Federal Railroad Administration

Corridor Identification and Development Program:

Phoenix – Tucson Intercity Passenger Rail Corridor

Corridor Narrative

March 27, 2023

Applicant:
Arizona Department of Transportation (ADOT)

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ADOT

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TABLE OF CONTENTS

ATTACHMENTS

A – 2016 ADOT Arizona Passenger Rail Corridor Study: Tucson-Phoenix - Final Tier 1 EIS and Record of Decision (ROD)

EIS - https://azdot.gov/sites/default/files/2019/08/aprcs-final-report.pdf

ROD - https://azdot.gov/sites/default/files/2019/08/aprcs-record-of-decision.pdf

B – Letters of Support (submitted electronically)

C – Federal Forms SF 424, SF 424A, SF 424B, FRA F 30, FRA F251 (submitted electronically through grants.gov portal)

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I. COVER PAGE

Corridor Title	Phoenix-Tucson Intercity Passenger Rail Corridor
Applicant	Arizona Department of Transportation (ADOT)
Was a Federal Grant Application Previously Submitted for this Corridor?	2009 FRA-Capital Assistance to States IPRS program and 2011 FTA – New Starts contributed grant allocations to the AZ Passenger Rail Study.
Other sources of Funding for the Corridor?	A Congressional appropriation was previously allocated that enabled a Tier 1 Analysis and a Record of Decision between 2011-2017. The Governor's FY 2024-2025 Executive budget proposal includes $7.5 million in state funding to support passenger rail service between Phoenix and Tucson and is subject to legislative approval.
City(-ies), State(s) Where the Corridor is Located	Tucson, AZ Marana (Rillito), AZ Eloy (Picacho), AZ Coolidge, AZ San Tan Valley, AZ Queen Creek, AZ Gilbert, AZ Mesa, AZ Tempe, AZ Phoenix, AZ Tolleson, AZ Avondale, AZ Goodyear, AZ Buckeye, AZ
Congressional District(s) Where the Corridor is Located	AZ Congressional Districts 2, 3, 4, 5, 6, 7 and 9
Is the Corridor currently programmed or identified in: State rail plan, or regional or interregional intercity passenger rail systems planning study?	Yes, the corridor is identified within the State Rail Plan. A Tier 1 Record of Decision (ROD) was issued by FRA for the corridor and a Service Development Plan approved.
Is the applicant working with other entities in support of the Corridor?	Yes, ADOT is collaborating with all communities in the corridor, the respective Metropolitan Planning Organizations in the three affected counties: Pima, Pinal and Maricopa, and two Native American communities.

II. CORRIDOR SUMMARY

The Phoenix-Tucson Corridor will accommodate regional passenger rail service between the two major metropolitan areas in the State of Arizona. This intercity service will reestablish a connection that was terminated in June of 1996, leaving the Phoenix region with no passenger rail service. *Phoenix is the largest city in the country with no intercity passenger rail service*. The new service would provide up to three daily round trips and the 120-mile corridor would use the existing Union Pacific (UP) freight railroad tracks, with station stops at Tucson, Marana, Coolidge, Queen Creek, Tempe, Phoenix Sky Harbor International Airport, Phoenix, Avondale, and Buckeye, Arizona. The rapidly growing demand between the two regions needs the sustainable, dependable, and efficient alternative the rail service would provide to complement the one major highway linking them. The Phoenix-Tucson link would also accommodate a restored route for Long-Distance passenger rail service in this underserved corridor.

III. CORRIDOR FUNDING

The FRA Corridor Identification and Development Program grant (CID) will fund 100 percent of the eligible Step 1 activities and up to 90 percent of the eligible Step 2 activities. The Governor's FY 2024-2025 Executive budget proposal includes $7.5 million in state funding to support passenger rail service between Phoenix and Tucson and is subject to legislative approval.

