

COMMUNITY SPEEDWATCH

Benchmarks of success



FOREWORD

To measure success of a complex concept is as intricate as the variety of the elements that underpin the model. We know that Community Speedwatch is a successful scheme when it is conducted under optimal conditions. However, to best describe this success can be more difficult than explaining the premise of the scheme itself. For instance, what are the criteria for measuring community involvement vs. measuring the impact on lowering average speed in what we consider a well-organised area compared to a less so? How can we define the quality of what constitutes success under these different circumstances?

With the datasets available to us, we have had to define benchmarks of success, which we believe are equally strong indicators of achievements, trends, and clear-cut results. However, to others these might be interpreted differently. It all depends on from which side of the equation you, as the reader, wish to interpret the results.

Because speeding is such a difficult issue to address uniformly (people speed for different reasons, at different levels, and at different times and places), we might be able to demonstrate a significant reduction of repeat offence observations over time, but is this a genuine expression of behavioural change, or is it just an awareness of the potential consequences of being caught by local groups in a certain area? Our stats cannot give a definitive answer to all of this, only indicate trends. However, some of these trends are very persuasive.

Jan Jung
CSW Online
February 2020

EXECUTIVE SUMMARY

Interpretation of success depends on what different categories of readers are seeking to find: results in bringing the number of speeders down temporarily (and highly likely the average speed as a result – according to official WHO/TRL calculations); the engagement of the local communities prepared for well-organised, sustained involvement; or a fully functional, integrated and highly efficient cooperative scheme working in tandem with the police and the affected communities – all of it, or just some combinations in the interim?

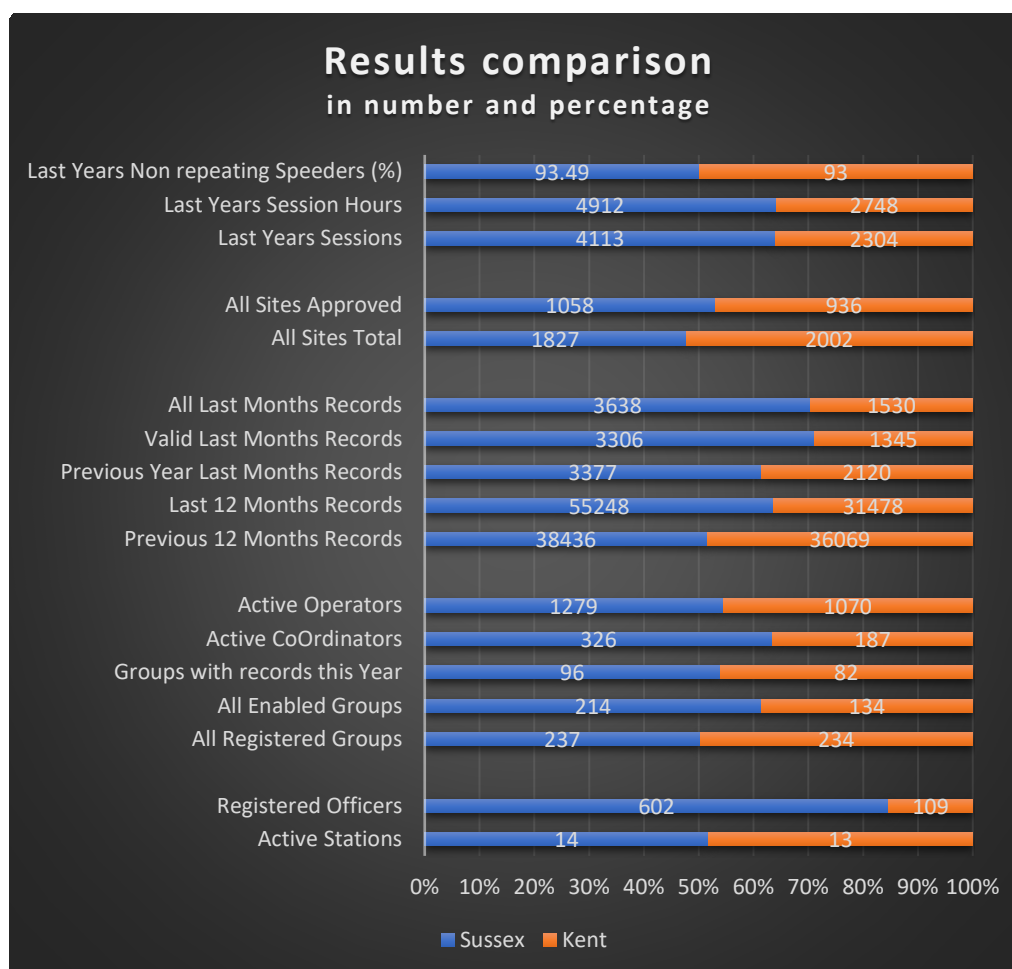


Fig. 01

By looking at the numbers in Fig. 01, you will discover that the efficacy of the two selected police force areas (**SUSSEX** and **KENT**) is almost identical but the underlying resources and time investments differ quite significantly.

There are benefits to be gained from both approaches in managing Community Speedwatch, the vision, intention and motivation will always remain the decisive factors, however.

Throughout this survey, you will find similarities and differences that indicate almost incompatible trends. However, the result over the measured period from 2015 to the end of 2019, show an almost identical outcome of the Speedwatch activities despite their sometimes-dissimilar approaches.

The role of CSW Online

CSW Online provides a bespoke web-based platform and application designed to assist the police and their proactively engaged communities with every conceivable aspect of managing their involvement.

The organisation of Speedwatch volunteers on a national scale is vital to extracting the maximum benefits of community involvement with addressing the problem of speeding educationally. The necessary efficacy to succeed with this aim can only be reached if everyone adheres to the same rules, standards, methodology, routines, formats, and outcomes.

As CSW Online is an organisation striving to become this national focal point for all 43 UK police forces' Speedwatch schemes, it is difficult for us to be perceived as impartial, and hence not biased in favour of Speedwatch activities and the achieved results.

We know and understand how to manage high numbers of schemes, optimise efficiency, and handle big data. Our bespoke software is designed and continuously being further developed to refine the volunteers' invested efforts making the biggest impact on reducing the problem of speeding in their local areas.

Also, we are working closely with the world of academia to define, verify and expand the methodologies, scope and results stemming from the Speedwatch groups' ambitions to save lives, improve quality of lives, and make their roads safe for everyone to use.

Therefore, we are not only deeply involved and positively influencing how the concept is evolving: we are also innovators working tirelessly to take Speedwatch to new heights of efficacy in areas still to be revealed.

THE PREMISE

With one exception, we have chosen to compare two almost identical, neighbouring police force areas for this statistical exercise. **KENT** and **SUSSEX** cover approximately same area; they have a similar demographic makeup; have close to an identical population density and are divided into equal numbers of districts, towns, and villages.

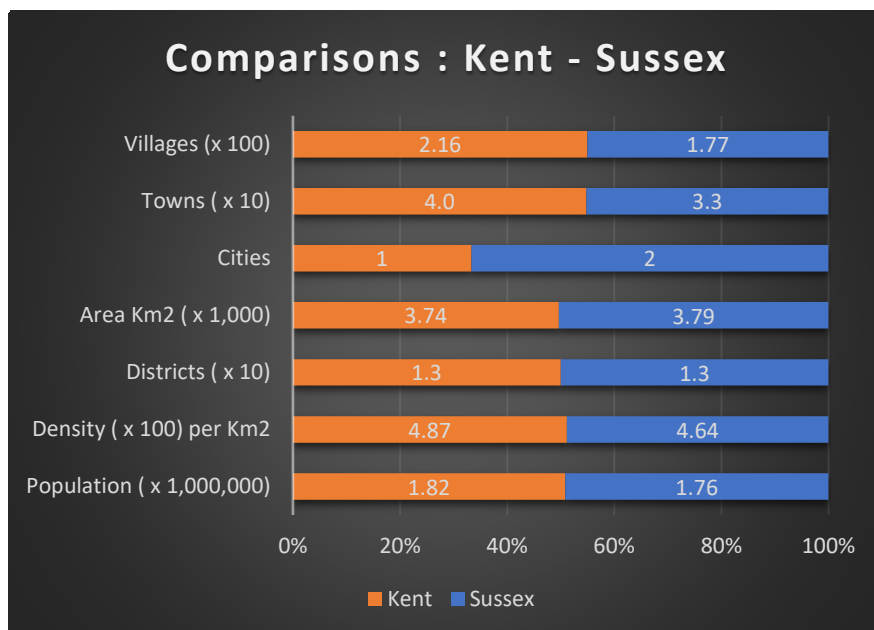


Fig. 02

The number of the two police forces' groups is practically identical (**SUSSEX: 237**, and **KENT: 234**), and they are spread geographically across the two areas in an even pattern only dependent on the county's topography.

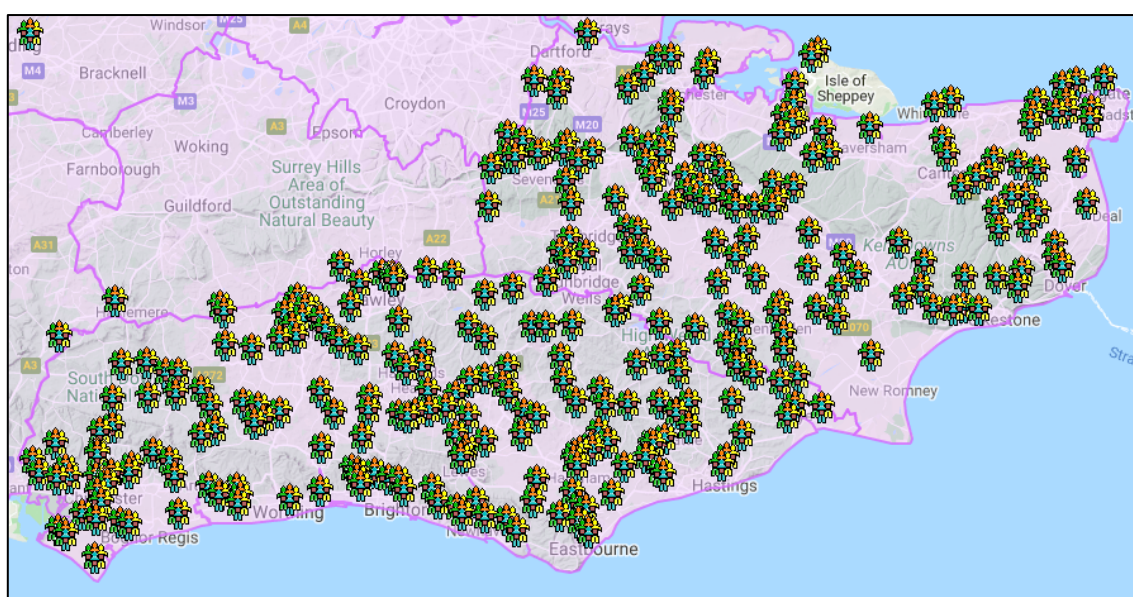


Fig. 03

Kent and Sussex Police are also two forces that have used CSW Online over an extended period, and hence can provide the most extensive datasets. However, they use different approaches to how they respond and interact with speeding offenders. This duality makes it for interesting comparison and interpretation because it poses questions to the efficacy of the two different methodologies used.

Sussex Police only allow groups to deploy handheld speed detection devices without roadside displays resulting in registered vehicle keepers being sent a letter of advice from the first observed offence.

Kent Police, on the other hand, allow groups to use a combination of handheld devices and roadside displays signalling the measured speed to passing drivers. If a display is used, the registered keeper of the vehicle will not be sent a first letter. This will only be dispatched upon observation of the second offence. The philosophy is that the offending driver has seen their level of offending demonstrated at the roadside on the display already, and that counts as the first warning. This initial observation will still be listed in the first letter sent after the second offence, however.



Fig. 04



Fig. 05

Another obvious difference in the way the two police forces engage with the community groups is the delegation of responsibility of response and cooperation.

