311 Exploratory Analysis

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Setup

Pathways

```
project_dir <- here::here()
data_city <- params$city
data_name <- paste0(data_city, "_data_census")
```

Parameters

```
write_my_files <- params$write # If you'd like to write out a .shp and .tsv file, use "yes", otherwise
```

Sourcing and Libraries

Checks

Potential duplicates. These are only adressed if it is believed they would present a significant issue in analysis.

```
# Check for apparent duplicates and address if there is a problem
data_calls %>%
    group_by(address, req_dt, updt_dt, topic) %>%
    count(sort = TRUE) %>%
    filter(n > 1) %>%
    knitr::kable()
```

```
## Warning: Factor `address` contains implicit NA, consider using
## `forcats::fct_explicit_na`

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```

| address	req_dt	updt_dt	topic	n
Nob Hill SF San Francisco County	2019-08-10 16:24:52	2019-08-14 08:02:43	noise	3
1705 8TH AVE	2019-03-28 15:47:25	2019-03-29 06:04:12	abandoned bike/vehicle	2
19 PAUL AVE	2019-05-15 20:48:37	2019-05-15 20:48:00	graffiti	2
3252 19th St	2019-10-06 10:20:57	2019-10-06 10:21:01	graffiti	2
3739 BUCHANAN ST	2019-04-06 13:51:41	2019-04-18 20:32:40	waste/cleanup services	2
816 Larkin St, San Francisco	2017-10-30 12:41:54	2017-10-30 12:41:00	graffiti	2
No location specified	2017-09-10 19:30:37	2017-09-11 17:11:45	waste/cleanup services	2

Analysis

Base Benchmark Analysis (Non-Geographic)

**What is the distribution of call by topic?**

topic	n	prop_total
waste/cleanup services	743386	0.461
graffiti	236069	0.146
housing	179631	0.111
blocked passage	110018	0.068
roadway/roadway lighting	92375	0.057
abandoned bike/vehicle	84115	0.052
city infrastructure	52638	0.033
landscaping request/concern	36434	0.023
property damage (public)	34665	0.021
other/miscellaneous	24116	0.015
noise	16462	0.010
city feedback	3680	0.002
information request	52	0.000

Most Frequent Request Topics
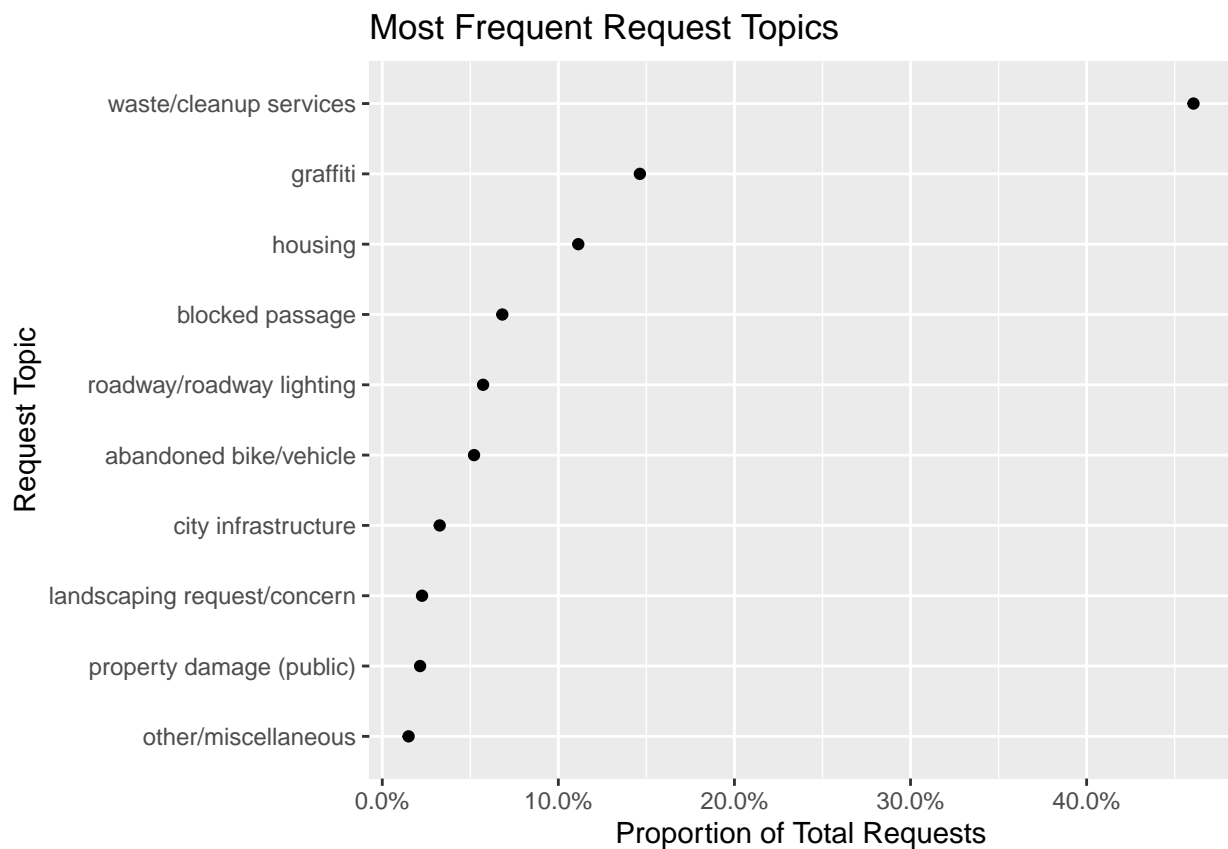
Within each topic, what are the most frequent services requested?

