Sunset Road: Silverbell to River Road, Pima County, Arizona

2022 USDOT - RAISE - DTOS59-22-RA-RAISE
Grant Application

Pima County, Public Works
201 N. Stone Avenue, 5th Floor
Tucson, Arizona 85701
Letter of Intent/Submittal

April 12, 2022

The Honorable Peter Paul Montgomery Buttigieg
Secretary, US Department of Transportation
1200 New Jersey Ave SE
Washington, DC 20590

Dear Secretary Buttigieg:

Pima County is respectfully submitting a 2022 RAISE application for the Sunset Road: Silverbell Road to River Road Roadway Project (Pima County, AZ).

The proposed project improvements connect northeastern Tucson metropolitan area to Interstate 10 via an extension from River Road with a new traffic interchange. This project will facilitate the widening of Interstate 10 through the Tucson metropolitan area and enhance the regional circulation by providing grade separated crossings over Interstate 10 and the Union Pacific Railroad (UPRR), along with an all-weather crossing of the Rillito Creek. This is a regional project in partnership with the Pima Association of Governments (PAG), Arizona Department of Transportation (ADOT) and the City of Tucson.

Once completed, this new roadway will activate an adjacent publically owned parcel referred to as the Sunset Innovation Campus, just west of the interchange. This project encourages future economic growth targeted towards technology and innovation research in a location that is currently underutilized due to connectivity barriers.

In 1983 Sunset Road at the Santa Cruz River was washed away during a catastrophic regional flood event, isolating this area from east/west connectivity. In 2006 the PAG, our Metropolitan Planning Organization, included installation of Sunset Road from Silverbell Road to River Road as a regional project connecting with Interstate 10 and crossing the railroad and river. Pima County and the region installed the first phase in 2017, and are currently finalizing design for the final connections with this project. Our request for construction funding is a critical component to meeting regional transportation goals related to network efficiency, mobility and accessibility.

If awarded, Pima County will work with the Arizona Department of Transportation to construct this project in tandem with ADOT’s adjacent mainline and traffic interchange improvements from south of Ina Road to north of Ruthrauff Road. This project has required significant regional cooperation, including ADOT, PAG, the City of Tucson, UPRR, and other regional agencies and utilities. We respectfully submit this application for your consideration.

Sincerely,

Jan Lesher
County Administrator
# Table of Contents

## Project Narrative

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Project Description</td>
<td>1</td>
</tr>
<tr>
<td>a. Project Description</td>
<td>1</td>
</tr>
<tr>
<td>b. Transportation Challenges</td>
<td>2</td>
</tr>
<tr>
<td>c. Project History and Regional Connections</td>
<td>5</td>
</tr>
<tr>
<td>d. Project Technical Details</td>
<td>6</td>
</tr>
<tr>
<td>II. Project Location</td>
<td>7</td>
</tr>
<tr>
<td>a. Project Geographical Location</td>
<td>7</td>
</tr>
<tr>
<td>b. Communities Impacted</td>
<td>8</td>
</tr>
<tr>
<td>III. Grant Funds, Sources and Uses</td>
<td>9</td>
</tr>
<tr>
<td>a. Project Costs</td>
<td>9</td>
</tr>
<tr>
<td>b. Source, Eligible Project Cost</td>
<td>9</td>
</tr>
<tr>
<td>c. Non-Federal Fund Documentation of Commitment</td>
<td>10</td>
</tr>
<tr>
<td>d. Non-Federal Match Source</td>
<td>10</td>
</tr>
<tr>
<td>e. Budget</td>
<td>11</td>
</tr>
<tr>
<td>IV. Merit Selection Criteria</td>
<td>10</td>
</tr>
<tr>
<td>1. Safety</td>
<td>10</td>
</tr>
<tr>
<td>2. Environmental Sustainability</td>
<td>12</td>
</tr>
<tr>
<td>3. Quality of Life</td>
<td>14</td>
</tr>
<tr>
<td>4. Mobility and Community Connectivity</td>
<td>16</td>
</tr>
<tr>
<td>5. Economic Competitiveness</td>
<td>18</td>
</tr>
<tr>
<td>6. State of Good Repair</td>
<td>19</td>
</tr>
<tr>
<td>7. Partnership</td>
<td>20</td>
</tr>
<tr>
<td>8. Innovation</td>
<td>22</td>
</tr>
<tr>
<td>V. Project Readiness</td>
<td>24</td>
</tr>
<tr>
<td>a. Environmental Risk: Project Schedule</td>
<td>24</td>
</tr>
<tr>
<td>b. Required Approvals/Permits</td>
<td>25</td>
</tr>
<tr>
<td>1. Environmental Permits and Reviews</td>
<td>25</td>
</tr>
<tr>
<td>2. State and Local Approvals</td>
<td>25</td>
</tr>
<tr>
<td>3. Federal Transportation Requirements</td>
<td>26</td>
</tr>
<tr>
<td>c. Assessment of Project Risk &amp; Mitigation</td>
<td>26</td>
</tr>
<tr>
<td>VI. Benefit Cost Analysis</td>
<td>27</td>
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<tr>
<td>List of Appendices</td>
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</tbody>
</table>
I. PROJECT DESCRIPTION

a. Project Description

The Sunset Road: Silverbell to River Road project is the last phase of connectivity for Sunset Road between Silverbell Road and River Road, two heavily traveled roads with average daily travel (ADT) of 10,479 and 18,600 total vehicles respectively across significant travel barriers including the Santa Cruz River, Interstate 10 (I-10), the Union Pacific Railroad (UPRR) Sunset Line, and the Rillito River. I-10 has seven interchanges between Ina Road to the north and Grant Road to the south. Of these, only three currently cross all these barriers and fully connect the northeast to northwest metro Tucson area. Installing the new project bridges to the east of the Sunset Interchange would increase this number to four fully connected east-west routes greatly improving travel times, connectivity and reducing emissions and accidents. This provides better system continuity and a new alternate route should there be a significant impact on one of these arterial roads. This provides consistency by using the same type of interchange at Sunset as currently exist from Downtown Tucson north to Marana, correcting one of only two interchanges that operate differently. This new connection will also allow the region to activate a planned Sunset Innovation Campus (SIC) located on vacant land adjacent to the existing interstate. This project accelerates economic development opportunities for both the greater Metro-Tucson area.

The project consists of two areas, east and west of the existing I-10. The west-side work will consist of portions of Sunset Road that provide roadway access for the future Sunset Innovation Campus.
Campus. The east-side work consists of a UPRR bridge crossing, Rillito River bridge crossing, roadway connections to River Road, and ancillary elements such as sidewalks, multi-use paths, drainage, lighting and signals. The center portion of work on the mainline interstate will be completed by the Arizona Department of Transportation (ADOT). These projects are adjacent, but provide different benefits to the community—and this RAISE grant opportunity provides Pima County the ability to meet the same construction schedule as the ADOT project, providing benefits such as cost savings and reduced impacts to the traveling public.

Project Purpose and Need
The Sunset Road project proposed will provide adequate capacity within the transportation system to meet 2045 traffic demands, including that of the proposed SIC as well as relieving congestion at the I-10 Orange Grove traffic interchange and providing direct connections between two urban collectors, Silverbell and River Roads. The project will provide safe crossings over the UPRR Sunset Line and the Rillito River, as well as provide additional multi-modal options and connections to the multi-use path, the Loop.

b. Transportation Challenges

Transportation Challenge I – Barriers to Connectivity
The existing Sunset Interchange previously connected to the west, crossing the Santa Cruz River and onto Silverbell Road. In 1983, a massive regional flood washed out the Sunset Bridge over the Santa Cruz River cutting off the west side from the traffic interchange. The interchange remained in service with access to the frontage road only, but had no local roadway connections. No eastern connections existed due to the railroad barrier and the Rillito River, impeding connection to River Road and the north and northeast portions of Metro Tucson.

