



# Optimizing Residential Routes for Efficiency

*changing trash days for chaos!*

# Santa Fe Fleet Optimization

## OVERVIEW

The City of Santa Fe and Rubicon embarked on a Fleet Optimization project to optimize the recurring residential trash and recycling routes, serving about 34,000 service locations.

## TIMING

The fleet optimization project took seven months to complete, and the newly optimized route structure was implemented on August 16, 2022.



# Establishing Goals



## RUBICON

### Fleet Optimization Considerations

Goals of Optimization Project (check all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Balance routes                          | <input type="checkbox"/> Alter days of service          |
| <input type="checkbox"/> Reduce overtime                         | <input type="checkbox"/> Reduce number of trucks        |
| <input type="checkbox"/> Modernize fleet                         | <input type="checkbox"/> Personnel reduction            |
| <input type="checkbox"/> Elimination of route crossover          | <input type="checkbox"/> Consolidation of service areas |
| <input type="checkbox"/> Annexation                              | <input type="checkbox"/> Take on contracted areas       |
| <input type="checkbox"/> Reduction of mileage: Greenhouse impact |   |

- 1) Ensure list of customers and services are current.
- 2) Evaluate current routes/schedules
  - a) Waste streams: (trash, recycling, yard waste, etc.)
  - b) Number of routes:
  - c) Days of service:
  - d) Open to changing days of service?
- 3) Street network configuration considerations:
  - a) Left Turn / U-turn restrictions
  - b) Any streets with restricted access by truck type to be considered
  - c) Any other street insights
  - d) Average driving speed
  - e) Average driving speed while servicing
  - f) Street side of service (one side or both sides?)
  - g) Alley service
- 14) Shift patterns and workday length (5 days 8 hr. or 4 days 10 hr. shifts)
  - Is overtime an issue?
  - Is route imbalance an issue?
- 15) Driver breaks (morning breaks, lunch, afternoon breaks). Maintain? Change?
- 16) If balance is an issue. What time do the first crews return for the day?
- 17) Is this a union shop?
- 18) Are there union agreements/restrictions that will impact the optimization exercise?
- 19) Average time spent before starting a route (pre-trip truck inspection time, etc.)
- 20) Average time spent at the end of the route (post-trip truck inspection time, etc.)
- 21) Time spent at box yards if applicable
- 22) Average time spent at disposal facility
- 23) Discussion of untouchables. What items are not on the table for consideration? (Personnel, day changes, reduction of service, etc.)
- 24) Other operational constraints to consider?

# Analysis

| 5-Day Optimization |             |        |                   |                      |                   |          |                   |         |                   |                |                   |      |  |
|--------------------|-------------|--------|-------------------|----------------------|-------------------|----------|-------------------|---------|-------------------|----------------|-------------------|------|--|
|                    | Route Count | Stops  |                   | Number of Containers |                   | Mileage  |                   | Tonnage |                   | Disposal Trips |                   | Time |  |
|                    |             | Total  | Average Per Route | Total                | Average Per Route | Total    | Average Per Route | Total   | Average Per Route | Total          | Average Per Route |      |  |
| 1                  | 9           | 6,163  | 684.78            | 6,707                | 745.22            | 589.60   | 65.51             | 123.2   | 13.69             | 20             | 2.2               | <= 8 |  |
| 2                  | 10          | 5,623  | 562.30            | 6,516                | 651.60            | 704.41   | 70.44             | 112.46  | 11.25             | 19             | 1.9               | <= 8 |  |
| 3                  | 10          | 6,347  | 634.70            | 7,093                | 709.30            | 652.82   | 65.28             | 126.94  | 12.69             | 18             | 1.8               | <= 8 |  |
| 4                  | 9           | 6,122  | 680.22            | 6,209                | 689.89            | 507.59   | 56.40             | 122.44  | 13.60             | 20             | 2.2               | <= 8 |  |
| 5                  | 9           | 7,182  | 798.00            | 8,494                | 943.78            | 542.08   | 60.23             | 143.64  | 15.96             | 21             | 2.3               | <= 8 |  |
| Grand Total        | 47          | 31,437 | 672.00            | 35,019               | 747.96            | 2,996.49 | 63.57             | 628.68  | 13.44             | 98             | 2.10              |      |  |

