1 PURPOSE AND NEED

1.1 Summary of Draft Tier 1 EIS

1.1.1 Purpose of and Need for Proposed Facility

The purpose of and need for the I-11 Corridor, as well as metrics developed by the Project Team to evaluate how well the Build Corridor Alternatives and No Build Alternative meet those needs, are summarized in **Table 1-1**. The *Purpose and Need Memorandum* (ADOT 2017k) provides additional technical information and is available on the project website: i11study.com/.

Table 1-1. Purpose and Need Metrics

Need	Purpose	Metric
Population and Employment Growth: High-growth areas need access to the high-capacity, access-controlled transportation network.	Provide a high-priority, high-capacity, access-controlled transportation corridor to serve population and employment growth.	Provides access to planned growth areas.
Traffic Growth and Travel Time Reliability: Increased traffic growth reduces travel time reliability due to unpredictable freeway conditions that impede travel flows and hinder the ability to move people and goods around and between metropolitan areas efficiently.	Support improved regional mobility for people and goods to reduce congestion and improve travel efficiency.	Reduces travel time for long-distance traffic (2040 travel time from Nogales to Wickenburg in minutes). The I-11 facility achieves LOS C or better in rural areas and LOS D or better in urban areas (Tucson).
System Linkages and Regional Mobility: The lack of a north-south interstate freeway link in the Intermountain West constrains trade, reduces access for economic development, and inhibits efficient mobility.	Connect metropolitan areas and markets in the Intermountain West with Mexico and Canada through a continuous, high-capacity transportation corridor.	Attracts/diverts traffic from existing roadways, as measured by: • Percent increase in vehicle miles traveled (VMT) in the Study Area compared to the No Build Alternative. • Percent increase in truck VMT in the Study Area compared to the No Build Alternative.
Access to Economic Activity Centers: Efficient freeway access and connectivity to major economic activity centers are required to operate in a competitive economic market.	Enhance access to the high-capacity transportation network to support economic vitality.	Serves key economic centers (number of economic activity centers).

Need	Purpose	Metric
Homeland Security and National Defense: Alternate interstate freeway routes help alleviate congestion and prevent bottlenecks during emergency situations. These routes may be parallel or may generally serve the same major origin and destination points, with local or regional roads connecting the freeway routes in various places.	Provide for alternate regional routes to facilitate efficient mobility for emergency evacuation and defense access.	Provides an alternate regional route to existing interstate route.

1.1.2 Other Desirable Outcomes

Cooperating agencies and project stakeholders identified desirable outcomes for I-11 that were considered in alternatives development and evaluation. They are:

- Provide the opportunity for multimodal use as the need arises in the future.
- Support the protection of sensitive tourist attractions in accordance with applicable plans and policies.
- Support the protection of the environment and cultural resources in accordance with applicable plans and policies.
- Support coordination with other federal and state agencies to maintain the integrity of wildlife movement.

1.2 Summary of Changes Since Draft Tier 1 EIS

1.2.1 Arizona Travel Demand Model Update

Population, employment, and traffic projection data used to support the Purpose of and Need for I-11 in the Draft Tier 1 EIS were based on an analysis of the AZTDM. For the Draft Tier 1 EIS, the most recent available data used to represent existing conditions were from 2015, and the roadway network reflected the *2018-2022 Statewide Transportation Improvement Program* (STIP) and *2018-2022 Five-Year Facilities Construction Program* (ADOT 2017a, 2017b). For the Final Tier 1 EIS, an updated analysis used the current AZTDM with incorporated 2018 data to represent existing conditions and reflects the *2019-2023 Statewide Transportation Improvement Program* and *2020-2024 Five-Year Transportation Facilities Construction Program* (ADOT 2019a, 2019b). The 2040 No Build highway network reflects several recently completed widening and freeway expansion projects. As of September 2020, the population and employment projections in the current AZTDM are the same as those used in the Draft Tier 1 EIS.

