Arizona Transportation History

Final Report 660
December 2011

ADOT
Arizona Department of Transportation
Research Center

DISCLAIMER

The contents of this report reflect the views of the authors who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Arizona Department of Transportation or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation. Trade or manufacturers' names which may appear herein are cited only because they are considered essential to the objectives of the report. The U.S. Government and the State of Arizona do not endorse products or manufacturers.

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
FHWA-AZ-11-660		

4. Title and Subtitle	5. Report Date
ARIZONA TRANSPORTATION HISTORY	December 2011
	6. Performing Organization Code
7. Author	8. Performing Organization Report No.
Mark E. Pry, Ph.D. and Fred Andersen	
9. Performing Organization Name and Address	10. Work Unit No.
History Plus 315 E. Balboa Dr. Tempe, AZ 85282	11. Contract or Grant No. SPR-PL-1(173)-655
12. Sponsoring Agency Name and Address	13.Type of Report & Period Covered
ARIZONA DEPARTMENT OF TRANSPORTATION **206 S. 17TH AVENUE** **PHOENIX, ARIZONA 85007** Project Manager: Steven Rost, Ph.D.	14. Sponsoring Agency Code

15. Supplementary Notes

Prepared in cooperation with the U.S. Department of Transportation, Federal Highway Administration

16. Abstract

The Arizona transportation history project was conceived in anticipation of Arizona's centennial, which will be celebrated in 2012. Following approval of the Arizona Centennial Plan in 2007, the Arizona Department of Transportation (ADOT) recognized that the centennial celebration would present an opportunity to inform Arizonans of the crucial role that transportation has played in the growth and development of the state.

The report consists of a historical narrative and a series of topical essays. The seven-chapter historical narrative is a history of Arizona's highways that extends from the pre-Columbian era to the present.

The 14 topical essays extend the scope of the history beyond the state's highway system. They include overviews of the development of other transportation modes (railroads, aviation, and urban transit), a brief history of highway pavements, a lighthearted look at the motoring experience during the 1920s and 1930s, and an exploration of how changes in transportation infrastructure affected some Arizona communities. The topical essays also provide additional historical information on bridges, urban freeways, the Interstate system, ADOT and its predecessor agencies, and famous roads such as U.S. Route 66, U.S. Route 89, the Black Canyon Highway, and the Beeline Highway.

The report also includes a timeline of transportation-related developments. This chronology not only provides an accessible overview of Arizona's transportation history; it also places that history in a larger context by including transportation-related developments from the rest of the nation and around the world.

Finally, the report contains a guide to archives in Arizona that hold significant collections of historical photographs related to the state's transportation history, a bibliography of published historical sources related to the history of highways in Arizona, and a discussion of how the historical narrative and topical essays could be used to produce publications and media that would be made available to the public.

17. Key Words	18. Distribution Statement	23. Registrant's Seal
Transportation agencies. Transportation, History, Arizona	Document is available to the U.S. public through the National Technical Information Service, Springfield, Virginia 22161	

19. Security Classification	20. Security Classification	21. No. of Pages	22. Price
Unclassified	Unclassified	176	

SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
	LENGTH			
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
	AREA			
in^2	square inches	645.2	square millimeters	mm^2
ft^2	square feet	0.093	square meters	m^2
yd^2	square yards	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2
	VOLUME			
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
	NOTE: Volumes greater than 1000L shall be shown in m^3.			
	MASS			
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000lb)	0.907	megagrams (or "metric ton")	mg (or "t")
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5(F-32)/9 or (F-32)/1.8	Celsius temperature	°C
	ILLUMINATION			
fc	foot candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m^2	cd/m^2
	FORCE AND PRESSURE OR STRESS			
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
	LENGTH			
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
	AREA			
mm^2	Square millimeters	0.0016	square inches	in^2
m^2	Square meters	10.764	square feet	ft^2
m^2	Square meters	1.195	square yards	yd^2
ha	hectares	2.47	acres	ac
km^2	Square kilometers	0.386	square miles	mi^2
	VOLUME			
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m^3	Cubic meters	35.315	cubic feet	ft^3
m^3	Cubic meters	1.308	cubic yards	yd^3
	MASS			
g	grams	0.035	ounces	oz
kg	kilograms	2.205	pounds	lb
mg	megagrams (or "metric ton")	1.102	short tons (2000lb)	T
	TEMPERATURE (exact)			
°C	Celsius temperature	1.8C + 32	Fahrenheit temperature	°F
	ILLUMINATION			
lx	lux	0.0929	foot-candles	fc
cd/m^2	candela/m^2	0.2919	foot-Lamberts	fl
	FORCE AND PRESSURE OR STRESS			
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in^2

SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

PART 1 — HISTORICAL NARRATIVE 5

ROADS AND TRANSPORTATION IN EARLY ARIZONA, 1400s-1863 7
Pre-Columbian Trails 7
Spain, Mexico, and the Santa Cruz Road 9
Cooke's Wagon Road and the Gila Trail 9
Creation of New Mexico Territory 11
Army Road Surveys in the West 12
Beale's Road and El Paso–Fort Yuma Road 12
Creation of Arizona Territory 14

ROAD BUILDING DURING THE TERRITORIAL PERIOD, 1864-1911 15
Toll Roads 15
County Road Districts 16
Army Wagon Roads 17
Arrival of the Railroad 19
Territorial Wagon Roads 20
Road Building by the Counties 22
The Territorial Engineer and Arizona's First Highway System 23

BUILDING A STATE HIGHWAY SYSTEM, 1912-1925 27
Arizona Highway Department 27
The Good Roads Movement in Arizona 28
The National Old Trails Highway and Other Named Roads 29
Federal Aid Comes to Arizona 33
Maricopa County's Road Bond Program 37
Creation of the Seven-Percent System 37
Numbering Arizona's Highways 39

ARIZONA'S HIGHWAY SYSTEM GROWS UP, 1926-1945 43
Reorganizing the Arizona Highway Department 43
Arizona's Highways in 1926 44

Forest Roads in Arizona 45
Oiled Roads in the 1920s and 1930s 46
New Deal Road-Building Programs 47
Arizona Highways on the Eve of the Second World War 51
Impact of the War on Highways 54

THE HIGHWAY BOOM YEARS, 1946-1973 57
Arizona Highway Traffic Surges 57
Postwar Modernization Projects 58
The "Roads Crisis" of the 1950s 59
Creation of the Interstate System 59
Construction Boom of the 1960s 60
Bypass Controversies 61
New and Improved Highways for Tourism 63
Arizona's First Freeways 65

MEETING THE CHALLENGES OF GROWTH, 1974-1990 69
Creation of the Arizona Department of Transportation 69
The Energy Crisis of the 1970s 70
Progress on the Interstate System 71
The Funding Gap of the 1980s 72
Maricopa County Freeways 72
Regional Area Road Funds 73
Retiring Old Highway Numbers 74

MODERNIZING ARIZONA'S HIGHWAY SYSTEM, 1991-Present 77
New Attitudes Toward Highways 77
Intermodal Surface Transportation Efficiency Act 79
Maricopa County Freeways 79
Freeway Controversies 81
Rural Highway Widening Projects 82
Bypasses and New Alignments 84

EPILOGUE: ONE HUNDRED YEARS OF ARIZONA HIGHWAYS 87

PART 2 — TOPICAL ESSAYS 89

THE LEGENDARY ROAD: U.S. ROUTE 66 91

FROM BORDER TO BORDER: U.S. ROUTE 89 95

THE BLACK CANYON HIGHWAY 99
CONNECTING COMMUNITIES: THE BEELINE HIGHWAY 101
BUILDING BRIDGES 105
FROM GRAVEL TO OIL CAKE TO RUBBER CRUMBS: PAVING ARIZONA'S HIGHWAYS 109
"THERE IS TROUBLE TO BE HAD": DRIVING IN ARIZONA 111
RAILROAD TOWNS TO HIGHWAY TOWNS 115
A FACTORY FOR TRIPS: THE INTERSTATE HIGHWAY CONCEPT 117
SIC TRANSIT GLORIA: URBAN TRANSIT IN ARIZONA 121
FREEWAY CONTROVERSIES 125
ROADS ON RAILS: RAILROADS IN ARIZONA 129
"THE ONLY WAY TO GET AROUND": AVIATION IN ARIZONA 133
ORGANIZATIONAL EVOLUTION: THE HISTORY OF ADOT 137

PART 3 — TIMELINE 141

TIMELINE 143

PART 4 — RESOURCES 151

HISTORICAL PHOTOGRAPH COLLECTIONS 153

BIBLIOGRAPHY OF SOURCES FOR THE HISTORY OF ARIZONA'S HIGHWAYS 157

PRESENTING ARIZONA'S TRANSPORTATION HISTORY TO THE PUBLIC 165

LIST OF FIGURES

Figure 1. Prehistoric and Early Historic Trails in Arizona....8
Figure 2. Early Trails and Roads in Arizona Territory....10
Figure 3. Early Arizona Railroads, 1894....18
Figure 4. Arizona's First Highway System, 1914....24
Figure 5. Automobile Roads and Routes in Arizona, 1917....30
Figure 6. Arizona's Seven-Percent System, 1926....36
Figure 7. Arizona State Highway System, 1931....48
Figure 8. Arizona State Highway System, 1940....52
Figure 9. Arizona State Highway System, 2007....76
Figure 10. Arizona Railroads, 2007....128

LIST OF TABLES

Table 1. Registered Vehicles, Highway Mileage, Vehicle Miles Traveled, and State Transportation Expenditures in Arizona, 1912-2005....41

Table 2. Arizona State Engineers and Department of Transportation Directors, 1909-2009....140

ACKNOWLEDGMENTS

Portions of the text were previously published in *Building the Grand Canyon State: Public Works in Arizona History*, by Mark E. Pry, Ph.D., and Fred Andersen (Phoenix: Arizona Chapter of the American Public Works Association, 2006), and are incorporated in this report with the permission of the Arizona Chapter. In preparing this report, the authors also used research materials collected for *Building the Grand Canyon State*.