IV. APPLICANT ELIGIBILITY

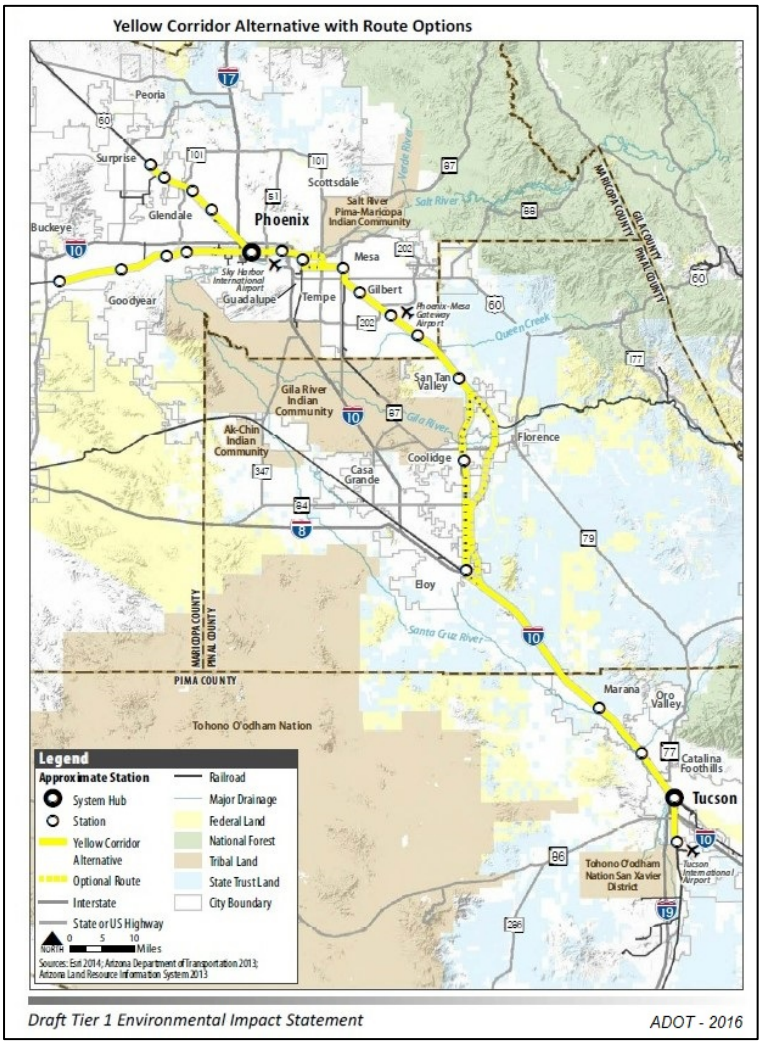
Per Sec. 22308, § 25101, ¶B, of the Infrastructure Investment and Jobs Act (IIJA), ADOT is an eligible entity to apply for the Corridor ID Program. ADOT is the State agency with responsibility for statewide and interregional transportation and commuter and heavy rail specifically (ARS Title 28 -143). Moreover, ADOT has been working with and has the support of the municipalities in the corridor and the three affected MPOs (Maricopa Association of Governments [MAG], Pima Association of Governments [PAG], Sun Corridor [SC]).

V. DETAILED CORRIDOR DESCRIPTION

1. Corridor Characteristics

The Phoenix-Tucson Corridor extends 120 miles between Tucson and Buckeye, AZ with intermediate station stops at Marana, Coolidge, Queen Creek, Tempe, Phoenix Sky Harbor International Airport, Phoenix, and Avondale, Arizona. These communities are a mix of urban, suburban, rural, and tribal nation adjacent locations, with connections to three airports; Phoenix Sky Harbor; Phoenix/Mesa Gateway and Tucson International. Three daily round trips are envisioned with a one-way travel time of approximately one-hour and twenty-three minutes (1:23) between Tucson and Phoenix. The initial Arizona Passenger Rail Corridor Study (APRCS) Tier 1 study narrowed two corridors (Yellow and Orange alignments), but the ROD recommended direction to further study the Yellow alignment within the Tier 2 analysis.

Figure 1: Map from APRCS Tier 1 Study



Within the Selected Alternative, optional routings will be considered in Tier 2 studies as potential solutions to address stakeholder input based on a high-level viability assessment. A routing option through Tempe using a portion of the Orange Alternative could be used to avoid or minimize the potential use of Section 4(f) resources and/or potential adverse effects to historic properties. An optional routing in Pinal County could use a portion of what was the Orange Alternative should an alignment along existing UP ROW or elsewhere within the 1-mile-wide corridor alternative not be feasible.