Tables from the Draft Tier 1 EIS that presented data derived from the AZTDM have been revised to reflect 2018 traffic counts and updated 2040 No Build data. As shown in **Table 1-2**,

the updated traffic model indicates that, while existing highways in the Study Area are generally operating at LOS C or better in 2018, by 2040 traffic in both rural and urban areas would deteriorate. Both the traffic operations and projected increase in congestion are consistent with traffic model results presented in the Draft Tier 1 EIS. Existing condition travel time ratings, originally shown in Draft Tier 1 EIS **Figure 1-7**, have not changed.

The updated 2040 LOS shown on **Figure 1-1** are similar to those evaluated in the Draft Tier 1 EIS, with LOS F traffic conditions projected to occur throughout the I-10 Corridor in western Maricopa County, between Casa Grande and Phoenix, and in Tucson. US 60 still shows LOS F between Phoenix and Wickenburg.

Peak period travel times and average speeds for 2018 are similar to those reported for 2015 in the Draft Tier 1 EIS and have not changed for 2040 No Build. As shown in **Table 1-3**, travel times between Nogales and Wickenburg would generally increase by more than 90 minutes, and average speeds would decrease by as much as 23 miles per hour (mph). **Table 1-4** shows a similar trend with increasing travel times and decreasing speeds through urban areas in the Study Area.

Table 1-2. Average Weekday Traffic and Level of Service, 2018 and 2040 (No Build Alternative)

Facility	City Pair	Lanes	Average Weekday Traffic [a]	Level of Service
2018				
I-19	Nogales–Tucson	4	17,700–86,600	C or better to E
I-10	Tucson–Casa Grande [b,c]	4 to 8	43,500–167,100	C or better to E
I-8	Casa Grande–Gila Bend	4	6,300–10,400	C or better
SR 85	Gila Bend–I-10	4	11,800–20,600	C or better
2040				
I-19	Nogales–Tucson [c,d]	4 to 6	26,700-112,900	C or better to E[e]
I-10	Tucson–Casa Grande [b,c,d]	6 to 8	71,600–228,100	C or better to F
I-8	Casa Grande–Gila Bend [d]	4	7,500–25,900	C or better
SR 85	Gila Bend–I-10 [d]	4	17,300–59,700	C or better

SOURCE: **Appendix E2** (Travel Forecasting Methods and Analysis Report); Transportation Research Board 2010.
[a] 2018 average weekday traffic counts from ADOT Transportation Management System. Rounded to nearest thousand.
[b] This represents an average condition of 60 miles of I-10 between I-19 and I-8, which includes the Tucson central business district.
[c] The number of travel lanes varies across this segment.
[d] LOS varies across this segment.
[e] One additional travel lane in each direction between San Xavier Way and Ajo Road improves 2040 LOS.

