

## Pharmaceutical Needs Assessment 2018: Travel Time Analysis

This analysis explores how close Medway residents live to pharmaceutical services using walk and drive time maps.

Public Health England's [Strategic Health Asset Planning and Evaluation](#) (SHAPE) tool was used to complete the travel time analysis; see page 6 for further details.

### Summary

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Travel time analysis shows that 92% of Medway residents live within a 15 minute walk of a pharmaceutical service, 99% within a 15 minute journey by public transport, and 100% within a 15 minute drive during rush hour and off peak hours (table 1).

**Table 1.** Estimated percentage of Medway residents that live within a 5 to 20 minute journey of a pharmaceutical service by foot, public transport and car.

	Travel Time			
	5 minutes	10 minutes	15 minutes	20 minutes
Walk	44%	72%	92%	95%
Public transport	47%	83%	99%	100%
Car rush hour	99%	100%	100%	100%
Car off peak	99%	100%	100%	100%

### Pharmaceutical services

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The travel time analysis has been completed for the 58 community pharmacies and eight dispensing practices in Medway. The names and locations of these pharmaceutical services can be found in the appendices of the draft [Medway Pharmaceutical Needs Assessment 2018](#):

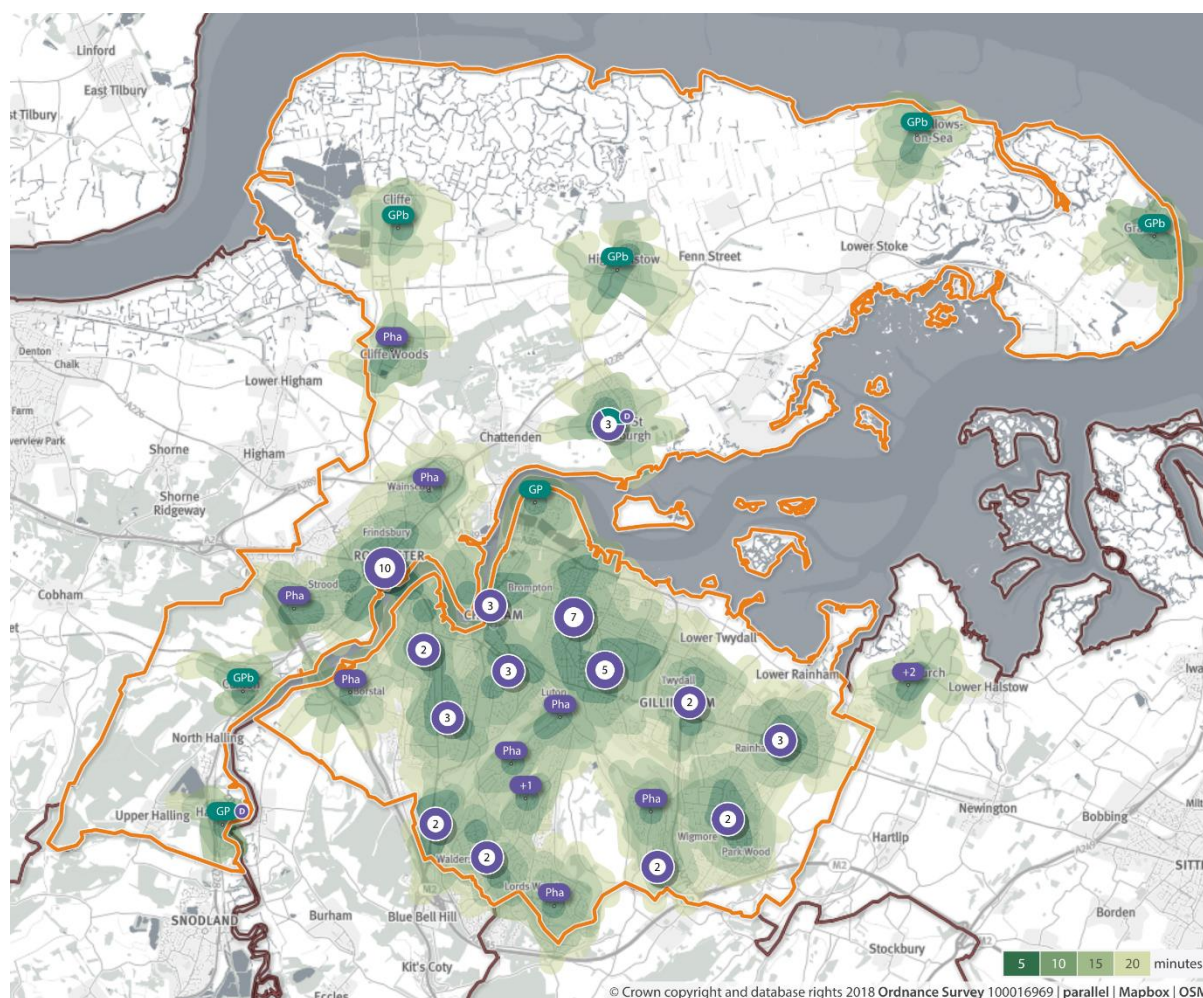
- [Appendix B - Community Pharmacies](#)
- [Appendix C - Dispensing Practices](#)

