PRELIMINARY DRAINAGE REPORT

Scottsdale Collective

Entertainment/Canal Districts
Scottsdale, AZ 85251

Prepared For:

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Project Number: 200409

Submittal Date: May 7, 2020 (Zoning)

Case No.: 229-PA-2020 **Plan Check No.: TBD**

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I. INTRODUCTION

This Preliminary Drainage Report represents the storm water analysis for redevelopment of three areas in Scottsdale within the southeast region of the Scottsdale Road and Camelback Road intersection. The purpose of this report is to provide the hydrologic and hydraulic analysis, required by the City of Scottsdale, to support the proposed rezoning site plan for said developments.

A. City Center: six-story residential development located adjacent to the intersection within the Arizona Canal District and will replace an existing commercial/ office.
B. The Mint: nine-story residential and retail development located south of Camelback Road and west of Civic Center Plaza.
C. Maya Hotel: fifteen-story residential development located in the Entertainment District, east of Buckboard Trail between Indian Plaza and Shoeman Lane.

This report includes discussions and calculations defining the storm water management concepts for the collection and conveyance necessary to comply with the drainage requirements of the City of Scottsdale and Maricopa County. Preparation of this report has been done in accordance with the requirements of the City of Scottsdale Design Standards & Policies Manual (DS&PM) 2018 [1], and the Drainage Design Manuals for Maricopa County, Arizona, Volumes I[2] and Volume II[3].

A. CITY CENTER

1.0 LOCATION AND PROJECT DESCRIPTION

1.1 LOCATION:

The subject property consists of land located at the southeast corner of the Scottsdale Road and Camelback Road intersection , east of Arizona Canal Trail.

- A portion of Section 23, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona.
- Parcel ID:Parcels 173-41-016B, -017A, -015A and -021A, 173-41-005, and 173-41-004 consisting of approximately 118,880 square feet or 2.729 acres more or less.

Refer to **FIGURE 1** - **Vicinity Map** for the project's location with respect to major cross streets

1.2 EXISTING SITE DESCRIPTION:

The project area includes approximately 118,880 sq. ft. (2.729 acres) of land designated as C-2-DO/ C-3-DO per COS Zoning Map 6. The site is currently developed as an existing commercial site. There is no existing retention system. The site drains to a catch basin, EX. CB-2, located within the south parking area that connects to the existing storm drain system to the east of the site.

Refer to **FIGURE 2A- Aerial Map** for aerial view of the City Center site.

1.3 PROPOSED SITE DEVELOPMENT:

Site development includes the demolition of the existing structures and their designated parking lots, and construction of a new 6-story residential development with underground parking. The proposed development contains 4 points of access from the surrounding streets, three from

Brown Avenue, and one from Shoeman Lane. Refer to **Appendix II**- Site Layout- City Center for an illustrative site plan.

1.4 FLOOD HAZARD ZONE:

FIRM Map Number 04013C1770L dated October 16, 2013 indicates the site is designated as Zone "X". As such, it is defined as areas determined to be outside the 0.2% annual chance floodplain and therefore is not in a special flood hazard area.

Refer to **FIGURE 3** for the FIRM.

2.0 EXISTING DRAINAGE CONDITIONS

2.1 OFF-SITE DRAINAGE PATTERNS:

The city quarter section map (QS17-45) provides the following information for offsite drainage:

- There is a 144" R.C.P. storm drain running east t along Camelback Road.
- There is an existing 18" H.D.P.E. pipe running from north to south along Brown Avenue and an existing catch basin, EX. CB-1, located at the southeast corner of the Shoeman Lane and Brown avenue intersection. The catch basin appears to capture all runoff off -of Brown Avenue.

Refer to **FIGURE 2A- Aerial Map City Center** for existing catch basin locations.

2.2 ON-SITE DRAINAGE PATTERNS:

The existing site is fully developed with minor landscape areas. Based on visual observations, there is no existing retention system. The site drains to a catch basin, EX. CB-2, located within the south parking area that connects to the existing storm drain system along Brown Avenue.

Refer to **FIGURE 2A- Aerial Map City Center** for existing catch basin locations.

B. THE MINT

1.0 LOCATION AND PROJECT DESCRIPTION

1.1 LOCATION:

The subject property consists of land located at the southeast and southwest corners Saddlebag Trail and Camelback Road intersection. A portion of Section 23, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona.

- Parcel ID: Parcels 173-41-216, -149 thru -153, -119A and 173-40-123

Refer to **FIGURE 1** - **Vicinity Map** for the project's location with respect to major cross streets

1.2 EXISTING SITE DESCRIPTION:

The project area includes approximately 56,986 sq. ft. (1.308 acres) of land designated as C-2- DO and C-3-DO per COS Zoning Map 6. The site is currently developed as an existing commercial site. There is no existing retention system.

Refer to **FIGURE 2B- Aerial Map The Mint** for an aerial view of The Mint site.

1.3 PROPOSED SITE DEVELOPMENT:

Site development includes the demolition of the existing structures and their designated parking lots, and construction of a new 9-story residential development with underground parking. The proposed development contains overall 3 points of access from the surrounding streets, two from Saddlebag Trail, and one from Civic Center Plaza. Refer to **Appendix II**- Site Layout – The Mint for an illustrative site plan.

1.4 FLOOD HAZARD ZONE:

FIRM Map Number 04013C1770L dated October 16, 2013 indicates the site is designated as Zone "X". As such, it is defined as areas determined to be outside the 0.2% annual chance floodplain and therefore is not in a special flood hazard area.

Refer to **FIGURE 3** for the FIRM Map.

2.0 EXISTING DRAINAGE CONDITIONS

2.1 OFF-SITE DRAINAGE PATTERNS:

The city quarter section map provides the following information for offsite drainage:

- There is a 144" R.C.P. storm drain and 9.5'x 11' R.C.B. running east along Camelback Road.
- A majority of the site runoff is captured at the existing catch basin, EX. CB-3 located along the southwest portion of Shoeman Lane and Saddlebag Trail.

2.2 ON-SITE DRAINAGE PATTERNS:

The existing site is fully developed with minor landscape areas. Based on visual observations, there is no existing retention system. The site drains to the adjacent streets, a minor portion consisting of sidewalk and landscape runs off north and east towards Camelback Road and east Civic Center Plaza. A majority of the overall site drains towards Saddlebag Trail. The runoff flows south along Saddlebag Trail and eventually enters the existing public storm drain system at EX. CB-3 located near the northwest corner of Shoeman Lane and Sadddlebag Trail.

C. MAYA HOTEL

1.0 LOCATION AND PROJECT DESCRIPTION

1.1 LOCATION:

The subject property consists of land located at the northeast corner of the Saddlebag Trail and Buckboard Trail intersection.

- A portion of Section 23, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Scottsdale, Arizona.
- Parcel ID: Parcels 173-41-260, -182 and -183 consisting of 16,292 square feet or 0.374 acres more or less.

Refer to **FIGURE 1** - **Vicinity Map** for the project's location with respect to major cross streets

1.2 EXISTING SITE DESCRIPTION:

The project area includes approximately 16,292 sq. ft. (0.374 acres) of land designated as C-2-DO per COS Zoning Map 6. The site is currently developed as an existing commercial site. There is no existing retention system. The existing sidewalk drains towards the existing streets including Indian Plaza, Buckboard Trail and Shoeman Lane. All building roof runoff is conveyed along the alley, and outfalls south to Shoeman Lane, where it is conveyed to the existing catch basin, EX. CB-3, via curb and gutter.

Refer to **FIGURE 2C- Aerial Map Maya Hotel** for an aerial view of the proposed Maya Hotel site.

1.3 PROPOSED SITE DEVELOPMENT:

The proposed project consists of the redevelopment of an existing commercial site to a 12-story hotel development. The redevelopment includes the abandonment of the alley and connection to the adjacent building. The grading will be designed to match existing pavement grades along adjacent roads and the development west of the project site.
Refer to **Appendix II**- Site Layout – Maya Hotel for an illustrative site plan.

1.4 FLOOD HAZARD ZONE:

FIRM Map Number 04013C1770L dated October 16, 2013 indicates the site is designated as Zone "X". As such, it is defined as areas determined to be outside the 0.2% annual chance floodplain and therefore is not in a special flood hazard area.