```
## [[1]]
```
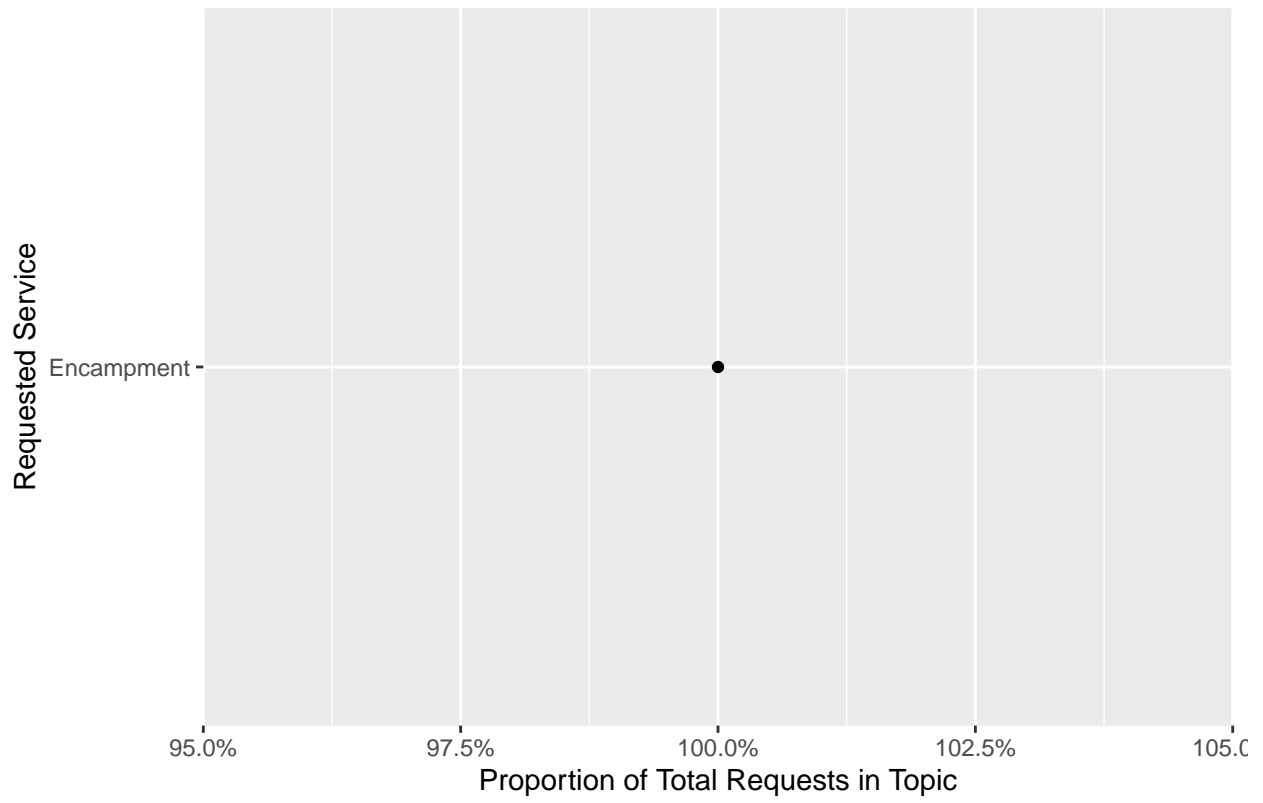
Frequently Requested Services: Waste/Cleanup Services
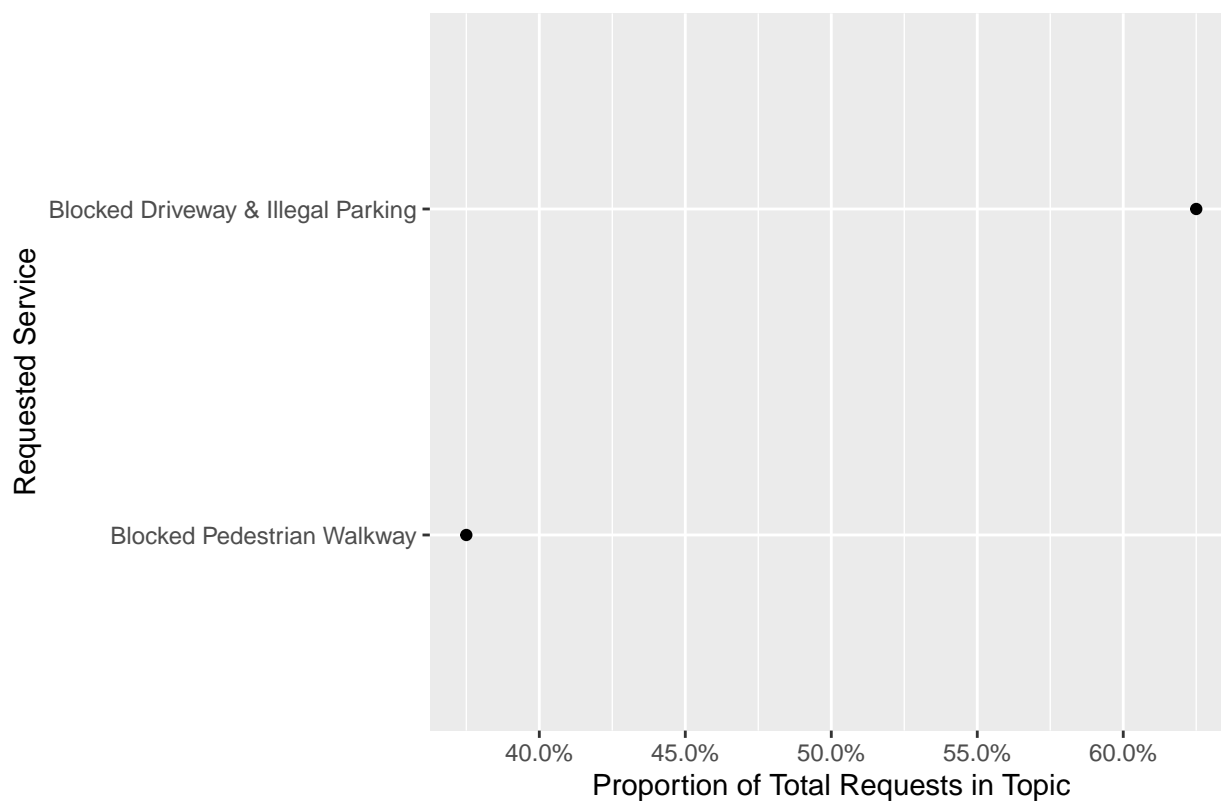