In allowing material from *Building the Grand Canyon State* to be incorporated into this study, the Arizona Chapter of the APWA has made an important contribution to the study of Arizona's transportation history, and for that the authors and the Arizona Department of Transportation are grateful.

EXECUTIVE SUMMARY

PROJECT BACKGROUND

The Arizona transportation history project was conceived in anticipation of Arizona's centennial, which will be celebrated in February 2012. Following approval of the Arizona Centennial Plan in 2007, the Arizona Department of Transportation (ADOT) recognized that the centennial celebration would present an opportunity to inform Arizonans of the crucial role that transportation has played in the growth and development of the state. However, there was no written history of transportation in Arizona that the department could use as the underpinning of such a public outreach effort. Seeking to erase this shortcoming in Arizona's historical record, the department commissioned this history of transportation in Arizona.

PROJECT GOALS

The solicitation for the Arizona transportation history project was issued in the spring of 2008. It called for the preparation of a history of the state's transportation network, from prehistoric times to the present, that would also highlight the role played in that development by the department and its predecessor agencies. It would cover all major modes of transportation, but the greatest emphasis would be on roads and highways, which have always been the core of Arizona's transportation infrastructure.

After the project's completion, the history would then be used by the department to develop a variety of publications and media that could be distributed to the public. To assist the department in planning these publications, the project solicitation asked the authors of the history to suggest how such publications might be formatted, what topics they might cover, and which audiences they might target.

REPORT COMPONENTS

The bulk of the Arizona transportation history presented in this report consists of a historical narrative and a series of topical essays. The seven-chapter historical narrative is essentially a history of Arizona's highways that extends from the pre-Columbian era to the present.

The 14 topical essays extend the scope of the history beyond the state's highway system. They include overviews of the development of other transportation modes (railroads, aviation, and urban transit), a brief history of highway pavements, a lighthearted look at the motoring experience during the 1920s and 1930s, and an exploration of how changes in transportation infrastructure affected some Arizona communities. The topical essays also provide additional historical information on bridges, urban freeways, the Interstate system, ADOT and its predecessor agencies, and famous roads such as U.S. Route 66, U.S. Route 89, the Black Canyon Highway, and the Beeline Highway.

The report also includes a timeline of transportation-related developments. This chronology not only provides an accessible overview of Arizona's transportation history; it also places that history in a larger context by including transportation-related developments from the rest of the nation and around the world.

Finally, the report contains a guide to archives in Arizona that hold significant collections of historical photographs related to the state's transportation history, a bibliography of published historical sources related to the history of highways in Arizona, and a discussion of how the historical narrative and topical essays could be used to produce publications and media that would be made available to the public.

RESEARCHING ARIZONA'S TRANSPORTATION HISTORY

Owing to the limited budget for this project, certain limitations had to be imposed on the research conducted for the narrative history and topical essays. No substantial archival research was done. Such research is always time-consuming, but for this project this would have been especially so, owing to the fact that archival sources relevant to Arizona's transportation history are, for the most part, unindexed, difficult to locate, and scattered across the state. Just identifying these materials, let alone examining them, would have consumed much of the research budget for the project.

Consequently, most of the research was done in published sources, including published government documents, *Arizona Highways* magazine articles, books, journal articles, and other sources (for a list of the major sources, see the bibliography in this report). The reliance on government documents and *Arizona Highways* (which began as an official construction bulletin) was largely a matter of necessity. Very few scholarly books and articles have been published on Arizona's transportation history, and almost none has been written about the state's highway system.

Fortunately, the publications and reports of the State Engineer, Arizona Highway Department, Arizona Highway Commission, Arizona Department of Transportation, and Arizona State Transportation Board provided an ample quantity of information—certainly enough to produce a narrative of the scope envisioned by the department.

THE HISTORY OF ARIZONA'S HIGHWAY SYSTEM

The history of the state's highway system is the centerpiece of this report because roads and highways have always been the dominant means of getting to and around Arizona. Indeed, it was only during the heyday of the railroads, from the 1880s to the early 1950s, that there was any significant alternative to travel by road. (Airlines have turned out to be important for interstate travel to and from Arizona, but much less so for intrastate travel.) The history of Arizona's highway system can be divided into seven distinct periods, each of which is described in one chapter of the narrative.

Roads and Transportation in Early Arizona, 1400s-1863

During this period, which ended with the creation of Arizona Territory in 1863, roads in Arizona were few and poorly maintained. Prior to the arrival of Americans in 1846, roads

were not so much constructed as they were blazed by travelers. The first roads to be built in Arizona were constructed by the federal government and in particular by the U.S. Army.

Road Building During the Territorial Period, 1864-1911

After a brief but unsuccessful experiment with private toll roads, the Territorial Legislature began financing the construction of Territorial wagon roads, only to see that effort halted by federal legislation that limited borrowing by the territories. For most of the Territorial period, it was the counties that built Arizona's highways, financing their efforts through special road taxes. Then, in 1909, the Territorial Legislature appointed a Territorial Engineer and established a modest highway system consisting of two roads.

Building a State Highway System, 1912-1925

In 1912, after Arizona became the nation's 48th state, the Arizona Highway Department was created. Its earliest efforts to build highways were limited by poor funding, as the counties received most of the state's road funds and continued to build most of the state's roads. This changed in 1916, when the first federal highway aid bill was enacted. Using federal aid, the Arizona Highway Department established Arizona's "seven-percent system" of highways, laying the foundation for the state's modern road network.

Arizona's Highway System Grows Up, 1926-1945

In 1927 the Arizona Highway Department was reorganized and the Arizona Highway Commission established. Funding was also reformed, finally giving the department the resources it needed to make major improvements to Arizona's seven-percent system. Aided substantially by federal funding for not only highways but also forest roads and New Deal public works, Arizona's patchwork highway system was transformed into an integrated network of hard-surfaced state and federal highways.

The Highway Boom Years, 1946-1973

This was the boom period for Arizona, a time of spectacular population growth and urban expansion that in turn led to an unprecedented surge in highway construction. Arizona's federal and state highways were completely paved, and many roads in the state system were improved to meet modern safety standards. Then came the inauguration of the Interstate highway system. As construction of these new four-lane highways began, new standards for speed, comfort, and safety in automobile travel were established.

Meeting the Challenges of Growth, 1974-1990

In 1974 the Arizona Department of Transportation (ADOT) and Highway Users Revenue Fund were established, once again overhauling financing of the state's highways. The energy crises of the 1970s and early 1980s posed further problems for the state's highway funds, but these were resolved by increasing the gasoline tax and creating the Regional Area Road Funds, which made possible the expansion of the Maricopa County freeway system. During this period the Interstate system was completed in Arizona, followed by the decommissioning of some of the state's first federal highways.

ROADS AND TRANSPORTATION IN EARLY ARIZONA 1400s-1863

PRE-COLUMBIAN TRAILS

Long before Europeans arrived in what is now the American Southwest, Native Americans established many travel routes across the deserts, grasslands, and mountains of Arizona (see Figure 1). Traveling long distances by foot, Arizona's first inhabitants maintained active contact with peoples scattered across the Southwest and northern Mexico. "It could be argued," one historian has written, "that travel was a defining and central experience of Native American life."[1]

The journeys were made for many different reasons. Native Americans traded for shells, stones, minerals, bells, and figurines, and for organic goods like herbs, animal hides, and feathers. They made spiritual journeys to sacred locations where they gathered plants and minerals, captured animals, and conducted ceremonies. And they carried out raids on neighboring peoples, sometimes returning with captives.

