

MADERA METRO

MADERA TRANSIT PLAN

FINAL REPORT

Approved by City Council
September 2022

wsp

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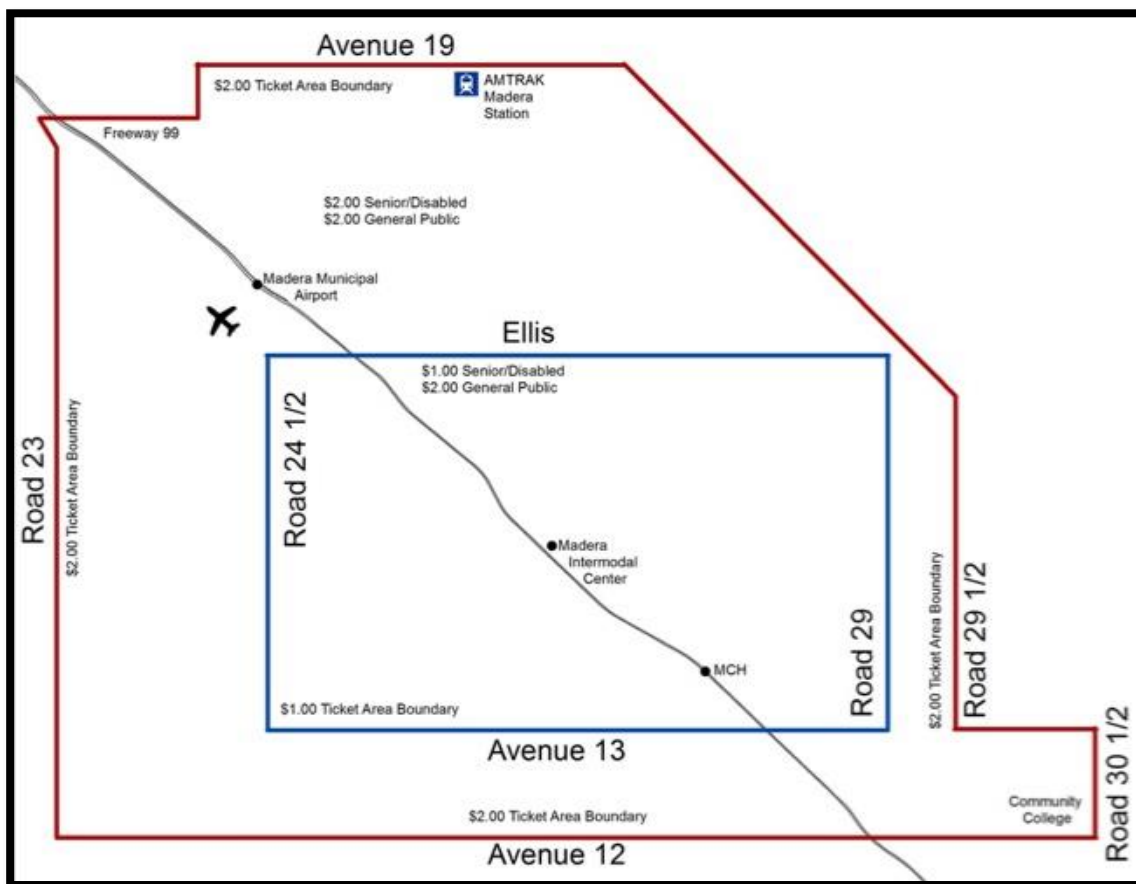
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1 INTRODUCTION

Located in the Central Valley of California, the City of Madera encompasses approximately 14 square miles and is separated by State Route (SR) 99 and SR 145 (also known as East Yosemite Avenue). Transit service in the city is provided by Madera Metro, a system comprising of three fixed-routes, Dial-a-Ride, and Americans with Disabilities Act (ADA)/Paratransit service. The service area (shown in Figure 1) is bounded by Avenue 19 to the north, Road 23 to the west, Avenue 12 to the south, and Road 29 ½/Road 30 ½ to the east. Service is provided by a third-party operator, MV Transportation, and the system serves approximately 110,000 customers per year (pre-COVID). As of 2021, annual ridership has dipped to 55,000 customers due to the pandemic.