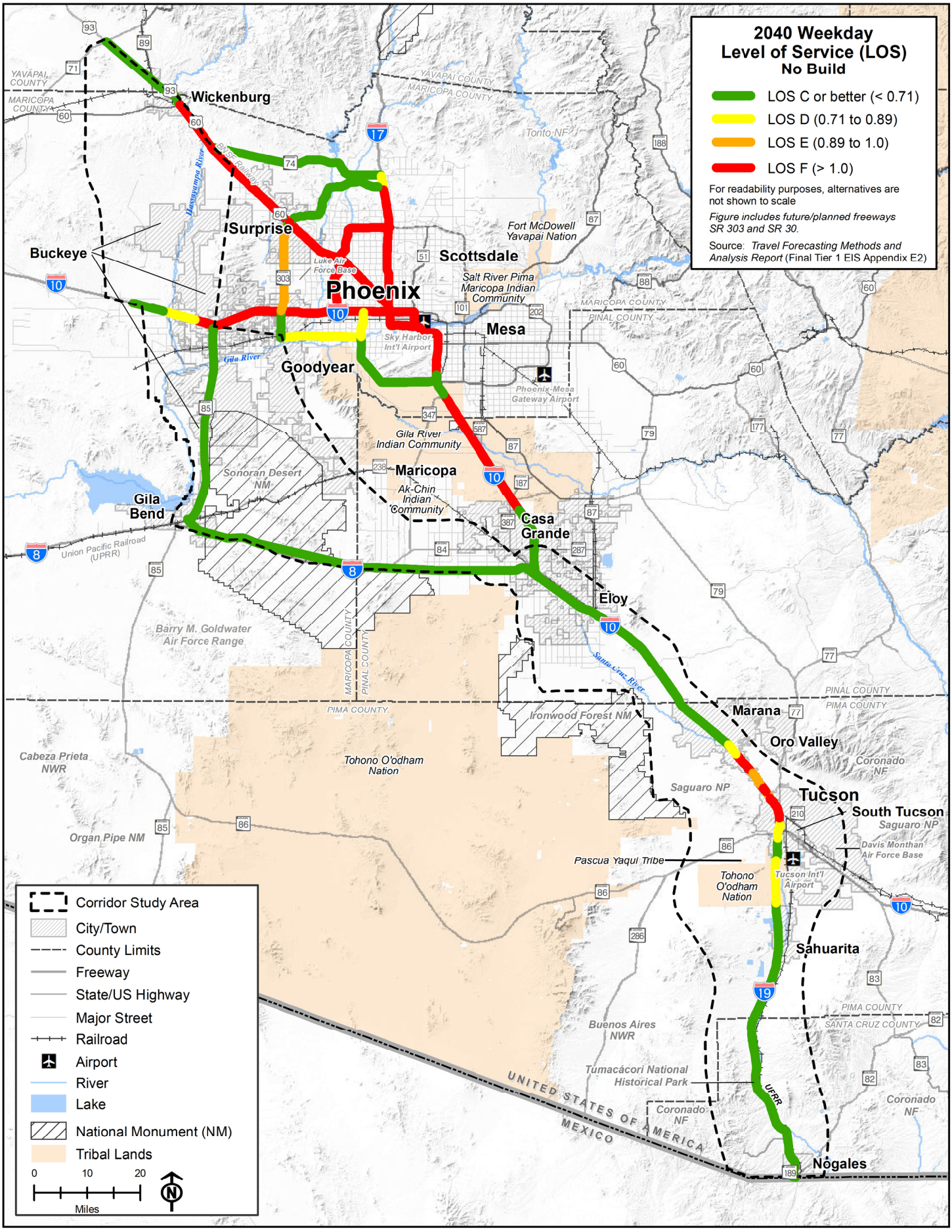

Figure 1-1. Average Weekday Level of Service, 2040

Table 1-3. Peak Period Travel Times from Nogales to Wickenburg in Afternoon, 2018 and 2040 (No Build Alternative)

Trips Between Nogales and Wickenburg [a]	North-bound Distance (miles)	North-bound Travel Time (minutes) [a]	North-bound Average Speed (mph)	South-bound Distance (miles)	South-bound Travel Time (minutes) [a]	South-bound Average Speed (mph)
2018						
I-19/I-10/I-17/SR 74/US 60/US 93	244	230	64	244	225	65
I-19/I-10/US 60/US 93	232	245	57	232	240	58
I-19/I-10/I-8/SR 85/I-10/SR 303L/US 60/US 93	275	255	65	275	255	65
I-19/I-10/L101/US 60/US 93	238	230	62	238	235	61
I-19/I-10/L303/US 60/US 93	243	225	65	243	225	65
2040						
I-19/I-10/I-17/SR 74/US 60/US 93	248	331	45	246	347	43
I-19/I-10/US 60/US 93	235	343	41	234	358	39
I-19/I-10/I-8/SR 85/I-10/SR 303L/US 60/US 93	279	329	51	278	335	50
I-19/I-10/L202/I-10/ L101/US 60/US 93	241	326	44	240	340	42
I-19/I-10/L202/I-10/ L303/US 60/US 93	246	320	46	245	332	44
I-19/I-10/L101/US 60/US 93	242	342	44	240	355	41
I-19/I-10/L303/US 60/US 93	246	335	44	245	348	42

SOURCE: **Appendix E2** (Travel Forecasting Methods and Analysis Report)

[a] Travel times based on Google estimates for a 4 p.m. departure on March 14, 2018.