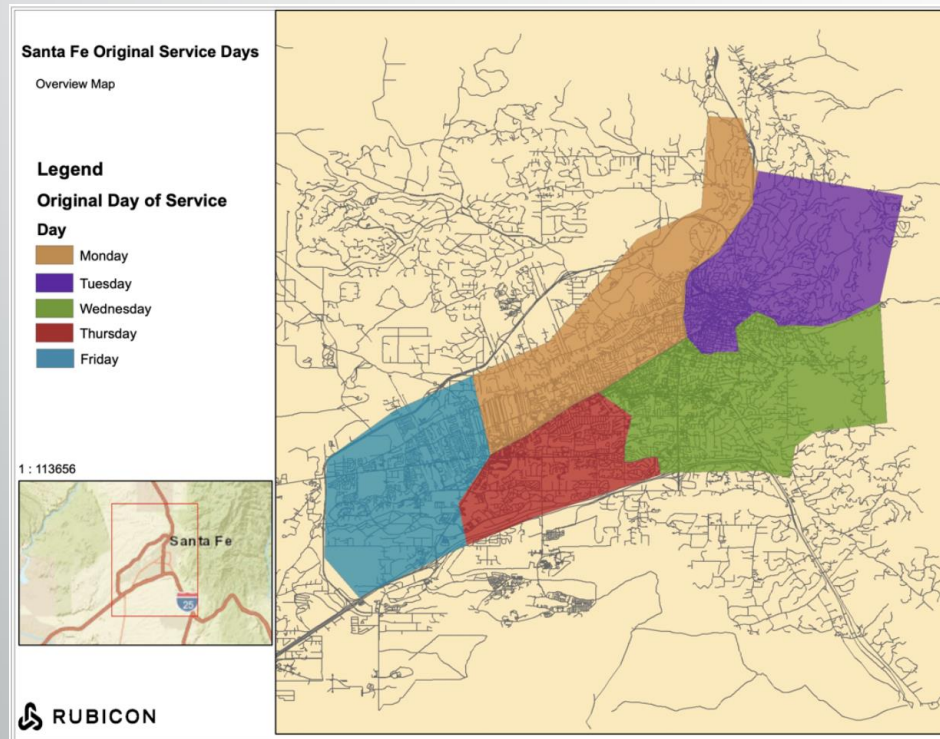
# Analysis

## 4-Day Optimization

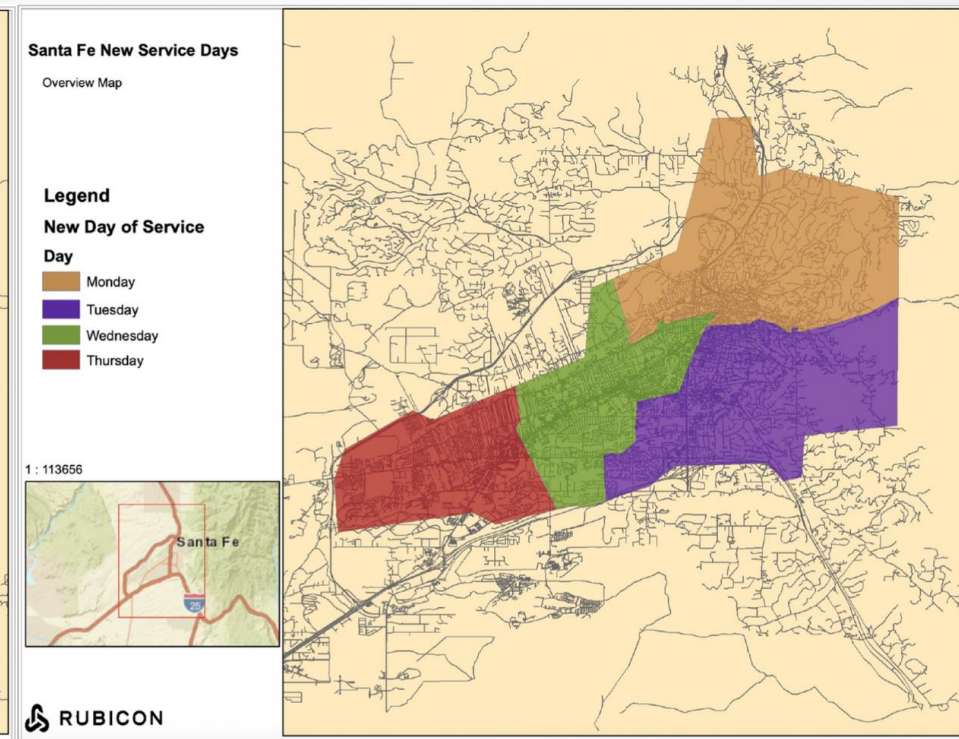
|             | Route Count | Stops  |                   | Number of Containers |                   | Mileage  |                   | Tonnage |                   | Disposal Trips |                   | Time  |
|-------------|-------------|--------|-------------------|----------------------|-------------------|----------|-------------------|---------|-------------------|----------------|-------------------|-------|
|             |             | Total  | Average Per Route | Total                | Average Per Route | Total    | Average Per Route | Total   | Average Per Route | Total          | Average Per Route |       |
| 1           | 10          | 6,234  | 623.40            | 6,832                | 683.20            | 799.47   | 79.95             | 124.32  | 12.43             | 19             | 1.9               | <= 10 |
| 2           | 10          | 7,912  | 791.20            | 9,069                | 906.90            | 730.60   | 73.06             | 158.24  | 15.82             | 24             | 2.4               | <= 10 |
| 3           | 10          | 8,455  | 845.50            | 8,858                | 885.80            | 671.66   | 67.17             | 169.1   | 16.91             | 23             | 2.3               | <= 10 |
| 4           | 10          | 8,836  | 883.60            | 10,260               | 1,026.00          | 656.78   | 65.68             | 176.72  | 17.67             | 26             | 2.6               | <= 10 |
| Grand Total | 40          | 31,437 | 785.93            | 35,019               | 875.48            | 2,858.51 | 71.46             | 628.38  | 15.71             | 92             | 2.3               |       |

# Pre- and Post-Optimization Maps

## Five-Day Collection Map



## Four-Day Collection Map





# Mileage Reductions

| Cumulative Mileage (Trash)      |            |                          |            |                   |
