

Central Arizona Regional Transit



# Route Optimization for Rural Transit Lines

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CART System History



Route Optimization Study



Post-Study Experiences

- What are the main challenges you have in providing rural transit?





# CART History

## What is CART?

- Central Arizona Regional Transit
- Connects Casa Grande, Coolidge, and Florence
- Focused on intercity travel and commuting
- First launched in 2010

## Reasons for creation

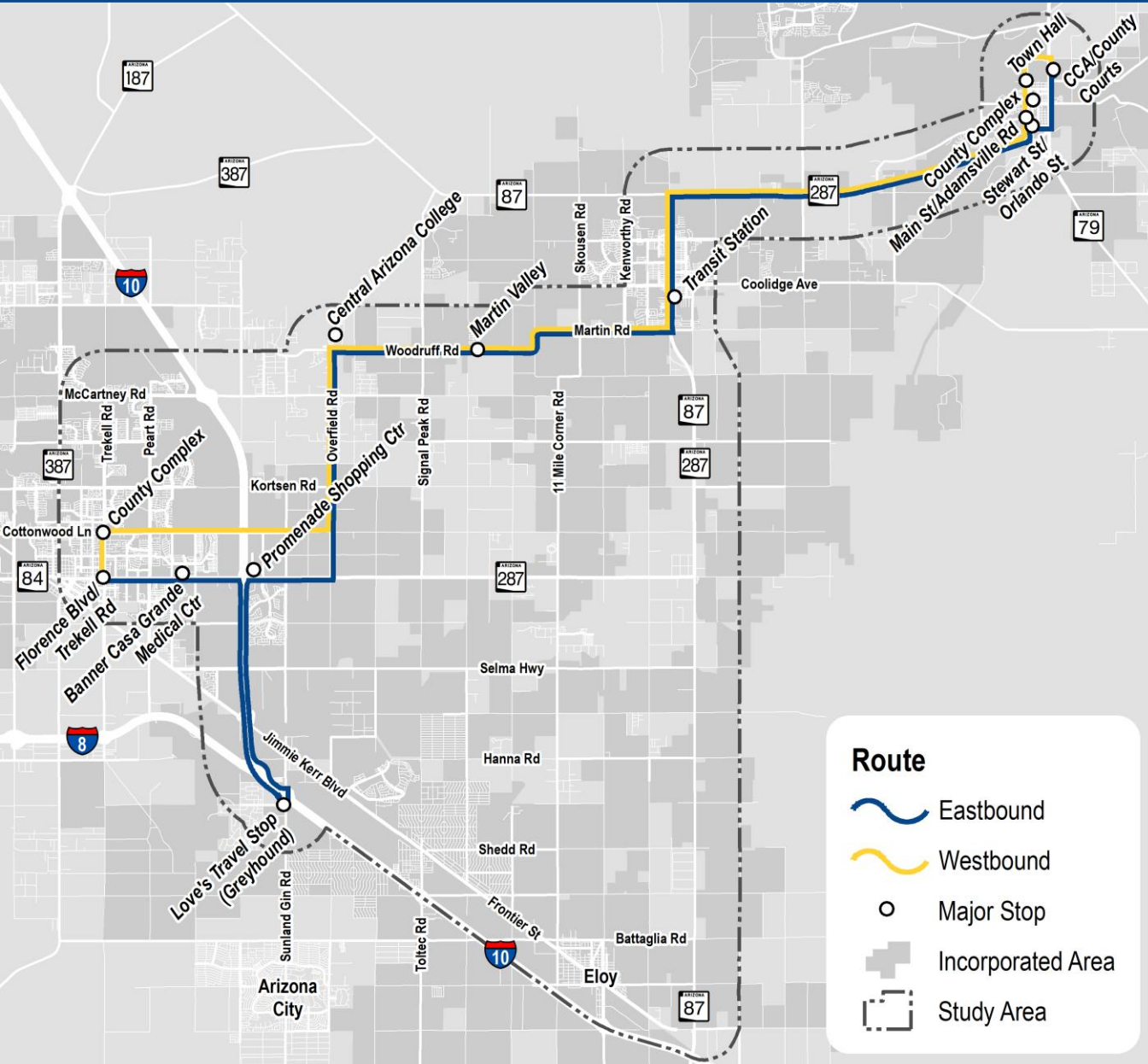
- Travel between Pinal County government centers
- Lack of transportation options for critical services (medical, social services, education, employment)

## Major initial users

- Pinal County employees
- Florence prison employees
- Central Arizona College (CAC) students and employees

## Greyhound

- Greyhound stop was in central Casa Grande when CART launched
- Stop moved several times, current stop in northwest Eloy
- Greyhound was providing over \$70k in in-kind funding



## Pre-Study CART Service

- 2.5-hour loop
- Five standard runs per day
- AM and PM commuter route (no Greyhound deviation)
- Hours of operation: 5:00am to 8:30pm





## Annual Ridership



## Need for Route Optimization Study

- Declining ridership
- Increasing operating costs
- More competition for FTA 5311 funds
- Lack of awareness of service
- Need for more partnerships



# Route Optimization Study

## Partnership with Sun Corridor MPO

- Need for regional cooperation
- Funding availability

## Study Goals



**Evaluate the current system**, including current routing, ridership, transit need, and how CART compares to similar systems.



**Identify constraints** of CART's staff, vehicle inventory, and funding to recommend improvements to the efficiency of the CART route.



**Evaluate the existing organizational structure** of the City of Coolidge Transit staff and associated administrative activities to potentially reduce time or cost of administration of the CART system.



**Design marketing materials** meant to aid the City of Coolidge in increasing awareness and ultimately ridership of the CART system.

