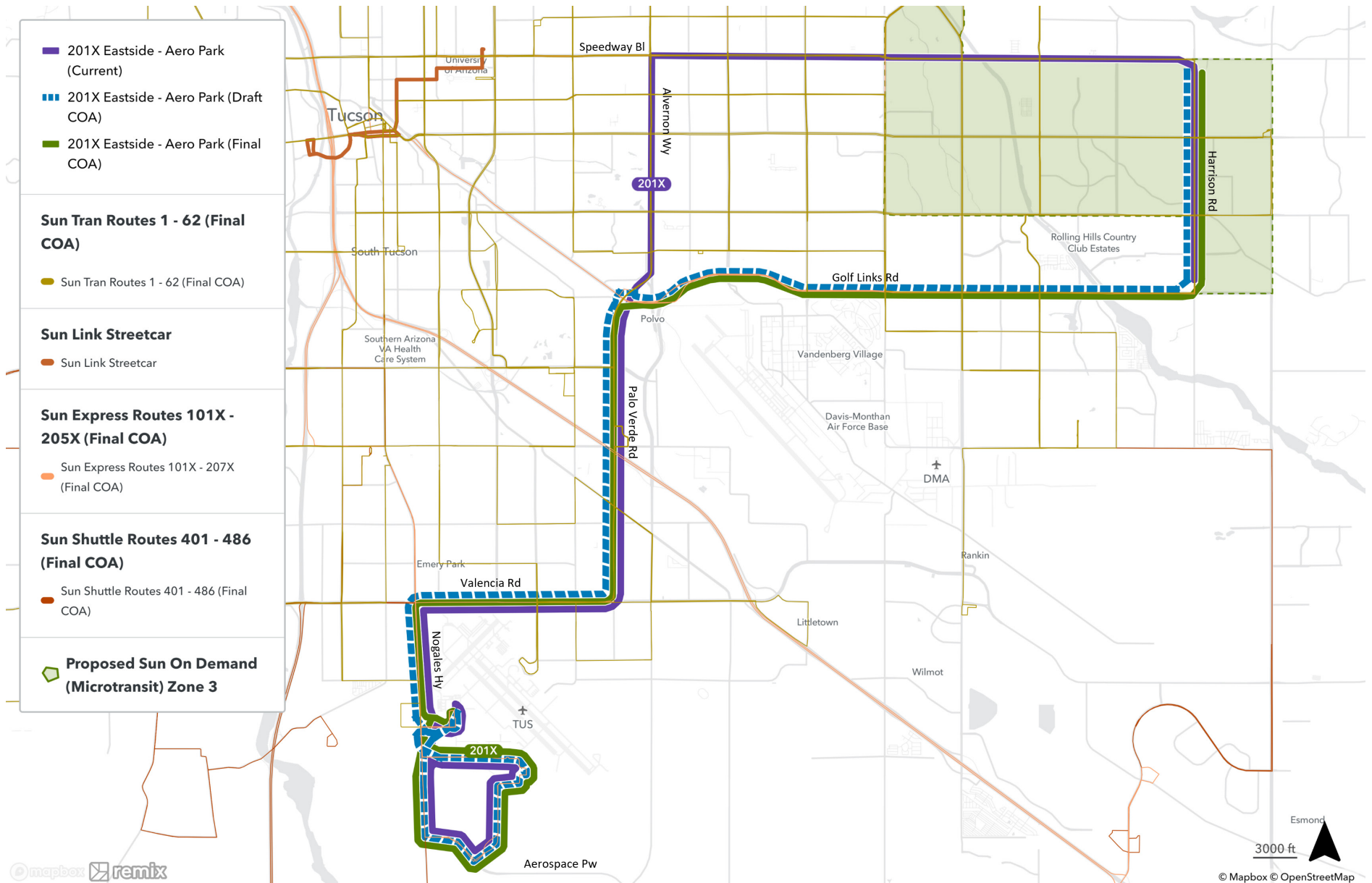
## \*Route 124X – (New) Northwest-Downtown

The new 124X would merge existing routes 102X and 104X into a single route that operates from Riverfront Park in Oro Valley, deviates to serve the Crossroads at Silverbell, and ends in Downtown. This route would have the same number of trips as existing 102X and 104X do today.



## Route 201X - Eastside-Aero Park

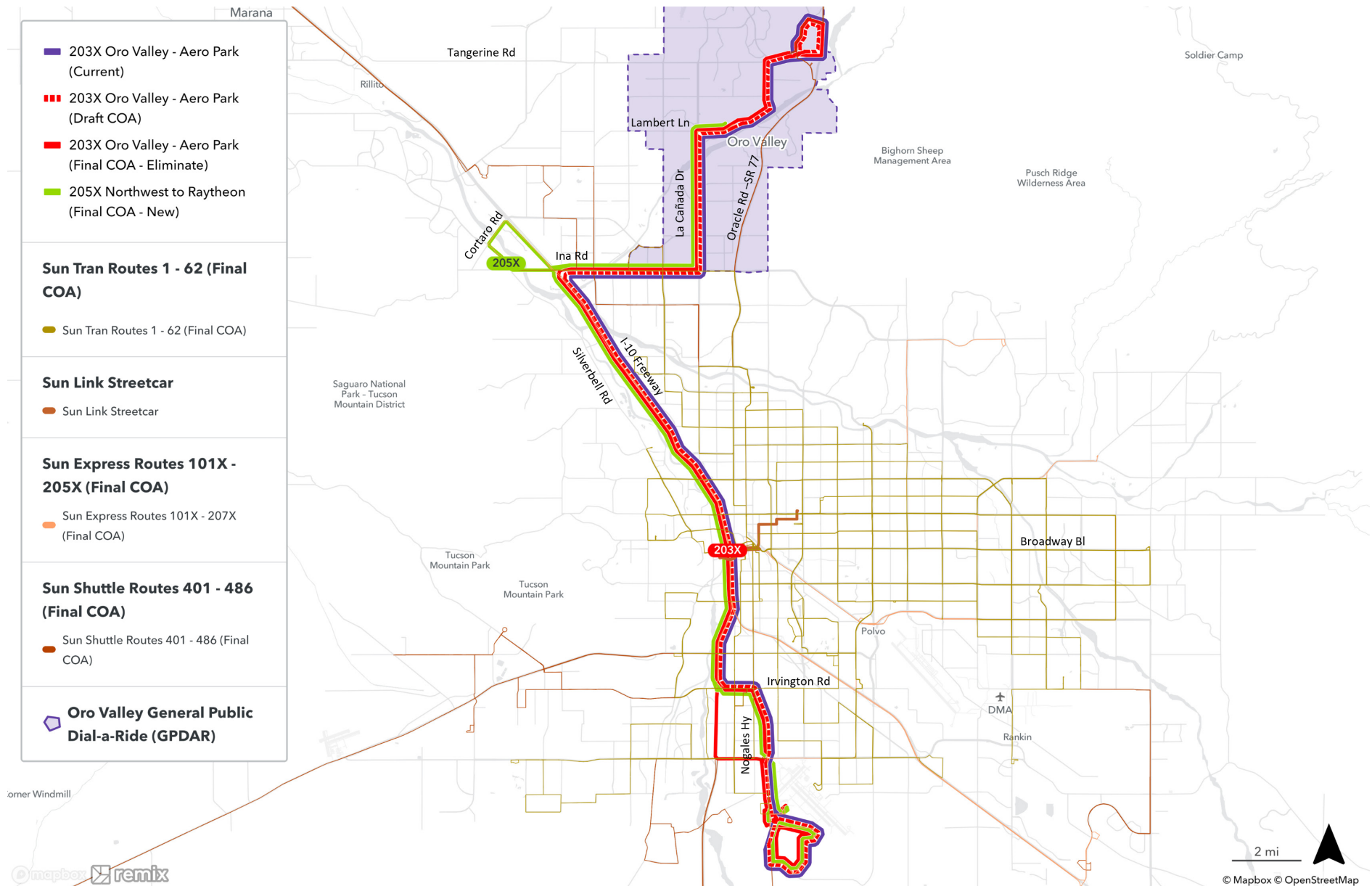
This route will be realigned to prevent out-of-direction movements for riders. Service will start at Speedway & Harrison, traveling south on Harrison Rd to Golf Links Rd, west to Palo Verde Rd, south to Valencia Rd, west to Nogales Highway, and then south, ending at Raytheon.