|---------------------------------|------------|--------------------------|------------|-------------------|
| Current Routes Mileage Summary* |            | Optimized Routes Summary |            | Percentage Change |
| Monday                          | 48         | Monday                   | 47         | -2%               |
| Tuesday                         | 53         | Tuesday                  | 44         | -17%              |
| Wednesday                       | 56         | Wednesday                | 32         | -43%              |
| Thursday                        | 47         | Thursday                 | 34         | -18%              |
| Friday                          | 48         | Friday                   | 0          | N/A               |
| <b>Grand Total</b>              | <b>252</b> | <b>Grand Total</b>       | <b>157</b> | <b>-38%</b>       |

5,044 projected miles saved per year, translating to 10.9 metric tons of CO<sub>2</sub>e emissions avoided annually





# City-Led Implementation and Outreach

Successes and Failures



# City-Led Internal Communications

## ESD Collections Staff

- Operations staff surveyed regarding potential move to 4-10 workweek

## Governing Body

- 4-Day schedule required Ordinance Change to collection times from 8:00 A.M. to 7:00 A.M.
- Information regarding the whole project was included in packet

# Public Communications

## Barriers to city-wide information campaign:

- Santa Fe is small city with no specific TV market; no billboards
- During Pandemic era, critically understaffed with no pool of temp workers for door/cart hang tag campaign
- Small customer service staff
- Lost Outreach Coordinator to City Hall



# Most Critical Points for the Public

- Your collection day is probably changing- if your day is Friday, it's definitely changing
- Set out times are changing from 8 A.M. to 7 A.M
- No more collections on City-observed holidays
- Collection days slide forward to the next day after a holiday
- It's just trash. Everything will be ok.