To overcome these connectivity barriers, the project works with the ADOT adjacent traffic interchange project to “flip” the interchange and raise Sunset Road above the I-10 corridor. This will allow people, vehicles and bicycles to safely traverse over the UPRR tracks at required clearances, begin lowering but still raised over the banks of the Rillito River, until ultimately meeting River Road at the existing grade (at right). Additionally, once the interchange is “flipped”, the local road will bridge above I-10, providing consistent interchange design along the I-10 corridor but for the one at Orange Grove Road. The ADOT adjacent project is critical to the Sunset Road project; they work together to provide traffic relief and full connectivity across these barriers.
**Transportation Challenge II – Meeting Regional Traffic Needs through 2045**

The extension of Sunset Road from Silverbell Road to River Road has been included in the Pima Association of Government’s (PAG) Regional Transportation Plan (RTP) for several years and is planned for construction in the final five year period of the existing plan. Sunset Road is now a three-lane urban collector road, approximately 3000 feet long. The road was recently constructed by Pima County (2017), from Silverbell Road to I-10, where it presently goes under I-10, but does not continue beyond I-10. Sunset Road now averages 5700 vehicles per day, and has a posted speed limit of 35 miles per hour. During weekday peak AM and PM hours, the road operates at a level of service D.

ADOT is implementing a new traffic interchange at I-10 and Sunset Road and is the first part of an I-10 widening project from Ruthrauff Road at the south to Ina Road at the north. With ADOT’s project and expected growth in the region, PAG expects traffic on Sunset Road to increase to 22,000 vehicles per day west of I-10, and upon completion of the Sunset Road project, traffic is expected to reach 18,000 vehicles per day in 2045 to the east.

Sunset Road Project extents as proposed. Note: Phase 1 west of project to Silverbell is not shown.

Given the barriers that exist in the project area, much of the land is not developed. It includes a 110-acre property slated for commercial development, known as the Sunset Innovation Campus (SIC). (Surrounding land is mix of single-family residential, commercial and industrial property.) SIC is planned with nearly one million square feet of space including recreational opportunities, high tech office space, environmental technologies and innovations, and residential living. Located 5.5 miles northwest of downtown Tucson with direct access to I-10, SIC is well positioned within metropolitan Tucson for economic development and success. SIC is fully entitled, with significant utility connections serving the site. Upon completion of the interchange and Sunset Road connection, SIC will be actively developed as an opportunity for a regional employment center.
The immediate vicinity around SIC includes a number of natural and manmade barriers that limit cross-town parallel throughfares to a select few that are located five miles apart. The lack of connectivity forces more traffic onto these thoroughfares and onto north/south routes as travelers search to get across town. Upon completion, River Road, a vital east-west corridor, will connect eastern portions of the metro region to I-10. Once Sunset Road is completed, this will provide a new connection to I-10 that is located directly in between Ina and Grant Roads. In the Sunset Road area, River Road has an average daily traffic count of nearly 9300 vehicles in both the east and west bound directions, or a total of 18,600 vehicles in both directions, as found during a 2016 PAG 24 hour traffic count.

Transportation Challenge III – Maintaining Important Multi-use Trail Connectivity
Sunset Road when fully completed from Silverbell Road to River Road will intersect with two major river parks within the Chuck Huckelberry Loop (Loop) system. The Loop is a system of paved, shared-use paths and short segments of buffered bike lanes connecting the Cañada del Oro, Rillito, Santa Cruz, and Pantano River Parks with the Julian Wash and Harrison Road Greenway. The 136-mile long and growing Loop extends through unincorporated Pima County, Marana, Oro Valley, Tucson, and South Tucson. The connections are the result of Pima County's cooperative partnerships with these jurisdictions. The Loop connects parks, trailheads, bus and bike routes, workplaces, restaurants, schools, hotels and motels, shopping areas, and entertainment venues. Visitors and Pima County residents can enjoy the Loop on foot, bikes, skates, and horses.

This project must carefully consider how it interacts with the River Parks. Sunset Road west of I-10 is connected to the Loop at the Santa Cruz River, where new paths were built under the bridge for safe, grade separated use. Paths are also planned on both the north and south sides of Sunset
in this area, to maintain current levels of connectivity. On the east side of I-10, Sunset Road will interact with both the north and south banks of the Rillito River Path, creating new access points. The project was designed to allow through traffic on the paths to continue under the new Rillito Bridge on both banks. Both sides will provide ramps up to Sunset Road on the south bank, and to River Road on the north bank. This new bridge allows users to shift banks using an all-weather protected crossing. Currently, Camino de la Tierra, an at-grade crossing with the river bottom and subject to flooding, is the only way to cross the banks.

Pima County Loop Counters; Summary Report for February 2022
February 1, 2022 → February 28, 2022

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<td>+7.8%</td>
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Distribution

Pima County began tracking users with counters on various sections of the loop as shown with this February 2022 report, above. Two initial counters were installed starting May 2020. The total user count since installation is 3,143,656 users, an increase of 1.1M users in just the last six months. Also note, the closest counter (located 1.5 miles east at Curtis Park) accounted for 20% of the users. This location is a high use point because the Rillito and Santa Cruz river parks adjoin just north of this project site. The Loop is used for both recreation and commuters; providing this type of lifestyle connectivity to large employment centers such as SIC can be differentiators for companies looking to relocate. (Loop reports, posted here.)

c. Project History and Regional Connections
Pima County has been developing this connection since 2006 when voters approved and adopted it into the PAG RTP. It continues to be part of the 2040 RTP “Mobility Matters” adopted in 2010, updated for 2045, here. Since that time, the first phase has been installed, reconstructing the Sunset Road Bridge over the Santa Cruz River in 2017. The original bridge was a casualty of the October 1983 Flood, the largest flood on record in the Tucson area.
Flood and erosion damage was greatest along the Santa Cruz River, and total damage to public infrastructure was estimated at $64 million (in 1983 dollars). This washed-out bridge remained a gap in our roadway system until the 2017 project installed a 760-foot long bridge over the river. This included a new alignment, selected to reduce the length of overall bridge as well as providing a more functional intersection at Silverbell Road. PAG, City of Tucson and Pima County, funded this project with an investment of $15.3M. This Sunset Road project is the second phase of work, to complete this connection to River Road as originally envisioned.

This project is also directly interconnected with the Arizona Department of Transportation’s sister project, the I-10 Ina to Ruthrauff “Gap” project. This separate project will widen the interstate to four lanes in each direction, build new bridges over multiple watercourses, and switch the interchange at Sunset Road to have it elevated to match many of the interchanges along the I-10 corridor in this area, creating consistent interchanges and grade separated UPRR crossings. The ADOT Gap project is a significant state and federal investment within Pima County and is on an aggressive timeline. ADOT has fully funded their project on the interstate, see their STIP here, as project ID 8915 in the PAG Regional Transportation Highway Program section (p.276). Pima County has worked with ADOT to manage the Sunset Project in tandem, using the same design team to ensure the two projects are coordinated. These projects serve different purposes; ADOT is focusing on improving the continuity and capacity of the interstate; Pima County is focusing on connectivity across the interstate, linking the divided metro Tucson Area east to west and improving local traffic outcomes.

d. Project Technical Details
The Sunset I-10 to River Road project consists of 1,550 feet of new road, which includes two new bridges (255’ long over the UPRR and 390’ long over the Rillito River), with 4 through lanes, a south (west) bound right and left turn lane, bike lanes, sidewalks, lighting, one new intersection, drainage facilities, and connections to the Loop multi-use trail. New additions:

- Sunset Rd UPRR Bridge: The UPRR Bridge is a single-span, 206’-0” long steel plate girder superstructure with Pier-style multi-column abutments and drilled shaft foundations. The
approach roadway is supported by MSE walls at each end of the bridge. The Sunset Rd profile has been designed to provide a minimum vertical clearance of 23'-6” over the UPRR ROW. The bridge cross section consists of four 12'-0” travel lanes, one 13'-0” left turn lane, one 13'-0” right turn lane, two 6'-0” bike lanes, a 16'-0” raised concrete median, and 6'-8½” sidewalks on either side of the bridge. The cross section varies along the bridge from 186'-4” at the west to 118'-9” approximately 70'-0” into the first span, where it remains for the length of the bridge. This is to accommodate right hand turns from the I-10 WB Frontage Road onto the bridge as well as right hand turns from the bridge onto the I-10 WB Frontage Road.

