

**Metro Phoenix Area Drainage Master Plan
Flood Control District of Maricopa County
Recommended Alternatives Analysis
Environmental Considerations**

Executive Summary

The Flood Control District (FCD) of Maricopa County is in the process of developing the Metro Phoenix Area Drainage Master Plan (ADMP). As a part of this process, a recommended alternatives analysis was completed to identify environmental considerations including hazardous materials sites and facilities and previously identified cultural resources. Identification of these factors will be used in the selection of the preferred alternatives for the ADMP.

Hazardous Materials Investigation

A hazardous materials area of concern (HMAC) was identified (Figure 5) and a hazardous materials investigation was conducted. Arizona Department of Environmental Quality (ADEQ) and Environmental Protection Agency (EPA) databases were searched and the resulting information was reviewed to identify facilities or sites that have reported incidents involving hazardous materials. A total of 336 hazardous materials incidents or sites were recorded within the HMAC. A more detailed summary of the hazardous materials incidents or sites by type can be found in Section 1.2 Hazardous Materials Database Review.

The final ADMP project area and selected alternative(s) will need to be evaluated for specific hazardous materials impacts before plan implementation.

Cultural Resources Investigation

A cultural resources inventory area was identified (Figure 6) and a cultural resources investigation was conducted to identify any cultural resources in the project area that could be affected by the proposed ADMP alternatives. The investigation included background research to compile the previously documented archaeological and historic sites and surveys conducted. Cultural considerations were identified from information gathered from the Arizona State Historic Preservation Office, the Arizona State Museum, and the National Park Service's National Register Information System.

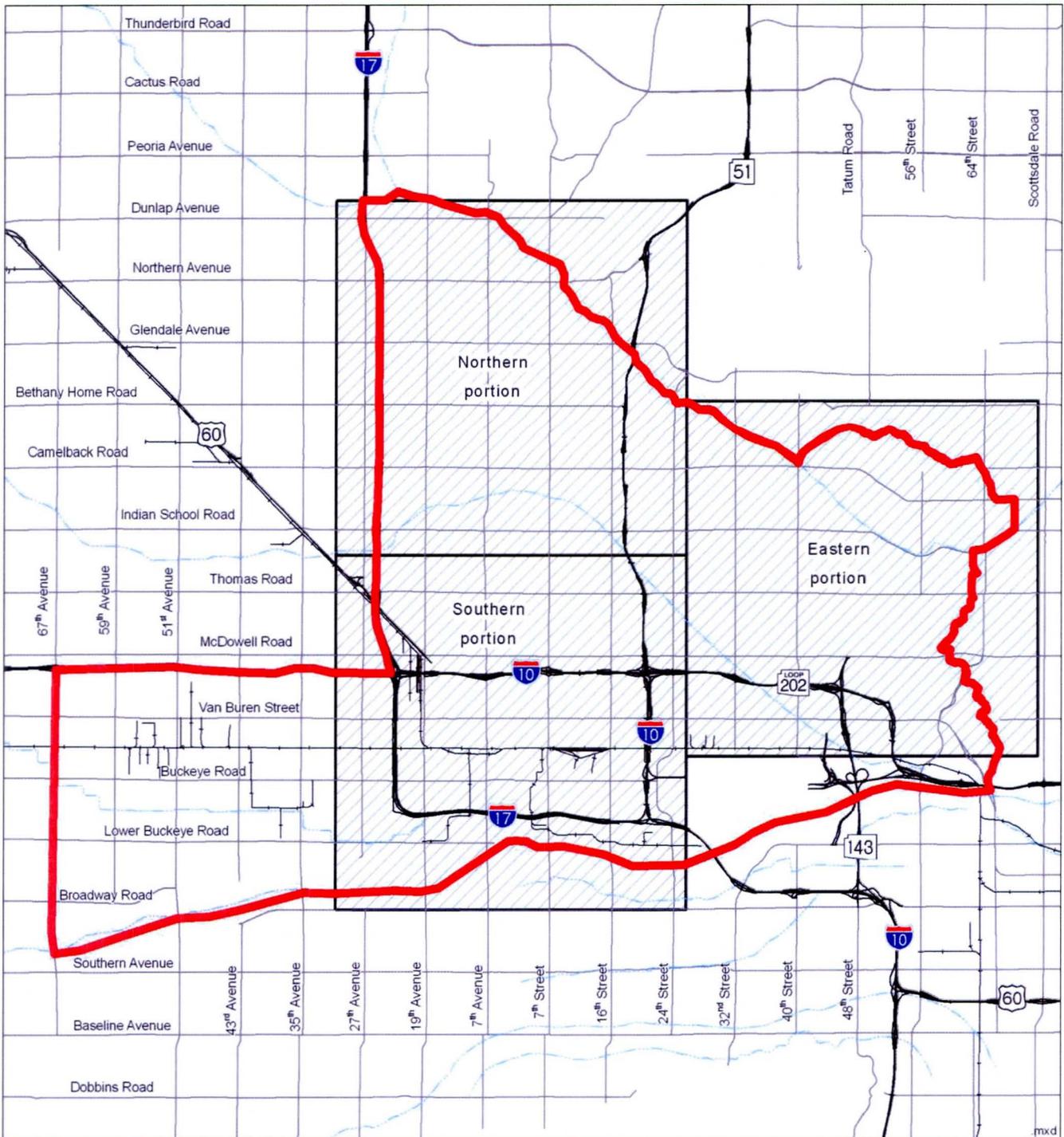
The cultural resources records search indicated that 56 surveys were previously conducted in the inventory area, resulting in coverage of approximately 6 percent of the project area. In total, 53 known archaeological sites, 34 historic districts, and numerous National Register of Historic Places listed historic properties were previously recorded in the inventory area. Twenty-eight of these archaeological sites overlap the project area. A more detailed listing of the numbers and types of sites affecting each of the project alternatives can be found in Section 2.4 Cultural Resources Information.

A more detailed assessment of known cultural resources is recommended prior to plan implementation. The level of detail needed, identification of potential agencies involved and construction related recommendations to preserve cultural resources are further described in Section 2.3 Summary of Cultural Resources Recommendations.

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Introduction

The Flood Control District (FCD) of Maricopa County is in the process of developing the Metro Phoenix Area Drainage Master Plan (ADMP) (Figure 1). Known and potential flooding hazards within the Metro Phoenix area have been identified. The ADMP will review the flood hazard areas and drainage problems identified in the ADMP and then provide an alternatives analysis. Thirty-two alternatives (28 structural and 4 nonstructural) are being studied for inclusion in the ADMP (Figures 2–4). The following sections identify hazardous materials sites and facilities and previously identified cultural resources within portions of the overall study area. Identification of these factors will aid in the selection of preferred alternatives for the ADMP. The study team will use this information to help in the selection of cost-effective solutions to alleviate or manage flooding in the Metro Phoenix study area.



Source: Arizona Transportation System GIS Coverage (2006)

Key

-  Study area
-  Alternative detail area (see figures 2-4)

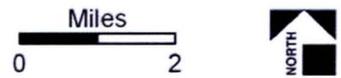
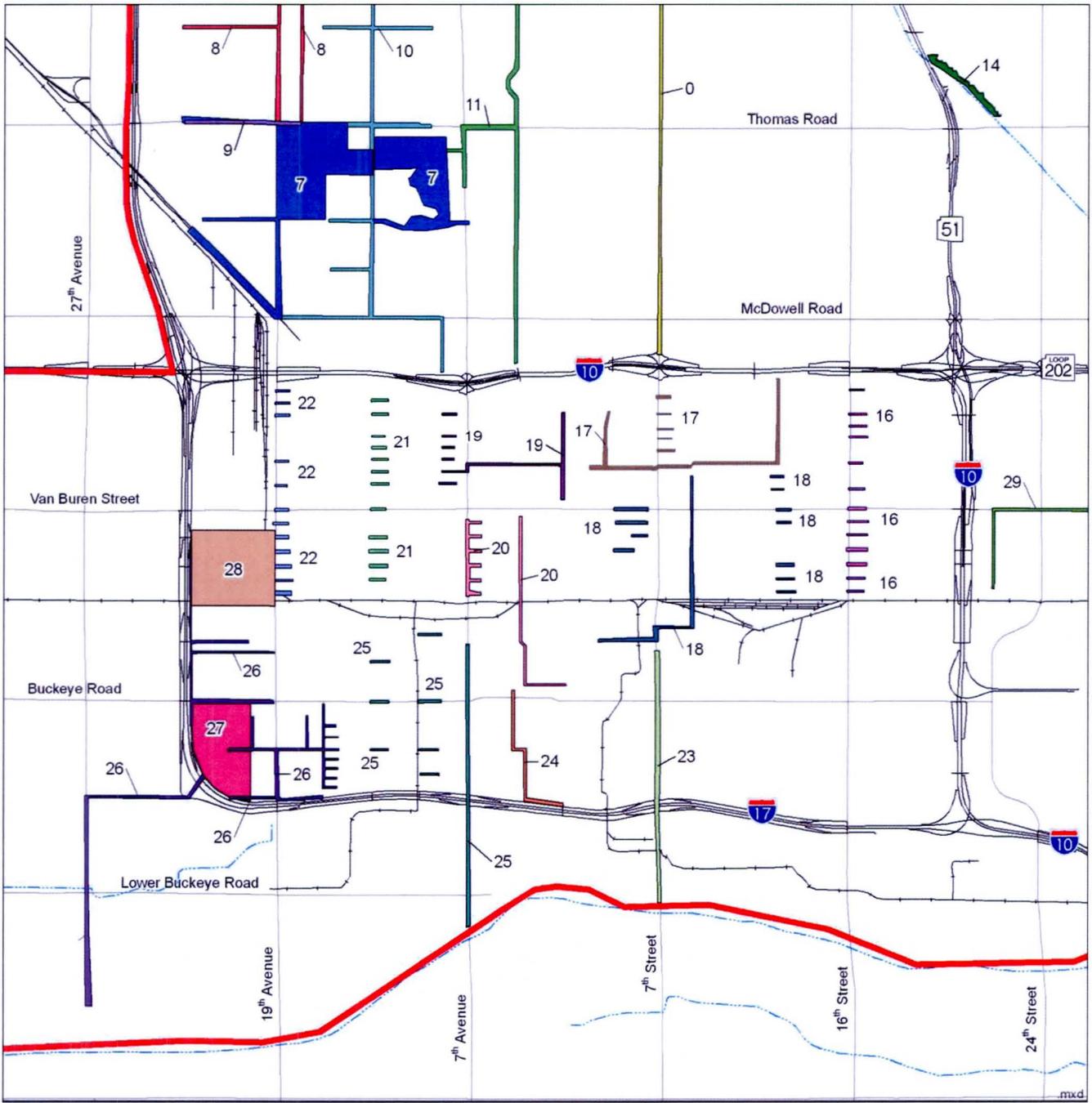