The proposed alignment predominantly utilizes the existing UP Phoenix and Gila Subdivisions along the following path: From downtown Tucson Depot (features Amtrak's Sunset Limited/Texas Eagle; with shuttle connection to Tucson International near South Tucson) northwest via the Gila Subdivision to Rillito, Marana, Red Rock, and Eloy-Picacho Junction; then north on the Phoenix Subdivision to Coolidge (large town Florence, AZ is 10 miles east); north to Magma Junction/Magma Ranch; then northwest to San Tan Valley, Queen Creek, Gilbert (link to Gateway Airport), Mesa, then west to Tempe, Phoenix Sky Harbor International Airport, downtown Phoenix, Tolleson,

Avondale, Goodyear and Buckeye, AZ. Additional detailed Corridor characteristics can be found in Section VII.

2. Readiness

In 2016, ADOT completed an Alternatives Analysis, Tier 1 EIS and received an FRA Record of Decision (ROD), with a preliminary Service Development Plan (SDP) for the Corridor Preferred Alternative. The Arizona Governor's office, ADOT, and supporting agencies in the Corridor have indicated support for the proposed passenger rail service and view this project as closing a significant gap in its system. The Governor's FY 2024-2025 Executive budget proposal includes $7.5 million in state funding to support passenger rail service between Phoenix and Tucson and is subject to legislative approval.

3. Description of Past & Ongoing Activities

In 2016, an ADOT feasibility study analyzed projected ridership and revenue figures, stations, schedules, equipment used, and necessary infrastructure projects and host railroad scenarios. A full list of past and ongoing activities include:

- FRA Southwest Multi-State Rail Planning Study (2014)
- ADOT Passenger Rail Study, Tier 1 EIS, and ROD (2016)
- MAG Regional Commuter Rail System Study Update (2018)
- Amtrak's Connects US Program (2022)
- FRA Long Distance Rail Study (2023)
- Continual dialogue and outreach with Corridor communities, stakeholders, and leaders; many who have signed letters of support to the Arizona Congressional delegation encouraging development of the passenger rail service.

4. Intended Service Operator

The intended operator of the intercity passenger rail service between the Phoenix and Tucson metro areas has yet to be determined by the State.

5. Capability and Capacity of the Applicant

FRA Form 251, which documents ADOT's legal, financial, and technical capacity, has been uploaded to grants.gov as part of the Corridor ID Program application package. ADOT has a long and established record of success in planning, designing, constructing, and maintaining complex and heavily utilized transportation projects, rail infrastructure and other multimodal projects among them. ADOT is responsible for statewide and interregional travel in Arizona and as a grant recipient that implements federal annual and discretionary grants, ADOT is familiar with working with FRA. Federal Highway Administration (FHWA) and Federal Transit Administration (FTA). ADOT is currently delivering projects using over $130 M in federal discretionary funds, including: FY19 INFRA grant for I-17, FY18 CHBP grant for US-191, FY22 USDOD-DCIP grant for US-95. In addition to staff, ADOT retains a capable consultant register with specific expertise in all matters associated with planning, technical, financial

aspects of intercity and commuter rail programs. ADOT staff and consultants have experience collaborating with host railroads planning.

6. Challenges Addressed by the Corridor

The communities between Phoenix, Buckeye to Tucson are among the fastest growing in the nation, with Phoenix the nation's fifth largest city and the largest city in America with no intercity passenger rail service. Until 1996, Amtrak's long-distance Sunset Limited operated along this route until tracks west of Buckeye were designated out of service and downgraded due to rerouting of freight trains via the southern Gila Line.

The restored passenger rail Corridor would link Phoenix, Tucson, and Buckeye with multiple passenger trains per day, expanding economic opportunities and providing regional connections with a safe, dependable, and environmentally friendly alternative to congested highway travel.

The need for improved intercity services and regional connectivity between Arizona's two largest cities was the driving purpose behind the 2010-2016 initial study and EIS. Increasing travel demand from population growth and changing demographics along the Corridor, as well as the need for alternative modes of travel were reflected within the study. With only 17 percent of Arizona's land in private ownership, most of the state's developable land is located between the Tucson and Phoenix metropolitan areas and is projected to develop as a continuous urban corridor between these two cities.

The I-10 Phoenix-Tucson corridor carries high vehicle volumes and is the only major route connecting the two large population areas. A statewide demand model indicates the trip from Phoenix to Tucson will increase by 40 percent by 2050, even if I-10 is widened to eight lanes and the proposed, parallel North-South Corridor multimodal facility between East Mesa and Eloy is constructed and opened.[1]

A consumer research firm recently released data ranking the fifty most dangerous highways in the United States, placing Arizona's I-10 in the top five. The National Highway Traffic Safety Administration (NHTSA) FARS reported 1,988 fatalities in Maricopa, Pinal, and Pima County on I-10 in 2020[2].

