



Mobile Fingerprinting Pilot Project



PINAL COUNTY
wide open opportunity

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3 EXECUTIVE SUMMARY

The collection of a Type 01 Fingerprint (a ten finger print), typically through a LiveScan booking device, is the only way to initiate the process of creating a criminal history record and identifying the associated charges. Upon receipt of a Type 01 Fingerprint and charges, the Arizona Computerized Criminal History system (ACCH) will *either* match the fingerprints to an existing identity record or create a new identity record if none exists. The ACCH will then associate that identity record to the new arrest which includes a list of the charges indicated by the arresting law enforcement agency. In either situation, a unique Process Control Number (PCN) is generated and associated to this new arrest record. The PCN will be subsequently used to uniquely identify the arrest segment when the prosecutor or court reports an update to the charges. Since charges very often change throughout the investigative and prosecutorial process, the PCN serves as the unique database identifier to ensure that the correct arrest charges are updated. Based on this business process if a Type 01 Fingerprint is **not** captured, no criminal history record will be created in ACCH, no PCN will be generated, and no arrest record will exist within the system.

Mobile fingerprinting devices are inexpensive and can be used to capture biometric identifiers such as a fingerprint. These devices have the capability to quickly verify the identity of an individual if they have been previously fingerprinted. ***While the mobile fingerprinting devices cannot be used to create criminal history***, the information returned can serve as a mechanism to link law enforcement, prosecution, and court processes through a common person-based identifier called the AFIS Record Number (ARN). Once fingerprinted, a person is assigned an ARN which will be tied to their identity forever. For example, the ARN can be used to tie the subject stopped by police with the defendant that appears in the courtroom and finally to the inmate that appears for intake at the Arizona Department of Corrections (ADC). Other advantages of enabling this mobile fingerprint capability include the ability to create a high-resolution image of the defendant's fingerprint.

ARS §13-607, requires that a defendant's fingerprint is captured on the sentencing order. This fingerprint is used as part of the certification process when a prosecutor seeks to enhance charges because of multiple prior convictions. However, analysis of records indicates that the current "ink and roll" method used to comply with ARS §13-607 frequently results in an ***unusable*** print. Introduction of the mobile fingerprint device may resolve this issue by providing immediate feedback on the quality of the fingerprint, ensuring that the fingerprint on the sentencing order will always be usable by prosecutors for charging purposes. After capturing a defendant's fingerprint, court personnel are able to print the image, using an existing commercial off-the-shelf printer, and attach it to the sentencing order in lieu of the current ink and roll process.

MOBILE FINGERPRINTING DEVICES

While mobile fingerprinting devices ***cannot be used to create criminal history***, the information returned can serve as a mechanism to link law enforcement, prosecution, and court processes through a common person-based identifier called the AFIS Record Number (ARN).

As a result of the Arizona Criminal Justice Commission (ACJC) Strategic Assessment Report, in August 2014 the ACJC embarked on a pilot project using Mobile Fingerprinting technology to improve the efficacy of fingerprints captured in the court room. The purpose of the Mobile Fingerprinting Pilot Project was to provide the ACJC with an assessment of the operational effectiveness of using biometric technology to capture fingerprints in the court room.

Currently, sentencing order fingerprints are captured manually by courtroom clerks or bailiffs using the “ink & roll” method. Using this method, there is a risk that these fingerprints can be smudged which would cause them to be insufficient for matching. The use of the mobile fingerprinting device would replace the current “ink & roll” process used to affix the defendant’s fingerprint on the sentencing order. The ACJC hypothesizes that the use of biometric technology to capture fingerprints will be of sufficient quality to provide data to the Arizona Department of Corrections (ADC) Gap Filler Project. Since 2007, the Arizona Attorney General, Department of Public Safety (DPS), and ADC have worked together to implement the Gap Program which encapsulates a process whereby criminal history can be retroactively created should a convicted offender appear at the ADC with no criminal history, hence no fingerprints on file. As per the GAP Program, upon arrival inmates are fingerprinted to confirm their identity and determine whether they have a State Identifier (SID).

In order to assess the impact of mobile two-fingerprint identification devices in Arizona’s superior courts, the ACJC allocated funds from the NICS Act Record Improvement Program (NARIP) to pilot a project in Maricopa and Pinal Counties.

The ACJC invited two jurisdictions to participate in the Mobile Fingerprinting Pilot Project: Maricopa County Superior Court and Pinal County Superior Court. Each jurisdiction participated in four weeks of testing using the Cross Match technology and four weeks of testing using the MorphoTrak technology.

