Results Report: The Quarterly Duty Handgun Qualification Study

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Abstract

The Oceanside Police Department conducts quarterly firearms training for all sworn members. The current program consists of a 30-round course of fire (COF) that varies each quarter in format and the time standards used to evaluate officer performance. The current program focuses on evaluating basic marksmanship, and provides little in the way of combat skills training. The purpose of this three-part study was to evaluate the suitability of the proposed qualification COF as a replacement for the department's current sidearm qualification program. Participants (n = 22) completed two live-fire tests and a 20-question survey to determine 1) the suitability of the COF across a broad spectrum of individual officer abilities and experience levels, 2) whether or not the proposed COF design worked as intended, and 3) the impact of specified demographic characteristics on individual officer performance. Results of the live-fire testing and the participant feedback were promising. Seventy-seven percent of the participants successfully completed the proposed COF during phase-1 testing, and the success rate increased to 85% during the second phase of live-fire testing. A majority of participants (86%) viewed the proposed COF as a good test of their firearms skills, and 83% felt confident they could pass the proposed COF on a consistent basis. Limited personal firearms practice—one time per month or less—was a characteristic common to all of the participants who failed one or both of the live-fire tests.

Results Report: The Quarterly Duty Handgun Qualification Study

The Oceanside Police Department's current firearms training program has been in place for more than two decades. The duty handgun qualification program requires officers to qualify with their primary sidearm four times per year. The qualification procedures require officers to score a 70% or better on a multi-stage square range course of fire consisting of 30 rounds fired from a stationary shooting position. The standardized qualification target is a reduced size human silhouette (head, torso, and upper arms) with marked scoring areas to calculate points for each bullet impact. A bullet impact anywhere on the silhouette—even on its edge—is scored as a hit for which the officer earns points that are applied to his/her qualification score. Each of the 30 rounds fired is scored as a 5, 8, or 10 depending on the impact location. Rounds that miss the target silhouette (on or off the target sheet) earn the officer zero points. The officer must achieve a minimum score of 240 points (70%) to pass the qualification COF. Officers can completely miss the qualification target six times and still qualify, if their total points meet the aforementioned minimum requirements. Officers have three opportunities in a single training session to achieve a passing score. Locally, the Escondido Police Department and the Sheriff's Office allow their personnel to make two attempts at passing their qualification courses of fire. The National City Police Department allows their officers to make three attempts at passing a semi-annual department qualification course. Escondido requires that 100% of the officer's rounds impact the target silhouette, and National City PD requires a minimum aggregate score of 80% or better to pass their qualification course.

In terms of quantity, Oceanside's four annual firearms training sessions are consistent with 29% of the programs surveyed by Morrison (2008). Just over 59% of law enforcement agencies having between 100 and 249 sworn employees conduct firearms training three or fewer

times per year, and less than 12% train five or more times (Morrison, 2008). Locally, the San Diego Sheriff's Office, Escondido PD, La Mesa PD, and National City PD all conduct duty handgun qualification two times per year. With the exception of the Sheriff's Office, all of the aforementioned agencies have fewer than 200 sworn officers. While OPD conducts duty handgun qualification quarterly, most of the 312 law enforcement agencies (79%) surveyed by Morrison (2008) conduct duty handgun qualification training only once or twice per year. A typical quarterly firearms training session at OPD includes a qualification COF and a second live-fire training event referred to as the *combat course*. The combat course is an 18-round timed course of fire—typically 90-seconds or less—that requires the officer to engage a series of steel targets of various shapes and sizes at distances ranging form 12 to 20 yards. The combat course does not include any training in field tactics or gunfighting skills. A qualification session lasts anywhere from 30 minutes to an hour and is focused exclusively on requalification activities. The OPD's allotted firearms training time is consistent with the amount of training time most agencies commit to a single firearms training session (Morrison, 2008).

The proposed duty handgun qualification COF has many features that are similar to the current training program. For example, the proposed COF is a multi-stage 30-round qualification course. Like the current program, the officer is given three opportunities to achieve a passing score in a single training session. The proposed COF differs from the current program in five key ways. First, the proposed COF is intended to serve as a standardized quarterly qualification course. Second, the proposed COF requires all of the officer's rounds to impact within the target's center mass. The outlined center mass consists of the target's cranial-ocular cavity (center-mass on the target's head), the thoracic cavity, and the lower abdomen. Rounds impacting outside of the designated center mass are scored as a miss and trigger mandatory

remediation of the stage where the miss occurred. Third, the proposed COF consists of five individual stages the officer must successfully complete in order to be considered qualified. Fourth, the time standards for each stage provide the officer with less time per iteration than the current program. Fifth, the proposed qualification target is a life-size photorealistic image of an armed suspect (see Figure 1). Lastly, the proposed COF incorporates movement, simulated threat assessment, and weapon reloading at each of the five course stages.

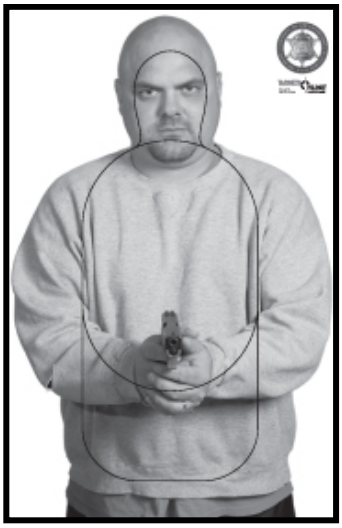

Figure 1. Proposed COF qualification target image with marked scoring area.