# Major Study Elements

**Review of Existing  
Conditions**

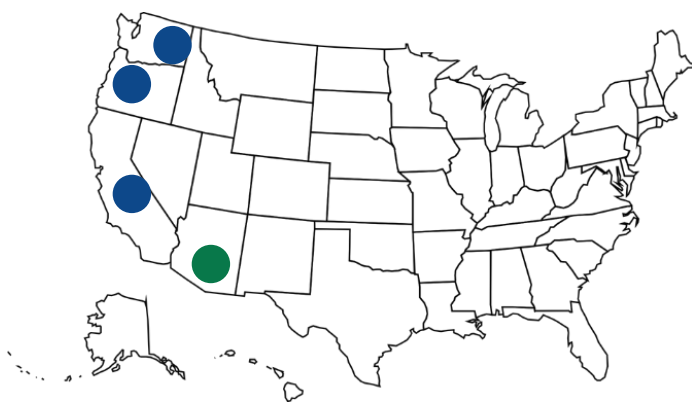
**Alternatives  
Analysis**

**Recommendations  
Development**

**Implementation  
Plan**

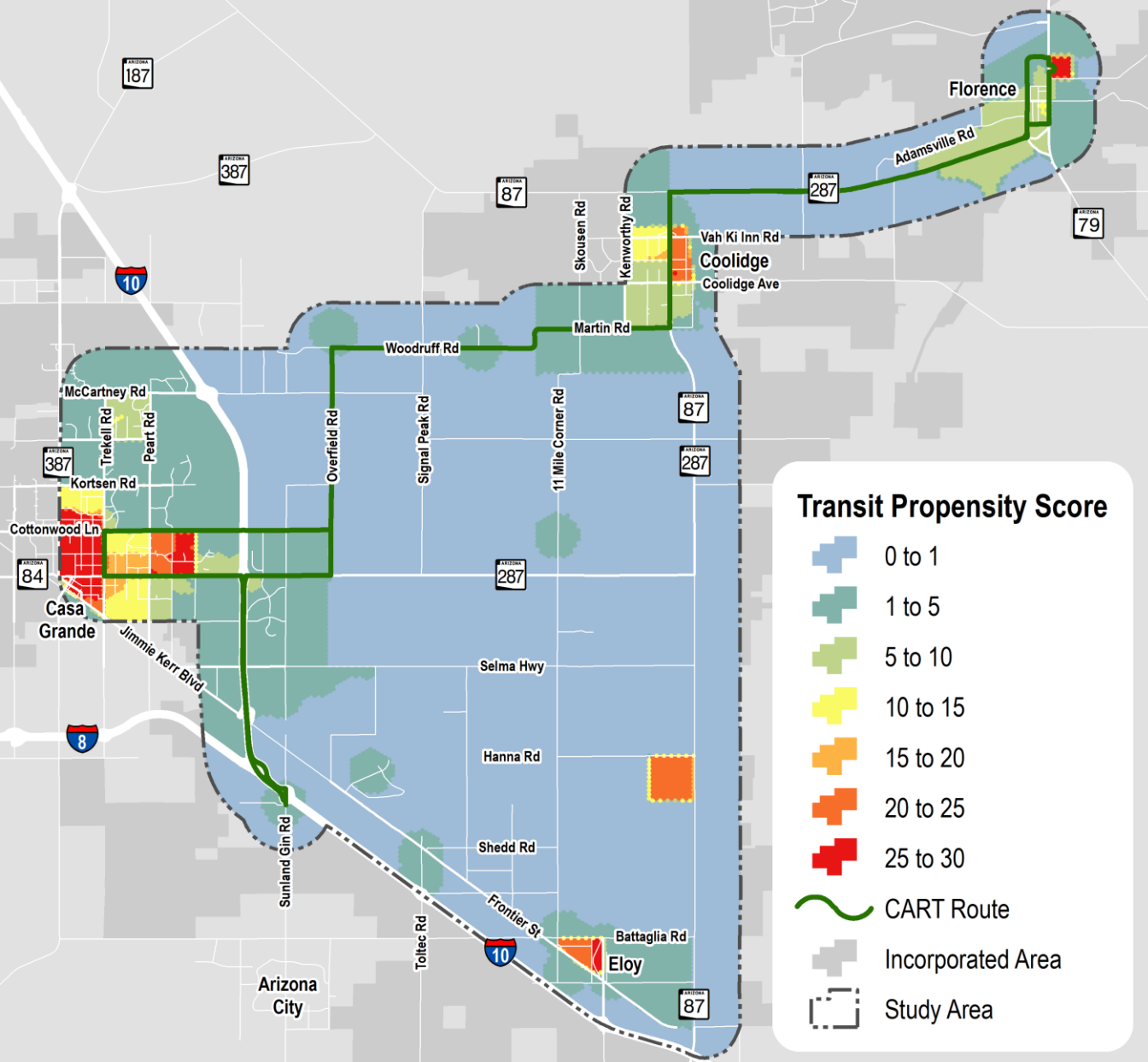
## Peer System Analysis

- Madera County Connection Transit (MCCT), Madera, CA
- Rural Resources Community Action (RRCA), Colville, WA
- Columbia Area Transit (CAT), Hood River, OR



| Service Indicators          | CART Performance (2019) | Peer System Average (2019) | CART vs Peer Systems Performance |
|-----------------------------|-------------------------|----------------------------|----------------------------------|
| Annual Ridership            | 6,491                   | 13,723                     | X                                |
| Revenue Miles               | 96,085                  | 146,073                    | X                                |
| Revenue Miles per Capita    | 1.03                    | 8.82                       | X                                |
| Passengers per Revenue Mile | 0.067                   | 0.068                      | ≈                                |
| Cost per Revenue Mile       | \$2.21                  | \$1.87                     | X                                |
| Cost per Trip               | \$32.74                 | \$20.95                    | X                                |
| Farebox Recovery Ratio      | 3.83%                   | 7.2%                       | X                                |

# Route Optimization Study



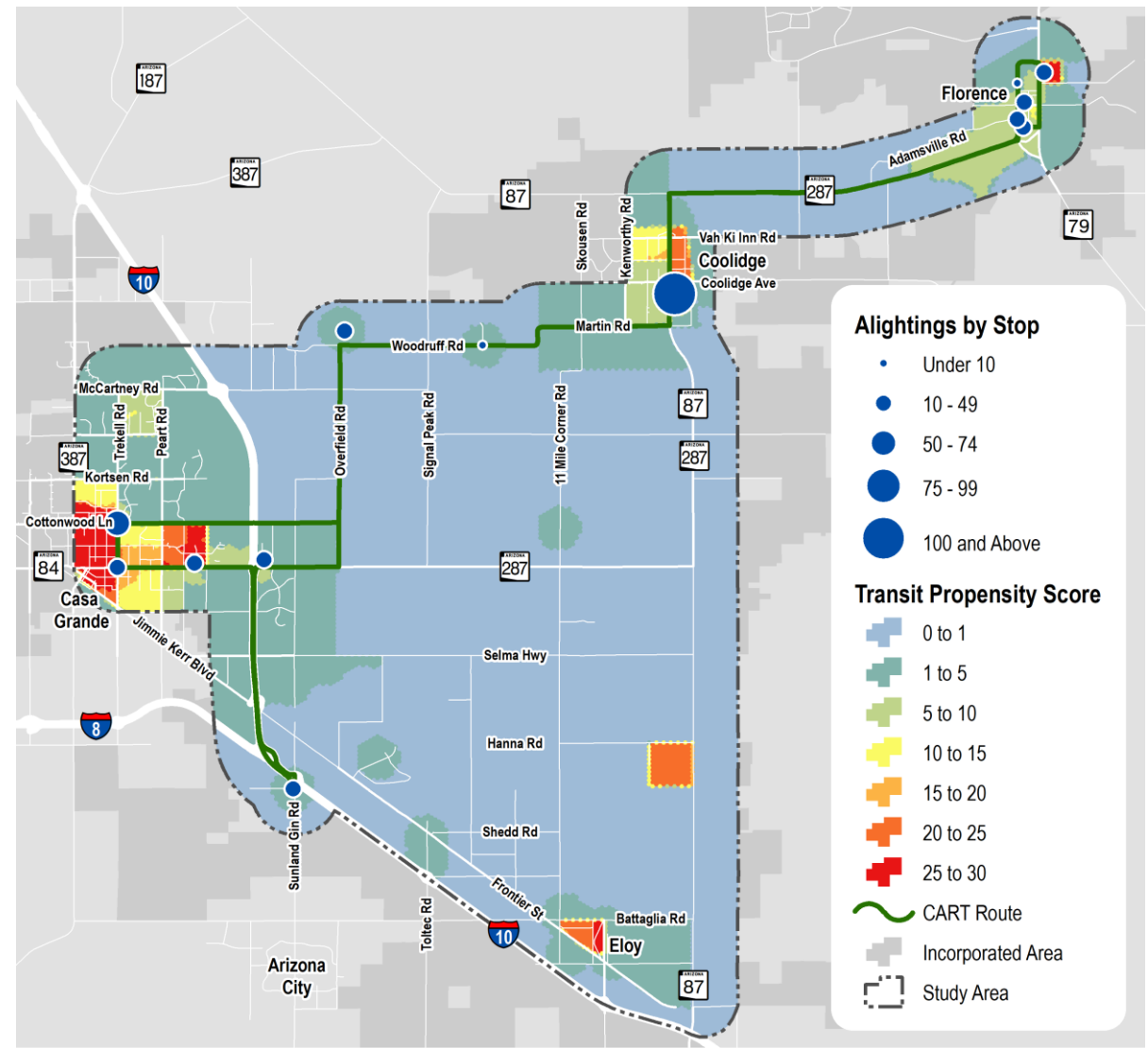
## Transit Propensity

- Based on:**
- Demographics
  - Population and employment density
  - Proximity to activity centers



# Audience Question

- What are your thoughts on how to improve the system?