Some of Arizona's native peoples are believed to have traveled widely. For example, the Hohokam, who lived in the river valleys of central Arizona, visited and traded with other peoples in present-day Mexico, California, Baja California, New Mexico, and Colorado, using routes that in Arizona typically followed rivers and washes.

The Hopi also traveled long distances and were doing so when the first Spaniards came to Arizona in 1540. They made ceremonial trips to the Grand Canyon and trading journeys to New Mexico, southern Colorado, the Gila River, and Mexico. They also ventured north of the Colorado River, using the crossing that would later be known as Lee's Ferry.

Native Americans living in other regions also traveled to Arizona. The Ancestral Puebloans, or Anasazi, who established the Chaco culture in northwestern New Mexico, built an impressive road network that extended into northeastern Arizona. Archaeologists have estimated that the Chaco road system included more than 400 miles of roadway.

Most of these native trails were unmarked, especially in the open desert, yet archaeologists have still been able to identify traces of them on the desert floor. In some parts of Arizona, especially the rugged canyon country to the north, native trails were sometimes marked and improved by the construction of handholds and stairs in rough terrain. Many of these routes were later used by Spaniards, Mexicans, and Americans, in large part because they were near water sources.

---

[1] Pat H. Stein, *Historic Trails in Arizona from Coronado to 1940* (Phoenix: Arizona State Historic Preservation Office, 1994), 2-3.

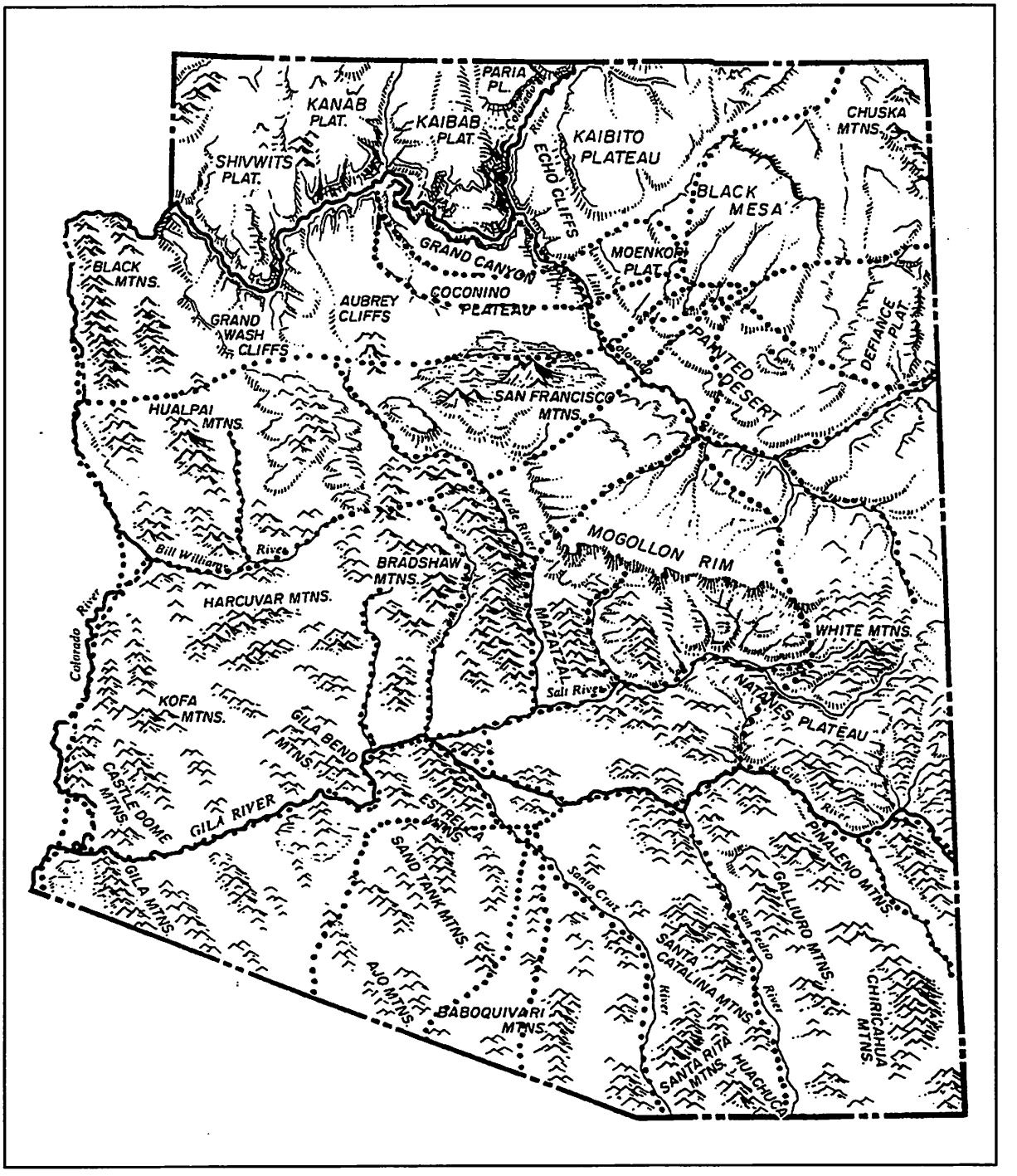

Figure 1. Prehistoric and Early Historic Trails in Arizona.

From Pat H. Stein, *Historic Trails in Arizona from Coronado to 1940* (Phoenix: Arizona State Historic Preservation Office, 1994), 4.

SPAIN, MEXICO, AND THE SANTA CRUZ ROAD

Following Francisco Vásquez de Coronado's entry into Arizona in 1540, and continuing for nearly three centuries, Spanish explorers and missionaries traveled widely across what is now the American Southwest. Many of their journeys, especially in Arizona, were one-time ventures that left no permanent trace. Others followed well-worn paths that became the region's first roads (see Figure 1).

Spain's foothold in Arizona was always tenuous. Spaniards established missions at the Hopi mesas in northern Arizona; missions, presidios, or settlements in Tucson, Tubac, Tumacácori, and a few other locations in southern Arizona; and a mission at Yuma in southwestern Arizona. The settlements that grew up at these locations were sparsely populated and isolated.[2]

The usual travel route to the Hopi mesas was west from New Mexico via Zuni Pueblo. From the Hopi mesas, Spanish explorers and missionaries traveled to the Grand Canyon, the Verde Valley, and the lower Colorado River, with some continuing on to California.

Spanish missionaries and settlers traveled from Mexico to Arizona by several routes. The most commonly used route followed the San Pedro River or the Santa Cruz River to Tucson; from there travelers could head north to the Gila River and then west to California. Less commonly used was the famed Camino del Diablo, or Devil's Highway. This was a direct route from northern Mexico to Yuma that crossed the inhospitable deserts of northwestern Sonora and southwestern Arizona.

After the Spanish missions at Hopi were destroyed in the Pueblo Revolt of 1680, the Spanish presence in Arizona was confined to the Tucson region and Yuma. The Santa Cruz road became the main Spanish route from Mexico to Arizona, providing access to all of the mission communities and to the presidios at Tubac and Tucson. From Tucson this road crossed the desert en route to the Pima Villages on the Gila River, and then turned west to follow the Gila to the Yuma crossing of the Colorado River.

During the Mexican period of Arizona history (1821-1848), the Santa Cruz road offered the only safe travel route through the region. It later became part of the Gila Trail, which brought thousands of California-bound gold miners through Arizona starting in 1849.[3]

COOKE'S WAGON ROAD AND THE GILA TRAIL

The first American attempt to establish a road in Arizona came during the Mexican-American War, when a detachment of soldiers known as the Mormon Battalion marched across southern Arizona en route to California (see Figure 2). Commanded by Capt. Philip St. George Cooke, the battalion had orders not only to reinforce American forces in California but also to establish a wagon road that the Army could use to travel between Santa Fe and San Diego.

---

[2] Henry P. Walker and Don Bufkin, *Historical Atlas of Arizona* (2d ed.; Norman: University of Oklahoma Press, 1986), Map 13; Stein, *Historic Trails in Arizona,* 5-7.

[3] Walker and Bufkin, *Historical Atlas,* Map 40.