```
##
## [[2]]
```
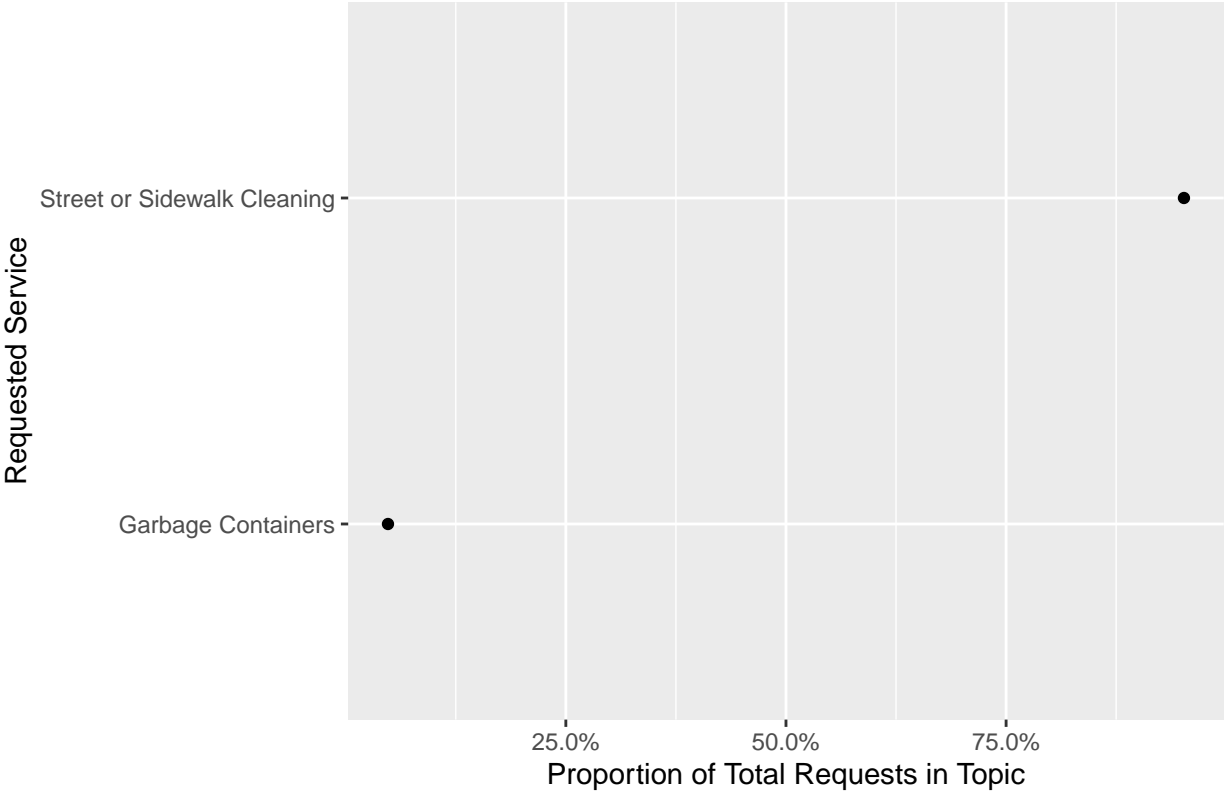
Frequently Requested Services: Graffiti