Overview of the COF Study

I designed and conducted this study to test the efficacy of the proposed COF as a standardized replacement for the current duty handgun qualification program. Participants took part in a three-phase testing process that consisted of two separate live-fire evaluations of the proposed COF and a 20-question survey. The survey sought information about the participant's relevant professional background, perception of the current firearms training program, and overall view of the proposed COF as a viable training methodology. Except for one of the female participants, everyone who took part in the study was part of a random sample of 50 sworn members of the Oceanside Police Department. All of the test participants who took part

in the study did so on a voluntary basis. Testing took place during nine separate sessions, and consisted of two to four test volunteers per test session. All testing took place at the OPD range facility during the participants' normal work schedules. Each test sessions took approximately 90-minutes to complete.

Method

Participants

The Oceanside Police Department has just over 200 sworn members. Taking into consideration the logistical support requirements and other study-related manageability considerations (time, cost, etc.), I selected a sample size of 10% of the department's sworn personnel to take part in the study. I used a random number generator set for the range of assigned ARJIS identification numbers to obtain a list of 50 potential participants. Personnel in a light-duty status were excluded from the selection process. The final list of fifty candidates included a broad spectrum of personnel comprised of managers, supervisors, uniformed officers, and detectives. Forty-six (92%) of the selected study candidates were male officers and four (8%) were female officers. All of the prospective participants were contacted via their department email account with a standardized request for their participation. Twenty-five of the originally selected candidates volunteered to take part in the study. The initial sample included 23 (92%) male officers and two (16%) female officers. The department's sworn gender demographic is made up of roughly 92% male officers and 7% female officers.

Three of the male participants withdrew from participation due to scheduling conflicts, and one male participant did not show up for his scheduled testing session. One female participant—not included in the original selection process—volunteered to participate in the study in place of a male participant whose test schedule was changed. The final sample that

completed all phases of the study included 19 (86%) male officers and three (14%) female officers. Participants were also asked to provide their age range. Thirty-six percent of the participants were 46-years-old or older; 27% were 31-35-years-old; 23% were 36-40-years-old; 9% were 41-45-years-old; and 5% were 26-30-years-old. The work experience of the participants was likewise varied (see Figure 2). The personnel who comprised the final test group included a variety of law enforcement experience levels, duty assignments, and firearms proficiency levels. Table 1 provides a breakdown of the study sample by assignment.

Table 1: *Participant breakdown by duty assignment*

Duty Assignment/Rank	Frequency
Managers	0
Supervisors	3 (13.6%)
Uniformed Officers	12 (54.5%)
Detectives	7 (31.8%)
n = 22	

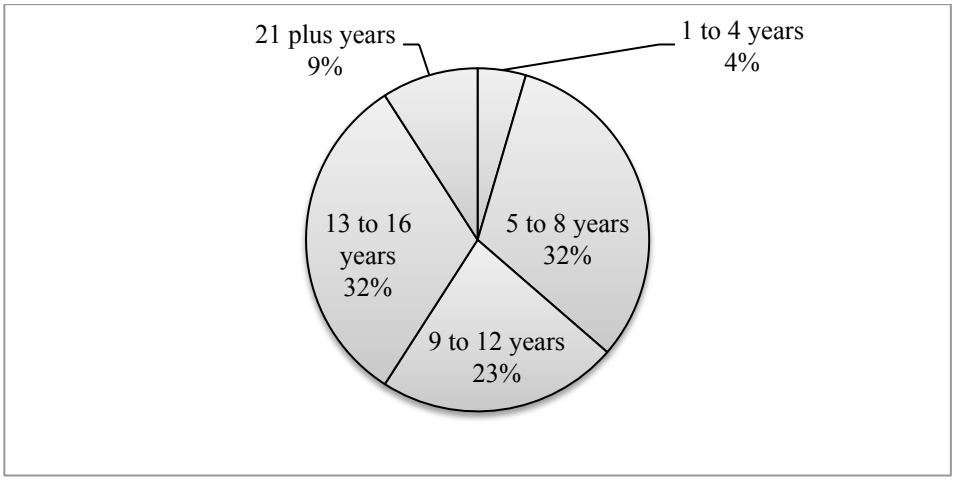

Figure 2. Participants law enforcement work experience

Design

Pre-assigned groups consisting of 2-4 participants completed the three-phase study during a single testing session. The participants' work schedules and availability determined individual group assignments and group size. Group test sessions were divided into three distinct phases consisting of 1) an individual performance evaluation, 2) a group performance evaluation, and 3) individual participant surveys. Each 3-phase test session took approximately 1.5 hours to complete. I provided each group with a standardized brief covering safety, the purpose of the study, and how I intended to report the results. I assured participants that their identifying information (names, identification numbers, and weapon serial numbers) would not be included in the results report, that I would not discuss their individual performance with anyone, and that they could withdraw from the study at any point during the testing process. The participants reviewed and signed an informed consent document covering the same information provided in the initial brief.

Phase-1. Phase-1 was an individual participant performance evaluation via a live-fire test of the proposed COF. Participants had up to three opportunities to successfully complete each of the five COF stages. The principle purpose of this test was to confirm that the time standards for each stage of the COF were attainable by the participants without any initial practice or foreknowledge of the course of fire, and that the individual shooting drills worked and were safe to perform. Participants shot the course of fire cold just as they do now when qualifying under the current program. Phase-1 testing also introduced the officers to the additional demands of movement, post-shooting assessment of the simulated threat, and mandatory reloading outside of the holster during each stage of the COF.

Phase-2. Phase-2 of the study was a group live-fire test in which up to three participants took part in a live-fire full speed rendition of the proposed COF. All but one of the participants took part in phase-2 testing because of the group size and current range limitations. Phase-2 testing was designed to evaluate 1) the safety of the COF for multiple officer participation, 2) whether or not accurate iteration timing could be maintained with multiple participants; and 3) any performance issues not identified during phase-1 testing. Phase-2 testing of the proposed COF was run just as it would be for a standard qualification. No demonstrations of any of the stage drills were provided, and remediation was done after the participants completed their first attempt of all five stages of the course of fire (see Table 2).