Figure 1. ADMP study area



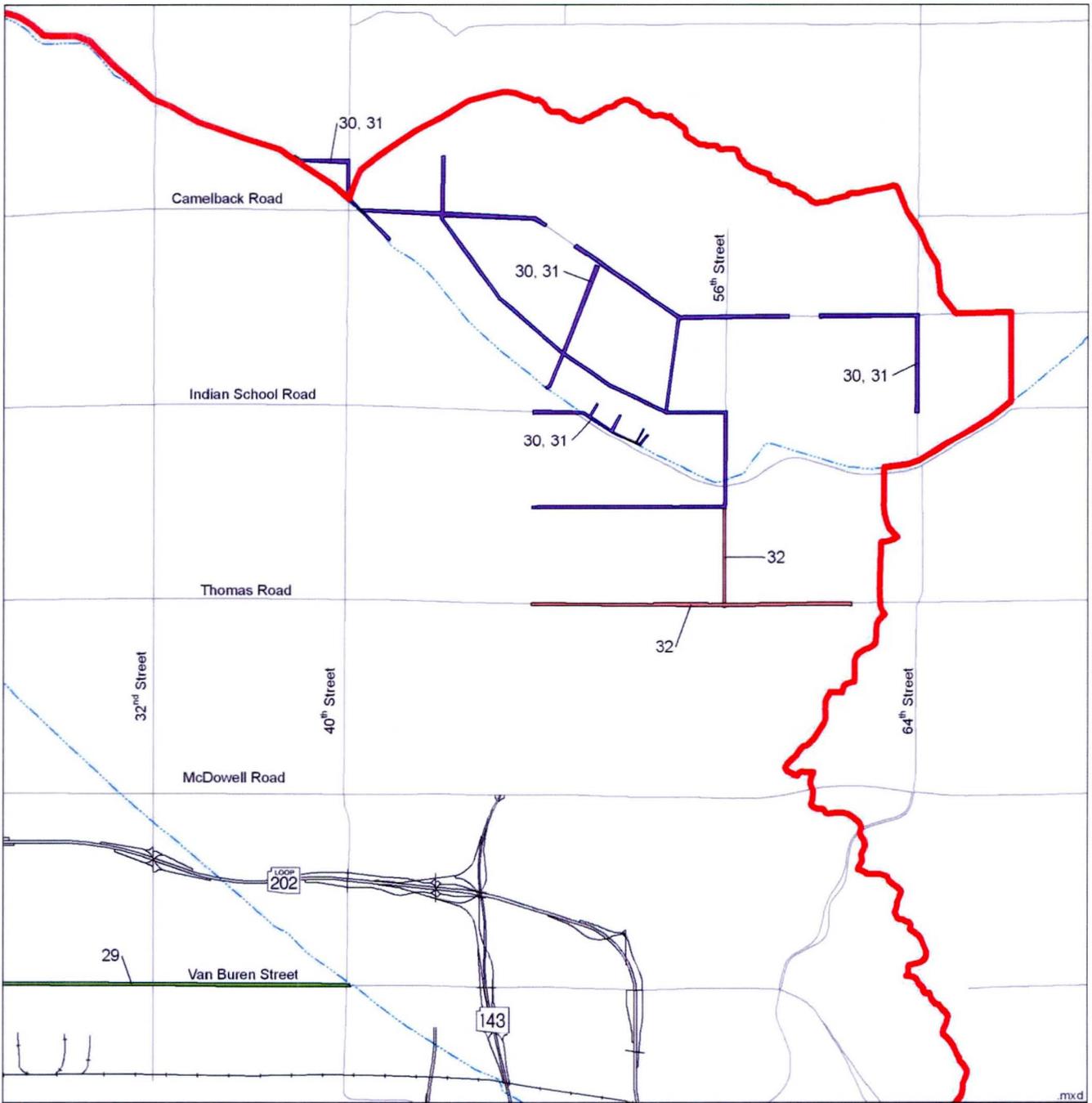
Source: Arizona Transportation System GIS Coverage (2006)

Key

	Study area		Alt. 10		Alt. 18		Alt. 23		Alt. 28
	Alt. 0		Alt. 11		Alt. 19		Alt. 24		Alt. 29
	Alt. 7		Alt. 14		Alt. 20		Alt. 25		Alt. 26
	Alt. 8		Alt. 16		Alt. 21		Alt. 26		Alt. 27
	Alt. 9		Alt. 17		Alt. 22				



Figure 2. Project alternatives in the southern portion of the study area



Source: Arizona Transportation System GIS Coverage (2006)

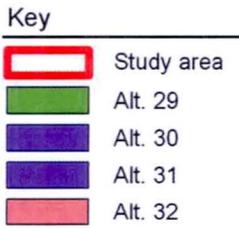
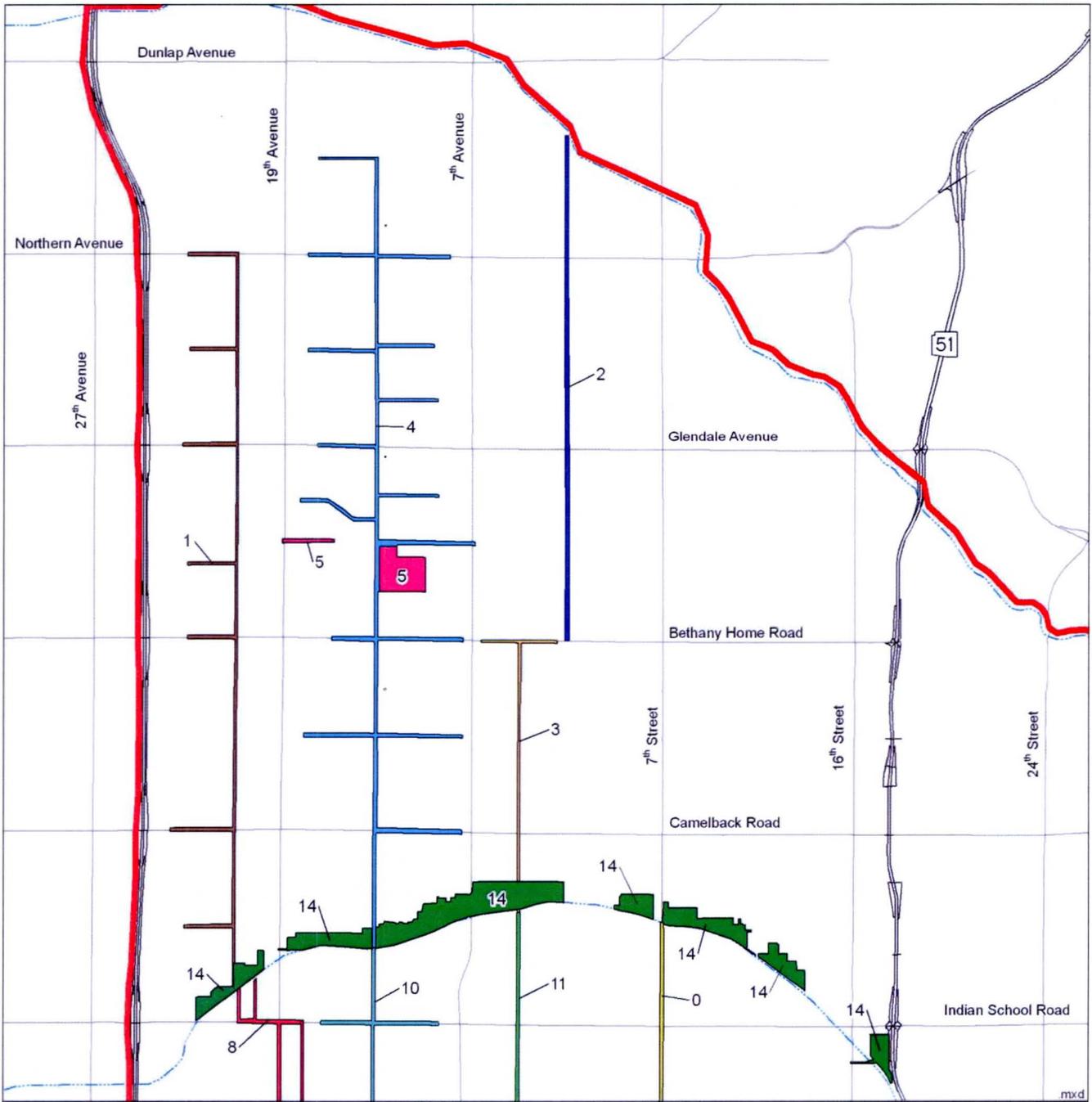


Figure 3. Project alternatives in the eastern portion of the study area



Source: Arizona Transportation System GIS Coverage (2006)

Key

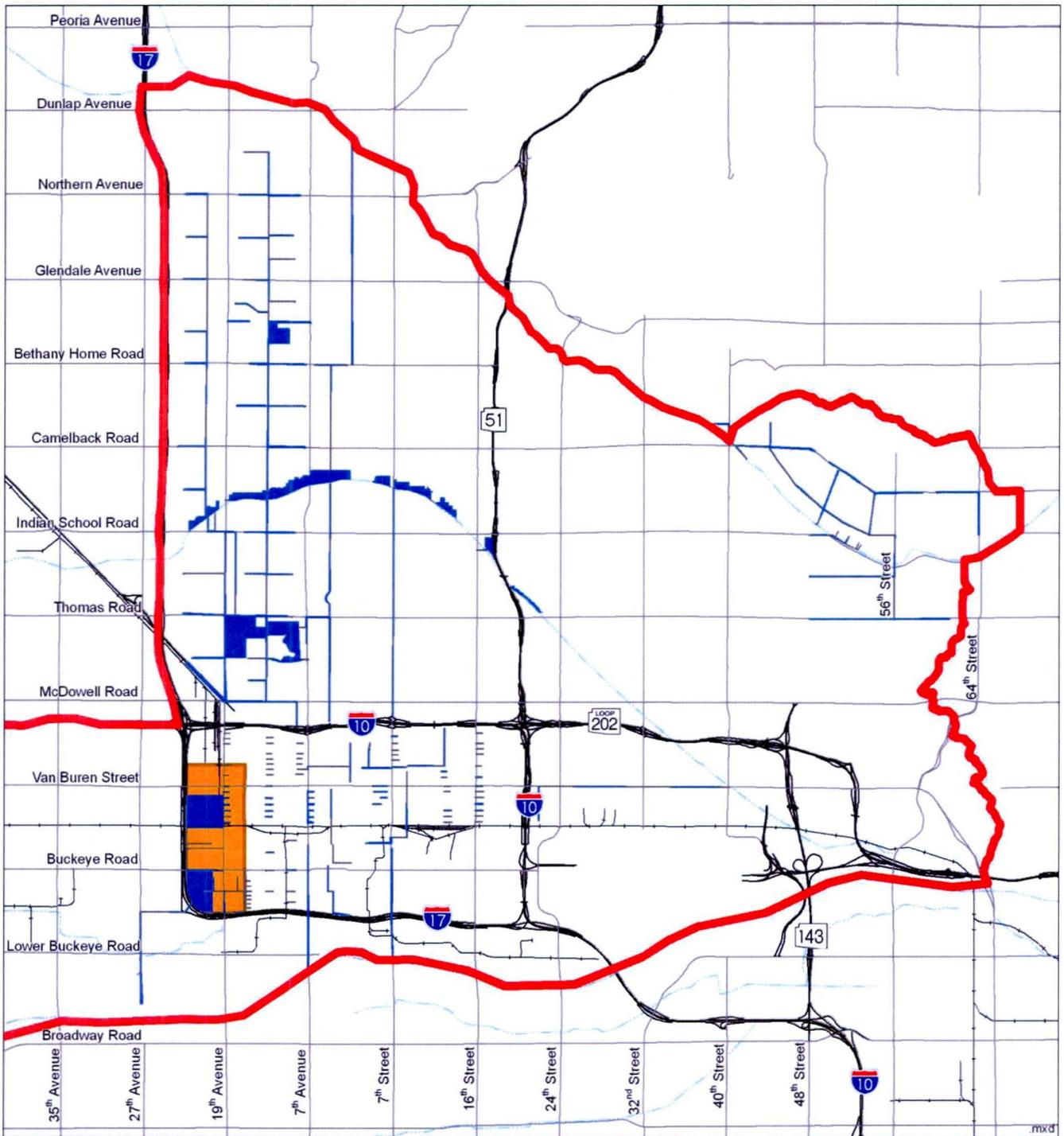
	Study area		Alt. 3		Alt. 10
	Alt. 0		Alt. 4		Alt. 11
	Alt. 1		Alt. 5		Alt. 14
	Alt. 2		Alt. 8		