```
##
## [[3]]
```
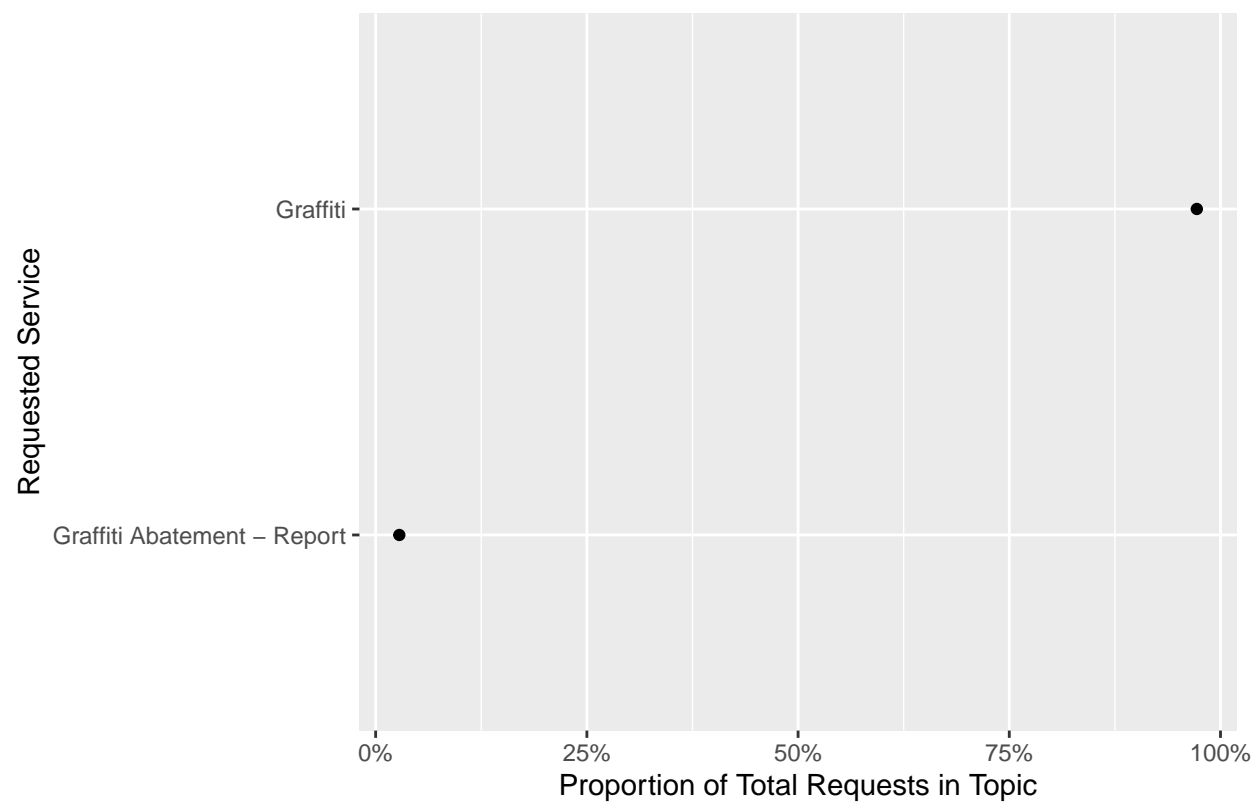
Frequently Requested Services: Housing


