



# Solid Waste Management Collection Evaluation

Bismarck City Commission  
September 27, 2016



# Project Purpose

- Identify and analyze options available to the City to:
  - Maximize efficiency
  - Make recommendations for changes to the current residential garbage collection system
- Provide the City with the tools, feasibility costs, and implementation recommendations to successfully meet the needs of the citizens



# Project Approach



## **Baseline of the current residential garbage collection system**

- Review of City-provided data (billing, routes)
- Route observations
- Operational and financial model development



## **Benchmark current policy and practices of similar communities (8)**



## **Identify potential modifications to the system to be considered**

- Route rebalancing and optimization of existing system
- Modifications to current collection practices
  - Change to a 4-day Collection Cycle
  - Volumetric Rate Cart and Bag structure for both curbside and alley customers
  - Residential curbside and alley grass clipping collection



## **Develop estimated budget and operational impacts of modifications to the system**

- Modify operational and financial model to estimate impacts of potential Route rebalancing and optimization of existing system

# Key Recommendations



**Adopt** a volumetric rate structure for residential garbage collection



**Rebalance** garbage collection routes



**Move** to 4-day per week curbside collection schedule



**Provide** seasonal residential yard waste pick-up, and cease operating a majority of the seasonal grass clipping drop sites and provide call-ahead bulk waste collection



**Perform** a detailed evaluation for optimization of dumpster service

# Key Recommendations

## Volumetric Rate Structure Residential Curbside and Alley Garbage Collection

### Recommendations

**Adopt a volumetric rate structure** for residential collection, based on size cart selected and specially marked bags for out-of-cart set-outs

**Allow additional residential garbage set-outs** during Thanksgiving and Christmas without need for specially marked bags

### Benefits

Volumetric rate is more **equitable approach to cost** relative to amount of garbage set out

4-day week for curbside makes **volumetric rate approach more equitable** for former “Friday customers” who will not have to hold two extra days’ worth of garbage until the following Monday



For Excess waste:

- offer **free, non-transferable, disposal voucher** at landfill for City residential property owners on a quarterly basis (with weight limits)
- continue the twice yearly cleanup weeks.