The City of Madera has recently made commitments to improving the system through utilizing local and State funds to improve bus shelters and other customer amenities, developing a new logo, expanding the fleet, constructing a new Transit Center, and beginning work on a new bus stop sign design.

Figure 1 Madera Metro Service Area

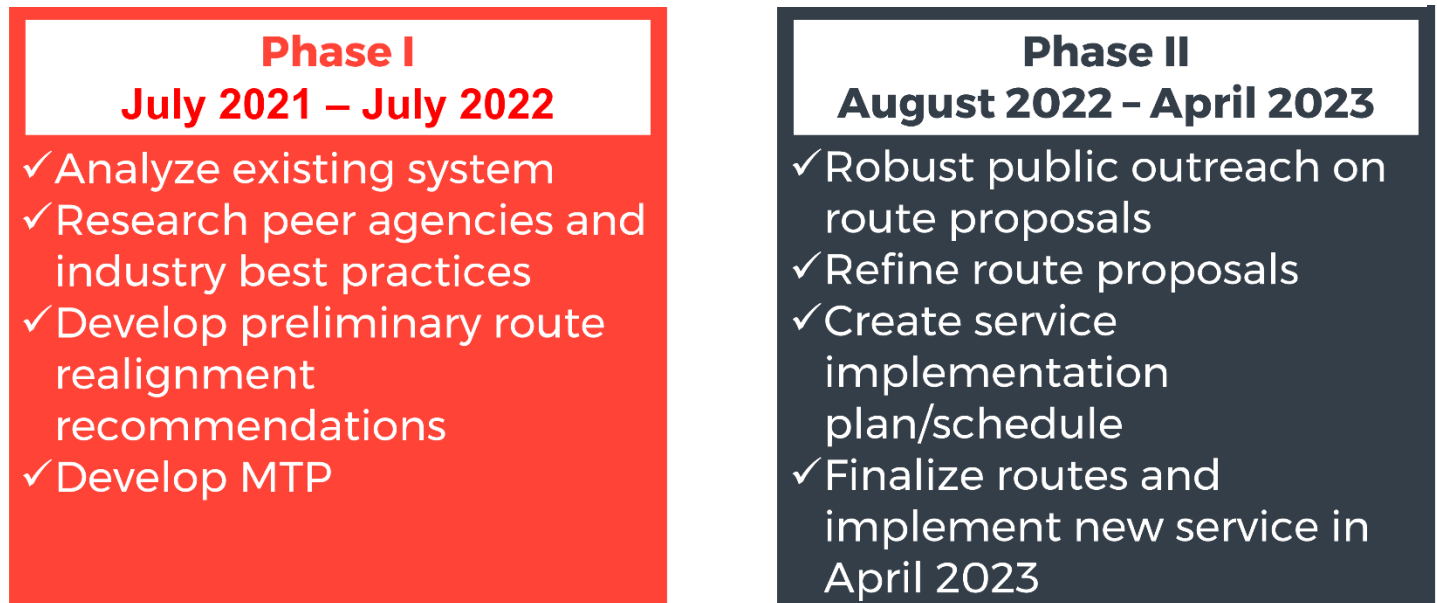


WHAT IS THE MADERA TRANSIT PLAN (MTP)?

The MTP is a network assessment and proposed redesign of the existing Madera Metro fixed-route system. The MTP includes developing revised route alignments and new or updated bus stop locations. The primary objectives of the MTP are to analyze the current system to develop recommendations for revising routes, update route schedules, and improve headways to provide a better transit service to the Madera community.

The MTP is divided into two phases: Phase I and Phase II. Figure 2 describes the division of Phase I and Phase II project elements.

Figure 2 MTP Phases



The MTP utilizes a holistic approach to develop recommendations to the Madera Metro fixed-route system. The MTP's route recommendations are based on analyzing the existing system, applying industry best practices and common transit planning concepts, and incorporating feedback from stakeholders and the public. Phase II will include finalized route alignments, bus stop locations, and schedules to be implemented in April 2023. More information on next steps is provided in Section 5.

WHY DEVELOP THE MTP?