Figure 4. Project alternatives in the northern portion of the study area

1. Hazardous Materials Investigation

The FCD identified a hazardous materials area of concern (HMAC) that was used to conduct a hazardous materials investigation. The HMAC is located in downtown Phoenix bounded by Polk Street to the north; 17th Street to the east; Interstate 17 (I-17)/United States (US 60), the Maricopa Freeway, to the south; and, Interstate10 (I-10)/US 60, the Black Canyon Highway, to the west. The project is located to the northeast of the I-17/US 60 Durango Curve from approximately mileposts 200.0 to 197.7 (Figure 5).



Source: Arizona Transportation System GIS Coverage (2006)

Key

- Study area
- Environmental Analysis limits
- Flood Control District hazardous materials area of concern



Figure 5. Location of HMAC within overall project study area

1.1 Results of Hazardous Materials Database Review

Logan Simpson Design Inc. reviewed information provided by the Arizona Department of Environmental Quality (ADEQ) and the Environmental Protection Agency (EPA) to identify facilities or sites that have reported incidents involving hazardous materials, such as improper storage, use, or transportation. Results from the database search can be found in Tables 1–15 of Section 3.1, Hazardous Materials Database Review. The HMAc includes FCD Alternatives 27 and 28 and portions of Alternatives 22 and 26 (Figure 2).

1.2 Hazardous Materials Database Review

A review of the ADEQ databases was performed in March 2007:

- The Arizona Directory of Open Municipal Solid Waste Landfills reported no sites within the HMAc.
- The Arizona Directory of Inactive and Closed Solid Waste Landfills reported no sites within the HMAc.
- The Arizona Directory of Septic Landfills reported one site within the HMAc (Table 1).

Table 1. ADEQ septic waste landfills

Facility name	Owner	Address	Location	Zip code
Western Hydrovac	Allwaste Inc.	510 S 18th Ave	Within HMAc	85007

Source: ADEQ, <<http://www.azdeq.gov/environ/waste/solid/download/septic.pdf>>

- The ADEQ Directory of Septage Haulers reported two licensed septage hauler vehicles within the HMAc (Table 2).

Table 2. ADEQ licensed septage hauler vehicles

ADEQ#	Owner	DBA	Address	Location	Vehicle VIN number
1458	Not listed	Pro Pipe	2222 W Grant St	Within HMAc	1FDZW90T3PVA32373
1588	Hoffman Southwest Corp.	Professional Pipe Services	2222 W Grant St	Within HMAc	2F2HAZASB3AL76168

Source: ADEQ, <<http://www.azdeq.gov/environ/water/permits/download/haulers-num.pdf>>

- The Directory of Arizona's Waste Tire Collection Sites and Waste Tire Processing Facilities reported no sites within the HMAc.
- The ADEQ Water Quality Assurance Revolving Fund (WQARF) Registry reported one facility within the HMAc (Table 3).

Table 3. WQARF sites

Site name	City	Location	Type of risk
West Van Buren	Phoenix	The site is bounded by McDowell Rd to the north, 7th Ave to the east, Buckeye Rd to the south and 75th Ave between Buckeye and Lower Buckeye Rd. A finger-shaped plume exists between 7th Ave and 27th Ave between Buckeye and Lower Buckeye Rd.	Groundwater contamination from multiple sources. Contaminants include tetrachloroethene (PCE); trichloroethene (TCE); 1,1-dichloroethane (DCA); cis-1,2-dichloroethene (cis-1,2-DCE); 1,1-dichloroethene (DCE); and chromium. Contaminants of concern may change as new data become available.

Source: ADEQ, <<http://www.azdeq.gov/environ/waste/sps/download/registry.pdf>>

- The Arizona Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDFs) database reported no facilities within the HMAc.
- The ADEQ Drywell Registration list reported 37 facilities within the HMAc (Table 4).

Table 4. AZDEQ drywells

Facility name	Registration number	Address	Location	Number of drywells
Burke Company Warehouse Addition	1284	1515 S 22nd Ave Phoenix AZ 85009	Within HMAc	5
COP Streets	8256	21st Ave & Jefferson St Phoenix AZ 85009	Within HMAc	1
Canyon State Auto Care	29498	202 N 19th Ave Phoenix AZ 85009	Within HMAc	1
CMC Brost	33808	601 S 19th Ave Phoenix AZ 85009	Within HMAc	3
Donaldson Equipment Sales	4409	2149 W Buckeye Rd Phoenix AZ 85009	Within HMAc	2
Former Warehouse Building (Vacant)	14468	520 S 19th Ave Phoenix AZ 85009	Within HMAc	1
Hamilton School	28836	2020 W Durango Phoenix AZ 85009	Within HMAc	2
Jose's Pallets	18853	2135 W Buckeye Rd Phoenix AZ 85009-5934	Within HMAc	1
V. E. M.	11212	715 N Black Canyon Highway Phoenix AZ 85009	Within HMAc	1
Verde Industries	31549	3812 W Washington Phoenix AZ 85009	Within HMAc	1
Whataburger Restaurant	4458	1840 S 19th Ave Phoenix AZ 85009	Within HMAc	5
ADHS–State Health Lab	29112	250 N 17th Ave Phoenix, AZ 85007	Within HMAc	2
ADOT–Engineering Building	10032	205 S 17th Ave Phoenix, AZ 85007	Within HMAc	1
ADOT Sign Factory	16195	2104 S 22nd Ave Phoenix, AZ 85007	Within HMAc	4
Advanced Electrical Sales	17179	1717 W Grant Phoenix, AZ 85007	Within HMAc	2
COP Streets	8249	351 N 21st Ave Phoenix, AZ 85007	Within HMAc	1
COP Streets	8250	2035 W Monroe St Phoenix, AZ 85007	Within HMAc	1
COP Streets	8251	2145 W Monroe St Phoenix, AZ 85007	Within HMAc	1
COP Streets	8252	2043 W Washington St Phoenix, AZ 85007	Within HMAc	1
COP Streets	8253	2137 W Washington St Phoenix, AZ 85007	Within HMAc	1
COP Streets	8254	203 ft W of RR tracks, 1900 W Monroe Phoenix, AZ 85007	Within HMAc	1
COP Streets	8255	1940 W Washington St Phoenix, AZ 85007	Within HMAc	1
COP Streets	8390	50 ft N of Van Buren on 17th Dr Phoenix, AZ 85007	Within HMAc	1
COP Streets	8391	401 N 18th Ave Phoenix, AZ 85007	Within HMAc	1
COP Streets	8392	50 ft N of Van Buren on 18th Ave Phoenix, AZ 85007	Within HMAc	1

continued

Table 4. AZDEQ drywells

Facility name	Registration number	Address	Location	Number of drywells
COP Streets	8393	401 N 17th Drive Phoenix, AZ 85007	Within HMAC	1
COP Streets	8416	94 ft E of 19th Ave on Monroe Phoenix, AZ 85007	Within HMAC	1
COP Streets	8417	18th Ave & Jackson N of intersec Phoenix, AZ 85007	Within HMAC	1
COP Streets	8418	1820 W Washington St Phoenix, AZ 85007	Within HMAC	1
COP Streets	8421	68 ft E of 18th Ave on Monroe Phoenix, AZ 85007	Within HMAC	1
COP Streets	8422	1701 W Monroe St Phoenix, AZ 85007	Within HMAC	1
Capitol Executive Tower Parking Lot	13133	NE corner of 19th Ave & Jefferson St Phoenix, AZ 85007	Within HMAC	3
Econo Lube N' Tune Shop #101	6732	202 N 19th Ave Phoenix, AZ 85007	Within HMAC	1
LRS Investments	24038	1831-1839 W Buckeye Phoenix, AZ 85007	Within HMAC	1
Southwest Environmental Construction	11205	1717 - 1719 W Grant St Phoenix, AZ 85007	Within HMAC	2
State Capitol Parking Lot	25301	17th Ave & Van Buren Phoenix, AZ 85007	Within HMAC	2
Two Office Buildings	13730	1833 W Buchanan St Phoenix, AZ 85007	Within HMAC	1

Source: ADEQ, <<http://www.azdeq.gov/databases/drywellsearch.html>>

- The ADEQ Hazardous Material Incident Logbook (HMIL) reported 27 incidents within the HMAC. An additional 6 incidents occurred along the Union Pacific Rail line; however, precise locations for these incidents is unknown (Table 5).