```
##
## [[4]]
```

Frequently Requested Services: Blocked Passage

Blocked Driveway & Illegal Parking ●

Requested Service

Blocked Pedestrian Walkway ●

40.0%   45.0%   50.0%   55.0%   60.0%

Proportion of Total Requests in Topic
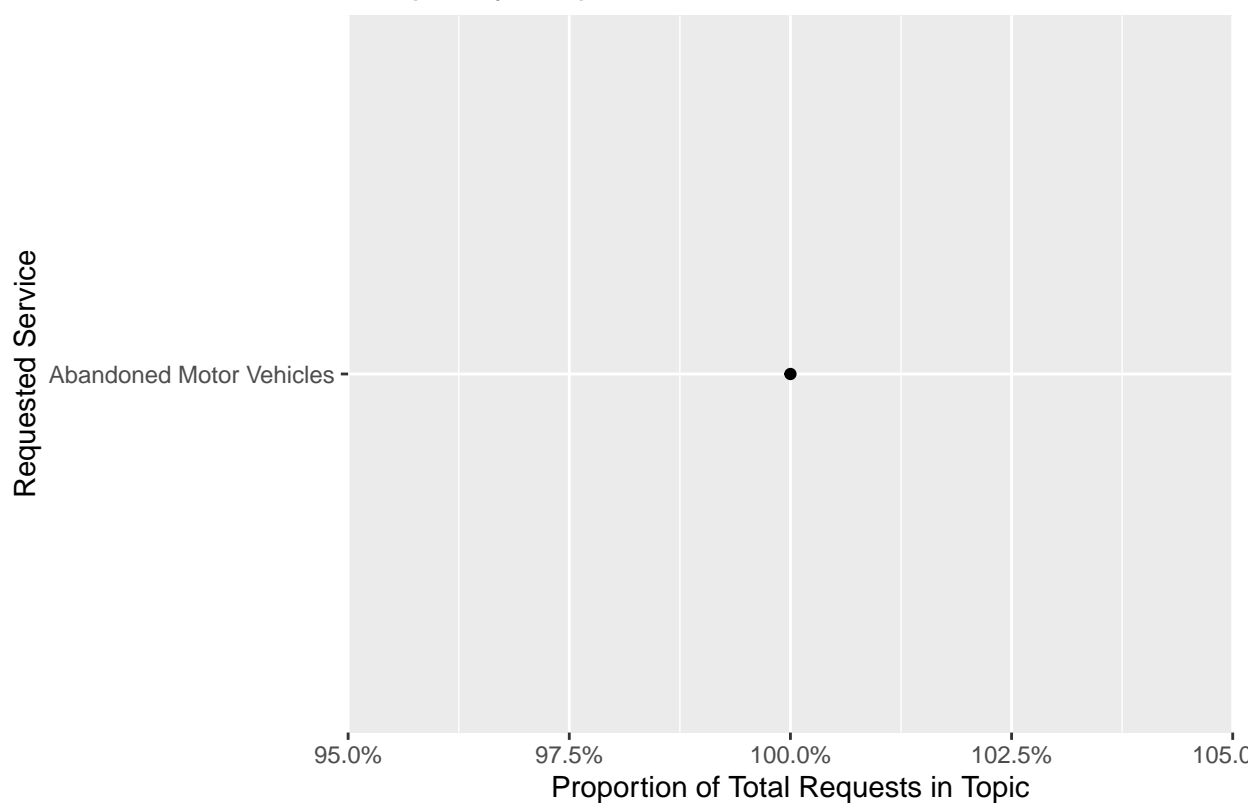
```
##
## [[5]]
```

Frequently Requested Services: Roadway/Roadway Lighting
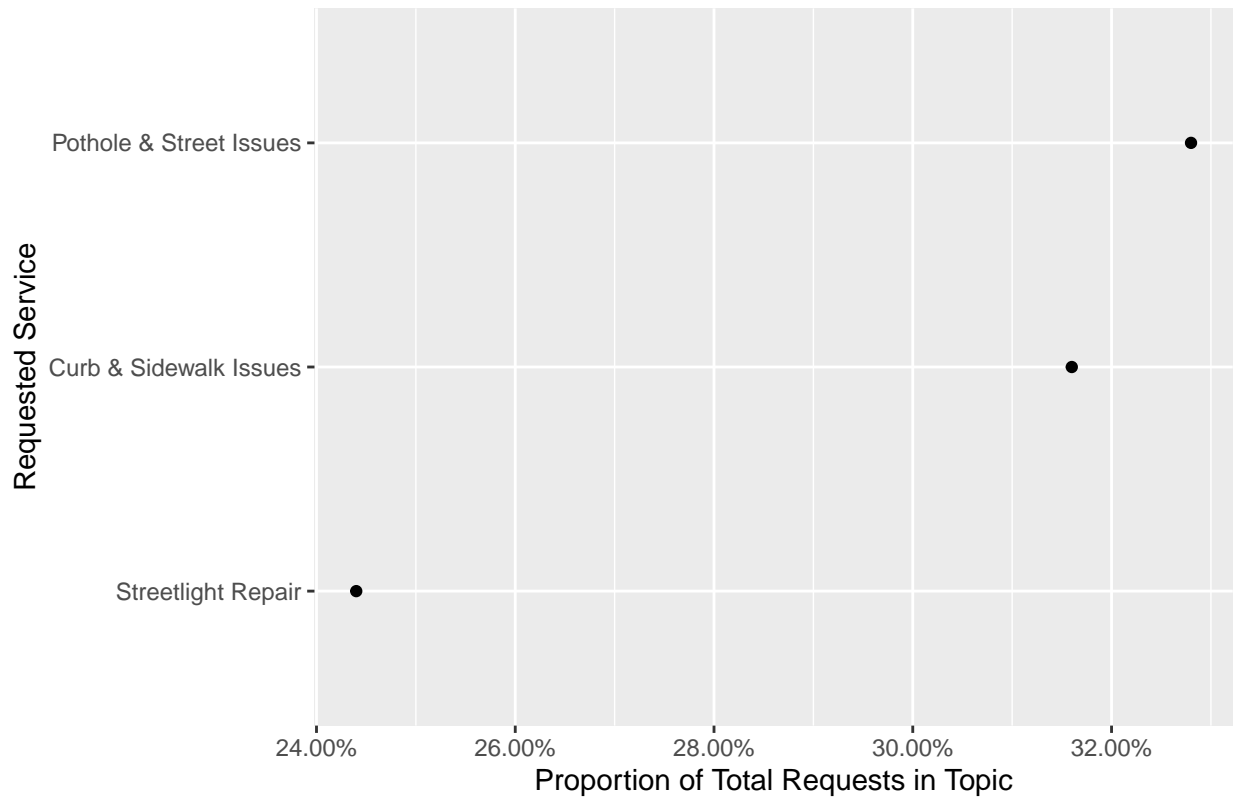