# Key Recommendations

## Residential Curbside Garbage Collection

### Recommendations

**Rebalance** curbside collection routes

**Move to 4-day per week** schedule, rather than five days per week

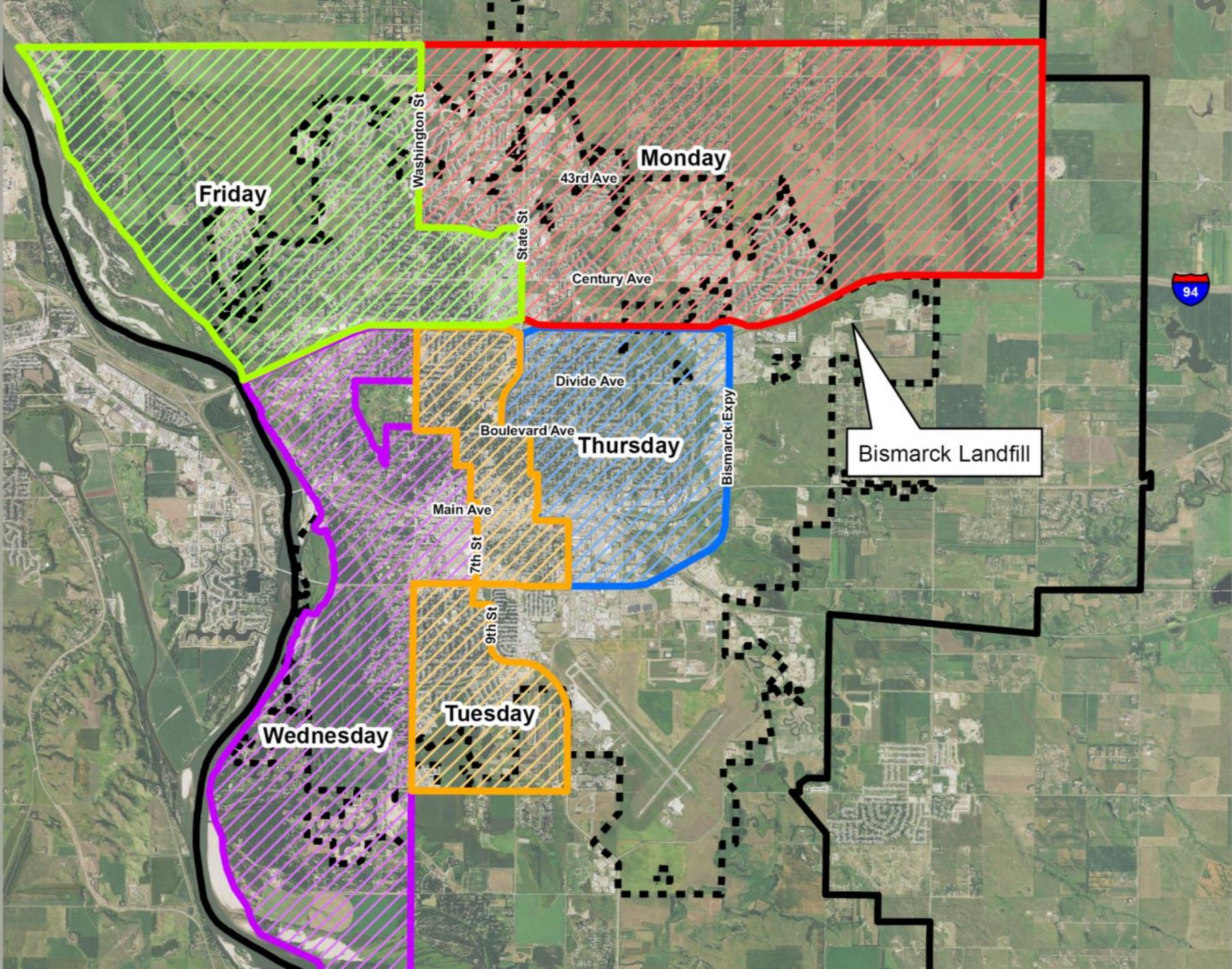
### Benefits

**Efficiencies gained** = system cost savings

**Solves** the Friday carryover of garbage until Monday during holiday weeks

**Eliminates** the need for 13 Roads and Street employees to assist with collecting garbage after holidays (reduces total crew size by one third six times a year)