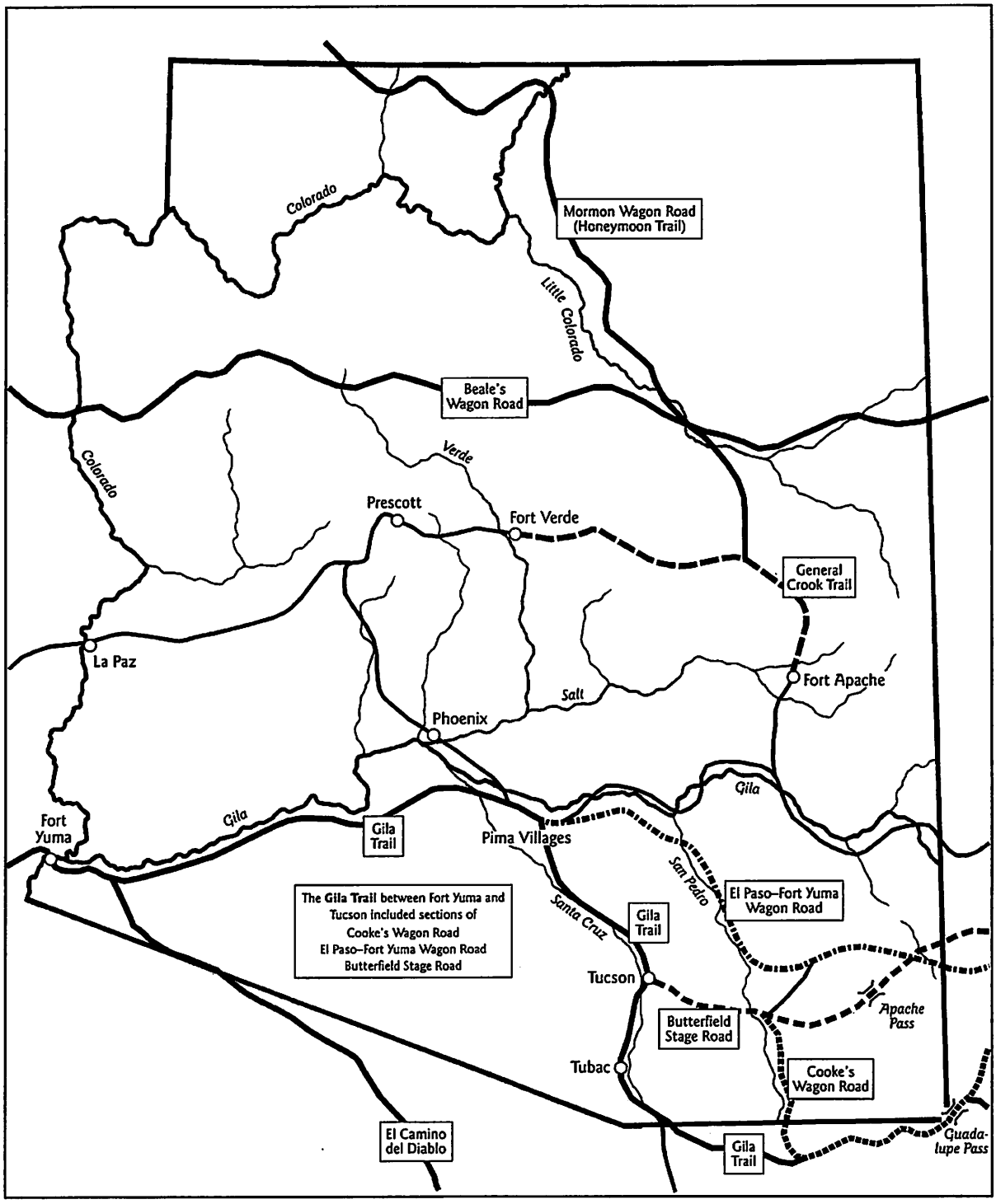

Figure 2. Early Trails and Roads in Arizona Territory.

The map shows some of the more important routes used from the 1840s to the 1870s in Arizona. Adapted from Map 40, "Major Trails," in Henry P. Walker and Don Bufkin, *Historical Atlas of Arizona* (2d ed.; Norman: University of Oklahoma Press, 1986).

The Mormon Battalion entered Arizona through Guadalupe Pass in 1846, near what is now the southeastern corner of the state, and traveled west along the present-day Mexican border to the San Pedro River. After following the river north for some distance, the men turned northwest toward Tucson. There they connected with the historic Spanish road, which they followed to the Pima Villages, the Gila River, and Yuma.

Cooke's men did little actual road building. Mainly they marked their route and removed major obstructions like brush and rocks; otherwise they made no improvements. As one historian wrote, "When the going was smooth, it appears that they marched along, moving from water hole to water hole, convinced that the marks left by their turning wheels had established a road."[4]

Known thereafter as Cooke's Wagon Road, in truth it was more a trail than a developed road. Nevertheless, for a decade it was the best known travel route across Arizona, and the only one suited for wagons. During the California gold rush of 1849, it was used by thousands of would-be gold miners who chose to risk the dangers of an overland journey to the western gold mines (most traveled by sea).

By 1849 a section of Cooke's road through southeastern Arizona was part of the Gila Trail, which was the popular name for a series of roads that connected El Paso with southern California. For three decades, from the late 1840s to the late 1870s, the Gila Trail was the primary travel route across southern Arizona. It was followed not only by miners and adventurers but also by settlers and ranchers traveling from the east.[5]

CREATION OF NEW MEXICO TERRITORY

After the war between the United States and Mexico, and the signing of the Treaty of Guadalupe Hidalgo in 1848, Americans took possession of the Southwest—California, Arizona, Nevada, Utah, Colorado, and New Mexico. Two years later, in 1850, California became a state and the area comprising today's Arizona and New Mexico was designated New Mexico Territory.

The Territory's capital was in Santa Fe, a long distance and many days of travel from the settled parts of Arizona, which in the 1850s were confined to the same areas that the Spaniards and Mexicans had occupied: southern Arizona and the lower Colorado River at Yuma.

At the time, Arizona had very few residents who were not Native Americans and hardly anything that passed for an economy. Aside from a few struggling silver mines, economic activities such as ranching, farming, and lumbering were conducted on practically a subsistence basis. Virtually all of Arizonans' trade was local. Warfare with the Apaches of southeastern Arizona made travel dangerous and greatly retarded the development of Arizona's economy.

---

[4] W. Turrentine Jackson, *Wagon Roads West: A Study of Federal Road Surveys and Construction in the Trans-Mississippi West, 1846-1869* (Berkeley: University of California Press, 1952), 21.

[5] Because the Gila Trail was not a formally developed road but simply a popular name for a travel route, there has always been some uncertainty about its exact location in some parts of Arizona. For example, some maps show the Gila Trail passing through Apache Pass rather than Guadalupe Pass.

Away from the well-used Santa Cruz–Gila River route, travel through Arizona continued to be over rough roads and trails blazed by the Territory's native peoples, traders, ranchers, and miners. When work was required to maintain or improve these roads, it was carried out not by any government entity but by informal groups of residents or travelers who furnished their own labor, material, and funds.

ARMY ROAD SURVEYS IN THE WEST

The expansion of U.S. territory to California and the Southwest, and the gold rush to California, created an urgent need to improve communication and transportation links between the West and the rest of the nation. In 1853 Congress appropriated $150,000 for surveys of potential railroad routes to the Pacific Ocean that would be conducted by Army topographical engineers. Over the next two years, the Army carried out six surveys; two of them, the Whipple and the Parke surveys, crossed Arizona. Although their purpose was to identify transcontinental railroad routes, the surveys in fact first led to the construction of wagon roads.[6]

In 1853, Lt. Amiel Whipple led an Army survey party on the first of these surveys, with orders to find a railroad route on or near the 35th parallel. This route had already been partially explored by Capt. Lorenzo Sitgreaves, who in 1851 had traveled from Zuni Pueblo, near the northeastern border of Arizona, across northern Arizona. He and his Army reconnaissance party traveled along the Little Colorado River, past the San Francisco Peaks, and then directly west to the Colorado River, which they crossed near present-day Needles. Whipple's route was similar to that taken by Sitgreaves, except that in northeastern Arizona he and his men traveled along the Puerco River. In northwestern Arizona they traveled farther south than Sitgreaves had, following the Bill Williams River to the Colorado.

A year later, in 1854, Lt. John Parke led Arizona's second railroad survey party along the 32nd parallel in southern Arizona. Parke's men entered Arizona west of present-day Lordsburg, New Mexico, and traveled directly west to Tucson. From there they followed the Gila Trail, traveling first to the Pima Villages and then following the Gila River to Yuma.

The route surveyed by the Whipple party, with some modifications based on the earlier report of Sitgreaves, was eventually followed by the Atchison, Topeka & Santa Fe Railroad. Later, when highways were built, the routes blazed by Sitgreaves and Whipple were followed by U.S. Route 66 and Interstate 40. The route marked out by the Parke survey was eventually used by the Southern Pacific Railroad. Later U.S. Route 80 was built along parts of the Parke route, and Interstate 10 followed the route almost in its entirety.