Kent Police have a dedicated police officer assisted by two volunteers to manage the schemes locally, but any subsequent action following up on e.g. excessive or repeated speeding, is addressed by the Special Constables' roads policing unit.

In Sussex, where the scheme is managed by a dedicated staff member working closely with the Roads Safety Partnership and placed in the Casualty Reduction Department, the interaction with the groups is delegated to the local Neighbourhood Policing Teams. To assist with the centralised group management, the Police CSW Coordinator is assisted by two volunteers and two PCSOs.

With these differences in mind, we will look at three areas of Community Speedwatch activity results, which show both similar and dissimilar trends and results. These areas are:

- 1 Change in driver behaviour as a result of sustained Speedwatch activity
- 2 Group development; growth in interest, members, and sessions
- 3 Observed offences and resulting letters

In **Section One**, the stats will show how sustained Speedwatch activity contributes to a change in driver behaviour when applied consistently, resulting in lower average speeds, and thus contributing to the lowering of the number of Killed and Seriously Injured (KSI) road users in traffic collisions.

In **Section Two**, the growth of groups and their activities are examined and interpreted from the perspective of better organisation leads to continuous community volunteer involvement.

In **Section Three**, the focus is on the differences in the way the two police forces interact with the observed offending vehicles' registered keepers. It will also examine how sustained Speedwatch deployment influences the scheme's efficacy.

List of graphs and images

Fig. 01 – Results comparison in number and percentage	Page 02
Fig. 02 – Comparisons: Kent – Sussex	Page 04
Fig. 03 – Map of group distribution across Sussex and Kent	Page 04
Fig. 04 – Picture of Speed Indicator Display (SID)	Page 05
Fig. 05 – Picture of Handheld Speed Detection Device	Page 05
Fig. 06 – Average speed in 30MPH	Page 08
Fig. 07 – Average session speed per site	Page 09
Fig. 08 – Percentage of speeders in KENT	Page 10
Fig. 09 – Percentage of speeders in SUSSEX	Page 11
Fig. 10 – Percentage of reoffenders from 2nd observations	Page 12
Fig. 11 – Percentage of reoffenders from 4th observations	Page 13
Fig. 12 – Site usage rate (%) KENT – 2 to 5 sites	Page 14
Fig. 13 – Site usage rate (%) KENT – 6 or more sites	Page 14
Fig. 14 – Site usage rate (%) KENT – ALL sites	Page 15
Fig. 15 – Site usage rate (%) SUSSEX – 2 to 5 sites	Page 16
Fig. 16 – Site usage rate (%) SUSSEX – 6 or more sites	Page 16
Fig. 17 – Site usage rate (%) SUSSEX – ALL sites	Page 17
Fig. 18 – Deployment across the daylight hours	Page 17
Fig. 19 – Average records per session timeslot	Page 19
Fig. 20 – Day of week distribution	Page 19
Fig. 21 – New groups per year	Page 21
Fig. 22 – Group accumulation per year	Page 21
Fig. 23 – Growth of active vs. all groups	Page 22
Fig. 24 – New volunteers per year	Page 23
Fig. 25 – Accumulated volunteer growth	Page 23
Fig. 26 – Finished training	Page 24
Fig. 27 – Number of sessions per year	Page 25
Fig. 28 – Average number of sessions per group	Page 26
Fig. 29 – Number of observations	Page 28
Fig. 30 – Average records per session	Page 29
Fig. 31 – Records per session (ALL counties)	Page 30
Fig. 32 – Records & letters per session (Sussex)	Page 30
Fig. 33 – Average speeds measured 12 months apart	Page 31

Section One

Driver behaviour

– measurable change?

Average speed of observed offenders during roadside session

Although it should not be expected that the overall speed of offending vehicles with no prior recorded offences logged by Speedwatch, and hence no proof of prior early intervention, would show a lowering of the average speed over time; our stats show nevertheless that speeds in this category actually tend to fall slightly in areas with sustained Speedwatch activity.

However, because new groups continuously are adding to the datasets, thereby skewing the trends in an upward direction, and more so in Sussex than in Kent, the fluctuations especially in the latter police force area influence the average speed with above average figures for an initial period of 12-18 months.

Also, the figures in this group of data differ over measured time because Sussex Police started to use the system two years earlier than Kent Police.

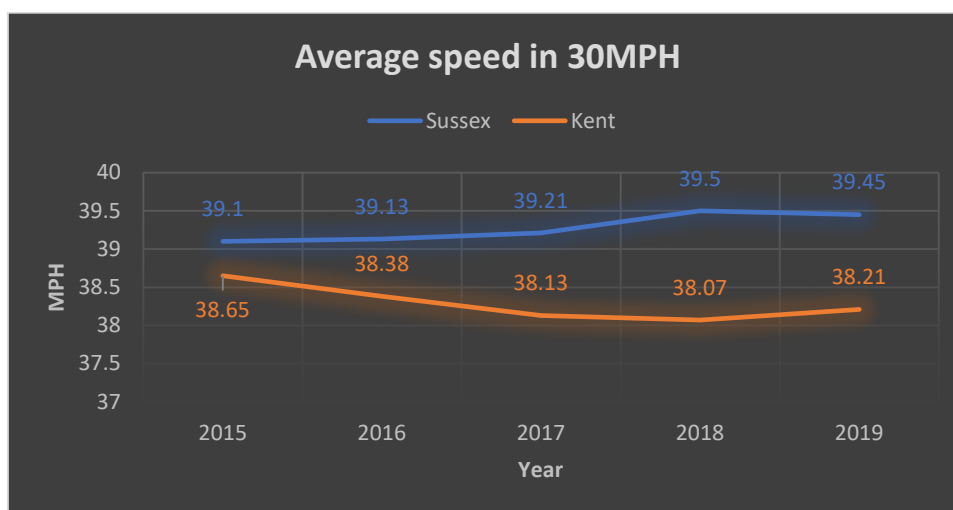


Fig. 06

However, there seems to be a slight fall in average speeds of offenders in the Kent numbers (falling by 0.83MPH). Kent has seen a slower rate in the uptake of new groups, but their display-at-the-roadside methodology might also produce instant results in comparison to Sussex, where the slowdown only starts to record after a couple of years of sustained Speedwatch activity.

As an exception to this overall statistical exercise, we have compared the two police forces' somewhat incompatible datasets to a third force area in Hampshire, where data is measured not only of speeding vehicles during Speedwatch session but of all vehicles passing the groups while operating at the roadside. This dataset is equally obtained from sessions where roadside displays are used.

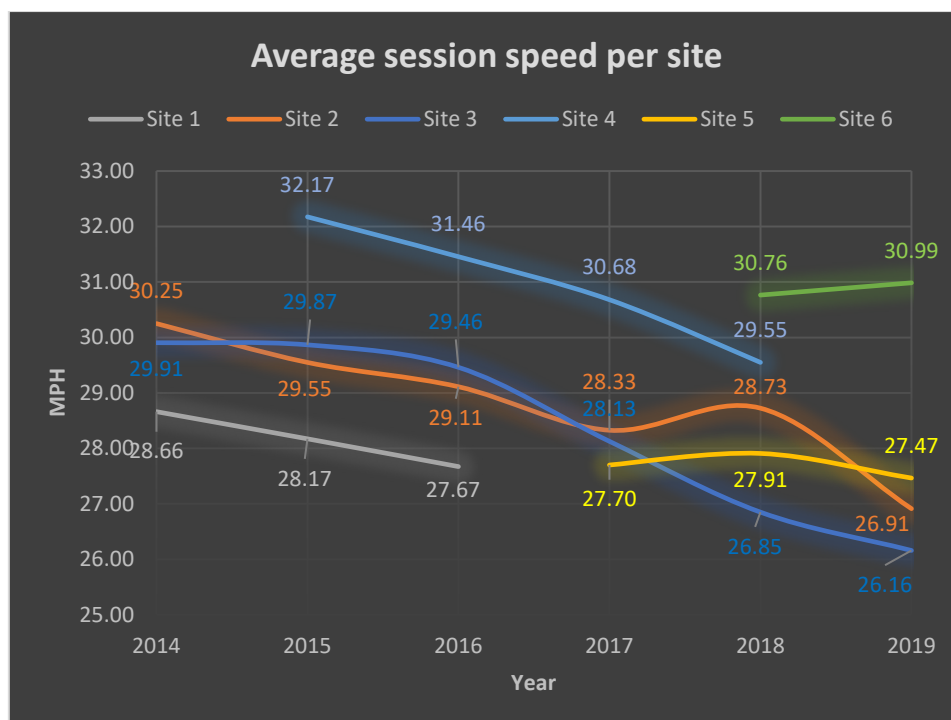


Fig. 07

The six (1-6) different sites in Hampshire shows a noticeable downward trend towards a reduction in overall average speeds. Some first-year tendencies grow initially but immediately start falling from year two onwards. At a first glance, it appears that the same tendency to grow in the first year is a general tendency like that recorded in Sussex. However, the Sussex data is collated from almost 250 groups over time, whereas the numbers in fig. 07 originate from one single group operating from a selection of different, new sites over the measured period of years.

Whether the interpretation will lead to a conclusion that the initial increased speeds are as a result of defiance by drivers when pointed out to them that they are speeding, or it is a result of awareness of the groups' activities followed by the receipt of warning letters, is at this stage difficult to determine. Nevertheless, there appears to be early signs of compliance with the idea that speed limits must be respected.

As a measurement of success, we will apply the WHO and Transport Research Laboratory (TRL) conclusion throughout this statistical exercise, that every mile per hour reduced in average speed results in a reduction of KSI equivalent to five percent (5%).

Apply this finding to Sites 2 and 3 (orange and blue in the graph) with 3.5 – 4MPH reductions over the years, this will equate to almost 17 – 20% reduction in the possibility of a serious or fatal collision in this area. So far, we can only hope that it also constitutes a lasting behavioural change in the driving pattern extended beyond this area.

Percentage of speeders of observed during roadside session

In the next measure of influences on speed limit compliance as a result of Speedwatch activity, we will look at the seasonal changes in results recorded over a period of two years. Again, we will look at the two police force areas separately because of their difference in methodology.

Although the annual average in Kent only falls slightly with 0.72% over the two years, the most significant result is the difference between the peaks and the lows (11.04% – 6.75%) in January 2018 and May 2019, respectively. Cynically, one could argue that weather conditions would typically play a significant role in when people consider it 'safe' to exceed the speed limit, and the 2019 summer season certainly is an indicator of this, but January 2018 figure, compared to the same time the following year, actually represents the biggest drop of them all. Although it is an artificial benchmark to compare year-start with year-end (in as much as we could have chosen 11 other starting months), it is interesting to see how the curves show a falling tendency, overall. Both years start higher than they end.

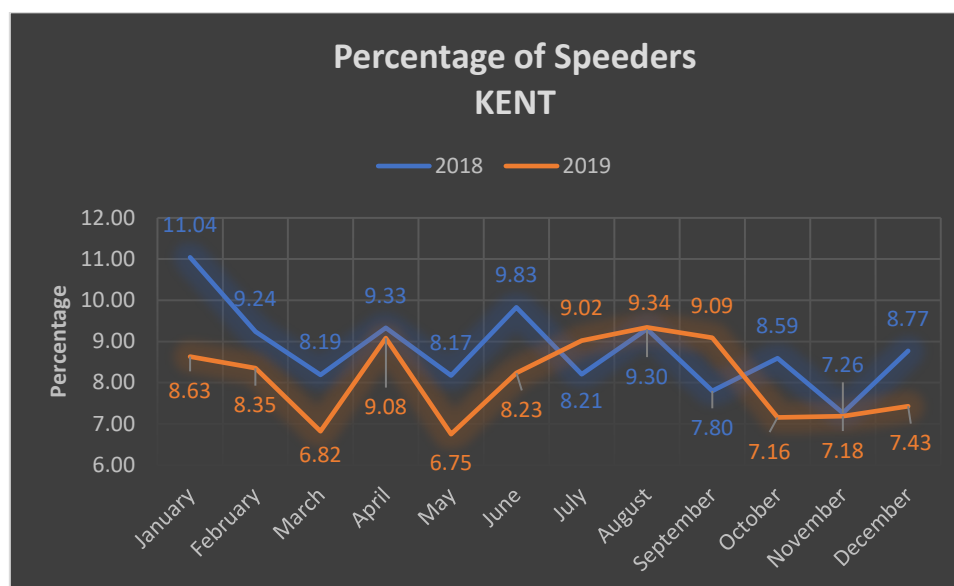


Fig. 08 – Kent: Average: 2018 – 8.81% 2019 – 8.09%

However, when looking at the equivalent statistics for Sussex, we immediately discover a vastly different pattern. With the proximity of the two police force areas and hence similar weather patterns across the seasons, we realise that the influencers on the offence patterns must include other factors than just those of whether determined driving conditions.