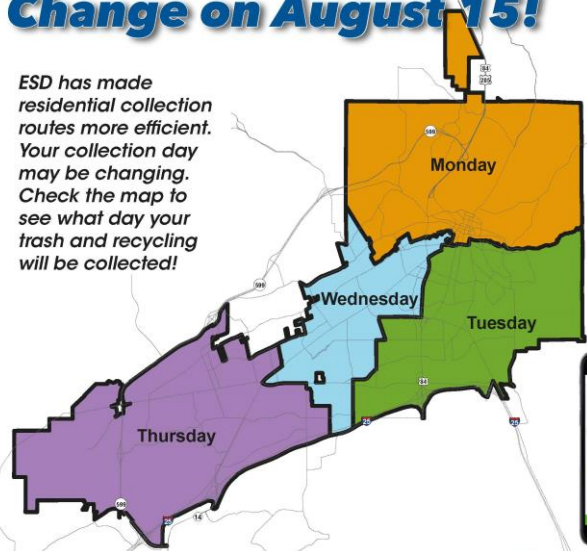
# Methods of Outreach

- City Website, informational emails, digital news, press releases, social media
- Utility Billing Stuffer
- Newspaper- Santa Fe New Mexican, print and on-line; Spadea
- Local Radio-alive and well in Santa Fe! On-air commercials and on-line, and bi-monthly radio show
- Direct mailers to residential addresses
- City and public newsletters, flyers
- Emergency communication texts
- Recycle Coach app- text options
- Residential Services Calendar (2023)



# Trash and Recycling Collection Days Change on August 15!

ESD has made residential collection routes more efficient. Your collection day may be changing. Check the map to see what day your trash and recycling will be collected!



New Schedule (regular):

| MON            | TUES            | WED            | THUR            | FRI            |
|----------------|-----------------|----------------|-----------------|----------------|
| MON Collection | TUES Collection | WED Collection | THUR Collection | FRI Collection |

New Schedule (holidays):

| MON   | TUES           | WED             | THUR           | FRI             |
|---|----------------|-----------------|----------------|-----------------|
| Holiday City Office Closed<br>No Collection | MON Collection | TUES Collection | WED Collection | THUR Collection |

| MON            | TUES            | WED            | THUR  | FRI             |
|----------------|-----------------|----------------|---|-----------------|
| MON Collection | TUES Collection | WED Collection | Holiday City Office Closed<br>No Collection | THUR Collection |

No collections on City-observed holidays.  
Collection slides forward to the next day.



Download the City's FREE APP!

- Find your current collection day
- Update and re-enter your address after August 7 for your new collection day!
- Get Holiday service change alerts
- Set pick-up reminders, including holidays
- Search "What Goes Where" for common items

ENVIRONMENTAL SERVICES DIVISION



Recycling | Trash | Sustainability  
Keep Santa Fe Beautiful  
(505) 955-2200  
esd@santafenm.gov

Have your carts on the curb  
for collection by 7:00 A.M.

Not Sure? Search our interactive map: [www.santafenm.gov/esd](http://www.santafenm.gov/esd)

# Utility Bill Insert

## 2022 HOLIDAY COLLECTION CHANGES



SEPTEMBER 2022

| SUNDAY                               | MONDAY  | TUESDAY             | WEDNESDAY            | THURSDAY                  | FRIDAY                                  | SATURDAY                                       |
|--------------------------------------|---|---------------------|----------------------|---------------------------|---|--|
| CARTS OUT @ 7 AM                     |   |                     |                      |                           |   |  |
| 4<br>Free Tire Day @ BURRT           | 5<br>Labor Day<br>No Collection<br>BURRT Closed | 6<br>MON Collection | 7<br>TUES Collection | 8<br>WED Collection       | 9<br>Santa Fe Fiesta<br>THUR Collection | 10<br>Free Tire Day @ BURRT<br>Santa Fe Fiesta |
| 11<br>Santa Fe Fiesta<br>Patriot Day | 12  | 13                  | 14                   | 15                        | 16                                      | 17   |
| 18                                   | 19  | 20                  | 21                   | 22                        | 23                                      | 24   |
| 25                                   | 26  | 27                  | 28                   | 29<br>First Day of Autumn | 30                                      | 31   |