The current Madera Metro fixed-route system consists of three routes. These routes have organically grown over time to respond to passenger demand, calls to City Hall, and the annual Madera County Transit Commission's Unmet Transit Needs hearing process. This has created a system of routes that covers the city but in an inefficient and duplicative way. Additionally, bus stops have been implemented with little regard to the impact on the overall route, and this has led to several issues that negatively impact route performance and potentially ridership:

- 1) Uneven distances between stops that make it difficult for customers to use the system, reduce route reliability, and worsen travel times
- 2) Locating bus stops in low activity areas where passengers may feel unprotected while waiting for the bus
- 3) Locating bus stops with little or no ADA access to and from the bus stop

The MTP catalogs all the system's bus stops and provides an inventory of each with recommendations of changes for Madera Metro to implement.

The MTP recommends new route alignments and bus stop locations to make the system more efficient and effective. The main strategies for achieving this are through streamlining routes to eliminate unnecessary turns and shortening routes in areas that aren't conducive to high ridership. Figure 3 summarizes the primary goals of the MTP, and the strategies used to achieve them.

Figure 3 MTP Goals

Higher Ridership



Eliminating unnecessary turns and right sizing bus stop spacing will allow for more frequent service that can boost ridership

Improved Reliability



Buses are more likely to show up at their scheduled time if route paths are as straight and short as possible

Increased Productivity



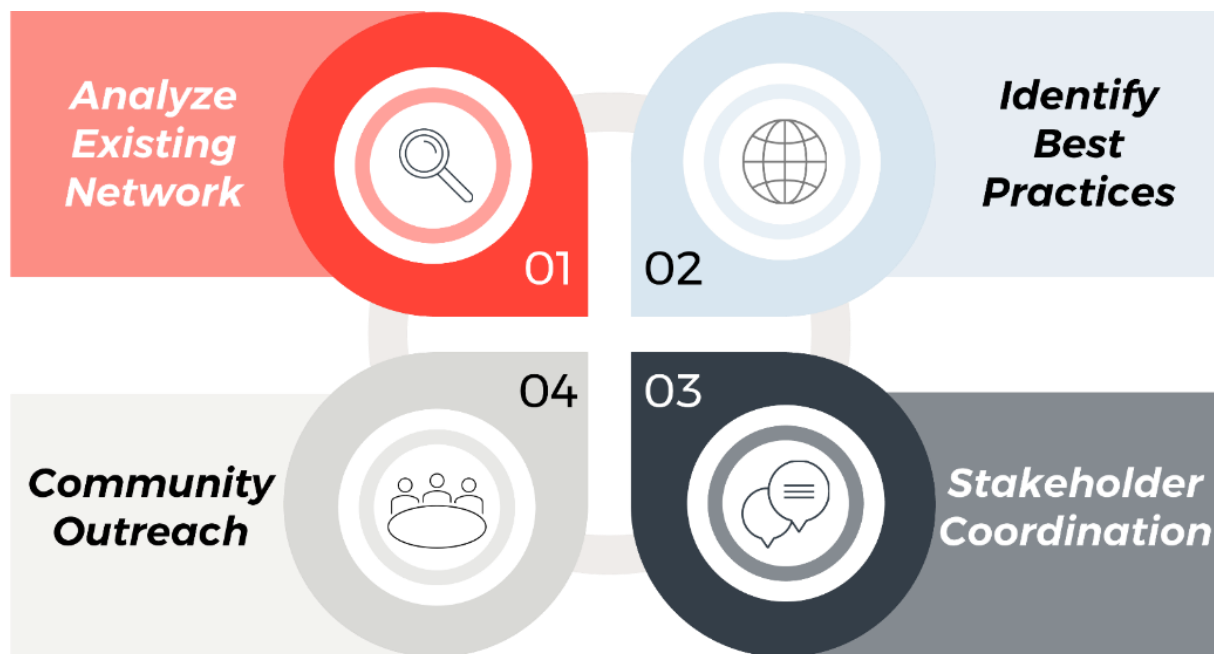
Reducing route redundancy and providing straight, direct route paths ensures resources are used as efficiently as possible

2 DEVELOPMENT PROCESS

Figure 4 shows the four major tasks that were completed to recommend new route alignments and bus stop locations as part of the MTP. This process included a combination of data analysis, field visits to examine existing conditions, and soliciting feedback from stakeholders and the public. To that end, these steps ensured that the development of the new system was informed by both qualitative and quantitative data.