Refer to **FIGURE 3** for the FIRM

2.0 EXISTING DRAINAGE CONDITIONS

2.1 OFF-SITE DRAINAGE PATTERNS:

The city quarter section map provides the following information for offsite drainage:

- There is an existing 18" R.C.P. storm drain running east along Shoeman Lane conveying runoff from Shoeman Lane south to the 48" RGRCP drain along Wells Fargo Avenue.
- There is an existing 18" H.D.P.E. pipe running from north to south along Buckboard Trail and an existing catch basin, EX. CB-1, located at the southeast corner of the Shoeman Lane and Brown avenue intersection. The catch basin appears to capture all runoff off -of Brown Avenue.

The site is not affected by any offsite flows, all offsite runoff is conveyed through curb and gutter to the nearest inlet structure.

2.2 ON-SITE DRAINAGE PATTERNS:

The existing site is fully developed with minor landscape areas. Drainage patterns will remain the same as existing. The proposed development will continue to discharge to Buckboard Trail and Shoeman Lane, and ultimately to the existing catch basin northwest of the Shoemane Lane and Wells Fargo Avenue, EX. CB-3.

II. PROPOSED STORM WATER MANAGEMENT

A. DESIGN INTENT

On-site drainage, in excess of stormwater storage requirements, will be directed via overland flow to the historical outlets. This is a re-development of existing commercial land; therefore, the City of Scottsdale specifies that on-site retention shall be provided to store a runoff volume that equals the capacity of any existing storage basin plus the difference between the pre vs. post development runoff volume from the 100-year 2-hour storm event if increased or first flush volume, whichever is greater.

B. DESIGN STORM REQUIREMENTS

Stormwater storage required for the 100-year, 2-hour event is calculated in accordance with the City of Scottsdale Design Standards & Policies Manual.

V_R (Acre-Feet) = (P/12)*A*(C_{wpost}-C_{wpre})

Where: P = 100 Yr. 2 Hr. Precipitation in Inches (NOAA Atlas 14 table).
A = Area (Acres)
C = C_w

Based on the DS&PM, runoff coefficients for the 100-year storm event based on zoning use are as follows:

- C=0.86 for Commercial, Multi-Family Residential
- C=0.95 for paved surface
- C=0.45 for undisturbed natural desert or desert landscape

C. PRE VS. POST STORMWATER RETENTION

Stormwater storage required for the 100-year Onsite required storm water retention will be determined based on pre vs. post C-weight comparison The existing condition and proposed development storage requirements for the 100-yr storm event will be calculated and provided in the design review submittal.

D. FIRST FLUSH

Stormwater First Flush storage required is calculated in accordance with City of Scottsdale Design Standards & Policies Manual. The first flush storage was determined through the following calculation:

Required Retention (Acre-Feet) = (0.5”/12)*A*(C_{wt})

The first flush calculations for the proposed developments will be provided when more advanced site development plans are constructed.

E. ADEQ NOI REQUIREMENTS

The total disturbed area for the sites are larger than an acre. The Arizona Department of Environmental Quality requires that any site disturbance over an acre is required to submit an NOI. An NOI will be submitted to ADEQ for this site after the first submittal of the construction documents as this site disturbance is over 1 acre.

III. FLOOD SAFETY FOR DWELLINGS

A. ADEQ NOI REQUIREMENTS

The total disturbed This project lies in an "X" Flood Zone. Therefore, proposed building finished floor elevations will be set a minimum of 12 inches above the 100-year high-water elevation of any adjacent streets and drainage paths. This will ensure that each building will be well above the 100-year water level.

IV. CONCLUSIONS

A. OVERALL PROJECT

1. The finish floor elevations will be designed a minimum of 12 inches above the 100-year water surface in adjacent streets and drainage paths and a minimum of 14 inches above the low top of curb of the lot.
2. On-site storm water storage and first flush analysis will be provided in following design review submittal.

B. PROJECT PHASING

This project will be constructed in a single phase.

V. WARNING AND DISCLAIMER OF LIABILITY

RE: following page.

VI. REFERENCES

1. *Design Standards & Policies Manual, City of Scottsdale – January 2018*
2. *Drainage Design Manual for Maricopa County, Arizona, Volume I, Hydrology, Flood Control District of Maricopa County, Fourth Edition, December 14, 2018.*
3. *Drainage Design Manual for Maricopa County, Arizona, Volume II, Hydraulics, Flood Control District of Maricopa County, December 14, 2018.*

GRADING & DRAINAGE LANGUAGE

WARNING AND DISCLAIMER OF LIABILITY

The City's Stormwater and Floodplain Management Ordinance is intended to minimize the occurrence of losses, hazards and conditions adversely affecting the public health, safety and general welfare which might result from flooding.

The Stormwater and Floodplain Management Ordinance identifies floodplains, floodways, flood fringes and special flood hazard areas. However, a property outside these areas could be inundated by floods. Also, much of the city is a dynamic flood area; floodways, floodplains, flood fringes and special flood hazard areas may shift from one location to another, over time, due to natural processes.

WARNING AND DISCLAIMER OF LIABILITY

The flood protection provided by the Stormwater and Floodplain Management Ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Floods larger than the base flood can and will occur on rare occasions. Floodwater heights may be increased by constructed or natural causes. The Stormwater and Floodplain Management Ordinance does not create liability on the part of the city, any officer or employee thereof, or the federal, state or county government for any flood damages that result from reliance on the Ordinance or any administrative decision lawfully made thereunder.

Compliance with the Stormwater and Floodplain Management Ordinance does not ensure complete protection from flooding. Flood-related problems such as natural erosion, streambed meander, or constructed obstructions and diversions may occur and have an adverse effect in the event of a flood. You are advised to consult your own engineer or other expert regarding these considerations.

I have read and understand the above.