Several modes of passenger service—both intercity and commuter—are currently available in the Phoenix to Tucson corridor, including private bus, commercial airline, and ridesharing options. Amtrak currently provides limited service within the southern portion of the study area – only between Maricopa and Tucson. Convenient access to Maricopa is minimal due to its 35-mile distance from Phoenix and a current three-times/weekly schedule with departure and arrival times that often do not match peak schedule demand. A renewed, reliable Phoenix to Tucson rail connection could provide a sensible option for travelers and to create and deliver a robust customer base for a future network of and intercity services[3].

[1] ADOT PRS FEIS 3.7, 2016; Rev ADOT traffic data, 2022

[2] NHTSA-MoneyGeek; 2020

[3] ADOT PRS FEIS 1.1.2; 2016

7. Expected Users and Beneficiaries

The renewed passenger rail service back to Phoenix would open the way for additional train frequencies for the combined population of Maricopa, Pima, and Pinal Counties of over 6.1 million. This three-county study area forms part of a clustered network of "megaregion" cities known informally as the "Sun Corridor" the result of an extensive study in 2013 regarding a high-level growth in Arizona adjacent to all major roadway corridors.

Travel patterns, available transit services, and trip times show that the need to move people between regions is growing rapidly. The primary users of the passenger rail service will be the residents of Phoenix, Pinal County, and Tucson. The transportation improvements will expand currently limited transportation options, to commuters, travelers, students, day-trippers, and the transit dependent by expanding economic opportunities and providing regional connections.

The corridor potentially will serve all three major Arizona airports, which is a significant benefit to travelers and employees who use the airport facilities. UP, the host railroad will also benefit from any needed passenger rail improvements, as facilities improvements may help expedite freight distribution and provide for a more predictable operating environment.

8. Potential Implementation Options

The State expects the Corridor vision to be implemented in its entirety; with three daily round trips to and from Phoenix, Buckeye to Tucson, from the onset of service. Though there are scaling steps for project development, and several are presented in the ADOT-developed SDP, the most critical demand for service is the connection of Phoenix to Tucson.

9. List of Other Corridors Submitted by the Applicant

This section is not applicable.

10. Other Information in Support of the Corridor

Letters of support from various agencies, congressional leaders, organizations, and stakeholders are included in Attachment B.

VI. CORRIDOR LOCATION

Map of Phoenix- Tucson corridor, including Congressional districts is shown in Figure 2.

Geospatial Data

Buckeye: 33.37803012° N, 112.58639361° W, UP Phoenix Sub MP 876.0

Phoenix: 33.44421128° N, 112.07899163° W, UP Phoenix Sub MP 906.0

Picacho: 32.71627429° N, 111.49718249° W, UP Gila Sub Sunset Main MP 937.6

Tucson: 32.223297° N, 110.966901° W, UP Gila Sub Sunset Main MP 986.6

Figure 2: Phoenix-Tucson Corridor Map

VII. EVALUATION AND SELECTION CRITERIA

Corridor Benefits

A. Projected ridership, revenues, capital investment, and operating funding requirements

Ridership

Ridership was extensively studied as part of the Arizona Passenger Rail Corridor Study Final Tier 1 EIS. The proposed development included intercity services for two separate operating scenarios. The intercity demand between Phoenix and Tucson was forecasted between 3,360 and 4,140 trips per day[4].

Revenue

Revenue and farebox recovery were not analyzed as part of the Arizona Passenger Rail Corridor Study Final Tier 1 EIS.

Capital Investment

The proposed capital investment was estimated at $4.5 billion (2013$)[5], assuming all aspects (new track, equipment, stations, row, etc.) of the program between Buckeye and Tucson are implemented over time. This estimate reflects the Yellow Alternative with its hybrid elements between Eloy-Coolidge-Florence-Magma Junction and includes contingencies.

Operating Funding Requirements

The annual intercity operating and maintenance (O&M) cost would be $14.7 million (2013$)[6].