# Alternatives

1. Service time analysis
2. Greyhound cost/benefit analysis
3. Coolidge Walmart accessibility analysis
4. Casa Grande routing alternatives

## Service Time Analysis

| Run          | Time               | 2019          | 2021         | Decrease      | % Change    | Annual Cost per Rider |
|--------------|--------------------|---------------|--------------|---------------|-------------|-----------------------|
| Run 1        | 6:35 AM -9:06 AM   | 2,226         | 778          | -1,448        | - 65%       | \$57.58               |
| Run 2        | 9:21 AM – 11:52 AM | 2,038         | 1,400        | -638          | -31%        | \$32.00               |
| Run 3        | 12:07 PM – 2:38 PM | 2,370         | 1,696        | -674          | -28%        | \$26.41               |
| Run 4        | 2:53 PM -5:26 PM   | 2,198         | 1,372        | -826          | - 38%       | \$32.65               |
| Run 5        | 5:41 PM – 8:22 PM  | 562           | 292          | -270          | -48%        | \$153.42              |
| AM Commuter  | 5:05 AM – 7:07 AM  | 714           | 386          | - 328         | - 46%       | \$98.57               |
| PM Commuter  | 4:40 PM – 6:59 PM  | 1,182         | 1,080        | -102          | -9%         | \$35.23               |
| <b>Total</b> |                    | <b>11,290</b> | <b>7,004</b> | <b>-4,286</b> | <b>-38%</b> | <b>\$62.27</b>        |



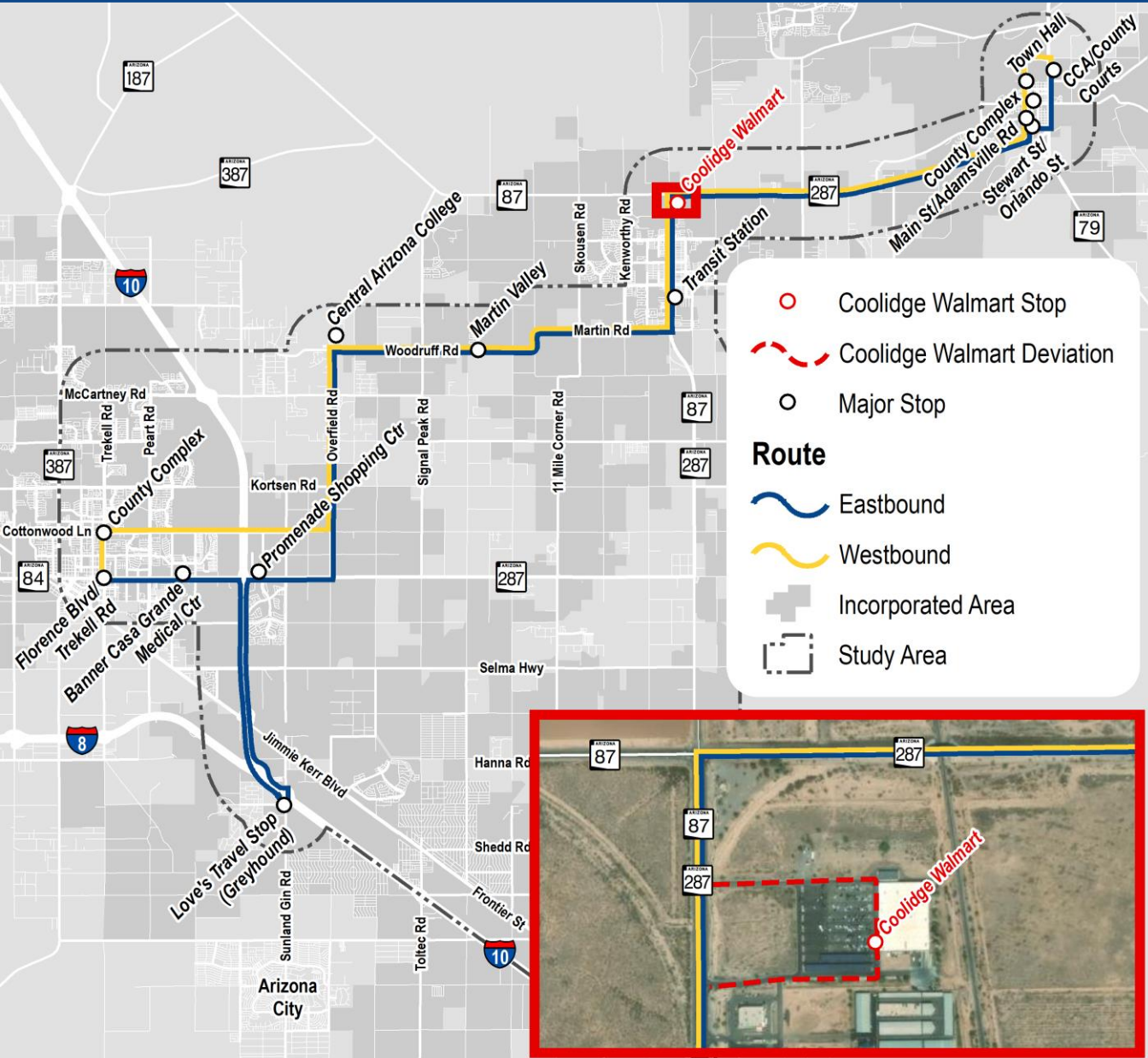
# Greyhound Benefit-Cost Analysis

| Greyhound Accessibility Operating Cost Analysis |                 |
|---|-----------------|
| Cost per Mile                                   | \$2.40          |
| Deviation Mileage                               | 11              |
| Cost per Run                                    | \$26.35         |
| Annual Runs                                     | 1,300           |
| <b>Annual Cost</b>                              | <b>\$34,251</b> |

| Annual Inconvenience Cost             |                  |       |       |       |       |       |
|---------------------------------------|------------------|-------|-------|-------|-------|-------|
|                                       | Run 1            | Run 2 | Run 3 | Run 4 | Run 5 | Total |
| Riders on Bus                         | 136              | 380   | 534   | 422   | 158   | 1,630 |
| Riders exiting at Greyhound Stop      | 10               | 14    | 34    | 46    | 64    | 168   |
| Riders diverted                       | 126              | 366   | 500   | 376   | 94    | 1,462 |
| Diverted travel time                  | 21 min (per run) |       |       |       |       |       |
| Cost of time                          | \$17.80/hr*      |       |       |       |       |       |
| <b>Annual cost to diverted riders</b> | <b>\$9,108</b>   |       |       |       |       |       |

| Greyhound Benefit/Cost Analysis                            |             |
|--|-------------|
| Costs  |             |
| Operating Cost   | \$34,251    |
| Rider Inconvenience Cost                                   | \$9,108     |
| City's FTA Section 5311(f) Local Match Cost                | \$42,000    |
| Suspended In-Kind Funds from Greyhound Covered by Coolidge | \$70,767    |
| Benefits   |             |
| FTA Section 5311(f) Funding                                | \$58,000    |
| <b>Benefit-Cost Ratio</b>                                  | <b>0.37</b> |