## Pharmaceutical Needs Assessment 2018: Travel Time Analysis

## Walk

Figure 1 displays the level of access to pharmaceutical services across Medway based on walking time where a speed of 5km/hour (3.1 miles/hour) is assumed.

The dark green areas show Medway residents that live within a 5 minute walk of a pharmaceutical service and the light green areas show Medway residents that live within a 20 minute walk.



**Figure 1:** Medway residents that live within a 5 to 20 minute walk of a pharmaceutical service.

**Source:** Public Health England, [SHAPE place](#). **Date accessed:** 08/02/2018.

Table 2 details the estimated number of Medway residents that live within a 5 to 20 minute walk of a pharmaceutical service. The analysis estimates that 44% of residents live within a 5 minute walk of a pharmaceutical service and 95% live within a 20 minute walk.

**Table 2.** Estimated number of Medway residents that live within a 5 to 20 minute walk of a pharmaceutical service.

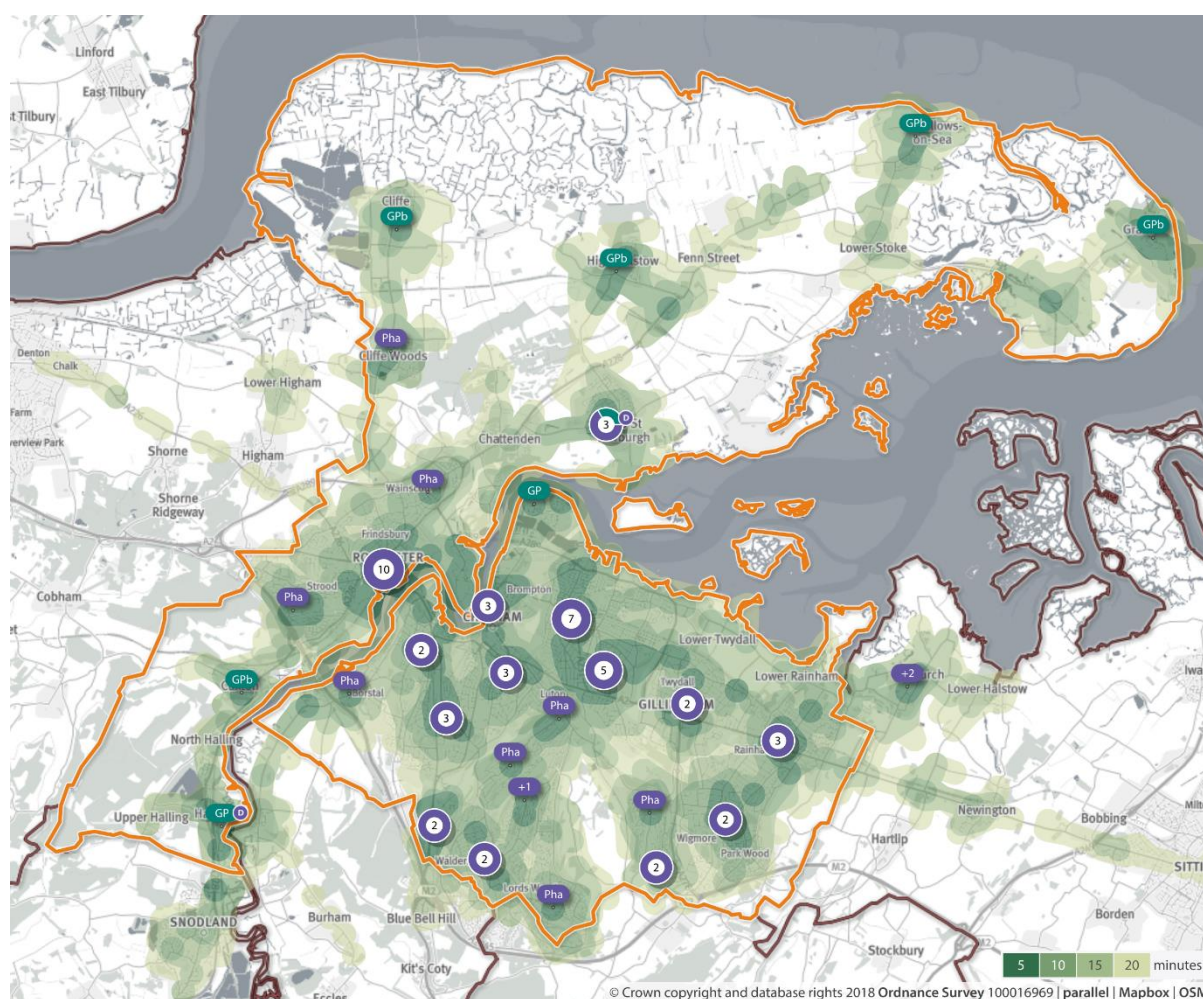
Walk	Travel Time			
	5 minutes	10 minutes	15 minutes	20 minutes
Included population	122,133	198,089	254,124	263,234
Excluded population	154,359	78,403	22,368	13,258
Total population	276,492	276,492	276,492	276,492
Percentage within travel time	44%	72%	92%	95%