- Sunset Rd Rillito Creek Bridge: The Rillito Creek Bridge is a three-span, 376’-6” long precast concrete Bulb-Tee girder bridge that spans the Rillito Creek and the Loop Path located along the soil cement banks of the creek. The spans lengths are 124’-3, 125’-6” and 124’-3”. The bridge cross section consists of four 11’-0” travel lanes, two 6’-0” bike lanes, a 6’-8 ½ “ sidewalk, and a 10’-0” multi-use path with a total out to out width of 76’-3”. The substructure consists of Pier-style multi-column abutments and multi-column piers supported on drilled shaft foundations. The abutments are placed outside the limits of the soil cement bank protection and the piers are oriented parallel to the flow of the Rillito Creek. The approach roadway is supported on MSE wall’s location behind the abutments. The design of the bridge also includes 25-ft long reinforced concrete approach spans located between the MSE walls and the abutments allowing the Loop Path to pass below the bridge on either side of the Rillito Creek.

- Multi-Modal improvements include paved shoulders for bicycles, sidewalks, and a protected multi-use path with direct connectivity to the existing Loop multi-use trail. Sidewalks will be provided on both sides of the project, with a portion along the downstream side of the Rillito Bridge to be widened to a 10’ cross section for a multi-use path. A connection from the higher profile road and bridge will be installed to meet ADA standards for trails, down to the main Loop path elevation. This allows the main Loop path to traverse under the Rillito Bridge on both banks, so that users have a safe, grade separated experience. Six foot paved shoulders provide continuous on-road bike lanes throughout the entire project length as well.

II. PROJECT LOCATION

a. Project Geographical Location

The Sunset Road project is located northwest of the Tucson Metro Area, within Pima County, in the State of Arizona. This is the southwestern portion of the state, just north of the junction between I-10 and I-19. See map inset where Interstate highways are shown in blue, US Routes in red, and State Routes in Green. Pima County has a total area of 9,189 square miles and a population of 1,047,279 (estimated 2019). The largest city is Tucson with a population of 548,073 (estimated 2019), and this project is located in the northwest extent of the City’s boundaries.

Location Map
This project is located in the Northwest Metropolitan Tucson area of Pima County, and is a short east-west connection between Silverbell Road, across the I-10 Interstate, across the Union Pacific Railroad (UPRR) Sunset Line Gila Subdivision, and across the Rillito River to connect to River Road. Silverbell Road is a 14.1 mile north-south urban minor arterial road that connects the Town of Marana, through Unincorporated Pima County to the City of Tucson, paralleling I-10 and operates as an alternate route to the interstate. River Road’s western terminus is just north of this location at Orange Grove and Thornydale Roads, and is an urban principal arterial that travels east 14.2 miles to Sabino Canyon Road. These arterials provide significant regional accessibility.

b. Communities Impacted
1. The Sunset Road project, located in the northern portions of the Tucson metro area, impacts the southern boundaries of the Town of Marana (Orange Grove Estates) Census Tract 46.13, two disconnected portions of the City of Tucson, the larger Flowing Wells neighborhood (Census Tracts 45.06, 46.10, 45.12, 45.13, 45.14, and 45.05) and the Silverbell Road community (CT 44.18). Orange Grove Estates and Flowing Wells are constrained by I-10, which limits their ability to expand and pursue economic development within their boundaries. Flowing Wells is located south of the Rillito River, east of I-10, north of Roger Road and just east of Flowing Wells Road. It lacks direct access to the western side of I-10, which includes significant manufacturing employers, including the SIC. This project can help support some areas within this plan by increasing connections to the Loop and by providing access to the SIC. It would also provide access to other west side manufacturing/employment opportunities that are now not easily accessed. See Section IV.3, Merit Selection Criteria, Quality of Life.

2. Areas of Persistent Poverty. CT 45.06 is considered to be an Area of Persistent Poverty per the DoT Area of Persistent Poverty tool (‘‘Tool’’). (Several other CTs are APPs as well.)
3. Historically Disadvantaged Community. Both CT45.06 and 46.13 are considered to be Historically Disadvantaged Communities per the Tool. CT 46.13 is also considered to be a disadvantaged community according to the Council of Economic Advisors new Climate Change and Economic Equity Screening Tool.

4. The Tucson Metropolitan area is a Census-designated Urbanized Area.

III. GRANT FUNDS, SOURCES AND USES OF ALL PROJECT FUNDING:

a. Project Costs

The proposed Sunset Road: Silverbell to River Road includes only construction phase costs. These funds will be used for administrative costs, construction inspection costs, construction contract costs, and construction contingency. Previous phase work, whether in adjacent projects, or costs in the planning and design stages have been funded locally or regionally separately from this request.

The total project cost for the Sunset Project as outlined in this application is $30,697,274.

b. Source, Eligible Project Costs

Within the proposed Sunset Road: Silverbell to River Road there are some charges that Pima County considerers ineligible project costs for potential reimbursement from this RAISE grant. See Table below for cost breakdown.

<table>
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<tr>
<th>Project Item</th>
<th>Cost Estimate</th>
<th>Regional Funds Allocated**</th>
<th>RAISE Request (75%)</th>
<th>Local Match (25%)</th>
<th>Total Local Investment</th>
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<td>Post Design Services (Consultant)*</td>
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*Items funded locally outside of RAISE grant match requirements.

**Regional allocated funds include multiple sources as applied via the PAG/RTA TIP. This includes $2,500,000 in funds from City of Tucson, etc. See TIP.
**c. Non-Federal Fund Documentation of Commitment**

The Sunset Project is currently listed within the Pima Associates of Government (PAG) Regional Transportation Improvement Plan as project 10.18, please see TIP amendment dated 3/28/22 found [here](#). On Page 18 the project 10.18 shows regional funds for the project (including design and construction). Not yet showing is the $15.2M requested in RAISE funds.

**d. Non-Federal Match Source**

The Sunset Project as proposed has a local match of 25%, plus the additional costs we consider ineligible. Therefore, Pima County is requesting a 75% Federal RAISE grant in the amount of $15,163,000. The Local Match is 25% in the amount of $5,200,000.

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<th>Proposed Federal/Non-Federal Funding</th>
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<td><strong>Federal</strong></td>
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<td><strong>Local Match</strong></td>
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<td><strong>Sub-total</strong></td>
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There are additional funds that are not considered part of the matching funds as assigned by the region. These include a mix of regional, local and federal funds per the table below. Note: the TIP includes larger values, these have been reduced to only show construction phase.

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<td><strong>Total Regional Funds</strong></td>
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If awarded the RAISE grant, Pima County commits to the $5,200,000 in non-federal local match funds. Current regional funds will be adjusted to project total, allowing the PAG region to re-allocate regional funds for significant projects within the area.

**e. Budget**

The current proposed project budget by task is outlined in item a. *Source and Amount of Project Cost* above. This covers the construction phase only of work within the total project. Right of Way, Planning, and Design have already been funded separately, and are nearing completion.

Please find detailed engineering estimate [here](#), for further detail and breakdown of construction cost for the entire project.

**IV. MERIT CRITERIA**

1. **Safety**

The Sunset Road project considers several ways to provide a safe transportation installation while overcoming existing physical barriers. Safety benefits, using the discounted rate of 7% required by DoT, resulted in a $27.1M 30-year monetized benefit, resulting in nearly half of the economic benefits for the project. Safety Benefits outlined in the Benefits Cost Analysis (BCA) are as follows:
1. Achieve significant reduction in traffic fatalities and serious injuries by virtue of providing more miles of safer infrastructure and installation of safety improvements.
2. Provide significant travel time savings for private and commercial drivers along the corridor. This reduces drive time on the road, limiting exposure to potential safety risks.

The proposed improvements achieve reduction in traffic fatalities and serious injuries by providing motorists with safer travel through the build scenario. The project area had several safety incidents in the last five years, summarized in the table below using the KABCO scale to determine a five year average.

### Historical Crash Data

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<td>8</td>
<td>48</td>
<td>58</td>
<td>694</td>
<td>810</td>
</tr>
<tr>
<td>Ramps</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>7</td>
<td>38</td>
<td>48</td>
</tr>
<tr>
<td>Intersections</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>12</td>
<td>110</td>
<td>134</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3</td>
<td>9</td>
<td>61</td>
<td>77</td>
<td>842</td>
<td>992</td>
</tr>
</tbody>
</table>

### Annual Average

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.60</td>
<td>1.80</td>
<td>12.20</td>
<td>15.40</td>
<td>168.40</td>
<td>198.40</td>
</tr>
</tbody>
</table>

The BCA reviewed the proposed new safety elements, including new lanes, auxiliary lanes, turn lanes and traffic signals. For this project, a corresponding Crash Modification Factor (CMF) was calculated at .75. This converts to a Crash Reduction Factor (CRF), which when applied to the 30-year analysis period corresponds to approximately 4.43 reduced fatalities, and 13.28 reduced A-type injuries.