Firstly, we see that the numbers are lower than the numbers in Kent, but also that the peaks and lows (6.63% – 3.59%) fall in different months, and on average are increasing slightly over the two years. This would seem to go against the surmise that Speedwatch activity increases the safety of the roads, where they operate, and produce a positive influence on bringing the average number of speeders down.

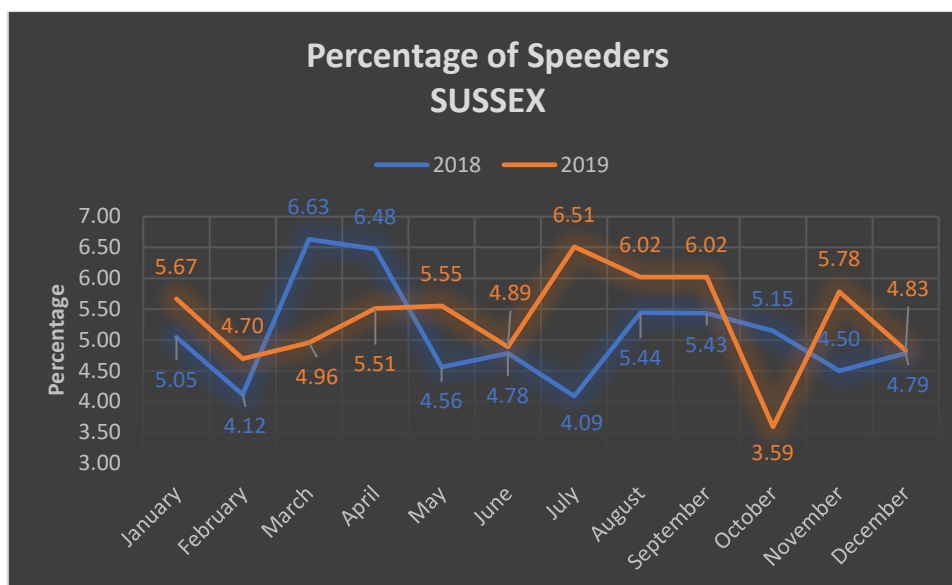


Fig. 09 – Sussex: Average: **2018 – 5.09%** **2019 – 5.34%**

It is obvious that our standalone benchmarks need a reference to other factors before we can understand the differences demonstrated between the two police force areas. We will establish later that the most obvious influencer is the growth in number of new groups adding initial higher average speeds during the first year of activity. This was already demonstrated to some extent in the findings from the Hampshire ‘six-sites’ overview (Fig. xx), where half of the new sites included in their Speedwatch surveys showed a clear growth in the average speed of offenders during the first year. After this inaugural period, the average speed of speeders fell in a very similar pattern measured at the other sites.

Behavioural change

Another obvious reference to measuring success would be the change in observed reoffender’s behaviour after receiving letters of advice from the police.

Although a common format of how to address offenders in the letters currently does not exist, the content in the two police force areas (as in many other police forces) revolve around the same idea of explaining the dangers of exceeding the speed limit by quoting the latest KSI numbers in their respective areas. They generally also point out that the observation will not lead to prosecution; that the Speedwatch scheme is educational, and that it is the community’s chance to express their concern about their observed driving behaviour. The letters list the place and time when the offence was recorded and at what speed, and if it is one of the slightly stronger worded successive letters sent to the registered keeper of the observed reoffending vehicle, it also lists the previous offence recordings observed during the last twelve months. Finally, the letter explains that speeding is an offence, and that enforcement (or an undisclosed ‘further action’) may follow if continued offending is observed.

The letter is printed on paper showing the individual police forces’ crest and is usually signed by a senior police officer.

With this in mind, we looked at the number of recorded reoffences in the two police force areas over a period of five years to establish if there was any sign of people following the advice and consequently changed their driving behaviour.

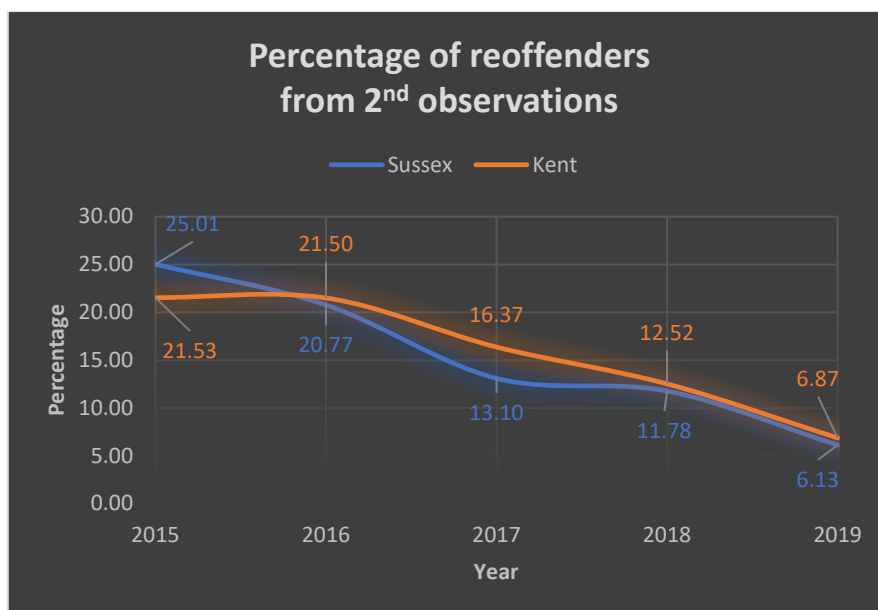


Fig. 10

Irrespective of which methodology used at the roadside, both police force areas showed a significant drop in the number of observed reoffences over five years of sustained Speedwatch activity.

In Sussex, the number of observed reoffences dropped to less than a quarter (**24.5%**) of the initially amount of observations. In Kent, the same trend produced a reduction close to a third (**31.9%**) of the initial observations over the same period. This discrepancy between the two police force areas might be down to the difference in the earlier mentioned methodology.

However, the numbers are remarkable in themselves in as much that Sussex (**6.13%**) and Kent (**6.87%**) in both cases show an adherence rate of above 93% of first-time recorded offenders. It represents a significant drop from one in four in Sussex (**25.01%**) and almost one in five in Kent (**21.53%**) over just five years (2015-2019). If what causes this trend is verifiable, it will indicate that an educational approach to correcting driving behaviour is effective.

Before we examine the premise for the potential claim that Speedwatch has sufficiently unpredictability to prevent drivers from deliberately slowing down when and where they know the groups typically operate, we will look at the figures of observed multiple reoffenders.

Whether the same result could be produced by automated, fixed roadside (including average speed) cameras issuing on the spot fines is a different discussion. The cost of establishing and maintaining these cameras, their position predictability, the effect of punishment, and possibility of lasting behaviour versus only a localised lowering of speed, are factors outside the scope of this exercise.

Irrespective of how successful Speedwatch groups consider themselves in addressing the problem of speeding in their local areas, there will always be a few remaining, unreachable offenders who chose to ignore the letters and subsequent police visits. They continue to be an element of frustration to the community, but equally important, they are a serious threat to other road users' safety. Whether their behaviour is based on deliberate defiance, antisocial or criminal behaviour, or simply incompetence caused by age (young or old), lack of understanding of the rules, or they are incapable of prioritising road safety over other pressing life issues whilst driving, their persistent offending often gives life to the false perception, that Speedwatch does not have the effect, the community would want it to have.

The statistics speak a different language, however.

Sussex and Kent differ from other UK police forces in the manner they share a reciprocal responsibility to hand-deliver letters to identified multiple offenders residing in another force areas than where the offences are observed/recorded. This is only possible by collating data compiled by CSW Online, and consequently it elevates the efficiency of the response in this category of dangerous drivers to a level otherwise not possible in areas where such exchange mechanisms are not in use.

This methodology has had a reduced effect on the number of observed reoffenders similar to that of second offence observations. Over the same five-year period, and although not high from the onset, the observations fell from **1.02%** to **0.05%** in Kent, and from **1.17%** to **0.03%** in Sussex. In Kent, this equates to a drop to less than **5%** of the original number of observations (or more than **20** times less) than at the beginning of the measured period. The same numbers for Sussex are a drop to **2.73%** of the original number of observations, or almost **37** times less observed reoffenders by the end of 2019.

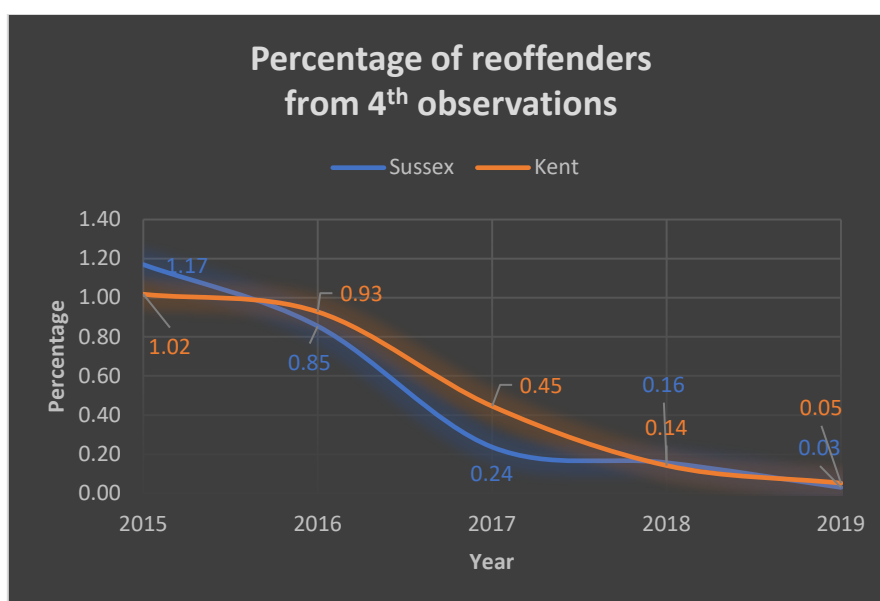


Fig. 11

Site reuse frequency

It would be easy to assume that Speedwatch groups have preferred times and places, when and where they deploy the volunteers. By doing so, the predictability would be diminished, and the effect could be assumed to have the same character as that of fixed roadside cameras. Drivers would know when to slow down while they pass the groups at the roadside.

Unpredictability is a key element to ensure that the figures shown in the statistics are lasting changes in driver behaviour, and not reactions to a known situation to avoid.

To compile this statistic, we compared the number of available sites from which groups have reported observations over the past five years. We then measured the frequency the groups operated from each site, and lastly split it into two categories: 1) groups with 2-5 sites available, and 2) groups with 6 and more sites available.

During the five years between 2015-2019, 112 Kent groups were conducting 7,806 sessions (14,129 hours) between them from 676 sites. The stats from these sessions are used in this exercise.

The legend category increments of 10% shown in the chart denote the frequency by which a site is used as a vantage point for observations. The individual wedges show the percentage of all observations that this category of sites was used. The lowest measure in the 0-9 segment is 0.1 – not actually zero.