Table 1-4. Peak Period Travel Times for City Pairs in Afternoon, 2018 and 2040 (No Build Alternative)

City Pair	North-bound Distance (miles)	North-bound Travel Time (minutes)	North-bound Average Speed (mph)	South-bound Distance (miles)	South-bound Travel Time (minutes)	South-bound Average Speed (mph)
2018						
Nogales – Tucson	66	68	58	66	68	58
Tucson – Casa Grande	66	68	58	66	68	58
Casa Grande – Phoenix	50	60	50	50	58	52
Phoenix – Wickenburg	65	82	48	65	70	56
Casa Grande – Wickenburg	114	125	55	114	115	59
2040						
Nogales – Tucson	66	68	60	66	70	56
Tucson – Casa Grande	66	83	48	66	77	51
Casa Grande – Phoenix	54	84	38	54	93	35
Phoenix – Wickenburg	67	120	34	67	130	31
Casa Grande – Wickenburg	141	170	50	141	185	46

SOURCE: **Appendix E2** (Travel Forecasting Methods and Analysis Report)
NOTE: Travel times based on Google estimates for a 4 p.m. departure on March 14, 2018.

1.2.2 Economic Centers Figure Update

Figure 1-2 shows the areas where local municipalities are planning for high growth (in pink) overlaid with existing and emerging economic centers. The figure has been updated to recognize additional employment clusters, refine freight center locations, clarify names and descriptions, and include additional airports (ESI 2020).

1.2.3 Population and Employment Projections

Comments on the Draft Tier 1 EIS questioned whether recently updated population projections from the Pima Association of Governments (PAG) would change the analysis, as recent projections scale back growth rates in Pima County. The population and employment projections in AZTDM have not been updated since the Draft Tier 1 EIS analysis. As shown in **Table 1-5** and **Table 1-6**, 2040 population and employment numbers, respectively, were