## Pharmaceutical Needs Assessment 2018: Travel Time Analysis

## Public transport

Figure 2 displays the level of access to pharmaceutical services across Medway based on travel time by public transport, including bus, tram and rail services. This data is experimental; see notes on page 6 for further details.

The dark green areas show Medway residents that live within a 5 minute journey by public transport of a pharmaceutical service and the light green areas show Medway residents that live within a 20 minute journey by public transport.



**Figure 2:** Medway residents that live within a 5 to 20 minute journey by public transport from a pharmaceutical service. **Source:** Public Health England, [SHAPE place](#). **Date accessed:** 08/02/2018.

Table 3 details the estimated number of Medway residents that live within a 5 to 20 minute journey by public transport of a pharmaceutical service. The analysis estimates that 47% of residents live within a 5 minute journey by public transport of a pharmaceutical service and 100% live within a 20 minute journey by public transport.

**Table 3.** Estimated number of Medway residents that live within a 5 to 20 minute journey by public transport of a pharmaceutical service.

Public transport	Travel Time			
	5 minutes	10 minutes	15 minutes	20 minutes
Included population	131,119	228,268	272,566	276,492
Excluded population	145,373	48,224	3,926	-
Total population	276,492	276,492	276,492	276,492
Percentage within travel time	47%	83%	99%	100%