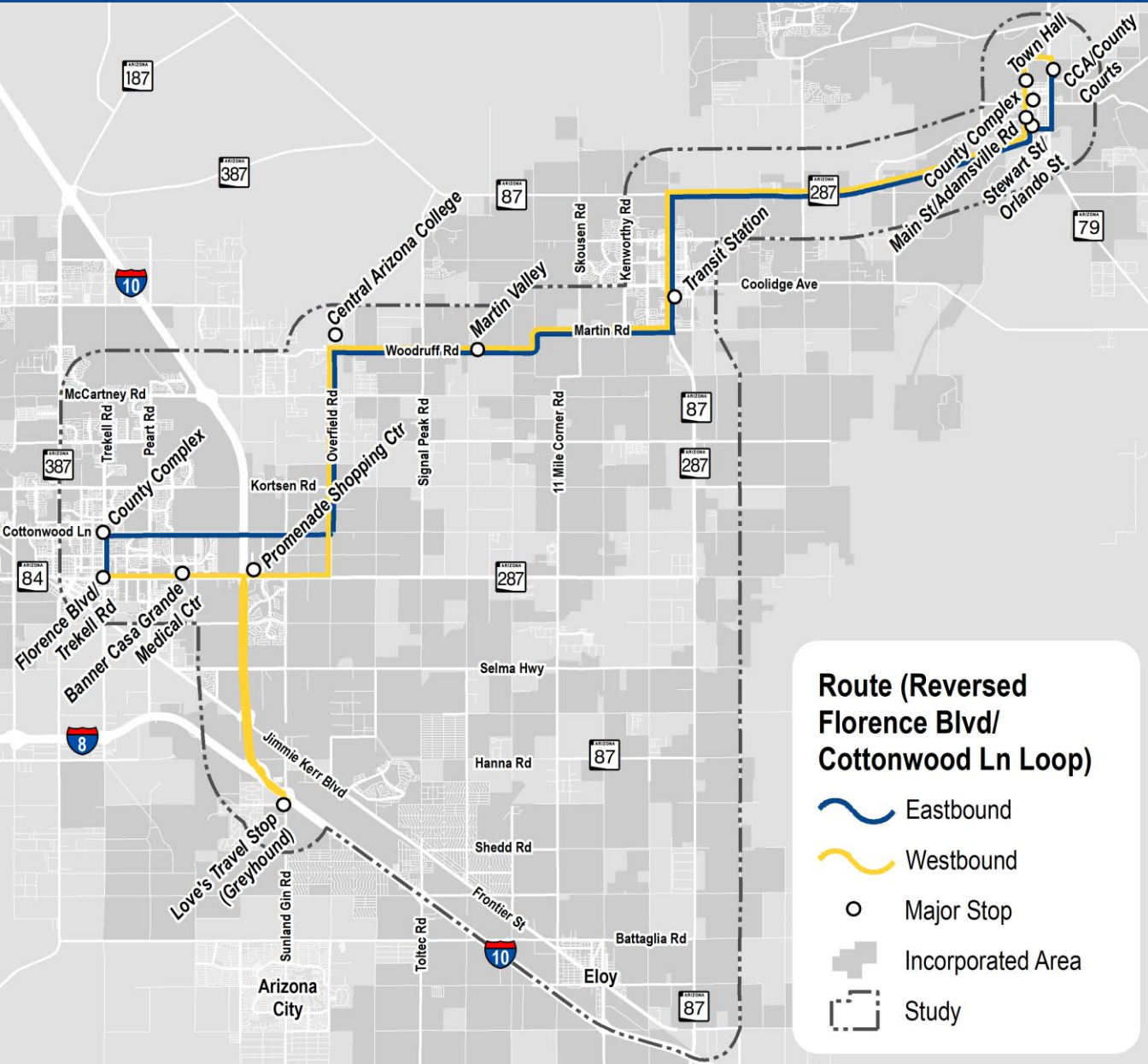
# Route Optimization Study



## Coolidge Walmart Accessibility Analysis

|                          |               |
|--------------------------|---------------|
| Cost per Mile            | \$2.40        |
| Deviation Milage         | 0.5           |
| Cost per Run             | \$1.20        |
| Annual Runs              | 1,300         |
| Annual Cost              | \$1,557       |
| Assumed Annual Ridership | 2,600         |
| <b>Cost per Rider</b>    | <b>\$0.60</b> |