_____ _____ _____

Plan Check # Owner Date

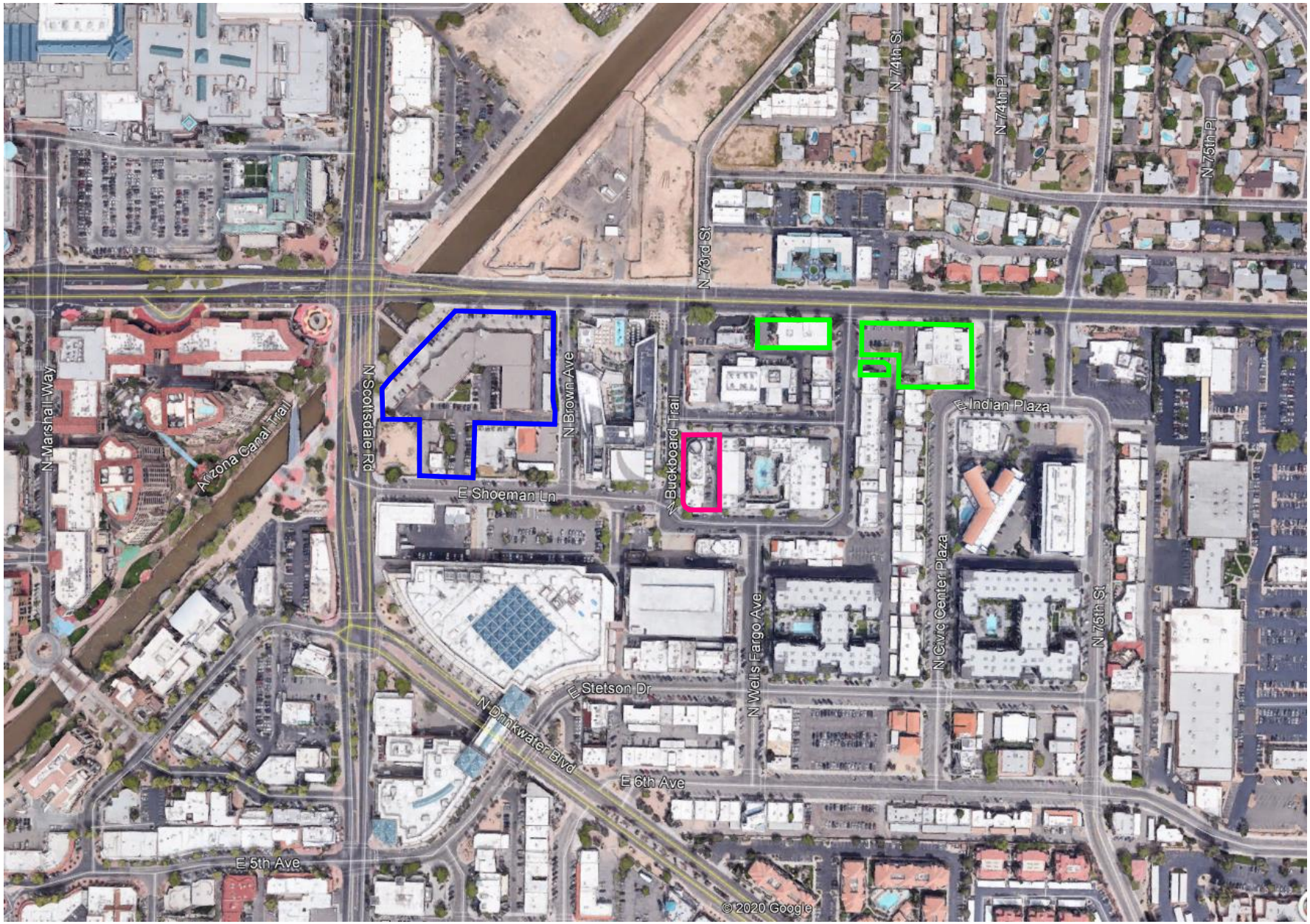


Figure 1- Vicinity Map

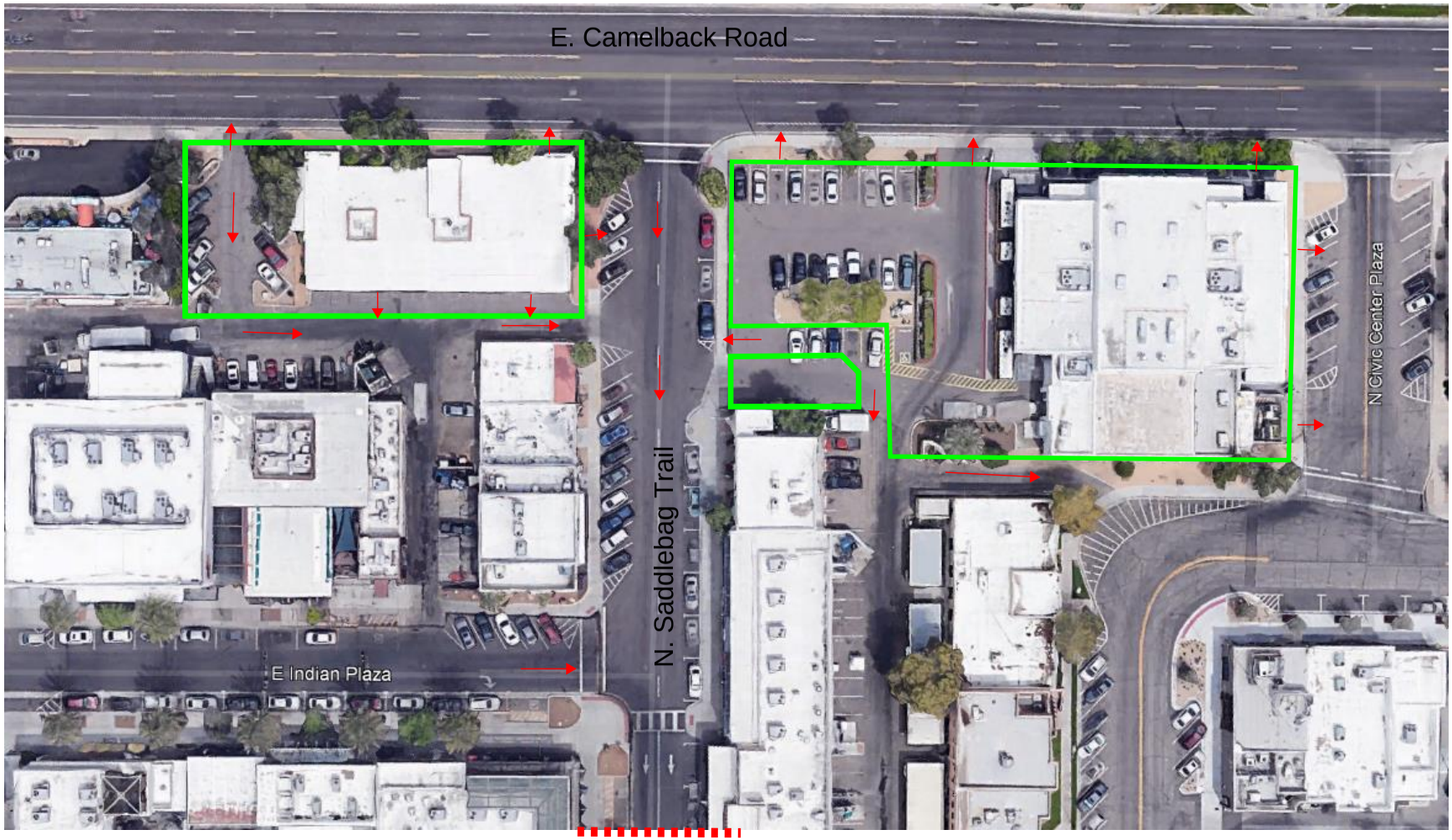
City Center
The Mint
Maya Hotel

9-ZN-2020
05/19/20

Legend
Property Boundary
Flow Arrow

Figure 2A- Aerial Map
City Center

9-ZN-2020
05/19/20



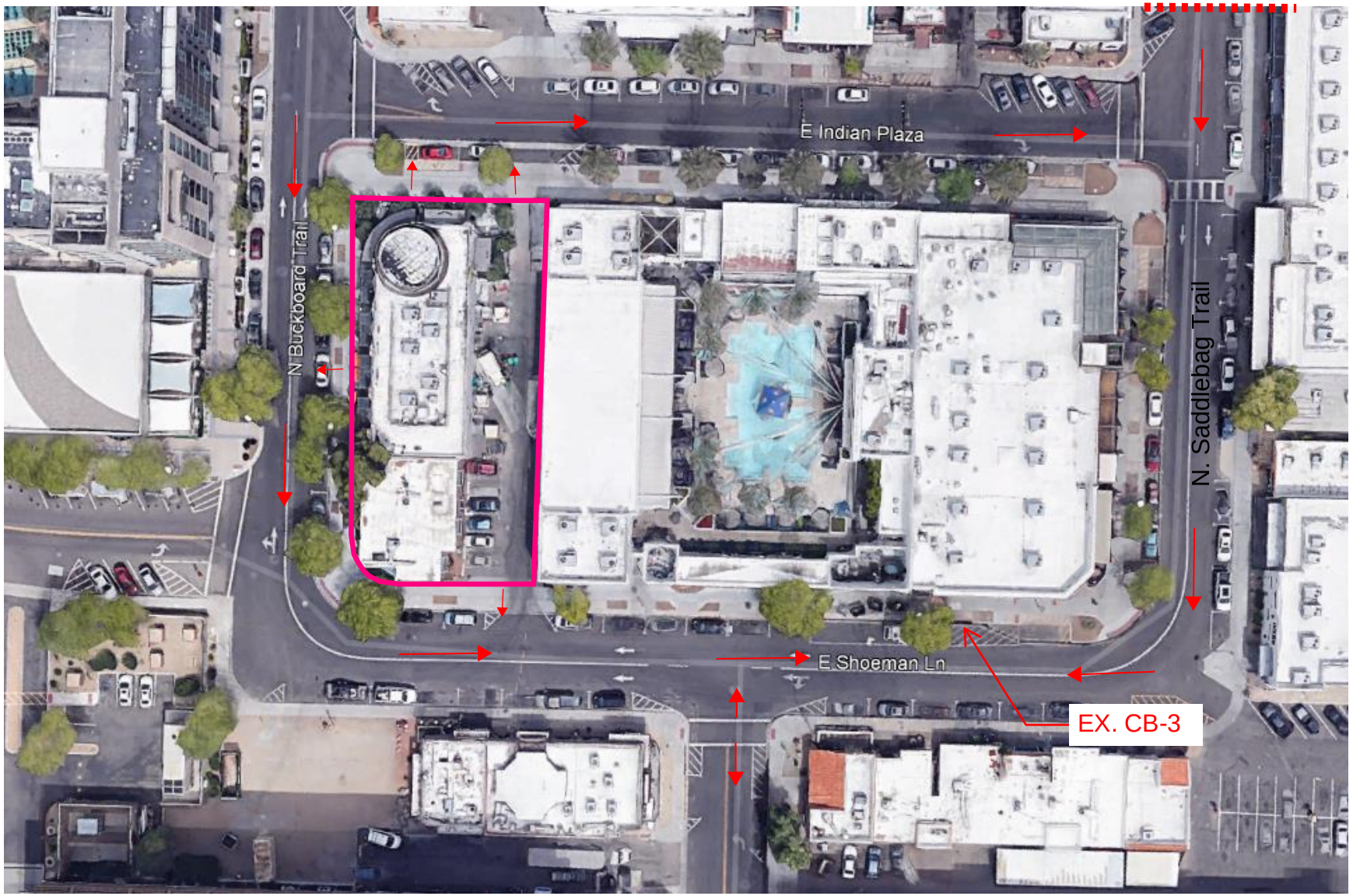
See **Figure 2C**
for continuation and
EX. CB-3 location