Table 5. HMIL incidents

Incident no.	Incident Date	Name	Address	Location	Chemical/ Material	Quantity
92-003-E	10/20/1992	Ari-Tex Tires	1701 So. 22nd Ave Phoenix	Within HMAC	Tires (used)	Unknown
97-003-B	01/23/1997	Unknown/DEA	1900 W Jefferson Phoenix	Within HMAC	Drug lab chemicals	Unknown
85-006	01/10/1985	Capital Day Care Center	1937 W Jefferson Phoenix	Within HMAC	Unknown (toxic)	Unknown
00-109-B	04/03/00	Union Pacific Railroad	RRMP* 911.77 Phoenix	Unknown location along rail line	Diesel	N/A
93-060-B	12/10/1993	Disposal Control Services	19 Ave & Buckeye Rd Phoenix	Within HMAC	Flammable liquid NOS	50 gals.
88-299	09/28/1988	Unknown	2200 W Van Buren Phoenix	Within HMAC	Perchloric acid (70%)	4 gals.
01-115-E	03/26/2001	Unknown/COP	21 Ave & Harrison Phoenix	Within HMAC	Solvents, used oil	4-55 gals. each
89-098	04/12/1989	AZ Dept. of Administration	1981 W Madison Phoenix	Within HMAC	Surflan herbicide	50 gals.
94-033-C	06/13/1994	Unknown	1841 W Sonora, Alley Behind Phoenix	Within HMAC	Oil (used)	55 gals.
94-003-E	04/08/1994	Ayres Brothers Trucking	1810 S 19th Ave Phoenix	Within HMAC	Diesel fuel	200 gals.

continued

Table 5. HMIL incidents

Incident no.	Incident Date	Name	Address	Location	Chemical/ Material	Quantity
89-353	11/15/1989	Brian Holt Contractors	1880 E Buchanan Phoenix	Within HMAc	Oil (mineral, poss PCB)	2 gal.
01-094-D	11/24/2000	Unknown	1702 S 19 Ave Phoenix	Within HMAc	Carpets & pads	Unknown
92-147-C	10/12/1992	AGO Impound Lot	1810 W Lincoln Phoenix	Within HMAc	Pesticides (dimethoate)	5 gals.
99-018-D	09/01/1998	North American Van Lines	18 Ave & Buckeye Phoenix	Within HMAc	Diesel	20 gals.
00-085-E	02/11/2000	Union Pacific Railroad	RRMP 900.4 Phoenix	Unknown location along rail line	Denatured alcohol	<100 lbs.
95-043-B	07/24/1995	Santa Fe Railroad	19th Ave & Van Buren Phoenix	Within HMAc	Oil (lube)	50 gals.
96-012-G	03/28/1996	Lopez Residence	2022 W Tonto Phoenix	Within HMAc	Tires	50+
97-029-C	05/08/1997	Union Pacific Railroad	RRMP 907 Phoenix	Unknown location along rail line	Carbon dioxide	Unknown
89-070	03/06/1989	City of Phoenix	1708 E Mohave Phoenix	Within HMAc	Styrene, vinyl toluene	One 55-gal drum
90-046-B	05/17/1990	ADOT	1800 E Mohave Phoenix	Within HMAc	Unknown	Unknown
01-053-E	11/16/2000	Union Pacific Railroad	RRMP 907.5, Tracks 19-20 Phoenix	Unknown location along rail line	Diesel	Unknown
87-075	04/03/1987	National Metals	320 So. 19th Ave Phoenix	Within HMAc	PCB	<40 ppm
90-121-C	09/13/1990	Re-Bar Inc.	2101 W Jackson Phoenix	Within HMAc	Oil (used)	>100 gals.
84-014	03/07/1984	APS	20 St & Washington Phoenix	Within HMAc	PCB	3-5 gals.
00-158-B	06/20/2000	Unknown/COP	1703 W Sonora (in alley) Phoenix	Within HMAc	Unknown (possibly oil)	3 55-gals.
00-102-E	02/29/2000	Unknown/COP	22 Ave & Harrison (NW corner) Phoenix	Within HMAc	Isocyanate resin	~30 gals.
91-124-B	11/13/1991	KWS Trucking	I-17, 19 Ave & Buckeye Phoenix	Within HMAc	Diesel	100 gals.
91-122-B	11/08/1991	Armor Safe	18 St & Mohave Phoenix	Within HMAc	D001, F003, F005	5-gal. containers
90-038-D	03/27/1990	Unknown	1917 W Monroe Phoenix	Within HMAc	Drug Lab Chemicals	1 gal.
89-132	05/09/1989	Unknown	18 St & Mohave Phoenix	Within HMAc	Diesel Fuel	40 gals.
00-146-E	05/19/2000	Union Pacific Railroad	RRMP 906 Phoenix	Unknown location along rail line	Sulfuric Acid	5 gals.
00-066-D	10/31/1999	Union Pacific Railroad	RRMP 907 Phoenix	Unknown location along rail line	Alcohol (denatured)	1 gal.
99-035-B	10/01/1998	Union Pacific Railroad	RRMP 906 Phoenix	Unknown location along rail line	Isopropanol alcohol	1 pint

Source: ADEQ, <<http://www.azdeq.gov/databases/hwssearch.html>>

*RRMP = Railroad milepost

- The ADEQ Underground Storage Tank (UST) list reported 123 tanks at 51 facilities within the HMAc (Table 6).

Table 6. UST facilities

Facility ID	Facility name	Facility address	Owner name	No. of tanks	Location	Tank status
0-009653	JH Rose Truck Lines	1717 W Buckeye Rd Phoenix, AZ 85007	Kenneth & Ollie Mae Baker Trust	1	Within HMAC	Tank Removed 6/28/2000
0-008022	ADOA State Personnel Office	1871 W Jefferson St Phoenix, AZ 85007	Arizona Department of Administration	5	Within HMAC	Tanks Removed 2/13/1990
0-007658	DG & P Trucking	1601 W Grant St Phoenix, AZ 85007	Don Phillips	3	Within HMAC	Tanks Removed
0-006091	Wahler Corporation	1860 W Sherman St Phoenix, AZ 85007	Wahler Construction	1	Within HMAC	Tank Removed 10/19/1990
0-005891	Circle K #2701998	1834 W Grant St Phoenix, AZ 85007	Circle K Stores Inc.	3	Within HMAC	Tanks In Use
0-004876	Parcel 112-09-23	1706 W Buchanan St Phoenix, AZ 85007	Estate of Esther Nunneley	2	Within HMAC	Tanks Removed 1/1/1991
0-004713	Steiner Corp.	1875 W Buckeye Rd Phoenix, AZ 85007	Steiner Corp.	2	Within HMAC	Tanks Removed 5/5/1988
0-004256	Texaco Self Serve	517 S 17th Ave Phoenix, AZ 85007	Canyon State Oil Co.	4	Within HMAC	Tank Removed 1/6/2006
0-002601	Rammer Rents	1102 S 17th Ave Phoenix, AZ 85007	Aero Rentals	3	Within HMAC	Tanks Removed 6/15/1989
0-001750	Arizona Department of Administration	1700 W Washington St Phoenix, AZ 85007	Arizona Department of Administration	1	Within HMAC	Tank In Use
0-000732	Bloomquist Pump Services Inc.	1729 W. Lincoln St Phoenix, AZ 85007	Bloomquist Pump Services	1	Within HMAC	Tank Closed in Place
0-008114	Arizona Department of Economic Security	1720 W Madison St Phoenix, AZ 85007	1720 W Madison St	1	Within HMAC	Tanks Removed 4/30/1993
0-007585	ADOA	1831 W Jefferson St Phoenix, AZ 85007	Arizona Department of Administration	5	Within HMAC	Tanks Removed 2/15/1990
0-007403	Tyndall Motor	615 S 17th Ave Phoenix, AZ 85007	Louie Tyndall	2	Within HMAC	Tanks Removed 10/2/1991
0-004699	Western Fuel Inc.	1895 W Buckeye Rd Phoenix, AZ 85007	Steiner Corp.	3	Within HMAC	Tanks Removed 10/1/1987
0-001487	Circle K #1795	1732 W Van Buren St Phoenix, AZ 85007	Circle K Stores Inc.	3	Within HMAC	Tanks In Use
0-000906	Texaco #60-349-0309	1837 W Van Buren St Phoenix, AZ 85007	Texaco Refining & Marketing Inc.	4	Within HMAC	Tanks Removed 12/21/1992
0-000346	ADOA Administration	206 S 17th Ave Phoenix, AZ 85007	ADOT Equipment Services	1	Within HMAC	Tanks In Use
0-009288	Duncan Pump Co.	1820 S 19th Ave Phoenix, AZ 85009	A.L. Duncan Pump	1	Within HMAC	Tank Removed 5/15/1998
0-009077	Vacant Industrial Site	2121 W Lincoln St Phoenix, AZ 85009	Howard Sumpter Trust	1	Within HMAC	Tank Removed 4/23/1997
0-008783	Farm & Home Foods Inc.	351 S Black Canyon Hwy Phoenix, AZ 85009	Farm & Home Foods Inc.	1	Within HMAC	Tanks Removed 11/12/1998

continued

Table 6. UST facilities

Facility ID	Facility name	Facility address	Owner name	No. of tanks	Location	Tank status
0-008617	Allied Industries	301 S 19th Ave Phoenix, AZ 85009	Allied Industries	1	Within HMAC	Tanks Removed 5/5/1995
0-008379	Irving & Loretta Thomsen	2121 W Buckeye Rd Phoenix, AZ 85009	Irving & Loretta Thomsen	1	Within HMAC	Tank Removed 1/1/1984
0-008269	Besst Auto Parts & Transmission	1601 S 19th Ave Phoenix, AZ 85009	Stankovich, George	3	Within HMAC	Tanks Removed 1/1/1977
0-007725	Donaldson Equipment Sales Inc.	2149 W Buckeye Rd Phoenix, AZ 85009	Donaldson, Tom	2	Within HMAC	Tanks Removed 8/5/1993
0-007459	HW Johnson Inc.	1824 S 19th Ave Phoenix, AZ 85009	H W Johnson Inc.	2	Within HMAC	Tanks Removed 5/31/1991
0-006580	Canyon State Auto Care	202 N 19th Ave Phoenix, AZ 85009	Canyon State Auto Care LLC	1	Within HMAC	Tanks In Use
0-006330	Valley Feed And Seed	1918 W Van Buren St Phoenix, AZ 85009	FCC Investors	3	Within HMAC	Tanks Removed 1/10/1990
0-006098	Amigo Truck Sales Inc.	2201 W Buckeye Rd Phoenix, AZ 85009	Virgil Vance	1	Within HMAC	Tanks Removed 5/8/2004
0-006072	Truck Salvage Company	1433 S 19th Ave Phoenix, AZ 85009	Truck Sale Co.	3	Within HMAC	Tanks Removed 4/1/1988
0-006053	Sumpter Trust	2106 W Grant St Phoenix, AZ 85009	Howard Sumpter Trust	2	Within HMAC	Tanks Removed 4/23/1997
0-006051	Advance Roofing & Supply	1921 W Grant St Phoenix, AZ 85009	Advance Roofing & Supply Inc.	3	Within HMAC	Tanks Removed 8/11/1992
0-005093	Wefab Corporation	2101 W Pima St Phoenix, AZ 85009	Wefab Corp.	1	Within HMAC	Tanks Removed 7/12/1989
0-004555	Circle K #2708829	2041 W Van Buren St Phoenix, AZ 85009	Circle K Stores Inc.	3	Within HMAC	Tanks In Use
0-003568	O'Malley Glass & Millwork	620 S 19th Ave Phoenix, AZ 85009	O'Malley Glass & Millwork	3	Within HMAC	Tanks Removed 10/15/1988
0-003112	Burke Co.	1515 S 22nd Ave Phoenix, AZ 85009	Burke Co.	4	Within HMAC	Tanks Closed In Place 9/1/1987
0-002605	W Friedman & S Lazerson	2101 W Van Buren St Phoenix, AZ 85009	W Friedman & S Lazerson	1	Within HMAC	Tanks Removed 5/10/1989
0-002177	Francies Date Co.	2125 W Jackson St Phoenix, AZ 85009	Sidney Francies	1	Within HMAC	Tanks Removed 5/1/1989
0-001356	Roofing Wholesale Co. Inc.	720 S 19th Ave Phoenix, AZ 85009	Roofing Wholesale Co. Inc.	1	Within HMAC	Tanks Removed 6/2/1989
0-000859	C & H Roofing Inc.	2018 W Jackson St Phoenix, AZ 85009	C & H Roofing Inc.	1	Within HMAC	Tanks Removed 12/8/1998
0-000161	Ardis	2101 W Jackson St Phoenix, AZ 85009	Ardis	2	Within HMAC	Tanks Removed 11/1/1989