Phase-3. The third phase of the study took place immediately after the conclusion of the live-fire testing. I asked the participants to complete the survey before leaving the test site. The survey consisted of 20 questions divided into three parts, and took approximately 10 to 15 minutes to complete. Part-1 of the survey consisted of five questions about the participant's demographics (age range and gender), work experience, and firearms training frequency. Parts 2 and 3 consisted of 15 five-part Likert items designed to obtain the participant's attitude towards firearms training in general and the proposed qualification COF in particular. The possible responses to each question in the second and third part of the survey included strongly agree, agree, neither agree or disagree, disagree, and strongly disagree.

Table 2: *The proposed five-stage qualification course of fire*

Stage Description	Rounds Fired per Iteration	Repetitions	Time Limit
1 – Start holstered: Draw and fire 3-rounds center mass	3	2	3.5 s
2 – Start holstered: Draw and fire 2-rounds center mass	2	3	3.0 s
3 – Start at low ready: Fire 2-rounds center mass and 1-round in the head	3	2	3.0 s
4 – Start at low ready: Fire 3-rounds center mass	3	2	4.0 s
5 – Start holstered standing: Draw, transition to kneeling behind cover, fire 2-rounds center mass	2	3	6.0 s

Procedure

All three of the test phases were conducted at the department's firearms range. The following describes the procedures utilized for the phase-1 and phase-2 live-fire tests. The survey administered during phase-3 required the participants to answer the questions on the written survey form. If participants chose to, they were given the option of adding additional comments on the back of the last page of the survey.

Phase-1. Testing began with an explanation of the COF, its purpose, and scoring methods. The participants also observed a live-fire demonstration of each stage of the COF before making their own live-fire attempt. Individual participant times were obtained using a digital shot timer. The shot timer was set to initiate its audible signal and timekeeping with a 1.3 second delay. If a participant failed the iteration, the time and reason for the failure (missed shot, overtime, or other) was recorded. Participants who failed to initially pass any stage of the COF were given two additional opportunities to successfully complete the failed stage.

Mandatory post-shooting movement and threat assessment were incorporated into each stage of the COF. Participants were required to move laterally (1-2 steps left or right) immediately after performing each live-fire drill. The only exception to the lateral movement requirement was during the final stage of the course when the participant was kneeling behind cover. Before holstering their sidearm, participants also had to simulate assessing the effect of their shots on the threat target and scan the surrounding area for additional threats. Participants completed each stage of the COF and any required remediation before moving on to the next stage. If a participant failed to complete any stage after three attempts, he/she continued to fire the remaining stages of the COF.

I analyzed the performance times for each stage of the COF to determine whether or not the proposed standards were achievable. Recognizing that not all participants would pass the COF during phase-1, I substituted the iteration times of participants who failed a particular stage with the stage's mean time for all passing scores. The intent of this substitution procedure was to gain a clear picture of the performance times of the participants who were able to pass the affected COF stage(s). In addition to the examination of iteration performance times, I also I analyzed phase-1 iteration and COF stage failures, the frequency of failures for each stage, and the stage pass/fail rates in comparison to the number of stages that participants remediated.

Phase-2. At the conclusion of the phase-1 live-fire test, participants reloaded their weapon magazines in preparation for the group live-fire evaluation of the proposed COF. The targets were placed into every other target stand. Staggering the targets in this manner ensured that the participants would have enough room to move left or right during the drill iterations. As the evaluator, I positioned myself centered either behind the participants or to their right as they faced their targets. A brief description of the drill and the time standard preceded an audible

signal (shot timer buzzer) to perform the drill. The audible signal for each iteration was preceded by a 1.3 second time delay. If needed, the participants completed remediation of any failed stages after making their initial attempts on all five stages of the COF. The intent of this format was to keep the proposed remediation procedures comparable to the current qualification program's methodology. In addition to evaluating the COF for potential safety issues, I also examined the difficulties of timekeeping with multiple participants and attempted to identify what was needed to ensure timing accuracy was maintained. Lastly, I looked for other unexpected problems or features of the COF that only became apparent when it as run full speed with multiple participants.

Results

Phase-1

The sample failure rate for the first live-fire test was 23%. Five of the 22 participants failed one or more individual stages of the COF after three attempts. The apparent causes of the failures varied by stage for all participants. Shots fired over the time limit accounted for 72% of the remediation of stage-1, 10% of the remediation at stage-2, 25% of the remediation at stage-3, none of the remediation at stage-4, and 11% of the remediation conducted at stage-5. Missed shots—on or off the target silhouette—accounted for none of the remediation of stage-1, 38% of the remediation of stage-2, 64% of the remediation of stage-3, 100% of the remediation of stage-4, and 89% of the remediation of stage-5. A combination of going over the time limit and missing the target's center mass occurred at a much lower frequency at stages one (14%) and three (11%) only. One participant used two hands during the first stage of the COF, and this triggered a mandatory remediation of that stage. An examination of the causes of COF

stage failures (all shots fired) for those participants who failed the proposed qualification course is displayed in Table 3. Table 4 provides a report by stage of the average performance times.

Table 3: *Causes of stage failures for (COF failures only)*

Stage	Number of missed shots	Number of shots over time limit	Combination
1	0%	0%	0%
2	1 (33%)	2 (66%)	0%
3	7 (38%)	9 (50%)	2 11%
4	0%	0%	0%
5	6 60%	4 40%	0%
n = 5			

Table 4: *Phase-1 Mean performance times and standard deviation by stage*

COF Stage	Total-pass/fail	Time Standard/Mean Pass Time	Standard Deviation	95% CI
Stage-1	22/0	3.5 s/2.68 s	0.369	[2.516, 2.844]
Stage-2	21/1	3.0 s/2.50 s	0.240	[2.394, 2.606]
Stage-3	19/3	3.0 s/2.57 s	0.225	[2.450, 2.650]
Stage-4	22/0	4.0 s/2.80 s	0.334	[2.652, 2.948]
Stage-5	20/2	6.0 s/4.69 s	0.453	[4.489, 4.891]
n = 22				

Note: CI = confidence interval

In addition to my examination of the time performance data, I also looked at how often participants remediated each stage of the proposed COF. Table 5 displays the phase-1 test frequency of remediation (by stage) for participants who passed the COF. Table 6 provides the same data for participants who ultimately failed the phase-1 test. Of the five participants who failed the COF, the most frequently failed portions were stages three (57%) and five (29%). One participant failed both stage two and stage five during remediation.