BEALE'S ROAD AND EL PASO–FORT YUMA ROAD

Construction of these two railroads lay two decades in the future, though, and in the meantime an effective means of traveling across Arizona was still needed. Since the

---

[6] William H. Goetzmann and Glyndwr Williams, *The Atlas of North American Exploration* (New York: Prentice Hall, 1992), 162-63, 166-67; Walker and Bufkin, *Historical Atlas,* Map 23.

conclusion of the Mexican-American War, westerners had been lobbying for federal assistance in building wagon roads. However, many in Congress believed that it was unconstitutional to spend federal money on "local" improvements such as roads, and so proposals to build wagon roads in the West faced significant opposition.

Finally, in 1857, Congress ordered the construction of two federal wagon roads through New Mexico Territory, one across the northern part and the other across the southern.[7]

Construction began in 1857 on the northern road, which came to be known as Beale's Wagon Road, after construction superintendent Edward Fitzgerald Beale (see Figure 2). The first phase of the work, which cost $50,000 and took five months to complete, established the route. Beale followed Whipple's survey route except in western Arizona, where he went more directly westward rather than turning south to the Bill Williams River. Many years later, when U.S. Route 66 was built, it mostly followed Beale's route.

When Beale and his men traveled eastward over the new road in 1858, it took them a month to cross Arizona and northwestern New Mexico. Beale then recommended more improvements. This second phase of work, which cost $100,000 and was carried out in 1859, involved the construction of a few bridges, some grading and straightening, and—most importantly—digging wells and building water tanks.

When it was finished, the road was advertised as suitable for six-mule teams pulling wagon loads as heavy as 3,500 pounds. Returning to New Mexico on his second trip along the road, Beale needed only 108 hours to travel from the Colorado River to Albuquerque.

The southern road, the El Paso–Fort Yuma Wagon Road, was begun in 1858. For the most part it followed the route laid out by Parke in his 1855 survey (see Figure 2). After entering southeastern Arizona near Apache Pass, the road headed directly west to the San Pedro River, which it followed north to the Gila River. This route bypassed Tucson—a decision made by the construction superintendent in order to avoid the long waterless stretch past Picacho Peak north of Tucson.

The southern road cost just under $200,000 and required two years to complete. Workers graded 35 miles of roadway, cleared brush along another 62 miles of road, and built one water tank on the Arizona section of the road. "Much clearing of loose stone from roadway was done, which was not measured," an official later reported.[8]

In later years the maintenance of these two roads was spotty and infrequent. When repairs were made, they were typically carried out by travelers who occasionally cleared away downed trees and filled in potholes. Nevertheless, these roads were important to frontier Arizona. The El Paso–Fort Yuma road in particular helped connect the Territory's far-

---

[7] Jackson, *Wagon Roads West*, 163ff, 241ff.

[8] A. H. Campbell, *Report upon the Pacific Wagon Roads* (1859; Fairfield, Wash.: Ye Galleon Press, 1969).

flung settlements with each other, and it provided a much-needed trade route to California, New Mexico, and Texas.

It was along portions of this southern road that the first stagecoaches to reach Arizona operated. The most celebrated of these was the Butterfield Overland Mail, which carried passengers and mail to and from Arizona between 1858 and 1861. The Butterfield coaches for the most part followed the El Paso–Fort Yuma Road, except that instead of detouring north around Tucson, they stopped in the town, which was served by one of the 18 stations in Arizona built by the stage line.

The stations, which were located 17 to 37 miles apart, were simple adobe structures with enclosed courtyards that served as corrals for the company's horses and mules. The coaches ran night and day, stopping at the stations only long enough for employees to change animals and for passengers to grab a quick meal. On its first run through Arizona, the Butterfield stage needed only three-and-a-half days to travel 437 miles from Stein's Pass on the New Mexico border to the California border at Yuma.[9]

CREATION OF ARIZONA TERRITORY

The Civil War brought a dramatic slowdown in the settlement and development of Arizona, as Army troops were withdrawn from frontier posts to fight in the war. Yet the war also gave rise to the creation of Arizona Territory, which was established in 1863. Federal officials were concerned that the Confederacy might try to break the Union blockade of the South by occupying New Mexico Territory and establishing a trade route across the Southwest. By creating a new territory that encompassed just Arizona, Congress would bring greater federal authority to the region—a move that Arizona's residents had been seeking for some time.

Everyone in the new territory agreed that Arizona's most pressing need was for wagon roads. Freight and passengers had been able to reach Arizona by boat since 1852, when steamboat service was established on the lower Colorado River. But travel inland from the river still required a difficult and time-consuming journey by horse or stagecoach, one made worse by the poor condition of the few existing roads.

However, when the Territorial Legislature met for the first time in 1864, at the new Territorial capital in Prescott, it passed only one measure related to roads. Legislators approved a resolution declaring the already-built Woolsey Trail, which connected Prescott with the Pima Villages, to be Arizona's first public road. It was to be "a *county road*, free for all intents and purposes."[10] Like most public officials at the time, the Territorial legislators considered road building to be the responsibility of the counties, not the Territory.

---

[9] *The Butterfield Overland Mail Across Arizona, 1858-1861* (Tucson: Arizona Pioneers' Historical Society, 1961), 9-10, 14, 33.

[10] *Acts, Resolutions and Memorials, Adopted by the First Legislative Assembly of the Territory of Arizona* (Prescott: Arizona Miner, 1865), 20.

ROAD BUILDING DURING THE TERRITORIAL PERIOD 1864-1911

The early officials of Arizona Territory were in a difficult position when it came to building roads. Arizona was a sprawling territory of 114,000 square miles, much of it rugged desert and mountain terrain that posed serious technological and logistical challenges to road builders. Construction projects were made more difficult and expensive by the distances that separated the Territory's towns, ranches, and mines. Supplies and water had to be hauled to construction sites, and camps often had to be set up for the workers.

At the same time, the financial resources available to the Territory were limited. Arizona was sparsely populated and there was little taxable economic activity. Incomes were low, and the Territory's residents made it clear that holding down taxes should be one of the legislature's first priorities. Furthermore, many legislators believed that road building was the responsibility of the counties, not the Territory. Under these circumstances, it was hardly surprising that progress in improving Arizona's roads came slowly.

TOLL ROADS

Although Arizona's early legislatures were unwilling to finance the construction of public roads, they did encourage private road development. Six franchises were awarded to toll road companies in 1864. Most were planned to serve the Territory's mines, which were concentrated in southern Arizona, the Prescott-Wickenburg area, and western Arizona. One company, the Tucson, Poso Verde, and Libertad Road Company, had ambitious plans to build three roads, one of which was to connect Tucson with Sonora. At its second session in 1865, the Territorial Legislature authorized two more toll road franchises—one from Prescott to Lynx Creek, another originating at the Mowry mine in southern Arizona.

Most of these roads were never built, and those that were proved to be poor investments. Eventually, after relatively short periods of service, all of Arizona's early toll roads were abandoned or converted into public roads.

The most successful by far was the Mojave and Prescott Toll Road, also known as the Hardyville Road. Authorized in 1864 and constructed in 1865, the 161-mile road connected Prescott with Fort Mojave on the Colorado River.[11] In return for gaining the exclusive right to build a road over that route, the company was required to spend at least $3,000 on construction and follow a toll schedule prescribed by the legislature. A wagon pulled by two draft animals was charged $2.42 to travel the road, while a horse and rider were charged $1.21. Native Americans, and anyone traveling by foot, were granted free passage on the road.

---

[11] *Acts, Resolutions and Memorials, Adopted by the First Legislative Assembly of the Territory of Arizona* (Prescott: Arizona Miner, 1865), 32-35.

The design and construction of the road were left entirely up to officials of the Mojave and Prescott Toll Road Company, which worked with almost no direct supervision by Territorial officials. Establishing a practice that would be followed for most of Arizona's Territorial period, the legislature required that a temporary road commissioner inspect and approve the road after it had been built.

The commissioner, Jerome Calkins, traveled the completed road in the summer of 1865. "A large amount of work has been done on said Road in grading, clearing out rocks, filling arroyos and gullies," he reported to the Arizona Territory governor. "It is in a condition now throughout its whole length for teams with heavy loads to pass over, with safety and comparative ease, although portions of the distance are naturally rough."[12]

COUNTY ROAD DISTRICTS

With the Territorial government leaving public road construction to the counties, progress in improving Arizona's roads was slow. The counties operated with tight budgets, reflecting their limited tax bases, and all county officials except the sheriff worked part-time.

Following Territorial law, which prescribed how Arizona's counties conducted most of their affairs, county road building was done by temporary construction crews under the supervision of a three-man "viewing committee." These "viewers," as they were called, were typically prominent local citizens who may or may not have had practical experience in construction. They were responsible for determining each new road's route, mediating disputes over the right-of-way, hiring and supervising work crews, and inspecting the road after it was built.[13]

Once roads were built, they were turned over to county road overseers, each of whom was responsible for maintaining the public roads in his local road district. The overseers were part-time officials and could earn as much as $6 per day for their work, most of which involved keeping roads clear of obstructions and organizing temporary repair crews. There were no formal education or experience requirements for the position, which meant that sometimes overseers were given their jobs as a reward for political work.