continued

Table 6. UST facilities

Facility ID	Facility name	Facility address	Owner name	No. of tanks	Location	Tank status
0-005311	Unocal #6020	2225 W Grant St Phoenix, AZ 85009	Unocal Corp.	3	Within HMAC	Tanks Removed 1/21/1992
0-004423	Brost Forming Supply	601 S 19th Ave Phoenix, AZ 85009	Robert Brost	5	Within HMAC	Tanks Removed 12/15/1992
0-004382	Schuff Steel Co.	420 S 19th Ave Phoenix, AZ 85009	David Schuff	2	Within HMAC	Tanks Removed 12/2/1988
0-004336	LMH Auto Sales	303 N Black Canyon Hwy Phoenix, AZ 85009	William Wallace Rogers	5	Within HMAC	Tanks Removed 2/5/1997
0-004189	Roofing Wholesale Co. Inc.	1918 W Grant St Phoenix, AZ 85009	Roofing Wholesale Co. Inc.	8	Within HMAC	Tanks Removed 6/20/1989
0-003467	National Metals	320 S 19th Ave Phoenix, AZ 85009	National Metals Company	2	Within HMAC	Tanks Removed 12/1/1988
0-002214	Jaguays Equipment Co.	1219 S 19th Ave Phoenix, AZ 85009	Jacqueline Gannan	2	Within HMAC	Tanks Removed 5/25/1986
0-002081	Arizona Woodcraft	715 N Black Canyon Hwy Phoenix, AZ 85009	Kalil Bottling Co.	3	Within HMAC	Tanks Removed 3/28/1995
0-001721	Arizona Awnings & Window Shade Systems	1409 S 21Dr Phoenix, AZ 85009	Da-Ro Properties	2	Within HMAC	Tanks Removed 3/26/1990
0-000833	AFCO #020214	1851 S 19th Ave Phoenix, AZ 85009	Micor Energy	6	Within HMAC	5 Tanks Removed 5/25/2005; 1 Tank Removed 8/15/1989

Source: ADEQ, <<http://www.azdeq.gov/databases/ustsearch.html>>

- The ADEQ Leaking Underground Storage Tank (LUST) list reported three facilities within the HMAC (Table 7).

Table 7. LUST facilities

Facility ID	Leak ID	Facility name	Address	Location	Date reported	Priority status code
0-004256	5474.01	Texaco Self Serve	517 S 17th Ave Phoenix, AZ 85007	Within HMAC	1/6/2006	3
0-004336	297.01	LMH Auto Sales	303 N Black Canyon Hwy Phoenix, AZ 85009	Within HMAC	3/11/1987	1D
0-004336	297.03	LMH Auto Sales	303 N Black Canyon Hwy Phoenix, AZ 85009	Within HMAC	3/11/1987	1D

Source: ADEQ, <<http://www.azdeq.gov/databases/lustsearch.html>>

*Priority status codes: 1D = Defined soil and groundwater (GW) requires remediation (levels exceed standards for one or more media); 3 = Defined soil requires remediation

A review of the US Environmental Protection Agency (EPA) databases was performed in March 2007:

- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) list reported no facilities within the HMAc.
- The Resource Conservation and Recovery Act (RCRA) database reported 27 facilities within the HMAc (Table 8).

Table 8. RCRA sites

Handler name	Handler ID	Street address	Location
ADOT	AZD980814354	1745 W Madison	Within HMAc
American Linen	AZE000125001	1875 W Buckeye Rd	Within HMAc
Econo Lube N Tune 101	AZR000002097	202 N 19th Ave	Within HMAc
Manco Inc.	AZD982401796	1738 W Lincoln St	Within HMAc
Matrix Industries Inc.	AZE990622009	1824 S 17th Ave	Within HMAc
Metro Mechanical Inc.	AZD982436958	1714 W Lincoln St	Within HMAc
O And M Envir Remediation	AZE991108022	1755 W Hadley	Within HMAc
O And M Envir Remediation	AZE991109001	1809 W Hadley	Within HMAc
State Health Laboratory	AZR000500462	250 N 17th Ave	Within HMAc
Arizona Dept Of Administration	AZD982051955	211 S 20th Ave	Within HMAc
Arizona Mack Sales Inc.	AZD981573686	1795 S 19th Ave	Within HMAc
AZ Carburetor Mfg	AZR000041160	2046 W Buckeye	Within HMAc
Capitol Collision Repair	AZD982483513	902 S 19th Ave	Within HMAc
Copper State Truck	AZD981975063	1700 S 19th Ave	Within HMAc
Eller Media Co.	AZR000038778	1825 S Black Canyon Hwy	Within HMAc
Louies Black Oxide	AZ0001004944	2008 W Jackson St	Within HMAc
National Metals Co.	AZD007961741	320 S 19th Ave	Within HMAc
Northland Trucking Inc.	AZR000040691	1515 S 22nd Ave	Within HMAc
O And M Environmental Remediation	AZE991109004	2103 W Sherman	Within HMAc
O And M Environmental Remediation	AZE991109005	2201 W Sherman	Within HMAc
Para Plate Arizona	AZD981694417	349 N Black Canyon Hwy	Within HMAc
Phoenix Metal Trading Inc.	AZR000030338	610 S 19th Ave	Within HMAc
Safer Recycling	AZ0000449702	741 S Black Canyon Hwy	Within HMAc
Safety Engineering And Supply Co.	AZD983476771	1409 S 21St Dr	Within HMAc
Schuff Steel Co. Phoenix Facility	AZD982489312	420 S 19th Ave	Within HMAc
Terrell Battery Corporation	AZD982480410	802 S 19th Ave	Within HMAc
Valley Seed Co. DBA Valley America	AZD007961873	1918 W Van Buren	Within HMAc

Source: EPA, <http://www.epa.gov/enviro/html/rcris/rcris_query_java.html>

- The Toxic Release Inventory (TRI) database reported one site within the HMAc (Table 9).

Table 9. TRI facilities

TRI facility ID	Facility name	Address	Location	Submissions
85009SCHFF420S1	Schuff Steel Co.	420 S 19th Ave Phoenix, AZ 85009	Within HMAc	47

Source: EPA, <http://www.epa.gov/enviro/html/tris/tris_query.html>

- The Aerometric Information Retrieval System/AIRS Facility Subsystem (AIRS/AFS) database reported one site within the HMAc and one site at an unknown location along US 60. An additional 60 portable operations may operate within or adjacent to the HMAc (Table 10).

Table 10. AIRS/AFS facilities

Plant name	Street address	City	Location
Arizona Department of Transportation	205 S 17th Ave- 612E	Phoenix	Within HMAc
Granite/Sundt	US 60 project	Phoenix	Unknown area along US 60

Source: EPA, http://www.epa.gov/enviro/html/airs/airs_query_java.html

- The Facility Registry System (FRS) reported three facilities, with a total of four records, within the HMAc (Table 11).

Table 11. FRS facilities

Facility name	Location address	Information system	Information system ID	Environmental interest type
Mary Mcleod Bethune School	1310 S 15th Ave	NCES	40630000518	Unspecified Universe
Arthur M. Hamilton School	2020 W Durango	NCES	40540000446	Unspecified Universe
Schuff Steel Company	420 S 19th Ave	ICIS	8028448	Enforcement/ Compliance Activity
Schuff Steel Company	420 S 19th Ave	NEI	NEI18572	Criteria And Hazardous Air Pollutant Inventory

Source: EPA, <http://www.epa.gov/enviro/html/fri/fri_query_java.html>

- The Enforcement and Compliance History Online (ECHO) database search reported 13 facilities within the HMAc and one facility at an unknown location along US 60, which may or may not fall within the project area (Table 12).

Table 12. ECHO facilities

Facility name	Location address	FRS ID	Program ID	Location
AZ Dept. of Transportation	205 S 17th St Ave- 612E Phoenix, AZ 85007	110001694417	AFS: 04013R9711	Within HMAc
State Health Laboratory	250 N 17th Ave Phoenix, AZ 85007	110021005348	RCR: AZR000500462	Within HMAc
Ahern Rentals	1403 S Black Canyon Hwy Phoenix, AZ 85009	110024869551	RCR: AZR000502773	Within HMAc
AZ Carburator Mfg	2046 W Buckeye Phoenix, AZ 85009	110012204587	RCR: AZR000041160	Within HMAc
Capitol Collision Repair	902 S 19th Ave Phoenix, AZ 85009	110002584338	RCR: AZD982483513	Within HMAc
Copper State Truck	1700 S 19th Ave Phoenix, AZ 85009	110002574964	RCR: AZD981975063	Within HMAc
Eller Media Co.	1825 S Black Canyon Hwy Phoenix, AZ 85009	110002609623	RCR: AZR000038778	Within HMAc
Granite/Sundt	US 60 Project Phoenix, AZ 85009	110012150340	AFS: 04013R9830	Unknown
Louies Black Oxide	2008 W Jackson St Phoenix, AZ 85009	110002565750	RCR: AZ0001004944	Within HMAc
National Metals Co.	320 S 19th Ave Phoenix, AZ 85009	110001697575	RCR: AZD007961741	Within HMAc
Northland Trucking Inc.	1515 S 22nd Ave Phoenix, AZ 85009	110012244561	RCR: AZR000040691	Within HMAc

continued

Table 12. ECHO facilities

Facility name	Location address	FRS ID	Program ID	Location
Phoenix Metal Trading Inc.	610 S 19th Ave Phoenix, AZ 85009	110002604833	RCR: AZR000030338	Within HMAC
Schuff Steel Co.	420 S 19th Ave Phoenix, AZ 85009	110000470320	RCR: AZD982489312	Within HMAC
Terrell Battery Corp.	802 S 19th Ave Phoenix, AZ 85009	110002584070	RCR: AZD982480410	Within HMAC

Source: EPA, <<http://63.160.3.204/echo/>>

- The National Response Center (NRC) Emergency Response Notification System (ERNS) database reported two facilities within the HMAC (Table 13).

Table 13. ERNS facilities

Incident report number:	Report taken:	Incident type:	Incident cause	Incident address	Location	Affected medium	Released materials
313117	11/05/1995	Fixed	Unknown	2405 W Mojave Phoenix, AZ 85009	Within HMAC	Air Atmosphere	Hydrochloric acid, nitric acid, phosphoric acid, sulfuric acid, sodium hydroxide
316189	12/05/1995	Fixed	Other	2405 W Mojave Phoenix, AZ 85009	Within HMAC	Land Concrete	Hydrochloric acid, nitric acid, phosphoric acid, sodium dichromate solution, sulfuric acid

Source: EPA, <<http://www.epa.gov/region4/r4data/erns/index.htm>>

- The No Further Remedial Action Planned (NFRAP) information was searched using the Superfund site information database; four facilities were reported within the HMAC (Table 14).