The project forecasts a reduction in both Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT). The chart below reviews the differences in VMT and VHT for auto and truck traffic when comparing the Build to No-Build scenario. Although lower VMT and VHT are directly associated with environmental and cost savings, these also reduced time and miles driven, reducing exposure to risks.

### Traffic Projections Summary

#### Automobiles

<table>
<thead>
<tr>
<th>Year</th>
<th>VMT Build</th>
<th>VMT No-Build</th>
<th>Change</th>
<th>VHT Build</th>
<th>VHT No-Build</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>330,788,805</td>
<td>330,788,805</td>
<td>-</td>
<td>7,455,690</td>
<td>7,455,690</td>
<td>-</td>
</tr>
<tr>
<td>2045</td>
<td>445,017,585</td>
<td>447,045,090</td>
<td>(2,027,505)</td>
<td>10,652,370</td>
<td>10,722,750</td>
<td>(70,380)</td>
</tr>
</tbody>
</table>

#### Trucks

<table>
<thead>
<tr>
<th>Year</th>
<th>VMT Build</th>
<th>VMT No-Build</th>
<th>Change</th>
<th>VHT Build</th>
<th>VHT No-Build</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>58,374,495</td>
<td>58,374,465</td>
<td>-</td>
<td>1,315,710</td>
<td>1,315,710</td>
<td>-</td>
</tr>
<tr>
<td>2045</td>
<td>78,532,515</td>
<td>78,890,310</td>
<td>(357,795)</td>
<td>1,879,830</td>
<td>1,892,250</td>
<td>(12,420)</td>
</tr>
</tbody>
</table>
The Sunset Road project is designed to provide safer infrastructure, crossing existing physical barriers, as described. This project will increase the safety for all types of users, not just the vehicular traffic. Presently, I-10 has an above grade crossing of Sunset Road, which limits forward visibility on a high speed interstate. With ADOT’s project, the current interchange will be reconstructed allowing I-10 to be at grade through the area, with Sunset Road crossing over it here. This alone will enhance the visibility of interstate traffic through the area while also reversing the on ramps to be downhill (gaining speed). The Sunset Road project continues these safety enhancements by connecting local arterial streets that were impassible because of these barriers.

Within the project limits, Union Pacific operates their Sunset Route, a 760-mile corridor that connects Los Angeles to El Paso. Also within the Tucson portion of the Sunset Route, Union Pacific operates the only international border crossing for trains in Arizona, a major thoroughfare into Mexico for rail service. Within the project limits, the existing train tracks are comprised of a double track configuration, with a train speed limit of 70 miles per hour and typical train speeds of 30-60 miles per hour in this area. Daily train traffic has remained consistent, with an average of 40 trains passing through this area each day. The Sunset Road project will provide a safe point of access to I-10, with a grade-separated crossing at the tracks, eliminating any vehicle and train conflicts at this crossing. This new bridge also fully spans the railroad right of way, to increase rail safety, avoiding any potential impacts to bridge supports should a derailment occur in this location.

This project will also provide a safe opportunity for bike and pedestrian traffic to cross these travel barriers at a location that presently does not have such capacity. River Road is a designated bike route, with an 8-foot wide paved shoulder in both the east and west-bound lanes. The Loop runs along the banks of the Rillito River and Santa Cruz River. In the project area, the Loop runs parallel to the east bound I-10 frontage road, and crosses Sunset Road just west of I-10. ADOT’s interchange project will eliminate the Loop crossing at Sunset Road, providing a safer alternative crossing of Sunset Road at the Santa Cruz River, where the Loop will cross under the roadway at this location. This will remove the existing roadway crossing, eliminating a conflict with vehicles.

At River Road, the Loop runs along the north and south bank of the Rillito River. The Sunset Road project will provide a connection on both the north and south bank, providing an all-weather bike and pedestrian connection in this area. The new Sunset Road Bridge will include a bike and pedestrian path, separated from vehicles by a barrier, allowing users to safely access both sides of the Rillito River.

2. Environmental Sustainability
The Sunset Road project will enhance the region from an economic development perspective and an environmental perspective through the reduction in travel time, vehicle idling time, and reduced surface street congestion.
Estimates of Economic Benefits, Millions of 2020 Dollars, 30-Year Total

<table>
<thead>
<tr>
<th>Benefit Category</th>
<th>Discounted at 7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Benefits</td>
<td>$27.1</td>
</tr>
<tr>
<td>Travel Time Savings</td>
<td>$9.9</td>
</tr>
<tr>
<td>Vehicle Operating Cost Savings</td>
<td>$5.0</td>
</tr>
<tr>
<td>Emissions Cost Savings*</td>
<td>$0.8</td>
</tr>
<tr>
<td>Residual Value</td>
<td>$1.0</td>
</tr>
<tr>
<td><strong>Total Benefits</strong>**</td>
<td><strong>$43.8</strong></td>
</tr>
</tbody>
</table>

*CO₂ emissions are discounted at 3%
**Total may not sum up due to rounding

Notable project environmental benefits include:
- More efficient routing and travel patterns resulting in less time spent driving, reducing vehicle operating and maintenance costs
- Less air pollution due to decreased congestion, beneficial to surrounding communities.

This project forecasts a significant decrease in VMT and VHT in 2045 compared to the no-build scenario. Lower VHT (and PHT) is associated with travel time savings for both users of automobiles and trucks. Lower VMT is also associated with reduced environmental impact and emissions, as well as vehicle operating costs. Finally, lower VMT is associated with lower pavement damage and noise pollution, which has not been quantified in the BCA but reflects qualitative improvements to society as a whole. These benefits are difficult to monetize, but will be realized by people and businesses in the immediate area, and within the region due to its adjacency to I-10. Faster travel times will allow businesses to save costs on inventory through better connections to production and distribution or user sites. This allows for increased reliability of the just in time inventory and delivery methods in support of area businesses. The additional access to I-10 will reduce local travel times, distributing regional

![Alternate Route Map, No Build Scenario](image-url)
traffic through a new I-10 access point. This also provides better access by the west side of I-10 to the nearby Northwest Hospital, located at Orange Grove and La Canada, as Orange Grove Road connects to I-10 but not the west residents. Using surface streets, travel from Sunset Road and Silverbell to the new Sunset Road connection at River Road now takes 8.1 miles, or travel via the south route slightly less at 5.4 miles—which would be eliminated (map previous page). By creating more direct connectivity the region would realize a reduction in vehicle-related pollutants, alleviating some of the environmental inequity experienced by disadvantaged communities in the vicinity. Carbon monoxide, volatile organic compounds, nitrogen oxides, fine particulate matter, sulfur dioxide, and carbon dioxide will all be reduced. The total estimated monetized environmental benefits at the discounted rate are approximately $0.8 million over 30 years.

Other Sustainable features include:

- The street lighting systems proposed for this project incorporate LED fixtures. Street fixtures are important for safety in the corridor, to increase visibility of the pedestrian and bicycle users to reduce conflicts. This is the current local standard, which meets street lighting standards while also meeting low energy requirements and longer life cycle for fixtures. These fixtures meet Pima County Dark Skies ordinance reducing light pollution.

- The project requires significant fill for a portion of the roadway that is elevated between the railroad and the Rillito Bridge. Importing fill can be expensive and often requires significant trucking operations. One innovative sustainable strategy is collaboration with the County’s Regional Flood Control District (RFCD). RFCD works on maintenance projects throughout the major watercourses in Pima County to remove sediment that has aggraded over time within the washes. This sediment buildup reduces the capacity of the channels and must be periodically removed. During early design, it was noted that fill would be an expensive component of the project, and our RFCD staff setup a maintenance project in the adjacent river bed to remove considerable sediment and stockpile for the project, right where the fill will be easily accessed and used for the project.

3. **Quality of Life**

The Sunset Road project impacts a number of census tracts, most of which are in the Flowing Wells community (map at right).