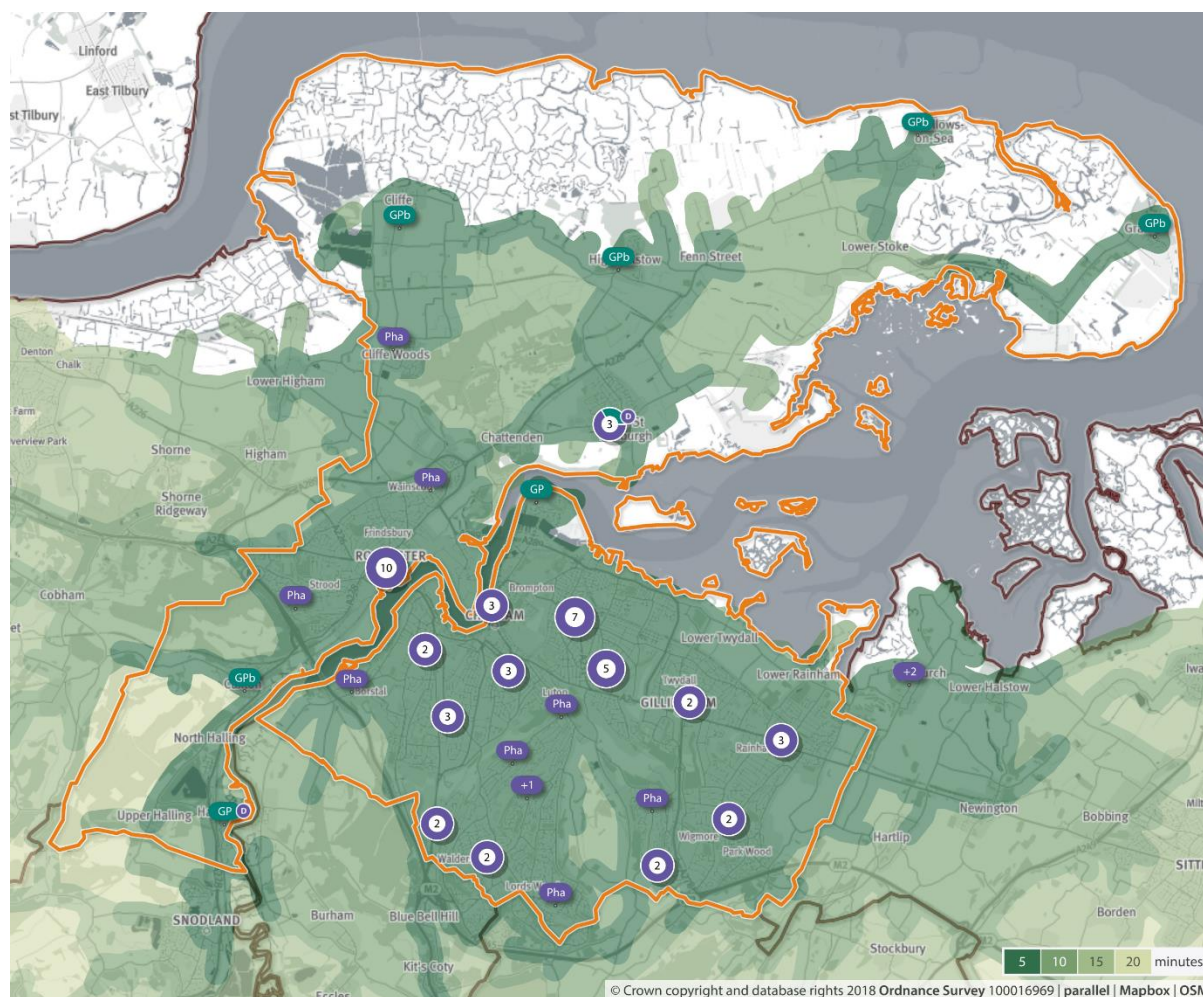


## Pharmaceutical Needs Assessment 2018: Travel Time Analysis

## Car rush hour

Figure 3 displays the level of access to pharmaceutical services across Medway based on driving time during rush hour. This is calculated using normal speed limits and taking into account junctions, crossings and traffic lights, as well as additional congestion data and road density analysis during rush hour.

The dark green areas show Medway residents that live within a 5 minute drive of a pharmaceutical service during rush hour and the light green areas show Medway residents that live within a 20 minute drive during rush hour.



**Figure 3:** Medway residents that live within a 5 to 20 minute drive from a pharmaceutical service during rush hour. **Source:** Public Health England, [SHAPE place](#). **Date accessed:** 08/02/2018.

Table 4 details the estimated number of Medway residents that live within a 5 to 20 minute drive of a pharmaceutical service during rush hour. The analysis estimates that 99% of residents live within a 5 minute drive of a pharmaceutical service during rush hour and 100% live within a 20 minute drive during rush hour.