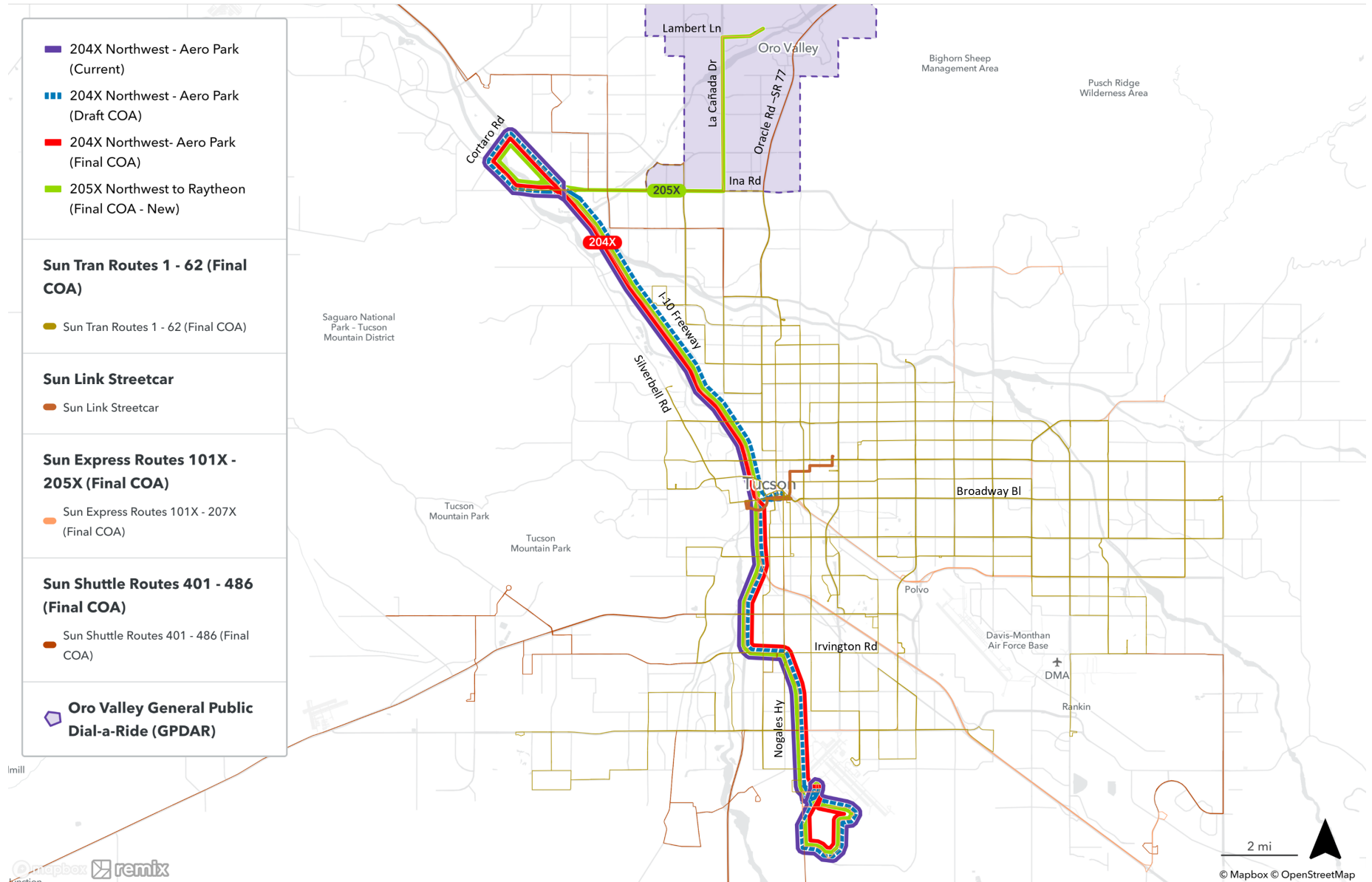
## Routes 203X – Oro Valley-Aero Park

Route 203X is proposed to be discontinued. Resources will be combined into an earlier and more frequent service on Route 205X which will operate 30-minute peak-period service between Oro Valley and Raytheon.