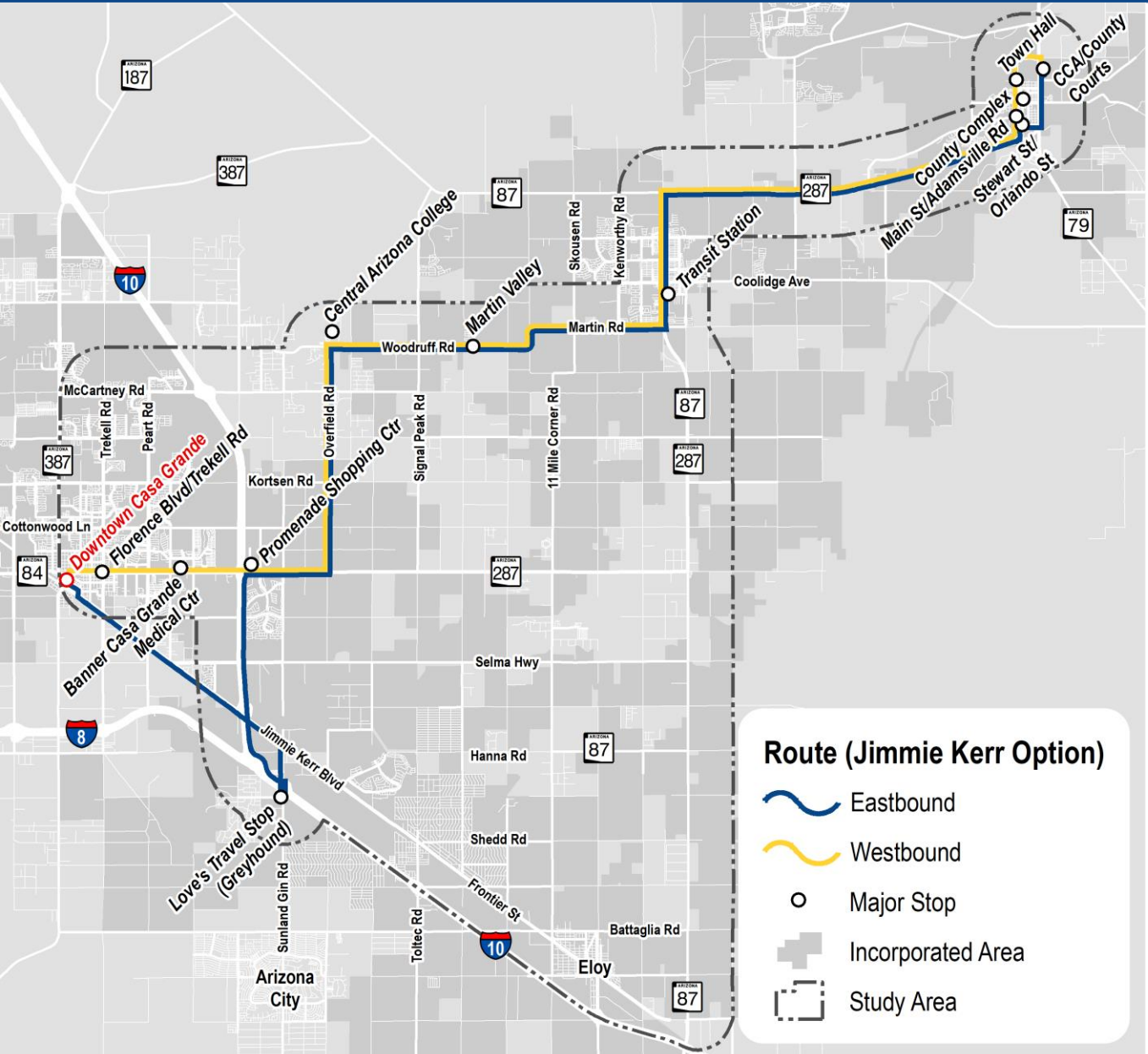
# Route Optimization Study



## Casa Grande Routing Alternatives

**Option A: Reverse the Florence Blvd/Cottonwood Ln Loop**

- Distance saved: 0.2 miles per run
- Time saved: 0 minutes per run
- Cost saved: \$622.75 per year

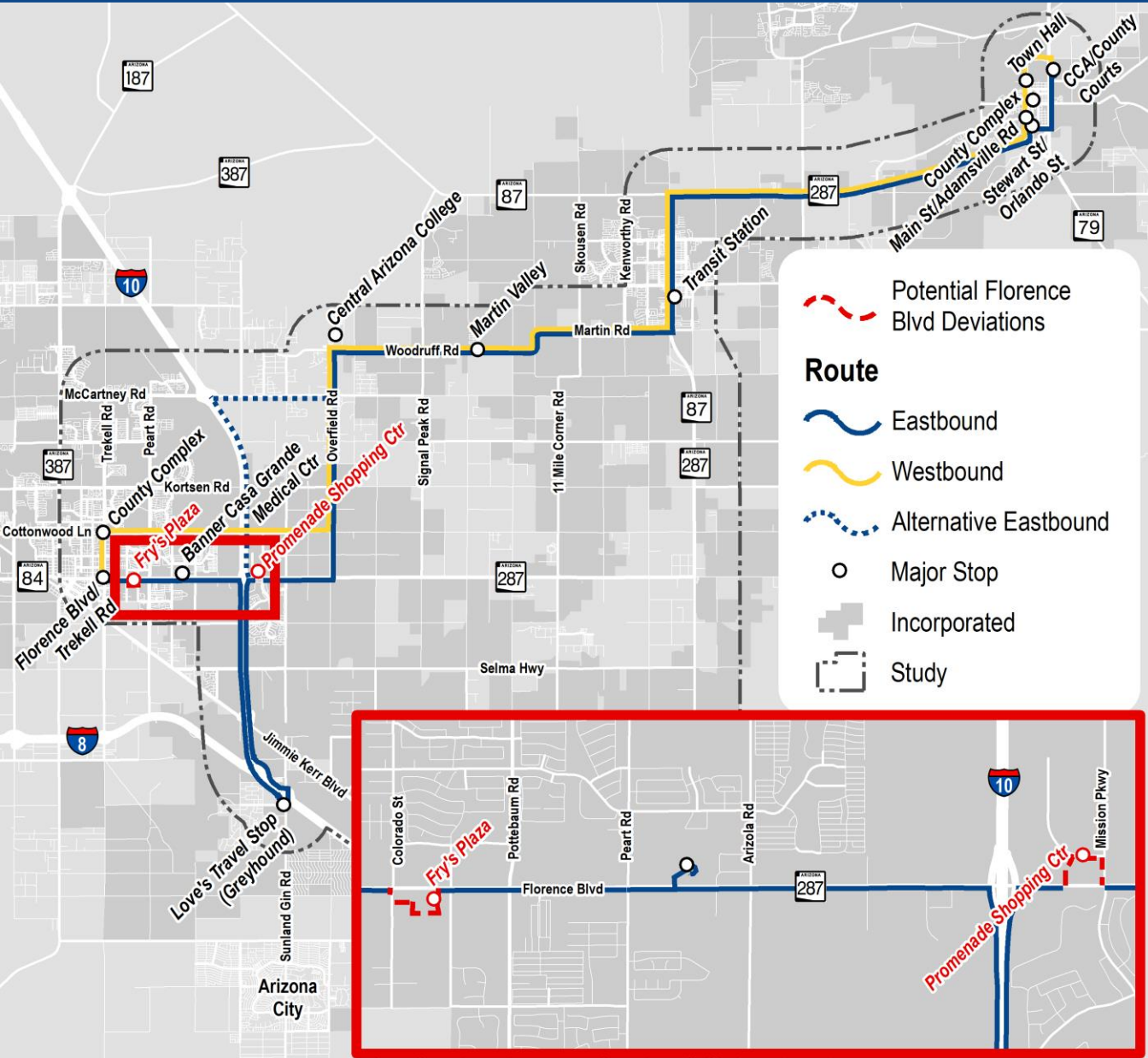


## Casa Grande Routing Alternatives

**Option B: Serve Downtown Casa Grande and Jimmie Kerr Blvd**

- Distance saved: 1.2 miles per run
- Time saved: 3 minutes per run
- Cost saved: \$3,736 per year