B. Anticipated environmental, congestion mitigation, and other public benefits

New intercity service along the Phoenix-Tucson corridor would shift travelers from auto to rail resulting in:[7]

- reduction in automobile VMT to 566,900
- daily reduction in greenhouse gas emissions to 242,100 kg
- reduction in fatalities per million VMT of 2.2
- reduction in injuries per million VMT to 33.2

[4] Final Tier 1 EIS ROD, page 17

[5] Final Tier 1 EIS ROD, Table-8, page 41

[6] Final Tier 1 EIS ROD, Table-8, page 41

[7] Final Tier 1 EIS ROD, Table-8, pages 40-42

C. Projected trip times and their competitiveness with other transportation modes

Auto travel times within the Phoenix-Tucson Corridor on I-10 are about 113 minutes under free flow conditions. Even with current widening projects, that time is expected to increase to 142 minutes in 2035 and to 179 minutes by 2050. Reintroduction of intercity service between Tucson and Phoenix would reduce travel time between Phoenix and Tucson to 83 minutes based on seven intermediate stops. [8] Though bus and air travel were evaluated as part of the Arizona Passenger Rail Corridor Study Final Tier 1 EIS, bus travel is subject to the same limitations of other highway modes and air travel is both very infrequent and costly.

D. Anticipated positive economic and employment impacts

Implementation of passenger rail between Tucson and Phoenix would increase the potential for economic development and land use changes, such as transit oriented development (TOD) around future station locations. Transit-oriented development could be designed to support new employment and housing options with associated tax revenue benefits for the communities with passenger rail stations. Improved accessibility within the region would also result in economic benefits through employment opportunities and increased economic activity by providing an accessible alternative mode of transportation for minority and low-income populations.

Connecting urban areas and communities by improving access and mobility would expand employment opportunities over the larger geographic area, benefiting both employers (by expanding the labor pool) and employees (by offering more choices regarding where to live and work). Improved access to job and educational opportunities, cultural and recreational activities and events, and to shops and services adjacent to future station areas would enhance socioeconomic conditions throughout the region[9].

In addition to construction-related jobs, the service will need to be staffed with both on-board and ground personnel. In addition, the trains will need to be maintained by skilled craftsmen and serviced daily by coach cleaners, which will result in additional employment in Phoenix, Tucson, and the communities in between.

E. Benefits to rural communities

Introducing passenger rail service will provide intercity transportation alternatives to urban and rural Arizona communities. This will benefit residents and tourists alike, particularly among distressed and underserved residential populations, as well as elderly and disabled members of communities along the route.

The primary benefit to rural communities in the Corridor is the access to an additional major transportation mode. Communities such as Eloy, Coolidge, Gila River Indian Community and Florence have grown around agriculture and have been limited to automobile transportation options. These rural communities would benefit through job creation, improved accessibility, and increased economic activity. In these smaller cities

[8] Final Tier 1 EIS ROD, Table-8, page 41

[9] AzDOA, Office of Employment and Population Statistics. 2012. www.workforce.az.gov/population-estimates.aspx

and towns, the local economies are driven more by government employment, as well as agriculture and corrections/rehabilitation.

F. Whether the Corridor serves historically unserved or underserved and low-income communities or areas of persistent poverty

The proposed Corridor service provides access to low-income communities near South Tucson, Eloy, Coolidge (adjacent to Gila River Indian Community capitol of Sacaton) and Florence. Several communities in the assessment area have an unemployment rate that is higher than the nation, the state, and the three-county Study Area. Eloy had a 2011 unemployment rate of 16.3 percent for example. Relative to other communities along the corridor alternatives, the share of work-aged people in the labor force in Florence and Eloy is less; this economic characteristic is due to the presence of correctional-facilities and the share of unemployed and incarcerated population.

Because they exceeded the 1.0 percent threshold, some communities are considered economically distressed areas. Some urban, rural and tribal areas through which the project Corridor passes are considered Historically Disadvantaged and Areas of Persistent Poverty with census tracts which meet the USDOT definitions. The revitalized passenger rail service to these areas would constitute a board-benefit in mobility. *[Historically Disadvantaged Community: 507.01; 507.02; 613.00; 820.26; 830.00; 1125.10; 4224.02; 2.08; 8.01; 11.00; 8.02; 44.19; 44.30; 46.13; 45.04; 12.00; 8.00; 22.02; 22.01; 38.02; 37.06; 37.02; 37.05. Areas of Persistent Poverty: 614.02; 822.09; 1125.12; 1146.00; 1144.01; 1144.02; 1143.01; 1143.02; 1141; 1142; 1138.01; 3201; 3188; 3187; 3189; 3190; 3191.04; 3192.02; 4213.04; 4213.02; 4220.01; 4223.01; 5228; 20.02; 20.03; 45.12; 45.04; 38.02; 37.07; 24; 23; 22; 22.01. Tribal: 9412.00; 9409.00]*