Table 5: *Phase-1 frequency of COF remediation by stage (passing only)*

Stage Number	Pass on 1st attempt	Pass on 2nd attempt	Pass on 3rd attempt
1	14 (82%)	2 (12%)	1 (6%)
2	13 (76%)	4 (24%)	0
3	9 (53%)	5 (29%)	3 (17%)
4	16 (94%)	1 (6%)	0
5	11 (64%)	4 (24%)	2 (12%)
n = 17			

Table 6: *Phase-1 frequency of COF remediation by stage (failures only)*

Stage Number	Pass on 1st attempt	Pass on 2nd attempt	Pass on 3rd attempt	Failed stage
1	4	1	0	0
2	2	2	0	1 (17%)
3	0	1	1	3 (50%)
4	4	1	0	0
5	0	1	2	2 (33%)
n = 5				

I also examined COF stage remediation and compared the frequency of remediation with the likelihood of participants passing or failing the COF. Only 13.6% (*n* = 3) of the sample passed the COF without any remediation. Participants who passed the COF with only one stage being remediated accounted for 36.3% (*n* = 8), two stages 18.2% (*n* = 4), three stages 4.5% (*n* =

1), and four stages 4.5% (n = 1). All five of the participants who failed the phase-1 live-fire test remediated at least two of the five stages of the COF (see Table 7).

Table 7: *Participant failures in comparison to remediation frequency*

Number of stages remediated	*f*
2	1 (20%)
3	3 (60%)
4	1(20%)
n = 5	

Safety issues. Safety concerns were limited during phase-1 testing, but one important change was incorporated at the recommendation of a test participant. Stages three and four of the COF begin with the participant holding the firearm at the low ready position. At the conclusion of the drill the participant reset to the starting position facing the qualification target. Participants were changing positions after the drill iteration with their weapons out of the holster. Following the participant's recommendation, I directed officers to holster their weapons before resetting for the next iteration. Making this change enhanced the overall safety of the COF without adversely impacting its design. A second safety enhancement that came out of early phase-1 testing—again originating from a participant's recommendation—was the incorporation of a foam mat for the participants to kneel on during stage-5 of the COF. Adding the foam matting helped to prevent unnecessary damage to clothing during the final stage of the COF.

Phase-2

Group size dictated how many participants were able take part in phase-2 testing. My goal was to have three participants attempt the COF at the same time. This format would most closely resemble the current qualification program's format. Three of the nine test groups

included three participants. The remaining six groups consisted of two participants each. One participant was not included in phase-2 testing, because of the limitations of the current target setup used for qualification. Skipping one target stand between each participant created a gap of approximately six feet between targets and provided ample room for the participants to move left or right during execution of stages one through four of the COF.

Safety. I observed no issues related to safety at any of the five stages of the proposed course of fire. Even when a participant chose to take more than one step left or right during the required lateral movement component of stages one through four, the available room created by the aforementioned gap between targets made extended lateral movement safe.

Timekeeping. Accurate timekeeping for multiple participants is an especially difficult task when multiple officers are participating in the qualification COF at the same time. As long as all of the rounds are fired by all of the participants within the allotted time standard, timekeeping is a fairly straightforward affair. The problem of timekeeping for multiple participants arises when one or more rounds are fired over the established time standard. It is critical for the instructor keeping time to be focused on the shooters and not the shooter's targets. When I positioned myself behind the participants I found that it was difficult to see all of the participants shooting. When I changed my position to the right side of the firing line I was able to see the participants, their weapons fire, and the shot timer all at the same time (see Figure 3).

Concerns. Running the proposed course of fire for multiple participants did not reveal any unforeseen problems or safety concerns. The amount of time to run the entire COF for two or more participants took 10 to 15 minutes for all five stages. Remediation time varied, but was typically less than 10 minutes in length. These times are comparable to the current program's times.

Participant performance. The participants took part in phase-2 testing after their initial exposure to the COF procedures during phase-1. Phase-1 testing essentially provided the participants with an opportunity to practice the COF and become familiar with its requirements. As such, I expected participant performance to improve from phase-1. The COF failure rate for phase-2 dropped from 23% (phase-1) to just over 14% for phase-2. A total of three participants failed to pass the COF during phase-2 testing. Two of the three participant failures for phase-2 also failed the COF during phase-1. All three of the phase-2 COF failures failed stage-3 (failure drill), and one participant also failed stage-2.