```
##
## [[6]]
```
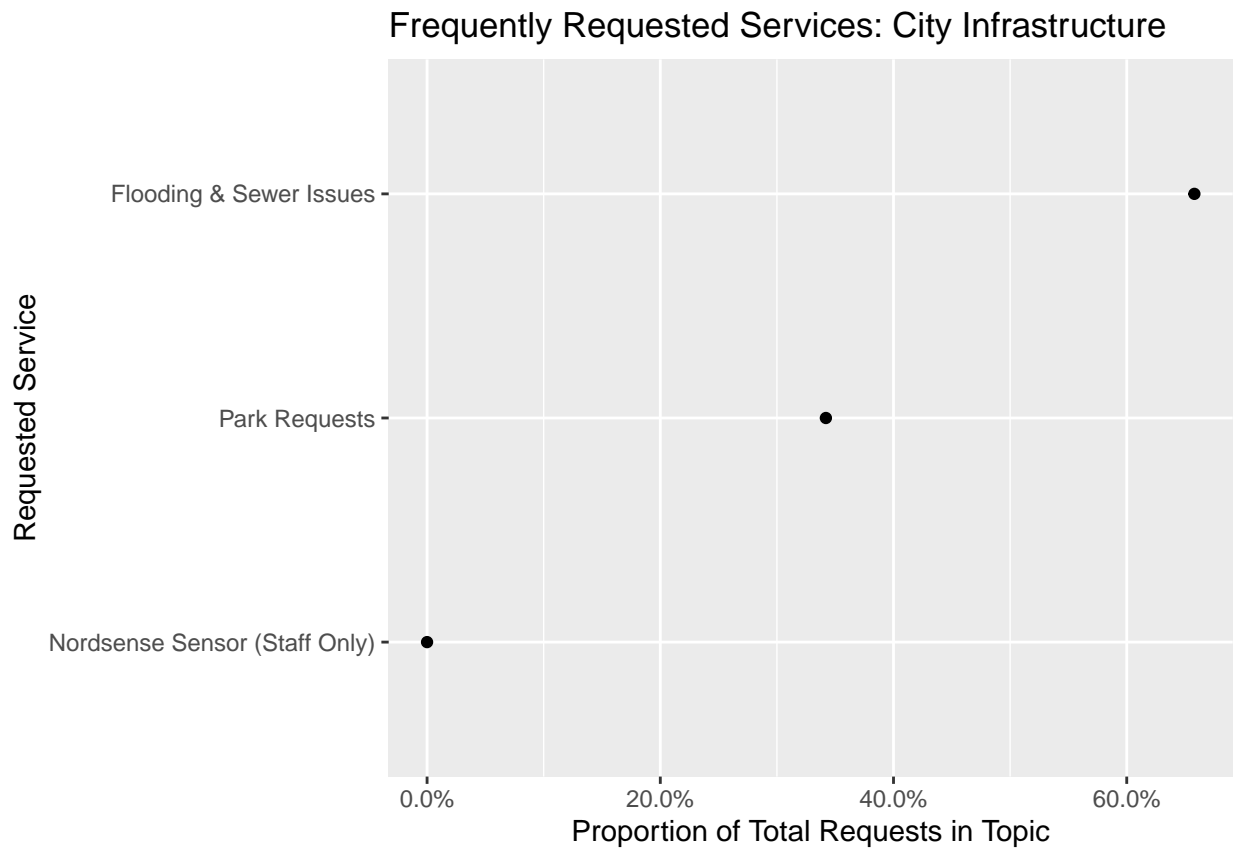
Frequently Requested Services: Abandoned Bike/Vehicle


```
##
## [[7]]
```

Frequently Requested Services: City Infrastructure


```
##
## [[8]]
```

Frequently Requested Services: Landscaping Request/Concern

Tree Maintenance ●

95.0% 97.5% 100.0% 102.5% 105.0

Proportion of Total Requests in Topic

Requested Service

```
## 
## [[9]]
```

Frequently Requested Services: Property Damage (Public)

Requested Service

Damaged Public Property •

95.0%   97.5%   100.0%   102.5%   105.0

Proportion of Total Requests in Topic

```
##
## [[10]]
```

Frequently Requested Services: Other/Miscellaneous

Requested Service (y-axis)

Illegal Postings

Request for City Services

25.0%   50.0%   75.0%

Proportion of Total Requests in Topic