CT 46.13 lies within the jurisdictional boundaries of the Town of Marana. It is a historically disadvantaged community. Other census tracts within the project scope lie directly within the Flowing Wells community, including 45.06, 45.05, 45.12, and 45.13. These tracts are both Areas of Persistent Poverty and
Historically Disadvantaged Communities. Collectively, 20.6% of the population in these census tracts have live below the poverty line (relative to 15.9% for Pima County, 20.8% for the City of Tucson, and 13.4% nationally). But this number distorts that certain census tracts experience far higher poverty rates.

Demographically, these census tracts include majority populations of Latino/Hispanic residents (as high as 57%, relative to 37.5% for Pima County as a whole), larger African American populations (as high as 5.5%, relative to 3.5% for Pima County as a whole), and Native American/indigenous populations (as high as 6.9% relative to 3.6% for Pima County as a whole). Median household income here is $34,581 relative to the national median of $67,521. (Source: Census Bureau). Only 12.2% of the area’s residents have a bachelor’s degree or higher, compared to the state average of 30.1%.

According to the Centers for Disease Control and Prevention, several of the primary census tracts have high Social Vulnerability Indices (.8558, .9101, and .9921, respectively). These high scores indicate that these areas are highly vulnerable, less able to respond to natural disasters and more susceptible to adverse health outcomes. Many of these CTs are considered to be Medically Underserved Areas by the Arizona Department of Health, experiencing larger outbreaks and deaths from COVID-19.

This area is also home to the region’s highest concentrations of manufactured homes (MH): a high percentage of them constructed pre-1976, with hazardous materials, poor insulation, and fire-prone aluminum wiring. It is an area of maximum concern, where concentrations of MH and socio-economic insecurity overlap the most.” (See, The Manufactured Housing Gap in Tucson and Pima County: Introduction and Preliminary Analysis,” published by Making Action Possible for Southern Arizona, 2019). These residents have been “historically disregarded because of where they live: substandard, aged mobile homes. … More insidious [than unscrupulous MH management is] the history of municipal planning that has kept them in their place: redlining ….Zoning has kept mobile home parks situated along interstates and highways, in industrial and commercial zones, and it has kept them out of residential neighborhoods, making them far more at risk of environmental hazards like flooding and heat.” (Extreme Heat is Killing People in Arizona’s Mobile Homes, Washington Post July 2, 2021, specifically discussing Flowing Wells.)

As the neighborhood is now configured, it lies to the east of I-10. There is no direct access to west side of I-10. In fact, there is no immediate way to bridge the travel impediments that bound the western side of the community—at all, much less safely. And, there are impediments to accessing the Loop in this community (either the western side that runs parallel to the frontage road or on the eastern side running parallel to the Rillito River). The Sunset Road project removes the physical barriers that are connectivity challenges by creating a segment of roadway that provides an easier way to access the amenities and economic opportunities on the west side, creating economic opportunities for this disadvantaged community. It will create safe overpassage for stated travel barriers and provide new connection points along the Loop within the community. With easier connections that remove vehicle/train connection, the project will improve bicycle safety while encouraging commuters to utilize alternative means of transportation.
To overcome historical disconnection for Flowing Wells, Pima County is dedicating significant resources in this area. The County is partnering with the Flowing Wells community to develop and implement neighborhood revitalization strategies. The County is working with stakeholders within the community, particularly with the Flowing Wells Neighborhood Association and Community Coalition (FWNACC) to make beneficial investment decisions here. The County has dedicated significant financial resources in the area to help residents with education, skills training, credentialing, workforce skills preparation, and supportive services to help overcome the area’s historic poverty levels. The County has also invested in a community center here, providing recreation, after school programming, and health services, among other things. It has also invested in a Library and a dedicated community park. The County expanded the availability and accessibility of a specialized, high quality pre-school program to support low-income families here, in an effort to support critical stages of social and emotional development. The County has also invested in other community groups, such as Habitat for Humanity and Amistades, to provide housing and substance abuse support in this community, two critical precursors to help the community transform into a livable, connected, investible locale. These resources will be critical to enabling the community to develop the skills necessary to benefit from the SIC and other now-accessible west-side employment opportunities.

FWNACC identified in its recent Neighborhood Revitalization Strategy (NRSA) several goals to improve the safety and infrastructure for pedestrians, bicyclists and drivers. Increased, high-speed traffic in a relatively dense neighborhood burdens this community due to the lack of east-west connectivity in the area. Per ADOT, Flowing Wells Road experiences 19,500 annual average daily traffic heading north/south in the project area. Traffic calming measures have been implemented within the region, yet more needs to be done. Additional lighting, improved bus ingress/egress, and speed bumps are all important measures to improve safety, highlighted in the NRSA. As important, eliminating some of the north/south car travel that is now occurring provides enhanced quality of life benefits here while providing transportation alternatives.

4. Mobility and Community Connectivity
Sunset Road incorporates standard multi-modal design elements within the project cross section, such as bicycle lanes and sidewalks, ADA crossings, and curbs. These are integrated to operate seamlessly with the ADOT bridge at the new I-10 traffic interchange. This will allow vehicles, bicycles and pedestrians to use the improvements safely concurrently. Additionally, this project incorporates connectivity to Pima County’s Loop multi-use path, encouraging multi-modal use and actively providing a corridor that is almost entirely vehicle conflict free.
The Sunset Road extension will intersect with two major river parks within the Loop system. The Loop is a community amenity used by runners, walkers, cyclists, equestrians and other groups who enjoy the car-free paths for leisurely outings or as their connection to work and play. Over the past decade, the Loop has become a major visitor attraction that contributes to and strengthens our local economy. It has even played a part in converting tourists into part-time residents. In fact, the Loop earned the top spot in USA Today’s 2021 10 Best Reader’s Choice travel award contest for Best Recreational trail.

This extension will connect the North and South banks of the Rillito River Park with the new bridge as an all-weather crossing. The North bank ends just to the west of the project, and all users heading west must cross to the South bank currently via an at-grade roadway crossing. This is not available at all times and is often full of sediment after large rain events. The new Sunset Rillito River Bridge provides an opportunity to remedy this situation to the betterment of the entire Loop system. Designers have included connections from the paths, clear path connections below the grade of the bridges for Loop traffic, and will accommodate a safe, protected multi-use path on the north side of the bridge for this cross connection. This will tie the Loop directly into the new SIC. The adjacent Santa Cruz River Park will also include an environmental restoration project with connections into the SIC for both bicycle commuting and recreational use during the work day.

The Loop isn’t just for recreational use. Pima County actively seeks to encourage businesses along the Loop to provide incentives for employees to use this corridor for commuting as well. The SIC is intended to build on these Loop connections, with multi-use paths built into the fabric of the campus. Improved accessibility will help make commuting along the Loop easier and direct.

The SIC will need to implement a transit center within the campus. This is often difficult to convince private developers to build into mixed use office centers. However, because the County will be working with the local development community, there is an opportunity to include this use in an area that will greatly benefit. The I-10 corridor currently has two major express commuter routes, one that originates in Marana, and one that originates in Oro Valley. This becomes an easy mid-route stop for park and ride (or bike and ride) opportunities that typically avoid local route stops. Current gas prices and mass transit subsidies make this an easy choice for residents nearby. There are some local bus routes that terminate nearby that could also be considered for a new endpoint at this location. These transit enhancements require further discussion with the City of Tucson, but will be considered for inclusion with the upcoming solicitation of a development team for this site.
5. Economic Competitiveness and Opportunity
The Sunset Road project will greatly enhance the economic competitiveness of the project area, as well as the region. The project will connect the SIC to the metro area. The SIC is one of the largest, fully entitled, and vacant parcels of land in the City of Tucson. In 2019, the County hired consultants to help create a master plan for the SIC, laying out the internal road system, infrastructure systems, and other items necessary to support over 1 million square feet of building space at full build out. Development of the SIC has been on hold pending the completion of the Sunset overpass and road projects. The benefits of this area will be more apparent once the site is more accessible.

SIC is expected to positively impact employment within the region, particularly for nearby communities. The County is targeting SIC for high tech, Class A office space for environmental technology and innovation companies looking to expand or relocate in Tucson, as well as a closer tech park for the University of Arizona (University). Having a North West campus location within the region will provide tremendous benefit to potential companies looking to take advantage of the region’s low cost of living, direct Interstate access, access to international trade and travel. The SIC will also benefit from close proximity to the Water and Energy Sustainable Technology Center (WEST). The WEST Center (a partnership between the County and the University) is a premier facility that develops new technologies that deal with water scarcity and reuse, located next to a County reclamation facility. The WEST Center’s proximity to the reclamation facility allows pilot scale evaluation of energy saving wastewater treatment, helping to address current and evolving water issues. The WEST Center is a short five minute drive from SIC, or a 10 minute bike ride from the Loop. The WEST Center is an example of the type of industry that the SIC is targeting.