Legend
Property Boundary
Flow Arrow

Figure 2B- Aerial Map
The Mint

9-ZN-2020
05/19/20

See **Figure 2B**



Legend
Property Boundary
Flow Arrow

Figure 2C- Aerial Map
Maya Hotel

9-ZN-2020
05/19/20

NOTES TO USERS

This map is for use in administering the Nation Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Arizona State Plane Central zone (FIPSZONE 0202). The **horizontal datum** was NAD 83 HARN, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988 (NAVD 88). These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. Map users wishing to obtain flood elevations referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29) may use the following Maricopa County website application: http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm

This web tool allows users to obtain point-specific datum conversion values by zooming in and hovering over a VERTCON checkbox on the layers menu on the left side of the screen. The VERTCON grid referenced in this web application was also used to convert existing flood elevations from NGVD 29 to NAVD 88.

To obtain current elevation, description, and/or location information for National Geodetic Survey bench marks shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at http://www.ngs.noaa.gov. To obtain information about Geodetic Densification and Cadastral Survey bench marks produced by the Maricopa County Department of Transportation, please visit the Flood Control District of Maricopa County website at: http://www.fcd.maricopa.gov/Maps/gismaps/apps/gdacs/application/index.cfm.

Base map information shown on this FIRM was derived from multiple sources. Aerial imagery was provided in digital format by the Maricopa County Department of Public Works, Flood Control District. The imagery is dated October 2009 to November 2009. Additional National Agricultural Imagery Program (NAIP) imagery was provided by the Arizona State Land Department (ALRIS) and is dated 2007. The coordinate system used for the production of the digital FIRM is State Plane Arizona Central NAD83 HARN, International Feet.

The **profile baseline** depicted on this map represents the hydraulic modeling baselines that match flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

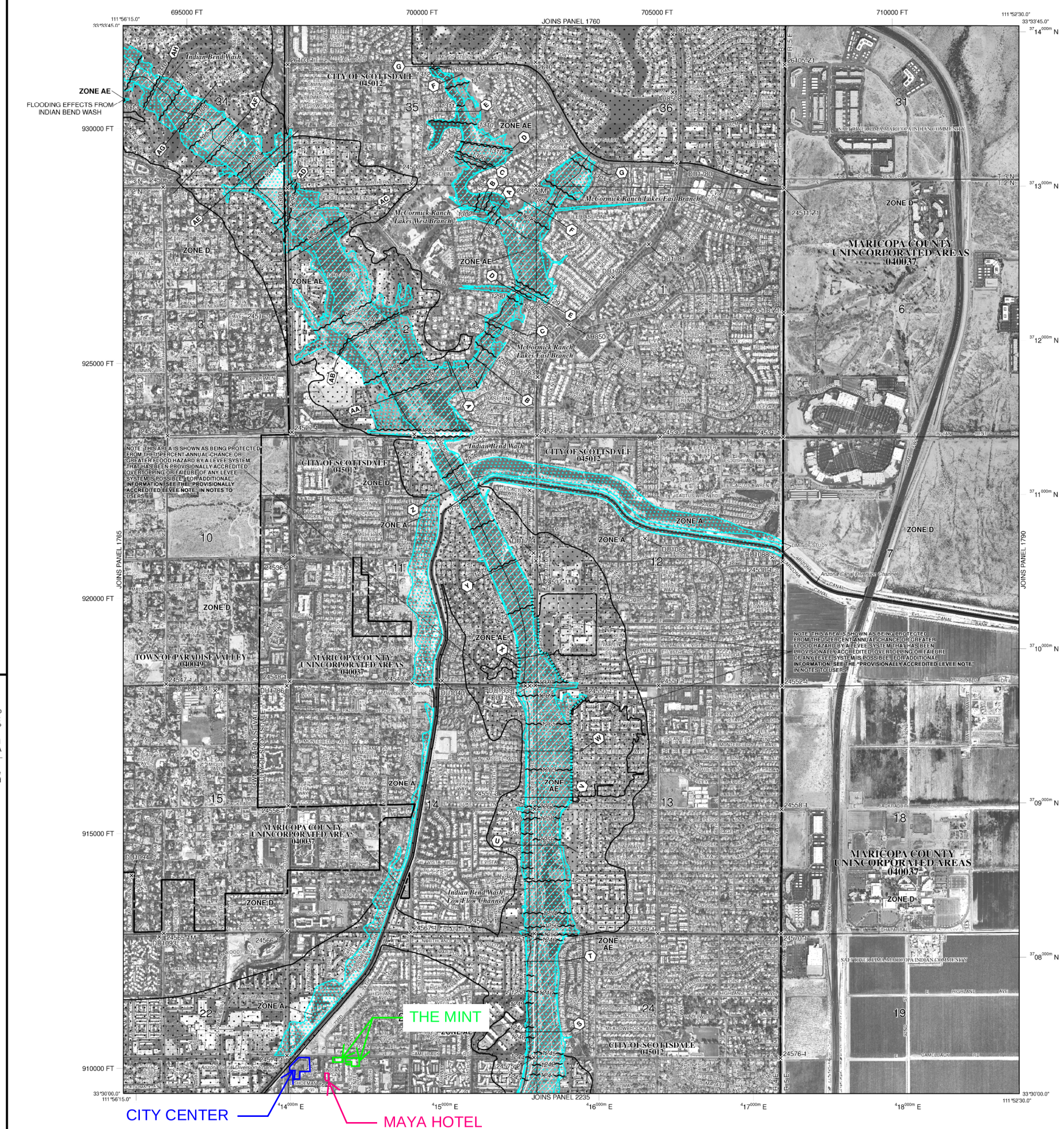
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For Information on available products associated with this FIRM, visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.