In Kent, 58 groups have five or less sites available, whereas 54 groups have six or more sites available to them.

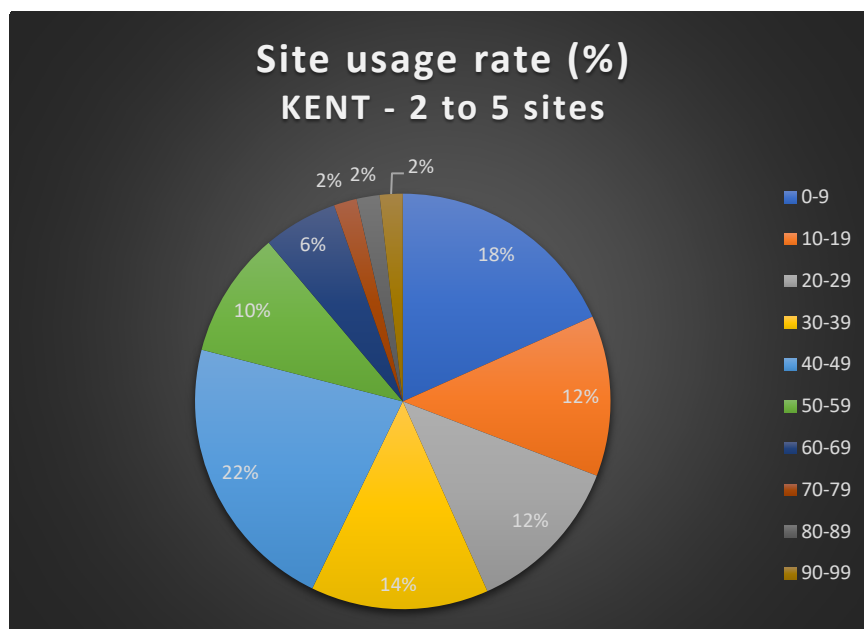


Fig. 12

Looking at the chart (Fig. 12), 18% of all sessions were conducted from a site that is only used between 0-9% of the time. Similarly, 22% of all observations were conducted from a site that is used between 40-49% of the time, etc. The bigger the wedge is in any of the higher frequency categories, the more sessions are conducted from the same site.

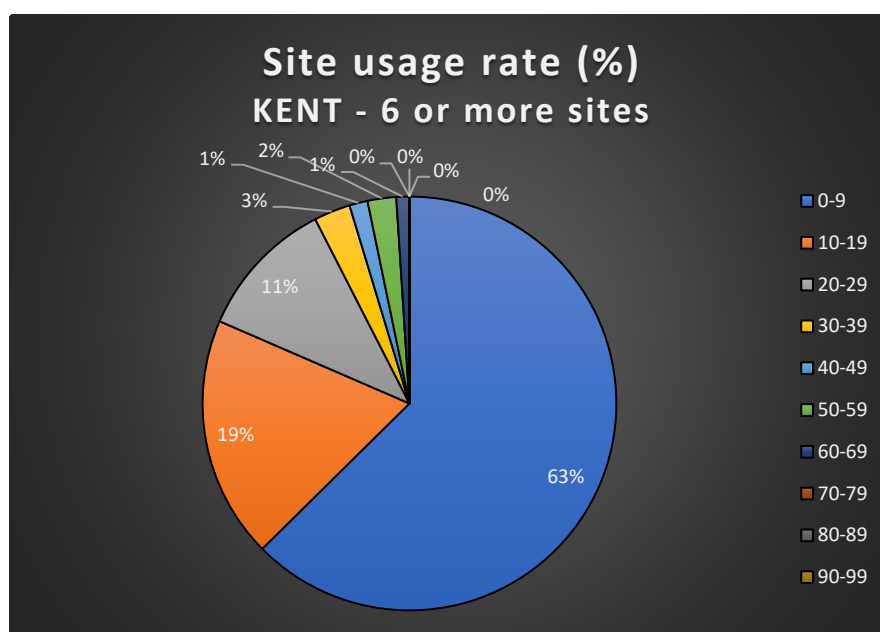


Fig. 13

When looking at the numbers for groups with 6 and more sites available (Fig. 13), the spread across sites – and hence presence unpredictable becomes even more noticeable. 63% of all observations are conducted from sites that are only used between 0-9% of the time, whereas sites with a reuse rate of between 70-99% simply do not exist.

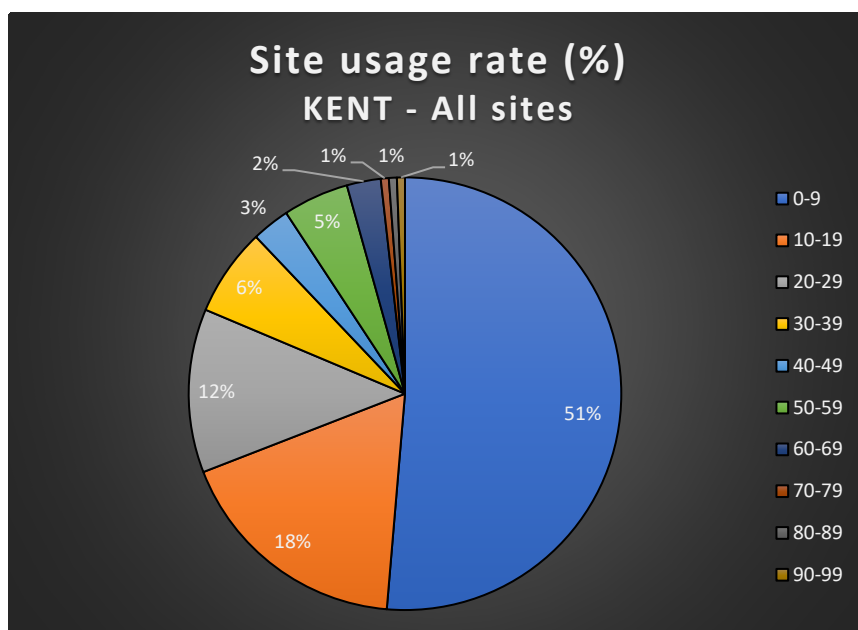


Fig. 14

Lastly in this segment, to compare all 112 groups' use of the 676 sites spread across the 7,806 sessions during the five years, Fig. 14 shows that 51% of all these sessions were conducted from sites that are only used between 0-9% of the time. In addition, 18% of the sessions are conducted from sites that are used between 10-19% of the time. This means that almost 7 out of 10 sessions are conducted from sites that are reused less than 20% of the time. In other words, the predictability of the groups whereabouts is incredibly low.

In an identical manner, the collated stats for Sussex are from 89 active groups during a period of five years (2015-2019), conducting 13,753 sessions (23,248 hours) between them from 784 sites. Firstly, the 40 Sussex groups with between 2 and 5 sites available to them to observe passing vehicles from (Fig. 15).

Almost a third of all the sessions are conducted from sites that are used somewhere in between 0.1 – 9.9% of the time. Combined with the sites used between 10.0-19.9% of the time, exactly half of the sessions have a remarkably high degree of unpredictability.

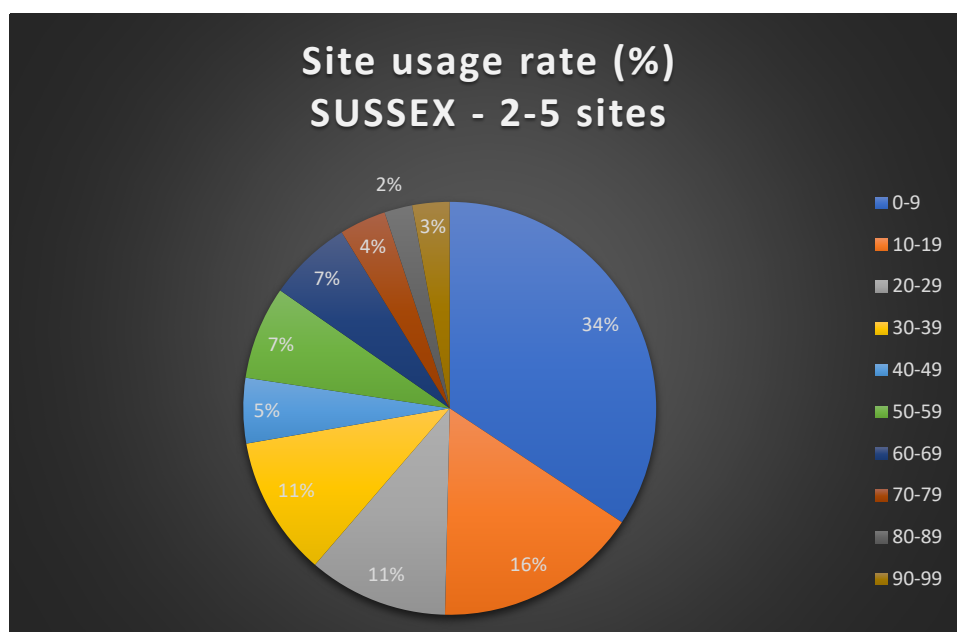


Fig. 15

Next, 49 Sussex groups with 6 and more sites available to them from which they can observe passing vehicles (Fig. 16):

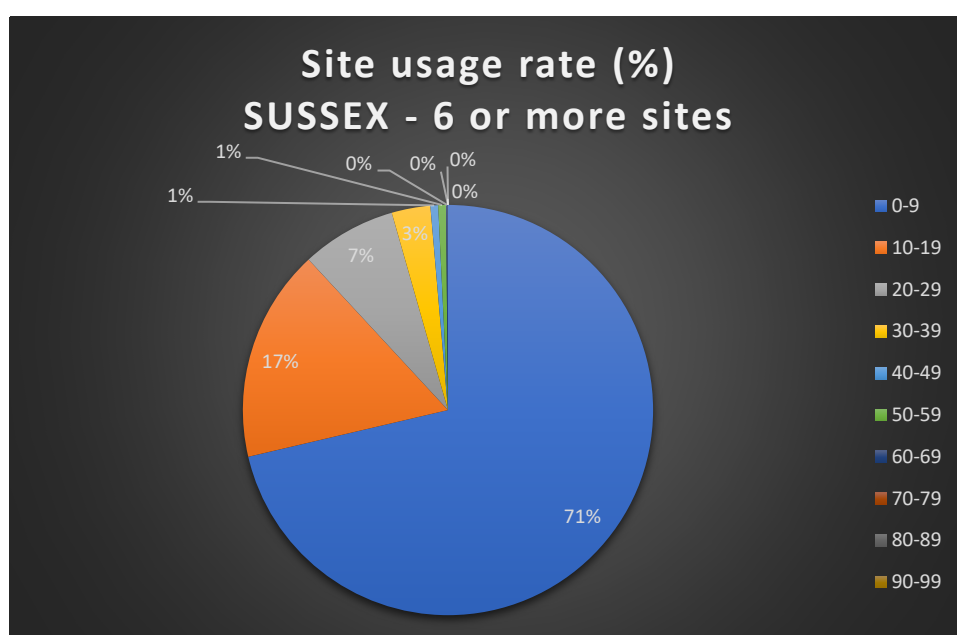


Fig. 16

The more sites available to groups, the better the spread across their use is prevalent. The degree of 'favourite' places to operate from is minimal. 71% of all sessions conducted by groups with six or more sites available happens from locations that are used only between 0.1 and 9.9% of the time.