I-10 is regionally, nationally and internationally significant. I-10, extending from Los Angeles, CA to Jacksonville, FL, and its connection to I-19, extending from Tucson to Mexico, are critical national freight and passenger vehicle corridors. I-10 and I-19 form the southern connection of the CANAMEX Corridor, a Congressional High Priority Corridor. The regional portions of I-10 also have a local function, supporting daily commuter travel between the region’s cities and towns, connecting many regional employment centers and other destinations. It is estimated that 52% of miles traveled on I-10 and I-19 come from vehicles traveling wholly within the region. The Tucson region has struggled for decades with the idea of adding new freeways, particularly an east-west loop freeway. Instead, local roads provide continuous connections, and regional arterials and become much more important regionally for distributing traffic loads. The Sunset Road project connects that last 1500 feet to connect River Road to I-10 and northwest Tucson.
6. State of Good Repair
Through 2008, Pima County significantly expanded its transportation grid. For years, transportation planners focused on capacity expansion, to provide connectivity from regional growth centers throughout the region. Our 1997 HURF voter-approved bond program focused on increasing these regional connectors, as was the 2006 PAG voter-approved RTP. In 2017, the County’s focus changed – prioritizing long under-funded maintenance programs with a spotlight on major collectors and neighborhood streets. This included the development of a 10-year program to improve all roadways to good condition. In 2019, the County adopted a pay-as-you-go program, to convert retiring bond debt funds into a PAYGO program, to fund this 10-year plan. The County is completing year three; it expects to have an average Pavement Condition Index (PCI) of 71 at the end of this fiscal year. (April 2022 update found here). The County is fully focused on the long-term sustainability of all of its assets, which has reaped tangible benefits to the region.

Our Vision: To utilize Smart Transportation strategies to enhance roadway user’s mobility and users' mobility and improve the overall multi-modal transportation network.

Our Mission: To provide and maintain a cost-effective multi-modal transportation system with exceptional customer service while providing mobility on demand for all users and all modes of travel in a manner that protects and enhances natural environments and quality of life.

Pima County is a geographically large area, representing many diverse communities and transportation needs. The diversity of the region requires the County to have the skills and equipment to maintain a variety of roadways and assets from high-speed arterials to snow covered mountain roadways, from sidewalks to rural dirt roads. Pima County operates 1,928 miles of paved roads, 281 miles of unpaved roads, 215 bridges, and 103 signalized intersections. To better service all of these assets, we have developed a service portal for all residents to use, our “See-Click-Fix” application available on smart phones. The department tracks service
This project is new construction of a connection that did not previously exist, so this is not repairing or extending existing end-of-life roadway assets. The entire length of this project included replacing a bridge over the Santa Cruz River that was entirely washed out from the 1983 floods. This western portion of the roadway was installed and completed in 2017, in time to provide connection for the communities west of I-10 to use this new bridge for I-10 freeway access while ADOT constructed a new traffic interchange nearby. This was a thirty-four year delay in roadway replacement, due to the massive size needed for the replacement of the bridge. This area is not bank protected; the new bridge was 760-feet long when installed. Continuing this project to finally reach River Road will provide significant community connectivity when completed.

The Sunset Road footprint has portions within unincorporated Pima County and the City of Tucson. This is a common occurrence within the region. Pima County has agreements with individual jurisdictions to ensure the region provides coordinated maintenance to our transportation grid in the most efficient manner. For this project, the County will maintain and operate the project west of I-10, while the City of Tucson will maintain and operate from the east side. This breakdown recognizes the roughly 50/50 split of land ownership, while providing for contiguous maintenance operations. The two agencies frequently collaborate on a single project/single design for efficient in delivery and design. Assigning agency responsibility upfront often results in the ability to use preferred standards/equipment for each portion of roadway and separate utilities as needed. The City of Tucson will also enter a maintenance agreement with ADOT, to maintain the surface elements for the traffic interchange across I-10. This approach allows ADOT to focus on the major structural elements of the freeway, while the local agencies ensure the operation and connections to the local roadway grid.

7. Partnership and Collaboration
The Sunset Road project has several partnership components critical to the ultimate success. Sunset Road from Silverbell to River crosses two local jurisdictions as stated. This is also in close proximity to the Town of Marana. These are three major jurisdictions within the PAG. All are impacted positively by completing this project and others in RTP. Because this project is on an accelerated timeline, each jurisdiction has committed staff time to ensure input and reviews...
are completed in a timely fashion. All three jurisdictions have worked on both the Sunset Road project, as well as the ADOTI-10 widening project to make these operate seamlessly.

These commitments are also monetary. This project is part of the 2006 voter approved RTP. As such, a significant portion of the project’s funding was obtained as regional funds through our PAG partners. It is not just funded through PAG; the City of Tucson and Pima County are also directly contributing funds to this project. The cost of this project significantly exceeded its estimated cost from 2005; some of the initial estimates assumed an at-grade railroad crossing, which was not an available option. As we enter the fourth period of the voter initiative, it has become clear that the final projects are significantly higher in cost than original expected. There are two major City of Tucson projects that remain underfunded in this program – the Downtown Links project (in construction) and the 22nd Street: Kino to Tucson Boulevard project. It is our intent, should we receive this grant, to return the regional funding in the same amount as this award request to the region, to be applied to other equally important regional RTA projects.

This is a critically important feature of this project – that should this award be made, we will request an expedited agreement for funding, or the ability to provide reimbursement retroactively. This project has been accelerated to team with the ADOT project; it is planned to be completed and in use by the second half of 2024, within this current administration’s term. ADOT is critical partner to this project. ADOT is moving forward with their I-10 widening project next to the Sunset Road project as planned. However, ADOT has provided the region an opportunity to reduce impacts by working concurrently on the two separate projects. These two projects are scheduled to be adjoined together into a single construction bid package. This will allow ADOT lead construction of the two projects jointly. They are not required to accommodate our adjacent project as a part of theirs; however their partnering approach to better plan for resources and impacts. This has an opportunity to create better economies of scale – critical with the cost of construction commodities continuing to rise – as well as reducing the overall impacts to the community. Both projects must be bid for construction starting no later than June of 2022. This required the final design along with all federal clearances to be completed by both projects within a short 14-month period. That both projects appear to be on target for this schedule is due to a dedicated engineering and project team.

The Sunset Road project goes beyond coordination between multiple transportation agencies. This project is located within the El Corazón de los Tres Ríos del Norte area in Pima County as a multi-benefit public recreation and environmental restoration project. RFCD has been developing riparian improvements within this region, including the 2015 purchase of the CalPortland owned lands adjacent to these rivers. These properties have been active sand and gravel mining operations for many years; to the point where the district has sought purchase of these to rehabilitate and ensure that any potential large flooding events do not result in a catastrophic breach into the existing pits. These properties will go through a reclamation process, improving the environmental
resiliency and recreational activities along this corridor. This land purchase also directly benefited the SIC, located on a portion of former Cal Portland land that had not been mined.

This project has also provided opportunity to team with our Economic Development office to create the vision that will become the SIC. This plan was vetted with local developers as early as 2015 to determine how the County can best setup this land for successful development. Additionally, the County has been working with the University to identify lands that can be used to support their ongoing research and technology initiatives. Currently, the University is focusing on their strong optical technologies research program to look at a focus on quantum networks, including their participation as founding members of the Quantum Economic Development Consortium.