This report provides details around the scope of the Mobile Fingerprinting Pilot project, a review of the findings of the fingerprints collected during this pilot, a review of each jurisdiction’s experience with the technology solutions, and recommendations for next steps.

4 KEY FINDINGS

The ACJC hypothesized that the use of biometric technology to capture fingerprints will be of sufficient quality to provide data to the ADC Gap Filler Project.

The three major findings of this pilot reveal the following:

1. According to DPS, the quality of the digital fingerprints captured during this pilot in the courtroom using Cross Match and MorphoTrak technology is considered sufficient for the ADC Gap Filler Project.
2. Commercial-off-the-shelf printers that have the ability to print at 600 DPI are considered sufficient and courtrooms do not have to procure FBI Certified printers in order to print a quality fingerprint.
3. Courts can leverage the AOC Gateway to interface with DPS.

Additional findings about the pilot and the data collected are in the next section.

4.1 DATA ANALYSIS

Over the course of the pilot, the Maricopa County Superior Court and the Pinal County Superior Court used two separate mobile fingerprinting solutions, one solution was designed by MorphoTrak and the other solution was designed by Cross Match, at two court locations.

At the Maricopa County Superior Court, a total of 88 sets of fingerprints were captured in both phases. There were 53 sets of fingerprints captured from the Cross Match device and 35 sets of fingerprints captured from the MorphoTrak device (see Table 1). After Phase I was completed in Maricopa County Superior Court, a systematic random sample (n=13) of the 53 sets of fingerprints from the Cross Match technology were delivered to DPS to analyze and determine whether or not the fingerprints captured were sufficient to support the ADC GAP Filler Program. DPS reviewed a total of 13 sets of fingerprints and all, except two, met the GAP Filler requirements. According to DPS, the two samples that were insufficient were due to end-user error (e.g. the defendant did not press down hard enough on the device). After Phase II was completed in Maricopa County Superior Court, a random sample (n=10) of the 35 sets of fingerprints were delivered to DPS to analyze and determine whether or not the fingerprints captured were sufficient to support the ADC GAP Filler Program. DPS reviewed 10 sets of fingerprints and all, except one, met the GAP Filler requirements. According to DPS, the sample was insufficient due to end-user error.

At the Pinal County Superior Court, a total of 205 sets of fingerprints were captured. There were 113 sets of fingerprints captured from the MorphoTrak device and 92 sets of fingerprints captured from the Cross Match device (see Table 1). After Phase I was completed in Pinal County Superior Court, a systematic random sample (n=24) of the 113 sets of fingerprints from the MorphoTrak technology were delivered to DPS to analyze and determine whether or not the fingerprints captured were sufficient to support the ADC GAP Filler Program. DPS reviewed 24 samples of fingerprints and all, except two, met the GAP Filler requirements. According to DPS, the two samples that were insufficient were due to end-user error. After Phase II was completed in Pinal County Superior Court, a random sample (n=8) of the 92 sets of fingerprints were delivered to DPS to analyze and determine whether or not the fingerprints captured were sufficient to support the ADC GAP Filler Program. DPS reviewed 8 sets of fingerprints and all, except one, met the GAP Filler requirements. According to DPS, the sample was insufficient due to end-user error.

Table 1. Pilot Project Findings			
	<i>Maricopa County Superior Court</i>	<i>Pinal County Superior Court</i>	<i>All Courts</i>
<i>Total Sets of Fingerprints Captured</i>	88	205	293
<i>MorphoTrak</i>	35	113	148
<i>Cross Match</i>	53	92	145
<i>Unique Defendants Fingerprinted</i>	70	202	272
<i>Percentage of MorphoTrak Device Fingerprints Leading to an ARN Hit</i>	42.90%	54.00%	51.40%
<i>Percentage of Cross Match Device Fingerprints Leading to an ARN Hit</i>	77.40%	55.40%	63.40%
<i>Percentage of All Device Fingerprints Leading to an ARN Hit</i>	63.60%	54.60%	57.30%
<i>Percentage of Unique Defendants Identified</i>	61.40%	55.00%	56.60%

NOTE: Data in Table 1 does not reflect the efficacy of fingerprinting via the mobile devices. The data only represents the percentage of defendants that were positively identified with an ARN in the Arizona Automated Fingerprint Identification System (AZAFIS).