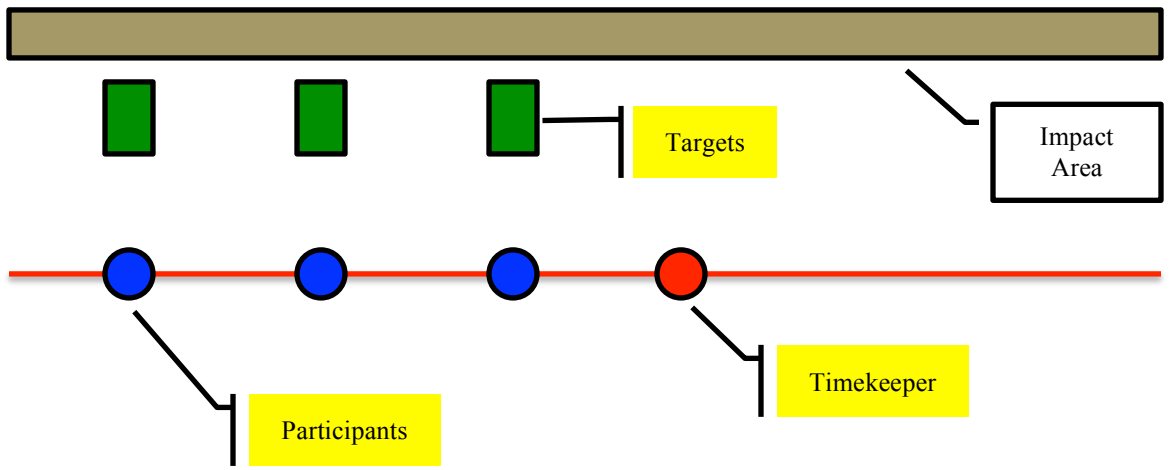

Figure 3. Position of timekeeper in relation to participants during live-fire

Remediation. I also examined the remediation performance data from phase-2. Table 8 displays the phase-2 remediation frequency for each stage of the COF for participants who passed. Table 9 provides similar data for the three phase-2 COF failures. As expected, individual participant performance improved significantly during phase-2. Just as in phase-1

testing, the most difficult stage for participants who passed or failed the COF in phase-2 continued to be the stage-3 failure drill.

Table 8: *Phase-2 frequency of COF remediation by stage (passing only)*

Stage Number	Pass on 1st attempt	Pass on 2nd attempt	Pass on 3rd attempt
1	16 (89%)	2 (11%)	0
2	17 (94%)	1 (6%)	0
3	10 (55%)	6 (33%)	2 (11%)
4	17 (94%)	1 (6%)	0
5	14 (78%)	4 (22%)	0
n = 18			

Table 9: *Phase-2 frequency of COF remediation by stage (failures only)*

Stage Number	Pass on 1st attempt	Pass on 2nd attempt	Pass on 3rd attempt	Failed stage
1	1	1	1	0
2	1	1	0	1 (33%)
3	0	0	0	3 (100%)
4	3	0	0	0
5	1	2	0	0
n = 3				

Phase-3

The demographics of the study participants and the sample composition were discussed at length at the beginning of this paper, and will not be repeated here. An examination of the survey responses to the questions about the type of firearm used and training frequency did provide some interesting insights. Most of the study participants carried the department-issued Glock-17. Eighty-one percent (*n* = 18) of the weapons carried by the study participants were chambered in nine millimeter; 13.6% (*n* = 3) were chambered for the 40 caliber round; and one

weapon was chambered in 45 ACP. Department policy currently allows officers to carry a variety of firearms and weapon calibers for primary duty use, but most of the study participants still chose to carry the issued sidearm (Glock-17) or a manufacturer's variant (see Figure 4). A second interesting demographic feature of the sample as a whole was individual training frequency. Firearms skills are perishable. Over time the skills and abilities that an officer utilizes to efficiently manipulate and shoot a firearm degrade without practice (Hall, 1993). The exact amount of practice or sustainment training that an officer should have is open for debate. It can be said, however, that more frequent practice is more likely to enhance an individual officer's performance. Figure 5 provides a visual representation of the training frequency (including qualification) of the study participants.