**Table 4.** Estimated number of Medway residents that live within a 5 to 20 minute drive of a pharmaceutical service during rush hour.

Car rush hour	Travel Time			
	5 minutes	10 minutes	15 minutes	20 minutes
Included population	273,621	276,492	276,492	276,492
Excluded population	2,871	-	-	-

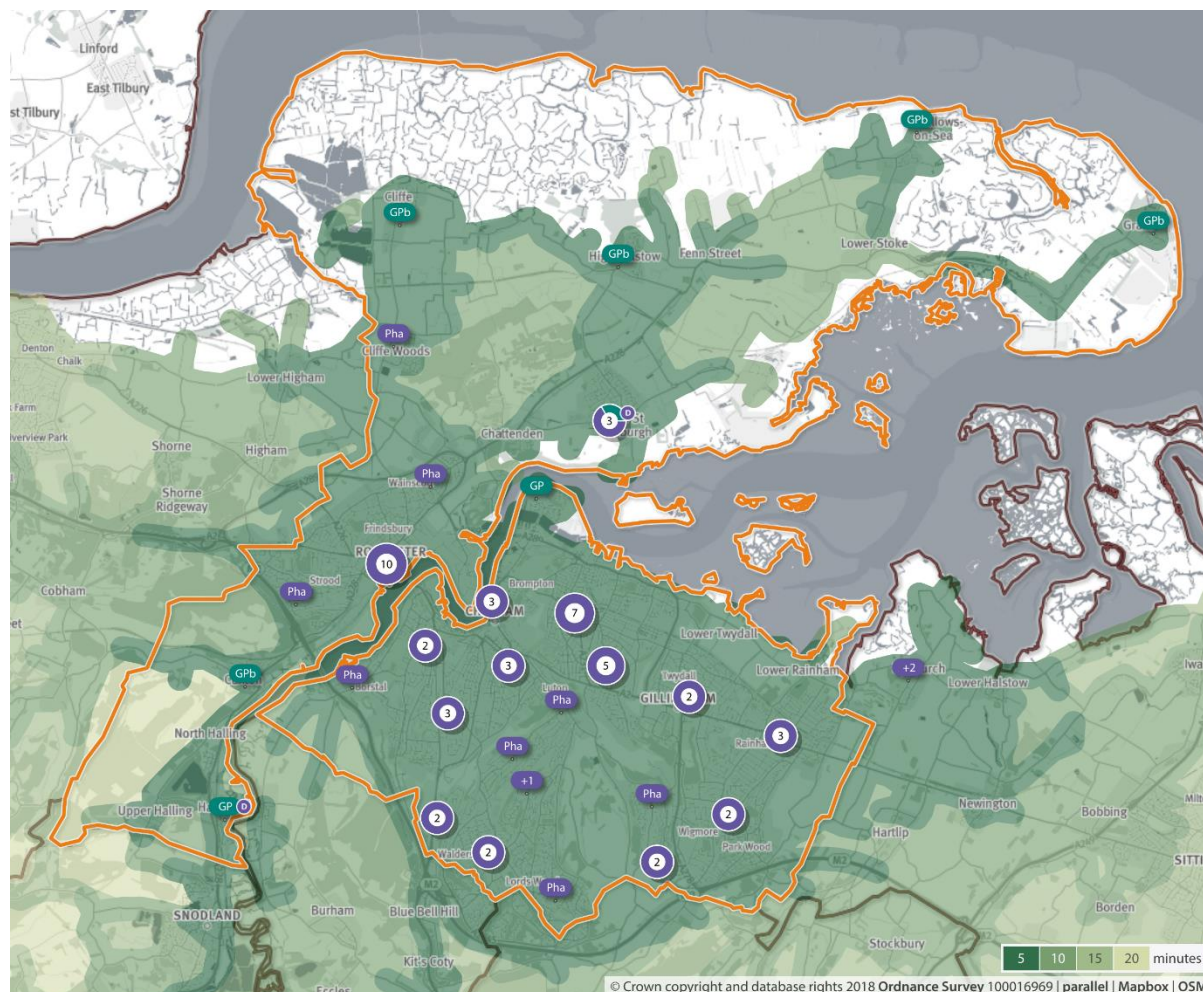
## Pharmaceutical Needs Assessment 2018: Travel Time Analysis

Total population	276,492	276,492	276,492	276,492
Percentage within travel time	99%	100%	100%	100%

## Car off peak

Figure 4 displays the level of access to pharmaceutical services across Medway based on driving time during off peak hours. This is calculated using normal speed limits and taking into account junctions, crossings and traffic lights.