8. Innovation
This project has benefited from an innovative project delivery method not typically pursued. Pima County is one of eight Certification Acceptance (CA) agencies with ADOT. This allows the local public agency (LPA) to independently manage aspects of federal projects that are administered for FHWA via ADOT. For Sunset Road, Pima County proposes to pursue as a CA an independent construction acceptance, with the intent to group both projects together for a single construction bid and management process. This is an unusual circumstance, but has been encouraged by ADOT to mutually benefit the region; this could not happen if the Sunset project was delivered separately. Benefits already discussed include:

- Increased buying power for both agencies, economy of scale
- Reduced project construction time/ Reduced impacts to traveling public
- Integrated detour and traffic plan management
- Integrated construction of bridge and abutment work at the UPRR bridge (each project has separate responsibilities that could cause conflict if delivered separately)

This effort has been significant; this route is only available because Pima County and the PAG region committed to funding design and right of way activities with local only funds. Although these funds do not officially count towards the matching funds component, use of local funds for these activities has allowed a streamlined design timeline for the Sunset Road project. This includes hiring the same engineering team that was competitively hired by ADOT for their project, in order to ensure the design documents could be fully integrated at the end of design. Significant long lead approvals, such as gaining the Union Pacific and Arizona Corporation Commission approvals of the new railroad crossing, were completed in under a year in order to meet this aggressive timeline. Every step of the process was completed following federal requirements, but the flexible application of funding allowed for a timeline that is typically unavailable for projects using federal fund in the design phase.
Pima County is continuing to pursue new and emerging technologies in a unified approach to transportation. This is necessary because regionally generated funds need to be applied to our transportation system in a more sustainable fashion to continue to support growth in the region without continuing to spend more on wider roadways. Instead, there are newer, cost effective strategies to manage transportation assets and infrastructure to meet travel needs while addressing a broader range of transportation and community goals. This includes developing a Mobility on Demand (MOD) model to leverage emerging mobility services, integrated transit networks and operations, real-time data, connected travelers, and cooperative Intelligent Transportation Systems (ITS) to allow for a more traveler-centric, system-of-systems approach. (Whitepaper on Pima County’s MOD is here.)

The Pima County model includes several key implementation strategies. One key area for furthering the MOD principles is a partnership with the City of Tucson, Marana, and the University of Arizona to create the Center for Applied Transportation Sciences (CATS). Pima County has spent the last several years increasing GIS databases with our transportation assets to take next steps into emerging technologies. We have already benefitted from this digitization by creating flexible pavement preservation models that allow us to manage our preservation program based on available funding for the best value approach. These MOD strategies focus on the following areas:

1. Strategic Business Models & Partnering
2. Data Management & Analytics
3. Automation & Emerging Technologies
4. Policy & Practice
5. Standards & Interoperability
6. Connected Vehicles & Infrastructure
7. Innovative First & Last Mile Solutions
8. Mobile Technology & Payment Systems

Although the Sunset Road Project is being developed by Pima County, much of the facilities reside in the City of Tucson. Both Pima County and the City of Tucson are implementing hardware and software systems to provide Adaptive Traffic Signal Control (ATSC). These systems will:

- Continuously distribute green time for all traffic movements
- Reduce traffic delay and congestion by creating smoother flow
- Improve travel time reliability and decrease travel time variability
- Decrease idling time to reduce wear and tear on roads
- Decrease vehicle emissions
• Prolong the effectiveness of traffic signal timing

Pima County is using MioVision systems while the City of Tucson is running 3 pilot projects that will conclude in July 2022 with the results informing ultimate system selection. Both the County and the City are developing a state-of-the-art traffic operations centers, working through protocols to coordinate operations particularly along jurisdictional boundaries, as is the case with Sunset Road.

V. Project Readiness
   a. Environmental Risk
      a. Project Schedule

See schedule insert for task and completion dates. The Sunset Project is in the final design stage. The initial design concept report and environmental analysis (DCR & EA) were completed and approved by the Pima County Board of Supervisors in March of 2021. The project was federalized in August of 2022 and an update to the EA was started in September of 2022. This EA is currently in an open public comment period, ending April 26, 2022 and is expected to be completed with a Finding of no Significant Impact (FONSI) issued by ADOT shortly thereafter. Three public comments have been received in this period, all of which strongly advocate for a bridge over the railroad and are positive about the benefits this will have to their driving routes.

There were two parcels privately owned that required acquisition; this has been completed in accordance with 49 CFR part 24, 23 CRF part 710 and to be compliant with the Uniform Relocation Act. One parcel required a relocation, and they have relocated but have notified Pima County they would like to take advantage of replacement benefits. This effort will continue until relocation activities are completed independent of the project timeline. All other land within the project area is owned by Pima County. A third private parcel was cited in the EA, however the project team was able to avoid this property during final design efforts, reducing the final impact area.

As described, Pima will coordinate Sunset Road with the ADOT project. The two projects have similar schedules, with actual deadlines for the Sunset Project lagging a week or two behind ADOT's timeline. The final design package and clearances completed by April 2022. Both projects have the Bid Advertisement of June 2022 and Bid Award of September 2022 concurrently. This allows the projects to recognize quantities of scale, reduce mobility costs, ensure optimal construction coordination, and reduce time impacts to the traveling public. The projects must remain separated into two packages, as the projects have different purposes, goals and funding sources. If the projects are no bid together, the Sunset Road project will lag behind and likely become more expensive, prolonging construction impacts.
The funds requested for this grant related to the Construction Phase only, based on timeline of award of the grant and the current planned project schedule.

b. Required Approvals/Permits

1. Environmental Permits and Reviews

The Sunset Project has completed an Environmental Analysis (EA) for the project footprint on both sides of the Interstate, in accordance with the National Environmental Policy Act (NEPA), as amended (42 United States [US] Code [USC] 4321 et seq) and Council on Environmental Quality (CEQ) regulations that implement NEPA (40 Code of Federal Regulations [CFR] 1500-1508). This included public meetings, environmental field surveys and reviews, and consolidation into a final draft Environmental Assessment report completed March 2022, found on the project website here. These documents were reviewed and approved by ADOT’s Environmental Planning Group (EPG). This document represents efforts starting as early as 2019 to determine the impacts to the local community.

Pima County holds a U.S. Fish and Wildlife Section 10 permit since 2016, based on our implementation of a Multi-Species Conservation Plan (see information here). This ensures that regional development is in compliance with the Endangered Species Act, and has already put a mitigation and conservation plan in place. This assists Pima County projects during the environmental approval phase, as we already have conservation lands set aside and in place to mitigate any potential impacts. This project has not identified any environmental concerns; however this permit also helps expedite other permits such as the 404 permit process.

Environmental Studies/Reports can be found as follows:
Final Draft EA Report: here; Biological Evaluation: here; Preliminary Initial Site Assessment (PISA): here; Noise Report: here

2. State and Local Approvals

- ADOT Approvals: The Sunset Project continues to be designed and coordinated in step with ADOT and will meet all state and FHWA requirements as administered by ADOT.
- UPRR/Arizona Corporation Commission (ACC) Approvals: A new UPRR agreement has been executed and the new crossing is scheduled for approval by the ACC on April 12, 2022. Once approved, this will complete the railroad certification process.
- Section 106 National Historic Preservation Act/Arizona State Historic Preservation Office (SHPO): No impacts are expected for work east of I-10, monitoring will be used during construction for work west of I-10. A 106 consultation was completed via ADOT with SHPO starting on November 8, 2021 and December 13, 2021. ADOT has determined the finding of “no adverse effect” remained appropriate for the undertaking.
- Section 4F compliance: The 4F Evaluation found three parks in proximity that could be impacted by the project. There are no schools or historic sites in the study area. Two parks are near but north of River Road, and are not affected by noise or construction activities. The final park nearby is the Rillito River Park – a portion of the Loop as previously discussed. The EA has determined this is not a qualifying 4(f) property. Although these trails are enjoyed by thousands of Tucsonans every year, the primary purpose of these trails is to provide maintenance to the Rillito Creek infrastructure. Special care will be taken by the
contractors to protect the trail in place during construction, limiting impacts/closures to the feature regardless of the trail 4(f) status.

- Corps of Engineers Section 404 Permit: A 404 permit is required for this project relating to the new bridge piers installed within the Rillito River. This will fall under a nationwide 404 permit and will be coordinated by ADOT with the Corps via a funded Corps staff position. This is to be finalized once construction plans are completed, before construction start.

- Corps of Engineers Section 408 Permit: Although the project carefully avoided impacts to any previously installed Corps structures necessary for flood control purposes, the project will go through a 408 review with the Corps. This is underway.