# Route Optimization Study

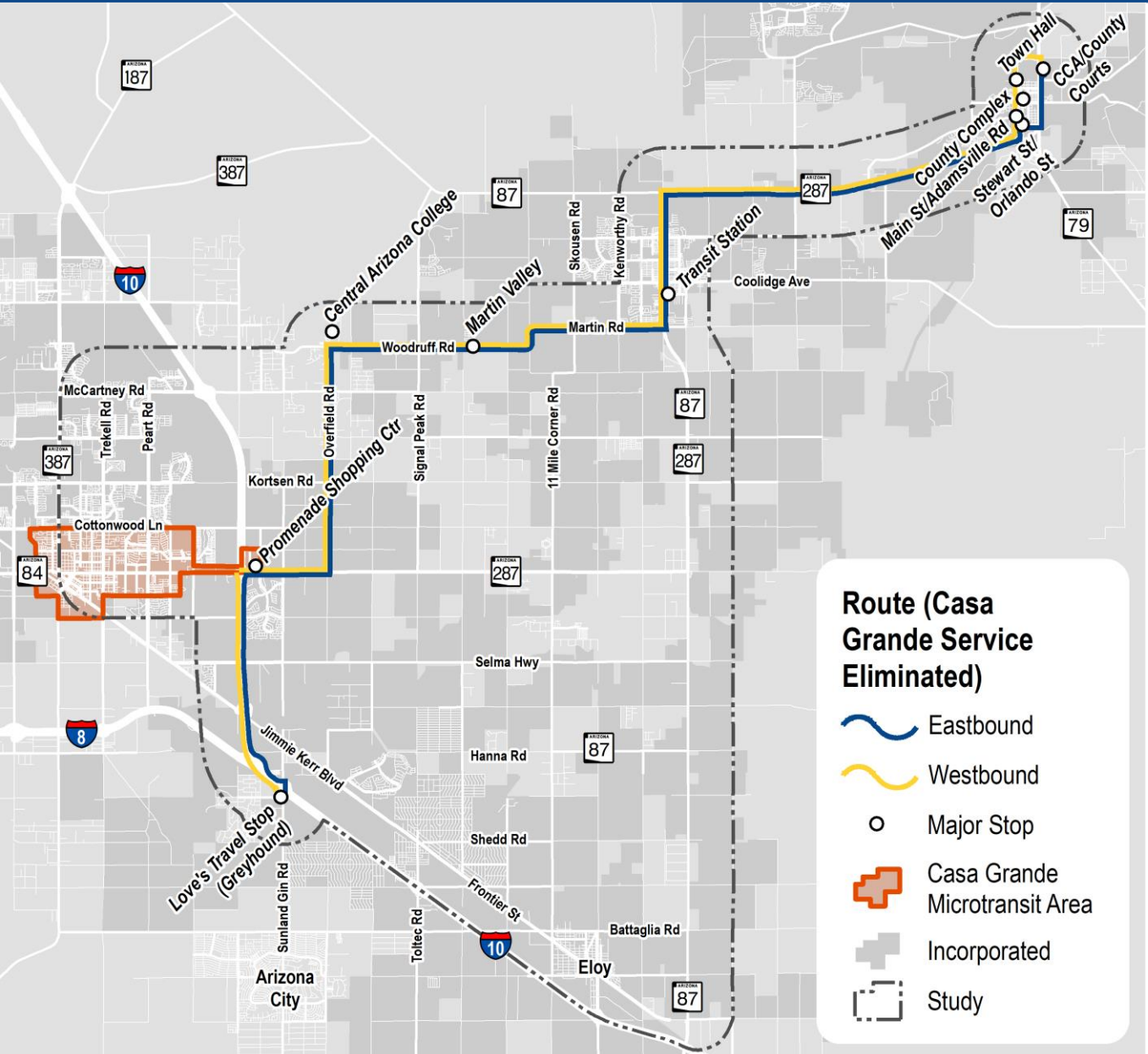


## Casa Grande Routing Alternatives

### Option C: Modify stops on Florence Blvd

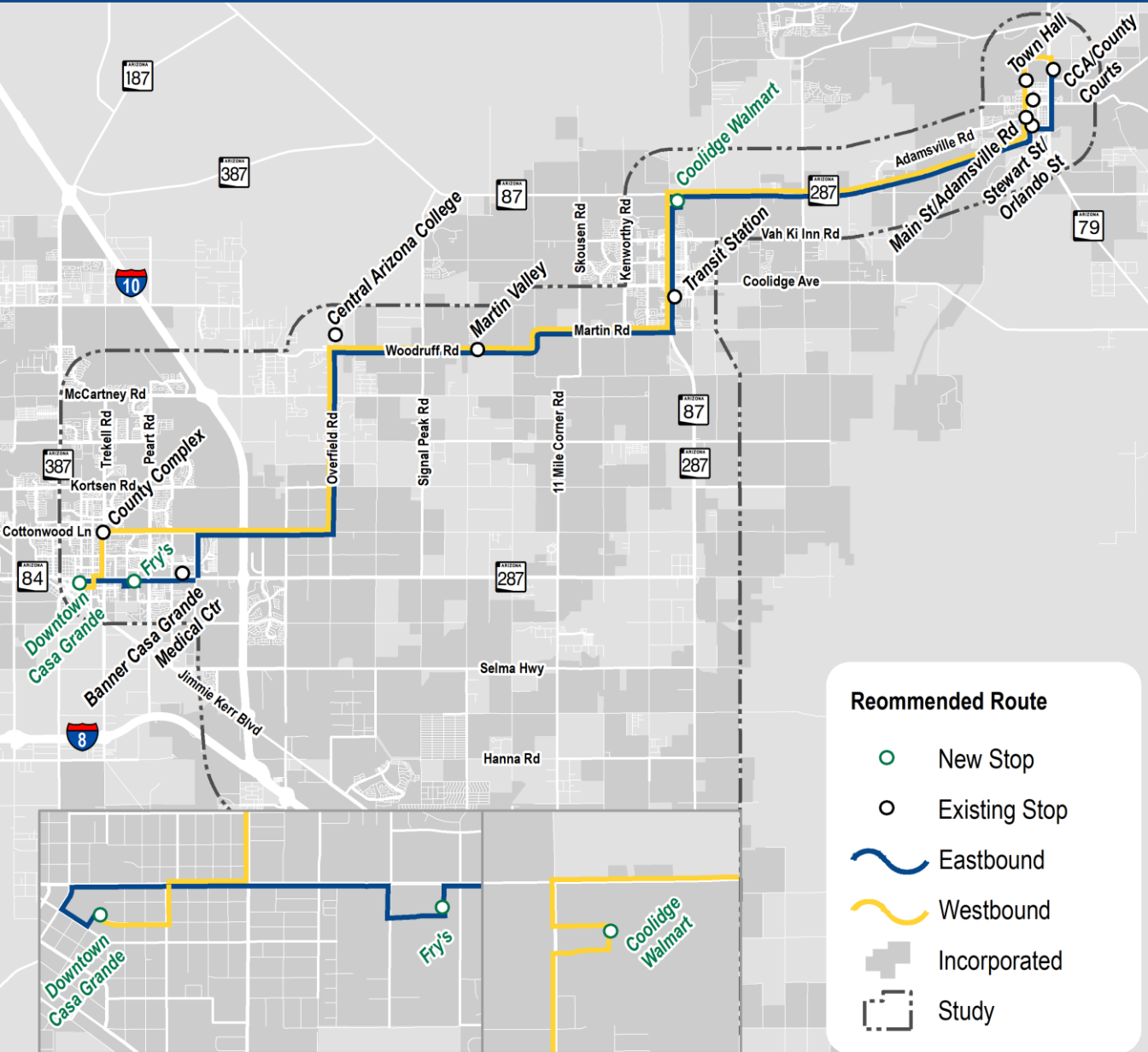
| Stop  | Dist. Change | Time Change | Cost Change |
|---|--------------|-------------|-------------|
| Addition of Fry's Foods                         | +0.6         | +5          | +\$1,868    |
| Removal of Promenade Mall (with existing route) | -0.3         | -2          | -\$934      |
| Removal of Promenade Mall (I-10 reroute)        | -0.6         | -3          | -1,868      |





## Casa Grande Routing Alternatives

- ### Option D: Elimination of Casa Grande Service
- Distance saved: 14 miles per run
  - Time saved: 27 minutes per run
  - Cost saved: \$43,592 per year
  - Riders inconvenienced: 1,562 per year (22% of total ridership)



## Implementation Plan

- AM Commuter and Run 5 eliminated
- Greyhound connection eliminated
- Coolidge Walmart stop added
- Casa Grande service modified
  - Add downtown and Fry's plaza stop
  - Eliminate Trezell/Florence and Promenade Mall stops
- Distance saved: 7 miles per run
- Time saved: 12 minutes per run
- Cost saved: \$71,200 per year

# Route Optimization Study



# Transitional Marketing Materials

### CART FARES

| AGE                             | ONE-WAY FARE | DAILY FARE | MONTHLY FARE | LOCAL CART DAILY | LOCAL & CART MONTHLY |
|---------------------------------|--------------|------------|--------------|------------------|----------------------|
| Children 12 & Under or Students | \$1.00       | \$2.00     | \$30.00      | \$3.00           | \$90.00              |
| Adult 13-64                     | \$2.00       | \$4.00     | \$60.00      | \$6.00           | \$180.00             |
| Disabled Senior 65 & Up         | \$2.00       | \$4.00     | \$60.00      | \$6.00           | \$180.00             |

Children under 5 must be accompanied by an adult.

No Change will be given.