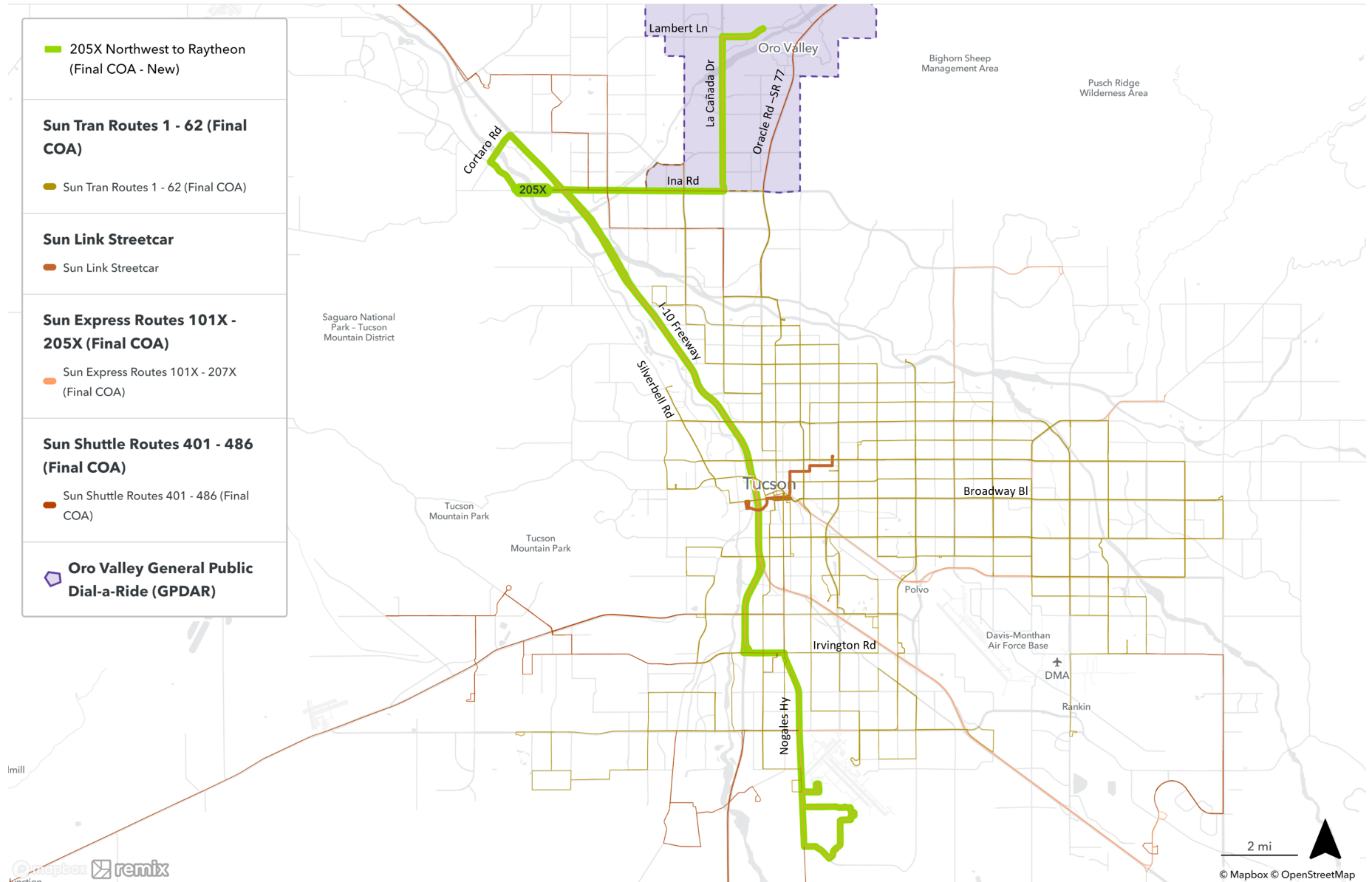
## Route 204X – Northwest-Aero Park

Route 204X is proposed to be discontinued. Resources will be combined into an earlier and more frequent service on Route 205X.



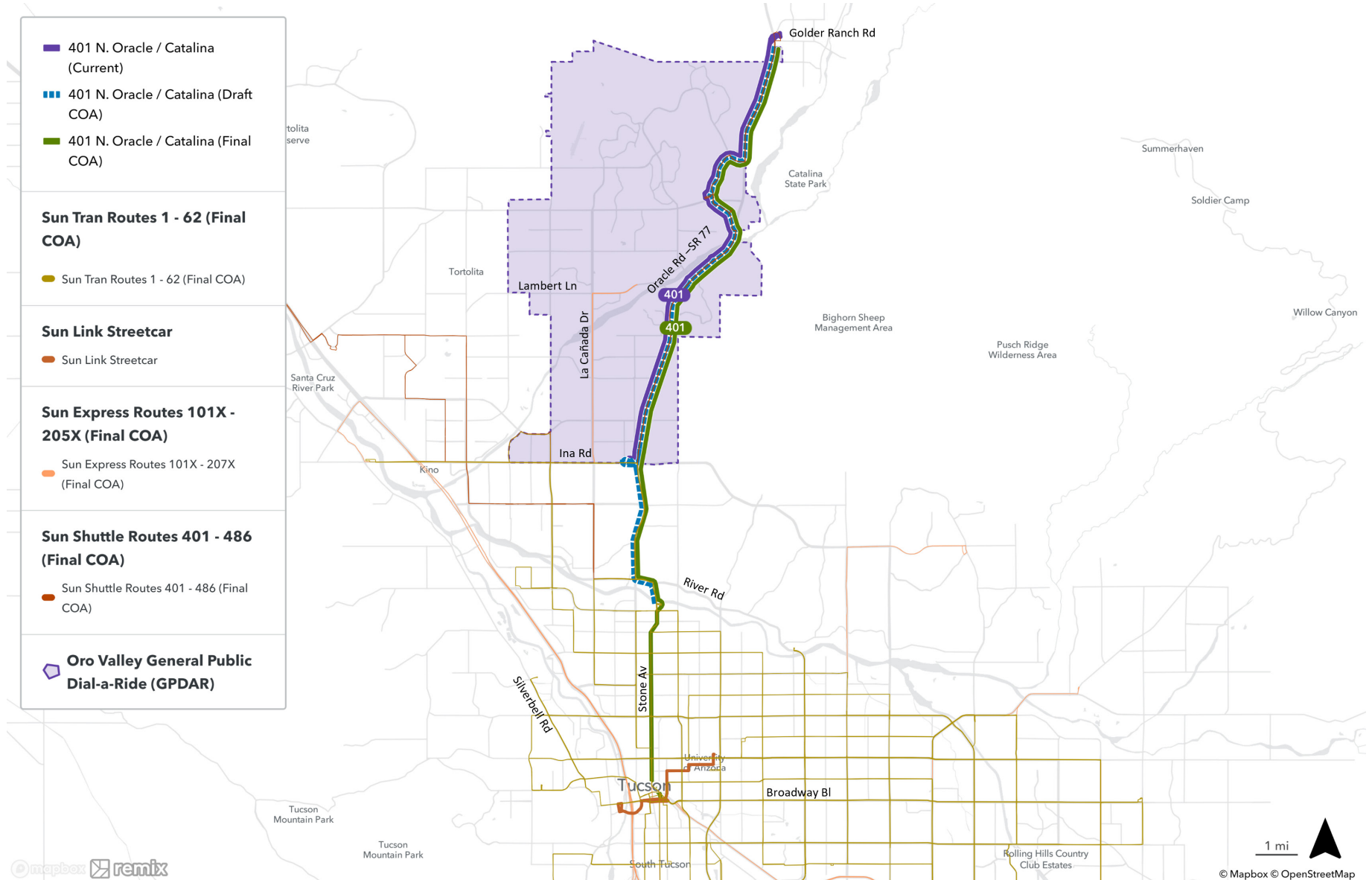
## \*Route 205X – (New) Northwest-Raytheon

The new 205X would merge existing Routes 203X and 204X and operate from the Riverfront Park in Oro Valley, and serve the Crossroads at Silverbell before taking I-10 to Raytheon without stopping in Downtown. This route would have the same number of trips ending at Raytheon as Routes 203X and 204X do today. Service would start at 4:15am allowing employees to make their early shift times.