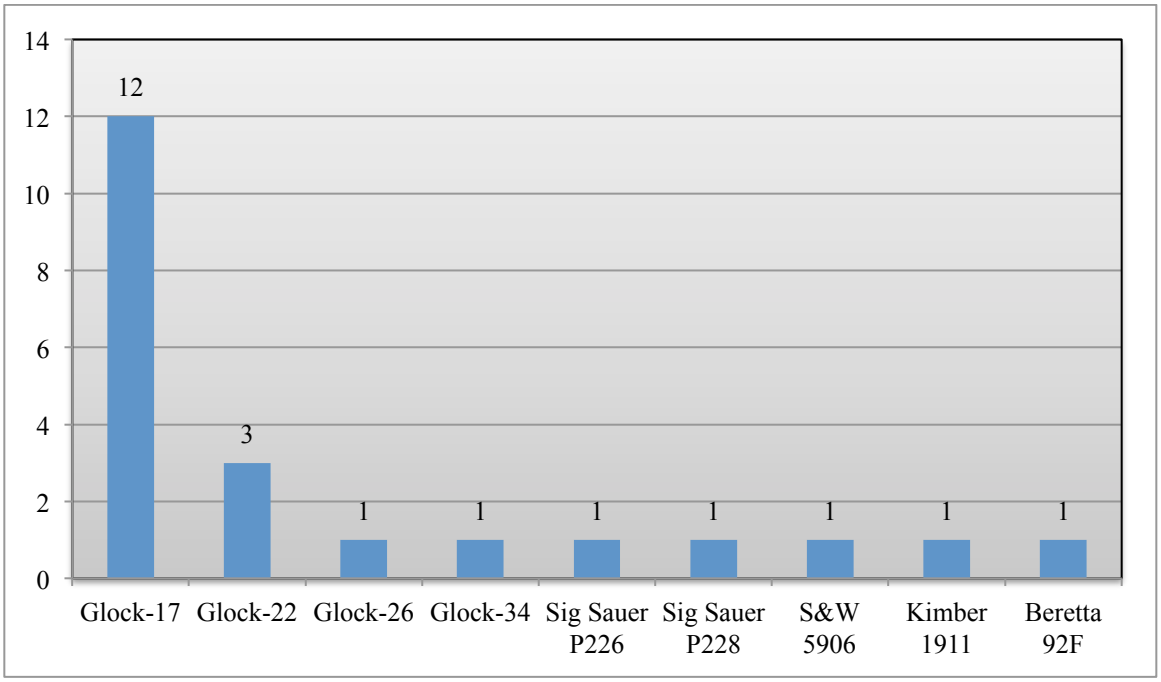

Figure 4. Weapon makes and models carried by the study participants

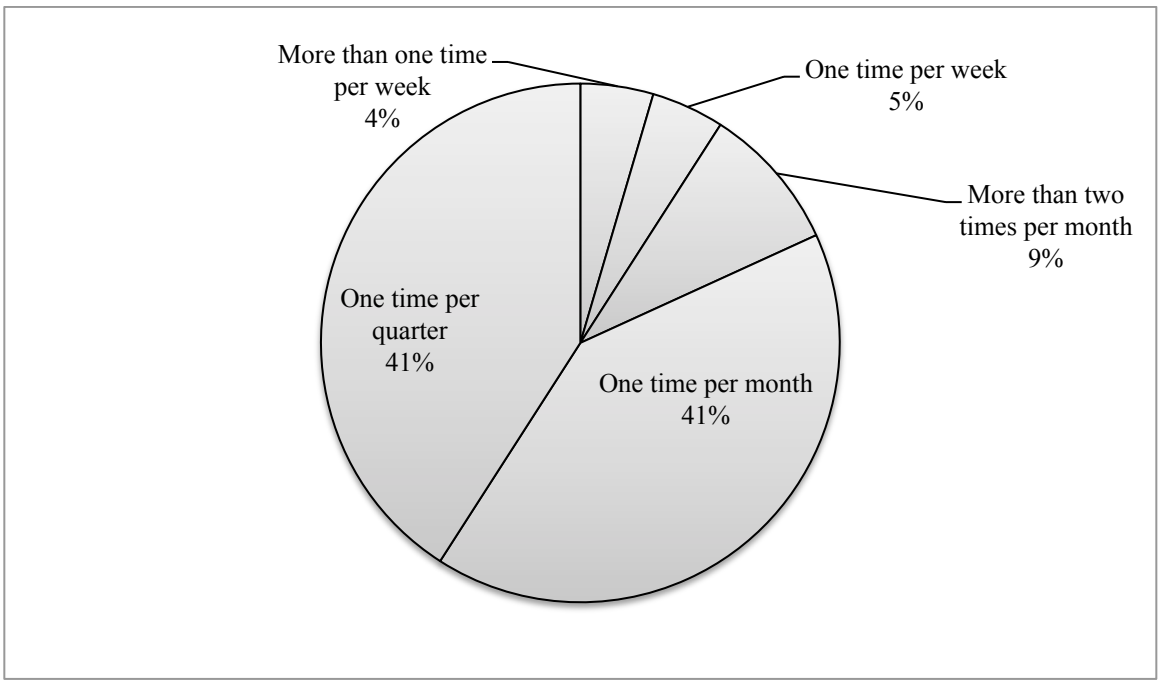

Figure 5. Firearms training frequency of the study participants

Firearms Training in General

Part-2 of the survey focused on the attitude of the participants towards firearms training in general and the current firearms training program in particular. In response to the question of whether or not the current program met their individual training needs, 55% of the sample disagreed or strongly disagreed while only 18% agreed or strongly agreed that the program met their firearms training needs. The proposed COF is intended to serve as the department's standardized duty handgun qualification course. Adopting the proposed COF would mean an end to the current procedure of developing a new qualification course of fire every quarter. Survey question numbers seven and eight asked for the participant's preference for a qualification course of fire that was standardized or changed on a quarterly basis. Over half of the participants (55%) responded that they neither agreed nor disagreed with the practice of changing the qualification course of fire every quarter. However, when the same question was

modified to ask for the participant's preference for a standardized qualification course of fire 41% of the participants indicated that they agreed or strongly agreed with such a practice.

The last two questions under part-2 of the survey focused on the type of skills training officers receive and whether or not the current program's scoring system provided an accurate reflection of individual firearms proficiency. Sixty-three percent of the participants disagreed or strongly disagreed with the statement that firearms training should focus exclusively on basic marksmanship skills, while twenty-three percent agreed or strongly agreed. Forty-five percent of the participants disagreed or strongly disagreed with the statement that the points-based scoring system provided an accurate measure of their firearms proficiency, while 32% agreed or strongly agreed.

The Proposed Course of Fire

Part-3 of the survey focused on the participants' attitudes about various aspects of the proposed COF. I anticipated that participants would draw on their recent exposure to the proposed COF and compare it to their own training experiences under the current firearms qualification program. Eighty-six percent of the participants agreed or strongly agreed that the proposed COF was a good test of their individual marksmanship skills. Nine percent disagreed or strongly disagreed with the proposed COF being a good test of their marksmanship skills. Participants also provided their opinion of the proposed COF's remediation process. Under the current program, failing the course of fire triggers a required re-shoot of the entire qualification course. The proposed qualification course has five distinct stages that are remediated individually. Eighty-six percent of the participants agreed or strongly agreed that the multi-stage evaluation procedure of the proposed COF was more efficient than the method currently used for department qualification.

The time standards for the proposed COF are significantly shorter than the time standards for a typical qualification course. Participants were asked two questions concerning their attitude towards the proposed COF time limits. Ninety-one percent of the participants agreed or strongly agreed that the proposed COF time standards were both realistic and obtainable. Participants were asked a separate question regarding their attitude about the stage time limits. Again, participant support for the proposed time standards was strong (see Figure 6).