NOVEMBER 2022

| SUNDAY   | MONDAY | TUESDAY                    | WEDNESDAY | THURSDAY  | FRIDAY   | SATURDAY                            |
|--|--------|----------------------------|-----------|---|--|-------------------------------------|
| recycle coach  |        |                            |           |   |  |                                     |
| 6<br>Free Tire Day @ BURRT<br>Daylight Savings Time Ends | 7      | 8<br>Election Day          | 9         | 10  | 11<br>Recycle Santa Fe Art Festival<br>Veteran's Day | 12<br>Recycle Santa Fe Art Festival |
| 13<br>Recycle Santa Fe Art Festival                      | 14     | 15<br>America Recycles Day | 16        | 17  | 18   | 19                                  |
| 20   | 21     | 22                         | 23        | 24<br>Thanksgiving Day<br>No Collection<br>BURRT Closed | 25<br>THUR Collection                                | 26                                  |
| 27   | 28     | 29                         | 30        | Questions?<br>esd@santafenm.gov<br>(505) 955-2200       |  |                                     |



OCTOBER 2022

| SUNDAY   | MONDAY   | TUESDAY               | WEDNESDAY             | THURSDAY             | FRIDAY                | SATURDAY                             |
|--|--|-----------------------|-----------------------|----------------------|-----------------------|--------------------------------------|
| Don't Miss a Collection Day!<br>Get the City's FREE Recycle Coach App. |  |                       |                       |                      |                       | 1<br>Free Tire & e-Waste Day @ BURRT |
| 2<br>Free Tire Day @ BURRT   | 3  | 4                     | 5                     | 6                    | 7                     | 8                                    |
| 9  | 10<br>Indigenous Peoples' Day<br>No Collection | 11<br>MON Collection  | 12<br>TUES Collection | 13<br>WED Collection | 14<br>THUR Collection | 15                                   |
| 16   | 17   | 18                    | 19                    | 20                   | 21                    | 22                                   |
| 23   | 24   | 25                    | 26                    | 27                   | 28                    | 29                                   |
| 30   | 31<br>Halloween                                | www.santafenm.gov/esd |                       |                      |                       |                                      |