## Route 401 – N Oracle / Catalina

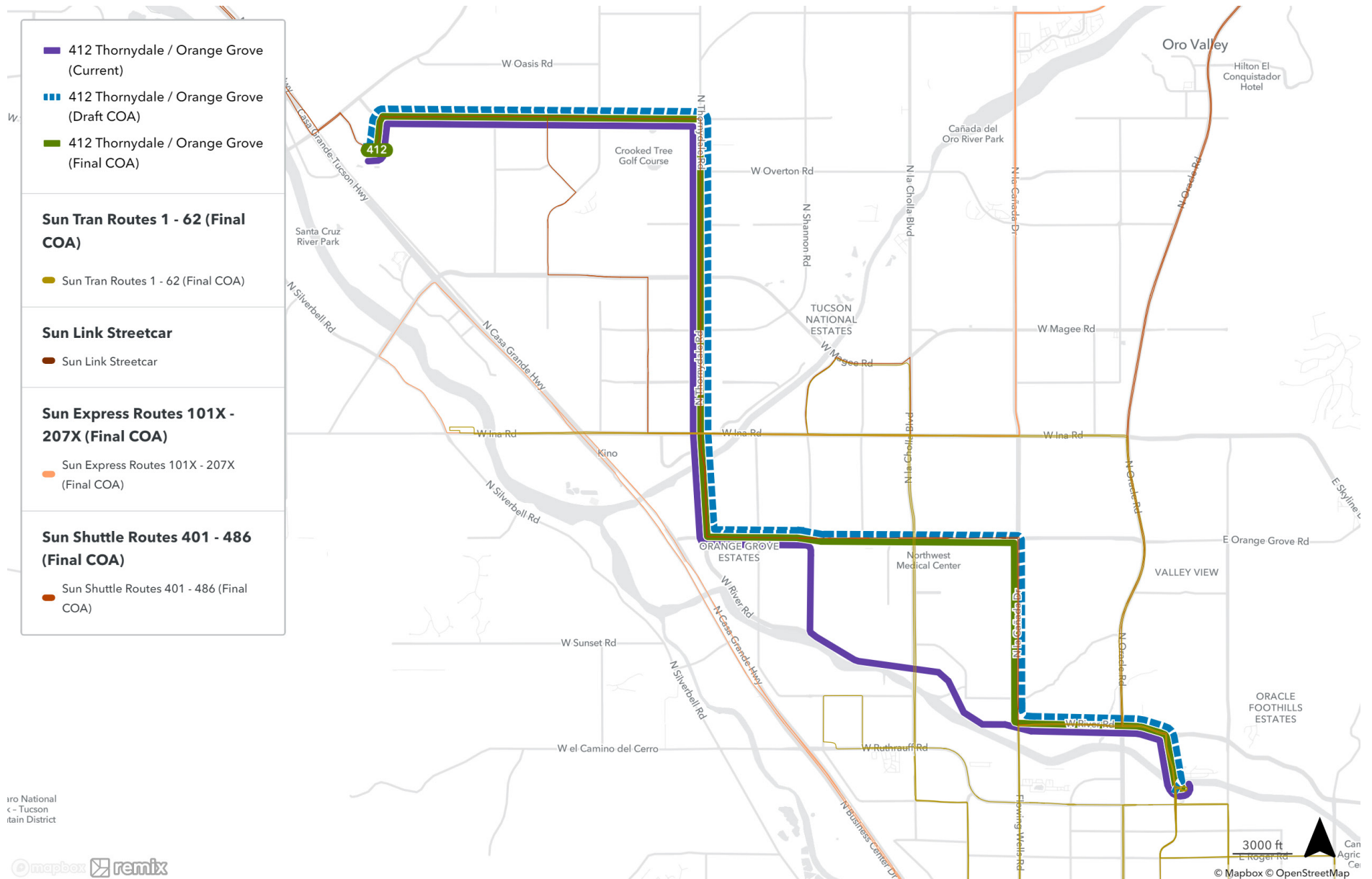
Route 401 is proposed to be extended south to Ronstadt Transit Center during peak hours and to Tohono T’adai Transit Center (TTC) during off-peak hours. Rather than transferring to 30-minute service on Route 16 at Ina Rd, riders can now transfer to 15-minute service on Oracle Rd at TTC or traveling directly into Downtown during peak hours. Trips from Sun Express Route 107X will be combined with Route 401 to reduce duplication. Deviations to Steam Pump Village, Rooney Ranch, and Rancho Vistoso Park & Ride are recommended for discontinuation. Service frequency will also double during peak hours from 60 to 30 minutes.





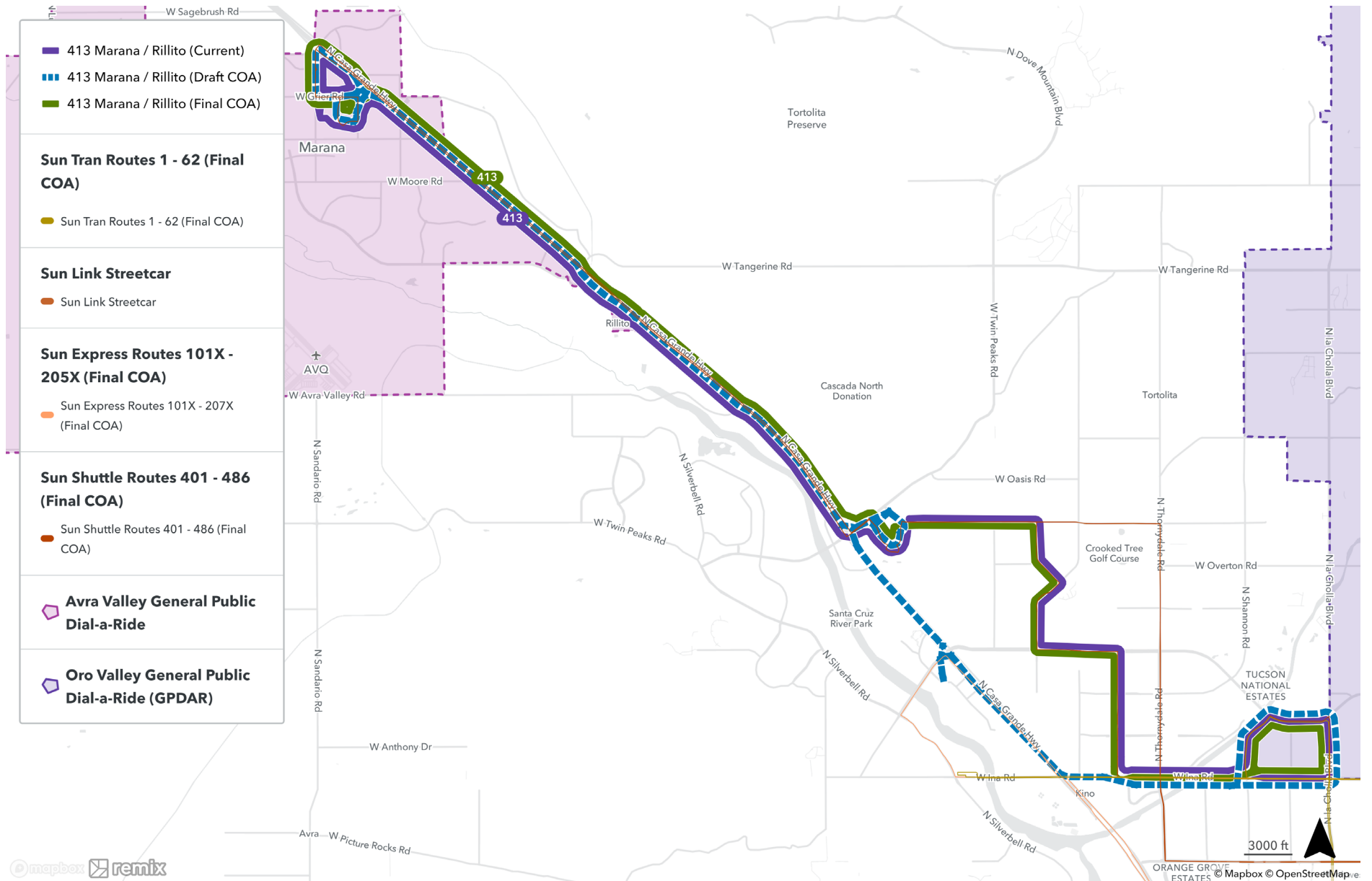
## Route 412 – Thornydale / Orange Grove