Table 14. NFRAP facilities

EPA ID number	Site name	Site address	Location	NPL status
AZD007961741	National Metals Co.	320 S 19th Ave Phoenix, AZ 85007	Within HMAC	Not NPL
AZ0001038413	Ari-Tex Tires	1707 S 22nd Ave Phoenix, AZ 85009	Within HMAC	Not NPL
AZD009017989	Jaquays Equipment Company	1219 S 19th Ave Phoenix, AZ 85009	Within HMAC	Not NPL
AZD983476771	Safety Engineering	1409 S 21st Drive Phoenix, AZ 85009	Within HMAC	Not NPL

Source: EPA, <<http://cfpub.epa.gov/supercpad/cursites/srchsites.cfm>>

- The Permit Compliance System (PCS) database that contains data for water discharge permits showed one ADOT facility with an unknown location along 21st Street. (Table 15).

Table 15. PCS facilities

NPDES ID	Facility name	Address
AZU000013	ADOT	21st St Phoenix, AZ 85009

Source: EPA <http://www.epa.gov/enviro/html/pcs/pcs_query_java.html>

1.3 Hazardous Materials Summary

Review of appropriate ADEQ and EPA databases is summarized in Table 16.

Table 16. Hazardous Materials Summary

Type	Quantity within HMAc
Active solid waste landfills	0
Inactive solid waste landfills	0
Septic landfills	1
Septage hauler vehicles	2
Waste tire collection facilities	0
WQARF facilities	1
TSDFs	0
Drywells	58 (at 37 locations)
HMIL incidents	27
USTs	123 (at 51 locations)
LUSTs	3
CERCLA facilities	0
RCRA sites	27
TRIS'	1
AIRS/AFS sites	1
Portable AIRS/AFS operators	60
FRS facilities	3 (with a total of 4 incidents)
ECHO facilities	13
NRC ERNS facilities	2
NFRAP facilities	4

An additional 6 HMIL incidents occurred along the Union Pacific Rail line; however, attempts to contact Union Pacific regarding more precise locations for the railroad mileposts have not been successful. Additionally, 1 ECHO incident, 1 AIRS/AFS operator and 1 Permit Compliance System (PCS) water discharge permit at unknown locations along US 60 and along 21st Street. Further investigation is needed to determine if these incidents lie within the HMAc.

1.4 Hazardous Materials Comments and Recommendations

Hazardous materials incidents and facilities within the HMAc are listed to assist the FCD with the Metro Phoenix ADMP Recommended Alternatives Analysis. Alternatives that lie within the HMAc are identified in Section 1.1. This information should be used to aid in the selection of cost-effective solutions to alleviate or manage flooding in the Metro Phoenix Study Area. The final ADMP project area and selected alternative(s) will need to be evaluated for specific hazardous materials impacts before plan implementation.

2. Cultural Resources Investigation

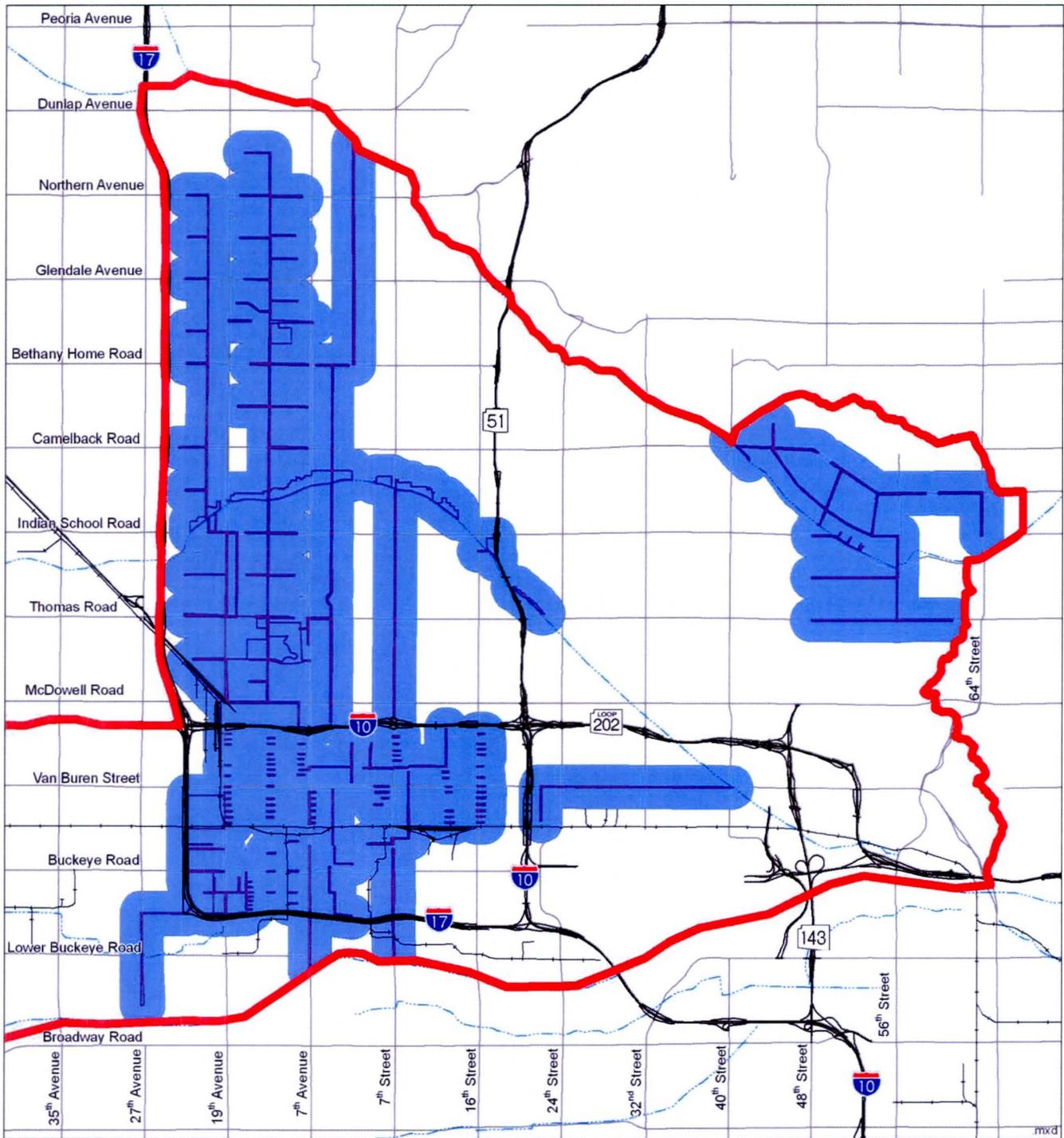
Several federal, state, and local laws have been enacted to preserve cultural resources. The National Historic Preservation Act (NHPA) of 1966 (Title 16 United States Code [USC] § 470 et seq.) requires that projects defined in Title 36 Code of Federal Regulations (CFR) § 800.16(y) as federal undertakings be evaluated for their impacts on historic properties. Section 106, which is implemented under 36 CFR Part 800 of the NHPA, defines a process of consultation that federal agencies follow to evaluate impacts on historic properties. The National Environmental Policy Act of 1969 (40 CFR § 1500) requires projects with a federal action to be evaluated for impacts on the human and natural environment. Other acts, including the Archaeological Resources Protection Act of 1979 (16 USC §§ 470aa–470mm), the Native American Graves Protection and Repatriation Act of 1990 (25 USC §§ 3001–3013), the American Indian Religious Freedom Act (42 USC §§ 1996 and 1996a), and Section 4(f) of the Department of Transportation Act of 1966 (23 USC § 138) also ensure the proper treatment of cultural resources for projects that occur on federal lands, are funded by federal monies, or that require a federally issued permit. Similarly, Arizona Revised Statutes (ARS) sections §§ 41-841 through 41-847 and §§ 41-861 through 41-881 have been enacted to protect cultural resources and Native American graves during undertakings in Arizona that do not fall under federal jurisdiction. The Arizona State Historic Preservation Act of 1982 directs state agencies to consider impacts that their projects or funding may have on historic properties owned or controlled by the agency.

Cultural resources inventory data include records of prehistoric and historic properties that are greater than 50 years old. Prehistoric and historic properties are classified as sites, buildings, structures, or objects. Properties that possess a significant concentration, linkage or continuity or that are united historically or aesthetically by plan or physical development may be formally recognized as a district. The National Register of Historic Places (NRHP) is an inventory of properties significant in our prehistory and history. To be listed in the NRHP, a property or district must be demonstrably significant under at least one of four criteria and must possess a combination of seven aspects of integrity. The criteria of evaluation for the NRHP are association with an important historic event (Criterion A) or person (Criterion B), embodiment of an important design or method of construction (Criterion C), or the potential to yield scientifically important information about prehistory or history (Criterion D). The aspects of integrity are location, design, setting, materials, workmanship, feeling, and association. Depending on the property type and criteria, some aspects of integrity are weighted more importantly than others when nominating a property to the NRHP.

When future undertakings are identified that may affect specific historic properties that are already listed or eligible for listing in the NRHP under Criterion A, B, or C, avoidance will be recommended. When future projects are identified that may affect specific historic properties that are eligible for listing in the NRHP under Criterion D, avoidance will be recommended, but construction impacts can be mitigated through archaeological testing and data recovery.

2.1 Cultural Resources Inventory

A study was undertaken to identify cultural resources in the project area that could be affected by the drainage improvements. The project area was defined as all of the project alternatives. This cultural resources inventory study consisted of background research to compile the previously documented archaeological and historic sites and surveys conducted within a 0.25-mile radius of the project area (Figure 6). The inventory area is roughly bounded by Butler Drive (0.50 mile north of Northern Avenue) to the north, the Salt River to the south, 27th Avenue to the west, and Invergordon Road to the east. Cultural considerations in the inventory area were identified from information gathered from the Arizona State Historic Preservation Office (SHPO) and the Arizona State Museum (ASM) using AZSITE, the state's electronic inventory of cultural resources. The National Park Service's National Register Information System was accessed to determine whether any NRHP-listed properties are located in the inventory area.



Source: Arizona Transportation System GIS Coverage (2006)

Key

- Study area
- Project area (alternatives)
- Cultural resources inventory area



Figure 6. Cultural resources inventory area

2.2 Summary of Cultural Resources Inventory Results

The records search indicated that 56 surveys were previously conducted in the inventory area, resulting in coverage of approximately 6 percent of the project area. The surveys were conducted for a variety of projects including transmission-line installation, road and flood-control feature improvements, cell-tower construction, airport expansion, as well as a survey of the canals within the Salt River Valley (SRP) system. Numerous archaeological monitoring projects and testing and data recovery projects have also occurred in the project area and vicinity, particularly at large Hohokam habitation sites.