When examining fingerprints captured across all devices, 57.3 percent led to a positive AFIS Record Number (ARN) hit on the defendant (Table 1). The presence of a valid ARN indicates to the court that the individual’s fingerprints have been taken due to prior involvement in the criminal justice system or for employment purposes predating their court appearance. If the result is no ARN hit, then the court knows to send that individual for fingerprinting on the originating arrest charges. At the Maricopa County Superior Court, 63.6 percent of all fingerprints captured led to an ARN hit. MorphoTrak devices at Maricopa County Superior Court led to ARN hits 42.9 percent of the time while Cross Match devices resulted in ARN hits 77.4 percent of the time. Fingerprints captured at Pinal County Superior Court led to ARN hits 54.6 percent of the time. More specifically, MorphoTrak devices at the Pinal County Superior Court resulted in ARN hits 54.0 percent of the time, and 55.4 percent of Cross Match device fingerprints captured led to ARN hits. Of the 272 unique defendants fingerprinted during the pilot project, 56.6 percent were positively identified via an ARN hit.

Phase Comparisons of the Pilot Project

During the first phase, Pinal County Superior Court used MorphoTrak devices exclusively while Maricopa County Superior Court used Cross Match devices for fingerprint identification. All fingerprints captured during the first phase resulted in ARN hits 61.4 percent of the time (Table 2). The two courts switched devices for the second phase of the project, and it should be noted that system issues were identified and resolved during the second phase. As a result, 52.0 percent of fingerprints captured during the second phase led to ARN hits.

Table 2. Percentage of Fingerprints Leading to ARN Hits	
	<i>Fingerprints Leading to an ARN Hit</i>
Phase One (Four Week Period in April 2015)	61.40%
<i>Pinal County Superior Court (MorphoTrak)</i>	54.00%
<i>Maricopa County Superior Court (Cross Match)</i>	77.40%
Phase Two (Four Week Period in June 2015)	52.00%
<i>Pinal County Superior Court (Cross Match)</i>	55.40%
<i>Maricopa County Superior Court (MorphoTrak)</i>	42.90%

NOTE: Data in Table 2 does not reflect the efficacy of fingerprinting via the mobile devices. The data only represents the percentage of defendants that were positively identified with an ARN in the Arizona Automated Fingerprint Identification System (AZAFIS).

5 MARICOPA COUNTY SUPERIOR COURT

In August 2014, the ACJC met with representatives from the Maricopa County Superior Court to discuss the pilot project and determine interest in participating. After addressing questions about the level of effort, the Maricopa County Superior Court agreed to participate. Upon agreement, the ACJC created and disseminated two MOUs. The first MOU included signatures from ACJC, DPS, Maricopa County Superior Court, and Cross Match, and the second MOU included signatures from ACJC, DPS, Maricopa County Superior Court, and MorphoTrak. After the MOUs were signed, a project plan was developed that outlined the pilot’s purpose, stakeholders, and the timeline. Prior to implementation, the ACJC participated in courtroom observations to understand the business process and work environment in Courtroom 802, also known as the DUI Commissioner Court, the location of the pilot.

In addition to capturing a high quality, digitally based fingerprint, the ACJC was also testing the ability for the technologies to interface with the AZ AFIS. The Maricopa County Superior Court was successfully able to leverage their existing interface with the AZ AFIS during this pilot.

5.1 MARICOPA COUNTY SUPERIOR COURT: PHASE I

During Phase I of the Pilot, Maricopa County Superior Court employed the Cross Match technology.

Background: Phase I

During Phase I of the Pilot, Maricopa County Superior Court employed the Cross Match technology for a period of four weeks from April 17, 2015 – May 15, 2015. The Cross Match software was installed on the Bailiff’s desktop and training occurred on April 17. It took

approximately two hours for Cross Match to install the software, test the interface with AZ AFIS, and connect with the Maricopa County Superior Court's commercial-off-the-shelf printer. After installation and testing was complete, Cross Match provided training to Bailiff and court personnel on how to use the technology. The pilot went LIVE on Monday, April 20th in Courtroom 802, also known as the DUI Commissioner Court, at the Maricopa County Superior Court.

Limitations: Phase I

While the Maricopa County Superior Court team did not have to call Cross Match customer support during Phase I, there was a single instance during the fingerprint capture process, the EF200 scanner would not complete the capture process and did not return a final image to the software. To work around this issue when it was encountered, the Bailiff would disconnect and reconnect the USB cable for EF200 fingerprint scanner, then capture the fingerprint again. It was not necessary to restart the transaction, the enrollment software, or the PC.

Key Findings: Phase I

At the Maricopa County Superior Court, a total of 53 sets of fingerprints were captured, from a total of 50 sentencings, using Cross Match. After Phase I was completed, a systematic random sample (n=13) of the 53 sets of fingerprints from the Cross Match technology were delivered to DPS to analyze and determine whether or not the fingerprints captured were sufficient to support the ADC GAP Filler Program. DPS reviewed a total of 13 sets of fingerprints and all, except two, met the GAP Filler requirements. According to DPS, the two samples that were insufficient were possibly due to end-user error (e.g. the defendant did not press his/her finger down correctly on the device).

