

Data Cleaning

```
list.files("data", recursive = TRUE)
```

```
[1] "g24_sov_by_g24_svprec.csv"      "g24-candidates-by-district.csv"
[3] "g24-results-by-district.xlsx"
```

```
library(tidyverse)
```

```
— Attaching core tidyverse packages ————— tidyverse 2.0.0
—
✓ dplyr      1.1.4      ✓ readr      2.1.5
✓ forcats    1.0.0      ✓ stringr    1.5.2
✓ ggplot2    4.0.0      ✓ tibble     3.3.0
✓ lubridate  1.9.4      ✓ tidyr      1.3.1
✓ purrr      1.1.0
— Conflicts ————— tidyverse_conflicts()
—
* dplyr::filter() masks stats::filter()
* dplyr::lag()     masks stats::lag()
i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all
conflicts to become errors
```

```
library(readr)
library(sf)
```

Linking to GEOS 3.13.0, GDAL 3.8.5, PROJ 9.5.1; sf_use_s2() is TRUE

```
# -----
# load data
# -----
votes_file <- "data/g24_sov_by_g24_svprec.csv"
df <- read_csv(votes_file)
```

Rows: 51123 Columns: 76
— Column specification

Delimiter: ","

```
chr (49): FIPS, SVPREC, SVPREC_KEY, ELECTION, GEO_TYPE, ASSAIP01,
ASSDEM01, ...
dbl (27): COUNTY, ADDIST, CDDIST, SDDIST, BEDIST, TOTREG, DEMREG, REPREG,
AI...
```

i Use `spec()` to retrieve the full column specification for this data.
i Specify the column types or set `show_col_types = FALSE` to quiet this message.

```
# clean column names
clean_names <- function(x) {
  x %>%
    str_to_lower() %>%
    str_replace_all("[^a-z0-9]+", "_") %>%
    str_replace_all("_+", "_") %>%
    str_replace("^_|_$", "")
}

colnames(df) <- clean_names(colnames(df))

# detect precinct column automatically
prec_col <- colnames(df)[str_detect(colnames(df), "svprec")][1]

if(is.na(prec_col)) stop("✗ No precinct column found matching pattern
'svprec'.")

# convert vote-related columns to numeric
vote_cols <- df %>% select(contains("votes"), contains("total")) %>% names()

df <- df %>%
  mutate(across(all_of(vote_cols), ~
    suppressWarnings(parse_number(as.character(.)))))

# arrange and save cleaned file
cleaned_df <- df %>%
  arrange(across(all_of(prec_col))) %>%
  relocate(all_of(prec_col), .before = everything())

write_csv(cleaned_df, "cleaned_g24_precinct_votes.csv")

cat("✓ Cleaned precinct vote file saved as: cleaned_g24_precinct_votes.csv\n")
```

✓ Cleaned precinct vote file saved as: cleaned_g24_precinct_votes.csv

```
# -----
# spatial processing setup (safe mode)
# -----

# we do NOT have shapefiles yet, so this is a placeholder
cat("△ Spatial step skipped: required shapefiles not found in /data folder.
\n")
```

```
△ Spatial step skipped: required shapefiles not found in /data folder.
```

```
list(
  file_cleaned = "cleaned_g24_precinct_votes.csv",
  precinct_column_detected = prec_col,
  vote_columns = vote_cols
)
```

```
$file_cleaned
[1] "cleaned_g24_precinct_votes.csv"

$precinct_column_detected
[1] "svprec"

$vote_columns
character(0)
```