**Friday**

**Monday**

**Thursday**

**Tuesday**

**Wednesday**

Bismarck Landfill

Washington St

State St

43rd Ave

Century Ave

Divide Ave

Boulevard Ave

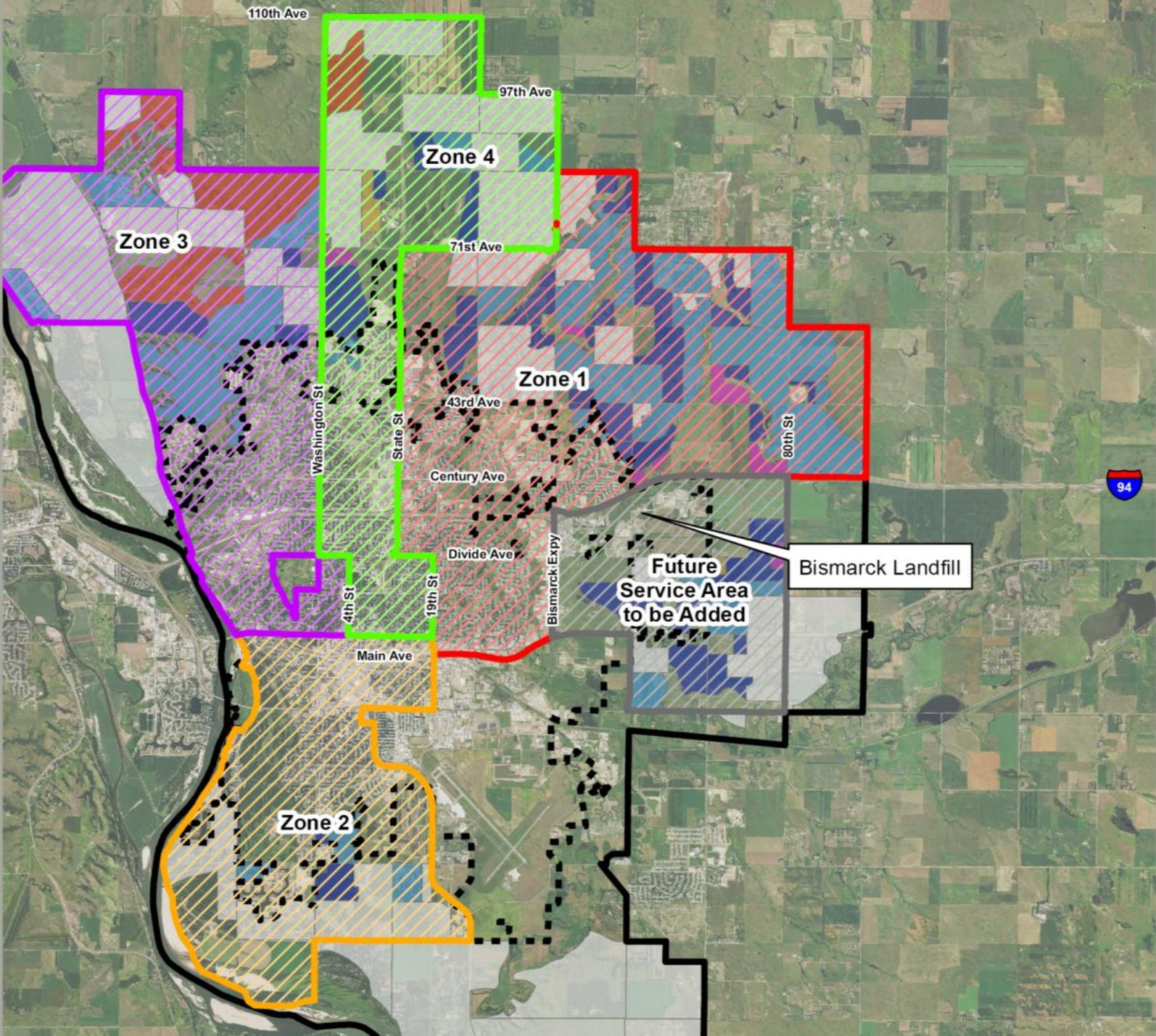
Main Ave

7th St

9th St

Bismarck Expy

94



110th Ave

97th Ave

Zone 4

Zone 3

71st Ave

Zone 1

43rd Ave

Century Ave