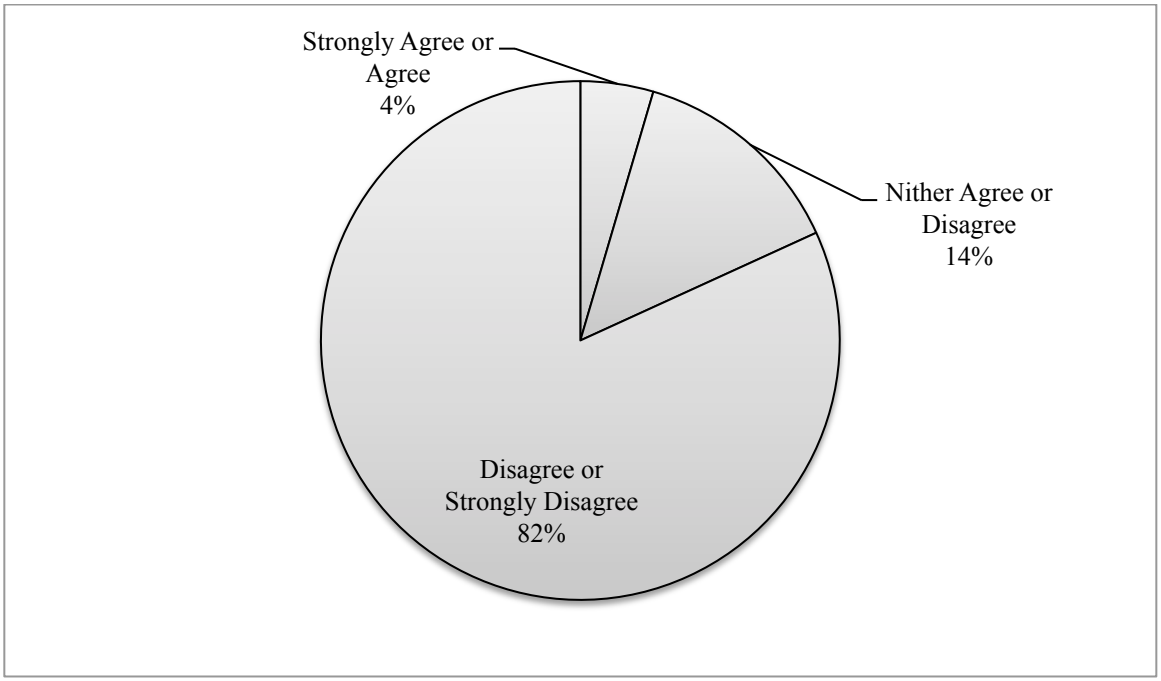

Figure 6. Participant perception that the proposed COF time standards are too short

I included two questions related to the current target used by the department for qualification and the proposed COF's photorealistic target. Only 14% of the study participants preferred the current qualification target—referred to as the BT5-OPD—to the life-size photorealistic target used for the proposed qualification COF. Seventy-six percent of the participants preferred the proposed target, and 10% expressed no specific preference for either

target. Lastly, participants were asked about their confidence in their ability to pass the proposed COF on a consistent basis (see Figure 7).

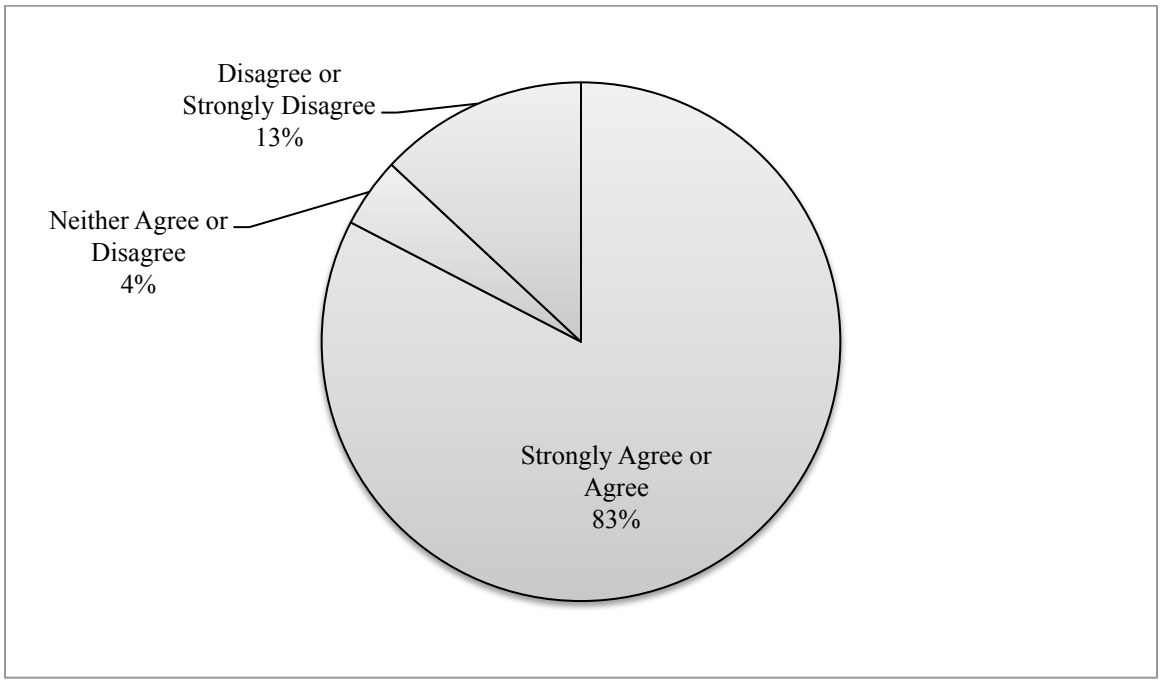

Figure 7. Participants' confidence they can pass the proposed COF on a regular basis

Discussion

Time Standards

Close range—fifteen yards and in—gunfights are not slow-speed plodding events. They are dynamic and often involve simultaneous movement and shooting by both the officer and the suspect. Officers must be capable of drawing quickly and firing multiple rounds accurately into their adversary. Participant performance was encouraging in both live-fire tests. The times for each stage of the COF were attainable, and could even have been shorter on stages one and four with almost no change to the positive results produced during the phase-1 test. For example, stage-1 required participants to draw and fire three rounds (one-handed) into the target center

mass in 3.5 seconds or less. The mean performance time for stage-1 for all participants was 2.68 seconds, and only five (11%) of the 44 three-shot sequences exceeded three seconds. The time standard for stage-4 of the proposed COF is four seconds. The drill starts with the participant facing the photorealistic qualification target at a distance of 10 yards. The participant is holding his/her sidearm at the low-ready. The phase-1 mean performance time for stage-4 was 2.80 seconds, and only one (2%) of the 44 three-shot sequences exceeded 3.5 seconds. Shortening the time standards of stages one and four would improve the training value of the proposed COF because it would place more realistic demands on officers attempting to simulate a close-range armed encounter. In their discussion on effective training to prepare police officers to use lethal force Artwohl and Christensen (1997) state "The more realistic your training is, the more effective it's going to be" (p. 70). A half second reduction in the time standard of stages one and five are realistic modifications to the proposed COF that would enhance the overall training quality for our officers.