- Pima County RFCD Floodplain Use Permit: A floodplain use permit will be required as this project contains built elements in the floodplain (bridge piers). A new Conditional Letter of Map Revision (CLOMR) has been developed with RFCD and City of Tucson and will be sent to FEMA for approval before construction within the floodplain. This application has been under review with FEMA since June 2021. The current mapped floodplain is significantly outdated from before the bank protection installed by FEMA after the 1983 floods. This project will result in an improvement to the previously mapped floodplain and provide current data. No structures are impacted by this change.

- ADEQ Section 402 National Pollutant Discharge Elimination System (NPDES): A NPDES permit as administered by ADEQ will be required for this project. The construction plans will include a stormwater pollution prevention plan (SWPPP) per ADOT specifications to be compliant with NPDES permit requirements during construction. ADOT, as the construction manager, will oversee this process.

3. Federal Transportation Requirements
The Sunset Road project is listed in the Pima County 5-Year Capital Improvement Program, as Transportation Project CTR.4SRRIV Sunset Road adopted by the Pima County Board of Supervisors annually. This project has been a part of the PAG RTA 20-year Plan, approved by Pima County voters in 2006. PAG is the designated metropolitan planning organization for the greater Tucson region, serving as the fiscal manager of the RTA. This project shows in the PAG 5-year Transportation Improvement Plan (TIP) as project 10.18. ADOT has awarded the FHWA project number T0327 for this project.

c. Assessment of Project Risk & Mitigation
The Sunset Road project has the following risks being tracked that may potentially impact scope, schedule or budget. Pima County uses a Project Charter and Milestone Gate process for capital projects, which includes a risk review.

<table>
<thead>
<tr>
<th>Project Risk</th>
<th>Level of Risk</th>
<th>Risk Mitigation</th>
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| Bid Concurrently Via ADOT: This provides major benefits: cost control by reducing mobilization & better unit pricing; reduced impacts to the public by reducing overall time (single construction activity, not two concurrently); and coordination of work improves quality/ potential for errors. | Probability: High Impact: High Action: Control | - Advance Design with local funds to ensure single design team, with single schedule  
- Seek final construction funds via grants to ensure project meets aggressive planned schedule  
- Ensure all federal clearances meet May 2, 2022 deadline |
**VI. BENEFIT COST ANALYSIS**

The Benefit-Cost Analysis (BCA) for the Sunset Road project is included with the grant submittal as Appendix 1. The project’s significant regional positive impacts include:

- Provide significant travel time savings for private and commercial drivers along the corridor;
- Achieve significant reduction in traffic fatalities and serious injuries by virtue of providing more miles of safer infrastructure and installation of other safety improvements;
- Improve the movement of people along the corridor by reducing congestion and delays;
- Reduce emissions for pollutants such as carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NOx), fine particulate matter (PM2.5), sulfur oxides (SOx), and carbon dioxide (CO2).

The BCA studied the impacts over a 33-year time frame, accounting for three years of construction and 30 years of operation. Using a total project cost of $29.6 million in 2020 dollars, the analysis shows an expected total of $43.8 million in discounted benefits and $23.7 in discounted costs using a 7 percent discount rate. This provides an expected net present value of $20.1 million and a benefit-cost ratio of 1.85:
Traffic data and traffic projections were provided by PAG. The data included VMT and VHT forecasting for both the build and no-build scenarios in 2019 and 2045. Each scenario utilized a compounding average growth rate to predict the VMT and VHT for the years between 2019 and 2045, and then extrapolating them for the years beyond 2045. Truck traffic was assumed to make up 15% of the total traffic volume.

The estimated economic benefits were analyzed based on the following categories:

- **Travel time savings** demonstrates the reduced travel time for vehicles and trucks in the build scenario due to the proposed roadway improvements. The method of calculating time savings was done using the United States Department of Transportation’s (USDOT) recommended values, and is shown in the “Travel Time Savings” tab in the spreadsheet. In the year 2045, the project is expected to reduce over 70,000 VHT for passenger vehicles and over 12,000 hours of travel for trucks. Over the 30-year analysis period, this results in an undiscounted savings benefit of $49.4 million, or $9.9 million when discounted at a 7% rate.

- **Vehicle operating cost savings** utilized fuel cost savings and non-fuel cost savings on items such as: tire wear, maintenance costs, and vehicle depreciation for both, personal vehicles and trucks. Throughout the 30-year analysis period, total VMT reduction equals more than 47 million vehicle-miles, with over 40 million of those corresponding to automobiles. As a result, total vehicle cost savings equal about $24.8 million in undiscounted 2020 dollars, or $5.0 million when discounted at 7%.

- **Accident cost savings** will be achieved through a reduction in traffic fatalities and serious injuries through the projects safety improvements and enhancements shown in the build scenario. The improvements include the addition of new travel lanes, auxiliary lanes and turn lanes, managed by traffic signals. In the 30-year analysis, the improvements will result in 4.43 reduced fatalities, and a 13.28 reduction in A-type injuries. The benefit equates to a benefit of $86.0 million or $27.1 million when discounted at the 7% rate.

- **Emission cost savings** will be reduced by simply reducing the overall VMT. The reduction in vehicle emissions includes the reduction of carbon monoxide, volatile organic compounds,
nitrogen oxides, fine particulate matter, sulfur dioxide, and carbon dioxide. Over the 30 year analysis, the undiscounted savings is estimated at $1.7 million, and discounted to $0.80 million using the 7% rate.

The project will result in additional benefits to the region that cannot be monetized. Some of these benefits include:

- Improved traffic flow and circulation resulting in reduced travel times can reduce commercial transportation costs as trucks spend less time on the road and can reach their destination faster. The faster delivery times will lead to inventory cost savings, which are important to improve connectivity between production and consumption sites and to increase the fluidity of the movement of goods. Inventory cost savings were not monetized as part of the BCA. USDOT is developing a methodology to estimate inventory cost savings but that methodology is not yet available.

- Reducing congestion on the roadway will decrease the variability of travel time throughout the corridor, allowing motorists and truck drivers to reach their destination on time more consistently. Travel time reliability is important for individuals who need to be on time for work or other appointments as well as for firms that depend on just-in-time deliveries. Improved reliability allows drivers to reduce the amount of “buffer” time they need to budget to account for unexpected delays.

- When fully completed, Sunset Road will intersect with two major river parks within the Loop system: The Santa Cruz River Park and the Rillito River Park. This project provides an opportunity to connect the North and South banks of the Rillito River Park with the new bridge as an all-weather crossing, allowing runners, walkers, cyclists, equestrians and other groups to improve their experience using the Loop.

In summary, with a 7% discount rate, the $23.7 million dollar investment will result in a $43.8 million dollar regional benefit, with a benefit-cost ratio of 1.85. The project’s payback period is 13 years, at which point the benefits exceed the costs spent to design and construct. This project is expected to last well beyond the 17-year return rate, and 30-year analysis period.

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<tr>
<th>Summary of BCA Outcomes, Millions of 2020 Dollars</th>
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<tbody>
<tr>
<td>Project Evaluation Metric</td>
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<tr>
<td>Total Discounted Benefits</td>
</tr>
<tr>
<td>Total Discounted Costs</td>
</tr>
<tr>
<td>Net Present Value</td>
</tr>
<tr>
<td>Internal Rate of Return (IRR)</td>
</tr>
<tr>
<td>Benefit-Cost Ratio</td>
</tr>
<tr>
<td>Payback Period (years)</td>
</tr>
</tbody>
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Grant Appendix

All appendices listed below can be found at this link: www.pima.gov/sunsetroad

- Appendices:
  - Benefit Cost Analysis - Report
  - BCA Excel Form
  - RAISE Information Form
  - Current PAG TIP

- Letters of Support:
  - Senators Kelly & Sinema
  - Arizona Department of Transportation
  - Pima Association of Governments
  - City of Tucson Mayor Romero
  - Town of Marana
  - Flowing Wells Neighborhood Association & Coalition
  - Sun Corridor
  - University of Arizona, Research and Innovation

- Proposal and Relevant Design Documents:
  - PDF of Project Narrative
  - Design Plans (95%)
  - Special Provisions (95%)
  - Consolidated Engineering Estimate
  - Design Concept Report (approved by Pima County Board)
  - Draft Environmental Analysis
  - Value Engineering Draft Report
  - Traffic Study
  - Drainage Report, Initial
  - Biological Evaluation
  - Preliminary Initial Site Assessment (PISA)
  - Noise Report
  - Current ADOT STIP