### NOTICE

#### CART SERVICE IS GETTING STREAMLINED!

CART is making the service on the times and places that you want to get to easier. We will provide more direct routes between Casa Grande, Coolidge, and Florence to meet our customers' needs.

**WE ARE ADDING THREE NEW STOPS:**

- Walmart in Coolidge
- Downtown Casa Grande at the corner of 5th Street and Drake Street on the south side of Pearl Park
- Fry's Plaza in Casa Grande to serve our customers' needs between Casa Grande and Florence

**THREE STOPS ARE BEING ELIMINATED:**

- Waypoint at the north end of Pearl Park
- Florence Boulevard and Trabel Road in Casa Grande
- Providence Mall in Florence to provide a direct route to Casa Grande

**THE NEW ROUTE MAP AND TIMETABLE:**

### Map and Timetable

| Route           | Stop        | Time    |
|-----------------|-------------|---------|
| Westbound Route | Casa Grande | 6:00 AM |
|                 | Coolidge    | 6:30 AM |
|                 | Florence    | 7:00 AM |
|                 | Waypoint    | 7:30 AM |
| Eastbound Route | Waypoint    | 7:30 AM |
|                 | Florence    | 8:00 AM |
|                 | Coolidge    | 8:30 AM |
|                 | Casa Grande | 9:00 AM |

### TIPS FOR RIDING

- Be standing at the bus stop when the bus arrives.
- Hold the bus fare ready upon boarding.
- Smoking, eating and drinking are not allowed on board.
- Passengers must keep their packages, strollers, walkers and other carry-ons secure at all times.
- All mobility aid devices must be secured using vehicle restraint system.
- Do not bring more packages than you can carry. The driver is not permitted to assist with packages.
- Service animals allowed, no dogs.
- No drugs, weapons or hazardous material allowed on the bus.
- Drivers may refuse service to anyone who is disruptive, offensive, rude, disorderly, threatening, or appears to be under the influence of drugs or alcohol.

### RIDER'S GUIDE

- REGIONAL PUBLIC TRANSIT
- BUS ROUTE & SCHEDULES
- FARE INFORMATION

**(520) 723-7195**

[WWW.RIDETHECART.COM](http://WWW.RIDETHECART.COM)

For TTY Text-to-Voice Relay Dial 711

### NOTICE

#### CART SERVICE IS GETTING STREAMLINED!

LEARN ABOUT THE NEW, STREAMLINED CART SERVICE

[RIDETHECART.COM](http://RIDETHECART.COM)

### PINAL COUNTY COMPLEX STREAMLINED SERVICE

#### BACKGROUND

The Central Arizona Regional Transit (CART) system provides service between Casa Grande, Coolidge, Florence, and Key specifically providing service between the County Complex in Casa Grande and the County Complex in Florence. The existing CART route is being streamlined to better serve riders.

Improving service between the County Complex facilities in Casa Grande and Florence was a priority when reconfiguring the service to utilize Pinal County equipment to use CART as a daily commute option.

### Westbound Route

| Stop        | 6:00 AM | 6:30 AM | 7:00 AM | 7:30 AM |
|-------------|---------|---------|---------|---------|
| Casa Grande | 6:00 AM | 6:30 AM | 7:00 AM | 7:30 AM |
| Coolidge    | 6:30 AM | 7:00 AM | 7:30 AM | 8:00 AM |
| Florence    | 7:00 AM | 7:30 AM | 8:00 AM | 8:30 AM |
| Waypoint    | 7:30 AM | 8:00 AM | 8:30 AM | 9:00 AM |

### Eastbound Route

| Stop        | 7:30 AM | 8:00 AM | 8:30 AM  | 9:00 AM  |
|-------------|---------|---------|----------|----------|
| Waypoint    | 7:30 AM | 8:00 AM | 8:30 AM  | 9:00 AM  |
| Florence    | 8:00 AM | 8:30 AM | 9:00 AM  | 9:30 AM  |
| Coolidge    | 8:30 AM | 9:00 AM | 9:30 AM  | 10:00 AM |
| Casa Grande | 9:00 AM | 9:30 AM | 10:00 AM | 10:30 AM |

### CENTRAL ARIZONA COLLEGE CART SERVICE

#### BACKGROUND

The Central Arizona Regional Transit (CART) system provides service between Casa Grande, Coolidge, Florence, and Key specifically providing service to the Central Arizona College campus and surrounding destinations. The existing CART route is being streamlined to better serve riders.

The streamlined CART service provides better access to students and faculty, serving the campus in both directions per day. CART serves CAC from 6:00 AM to 6:00 PM, stopping at the campus 11 times a day.

The CART streamlined service provides students and faculty with access to groceries, department stores, and Downtown Casa Grande, with the addition of stops in Downtown Casa Grande, at Pearl Park, Toys in Casa Grande, and Walmart in Coolidge.

### Westbound Route

| Stop        | 6:00 AM | 6:30 AM | 7:00 AM | 7:30 AM |
|-------------|---------|---------|---------|---------|
| Casa Grande | 6:00 AM | 6:30 AM | 7:00 AM | 7:30 AM |
| Coolidge    | 6:30 AM | 7:00 AM | 7:30 AM | 8:00 AM |
| Florence    | 7:00 AM | 7:30 AM | 8:00 AM | 8:30 AM |
| Waypoint    | 7:30 AM | 8:00 AM | 8:30 AM | 9:00 AM |

### Eastbound Route

| Stop        | 7:30 AM | 8:00 AM | 8:30 AM  | 9:00 AM  |
|-------------|---------|---------|----------|----------|
| Waypoint    | 7:30 AM | 8:00 AM | 8:30 AM  | 9:00 AM  |
| Florence    | 8:00 AM | 8:30 AM | 9:00 AM  | 9:30 AM  |
| Coolidge    | 8:30 AM | 9:00 AM | 9:30 AM  | 10:00 AM |
| Casa Grande | 9:00 AM | 9:30 AM | 10:00 AM | 10:30 AM |



# Audience Question

- Are there any other marketing materials you have used to communicate with the public?

CART provides regional bus service between Coolidge, Casa Grande, Florence, and Central Arizona College. CART operates Monday - Friday. This guide includes everything you need to know to get where you need to go on CART.

The map in this guide shows the routing and bus stop locations for the CART bus route. Please note that the bus stops only at the designated stops shown in the map on the reverse side of this guide. Please be at the bus stop five minutes before the scheduled time.

### ACCESSIBILITY

CART's service is accessible to persons with disabilities:

- Drivers are trained to assist you.
- Drivers provide information on destinations served.
- Buses are accessible to persons in wheelchairs.
- Drivers deploy ramps/lifts upon request, even if you do not use a wheelchair.
- Buses have priority seating for seniors and persons with disabilities.
- Drivers announce stops, including any stop you request be announced.
- Persons using portable oxygen and respirators are welcome on buses.