In total, 53 known archaeological sites, 34 historic districts, and numerous NRHP-listed historic properties were previously recorded in the inventory area (Section 2.4, Cultural Resources Information, Tables 17 and 18). Twenty-eight of the archaeological sites overlap the project area. The subsets of those cultural resources that intersect each individual project alternative are shown in Table 19. The sites in the project area include historic canals, buildings, and railway lines; the original Phoenix townsite; large Hohokam village sites; and small artifact scatters. In addition, unnamed prehistoric canal alignments cross the project area at more than 100 locations. Two NRHP-eligible historic canals, the Grand Canal/AZ T:7:167 (ASM) and the Arizona Canal/AZ U:6:303 (ASM), transect the project area. These canals are operated by SRP and owned by the Bureau of Reclamation (Reclamation). The project area also is located within portions of 27 historic districts that are listed in the NRHP, the Phoenix Historic Property Register (PHPR), or both registers, including one multiple resource area. Each of these historic districts is composed of numerous historic buildings, which are considered elements that contribute to the district's significance. Because of the large number of these properties, they are not called out individually in the tables. Much of the project area has not been surveyed for prehistoric and historic resources, and therefore, it is possible that significant resources are located within the project area that have not yet been identified.

2.3 Summary of Cultural Resources Recommendations

LSD recommends that once the alternatives have been further refined, a more detailed assessment be made of known cultural resources in the vicinity. It is possible that a Class III survey also may be necessary to inventory any potential historic properties in the project area, as well as archival research to identify historic resources. Once the project area and expected impacts have been finalized, it will be possible to identify the level of cultural resources investigation needed. This level will depend on the agencies involved and the type of construction activity proposed. The project will require consultation with SHPO, the City of Phoenix Archaeology Office, the City of Phoenix Historic Preservation Office, and possibly SRP, BOR, and the Arizona Department of Transportation.

Archaeological monitoring may be necessary if construction occurs in the vicinity of a known site. If construction takes place within a historic district, the type of cultural resources work needed will depend on the degree of disturbance and its proximity to contributing properties. The level of investigation may include photographing and documenting historic buildings and conducting cultural resources monitoring. When construction activities occur within a historic district, emphasis must be placed on protecting the character of the district. For example, one proposed alternative includes construction of a storage basin east of 15th Avenue within the Encanto Golf Course, which is part of the NRHP-listed Encanto-Palmcroft Historic District. Encanto Park, which includes the golf course, a lagoon system, picnic areas, and a wide variety of trees, was modeled after large, naturalistic, English-style parks such as New York's Central Park and San Diego's Balboa Park.

Thus, any modification to the Encanto Golf Course should retain the historic character of the landscaping. If it is not possible for proposed construction to proceed without impact to existing or newly discovered NRHP-eligible cultural resources, these resources must be treated in a way consistent with the Secretary of the Interior's Guidelines for the Treatment of Historic Properties and applicable Arizona laws, in consultation with the appropriate agencies.

2.4 Cultural Resources Information

Table 17. Previously recorded sites within one-quarter mile of the project area

Site number and/or property name	Location ^a	Within project area?	Site type	Affiliation and age	Eligibility status
AZ FF:9:17 (ASM)/SR 80	T1N, R2E, Sec. 12; T1N, R3E, Secs. 1–12 ^b	Yes	Historic road	Euro-American/ A.D. 1920s	Determined eligible
AZ N:3:32 (ASM)/ Santa Fe, Prescott and Phoenix Railway Line	T1N, R2E, Secs. 1 & 12; T1N, R3E, Sec. 7; T2N, R2E, Sec. 36 ^b	Yes	Historic railroad	Euro-American/ A.D. 1893–1983	Determined eligible
AZ T:10:83 (ASM)/ Roosevelt Canal	T1N, R2E, Secs. 13, 14, & 24 ^b	Yes	Historic canal	Euro-American/ A.D. 1928	Determined eligible
AZ T:10:84 (ASM)/ Southern Pacific Railroad	T1N, R2E, Sec. 1; T1N, R3E, Secs. 7–10 ^b	Yes	Historic railroad	Euro-American/ A.D. 1926–present	Determined eligible
AZ T:12:1 (ASM)/ AZ T:12:11 (ASU)/ NA10688/La Ciudad	T1N, R3E, Secs. 2, 3, & 10; T2N, R3E, Sec. 34	Yes	Prehistoric village	Hohokam or Salado/ A.D. 450–1100	Determined eligible
AZ T:12:2 (ASM)/ Dr. Ronald Rosson Home	T1N, R3E, Sec. 8	No	Historic home	Euro-American/ A.D. 1892	Determined eligible
AZ T:12:4 (ASM)/ State Capitol Grounds	T1N, R3E, Sec. 7	Yes	Historic buildings	Euro-American/ Historic	Not evaluated
AZ T:12:7 (ASU)	T1N, R2E, Sec 12	No	Unknown	Unknown	Unknown
AZ T:12:10 (ASM)/ Las Colinas	T2N, R2E, Secs. 25, 35, & 36; T1N, R2E, Secs. 1 & 2	Yes	Prehistoric village	Hohokam/ A.D. 1000–1500	Determined eligible
AZ T:12:14 (ASU)	T2N, R3E, Sec. 27	No	Prehistoric artifact scatter	Hohokam/ A.D. 1300–1440	Determined eligible
AZ T:12:16 (ASU)	T2N, R3E, Sec. 27	No	Canals	Unknown	Not evaluated
AZ T:12:32 (ASM)/ Arizona State Capitol Building	T1N, R3E, Sec. 7	No	Historic building	Euro-American/ A.D. 1900	Determined eligible
AZ T:12:33 (ASM)/Phoenix Carnegie Library and Park	T1N, R3E, Sec. 7	No	Historic building	Euro-American/ A.D. 1908	Determined eligible
AZ T:12:34 (ASM)/ Evans House	T1N, R3E, Sec. 7	No	Historic building	Euro-American/ A.D. 1893	Determined eligible
AZ T:12:39 (ASM)/Block 14	T1N, R3E, Sec. 8	Yes	Block 14 of original Phoenix Townsite	Euro-American/ Historic	Considered eligible
AZ T:12:40 (ASM)/ Adams School	T1N, R3E, Sec. 7	No	Historic school	Euro-American/ Historic	Considered eligible
AZ T:12:41 (ASM)/ Monroe School	T1N, R3E, Sec. 9	No	Historic school	Euro-American/ A.D. 1914	Determined eligible
AZ T:12:42 (ASM)/ Phoenix Townsite	T1N, R3E, Secs. 8 & 9	Yes	Original Phoenix Townsite	Euro-American/ A.D. 1800s–1950s	Determined eligible
AZ T:12:43 (ASM)/ Murphy's Addition	T1N, R3E, Sec. 9	Yes	Prehistoric artifact scatter	Hohokam/ A.D. 200–1500	Unknown
AZ T:12:44 (ASM)/ First Baptist Church	T1N, R3E, Sec. 8	Yes	Historic church	Euro-American/ A.D. 1905	Considered eligible
AZ T:12:45 (ASM)/ Hotel Westward Ho	T1N, R3E, Sec. 5	Yes	Historic hotel	Euro-American/ A.D. 1927	Listed
AZ T:12:46 (ASM)/ St. Mary's Church	T1N, R3E, Sec. 8	No	Historic church	Euro-American/ A.D. 1913	Considered eligible

continued

Table 17. Previously recorded sites within one-quarter mile of the project area

Site number and/or property name	Location ^a	Within project area?	Site type	Affiliation and age	Eligibility status
AZ T:12:50 (ASM)/ AZ T:12:12 (ASU)/ Los Solares	T1N, R3E, Sec. 3	No	Northern locus of La Ciudad	Hohokam or Salado/ A.D. 450–1100	Determined eligible
AZ T:12:53 (ASM)/ AZ P:2:8 (GP)	T1N, R3E, Sec. 18	No	Prehistoric/ historic artifact scatter	Hohokam/ A.D. 200–1500; Euro-American/ Historic	Not evaluated
AZ T:12:55 (ASM)	T1N, R3E, Sec. 17	No	Historic artifact scatter	Euro-American/ Historic	Determined ineligible
AZ T:12:56 (ASM)	T1N, R3E, Secs. 16 & 17	Yes	Trash dump	Euro-American/ Unknown	Not evaluated
AZ T:12:57 (ASM)	T1N, R3E, Sec. 21	No	Trash dump	Euro-American/ Unknown	Not evaluated
AZ T:12:60 (ASU)/Track Site	T2N, R3E, Sec. 20	No	Historic trash dump	Euro-American/ Historic	Considered eligible
AZ T:12:62 (ASM)/ Dutch Canal Ruin	T1N, R3E, Secs. 9–11	Yes	Prehistoric village	Hohokam/ A.D. 450–1450	Determined eligible
AZ T:12:65 (ASM)/China Alley	T1N, R3E, Sec. 8	No	Phoenix Chinatown	Chinese-American/ A.D. 1880s–1940s	Unknown
AZ T:12:69 (ASM)	T1N, R3E, Sec. 8	No	Prehistoric artifact scatter	Hohokam/ A.D. 450–1450	Not evaluated
AZ T:12:70 (ASM)/ Pueblo Patricio	T1N, R3E, Secs. 4, 5, 8, & 9	Yes	Prehistoric village	Hohokam/ A.D. 450–1450	Determined eligible
AZ T:12:72 (ASM)/Verde Park	T1N, R3E, Sec. 4	Yes	Prehistoric artifact scatter and historic buildings	Hohokam/ A.D. 200–1500; Euro-American/ A.D. 1887–1936	Not evaluated
AZ T:12:85 (ASM)	T2N, R3E, Sec. 32	No	Petroglyphs at Heard Museum	Unknown/ Prehistoric	Not evaluated
AZ T:12:86 (ASM)/ Arvizu's El Fresno Grocery Store	T1N, R3E, Sec. 8	No	Petroglyph and historic building	Unknown/ Prehistoric; Euro-American/ Historic	Not evaluated
AZ T:12:95 (ASM)	T1N, R3E, Sec. 8	Yes	Prehistoric habitation and historic buildings	Hohokam/ A.D.200–1500; Euro-American/ Historic	Considered eligible
AZ T:12:96 (ASM)	T1N, R3E, Sec. 8	No	Prehistoric artifact scatter and historic buildings	Hohokam/ A.D.200–1500; Euro-American/ Historic	Considered eligible
AZ T:12:97 (ASM)/ First Presbyterian Church	T1N, R3E, Sec. 8	Yes	Historic church	Euro-American/ A.D. 1889–1927	Not considered eligible
AZ T:12:113 (ASM)/ Blocks 87 and 88	T1N, R3E, Sec. 8	Yes	Blocks 87 and 88 of original Phoenix Townsite	Euro-American/ A.D. 1880s–1920s	Considered eligible
AZ T:12:131 (ASM)/ Canal Patricio System	T1N, R3E, Sec. 10	No	Prehistoric canal system	Hohokam/ A.D. 450–1450	Considered eligible
AZ T:12:144 (ASM)	T1N, R3E, Sec. 4	No	Historic canal	Euro-American/ A.D. 1874–1930	Considered eligible
AZ T:12:148 (ASM)/La Villa	T1N, R3E, Secs. 7 & 8	Yes	Prehistoric village	Hohokam/ A.D. 450–1100	Determined eligible