```
##
## [[11]]
```

Frequently Requested Services: Noise

Requested Service

Noise Issue •

95.0%   97.5%   100.0%   102.5%   105.0

Proportion of Total Requests in Topic
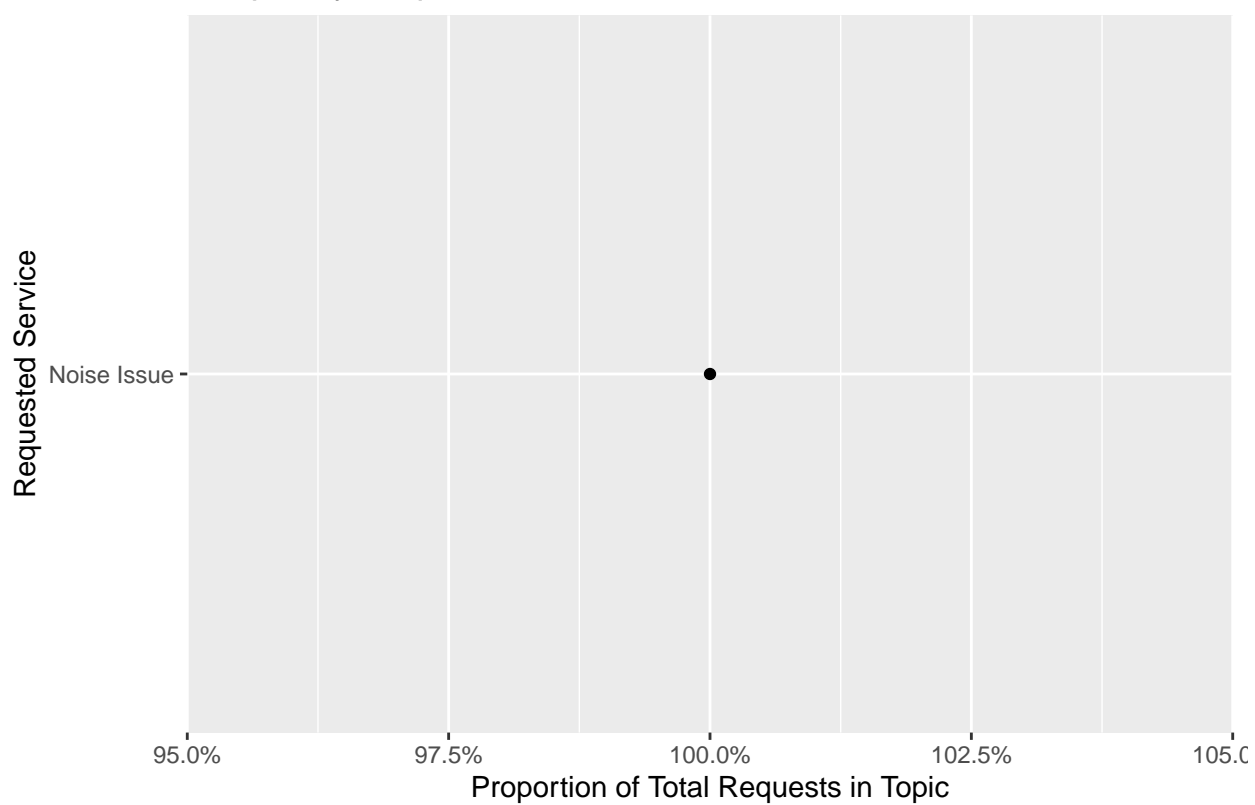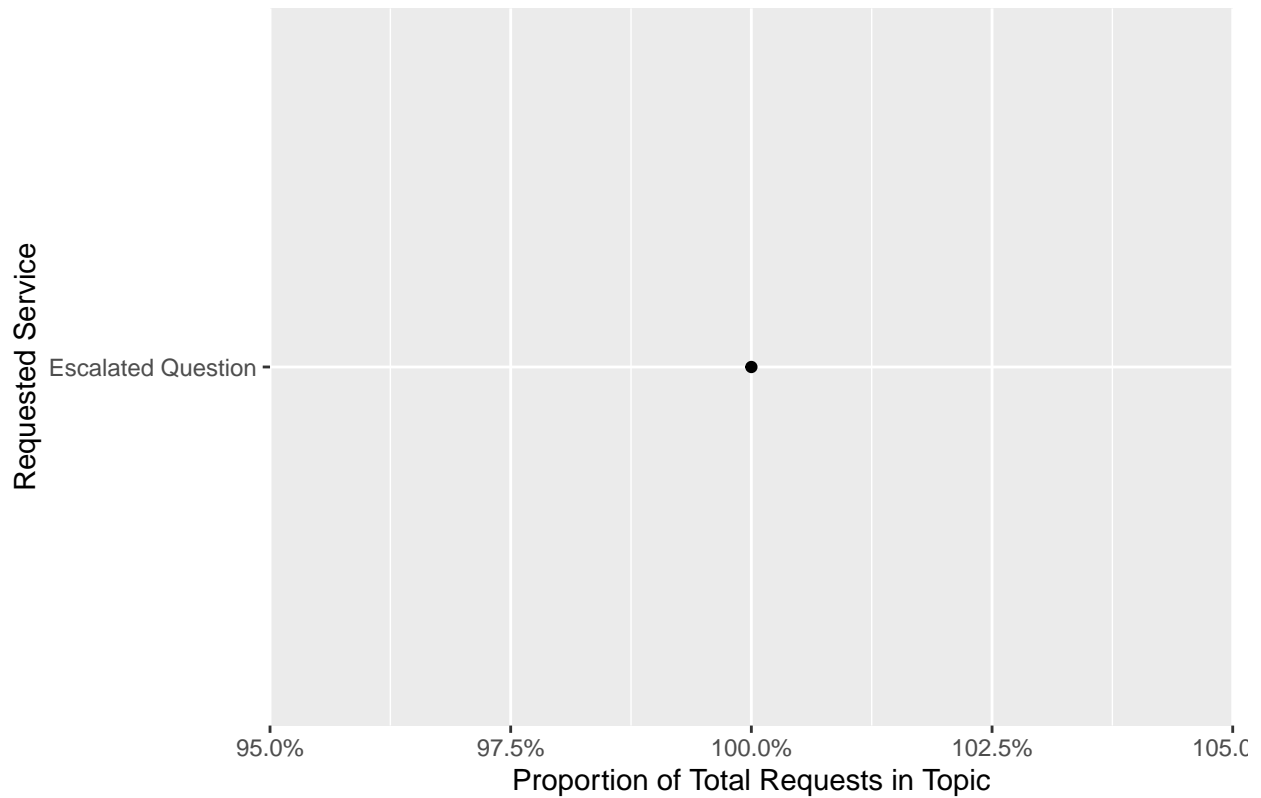
```
##
## [[12]]
```

Frequently Requested Services: City Feedback
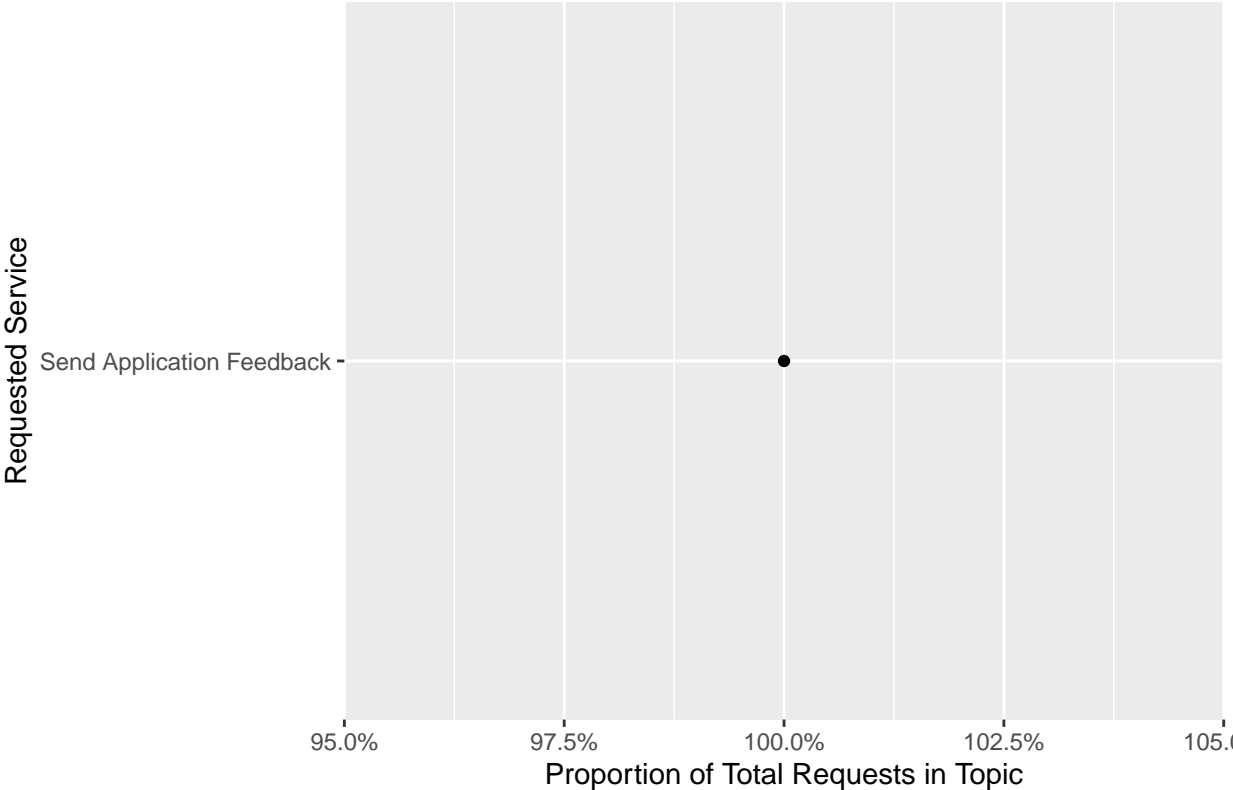