**Welcome aboard!**

| STOP                               | LOCATION  |
|------------------------------------|---|
| <b>Eastbound Route</b>             |   |
| DownTown Casa Grande               | 5th Street and Dryden Street  |
| Riv's Plaza                        | Riv's at Southwest Corner of Florence Blvd and Pinalbush Rd   |
| Casa Grande Medical Center         | Casa Grande Medical Center Front Entrance   |
| Central Arizona College            | Central AZ College, north of campus, westside, table  |
| Marlin Wilks                       | Southeast Corner of Westcott Rd and Gary Rd   |
| Coolidge Transit Terminal          | Southeast Corner of Palo Verde Ave and 4th St   |
| Coolidge Warehouse                 | West of Southeast Corner of Antonio Blvd and Florence-Coolidge Hwy                                      |
| Sweetwater House St                | Southeast Corner of Sweetwater Blvd and 4th St  |
| <b>Westbound Route</b>             |   |
| Pinal County Courthouse            | Junco Lopez Dr in front of the Pinal County Superior Court House  |
| Honore Library, Casa Grande        | West St in front of the town of Honore Library and Community Center                                     |
| Pinal County Courthouse - Florence | Southeast Corner of Pinal St and 12th St  |
| Admission to Pinal Mall St         | West of Westcott Rd and Antonio Blvd  |
| Coolidge Warehouse                 | West of Southeast Corner of Antonio Blvd and Florence-Coolidge Hwy                                      |
| Coolidge Transit Terminal          | Southeast Corner of Gary Rd and 4th St  |
| Marlin Wilks                       | West of Westcott Rd and Gary Rd   |
| Central Arizona College            | Central AZ College, north of campus, westside, table  |
| Pinal County Complex - Casa Grande | Southeast of the Pinal County Administration Building, the Northwest Corner of Coltonwood Ln and 4th St |

### CART FARES

| AGE                             | ONE-WAY FARE | DAILY FARE | MONTHLY FARE | LOCAL CART DAILY | LOCAL & CART MONTH |
|---------------------------------|--------------|------------|--------------|------------------|--------------------|
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Children under 5 must be accompanied by an adult.

**Exact Fare Only on Buses—No Change will be given.**

We accept \$20, \$10, \$5, \$1, and quarters. No other loose change will be accepted.

One-Way and Daily fares may be purchased on the bus.

Monthly fares can only be purchased at the Coolidge Transit Station located at 395 W. Palo Verde Ave. in Coolidge. Forms of payment include: Cash, Check, Visa, MasterCard, and Discover.

If you purchase a Daily or Monthly Local & CART fare you may use the Cotton Express services for as long as your bus ticket is valid. A CART bus ticket must be purchased to use the express services; no local Cotton Express bus tickets will be accepted on the CART routes.

*Student fares can be purchased only with proof of a valid school identification card (ID).*

### TIPS FOR RIDING

- Be standing at the bus stop when the bus arrives.
- Have bus fare ready upon boarding.
- Smoking, eating and drinking are not allowed on board. (Bottled Water Only)
- Passengers must keep their packages, strollers, walkers and other carry-ons secure at all times.
- All mobility aid devices must be secured using vehicle restraint system.
- Do not bring more packages than you can carry. The driver is not permitted to assist with packages.
- Service animals allowed, no pets.
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**WWW.RIDETHECART.COM**

For TTY Text-to-Voice Relay Dial 711



# Post-Study Experience

## Implementation Experiences

- The marketing materials were invaluable
- Good momentum from planning study
- Local and ADA service connectivity enhancements

## Rider Feedback

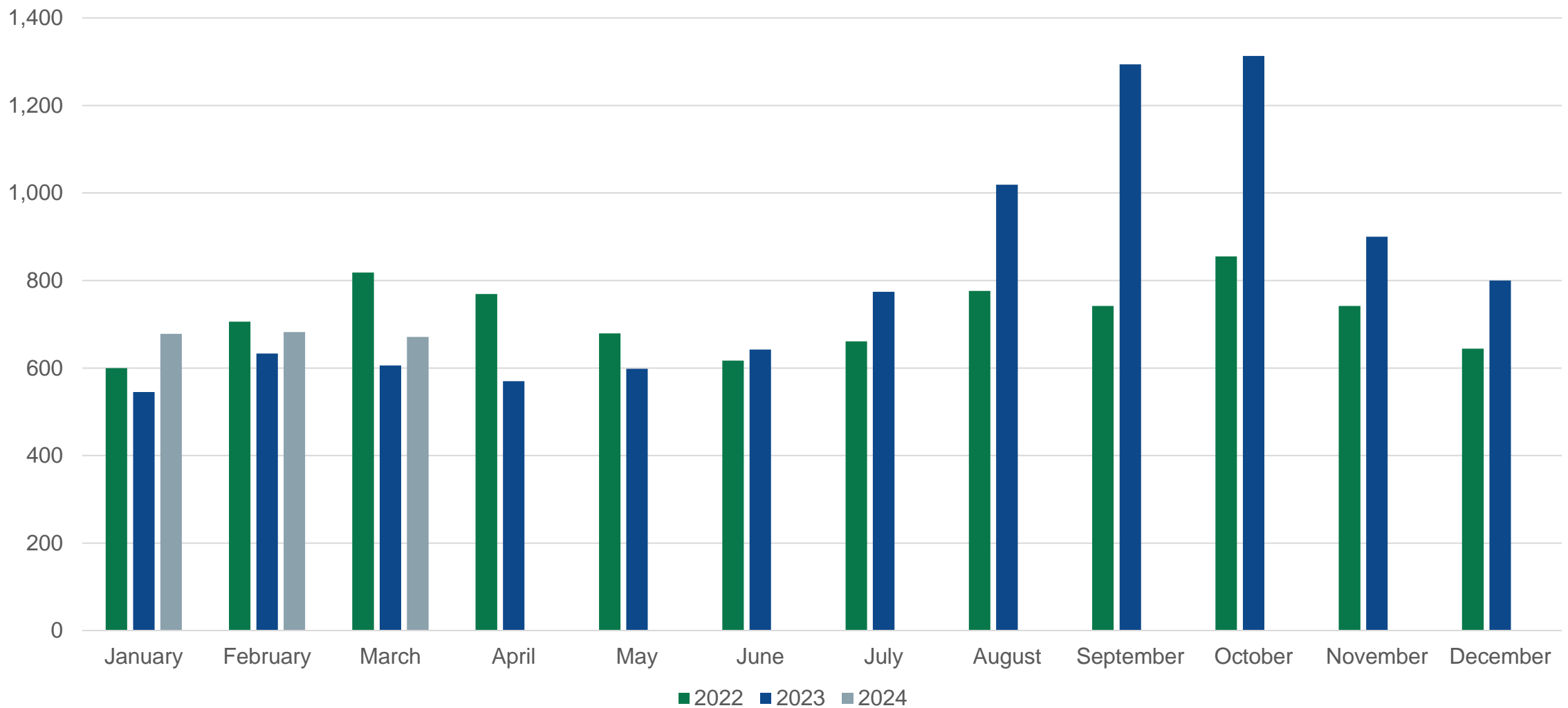
- Happy with streamlined service
- Walmart connectivity popular with CAC students and Florence residents
- Still want more frequency

## Strategic Partnerships

- CAC partnership
- Pinnacle High School
- Integration with Casa Grande microtransit



## Monthly Ridership



# ➤ Post-Study Experience



| Service Indicators          | CART Performance (2022) | CART Performance (2023) | Performance Improvement? |
|-----------------------------|-------------------------|-------------------------|--------------------------|
| Annual Ridership            | 8,165                   | 9,022                   | ✓                        |
| Revenue Miles               | 124,760                 | 109,164                 | ✓                        |
| Revenue Miles per Capita    | 1.34                    | 1.17                    | ✓                        |
| Passengers per Revenue Mile | 0.065                   | 0.083                   | ✓                        |
| Cost per Trip               | \$43.41                 | \$40.39                 | ✓                        |
| Farebox Recovery Ratio      | 3.75%                   | 3.54%                   | ✗                        |





**Thank you!**

Erik Heet

Transit Manager

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