Lastly, all Sussex groups combined (Fig. 17):

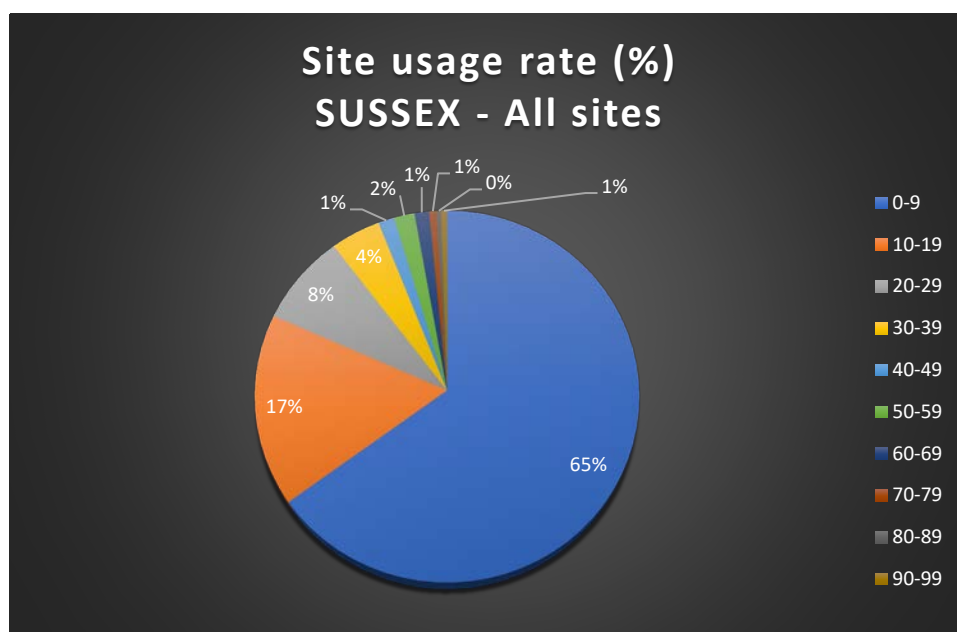


Fig. 17

It is worth noticing that the contribution of the stats for the site reuse frequency segment is contributed almost evenly between the two categories of groups. The parity between the number of groups in the two police force areas is almost fifty-fifty, which negates the possibility of groups with many sites available to skew the results in their favour. This fact matters because groups with more sites would naturally operate from more sites than those with less sites available. However, the equivalence rectifies any biased outcome.

Times of the day

The same observations (and assumptions) can be made about the groups' presence at the roadside during the allowed daytime hours.

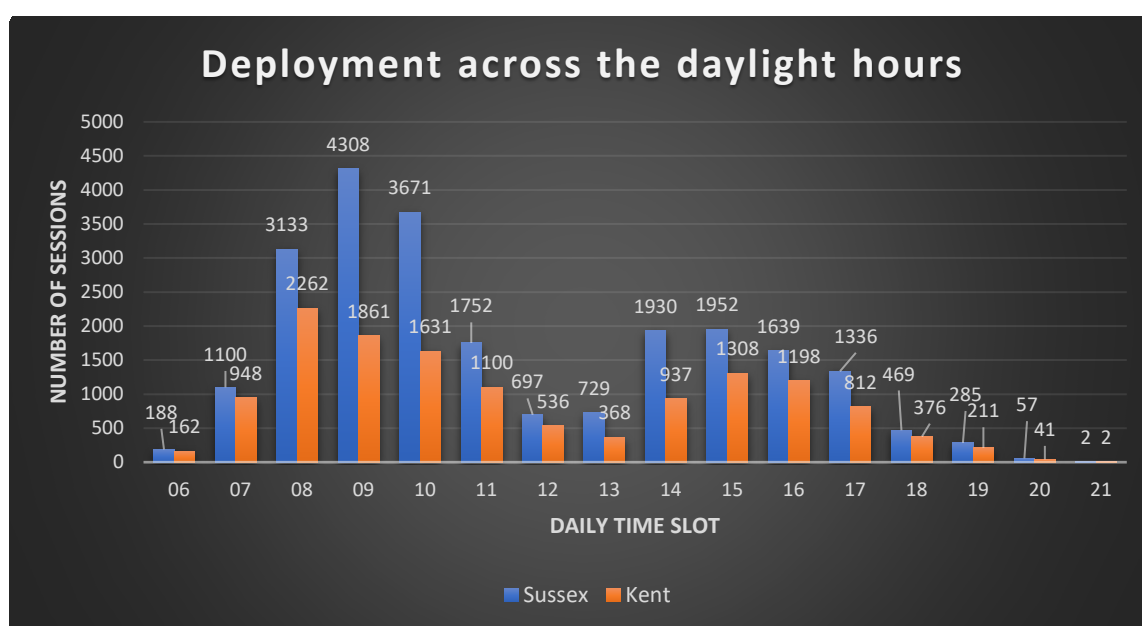


Fig. 18

Unpredictability is not only measured in where the groups pop up but also when they are out conducting their roadside sessions.

Fig. 18 shows that there are clear preferences for roadside sessions to be conducted during the morning school run hours and early call-out trade traffic (8am – 10am) followed by a similar pattern during the afternoon run (3pm – 4pm). However, early, and late sessions recording commuters are equally represented but more infrequently because of the seasonal variations in sunrise and sunset. Groups are not allowed to operate outside these times. This does not exclude the midday slots for any immediate or particular reason, one should think.

However, statistics show (Fig 19) that groups that have conducted Speedwatch during the midday hours in the past on average recorded considerably less offenders during these few timeslots. It is therefore reasonable to conclude that groups are avoiding investing their efforts at times when it has less effect on educating speeding drivers.

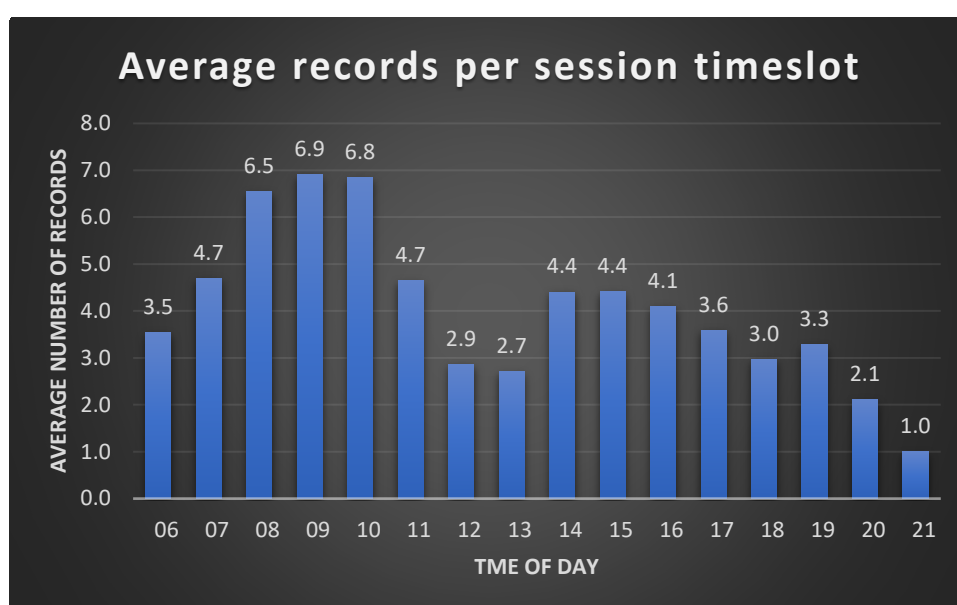


Fig. 19

Finally, Fig. 20 shows the spread across the weekdays. There is an almost even representation from Tuesday to Saturday across the two police force areas, whereas Sundays and Mondays are less frequently used for observation, noticeably less in Kent than in Sussex. Sundays presumably because of the lesser traffic during the weekend, but the lack of a higher level of activity on Mondays is not explained.

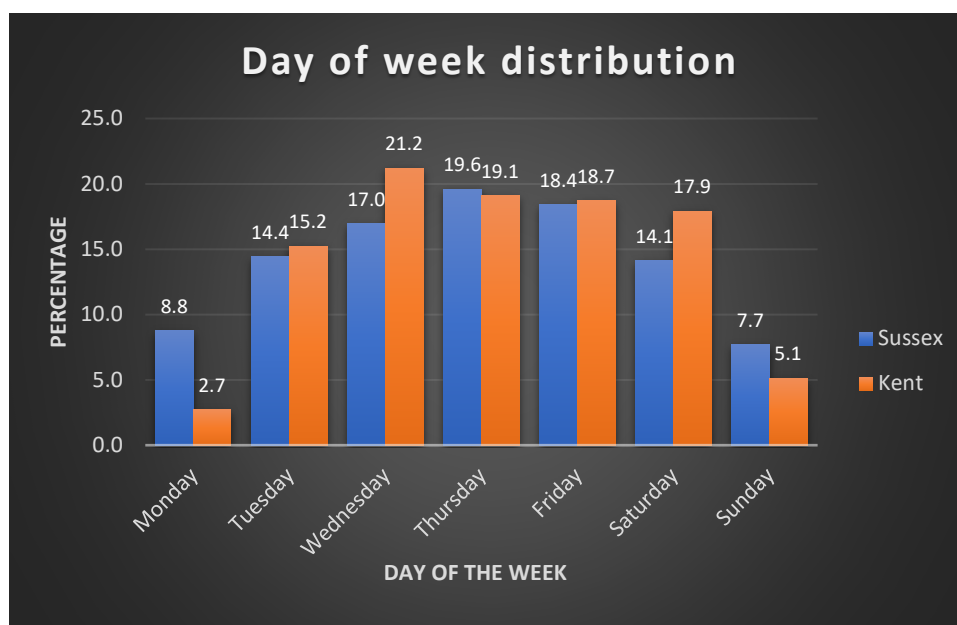


Fig. 20

Summing up

The deployment patterns of Community Speedwatch in Kent and Sussex show a much higher degree of unpredictability than what could be expected. It is thus reasonable to conclude that the achieved results in bringing the number of observed speeding offences over time is highly likely caused by a consistent change in driving habits rather than knowledge or experience of where and when to avoid being observed by a deployed Community Speedwatch team.

Section Two

Group development

Number of new Speedwatch groups

As shown in Fig. 21 below, the two police force areas experienced a substantial interest and uptake of groups from the onset. This was caused either by the integration of existing schemes/groups or by a build-up of expectations prior to the commencement of the centralised organisation of the Speedwatch volunteers (i.e. the introduction of CSW Online).

The first and second years following this initial boom saw a halving in numbers of new groups being created. Obviously, the initial demand had been satisfied, and the organic growth-level settled far below the opening demands. Yet, from the third year onwards, the number of new groups climbed back to the same level from when the schemes were initial launched. This climb is significant because the trend does not show the degree of subsiding due to saturation of interest and availability of volunteers that could have been expected as groups began to fill the gaps across the police force areas (see: Fig. 3. P. 4)

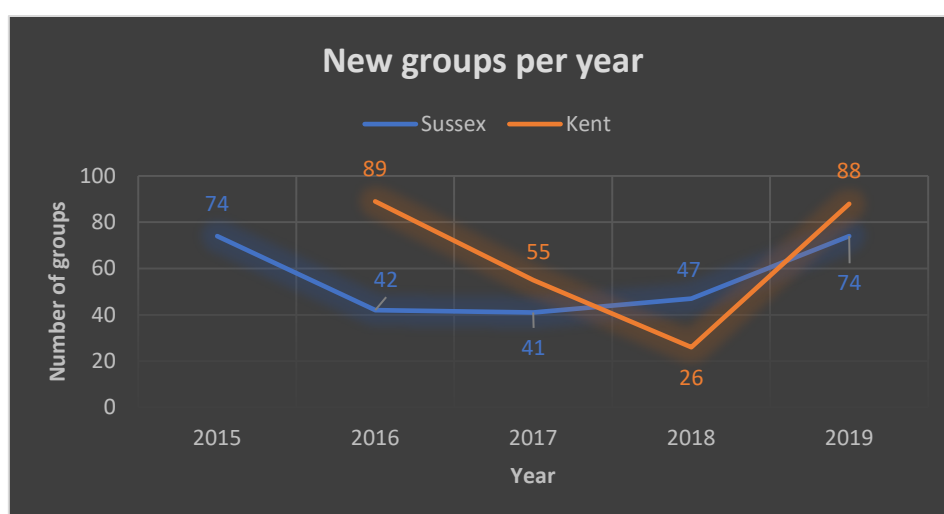


Fig. 21

The accumulated numbers shown in Fig. 22 demonstrate this growing trend but there is no automatic expectation that it will continue because of the natural saturation of available locations in the police forces areas where new groups can potentially be established.