Provisionally Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1–percent–annual–chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To maintain accreditation, the levee owner or community is required to submit the data and documentation necessary to comply with Section 65.10 of the NFIP regulations by June 25, 2011. If the community or owner does not provide the necessary data and documentation or if the data and documentation provided indicate the levee system does not comply with Section 65.10 requirements, FEMA will revise the flood hazard and risk information for this area to reflect de–accreditation of the levee system. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

- A — A — Cross section line
- 23 — 23 — Transect line
- 97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 4275'000mN — 1000-meter Universal Transverse Mercator grid ticks, zone 12
- 6000000 M — 5000-foot grid ticks: Arizona State Plane coordinate system, central zone (FIPSZONE 0202), Transverse Mercator
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
April 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
December 3, 1993 September 30, 1995 July 15, 2001 September 30, 2005
October 16, 2013 –to incorporate previously issued letters of map revision, to update corporate limits, to advance suffix, to change floodway, to add base flood elevation, to change base flood elevations, to add special flood hazard areas, to add roads and road names, and to add floodway.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1770L

FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1770 OF 4425
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	1770	L
PARADISE VALLEY, TOWN OF	040049	1770	L
SCOTTSDALE, CITY OF	045012	1770	L

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 04013C1770L

MAP REVISED OCTOBER 16, 2013

Federal Emergency Management Agency

9-ZN-2020
05/19/20

Figure 3
FEMA FIRM Map

APPENDIX I

RAINFALL DATA

NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.501°, Longitude: -111.9234°
Elevation: 1263.43 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.184** (0.154-0.224)	**0.240** (0.202-0.293)	**0.327** (0.273-0.397)	**0.393** (0.326-0.475)	**0.482** (0.394-0.580)	**0.552** (0.445-0.660)	**0.622** (0.492-0.742)	**0.694** (0.540-0.827)	**0.790** (0.598-0.943)	**0.864** (0.641-1.03)
10-min	**0.280** (0.234-0.341)	**0.366** (0.308-0.446)	**0.497** (0.415-0.604)	**0.598** (0.496-0.722)	**0.734** (0.599-0.883)	**0.839** (0.677-1.00)	**0.947** (0.749-1.13)	**1.06** (0.821-1.26)	**1.20** (0.911-1.44)	**1.32** (0.976-1.57)
15-min	**0.347** (0.290-0.423)	**0.453** (0.382-0.553)	**0.616** (0.515-0.748)	**0.741** (0.615-0.895)	**0.910** (0.743-1.09)	**1.04** (0.839-1.25)	**1.17** (0.928-1.40)	**1.31** (1.02-1.56)	**1.49** (1.13-1.78)	**1.63** (1.21-1.95)
30-min	**0.467** (0.391-0.569)	**0.610** (0.514-0.744)	**0.829** (0.693-1.01)	**0.998** (0.828-1.21)	**1.23** (1.00-1.47)	**1.40** (1.13-1.68)	**1.58** (1.25-1.89)	**1.76** (1.37-2.10)	**2.01** (1.52-2.40)	**2.19** (1.63-2.63)
60-min	**0.578** (0.484-0.704)	**0.755** (0.636-0.921)	**1.03** (0.858-1.25)	**1.24** (1.02-1.49)	**1.52** (1.24-1.82)	**1.73** (1.40-2.08)	**1.96** (1.55-2.33)	**2.18** (1.70-2.60)	**2.49** (1.88-2.97)	**2.72** (2.02-3.25)
2-hr	**0.670** (0.571-0.800)	**0.867** (0.739-1.04)	**1.16** (0.984-1.38)	**1.38** (1.16-1.65)	**1.69** (1.40-2.00)	**1.92** (1.58-2.27)	**2.17** (1.75-2.55)	**2.41** (1.91-2.84)	**2.74** (2.12-3.23)	**3.00** (2.27-3.55)
3-hr	**0.730** (0.618-0.880)	**0.937** (0.797-1.13)	**1.23** (1.04-1.48)	**1.46** (1.23-1.75)	**1.79** (1.48-2.13)	**2.05** (1.67-2.43)	**2.32** (1.86-2.75)	**2.60** (2.05-3.08)	**2.99** (2.29-3.55)	**3.31** (2.46-3.93)
6-hr	**0.879** (0.760-1.03)	**1.11** (0.967-1.31)	**1.43** (1.23-1.68)	**1.68** (1.44-1.96)	**2.02** (1.71-2.34)	**2.29** (1.90-2.65)	**2.57** (2.10-2.97)	**2.85** (2.29-3.30)	**3.24** (2.54-3.76)	**3.55** (2.71-4.13)
12-hr	**0.982** (0.859-1.14)	**1.24** (1.08-1.44)	**1.57** (1.37-1.82)	**1.83** (1.58-2.12)	**2.18** (1.87-2.52)	**2.45** (2.07-2.82)	**2.73** (2.27-3.14)	**3.01** (2.47-3.47)	**3.39** (2.71-3.92)	**3.68** (2.90-4.29)
24-hr	**1.17** (1.04-1.32)	**1.49** (1.32-1.69)	**1.93** (1.71-2.18)	**2.28** (2.02-2.57)	**2.76** (2.43-3.11)	**3.14** (2.74-3.53)	**3.54** (3.07-3.98)	**3.95** (3.40-4.45)	**4.52** (3.85-5.09)	**4.97** (4.19-5.61)
2-day	**1.26** (1.13-1.43)	**1.62** (1.44-1.83)	**2.12** (1.89-2.40)	**2.53** (2.24-2.85)	**3.09** (2.73-3.48)	**3.54** (3.10-3.99)	**4.02** (3.50-4.53)	**4.51** (3.90-5.09)	**5.20** (4.44-5.88)	**5.76** (4.87-6.53)
3-day	**1.34** (1.19-1.51)	**1.71** (1.52-1.94)	**2.25** (2.00-2.54)	**2.69** (2.38-3.03)	**3.30** (2.90-3.72)	**3.80** (3.32-4.27)	**4.32** (3.75-4.86)	**4.87** (4.19-5.48)	**5.64** (4.80-6.36)	**6.27** (5.28-7.08)
4-day	**1.41** (1.25-1.60)	**1.81** (1.60-2.04)	**2.38** (2.11-2.69)	**2.85** (2.52-3.21)	**3.51** (3.08-3.95)	**4.05** (3.53-4.55)	**4.62** (4.00-5.19)	**5.22** (4.48-5.88)	**6.08** (5.15-6.84)	**6.78** (5.68-7.64)
7-day	**1.57** (1.39-1.78)	**2.01** (1.78-2.27)	**2.65** (2.35-2.99)	**3.17** (2.80-3.58)	**3.91** (3.43-4.40)	**4.50** (3.93-5.06)	**5.13** (4.44-5.78)	**5.80** (4.98-6.54)	**6.75** (5.72-7.61)	**7.51** (6.30-8.49)
10-day	**1.70** (1.51-1.93)	**2.18** (1.94-2.46)	**2.88** (2.55-3.24)	**3.44** (3.04-3.87)	**4.23** (3.71-4.74)	**4.86** (4.24-5.44)	**5.53** (4.80-6.20)	**6.24** (5.37-7.00)	**7.22** (6.14-8.11)	**8.02** (6.75-9.02)
20-day	**2.10** (1.87-2.35)	**2.70** (2.40-3.02)	**3.56** (3.17-3.99)	**4.21** (3.74-4.71)	**5.09** (4.50-5.69)	**5.77** (5.08-6.45)	**6.46** (5.66-7.23)	**7.16** (6.24-8.02)	**8.10** (7.00-9.10)	**8.83** (7.57-9.92)
30-day	**2.45** (2.17-2.75)	**3.15** (2.80-3.53)	**4.15** (3.69-4.65)	**4.91** (4.35-5.49)	**5.93** (5.23-6.63)	**6.72** (5.90-7.50)	**7.53** (6.58-8.40)	**8.35** (7.26-9.31)	**9.45** (8.15-10.6)	**10.3** (8.82-11.5)
45-day	**2.83** (2.53-3.17)	**3.65** (3.26-4.09)	**4.81** (4.29-5.38)	**5.67** (5.04-6.34)	**6.80** (6.03-7.60)	**7.65** (6.76-8.55)	**8.51** (7.49-9.52)	**9.37** (8.21-10.5)	**10.5** (9.14-11.8)	**11.4** (9.82-12.8)
60-day	**3.13** (2.81-3.50)	**4.05** (3.62-4.51)	**5.32** (4.76-5.94)	**6.25** (5.58-6.97)	**7.46** (6.64-8.31)	**8.35** (7.41-9.31)	**9.25** (8.17-10.3)	**10.1** (8.91-11.3)	**11.3** (9.87-12.6)	**12.1** (10.6-13.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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PF graphical