Route 412 is proposed to be realigned from River Rd along La Cañada Dr to Orange Grove Rd to Thornydale Rd due to low ridership along River Rd. This new alignment will provide access to new destinations, primarily the Northwest Medical Center. Service span will be extended by four hours on Saturdays.



## Route 413 - Marana/I-10

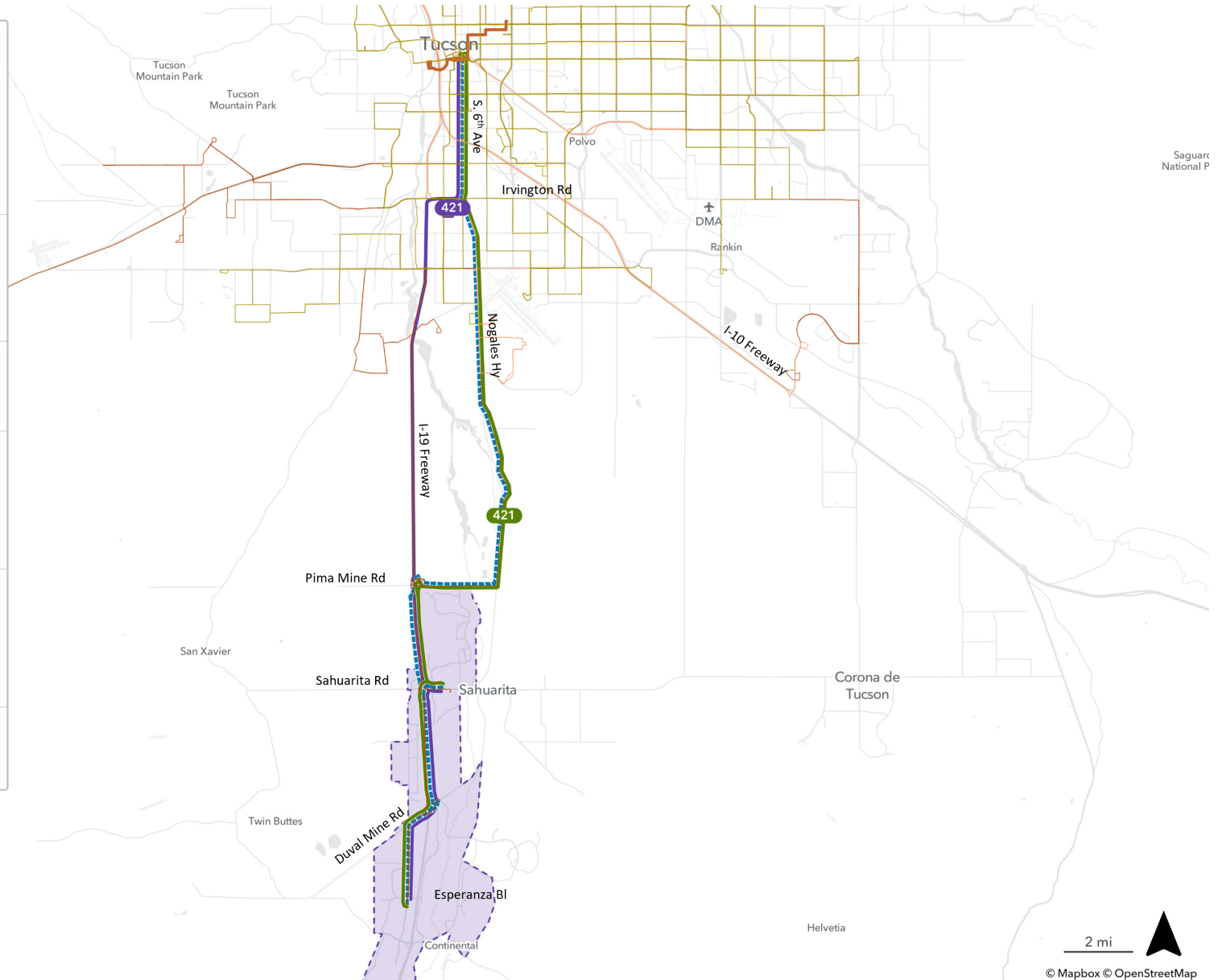
There are no proposed alignments changes for Route 13. It will operate two additional hours on Saturdays.