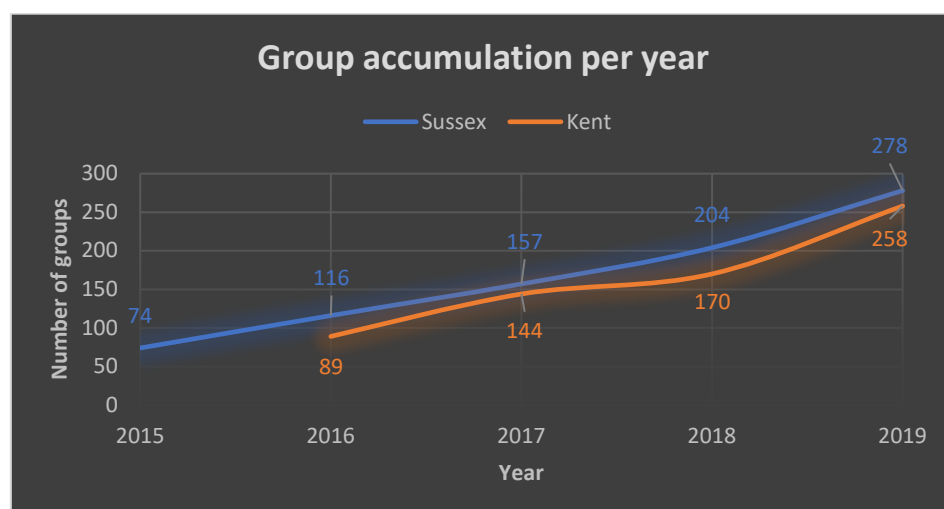


Fig. 22

The growth in the public's interest and initiative to establish groups (and hence get involved with volunteering efforts to tackle speeding problems educationally) might very well be a sign of the confidence and trust put in the manner the schemes are organised and managed. The more groups are observed active in the vicinity of where concerned citizens reside, the more likely the idea of involvement spreads to neighbouring yet-to-be established potential group areas.

But there is often a considerable delay in the conversion from initial interest to active partaking at the roadside. Far from all groups begin to produce observation from the get-go. A few even never get off the ground. Identification and safety assessment of suitable sites, securing access to equipment, training of enough reliable volunteers, etc. are just a few factors keeping well-intended groups from becoming active immediately.

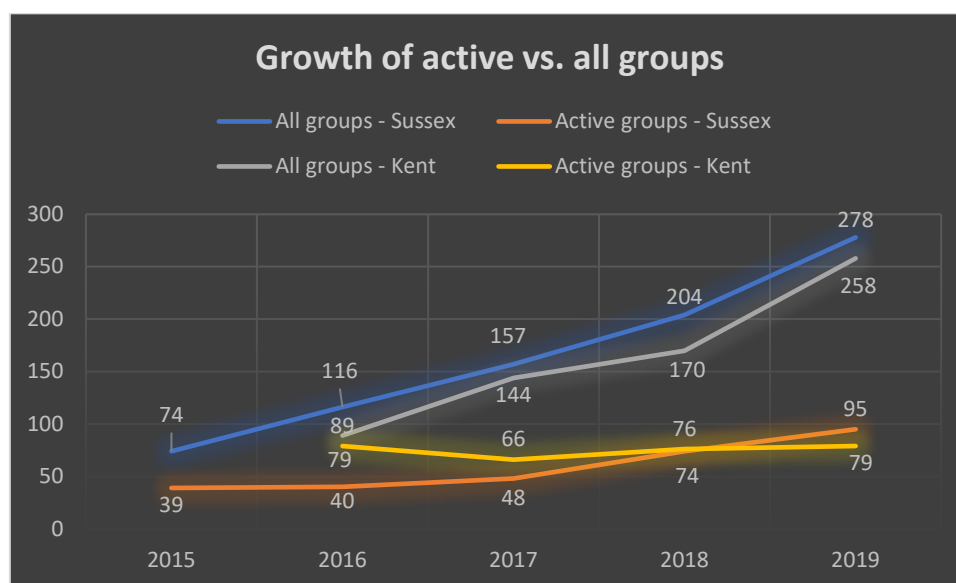


Fig. 23

Fig. 23 shows the considerable gap between registered groups and groups producing records. The discrepancy includes both existing groups ceasing to function and new groups waiting to start. The overall tendency seems to settle around 1/3 of registered groups producing records in any given year.

There will always be an expectation that groups develop organically during their lifespan. The constellation of members over time dictates to a large extent the sustainability of the groups. Founding members move away from the area, are incapacitated, or stop all together for many reasons. The social inclusion factor is important to some groups but a hindrance to others. How the sociological and psychological influencers determine group sustainability and reliability is outside the scope of this exercise, however. This survey is predominantly quantitative in its scope and methodology.

Nevertheless, the original tendency observed since the inaugural days when the Community Speedwatch concept was established in year 2000 with entire police schemes failing to sustain a continued lifespan over several consecutive years, obviously has changed in the two police force areas managed by CSW Online and used in this survey. The accumulation of groups (Fig. 22 & 23) continues to show growth at a steady pace, even with a slight hint of acceleration in Sussex. The figures for Kent show a levelling out but this might be caused by other reasons, which we will examine later.

We believe that the demonstrated latency should be considered a potential rather than uncertainty. Many of the groups yet to participate actively are more likely to be preparing to get fully integrated with the scheme requirements rather than have fallen by the wayside during the start-up process.

Number of new Speedwatch volunteers

Obviously, we cannot measure the growth of groups without comparing the numbers of volunteers signing up to take part in the schemes' activities. Establishing groups is only half the measure, getting likeminded neighbours, friends, and relatives to join, get trained and involved is equally important.

Fig. 24 shows how the number of new volunteers completing the initial training differs quite substantially in the two police force areas. Although the growth in the number of groups (Fig. 21-23) is almost identical in the two areas, there seems to be a slowdown in the number of volunteers finishing the training and joining the groups in Kent compared to Sussex. The latter continues to grow – if not exponentially then at least within the same expected trend following the number of new groups being established during the same measured period, whereas in Kent, the number seems to stabilise around the minimum number of volunteers needed (4) to make a group operational.

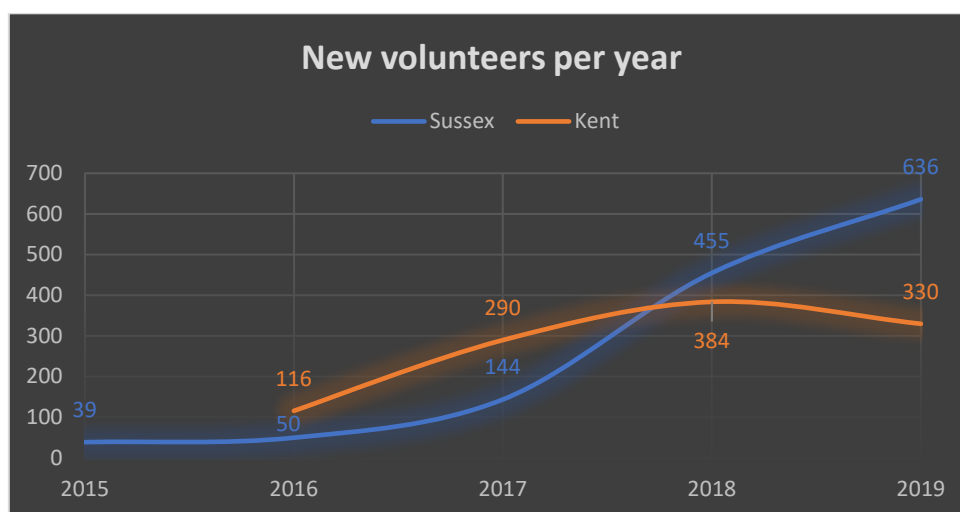


Fig. 24

This trend can be interpreted both as a lack of growth in attracting new members to existing groups, or not attracting enough members to initiate new groups. The first is essential to cover the natural degeneration of group memberships, the second is important to activate new groups.

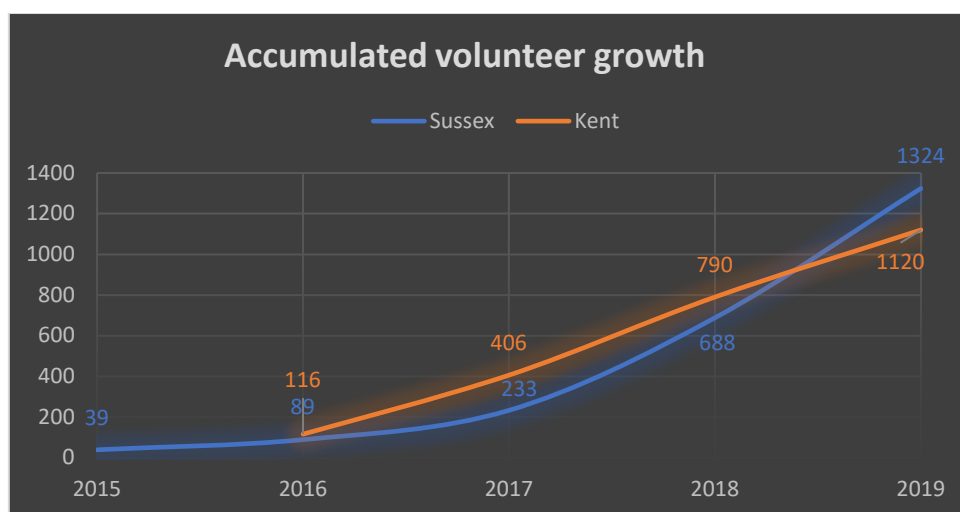


Fig. 25

Fig. 25 shows the available numbers of a constantly accumulated growth over the measured period.

Currently, there is no obvious reason to explain the falling acceleration of new volunteers joining the scheme in Kent. It is essential though to emphasise that there is still a net influx of new volunteers but that the constant growth has decreased compared to Sussex. This might be to do with the perception of the two different methodologies used in the two police force areas, but our statistics have no means to conclude or prove this hypothesis.

Change in number of volunteers completing the online training

The online training programme was established to facilitate an effective filtering of interest, motives and competencies. During the early days when all training was done manually and in classrooms, the retention rate proved to be detrimental to the time invested. Too few volunteers ended up taking active part in the scheme afterwards. The reasons for this substantial fallout was concluded to be caused by:

- Different expectations (too much hassle, work, and regimented organisation)
- Given too little authority to aim their initial anger at drivers with
- Lack of ability to understand the rules and procedures

The mandatory training programme requires 87% correct answers in a multiple-choice quiz at the end of the minimum half-hour online video session. Volunteer applicants who fail initially to pass can retake the quiz until they reach the required pass threshold. Neither the police nor the applicable group will be notified of the applicant's existence until the online training module has been completed.