The dark green areas show Medway residents that live within a 5 minute drive of a pharmaceutical service during off peak hours and the light green areas show Medway residents that live within a 20 minute drive during off peak hours.



**Figure 4:** Medway residents that live within a 5 to 20 minute drive from a pharmaceutical service during off peak hours. **Source:** Public Health England, [SHAPE place](#). **Date accessed:** 08/02/2018.

Table 5 details the estimated number of Medway residents that live within a 5 to 20 minute drive of a pharmaceutical service during off peak hours. The analysis estimates that 99% of residents live within a 5 minute drive of a pharmaceutical service during off peak hours and 100% live within a 20 minute drive during off peak hours.

**Table 5.** Estimated number of Medway residents that live within a 5 to 20 minute drive of a pharmaceutical service during off peak hours.

Car off peak	Travel Time			
	5 minutes	10 minutes	15 minutes	20 minutes
Included population	273,433	276,492	276,492	276,492
Excluded population	3,059	-	-	-

## Pharmaceutical Needs Assessment 2018: Travel Time Analysis

Total population	276,492	276,492	276,492	276,492
Percentage within travel time	99%	100%	100%	100%

## Methodology

Medway Public Health Intelligence Team used Public Health England's [Strategic Health Asset Planning and Evaluation](#) (SHAPE) tool to complete the travel time analysis. SHAPE is a web-enabled, evidence-based application, which informs and supports the strategic planning of services. The application is built around a mapping tool and supports travel time analyses for existing and possible future sites.

SHAPE uses the [Route360°](#) catchment generation API created by Motion Intelligence to generate access catchments for walk, cycle, car and public transport, for one or many sites and then provides detailed population demographics for any specific catchment area.

The following parameters were selected for the pharmaceutical service travel time analysis:

## Travel Type

**Walk:** Assumes walking speed of 5km/hour (3.1 miles/hour).

**Public transport:** The public transport data from the SHAPE tool is flagged as 'experimental'.

- It includes data from rail, tram and bus services.
- The algorithm for calculating the distances that can be travelled from any point assume that someone can walk from the start location, catch a bus or a train from a known location, get off at another stop and potentially walk again – or even catch another bus or train.
- At the moment the calculation assumes a wide time range so it's not possible to select a specific day or time period.
- One key caveat is that the routing is from the locations, not to them.
- Therefore 'indicative' results are produced of an approximate area coverage.

**Car:** Calculated using the normal speed limits but takes into account junctions, crossings and traffic lights, the rush hour option uses additional congestion data and road density analysis. Validated with similar data on Google Maps.

## Calculations

**Included population:** Estimated number of Medway residents that live within the specified travel time.

- For a specified travel time, the SHAPE tool determines a catchment area.
- Each Lower Super Output Area (LSOA) has a Population Weighted Centroid (PWC).
- If the PWC of an LSOA is inside the specified travel time catchment area, then the SHAPE tool counts the LSOAs entire population in the included population calculation.
- The SHAPE tool determines the LSOA population from ONS Small Area Population Estimates Mid-2015.

**Excluded population:** Estimated number of Medway residents that do not live within the specified travel time.

- If an LSOAs PWC is not inside the specified travel time catchment area, then the SHAPE tool counts the LSOAs entire population in the excluded population calculation.

**Total population:** Estimated total number of Medway residents.



**Pharmaceutical Needs Assessment 2018: Travel Time Analysis**

- The sum of both the included and excluded populations.

**Percentage within travel time:** The estimated percentage of the total Medway residents that live within the specified travel time:

$$\frac{\text{Included population}}{\text{Total population}} * 100$$

**Source**

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Public Health England; [Strategic Health Asset Planning and Evaluation](#) (SHAPE) place

**Date accessed:** 08/02/2018