G. Whether the Corridor would benefit or improve connectivity with existing or planned transportation services of other modes

The Corridor will provide direct new access to three major airports (TUS, AZA, PHX). It also will directly link to the rail and bus public transportation systems in both metropolitan regions (Valley Metro and SunTrans) and will access emerging transit services in Pinal County. Station area plans in many communities are contemplating the best way to link the intercity and regional/commuter services into their urban plans to ensure trains would be accessible by multiple modes (bus/bike/ped/paratransit /streetcar/light-rail), not just private cars.

H. Whether the Corridor connects at least two of the one hundred most populated metropolitan areas

Phoenix is the tenth largest metro area in the U.S. and Tucson is the 53rd largest according to the 2020 census. This means that endpoints for the Corridor meet the preference that the Corridor connects at least two of the one hundred most populated metropolitan areas.

I. Whether the Corridor would enhance the regional equity and geographic diversity of intercity passenger rail service

At present, passenger rail service exists only in the Tucson area. No service is provided to Phoenix, the fifth largest city in the U.S. The proposed connection would close a

major gap in the national network and improve passenger rail access to a region of over six million people.

J. Whether the Corridor is or would be integrated into the national rail passenger transportation system and would create benefits for other passenger rail routes and services

As noted in the previous section, the City of Phoenix is not currently served. This is viewed by the State of Arizona, Amtrak, and the FRA as a significant gap in the national network. Furthermore, the connection from Phoenix to Tucson will open the option of extending service to join the Caltrans/Riverside County Coachella Valley-San Gorgonio Pass Corridor Investment Plan Project to connect Phoenix to California and other destinations on the West Coast. Moreover, the connection between Phoenix and Los Angeles has a substantial beneficial effect on ridership between Tucson and Phoenix according to the FRA Southwest Multi-State Rail Planning Study.

Technical Merit

A. Applicant Readiness

ADOT is ready to commence and successfully execute Steps 1 and 2 of the Corridor ID Program for the Phoenix-Tucson Corridor. ADOT has already invested time and resources to prepare a Tier 1 EIS (with an FRA ROD) and Service Development Plan for the Phoenix-Tucson Corridor.

B. Key Personnel Qualifications

ADOT Key Personnel will include full-time employees plus contracted qualified consultants with multiple subject matter expertise. For this project and the Tier 2 - Corridor Study, there will be personnel committed to handling senior-level project management, involving corridor studies; federal grant management, including funding of projects from multiple funding sources; community involvement, including several local and tribal communities; leading teams, including public and private sector stakeholders; and scheduling activities to come to a logical conclusion. Additional information is available upon request.

C. Applicant Commitment to the Implementation and Operation of the Corridor

The State is committed to the successful implementation of revitalized passenger rail service in the Corridor. The Coordination Plan, included in the Arizona Passenger Rail Corridor Study Final Tier 1 EIS, identifies the lead, cooperating, and participating agencies involved in the study and defines roles and responsibilities during the environmental review process. The FRA has been identified as the lead federal agency, with ADOT serving as applicant, local sponsor, and proponent. Several cooperating and participating agencies (24) and communities, tribes, and utilities (44) have also been identified in the plan. Additionally, stakeholders have documented their support for the Corridor, including relevant legislative and executive government bodies[10].

[10] ADOT PRS FEIS 3.2.1; 2016; ADOT APRCS Appendices Part-1; Pages 1-56; 2016

D. Route Identified in Regional or Interregional Planning Study

The Corridor was identified within the Arizona Passenger Rail Corridor Study (APRCS) (AA, Tier 1 EIS, SDP). The APRCS is a multi-jurisdictional, inter-regional analysis with major public outreach to all affected communities and agencies.

During the five-year study, ADOT worked with FRA, other federal agencies, and local stakeholders in Maricopa, Pinal, and Pima counties, to determine the feasibility of a passenger rail system between Tucson and Phoenix.

E. Funding Commitment

The Governor's FY 2024-2025 Executive budget proposal includes $7.5 million in state funding to support passenger rail service between Phoenix and Tucson and is subject to legislative approval. ADOT has already demonstrated its willingness to commit resources to this Corridor by funding the APRCS/Arizona Passenger Rail Corridor Study Final Tier 1 EIS.