The work crews they supervised were composed of either hired laborers or local residents performing their required road maintenance service. All "able-bodied men" in the county were required to either pay a $6 annual road tax or donate two days of labor to road work. When laborers, materials, or equipment had to be hired or purchased, the expenses were paid with funds raised by a property tax devoted specifically to road improvements.

This system remained in place, with minor changes made by the legislature, until 1909—a period that spanned more than four decades. In 1871 the legislature eliminated the viewing committees, dividing their authority between the county boards and the road overseers. Henceforth, new road construction work would be contracted directly by the supervisors,

---

[12] Letter from Jerome Calkins to Gov. John N. Goodwin, Mojave and Prescott Toll Road Co. files (FE Sacks 19/5 and 24/11), Arizona Historical Foundation, Hayden Library, Arizona State University.

[13] *The Compiled Laws of the Territory of Arizona, Including the Howell Code and the Session Laws, from 1864 to 1871* (Albany, N.Y.: Weed, Parsons and Co., 1871), 548ff.

with the overseers left in charge of the work itself. The labor donation requirement was kept, though it was lowered to one day per year, where it remained until 1909.

During the late 1860s and early 1870s, this system was sufficient to keep Arizona's roads in more or less adequate repair. However, the revenue generated by the road taxes was not enough to fund more than a few small construction projects. Until the counties could borrow money for road construction by selling bonds, which required approval by the Territorial Legislature, they would have to tolerate the roads they had.

ARMY WAGON ROADS

Most of the roads built in Territorial Arizona were local, that is, they were designed to connect towns with nearby ranches, farms, and mines. Few of these roads were designed to efficiently connect with other roads, nor were they located to reduce traveling times or distances. As a result, many of the Territory's roads were not particularly useful to long-distance travelers.

The exceptions were the roads located and built by the Army, which until the late 1870s was the only authority in Arizona building roads specifically designed for long-distance travel. Even though many of these Army roads were trails rather than properly constructed roads—they were usually called "routes"—they were nevertheless important to Arizona. One popular guidebook published in 1878, the *Hand-Book to Arizona*, identified 41 military routes to and across Arizona.[14]

These military roads connected the forts and camps that the Army had established to support its campaigns against the Territory's Native Americans. They ranged in length from the 39-mile route between Fort Verde and Fort Whipple, which was located at Prescott, to the 316-mile route between Fort Apache, in the White Mountains, and Maricopa Wells, a station on the newly built Southern Pacific Railroad. The guidebook's route descriptions included information about the available water, wood, and grass supplies and provided some instructions on route-finding.

One of the better-known military routes was the General Crook Trail, which was established in the early 1870s between Fort Apache and Fort Whipple. Named after General George Crook, who at the time was the Army commander for Arizona Territory, the road followed the Mogollon Rim from Fort Apache to Fort Verde, where it then descended into the Verde Valley, crossed the Verde River, and followed the Cherry Creek road to Prescott (see Figure 2). The route was laid out by Crook in 1871, and construction work started in 1872. Most of the work was confined to removing large obstacles such as trees and rocks from the roadbed. By 1873 the trail was declared ready for pack trains, and by 1874 it was considered usable by wagons.[15]

---

[14] Richard J. Hinton, *Hand-Book to Arizona: Its Resources, History, Towns, Mines, Ruins and Scenery* (1878; Tucson: Arizona Silhouettes, 1954), xxii (appendix).

[15] Eldon Bowman and Elaine Cassey, *A Guide to the General Crook Trail* (N.p.: Museum of Northern Arizona and Boy Scouts of America, 1978).

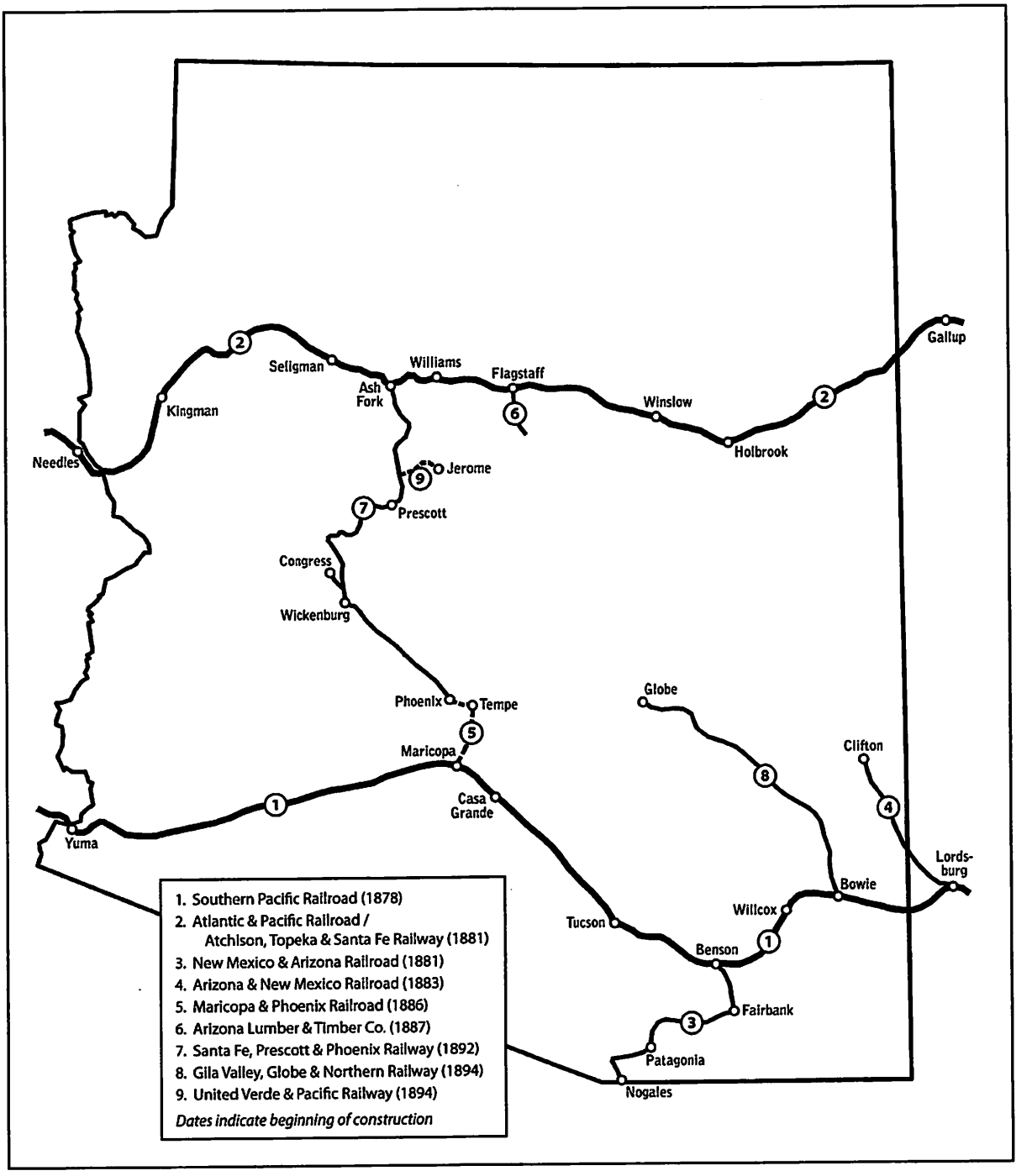

Figure 3. Early Arizona Railroads, 1894.

With the exception of the two transcontinental railroads, the Southern Pacific and the Santa Fe, most of the early railroads in Arizona were built to serve the Territory's mining regions. Based on data from Donald B. Robertson, *Encyclopedia of Western Railroad History; The Desert States: Arizona, Nevada, New Mexico, Utah* (Caldwell, Idaho: Caxton Printers, 1986).

Travel on the General Crook Trail was never easy. One Army wife who took the road soon after its opening, Martha Summerhayes, vividly recalled the experience many years later: "For miles and miles the so-called road was nothing but a clearing, and we were pitched and jerked from side to side of the ambulance as we struck large rocks or tree-stumps; in some steep places, logs were chained to the rear of the ambulance, to keep it from pitching forward onto the backs of the mules."[16]

The completion of Arizona's transcontinental railroads rendered Crook's Trail unnecessary for long-distance wagon freighting, but the road continued to be used by Army troops on patrol and by settlers and ranchers in the Mogollon Rim country. Many parts of it can still be traveled today using U.S. Forest Service trails and roads.[17]

ARRIVAL OF THE RAILROAD

Some relief for Arizona's lack of good roads was provided in the late 1870s, when railroads came to the Territory. The Southern Pacific Railroad was the first to build in Arizona, completing its line across the Territory in 1880. It was followed soon thereafter by the Atlantic and Pacific Railroad, a subsidiary of the Atchison, Topeka and Santa Fe Railroad (commonly known as the Santa Fe), which completed its Arizona line in 1883 (see Figure 3).[18]

The Southern Pacific line, which largely followed the 32nd parallel route surveyed by Lt. John Parke in 1854, originally was to have been built by the Texas and Pacific Railway. However, when the Southern Pacific arrived at Fort Yuma in 1877, after building east from the California coast, the Texas and Pacific had yet to lay any track outside Texas. Although the Southern Pacific was not authorized by its federal charter to build in Arizona, it nevertheless constructed a bridge across the Colorado River and extended its tracks into the town of Yuma, which it reached on September 30, 1877.