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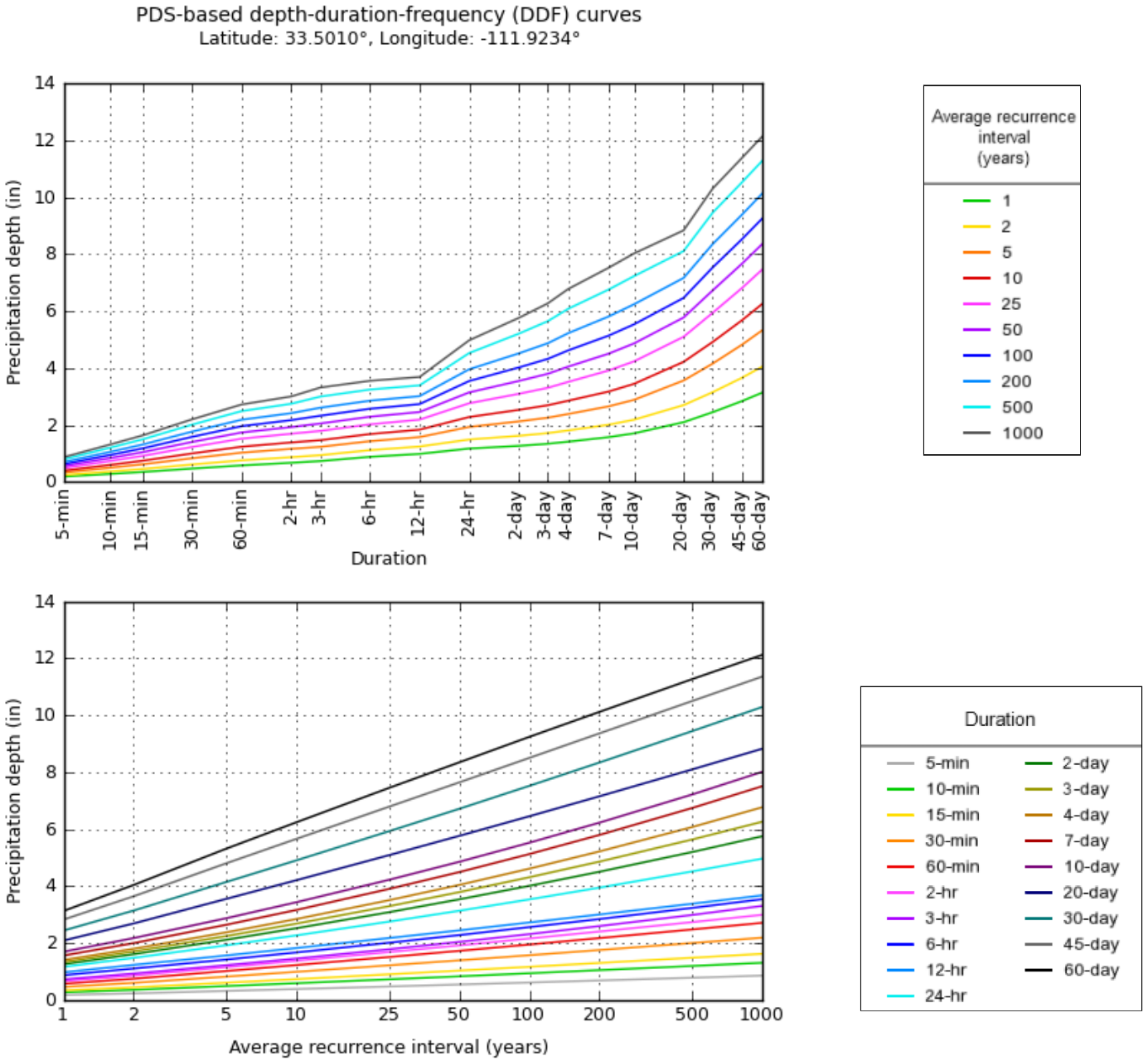

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Maps & aerials

Small scale terrain

9-ZN-2020
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NOAA Atlas 14, Volume 1, Version 5
Location name: Scottsdale, Arizona, USA*
Latitude: 33.501°, Longitude: -111.9234°
Elevation: 1263.43 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**2.21** (1.85-2.69)	**2.88** (2.42-3.52)	**3.92** (3.28-4.76)	**4.72** (3.91-5.70)	**5.78** (4.73-6.96)	**6.62** (5.34-7.92)	**7.46** (5.90-8.90)	**8.33** (6.48-9.92)	**9.48** (7.18-11.3)	**10.4** (7.69-12.4)
10-min	**1.68** (1.40-2.05)	**2.20** (1.85-2.68)	**2.98** (2.49-3.62)	**3.59** (2.98-4.33)	**4.40** (3.59-5.30)	**5.03** (4.06-6.02)	**5.68** (4.49-6.78)	**6.34** (4.93-7.55)	**7.22** (5.47-8.62)	**7.89** (5.86-9.43)
15-min	**1.39** (1.16-1.69)	**1.81** (1.53-2.21)	**2.46** (2.06-2.99)	**2.96** (2.46-3.58)	**3.64** (2.97-4.38)	**4.16** (3.36-4.98)	**4.70** (3.71-5.60)	**5.24** (4.07-6.24)	**5.96** (4.52-7.12)	**6.52** (4.84-7.80)
30-min	**0.934** (0.782-1.14)	**1.22** (1.03-1.49)	**1.66** (1.39-2.01)	**2.00** (1.66-2.41)	**2.45** (2.00-2.95)	**2.80** (2.26-3.35)	**3.16** (2.50-3.77)	**3.53** (2.74-4.20)	**4.02** (3.04-4.79)	**4.39** (3.26-5.25)
60-min	**0.578** (0.484-0.704)	**0.755** (0.636-0.921)	**1.03** (0.858-1.25)	**1.24** (1.02-1.49)	**1.52** (1.24-1.82)	**1.73** (1.40-2.08)	**1.96** (1.55-2.33)	**2.18** (1.70-2.60)	**2.49** (1.88-2.97)	**2.72** (2.02-3.25)
2-hr	**0.335** (0.286-0.400)	**0.434** (0.370-0.520)	**0.580** (0.492-0.691)	**0.692** (0.580-0.823)	**0.845** (0.701-0.998)	**0.962** (0.788-1.13)	**1.08** (0.874-1.28)	**1.21** (0.954-1.42)	**1.37** (1.06-1.61)	**1.50** (1.13-1.78)
3-hr	**0.243** (0.206-0.293)	**0.312** (0.265-0.377)	**0.410** (0.347-0.494)	**0.487** (0.409-0.584)	**0.596** (0.492-0.709)	**0.682** (0.556-0.810)	**0.773** (0.618-0.917)	**0.867** (0.682-1.03)	**0.997** (0.761-1.18)	**1.10** (0.821-1.31)
6-hr	**0.147** (0.127-0.173)	**0.186** (0.161-0.219)	**0.238** (0.206-0.280)	**0.280** (0.240-0.327)	**0.337** (0.285-0.391)	**0.382** (0.318-0.442)	**0.429** (0.351-0.496)	**0.476** (0.382-0.552)	**0.541** (0.424-0.628)	**0.593** (0.453-0.690)
12-hr	**0.082** (0.071-0.095)	**0.103** (0.090-0.120)	**0.130** (0.113-0.151)	**0.152** (0.131-0.176)	**0.181** (0.155-0.209)	**0.204** (0.172-0.234)	**0.227** (0.189-0.261)	**0.250** (0.205-0.288)	**0.281** (0.225-0.326)	**0.306** (0.240-0.356)
24-hr	**0.049** (0.043-0.055)	**0.062** (0.055-0.070)	**0.080** (0.071-0.091)	**0.095** (0.084-0.107)	**0.115** (0.101-0.130)	**0.131** (0.114-0.147)	**0.148** (0.128-0.166)	**0.165** (0.142-0.185)	**0.188** (0.160-0.212)	**0.207** (0.175-0.234)
2-day	**0.026** (0.023-0.030)	**0.034** (0.030-0.038)	**0.044** (0.039-0.050)	**0.053** (0.047-0.059)	**0.064** (0.057-0.073)	**0.074** (0.065-0.083)	**0.084** (0.073-0.094)	**0.094** (0.081-0.106)	**0.108** (0.093-0.123)	**0.120** (0.101-0.136)
3-day	**0.019** (0.017-0.021)	**0.024** (0.021-0.027)	**0.031** (0.028-0.035)	**0.037** (0.033-0.042)	**0.046** (0.040-0.052)	**0.053** (0.046-0.059)	**0.060** (0.052-0.067)	**0.068** (0.058-0.076)	**0.078** (0.067-0.088)	**0.087** (0.073-0.098)
4-day	**0.015** (0.013-0.017)	**0.019** (0.017-0.021)	**0.025** (0.022-0.028)	**0.030** (0.026-0.033)	**0.037** (0.032-0.041)	**0.042** (0.037-0.047)	**0.048** (0.042-0.054)	**0.054** (0.047-0.061)	**0.063** (0.054-0.071)	**0.071** (0.059-0.080)
7-day	**0.009** (0.008-0.011)	**0.012** (0.011-0.014)	**0.016** (0.014-0.018)	**0.019** (0.017-0.021)	**0.023** (0.020-0.026)	**0.027** (0.023-0.030)	**0.031** (0.026-0.034)	**0.035** (0.030-0.039)	**0.040** (0.034-0.045)	**0.045** (0.038-0.051)
10-day	**0.007** (0.006-0.008)	**0.009** (0.008-0.010)	**0.012** (0.011-0.014)	**0.014** (0.013-0.016)	**0.018** (0.015-0.020)	**0.020** (0.018-0.023)	**0.023** (0.020-0.026)	**0.026** (0.022-0.029)	**0.030** (0.026-0.034)	**0.033** (0.028-0.038)
20-day	**0.004** (0.004-0.005)	**0.006** (0.005-0.006)	**0.007** (0.007-0.008)	**0.009** (0.008-0.010)	**0.011** (0.009-0.012)	**0.012** (0.011-0.013)	**0.013** (0.012-0.015)	**0.015** (0.013-0.017)	**0.017** (0.015-0.019)	**0.018** (0.016-0.021)
30-day	**0.003** (0.003-0.004)	**0.004** (0.004-0.005)	**0.006** (0.005-0.006)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.009** (0.008-0.010)	**0.010** (0.009-0.012)	**0.012** (0.010-0.013)	**0.013** (0.011-0.015)	**0.014** (0.012-0.016)
45-day	**0.003** (0.002-0.003)	**0.003** (0.003-0.004)	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.006** (0.006-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.009** (0.008-0.010)	**0.010** (0.008-0.011)	**0.011** (0.009-0.012)
60-day	**0.002** (0.002-0.002)	**0.003** (0.003-0.003)	**0.004** (0.003-0.004)	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.006** (0.005-0.006)	**0.006** (0.006-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.008** (0.007-0.009)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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PF graphical