Course of Fire Failures

In an effort to identify a central cause or contributing factor for those participants who failed to pass the proposed qualification course, I analyzed the known characteristics of the participants who failed one or both of the live-fire tests. I attempted to review the prior department qualification records of all the sample participants. Unfortunately, these records were not available for review at the time of this study. Based on the information collected as part of the phase-3 survey, I identified the limited frequency of personal firearms training as a possible contributing factor. All five of the COF failures practiced with their duty sidearm one time per month or less, and this included quarterly firearms qualification training. Seventy-seven

percent (n = 17) of all participants trained at this same limited frequency. Table 10 provides a breakdown of the demographics of the five participants who failed the phase-1 COF test.

Table-10: *Demographics of individual phase-1 COF failures*

Gender	Age range	Handedness	Years of service	Practice frequency
Male	46+	Right	13-16	1 time per month
Male	31-35	Right	5-8	1 time per month
Male	46+	Right	9-12	1 time per month
Male	46+	Right	13-16	1 time per quarter
Female	31-35	Right	1-4	1 time per quarter
n = 5				

Course of Fire Design

The proposed course of fire begins at the three yard line and concludes at the fifteen yard line, leading some to suggest that the proposed course of fire is designed to eliminate intermediate distance shooting (20-25 yards) from the firearms training syllabus. In fact, the distances for each stage of the proposed COF were selected based on the statistical data and available research of the actual experiences of officers involved in lethal force encounters. In one study of officer-involved shootings in New York City between 1994 and 2000, 94% (n = 1529) took place within 15 yards of the suspect and 69% (n = 1188) were within two yards (Aveni, 2003). Data gathered by the Federal Bureau of Investigation through its Law Enforcement Officers Killed and Assaulted (LEOKA) program revealed that 89% (n = 439) of the officers killed by an armed suspect between 2000 and 2010 were within 50 feet (16.6 yards) of their assailant, and 66% (n = 333) were within 10 feet (Federal Bureau of Investigation [FBI], 2011). Training officers for the conditions and circumstances they are most likely to face in the

field makes the most sense in consideration of the limited firearms training hours officers typically receive.

Recommendations

The proposed course of fire presents new challenges for officers attempting to meet their quarterly qualification requirements. Demanding 100% of the rounds fired by an officer impact the target image's center mass is perhaps the most intimidating requirement of all. Still, the proposed COF provides officers with an opportunity to exercise basic gunfighting skills that many would not otherwise practice. The training that officers receive directly influences their performance and work-related behaviors in the field (Pinizzotto, Davis, & Miller, 2006), and this applies to the training that officers receive to prepare them for deploying with their duty sidearm. With the limited amount of time and resources available to conduct firearms training it is imperative that our training program provides our officers with a combination of skills enhancement and sustainment training that transfers seamlessly to their operational environment. In his article discussing firearms training and liability, Hall (1993) stated "Firearms training should be designed to prepare officers to protect themselves and their communities from dangerous individuals, when necessary" (p. 31). In other words, the focus of firearms training should be to prepare officers for prevailing in an armed encounter. Such preparation includes exposing officers to the conditions and physical demands they can expect to face in a real gunfight. Alone, the proposed COF is not a complete answer to all of the department's firearms training needs. It is, however, a positive step towards providing officers with firearms training that incorporates skills that are useful in a real world setting.

Summary

This study demonstrated that the proposed qualification course is a viable training procedure in terms of the individual participant requirements, the time standards, and overall course design. The proposed course of fire also proved to be safe to conduct with one or more participants. Volunteers with varying degrees of firearms training and proficiency were able to adapt to the performance requirements of the proposed COF, and demonstrated significant improvement during the two live-fire renditions. Participant feedback was largely positive, and a majority of the study participants felt confident in their ability to pass the proposed qualification course on a consistent basis. Even though the failure rates were relatively low for both live-fire tests, it was important to identify the factor or factors that made failing the proposed COF more likely. Limited personal firearms sustainment training was a characteristic common to all of the participants who failed the course of fire during both live-fire phases. In the present study 82% of the participants trained with their firearm three or fewer times per quarter. This strongly suggests that qualification is often the only firearms training many of our officers receive.

References

Artwohl, A., & Christensen, L. W. (1997). *Deadly force encounters: What cops need to know to mentally and physically prepare for and survive a gunfight.* Boulder, CO: Paladin Press.

Aveni, T. J. (2003). *Officer-involved shootings: What we didn't know has hurt us* [research report]. Retrieved from The Police Policies Study Council: http://www.theppsc.org

Federal Bureau of Investigation. (2011). *Law enforcement officers killed and assaulted 2010* [Annual report]. Retrieved from The FBI: Federal Bureau of Investigation: http://www.fbi.gov

Hall, J. C. (1993). Firearms training and liability. *FBI Law Enforcement Bulletin*, *62*(1), 27-32.

Morrison, G. B. (2008). *Police firearms training survey: Final report* [Research report]. Retrieved from Force Science Research Center: http://www.forcescience.org/

Pinizzotto, A. J., Davis, E. F., & Miller, III, C. E. (2006). *Violent encounters: A study of felonious assaults on our nation's law enforcement officers*. Washington, DC: U.S. Department of Justice.