continued

Table 17. Previously recorded sites within one-quarter mile of the project area

Site number and/or property name	Location ^a	Within project area?	Site type	Affiliation and age	Eligibility status
AZ T:7:167 (ASM)/ Grand Canal	T2N, R2E, Secs. 24 & 25; T2N, R3E, Secs. 19–21, 27, 28; T1N, R3E, Sec. 1 ^b	Yes	Historic/modern canal	Euro-American/ A.D. 1879	Determined eligible
AZ T:12:214 (ASM)	T1N, R2E, Secs. 23 & 24	Yes	Unknown	Unknown	Unknown
AZ T:12:222 (ASM)/ Salt River Valley Canal	T1N, R2E, Sec. 1; T1N, R3E, Secs. 2–6, 11 & 12 ^b	Yes	Historic canal	Euro-American/ A.D. 1868	Considered eligible
AZ T:12:244 (ASM)/ Phoenix St Railway	T2N, R2E, Sec. 36; T2N, R3E, Secs. 28, 29, & 32; T1N, R3E, Secs. 5, 6, 8, & 9 ^b	Yes	Historic street railway	Euro-American/ A.D. 1912	Considered eligible
AZ U:6:303 (ASM)/ Arizona Canal	T2N, R3E, Sec. 13; T2N, R4E, Secs. 18, 19, 20, 22, 27, 28, & 29; T3N, R3E, Sec. 32 ^b	Yes	Historic/modern canal	Euro-American/ A.D. 1885	Determined eligible
AZ U:9:67 (ASM)/ AZ T:12:24 (ASU)/ La Lomita	T1N, R3E, Sec. 1; T1N, R4E, Sec. 6	No	Prehistoric village	Hohokam/ A.D. 950–1100	Determined eligible
P:2:3 (GP)/Casa Chica	T1N, R2E, Sec. 12	Yes	Unknown	Unknown	Unknown
Cloverdale Site	T1N, R2E, Sec. 23	Yes	Unknown	Unknown	Unknown
Dos Casas	T1N, R3E, Sec. 12	No	Unknown	Unknown	Unknown
El Higo	T2N, R2E, Sec. 25	Yes	Unknown	Unknown	Unknown
Tierra Delta	T2N, R2E, Secs. 24 & 25	No	Unknown	Unknown	Unknown

^a USGS Sunnyslope, Ariz., 7.5' 1965/1982; USGS Phoenix, Ariz., 7.5' 1952/1982; USGS Paradise Valley, Ariz., 7.5' 1965/1982; and Tempe, Ariz., 7.5' 1952/1982; ^b Location in project area vicinity.

Table 18. Historic districts within one-quarter mile of the project area

Historic district name	Location ^a	In project area?	Period of significance	Eligibility listing
Alvarado	T2N, R3E, Sec. 32	No	1900–1924, 1925–1949, 1950–1974	NRHP and PHPR
Brentwood	T1N, R3E, Sec. 3	No	1926–1956	PHPR
Campus Vista	T2N, R3E, Sec. 30	Yes	1939–1956	PHPR
Coronado	T2N, R3E, Sec. 33	Yes	1900–1924, 1925–1949	NRHP and PHPR
Country Club Park	T1N, R3E, Sec. 5	No	1925–1949	NRHP and PHPR
Del Norte Place	T2N, R3E, Sec. 31	Yes	1925–1949, 1950–1974	NRHP and PHPR
Earll Place	T2N, R3E, Sec. 27	No	1927–1942	PHPR
East Alvarado	T2N, R3E, Sec. 32	No	1925–1949	NRHP and PHPR
East Evergreen	T1N, R3E, Sec. 5	No	1909–1929	PHPR
Eastlake Park	T1N, R3E, Sec. 9	Yes	1890–1949	PHPR
Encanto Manor	T2N, R3E, Sec. 31	Yes	1945–1959	PHPR
Encanto Vista	T2N, R3E, Sec. 31	Yes	1943–1953	PHPR
Encanto-Palmcroft	T2N, R3E, Sec. 31	Yes	1925–1949	NRHP and PHPR
F. Q. Story Neighborhood	T1N, R3E, Sec. 6	Yes	1900–1924, 1925–1949	NRHP and PHPR
Fairview Place	T2N, R3E, Sec. 31	Yes	1925–1949	NRHP
Garfield	T1N, R3E, Sec. 4	Yes	1883–1942	PHPR
La Hacienda	T2N, R3E, Sec. 29	No	1926–1954	PHPR
Los Olivos	T2N, R3E, Sec. 32	Yes	1906–1935	PHPR
Margarita Place	T2N, R3E, Sec. 31	Yes	1927–1949	PHPR
Mathew Henson Public Housing Project	T1N, R3E, Sec. 7	Yes	1940–1941	PHPR
Medlock Place	T2N, R3E, Sec. 17	Yes	1926–1956	PHPR
North Encanto	T2N, R3E, Sec. 30	Yes	1939–1950	PHPR
North Garfield	T1N, R3E, Sec. 4	Yes	1887–1942	PHPR
Oakland/University Park	T1N, R3E, Sec. 6	Yes	1875–1899, 1900–1924, 1925–1949	NRHP and PHPR
Phoenix Commercial MRA	T2N, R2E, Sec. 36; T2N, R3E, Secs. 31–34; T1N, R2E, Secs. 1, 12, & 13; T1N, R3E, Secs. 7–10 & 15–18	Yes	1870–1947	NRHP
Phoenix Townsite	T1N, R3E, Sec. 8	Yes	1875–1899, 1900–1924	NRHP
Phoenix Union High School	T1N, R3E, Sec. 4	Yes	1900–1924, 1925–1949	NRHP and PHPR
Pierson Place	T2N, R3E, Sec. 20	Yes	1924–1956	PHPR
Roosevelt	T1N, R3E, Sec. 5	Yes	1875–1899, 1900–1924, 1925–1949	NRHP and PHPR
Villa Verde	T2N, R2E, Sec. 36	Yes	1928–1940	PHPR
Willo	T2N, R3E, Sec. 32	Yes	1900–1924, 1925–1949	NRHP and PHPR
Woodland	T1N, R3E, Sec. 7	Yes	1875–1899, 1900–1924, 1925–1949	NRHP and PHPR
Woodlea	T2N, R3E, Sec. 19	Yes	1928–1949	PHPR
Yaple Park	T2N, R3E, Sec. 20	Yes	1928–1940	PHPR

^a USGS Sunnyslope, Ariz., 7.5' 1965/1982; USGS Phoenix, Ariz., 7.5' 1952/1982; USGS Paradise Valley, Ariz., 7.5' 1965/1982; and Tempe, Ariz., 7.5' 1952/1982.

Table 19. Cultural resources sites intersecting project alternatives

Alternative	Site	Canal intersection	Historic district and properties
0	None	AZ T:7:167 (ASM)/Grand Canal; 6 prehistoric	Los Olivos, Coronado
1	None	AZ T:7:167 (ASM)/Grand Canal	None
2	None	AZ U:6:303 (ASM)/Arizona Canal	None
3	None	AZ T:7:167 (ASM)/Grand Canal	Medlock Place, Pierson Place
4	None	AZ T:7:167 (ASM)/Grand Canal	None
5	None	None	None
6, nonstructural	N/A	N/A	N/A
7	AZ N:3:32 (ASM), AZ T:12:10 (ASM)	2 prehistoric	Encanto-Palmcroft, Margarita Place, Del Norte Place, North Encanto, Encanto Manor, Encanto Vista, Villa Verde
8	AZ T:12:10 (ASM), El Higo	AZ T:7:167 (ASM)/Grand Canal; 6 prehistoric	North Encanto
9	None	None	North Encanto
10	None	AZ T:7:167 (ASM)/Grand Canal; 7 prehistoric	Woodlea, Campus Vista, North Encanto, Margarita Place, Del Norte Place, Encanto Manor, F.Q. Story Neighborhood, Encanto-Palmcroft, Fairview Place
11	None	AZ T:7:167 (ASM)/Grand Canal; 6 prehistoric	Yaple Park, Willo, Roosevelt, Kenilworth, Encanto Vista
12, nonstructural	N/A	N/A	N/A
13, nonstructural	N/A	N/A	N/A
14	None	AZ T:7:167 (ASM)/Grand Canal; 2 prehistoric	Pierson Place
15, nonstructural	N/A	N/A	N/A
16	AZ FF:9:17 (ASM), AZ T:12:62 (ASM), AZ T:12:244 (ASM)	2 prehistoric	North Garfield, Garfield, Eastlake Park
17	AZ T:12:70 (ASM)	AZ T:12:222 (ASM)/Salt River Valley Canal; 3 prehistoric	North Garfield, Garfield, Phoenix Union High School
18	AZ FF:9:17 (ASM), AZ T:10:84 (ASM), AZ T:12:43 (ASM), AZ T:12:70 (ASM), AZ T:12:72 (ASM), AZ T:12:244 (ASM)	5 prehistoric	Garfield, Phoenix Union High School, Phoenix Townsite
19	AZ T:12:45 (ASM), AZ T:12:244 (ASM)	1 prehistoric	F.Q. Story Neighborhood, Roosevelt
20	AZ T:10:84 (ASM), AZ T:12:33 (ASM), AZ T:12:34 (ASM), AZ T:12:39 (ASM), AZ T:12:42 (ASM), AZ T:12:44 (ASM), AZ T:12:97 (ASM), AZ T:12:113 (ASM), AZ T:12:148 (ASM)	4 prehistoric	None
21	AZ FF:9:17 (ASM), AZ T:12:148 (ASM), AZ T:12:4 (ASM), AZ T:12:244 (ASM)	AZ T:12:222 (ASM)/Salt River Valley Canal; 2 prehistoric	F.Q. Story Neighborhood, Oakland, Woodland
22	AZ FF:9:17 (ASM), AZ N:3:32 (ASM)	AZ T:12:222 (ASM)/Salt River Valley Canal; 6 prehistoric	Medlock Place, Pierson Place, Oakland
23	AZ T:12:56 (ASM)	5 prehistoric	None
24	None	1 prehistoric	None

continued

Table 19. Cultural resources sites intersecting project alternatives

Alternative	Site	Canal intersection	Historic district and properties
25	AZ T:12:148 (ASM)	3 prehistoric	Mathew Henson Public Housing Project
26	AZ T:10:84 (ASM), Cloverdale Site, AZ T:12:214 (ASM), P:2:3 (GP)	AZ T:10:83 (ASM)/Roosevelt Canal; 13 prehistoric	None
27	None	4 prehistoric	None
28	AZ FF:9:17 (ASM), AZ T:10:84 (ASM)	3 prehistoric	Cisney House
29	AZ FF:9:17 (ASM), AZ T:12:1 (ASM), AZ T:12:50 (ASM), AZ T:12:62 (ASM)	AZ T:12:222 (ASM)/Salt River Valley Canal; 7 prehistoric	None
30/31	None	AZ U:6:303 (ASM)/Arizona Canal	Pratt House
32	None	None	None