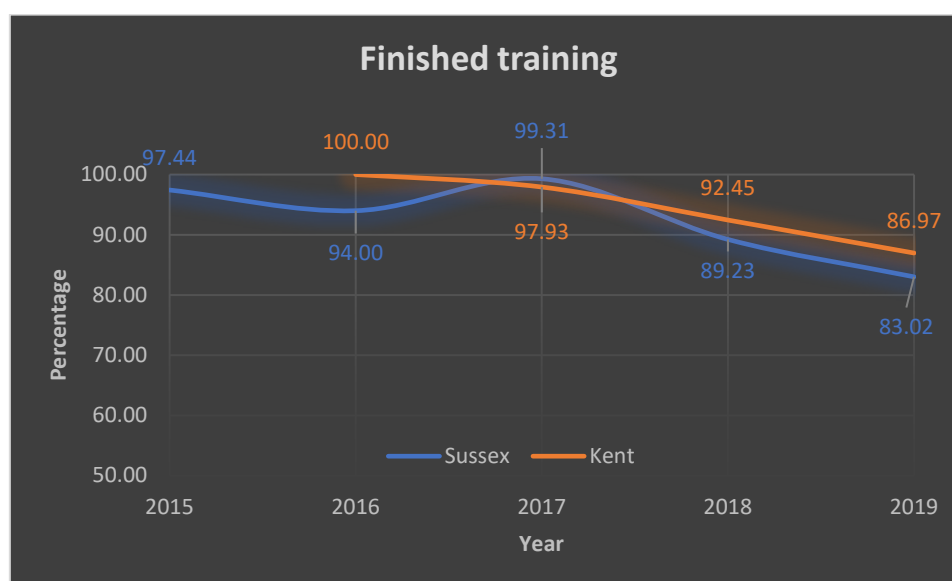


Fig. 26

The increased interest in joining the Community Speedwatch scheme has equally produced a growth in failed attempts to pass the online training programme (see Fig.26). We believe that the cause of the falling pass rate remains the same as the already mentioned reasons creating an exponential drop equivalent to the exponential growth in signups. If nothing else, this statistic indicates that the switch to the compulsory, initial online training programme was a correct decision.

Roadside sessions

We already shown how recorded observations have had a positive effect on reducing the number of observed reoffenders. We have examined and concluded that the majority of where and when sessions take place are unpredictable, which indicate that the measurable reduced speeding behaviour is not just localised based on knowledge of Speedwatch activity patterns.

The growth in active groups at the roadside to reinforce our assumption that Speedwatch activity has the desired effect on reducing the number of speeding vehicles (and potentially lowering of the average speed in the group's operational area) needs to be substantiated by a similar growth in number of sessions.

Although not linear in growth, Fig. 27 shows how the total number of sessions per year is growing (maybe not surprisingly) in a similar fashion to that of the total number of registered new groups, total number of active groups, and total number of trained, new volunteers. The natural spread of new groups across the police force areas obviously have a positive effect of reinforcing the perception that Speedwatch is centrally organised and effective in its integration with the pre-enforcement spectrum.

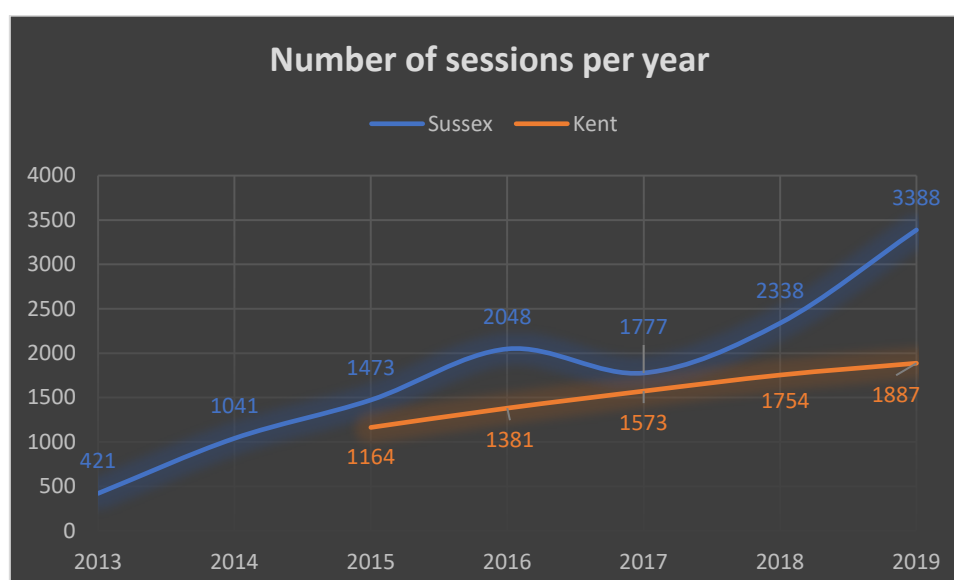


Fig. 27

The wobble in the 2017 Sussex figures is a localised phenomenon caused by a change in the management structure between Sussex Police and CSW Online. The waning tendency in the Kent numbers might be caused by the saturation of groups across that police force area. All areas of the UK will eventually reach this scenario of levelling out at some point.

The totality of group sessions

With the number of active groups growing at a steady pace and the combined number of sessions still showing a healthy pattern of growth, it is natural for us to examine how these two trends correlate in producing the number of sessions per group.

Apart from being open to ambiguous interpretations of the individual police force areas' different directions of development, Fig. 28 shows, at first glance, a tendency to drop in numbers of sessions per group over the measured period. This would initially correspond well with the idea that the effect of the sustained Speedwatch activity is beginning to have a positive effect on addressing the problem of speeding effectively, and groups consequently reduce their level of activity accordingly. However,

where Kent continues to show a declining trend, Sussex seems to have reversed this downward development, and instead over the past two years show an increase of almost 8% in the average number of roadside sessions per group. The earlier referred to hiatus in 2017 may have caused the sudden drop in numbers, and a seemingly recovery from this unusual development simply just brings the more general downward trend back on a linear declining line. The stats for the year 2020 will reveal the true direction of this development.

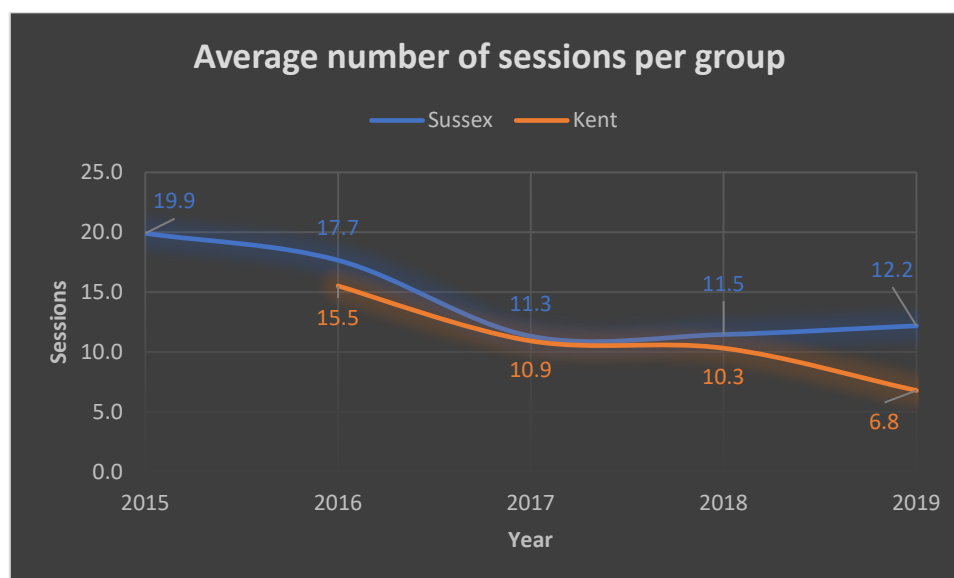


Fig. 28

Section Three

Offences and letters

Roadside observations and reporting

CSW Online works from the principle that action speaks louder than words. However, we also think the facts seldom are compatible with feelings. Many people on both sides of the speeding debate often get upset when this issue is discussed. In the concluding section of this brief statistical exercise, we will examine what measurable impact Community Speedwatch has on addressing a problem that most people find difficult to engage with objectively.

Based on the previously demonstrated trends between the two police force areas of Sussex and Kent, the total number of observations across the measured period are unsurprisingly taking different directions.

Although Kent police are not sending advisory letters from the first observation, all the observed offence records are retained and used as basis for the letter sent after a second (reoffending) observation. So, Fig. 29 speaks not about the number of letters sent to registered keepers of the offending vehicles but about the group's total number of observations and recordings of offences at the roadside per year.

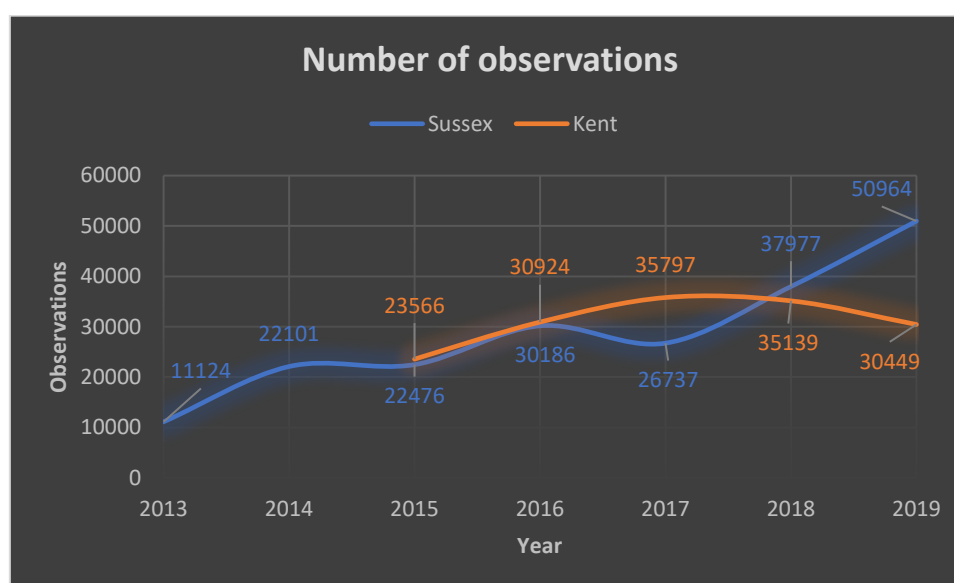


Fig. 29

It is maybe not as striking as one would think that despite the almost identical number of active groups across the two police force areas, combined with the lack of growth in roadside sessions and new volunteers joining the scheme in Kent, that the number of observations is so markedly different between the two schemes. The reasons might be the fact that in Sussex groups conduct almost double the average sessions per year compared to groups in Kent (see Fig. 28.), or it might be that the effect of their activity and methodology has had a much greater impact on bringing the problem under control. To understand the difference, we need to examine the average number of observations per session in the two police force areas to put it into perspective.

Some of the Sussex data used in this comparison exercise goes back more years than available group data from Kent. Records of offences were naturally retained in police records prior to Kent Police joining CSW Online in 2015, and they have been 'back-ported' into the system retrospectively.

However, because of CSW Online's origination in Sussex, and because of closer integration with that police force initially, we have accumulated more group records from that area going back further than the two years prior to the commencement of the two-force comparison period.

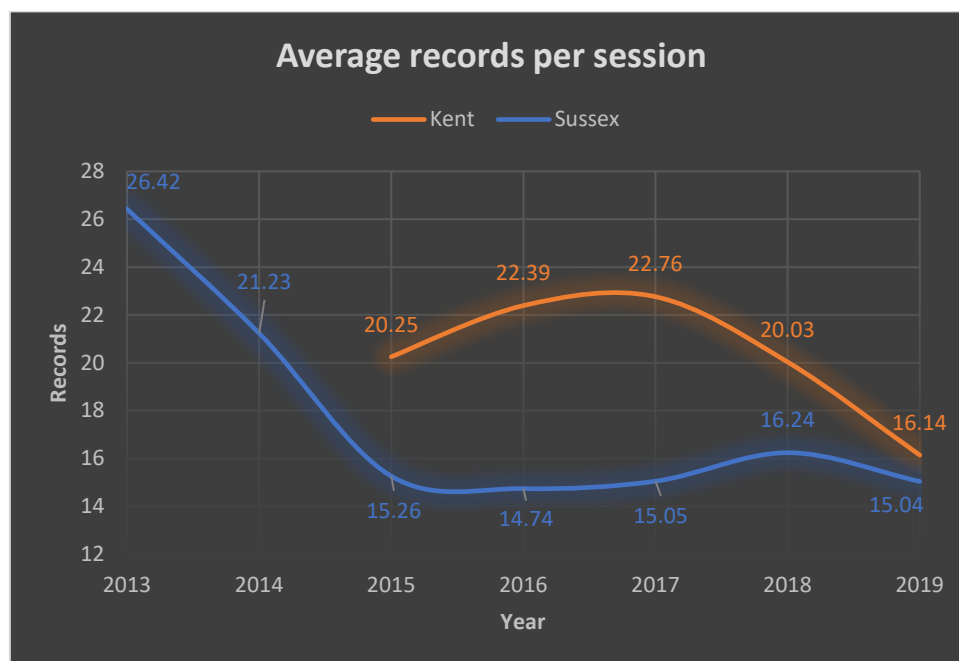


Fig. 30

Despite the differences in roadside methodology, growth patterns, average number of sessions per group, and interim results in records per session (Fig. 30), the outcome of the two police force areas' individual efforts are almost identical at the end of the measured period (2019). There is no data or event available to explain the discrepancy in results during the years, but numbers from both police force areas speak a clear language in favour of success. The number of recorded offences per session in both police force areas is dropping. The average number of recorded offences in Sussex has almost halved (26.42 down to 15.04), and the average number in Kent has fallen from its peak at 22.76 to end close to the number for Sussex at 16.14.