F. Corridor Inclusion in State Rail Plan

The Corridor is included within the latest Arizona State Rail Plan[11], which was recently updated in May 2022.

G. Passenger Rail Operator Support

The intended operator of the intercity passenger rail service between the Phoenix and Tucson metro areas has yet to be determined by the State.

VIII. DOT STRATEGIC GOALS

The FRA will implement the Corridor ID Program, to align with the with the priorities in Executive Order 14052, *Implementation of the Infrastructure Investments and Jobs Act* (86 FR 64355), which are to invest efficiently and equitably, promote the competitiveness of the U.S. economy, improve job opportunities by focusing on high labor standards, strengthen infrastructure resilience to all hazards including climate change, and to effectively coordinate with State, local, Tribal, and territorial government partners. The Corridor aligns with the Corridor ID Program priorities detailed below and aligns with Arizona's rail transportation goals.

Safety

Enhancing the safety and security of passenger movements and connections between major activity hubs within Arizona and to the national passenger rail system is fundamental to the service study – with safety as the top comment received by twelve percent of the Arizona Passenger Rail Corridor Study Final Tier 1 EIS[12] respondents. Driving on I-10 between Phoenix and Tucson is viewed as challenging by many residents due to high auto and truck traffic volumes, accidents, and seasonal dust

[11] https://azdot.gov/sites/default/files/media/2022/10/state-rail-plan-update.pdf

[12] https://azdot.gov/sites/default/files/2019/08/aprcs-appendices-part-1.pdf

storms. Many respondents said they feel unsafe making the trip by car and a desire for another transportation option was clear in the public comments.

Overall, passenger safety in the Corridor would improve because passenger rail service will divert automobile trips to an alternate mode of travel. The safety risk to travelers would decrease, as rail travel is statistically safer per passenger mile than automobile travel. This is expected to reduce potential automobile injuries and fatalities within the Corridor.

Potential additional mitigation measures for the corridor would be identified during Tier 2 analysis. Due to the anticipated maximum train speed, safety measures and strategies would be initiated for the rail system. Protecting the health and safety of passengers as well as motorists and pedestrians at existing or new grade crossings, reduces incidences of rail-related trespassing. Attributes such as fencing, quiet zones and stations areas would also be elements of Tier 2 considerations. ADOT plans to work with UPRR to evaluate crossing locations, as needed, to ensure safety issues and standards are addressed. Passenger safety at stations would also be evaluated, with upgrades to existing protective appliances and equipment proposed as warranted[13].

Infrastructure Investment and Job Creation

The Phoenix-Tucson Corridor project supports short-term and long-term job creation within the Corridor and adjacent communities. The temporary construction jobs being created through this project will offer employment opportunities for workers with a variety of educational levels. The regional, tribal, and local economic development plans support growth of traditional and non-traditional rail-related and rail-supported industries to increase global competitiveness for the communities along the Sun Corridor.

Improving economic competitiveness through reliable and timely access to rail markets also benefits existing and current customers. This also provides new freight capacity and industrial capabilities for growth industries in undeveloped regions throughout Arizona. Supporting rail freight access to smaller communities is key, with such projects as the UPRR PIRATE freight rail project in Queen Creek/Gilbert – a promotion of expanding new industrial rail access to previously land-locked industrial or commercial sites. Improving the efficiency of passenger and freight movements within Arizona has the concurrent effect of ensuring passenger stations provide sufficient accessibility and connectivity for all population groups – rural and urban.

Support Resilient Supply Chains & Economic Opportunity

UP manages the freight traffic on the Gila Subdivision and the Phoenix Subdivision, and interchanges with the Copper Basin Railway (CBRY) and Magma Arizona Railroad (MARR) at Magma Junction. The UP also interchanges with the BNSF Railway in downtown Phoenix. Over seventy trains per day use the Sunset Route's Gila Line, with approximately 5-10 locals, manifest and intermodal trains using the Phoenix Sub between Picacho Junction, Phoenix, and Buckeye.

[13] ADOT PRS FEIS 5.5.5; ADOT PRS FEIS 5.5.4; 2016

As traffic volume may increase with Arizona's growth, and new manufacturing has emerged in Maricopa and Pinal Counties in the past decade, ADOT's study reviewed and recommended potential track, signal and right-of-way improvements that will enable coordination of passenger and freight rail within common corridors. The capital investments within the 120-mile Corridor would mitigate congestion, improve dispatching and track speeds, allowing freight railroads to better serve their customers.