## Route 421 – Green Valley / Sahuarita

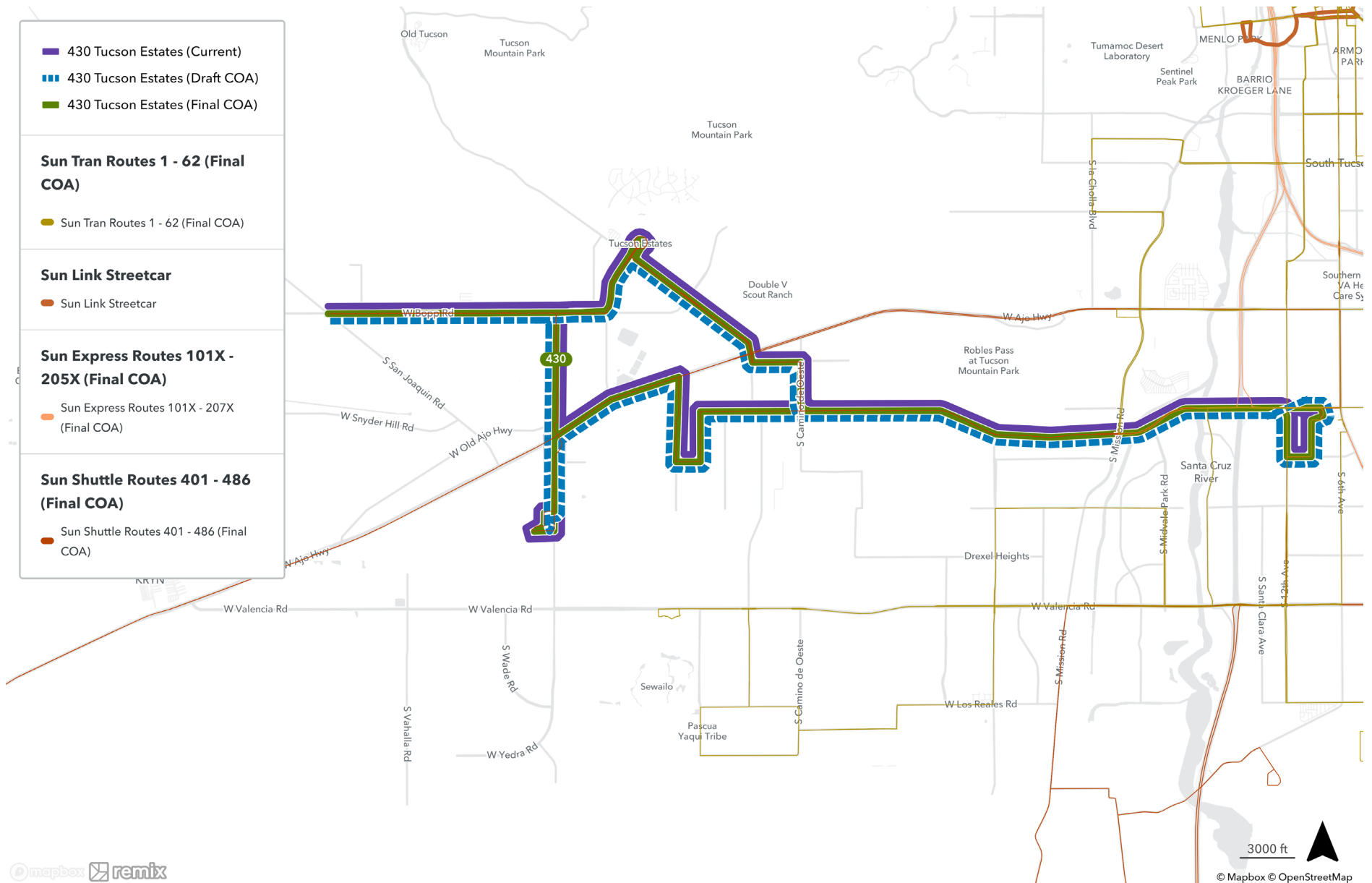
Route 421 is proposed to be realigned away from I-19 in order to provide new service to Summit along Old Nogales Hwy. The route will now travel from Green Valley to Pima Mine Rd to Nogales Hwy to Old Nogales Hwy, stop in Summit, stop at 6<sup>th</sup> Av/Irvington Rd for transfer connections, and continue into Downtown Ronstadt Transit Center (RTC).

<div>421 Green Valley / Sahuarita (Current)</div> <div>421 Green Valley / Sahuarita (Draft COA)</div> <div>421 Green Valley / Sahuarita (Final COA)</div>
<b>Sun Tran Routes 1 - 62 (Final COA)</b> <div>Sun Tran Routes 1 - 62 (Final COA)</div>
<b>Sun Link Streetcar</b> <div>Sun Link Streetcar</div>
<b>Sun Express Routes 101X - 205X (Final COA)</b> <div>Sun Express Routes 101X - 207X (Final COA)</div>
<b>Sun Shuttle Routes 401 - 486 (Final COA)</b> <div>Sun Shuttle Routes 401 - 486 (Final COA)</div>
<div>Green Valley General Public Dial-a-Ride (GPDAR)</div>



## Route 430 – Tucson Estates

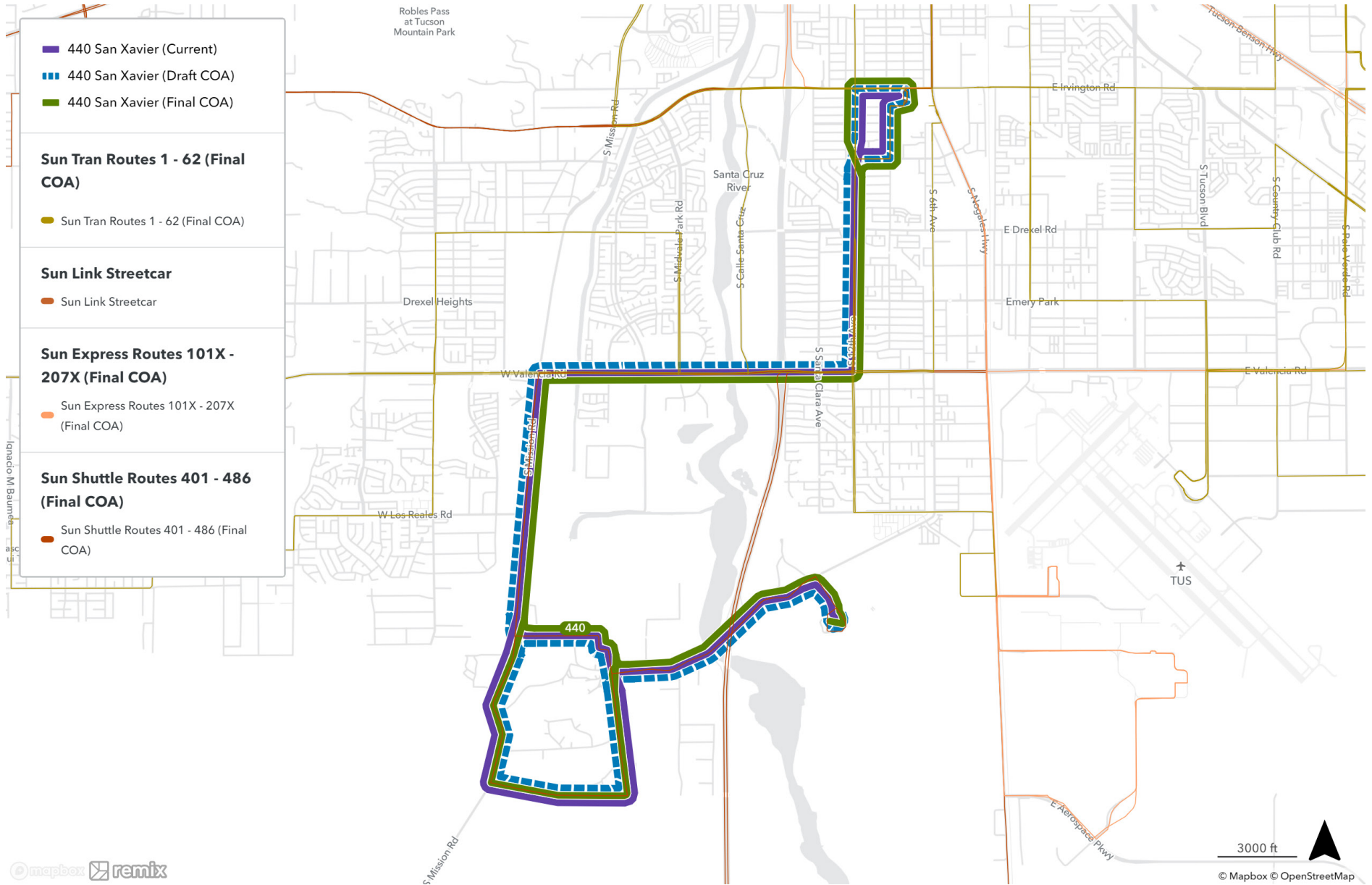
While there are no proposed alignment changes in the COA plan, if additional resources become available, it is recommended to add coverage to serve Casino Del Sol on W Valencia Rd via a westward extension from the current turnaround at Branding Iron Circle.