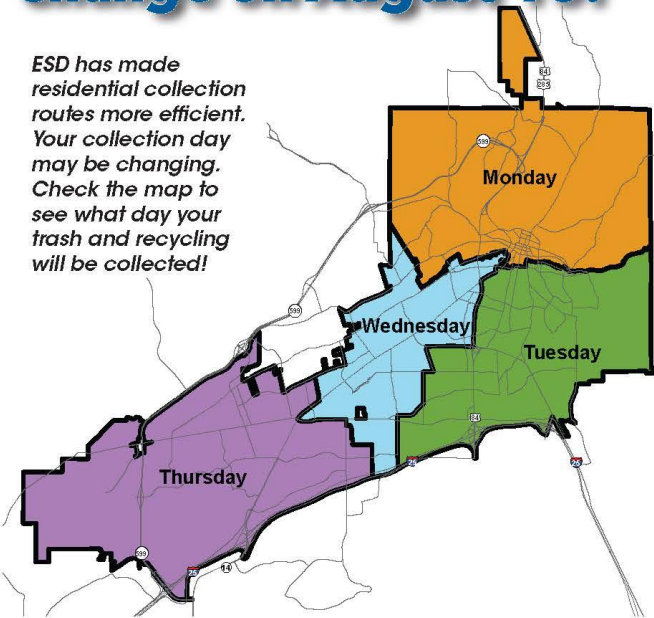
DECEMBER 2022

| SUNDAY                     | MONDAY                   | TUESDAY        | WEDNESDAY                         | THURSDAY       | FRIDAY          | SATURDAY                    |
|----------------------------|--------------------------|----------------|-----------------------------------|----------------|-----------------|-----------------------------|
| CARTS OUT @ 7 AM           |                          |                |                                   |                |                 |                             |
| 4<br>Free Tire Day @ BURRT | 5                        | 6              | 7<br>Pearl Harbor Remembrance Day | 8              | 9               | 10<br>Free Tire Day @ BURRT |
| 11                         | 12                       | 13             | 14                                | 15             | 16              | 17                          |
| 18                         | 19                       | 20             | 21                                | 22             | 23              | 24                          |
| 25                         | 26<br>CHRISTMAS OBSERVED | 27             | 28                                | 29             | 30              | 31<br>New Year's Eve        |
| Christmas<br>BURRT Closed  | No Collection            | MON Collection | TUES Collection                   | WED Collection | THUR Collection |                             |



# Trash and Recycling Collection Days Change on August 15!

ESD has made residential collection routes more efficient. Your collection day may be changing. Check the map to see what day your trash and recycling will be collected!



**Have your carts on the curb for collection by 7:00 A.M.**

Not Sure? Search our interactive map: [www.santafenm.gov/esd](http://www.santafenm.gov/esd)

## ENVIRONMENTAL SERVICES DIVISION



Recycling | Trash | Sustainability  
Keep Santa Fe Beautiful  
1142 Siler Road, Santa Fe, NM  
(505) 955-2200  
[esd@santafenm.gov](mailto:esd@santafenm.gov)  
[santafenm.gov/ESD](http://santafenm.gov/ESD)  
[facebook.com/SantaFeGov](https://facebook.com/SantaFeGov)

# Direct Mailer



## 2022 HOLIDAY COLLECTION CHANGES

| SUNDAY                  | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|-------------------------|--------|---------|-----------|----------|--------|----------|
| <b>CARTS OUT @ 7 AM</b> |        |         |           |          |        |          |
| 1                       | 2      | 3       | 4         | 5        | 6      | 7        |
| 8                       | 9      | 10      | 11        | 12       | 13     | 14       |
| 15                      | 16     | 17      | 18        | 19       | 20     | 21       |
| 22                      | 23     | 24      | 25        | 26       | 27     | 28       |
| 29                      | 30     | 31      |           |          |        |          |

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|--------|--------|---------|-----------|----------|--------|----------|
| 1      | 2      | 3       | 4         | 5        | 6      | 7        |
| 8      | 9      | 10      | 11        | 12       | 13     | 14       |
| 15     | 16     | 17      | 18        | 19       | 20     | 21       |
| 22     | 23     | 24      | 25        | 26       | 27     | 28       |
| 29     | 30     | 31      |           |          |        |          |

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|--------|--------|---------|-----------|----------|--------|----------|
| 1      | 2      | 3       | 4         | 5        | 6      | 7        |
| 8      | 9      | 10      | 11        | 12       | 13     | 14       |
| 15     | 16     | 17      | 18        | 19       | 20     | 21       |
| 22     | 23     | 24      | 25        | 26       | 27     | 28       |
| 29     | 30     | 31      |           |          |        |          |

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|--------|--------|---------|-----------|----------|--------|----------|
| 1      | 2      | 3       | 4         | 5        | 6      | 7        |
| 8      | 9      | 10      | 11        | 12       | 13     | 14       |
| 15     | 16     | 17      | 18        | 19       | 20     | 21       |
| 22     | 23     | 24      | 25        | 26       | 27     | 28       |
| 29     | 30     | 31      |           |          |        |          |

## RECYCLE RIGHT, SANTA FE!



Cans



Paper/Cardboard



Cartons



Plastic

**No collections on  
City-observed holidays.  
Collection slides forward  
to the next day.**



**recycle coach**

**Download the  
City's FREE APP!**

- Find your current collection day
- Update and re-enter your address after August 7 for your new collection day!
- Get Holiday service change alerts
- Set pick-up reminders, including holidays
- Search "What Goes Where" for common items