After securing a charter from the Arizona legislature authorizing it to build a railroad across the Territory, the Southern Pacific resumed its eastward advance in late 1878. By the spring of 1879 the railroad had reached Maricopa, which became the station serving Phoenix, and in March 1880 the railroad arrived in Tucson.

Later that year, in October 1880, Southern Pacific tracklayers crossed the New Mexico border east of San Simon. A year after that, in 1881, Arizona gained its first direct railroad link to the Midwest and East, as the Santa Fe built a line south from Albuquerque to Deming, New Mexico, connecting the Southern Pacific to the Santa Fe's rapidly growing transcontinental network.

Like the Southern Pacific, the Santa Fe was not chartered by the federal government to build in Arizona. That right had been given to the Atlantic and Pacific Railroad, which

---

[16] Martha Summerhayes, *Vanished Arizona* (Lincoln: University of Nebraska Press, 1979), 69.

[17] Public Lands Information Center, "General Crook National Recreation Trail, Arizona," http://www.publiclands.org/explore/site.php?id=967, accessed November 17, 2009.

[18] Janus Associates, *Transcontinental Railroading in Arizona, 1878-1940* (Phoenix: Arizona State Historic Preservation Office, 1989).

planned to follow the 35th-parallel route surveyed in 1853 by Lt. Amiel Whipple. However, after completing less than 400 miles of track in Missouri, the Atlantic and Pacific went bankrupt in 1876. Eventually the Santa Fe acquired a controlling interest in the Atlantic and Pacific and, using the latter's transcontinental charter, began surveying a route across northern Arizona.

Construction started in Albuquerque in the summer of 1880. By the following May, track-laying crews had reached Lupton, Arizona, on the border with New Mexico. Work proceeded rapidly as far as Winslow, which was reached in December 1881, but then progress slowed as the tracklayers waited for other Santa Fe workers to erect a bridge across Canyon Diablo, a 225-foot-deep canyon that had always been a major obstacle to east-west travel across northern Arizona.

The Canyon Diablo bridge, together with a bridge across Canyon Padre, was finished in the summer of 1882, allowing the Santa Fe's track-laying crews to continue their westward push. In August 1882, the first Santa Fe trains reached Flagstaff. A year later, on August 13, 1883, they rolled into Needles, California, where the Santa Fe connected with the Southern Pacific. Arizona now had its second transcontinental railroad service.

Curiously, neither of these railroads served Phoenix, which was rapidly growing and would become Arizona's capital in 1889. The closest rail stop was the Southern Pacific station at Maricopa, leaving Phoenix-bound passengers with a 35–mile stagecoach ride to complete their journey. It was not until 1887, when the Maricopa and Phoenix Railroad was completed, that Phoenix received direct rail service (see Figure 3).

The arrival of the Southern Pacific and the Santa Fe laid the groundwork for the development of Arizona's modern economy. Some of the changes were immediately felt, while others would not occur until the early years of the 20th century. The railroad greatly reduced the cost and time required to ship goods to and from Arizona. More importantly, it made it economical for producers to ship bulky agricultural and mining products. This allowed such critical Arizona industries as citrus and cotton farming, copper mining, and cattle ranching to grow and prosper.

The beginning of rail service in Arizona also increased the demand for improved roads, as businesses and towns across the Territory pushed for better connections to the two railroads' depots. Before the railroads could be used to ship goods to and from Arizona, new roads had to be built to transport those goods.

TERRITORIAL WAGON ROADS

In 1877, with the Southern Pacific poised to enter the Territory at Yuma, Arizona legislators finally brought the Territorial government into the road-building business. The Territory's first project was a wagon road between Phoenix and Globe that was funded with $10,000 in Territorial bonds ($205,000 in current dollars)—the first bonds in Arizona to be issued for a highway construction project.

Establishing a supervisory procedure that would be followed until 1909 for all Territorial road projects, the legislature appointed three road commissioners to oversee the project. In return for a salary of $6 per day, these three men—all prominent Maricopa County residents—were expected to oversee the survey, location, and construction of the road. They could either supervise the work directly or delegate that responsibility to contractors, who were required to submit competitive bids.

Between 1877 and 1885, the Territory issued additional road bonds totaling more than $70,000. This represented a substantial increase in spending compared to previous years, yet it was still a modest sum—less than $10,000 per year—considering how many miles of roadway were needed to serve a territory as large as Arizona.

Not everyone was satisfied with that level of spending, however. In 1879 Governor John C. Fremont urged the Arizona legislature to appropriate $500,000 for road projects in the Territory. The legislators demurred, though, and instead of endorsing Fremont's ambitious spending plan, they authorized just two road projects: $40,000 for roads between Globe and Tucson, Globe and Florence, and Gillett and the Tiger Mine in Yavapai County, and $10,000 for a road between Agua Fria and Camp Verde.

A typical Territorial road project of this era was the Ehrenberg-Yuma road, which was funded in 1881 with a $10,000 bond issue. For the first 50 miles of the road, from Yuma to the Castle Dome Mountains and Kofa Mountains, workers improved existing roads built to serve mines in the area. For the remaining 60 miles, from the Kofa Mountains to Ehrenberg, they surveyed and built a new roadway. It was completed in 1882, at which time the commissioners in charge of the project reported, "The entire road is in excellent condition, and can be kept in repair at small expense. The road is traveled over by four and six horse teams; and has proven of immense benefit to people living above Yuma."[19]

Four years later, in 1885, the Arizona legislature authorized several road projects, one of which was the first bridge to be built by the Territory. Crossing the Gila River near Florence, the bridge was erected by a California company at a cost just over $15,000. Nearly a thousand feet long, it was constructed of redwood pilings and had a wooden roadway that was 16 feet wide. "The Bridge has been tested, at different times, by a twenty mule team with four heavily loaded wagons without spinning [sic] or giving away in the least," the bridge commissioners reported after its completion.[20]

In 1886 the Territory's road-building program was brought to a halt by Congress' passage of the Harrison Act, which was intended to reform the financial affairs of all of the nation's territories. The law imposed new limits on how much debt each territory could incur, and because Arizona had already exceeded those limits, the Arizona legislature was forced to stop issuing bonds for roads and other public works. For the next 23 years, all road construction in Arizona was undertaken by the counties, which could more easily float the bond issues required to finance such large projects.

---

[19] Miscellaneous Road Records, Secretary of the Territory, RG 6, Arizona State Archives.

[20] Records of the Secretary of Territory, RG 6, Box 1, Arizona State Archives.

ROAD BUILDING BY THE COUNTIES

In fact the counties had been issuing road bonds for some time, in some years spending more than the Territorial government on road construction. In 1877, the same year that the Territorial government had approved a $10,000 bond issue for the Phoenix-Globe road, Maricopa County sold $15,000 in bonds to pay for the construction of wagon roads from Phoenix to several destinations. This included two roads to Prescott, one via Black Canyon and the other via Wickenburg; a road to Yuma via Agua Caliente; and a road to Globe. Also that year, Yavapai County issued $40,000 in bonds to build wagon roads from Prescott into the Bradshaw Mountains, to Iron Springs, and into Black Canyon.

Between 1879 and 1885, Arizona's counties were authorized by the Territorial Legislature to issue nearly $60,000 in bonds to finance road projects—a sum almost as great as that spent by the Territory on road building during that period. Most of these new county roads were in Maricopa and Yavapai counties, but Pinal and Graham counties also were able to carry out projects. All of these bond issues were to be repaid using property taxes.

The fact that most of these new roads were being built by only a few counties pointed to a problem that would bedevil road planners in Arizona for many decades: while some counties saw rapid improvement of their roads, others remained "road poor." Using property taxes to finance road construction, as Arizona's counties did, it worked to the advantage of wealthier and more populous counties like Maricopa, Pima, and Yavapai, and to the disadvantage of less developed counties like Apache, Navajo, and Santa Cruz.