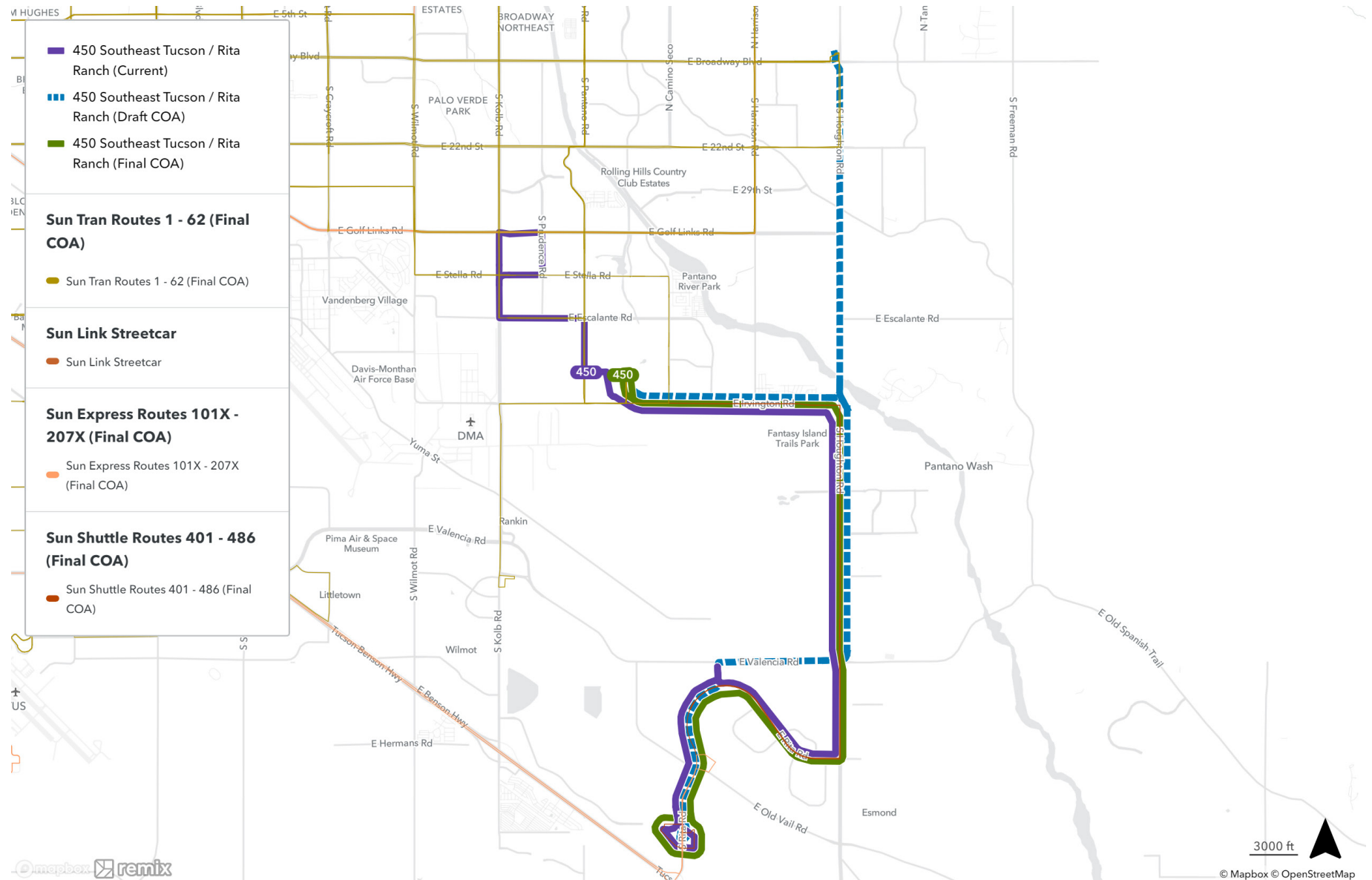


## Route 440 – San Xavier

There are no recommended alignment or frequency changes for this route.