```
##
## [[13]]
```

Frequently Requested Services: Information Request

What is the proportion of requests that may be adversarial by topic?

topic	tot_adversarial	tot_not_adversarial	prop_adversarial	prop_not_adversarial
abandoned bike/vehicle	84115	0	1.0000000	0.0000000
blocked passage	110018	0	1.0000000	0.0000000
graffiti	236069	0	1.0000000	0.0000000
housing	179631	0	1.0000000	0.0000000
noise	16462	0	1.0000000	0.0000000
property damage (public)	34665	0	1.0000000	0.0000000
other/miscellaneous	22878	1238	0.9486648	0.0513352
city feedback	0	3680	0.0000000	1.0000000
city infrastructure	0	52638	0.0000000	1.0000000
landscaping request/concern	0	36434	0.0000000	1.0000000
roadway/roadway lighting	0	92375	0.0000000	1.0000000
waste/cleanup services	0	743386	0.0000000	1.0000000
information request	0	0	NaN	NaN

What is the proportion of requests that may involve illegal acitivity by topic?

topic	tot_illegal	tot_not_illegal	prop_illegal	prop_not_illegal
abandoned bike/vehicle	84115	0	1.0000000	0.0000000
blocked passage	68744	0	1.0000000	0.0000000
graffiti	236069	0	1.0000000	0.0000000
housing	179631	0	1.0000000	0.0000000

topic	tot_illegal	tot_not_illegal	prop_illegal	prop_not_illegal
other/miscellaneous	22878	1238	0.9486648	0.0513352
city feedback	0	3680	0.0000000	1.0000000
city infrastructure	0	52638	0.0000000	1.0000000
information request	0	52	0.0000000	1.0000000
landscaping request/concern	0	36434	0.0000000	1.0000000
roadway/roadway lighting	0	92375	0.0000000	1.0000000
waste/cleanup services	0	743386	0.0000000	1.0000000
noise	0	0	NaN	NaN
property damage (public)	0	0	NaN	NaN

What is the average time needed to close a request pertaining to something potentially illegal?

```r
# This needs mroe thinking through, as there is bound to be extraneous data here.

# data_calls %>%
#   summary()
#
# data_calls %>%
#   mutate()

data_calls %>%
    filter(status == "closed", fix_min < 300000) %>%
    group_by(illegal) %>%
    summarise(
        avg_minutes_to_close = mean(fix_min, na.rm = TRUE),
        avg_hours_to_close = avg_minutes_to_close / 60,
        avg_days_to_close = avg_hours_to_close / 24
    )
```

```
## # A tibble: 3 x 4
##   illegal avg_minutes_to_close avg_hours_to_close avg_days_to_close
##   <chr>                  <dbl>              <dbl>             <dbl>
## 1 maybe                 13169.               219.              9.15
## 2 no                     9946.               166.              6.91
## 3 yes                   15579.               260.             10.8
```

What is the average time needed to close a request by topic?

Geographic Analysis