80th St

Washington St

State St

Divide Ave

Future Service Area to be Added

Bismarck Landfill

4th St

19th St

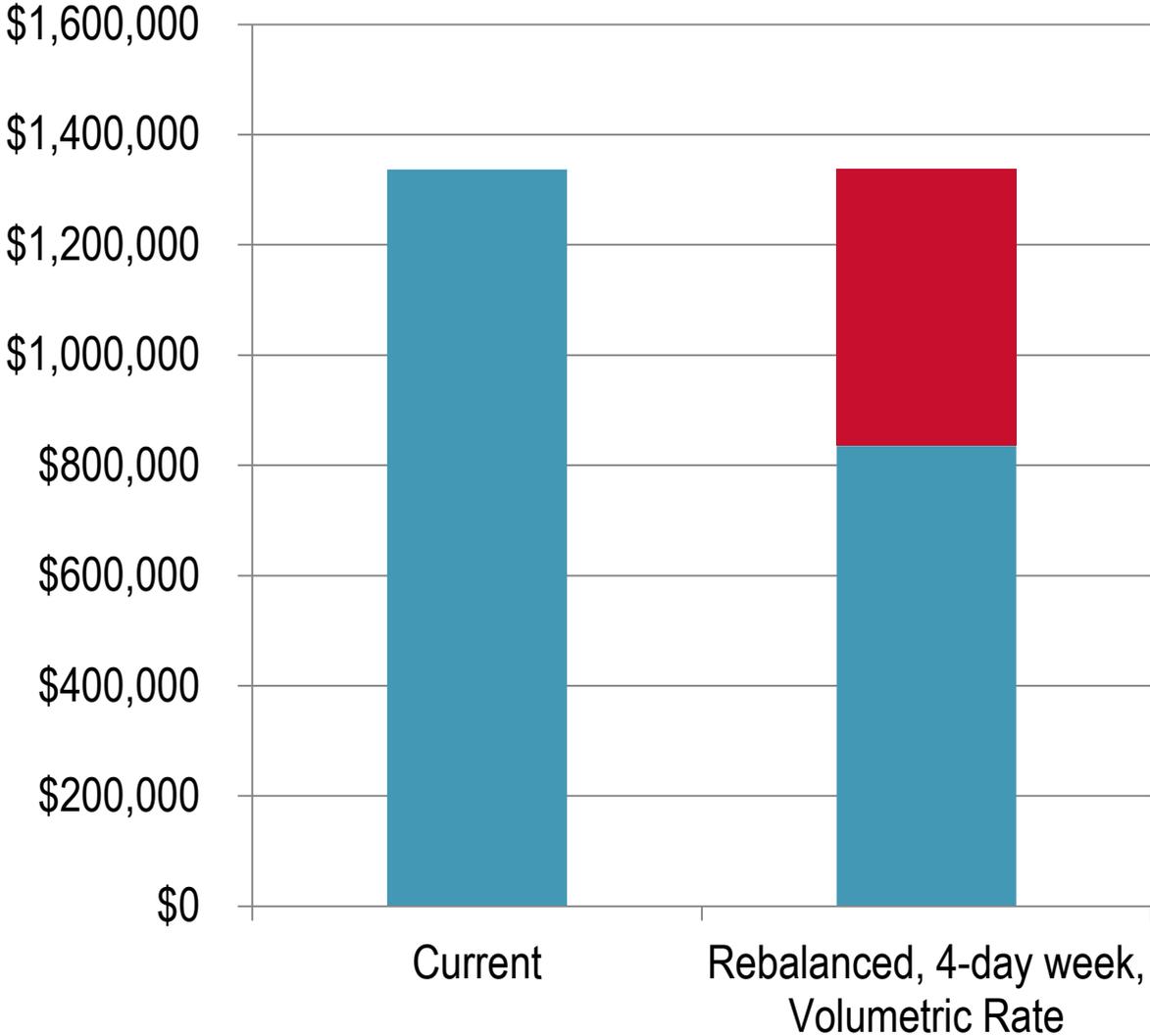
Main Ave

Zone 2



# Residential Curbside Garbage Collection

## *Estimated Total Annual Costs*



Estimated  
**\$502,000** in  
annual savings

- Estimated Annual Cost Savings