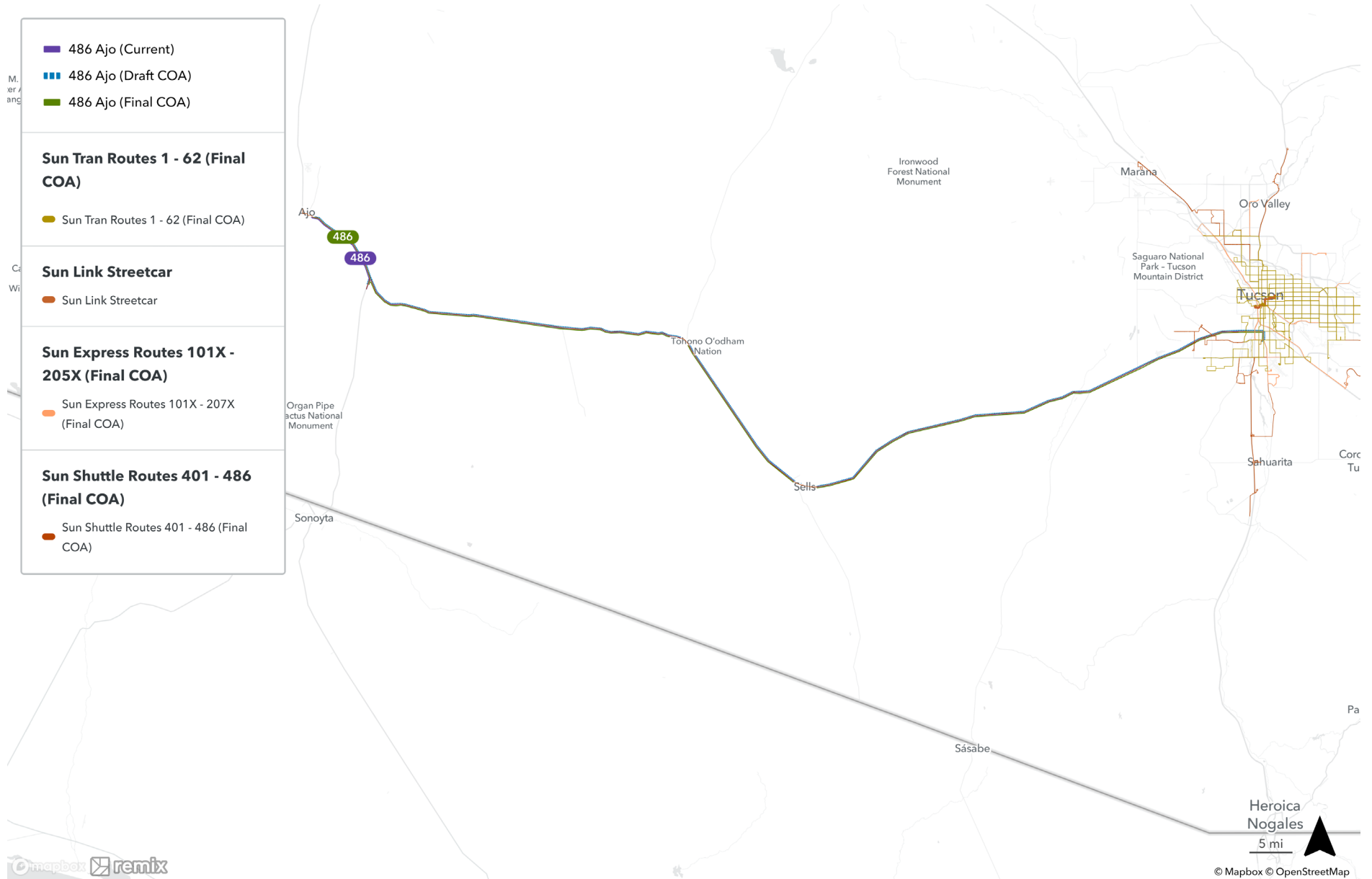


With the extension of Route 9 to Pima Community College (PCC) East, Route 450 is proposed to be shortened back to the PCC East Campus. When the Houghton Rd project is complete, the recommendation is to change alignment to serve the Broadway/Houghton Park & Ride, providing a stronger network connection for long-distance commuters. With the shorter alignment, the route can be operated more frequently with the same resources, increasing service from every 100 to 70 minutes.



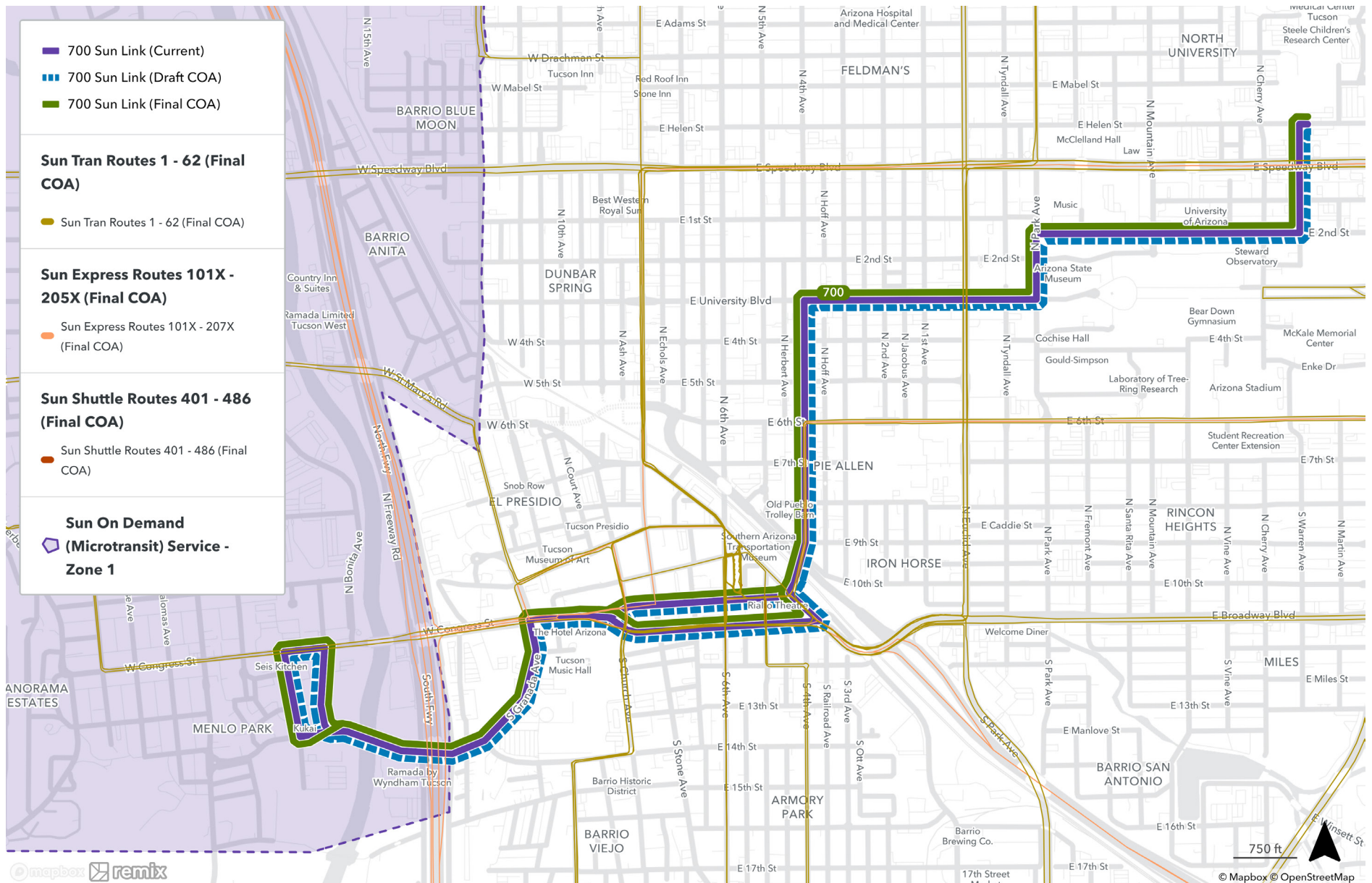
## Route 486 - Ajo

There are no proposed alignment or frequency changes for this route.



## Route 700 – Sun Link

There are no proposed alignment or frequency changes for this route.





# Conclusion

The City of Tucson and Sun Tran will implement the recommended changes in a series of phases in service changes in the coming years. Upon implementation, the City and Sun Tran will closely monitor route performance to address any rider crowding, on-time performance, or access concerns. Before implementing any of these changes, Sun Tran and the City of Tucson will hold required public hearings and conduct additional outreach to riders who may be impacted by the changes. Sun Tran and the City recognize that travel patterns and mobility needs are constantly evolving. This Plan is based on current operating conditions but should be modified as needed to respond to current demand before changes are actually implemented.