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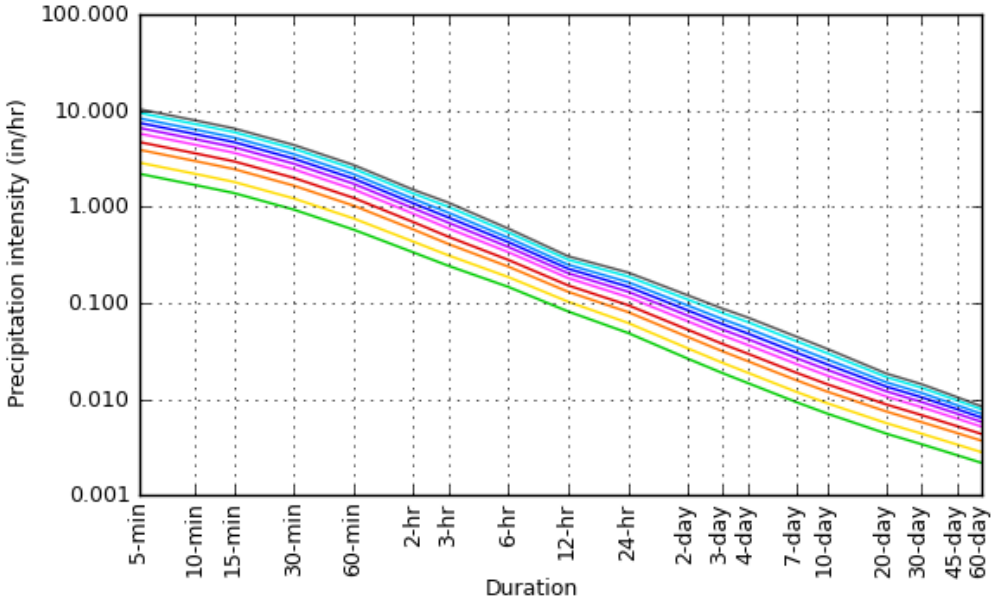
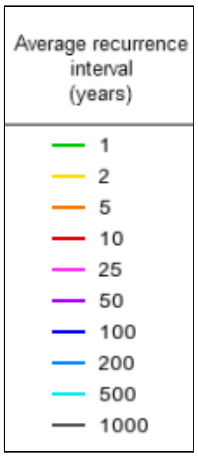
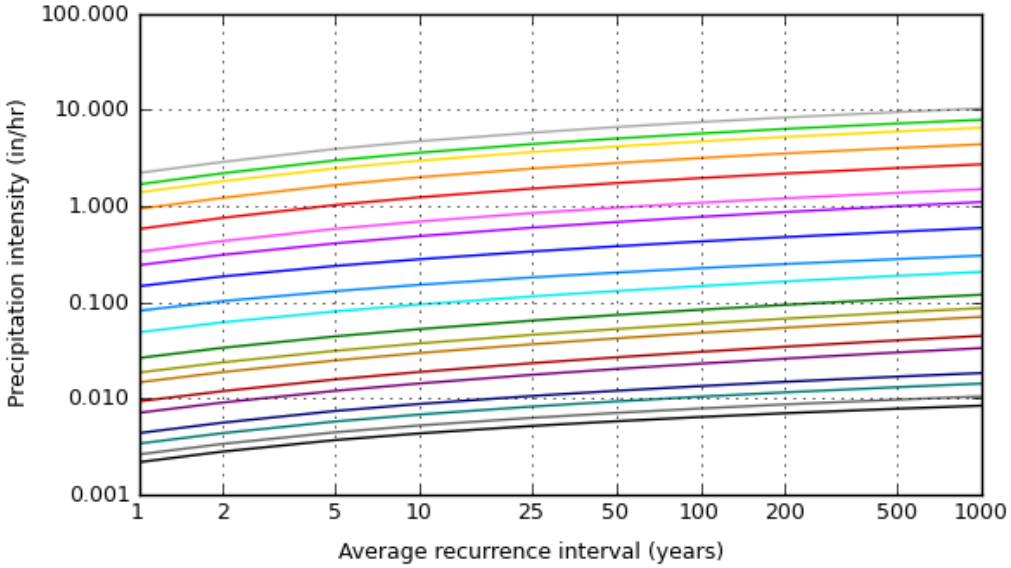
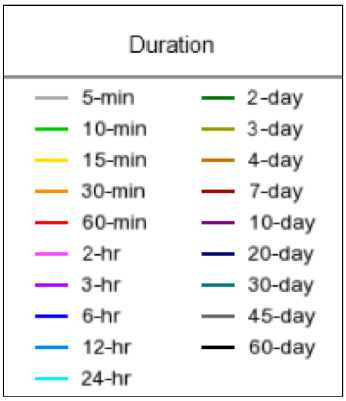
PDS-based intensity-duration-frequency (IDF) curves
Latitude: 33.5010°, Longitude: -111.9234°