# TRASH & RECYCLING COLLECTION DAYS CHANGE AUGUST 15TH

ESD has made residential collection routes more efficient. To view your collection day, check the map on the right or visit the interactive version at: [santafenm.gov/esd](http://santafenm.gov/esd)

**recycle coach** GET THE CITY'S FREE APP FOR ALERTS!

SCAN ME

- Find your current collection day
- Update and re-enter your address after August 7 for your new collection day
- Get Holiday service change alerts
- Set pick-up reminders, including holidays
- Search "What Goes Where" for recycling common items

**CANS ON THE CURB BY 7:00AM**

**RECYCLE RIGHT, SANTA FE!**

Plastic, Cardboard & Paper, Cans, Cartons

**Questions?**  
505-955-2200  
ESD@santafenm.gov

**Examples of New Holiday Collection Schedules**

**New Schedule (regular):**

| MON              | TUES            | WED             | THUR             | FRI |
|------------------|-----------------|-----------------|------------------|-----|
| North Collection | Full Collection | West Collection | North Collection |     |

**New Schedule (holidays):**

| MON   | TUES             | WED             | THUR            | FRI              |
|---|------------------|-----------------|-----------------|------------------|
| Holiday: City offices closed<br>No Collection | North Collection | Full Collection | West Collection | North Collection |

**Examples of New Holiday Collection Schedules**

**Examples of New Holiday Collection Schedules**

**Examples of New Holiday Collection Schedules**

Flyer at City Offices

Mall Poster

# Trash & Recycling collection days change on August 15!

Get a closer look with our interactive map [santafenm.gov/esd](http://santafenm.gov/esd)

**Download the free App!**

SCAN ME

- Get your current collection day and UPDATE the app on August 7 for your new day
- Set up collection reminders
- Search "What Goes Where" for common items

**Have your carts on the curb for collection by 7 AM**

**ENVIRONMENTAL SERVICES DIVISION**  
Recycling | Trash | Sustainability  
Keep Santa Fe Beautiful  
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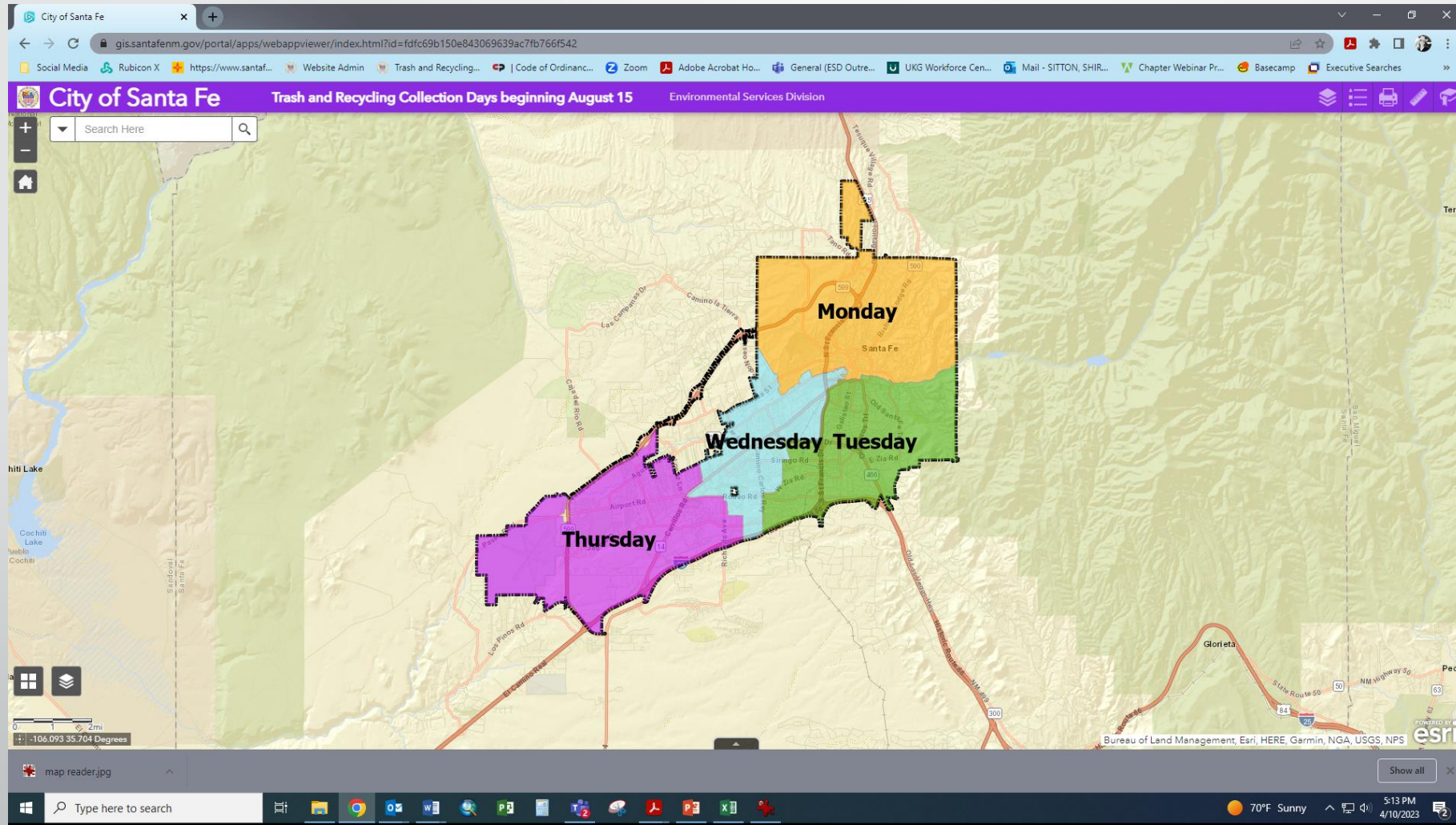