- Estimated Annual Cost

# Key Recommendations

## Residential Alley Garbage Collection

### Recommendations

**Rebalance** alley collection routes

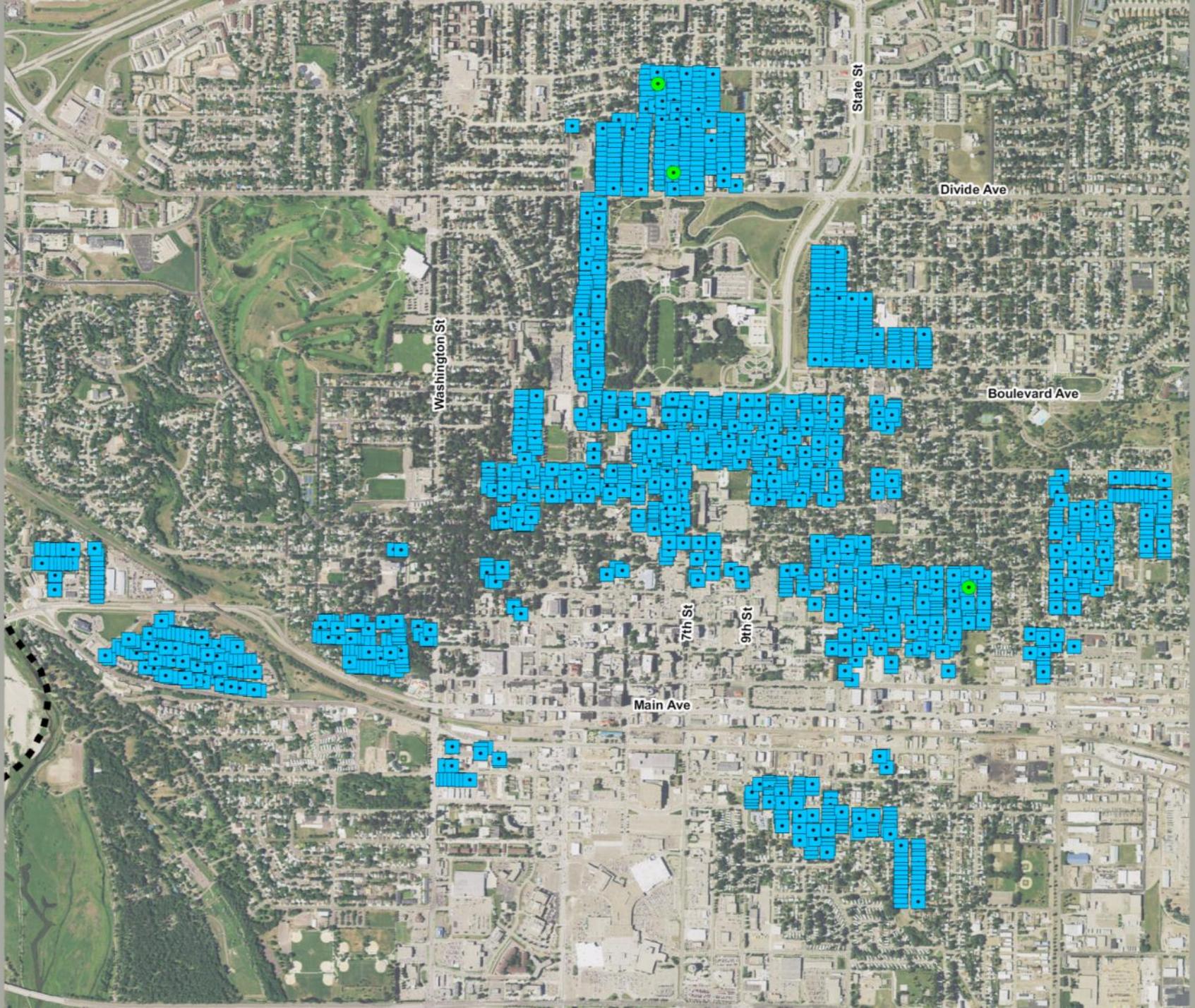
**Perform a feasibility analysis** for alley customers that could be served with fully automated collection service