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Maps & aerials

Small scale terrain

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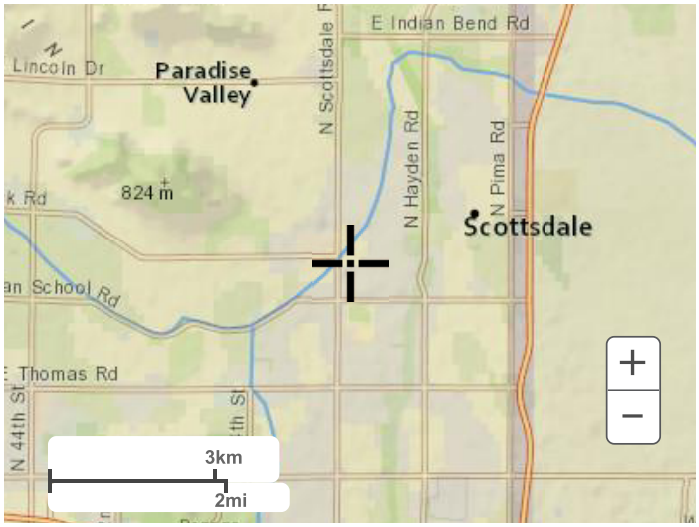
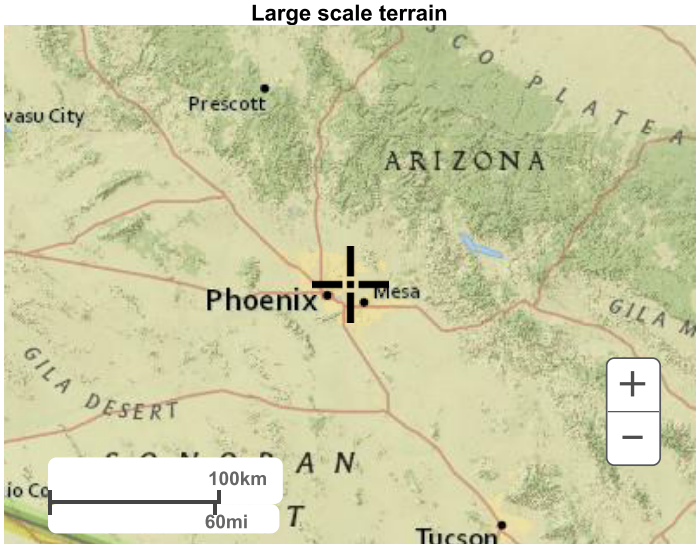
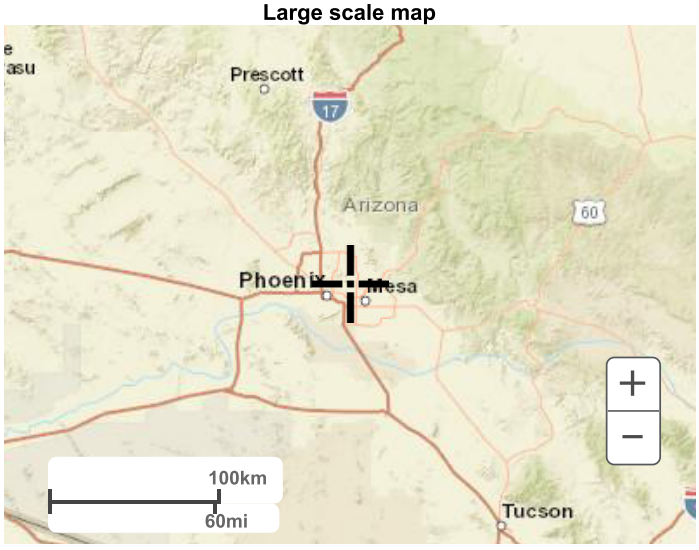


Large scale terrain



Large scale map



Large scale aerial

9-ZN-2020
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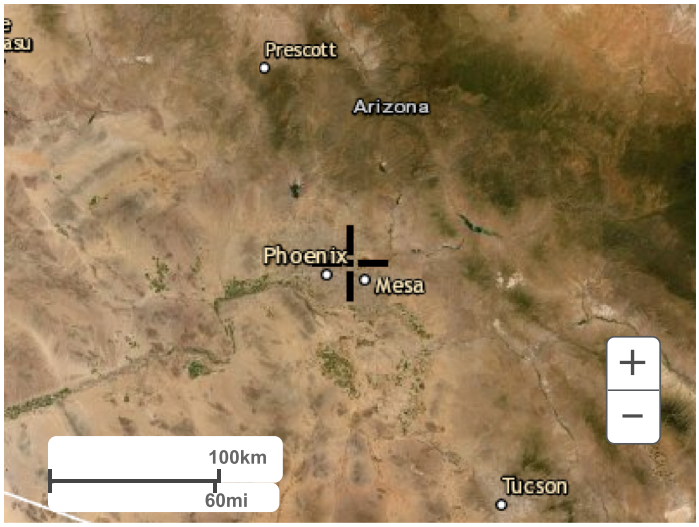

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

APPENDIX I

SITE LAYOUTS

LEGEND

1. ENHANCED INTERSECTION
2. ENHANCED PEDESTRIAN WALK
3. TREE LINED STREET
4. EXISTING PEDESTRIAN WALK

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05/19/20

LEGEND

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2. ENHANCED PEDESTRIAN WALK
3. TREE LINED STREET
4. EXISTING PEDESTRIAN WALK

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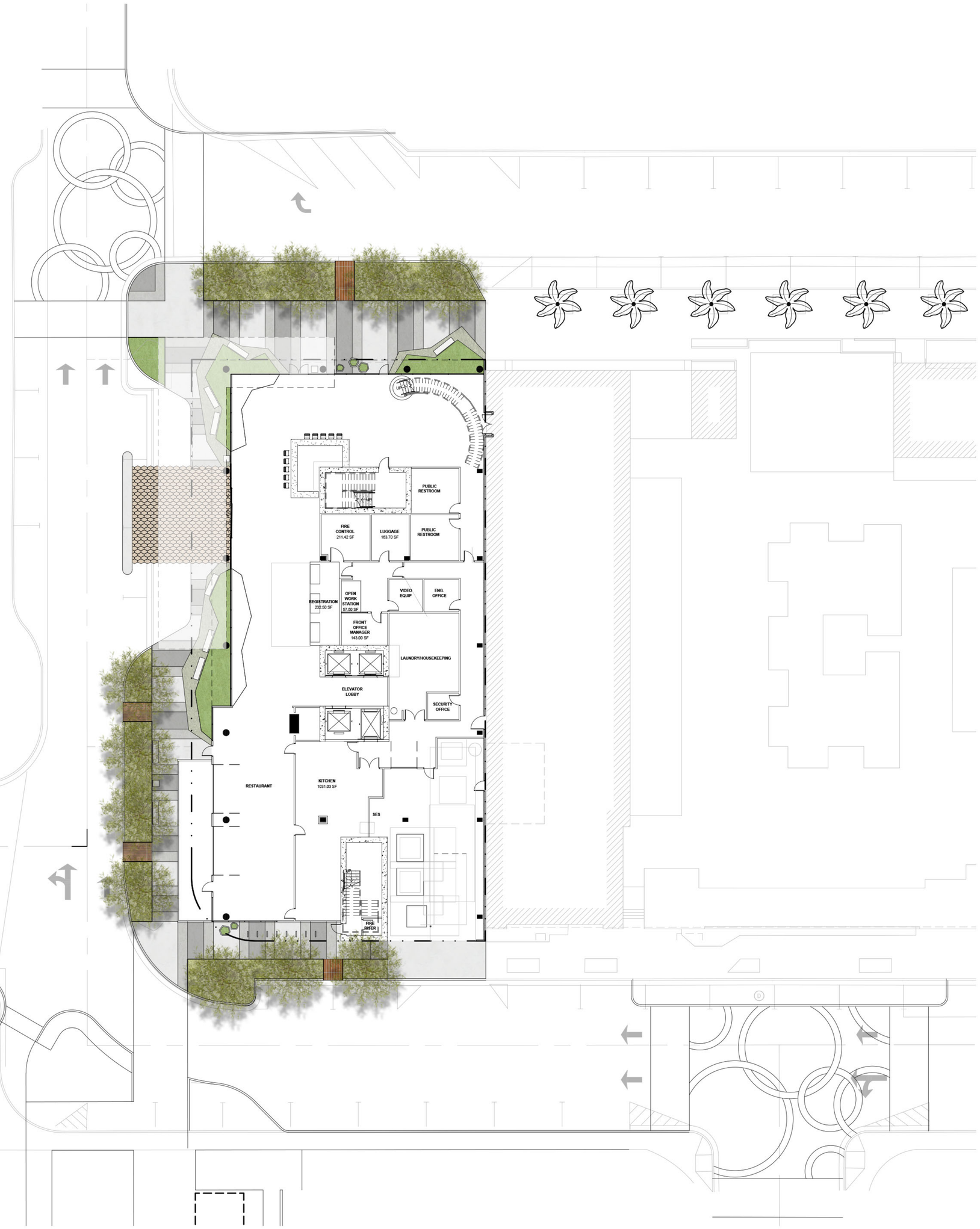
9-ZN-2020
05/12/20



RVi
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Tempe, Arizona 85281
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Maya Hotel • **Site Plan**

Scottsdale, AZ
04/22/2020
19003663
RSP Architects

0 10' 20' 40'
SCALE: 1" = 20'-0"

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