5.2 MARICOPA COUNTY SUPERIOR COURT: PHASE II

During Phase II of the Pilot, Maricopa County Superior Court employed the MorphoTrak technology.

Background: Phase II

During Phase II of the Pilot, Maricopa County Superior Court employed the MorphoTrak technology for a period of four weeks from May 29, 2015 – June 26, 2015. The MorphoTrak software was installed on the Bailiff's desktop and training occurred on May 29. It took approximately three hours for MorphoTrak to install the software, test the interface with AZ AFIS, and connect with the Maricopa County Superior Court's commercial off the shelf printer. After installation and testing was complete, MorphoTrak provided training to Bailiff and court personnel on how to use the technology.

The pilot went LIVE on Monday, June 1 in Courtroom 802, also known as the DUI Commissioner Courts, at the Maricopa County Superior Court.

Limitations: Phase II

During this phase, the Maricopa County Superior Court team faced some technical issues on June 5th and June 8th with the software interfacing with AZ AFIS. As a result, MorphoTrak

customer support was contacted and resolved the issue by a text message attachment. According to customer support, the AZ AFIS was experiencing some technical issues during this period of time. On June 9th, Maricopa faced some technical issues with the printer and contacted customer support. Instructions on how to remedy the issue were provided, but did not resolve the error. As a result, a customer support representative from MorphoTrak made a site visit to resolve the issue later that day. On June 12, the Bailiff discovered that if he did not continuously empty the remedy, that case numbers from pending submissions would print on the submissions that had a hit. This issue was resolved prior to the court calendar on 6/15/15.

Key Findings: Phase II

At the Maricopa County Superior Court, a total of 35 sets of fingerprints, out of 55 completed sentencing hearings, were captured using MorphoTrak. After Phase II was completed, a random sample (n=10) of the 35 sets of fingerprints were delivered to DPS to analyze and determine whether or not the fingerprints captured were sufficient to support the ADC GAP Filler Program. DPS reviewed 10 sets of fingerprints and all, except one, met the GAP Filler requirements. According to DPS, the sample was insufficient due to end-user error (e.g. the defendant did not press his/her finger down correctly on the device).

6 PINAL COUNTY SUPERIOR COURT

In September 2014, the ACJC engaged with the Pinal County Superior Court to discuss the pilot project and determine interest in participating. After addressing questions about the level of effort, the Pinal County Superior Court agreed to participate. Upon agreement, the ACJC created and disseminated two MOUs. The first MOU included signatures from ACJC, DPS, Pinal County Superior Court, and MorphoTrak, and the second MOU included signatures from ACJC, DPS, Pinal County Superior Court, and Cross Match. After the MOUs were signed, a project plan was developed that outlined the pilot's purpose, stakeholders, and the timeline. Prior to implementation, the ACJC participated in courtroom observations to understand the business process and work environment in the Early Disposition Courtroom, the location of the pilot.

In addition to capturing a digitally based fingerprint, the ACJC was also testing the ability for the technologies to interface with the AZ AFIS. The Pinal County Superior Court was successfully able to leverage the AOC Gateway to interface with the AZ AFIS.

6.1 PINAL COUNTY SUPERIOR COURT: PHASE I

During Phase I of the Pilot, Pinal County Superior Court employed the MorphoTrak technology.

Background: Phase I

The Court used the MorphoTrak technology for a period of four weeks to capture defendants' fingerprints upon sentencing from April 8, 2015 – May 8, 2015. After three hours, the MorphoTrak software was installed on a laptop and interfacing with AZ AFIS. After the software was installed and testing with AZ AFIS was accomplished, it took 6 additional hours for MorphoTrak to try to interface with the Pinal County Superior Court commercial-off-the-shelf printer. After many attempts, MorphoTrak was unable to connect to the court's printer. As a

result, MorphoTrak provided their own FBI Certified Printer to Pinal County Superior Court the following day, during training, for the court to use during the pilot.

The pilot went LIVE on Friday, April 10th in the Early Disposition Courtroom, at the Pinal County Superior Court.

Limitations: Phase I

During this phase, the vendor was unable to configure the court’s commercial-off-the-shelf printer to work with the technology, but the vendor did provide an FBI Certified printer for the court to use during the pilot. During this phase of the pilot, the Pinal County Superior Court team called MorphoTrak customer support because the device became full and was not able to operate. While MorphoTrak informed Pinal County Superior Court that the device needed to be cleared, they were not properly trained on how to clear the device. The call to customer support resolved the issue.