Even if the counties had wanted to seek new funding sources, they could not do so without approval from the Territorial Legislature, which did not extend home rule to Arizona's counties. The legislature's 1871 law establishing the county road districts remained in effect until 1909. Some counties secured passage of special road laws by the legislature, as Maricopa County did in 1883, but these were nearly identical to the 1871 law. Indeed, the only real changes made for Maricopa County were to drop the requirement that county residents do road work each year and to adjust the county's road tax rates.

After passage of the 1886 Harrison Act, Arizona's counties also were forced to limit their debt, though not so much that they could no longer issue road bonds. They built roads all through the Territorial period, and many of these new county roads laid the groundwork for what would later become Arizona's first state highway system. For example, the wagon roads built by Maricopa County and Yavapai County between Phoenix and Flagstaff would eventually be incorporated into U.S. Route 89 and State Route 69. By the later years of the Territorial period, Arizona's counties together were spending an average of $200,000 a year on road construction and maintenance—a significant increase from the limited expenditures of earlier years.[21]

---

[21] *Report of the State Engineer of the State of Arizona, July 1, 1909, to June 30, 1914* (Phoenix, 1914), 19.

However, the quality of road construction varied enormously from county to county and from road to road. There still was only one major bridge in Arizona, the one across the Gila River at Florence, and none of the Territory's roads were paved. Indeed, only a few miles of roadway were even surfaced with gravel; most Arizona roads still had surfaces of unimproved dirt. Maintenance was spotty, with most work supervised not by engineers but by local contractors and officials whose primary credentials were political rather than professional.

None of this was necessarily anyone's fault. In 1910, two years before statehood, Arizona had only 204,000 residents and little taxable property by national standards. Its centers of population and economic activity were separated by large distances and rugged terrain that posed significant challenges to highway engineers. Under such circumstances, it was difficult and expensive to construct even the most basic of road networks.

Fortunately for Arizona, the lack of good roads was not a serious problem during most of the Territorial period. In many parts of the Territory, where the climate was dry and the soils rocky, the mud that plagued road users in other parts of the country was blessedly absent for most of the year. And when conditions were bad, the horses and mules that Arizonans used for transportation were usually able to negotiate even the worst trails.

THE TERRITORIAL ENGINEER AND ARIZONA'S FIRST HIGHWAY SYSTEM

The world was changing, though. The modern industrial economy taking shape in the United States depended on good roads. So, too, did a new mode of transportation coming onto the scene—the automobile.

Recognizing this, the Territorial Legislature took Arizona's first step toward creating a modern road system in 1909, when it overhauled the Territory's road law. Most importantly, the legislature placed Territorial road construction and maintenance under the supervision of a Territorial Engineer who was required to be "a practical competent civil engineer." In return for a salary of $3,000, and aided by a $2,500 appropriation for office expenses, the Territorial Engineer was expected to set up a formal Territorial highway system, design and supervise the construction of all new Territorial roads, and provide engineering support to the counties.[22]

The legislature also ordered changes at the county level. The road districts were abandoned and the local road overseers replaced by county road superintendents "skilled and experienced in the construction of roads and highways." Each superintendent was required to "give his full time to the duties of his office and shall conduct no other business requiring attention," bringing to a close the era of part-time political road commissioners and overseers.[23]

---

[22] *Report of the State Engineer... 1909 to 1914*, 16ff.

[23] *Acts, Resolutions and Memorials of the Twenty-Fifth Legislative Assembly of the Territory of Arizona* (Phoenix: Phoenix Printing Co., 1909), 164.

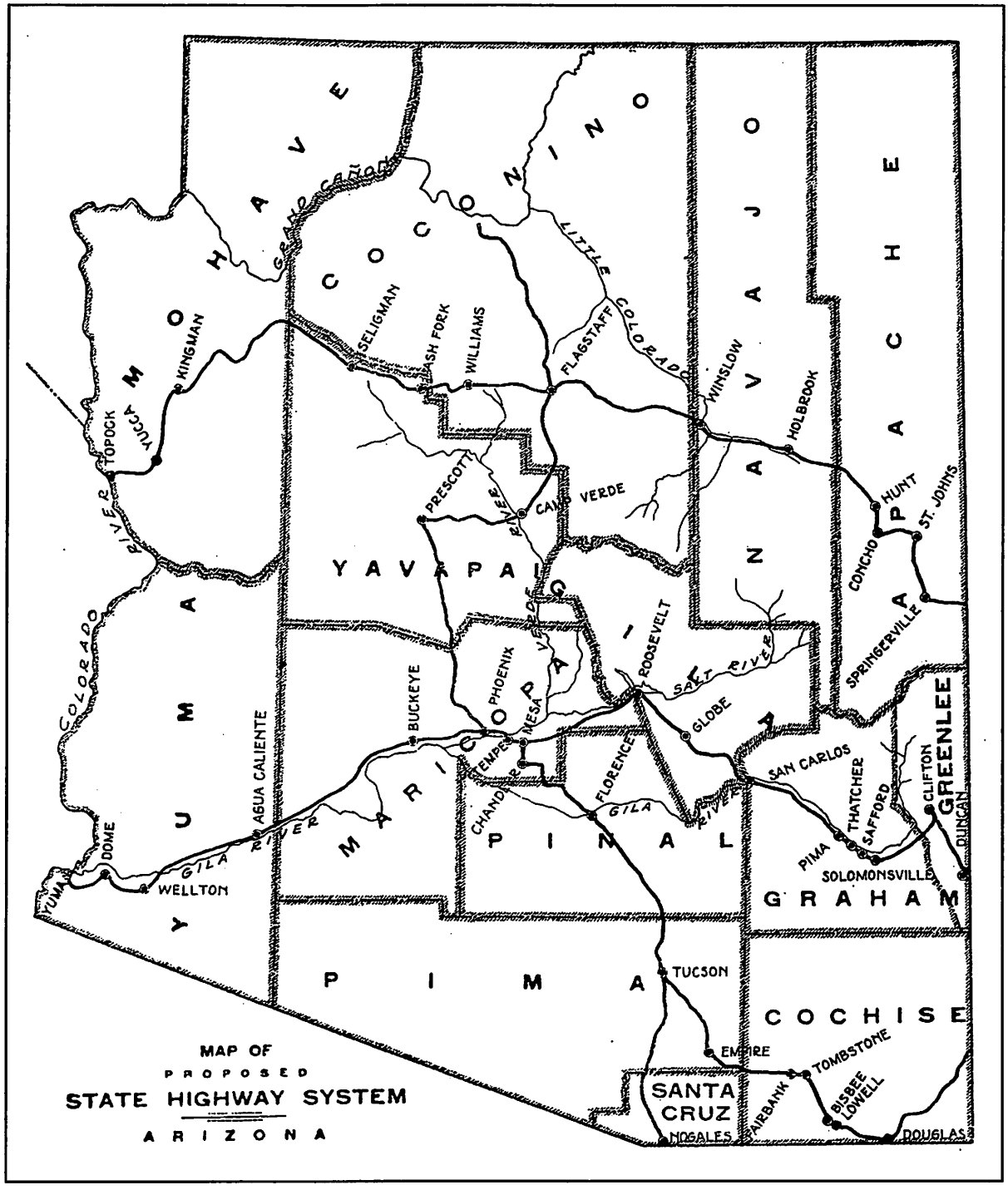

Figure 4. Arizona's First Highway System, 1914.

From *Report of the State Engineer of the State of Arizona, July 1, 1909, to June 30, 1914* (Phoenix, 1914).

The Territorial road system created by the Arizona legislature in 1909, at first existed only on paper. It consisted of just two roads, one running east-west between Yuma and Duncan, on the New Mexico border in southeastern Arizona, and the other running north-south between Douglas and the Grand Canyon (see Figure 4).

To pay for this new system, the legislature created Arizona's first road tax: a property tax administered by the counties. In counties with no Territorial highway—the two roads in the system did not pass through every Arizona county—the tax rate was lower than in counties served by a highway in the new system. The new tax did not raise large sums of money, a reflection not only of the low tax rate but also Arizona's limited tax base. During the last three years of the Territorial period, Arizona collected just $546,000 in road taxes and spent $560,000 on road surveys and construction—an average of $187,000 per year.[24]

Not surprisingly, given Arizona's size and the poor condition of its existing roads, progress in building the new Territorial system was slow. During the three final years of Territorial government, the engineer surveyed more than 1,200 miles of roadway but was able to construct only 145 miles of new roadway, most of which was part of the Douglas–Grand Canyon highway.

As a result, most travelers in Arizona noticed few real improvements. Isolated sections of roadway were graded, drained, and surfaced with crushed gravel, but they were still interspersed with long sections of roadway that had been built with nothing more than dirt and other local materials. For more significant road improvements, Arizonans would have to wait for assistance from the federal government, which did not come until after Arizona attained statehood.

[24] *Report of the State Engineer...1909 to 1914*, 17, 30.