We cannot explain the rise in average number of offences recorded in Kent during the years from 2015 to 2017. Their methodology of displaying the speed to passing drivers at the roadside might be a reason but with the stats available to us, we cannot tell.

Average number of accurate observations

The last measurements of group efficiency vs effectiveness can be found in the number of accurately recorded observations per session.

The accuracy of the combined roadside observation of each offending vehicle is measured against the information recorded in the DVLA database. If the combination of VRM, vehicle make and colour match those held by the DVLA, the record is passed on for issuing of a letter to the vehicle's registered keeper.

Fig. 31 shows the correctly observed records (as confirmed by DVLA) in both police force areas compared to the average number of their combined total observations (the average sum of the two graphs in Fig. 30).

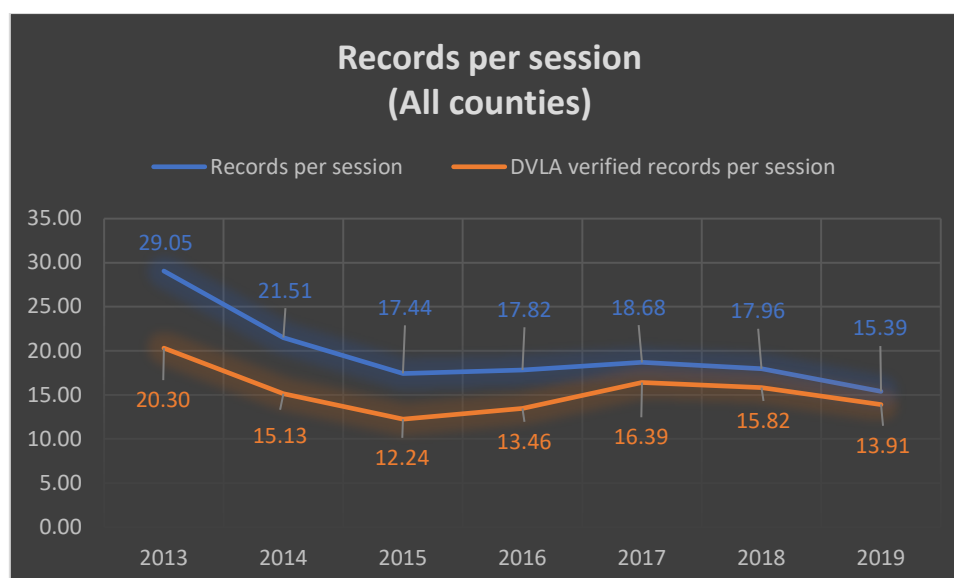


Fig. 31

Obviously, the **records per session** will show the same downward trend as in Fig. 30 (although slightly elevated in the case of Sussex because of the average sum of the two police force area's numbers), but more importantly, the comparison graph of **DVLA verified data** illustrates a clear narrowing of the gap between total number of observed records and accurately observed records. The efficacy of the groups' observations is increasing. In 2015, almost 1/3 of the observed offences were inaccurately recorded. At the end of 2019, this gap was narrowed down to less than 10%.

As an example of the direct influence this increased efficacy has on Sussex Police's interaction with offending vehicle owners/drivers, the number of letters sent to the registered keepers of the observed vehicles (Fig. 32) has increased from 70% in 2015 to 91% in 2019. However, because of the overall effect Speedwatch activity has had on the level of offending and driver behaviour (at least in the areas where they operate), the number of offences observed in 2015 has fallen to 53% of that level in 2019. This equates to approximately a drop of 10% per year the groups are active.

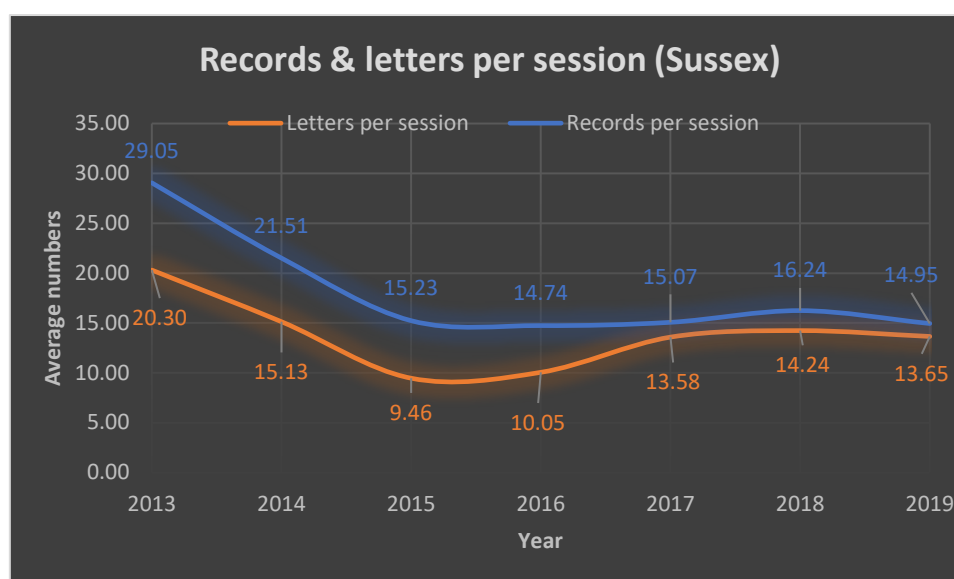


Fig. 32

On the group activity side of Speedwatch, we can therefore conclude that the sustainability of the volunteers' involvement is paramount to the success of the scheme. It is our experience, that this continuous involvement is only possible if groups are uniformly, efficiently, and automatically managed throughout the police force areas where they operate.

Effect on reducing the number of Killed and Seriously Injured (KSI)

Working from the calculations published by the World Health Organisation (WHO) and the Traffic Research Laboratory (TRL) quoting: *The influence of speed on accidents has been identified through cross-sectional studies (Taylor et al, 2002) as resulting in between 4 and 7% extra accidents per 1 mph above the average speed for the road, with the larger effects on lower quality roads. (Taylor M, Baruya B and J Kennedy (2002)) – [the relationship between speed and accidents on rural single carriageway roads. TRL Report TRL 511]*, we should be able to measure more accurately to what extent Speedwatch activity helps to bring down the KSI numbers in areas where they operate (and more pervasively if a permanent behavioural change can be measured). The report talks about rural single carriageway roads, which is exactly the type of highways where Speedwatch groups can operate.

To measure such an impact, we need a much wider surveillance operation that is beyond the scope of this exercise. Not only will it require frequent 24/7 surveillance of traffic flows in areas where sustained Speedwatch activity is conducted but measured whilst they are not operational. The surveillance needs to be made from the same vantage points with the exact same intervals to compensate for seasonal fluctuations. It also needs to be completed across a much wider area to compare with places where no Speedwatch activity takes place.

It is not within the Speedwatch groups' remit or capacity to make such surveys. A wider research project has been attempted by CSW Online together with Institute for Transport Studies (ITS) at Leeds University, but our funding application to the Road Safety Trust Fund was not successful. Instead CSW Online conducted a much reduced survey based on data collected from mobile Speed Indicator Displays (SID), deployed with displays switched off, concealed at identical sites over a sustained period of 24 hours during seven days a week (without interfering Speedwatch activity) and 12 months apart. The collated data looks as follows and shown in Fig. 33.

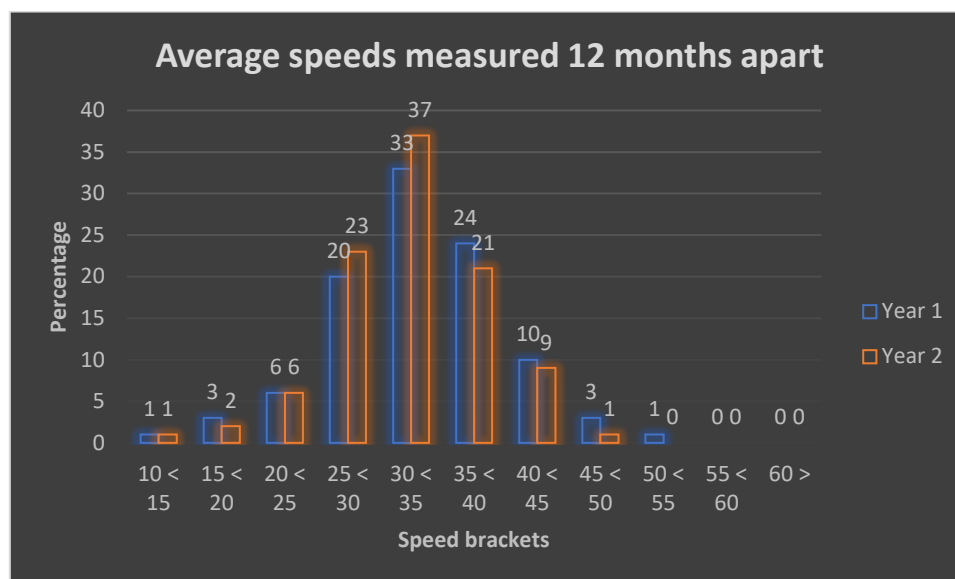


Fig. 33

The numbers indicate a clear move towards the acceptable average speed bracket of 30-35MPH (the tolerated threshold of speed limit + 10% + 2MPH) within which Speedwatch groups do not report speeding offences in 30MPH speed zones. With this reduction in average speed levels calculated to 1.7% over the 12 months and using the relevant WHO/TRL calculation applicable to rural single carriageway roads, the Community Speedwatch impact on lowering KSI numbers in the surveyed areas equates to 11.9% less killed and seriously injured if applied universally.

Conclusion

We believe sustained Speedwatch activity produces the desired results if managed efficiently, on a large scale, joined-up nationwide, and using the same rules, standards, methodologies and outcomes.

If, from the many suppositions, there are any conclusions that can be drawn with some degree of confidence, then at least one of them demonstrates with a high level of certainty that Speedwatch has a marked effect on bringing down the number of repeat offenders. This result alone can be translated into a lowering of the potential KSI numbers in areas where these observed vehicles drive.

We have also demonstrated that Community Speedwatch when sustained over a longer period makes a bigger impact on bringing down the overall number of speeding vehicles. We have equally shown that the active groups' roadside frequency and whereabouts are unpredictable, and from this we conclude that a change in driving behaviour is likely to have taken place in order to sustain the consistent lowering of observed reoffenders.

Finally, we believe that there are many more benefits resulting from sustained Community Speedwatch, but a more extensive research programme would be needed to widen up the scope to understand the full benefits.

Ultimately, it is our hope that Community Speedwatch will be joined-up nationwide; that all schemes will be organised under one banner to secure a uniform adherence to rules, standards, methodologies, and outcomes. By sharing high quality data across all borders, we believe that the unified schemes will be able to make a bigger impact on bringing down KSI numbers to a much larger degree, especially in rural areas, and that the schemes' potential that currently is underutilised and undervalued, will be brought to its full use.