Key Findings: Phase I

At the Pinal County Superior Court, a total of 113 sets of fingerprints captured from the MorphoTrak device. After Phase I was completed, a systematic random sample (n=24) of the 113 sets of fingerprints from the MorphoTrak technology were delivered to DPS to analyze and determine whether or not the fingerprints captured were sufficient to support the ADC GAP Filler Program. DPS reviewed 24 samples of fingerprints and all, except two, met the GAP Filler requirements. According to DPS, the two samples that were insufficient were due to end-user error (e.g. the defendant did not press his/her finger down correctly on the device). In addition to capturing a digitally based fingerprint, the ACJC was also testing the ability for the MorphoTrak technology to interface with the AZ AFIS. The Pinal County Superior Court was successfully able to leverage the AOC Gateway to interface with the AZ AFIS.

6.2 PINAL COUNTY SUPERIOR COURT: PHASE II

During Phase II of the Pilot, Pinal County Superior Court employed the Cross Match technology.

Background: Phase II

The Court used the Cross Match technology for a period of four weeks to capture defendants’ fingerprints upon sentencing from May 21, 2015 – June 19, 2015. In less than 2 hours, the Cross Match software was installed on a laptop, interfacing with AZ AFIS and connected to the Pinal County Superior Court commercial-off-the-shelf printer. After testing and installation, Cross Match provided training to the Pinal County Superior Court team.

The pilot went LIVE on Friday, May 22nd in the Early Disposition Courtroom, at the Pinal County Superior Court.

Limitations: Phase II

While the Pinal County Superior Court team did not have to call Cross Match customer support during Phase II, occasionally during the fingerprint capture process, the EF200 scanner would not complete the capture process and did not return a final image to the software. To work around this issue when it was encountered, the Bailiff would disconnect and reconnect the USB

cable for EF200 fingerprint scanner, then capture the fingerprint again. It was not necessary to restart the transaction, the enrollment software, or the PC.

Findings: Phase II

At the Pinal County Superior Court, a total of 92 sets of fingerprints were captured using Cross Match. After Phase II was completed, a random sample (n=8) of the 92 sets of fingerprints were delivered to DPS to analyze and determine whether or not the fingerprints captured were sufficient to support the ADC GAP Filler Program. DPS reviewed 8 sets of fingerprints and all, except one, met the GAP Filler requirements. According to DPS, the sample was insufficient due to end-user error (e.g. the defendant did not press his/her finger down correctly on the device). In addition to capturing a digitally based fingerprint, the ACJC was also testing the ability for the Cross Match technology to interface with the AZ AFIS. The Pinal County Superior Court was successfully able to leverage the AOC Gateway to interface with the AZ AFIS.

7 RECOMMENDATIONS

Mobile fingerprinting devices can be used to capture biometric identifiers such as a fingerprint. These devices have the capability to quickly verify the identity of an individual. While they cannot be used to create criminal history, the information returned can serve as a mechanism to link law enforcement, prosecution, and court processes through a common person-based identifier called the AFIS Record Number (ARN). Once fingerprinted, a person is assigned an ARN which will be tied to their identity forever. For example, the ARN can be used to tie the subject stopped by police with the defendant that appears in the courtroom and finally to the inmate that appears for intake at ADC. Other advantages of enabling this mobile fingerprint capability include the ability to create a high-resolution image of the defendant's fingerprint.

Given that ARS §13-607 requires that the defendant's fingerprint be captured on the sentencing order, and the current "ink and roll" process has a number of limitations, from smudged prints to the inability to verify identity in real-time, the ACJC recommends that Superior Courts in the State of Arizona implement mobile fingerprinting technology in the courtroom.

- Recommendation 1: Moving forward, the ACJC recommends that Superior Courts leverage the AOC Gateway to interface with AZ AFIS. The technology must be able to operate on a Windows 8.1 OS.
- Recommendation 2: The ACJC recommends additional end-user training of the technology.
- Recommendation 3: The ACJC recommends that courtrooms who adopt the technology use a commercial-off-the-shelf printer that has the ability to print at 600 DPI.

8 CONCLUSION

As identified by the ACJC, a key goal to enhancing criminal justice information sharing in the State of Arizona must include a means by which law enforcement, prosecution, and the courts can leverage technological solutions to improve their business processes. Recognizing that Arizona justice agencies must leverage every dollar allocated to criminal justice improvements, the ACJC identified “ink and roll” fingerprinting as key problem area where technology is likely to offer the highest return on investment. The solutions described in this report provide a solid foundation to ensure the ability to meet business needs today and into the future.