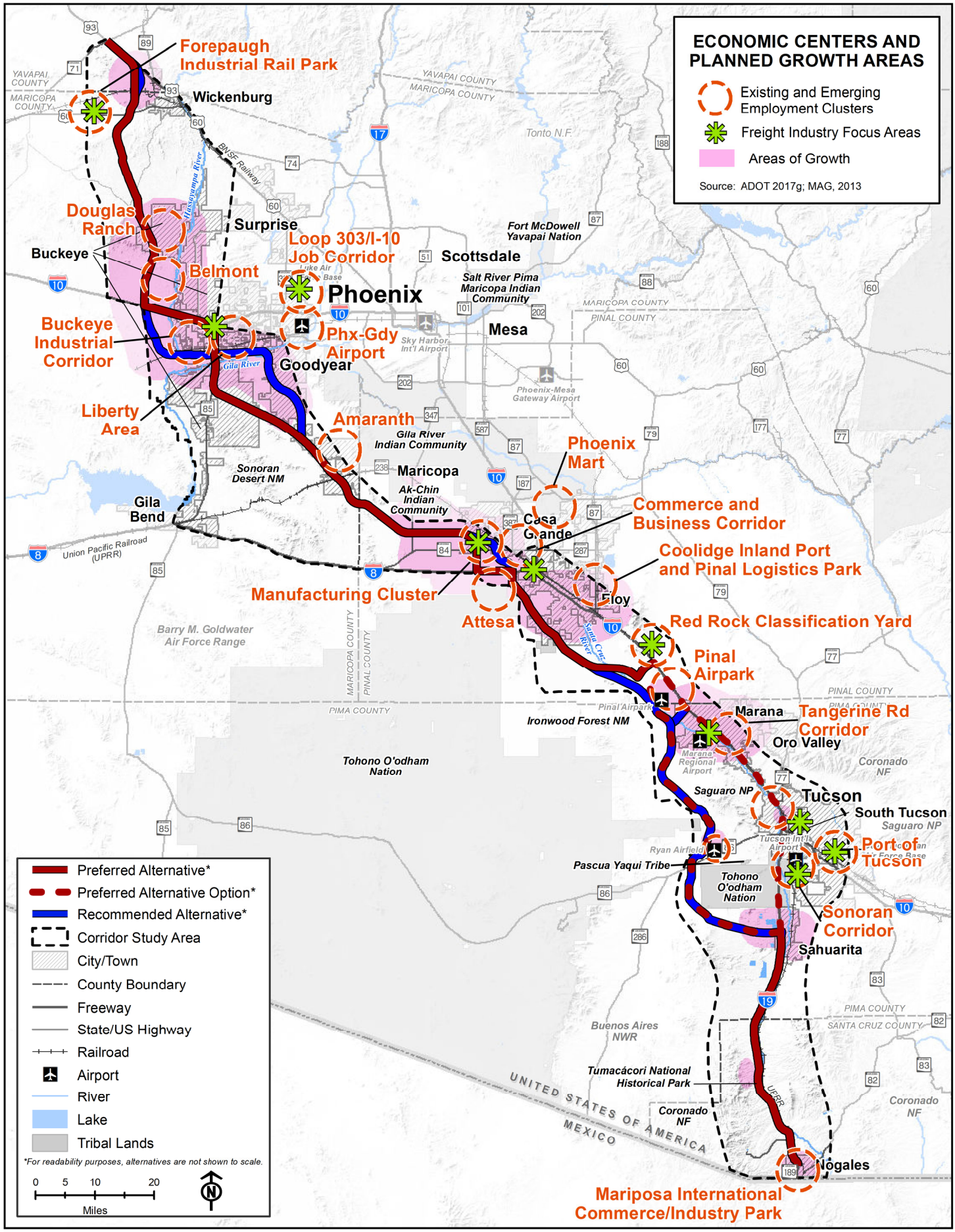

Figure 1-2. Updated Map of Key Economic Centers and Growth Areas in the I-11 Study Area

Figure 1-2. Updated Map of Key Economic Centers and Growth Areas in the I-11 Study Area

Tier 2 studies will update the traffic analysis using regional travel demand models, which offer more frequently updated projections, have more detailed traffic analysis zones, and are better calibrated to local traffic behavior. These future studies would determine the number of lanes needed to accommodate travel demand forecasts and could recommend a phased implementation that incrementally builds additional lanes as the demand grows rather than all at once.

Table 1-5. Comparison of 2040 Population Projections

County	Draft Tier 1 EIS Data [a]	Updated Regional Data	Difference
Pima	1,393,743	1,209,498[b]	−184,245 (−13%)
Pinal	916,341	862,622[c]	−53,179 (−6%)
Maricopa	6,202,435	6,332,264[c]	129,829 (2%)

SOURCE: **Appendix E2** (Travel Forecasting Methods and Analysis Report)
[a] ADOT AZTDM projections dated June 2016.
[b] PAG Regional Travel Demand Model, projections dated February 2020.
[c] MAG Regional Travel Demand Model, projections dated October 2019.

Table 1-6. Comparison of 2040 Employment Projections

County	Draft Tier 1 EIS Data [a]	Updated Regional Data	Difference
Pima	495,569	504,496 [c]	8,927 (2%)
Pinal	294,010	169,041[b]	−124,969 (−43%)
Maricopa	2,777,753	3,004,275[b]	226,522 (8%)

SOURCE: **Appendix E2** (Travel Forecasting Methods and Analysis Report)
[a] ADOT AZTDM projections dated June 2016.
[b] PAG Regional Travel Demand Model, projections dated February 2020.
[c] MAG Regional Travel Demand Model, projections dated October 2019.