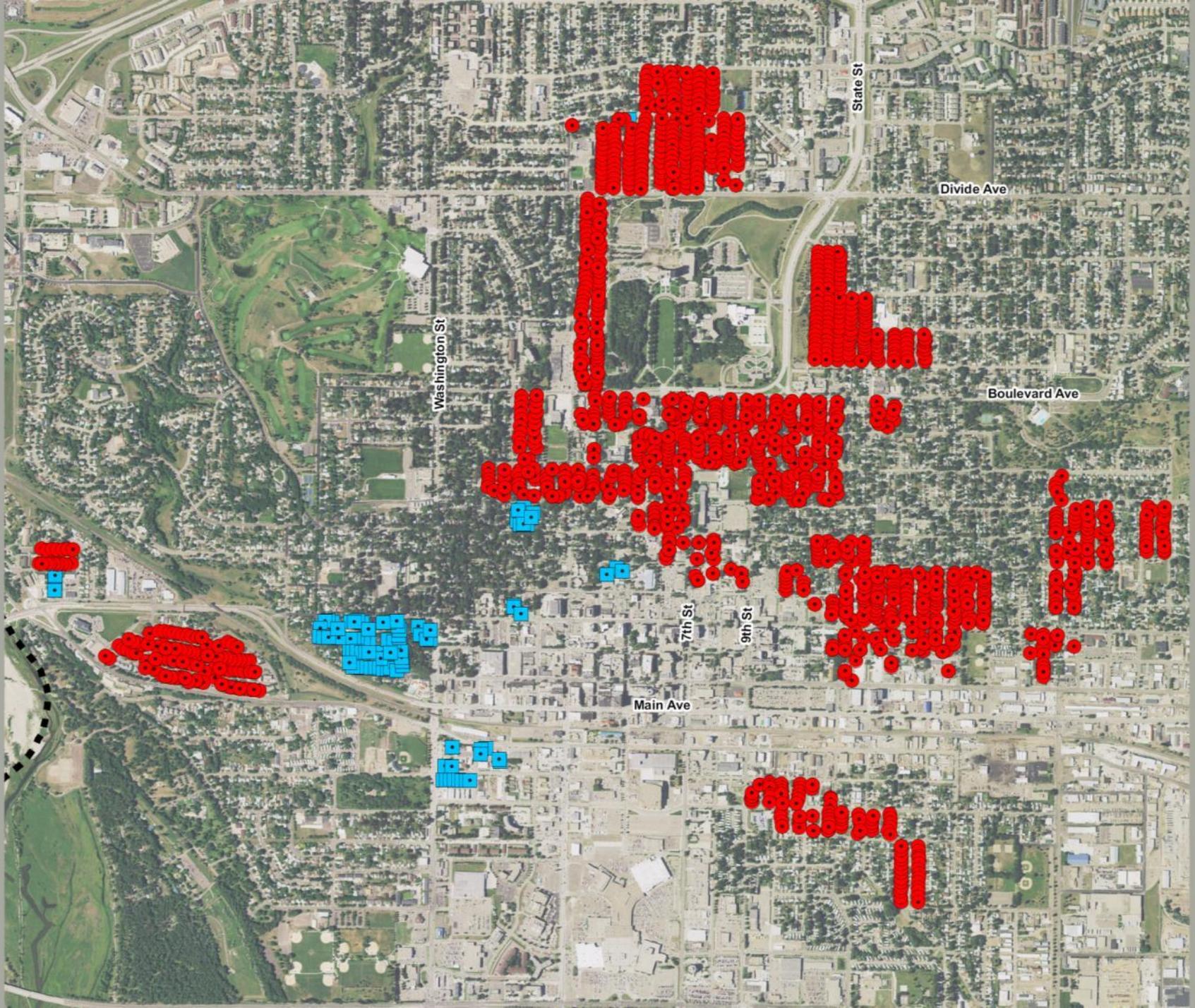
### Benefits

Potential for more system **cost savings**



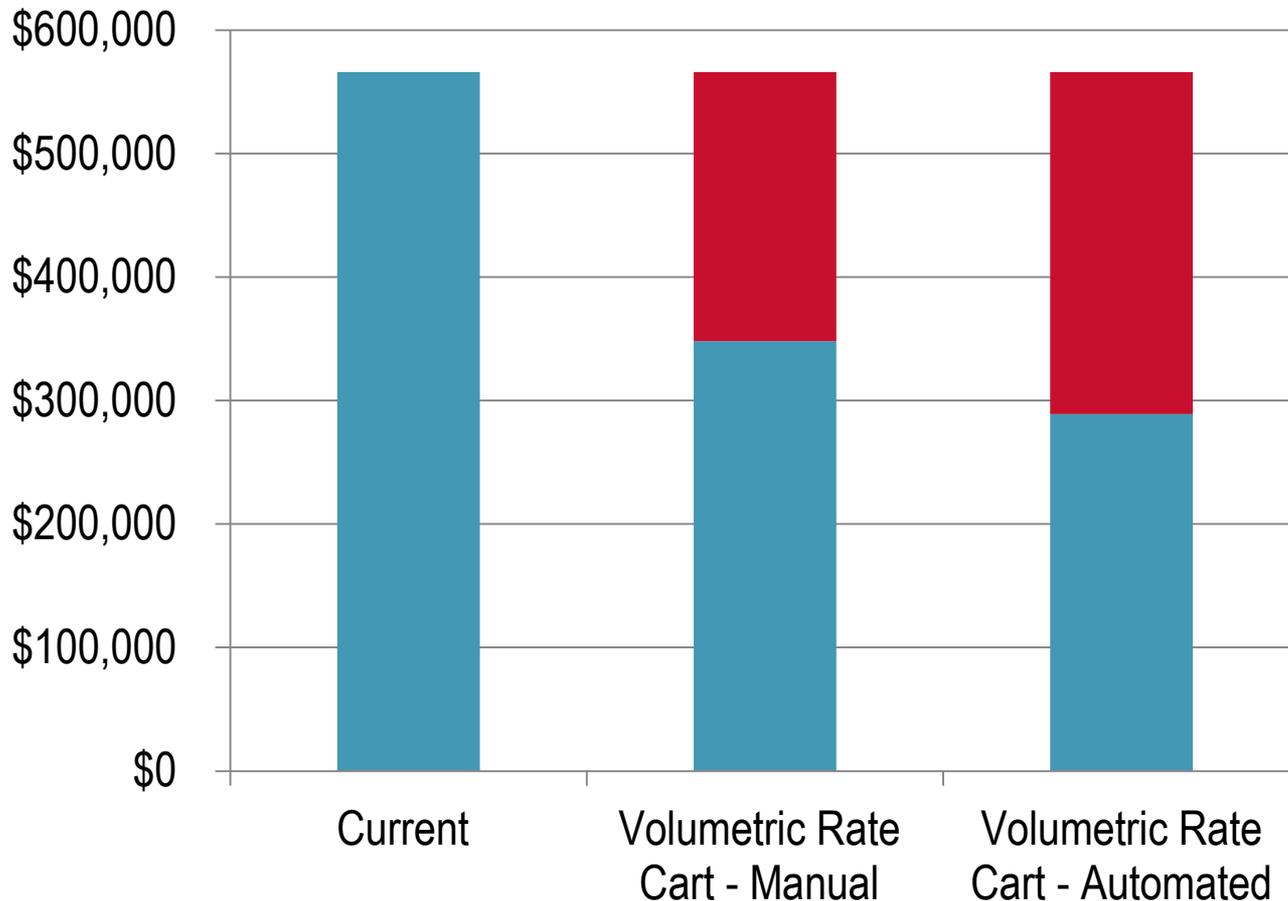
*Initial review of alley pick-up locations using GIS analysis and field visits showed that converting 1,712 of the 1,912 alley customers to an automated collection system appears possible.*





# Key Recommendations

## *Residential Alley Garbage Collection*



Estimated  
**\$277,000** in  
annual savings  
with automated

- Estimated Annual Cost Savings
- Estimated Annual Cost

# Key Recommendations

## Residential Yard Waste Collection

### Recommendations

**Provide** seasonal residential curbside and alley yard waste pick-up (voluntary program)

**Cease operating** the seasonal grass clipping drop sites

### Benefits

**Convenience** for customers

**No additional cost** to the customers

**Potential for net cost savings**



# Key Recommendations

## Residential Bulk Waste Collection

### Recommendations

**Provide** call-ahead bulk waste collection services (fee charged based on amount and type of material)

### Benefits

**Convenience** for customers  
**Reduce amounts** set out for cleanup weeks



# Key Recommendations

## Dumpster Collection

### Recommendations

Perform a detailed evaluation and optimization of dumpster service



### Benefits

Potential efficiencies to be gained



Current collected pounds of dumpster weight per loose cubic yard is well below the expected 150 pounds per cubic yard

- Indicates the potential to scale dumpsters to a smaller size or collect on a less frequent basis

Vehicles were observed to return to the landfill at half capacity

- Indicates potential to rebalance the routes and potentially convert to smaller collection vehicles.

# Key Recommendations



**Adopt** a volumetric rate structure for residential garbage collection



**Rebalance** garbage collection routes



**Move** to 4-day per week curbside collection schedule



**Provide** seasonal residential yard waste pick-up, and cease operating a majority of the seasonal grass clipping drop sites and provide call-ahead bulk waste collection



**Perform** a detailed evaluation for optimization of dumpster service

A circular arrangement of diverse hands reaching towards the center, symbolizing unity and support. The hands are of various skin tones, including light, medium, and dark brown. They are positioned in a ring, with fingers slightly curled as if holding or supporting each other. The background is plain white.

**Questions or  
Comments?**