# First Lesson Learned...



PEOPLE. CANNOT. READ. MAPS.

# Interactive Map!

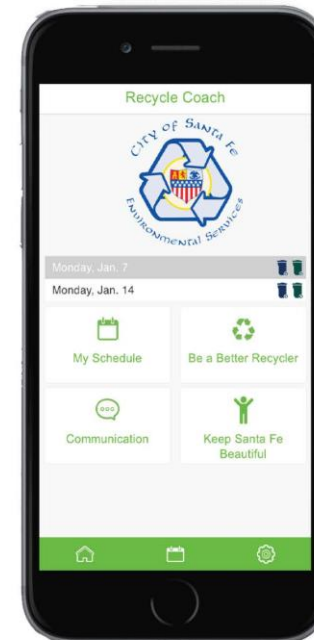


# Smartphone App!



## Want more information?

Download the City of Santa Fe's FREE Recycle Coach app!



- Personalized collection schedule for your area
- Custom pick-up reminders (including holiday notices)
- "What Goes Where" FAQ
- Special Event Notices
- And more!

## Recycle Right, Santa Fe!



# Next Lessons Learned...

A bit of a surprise...

- People Do Not Use Smartphones.
- People Do Not Have Computers.
- People Do Not Like Technology.



# Implementation Public

- Overall, success! After hundreds of calls to our offices. Use your incoming voicemail.
- You must use many different media to reach everyone, when “everyone” is your target audience.
- You won’t reach everyone. Many people just started doing what a neighbor did.
- Really know your population demographics regarding age and household income...do they have technology readily available? How do they get information?



# Implementation-Public

- Work with your customer service team regarding typical issues.
- Regardless of age or income, many people simply do not utilize much tech.
- You won't hear much from the people who are open to change. You will hear from people whose threshold for change is low. Be prepared, be kind.
- After six months of holidays, we did not observe President's day and viola! They all called!

# Additional Results-Internal



58% reduction in  
overtime



37,544 fewer  
commuter miles  
driven annually



Employee morale  
improvements by  
moving to 4-day  
workweek



“

The people who are crazy enough to think they can  
change the world are the ones who do.

-Steve Jobs

”



Shirlene Sitton

Director, City of Santa Fe Environmental Services