Equity

The proposed Corridor serves a remarkably diverse cultural and economic demographic. The racial and ethnic composition in the Corridor Study Area (Pima, Pinal, and Maricopa counties) is like the state of Arizona as a whole; however, several communities within the three-county study area have a larger minority population when compared to statewide demographics. The Corridor improves or expands transportation options for underserved communities by permitting access to job opportunity training, health care, food availability, and recreation. Traditionally underprivileged, low-income communities, communities of color, people with disabilities, and disadvantaged groups endure the most of safety risks and detrimental quality of life effects that adjacent railroad infrastructure may introduce. These new service plans would mitigate those issues without damaging community culture or neighborhood integrity.

ADOT and regional agencies retain prime and subcontractors that use Disadvantaged Business Enterprise Programs (DBE). Study data reflects that of the more than 2.3 million households in the state, 12.1 percent earned a household income less than $15,000 per year. In comparison, median household incomes in the three-county Study Area ranged between $45,521 and $55,054; and 11.2 percent of the households earned less than $15,000 per year.[14] In order to provide meaningful communication to people living in the Study Area, project materials were made available in the dominant languages spoken (English and Spanish); and interpretation services were made available for Spanish speakers and speakers of other languages upon request.

The catalysts for smart growth, community planning that includes multimodal connections and choices, transit-oriented development, and economic growth are aspects to Environmental Justice impacts, which cannot be determined until Tier 2 analysis on a specific alignment is conducted. However, if the analysis identifies the potential for disproportionate Environmental Justice impacts, ADOT would develop an outreach program to engage the protected populations in planning, programming, and implementing alternatives. The State also would commit to the other requirements outlined in EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Tier 2 analysis can result in refinements in design that would minimize potential areas of impact. In compliance with EO 13166, public involvement activities and communications would be conducted to ensure full and fair participation. A Low-Income Populations investigation would inform the Tier 2 public

[14] ADOT PRS FEIS 5.4.2, 5-33; 2016

outreach process to ensure specific approaches are available to provide access to services and for public involvement[15].

Climate and Sustainability

Intercity passenger rail is a climate-friendly and sustainable mode of travel. Studies have shown that trips taken by rail are up to 53 percent more efficient per mile traveled as compared to other vehicular transportation. The implementation of passenger rail between Phoenix and Tucson has the potential to provide energy savings and reduce the transportation system's impact on climate change. Based on ridership forecasts, passenger rail within the Yellow Corridor Alternative would decrease vehicle miles traveled by approximately 142 million per year. CO_2, the main GHG emission, would decrease by approximately 66,710 tons per year. Fuel consumption would decrease by approximately 3.04 million gallons per year. Construction equipment and vehicles operated during project construction would result in a temporary increase in fuel consumption which would cease at the end of the construction activity.

ADOT's policies address sustainability through coordination of rail transportation, local land use, and regional economic development planning activities. Connecting communities by multiple modes of travel that support rail and transit access, encourages pedestrian mobility, reduces energy consumption and greenhouse gas emissions, improves air quality, and promotes public health. Planning efforts related to new rail corridors or improvements to existing corridors are coordinated with local land use plans and the State Land Department. A goal is new rail infrastructure that holds the freight rail operations as unaffected as possible, while avoiding degradation of existing environmental resources, enables wildlife habitat movement corridors, and equitably mitigates impacts to the surrounding environs.

Transformation

The Phoenix–Tucson Intercity Passenger Rail Corridor project will expand the national rail network by adding new station stops where rail service previously existed, new rail demand already exists and is expected to increase by 2050. The increase in activity and development in the area will demand efficient and reliable transit services. Failure to provide these services will produce severe strains on existing infrastructure and negatively impact business activity and economic health, especially as Arizona contends with other states to attract residents, students, and visitors alike. Trends indicate that intercity rail ridership in the Sun Corridor will increase, and additional development reinforces this trend; without timely capacity expansion, the parallel I-10 roadway network will become more congested. ADOT continues to address the need to improve supply chain resilience, and they ensure that assets such as I-10 will need a constant state-of-good-repair. With the reintroduction of passenger rail, the ability to connect the millions of Arizona residents to regional locations and to major airports will have a significant impact on the transportation network and the economy.

[15] ADOT PRS FEIS 5.4.5 and 5.5.4; 2016