The route development process will continue in Phase II with a robust public outreach plan to solicit further comments from the public and stakeholders to ensure the finalized network responds to customer needs and improves the bus riding experience. Further explanation of the MTP development process is described in the following sections.

Figure 4 MTP Development Process



2.1 ANALYZE EXISTING SYSTEM

Figure 5 shows the existing Madera Metro fixed-route system. Each route was analyzed to determine their frequencies, length, number of turns, average distance between stops, and ability to serve key destinations among numerous other factors. These findings were then used to determine changes to each route to remove unnecessary turns and ensure portions of the city were not overserved. Table 1 includes a high-level summary of these findings.

Figure 5 Madera Metro Existing System

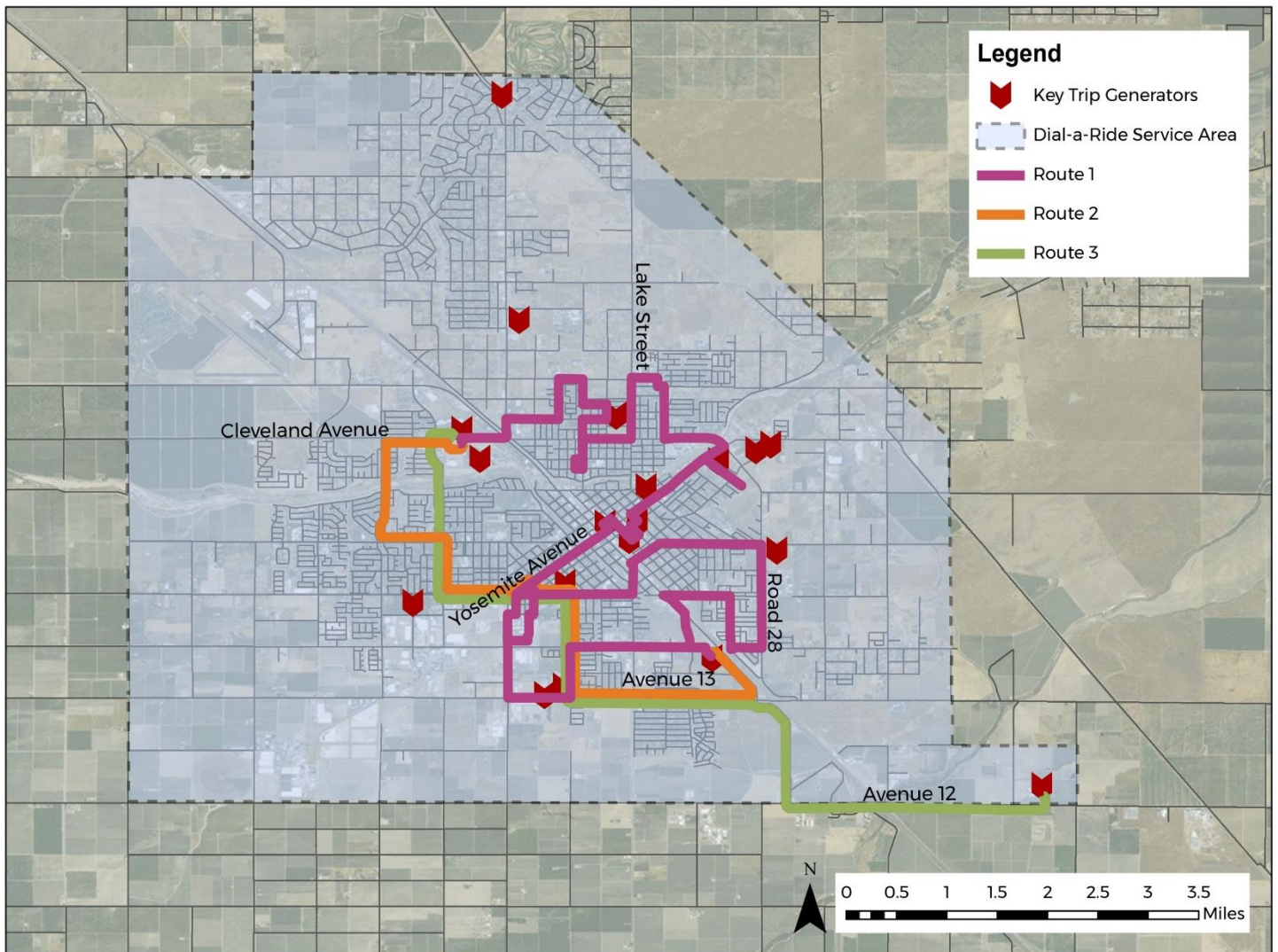
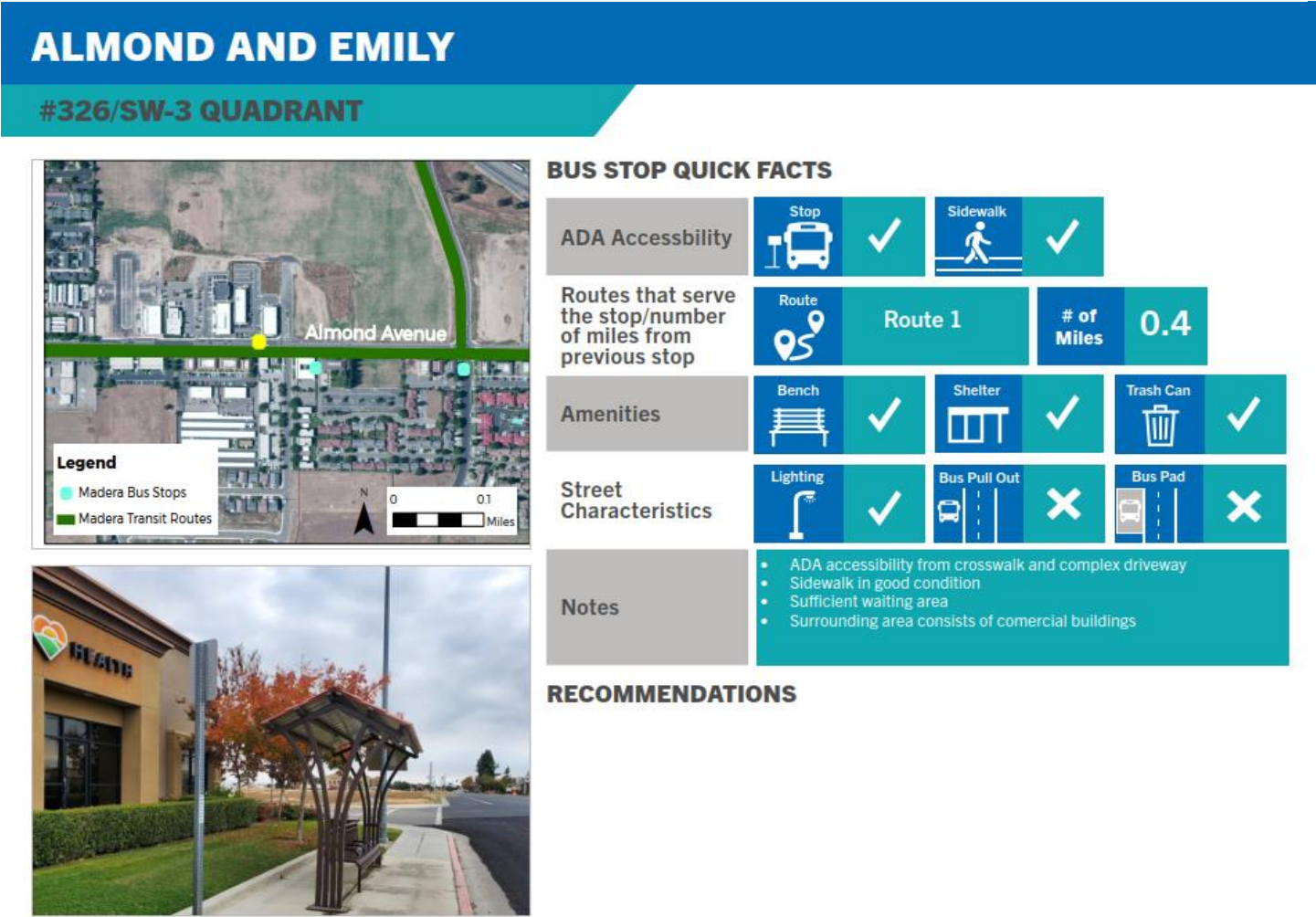


Table 1 Existing Route Analysis

Route	Strengths	Weaknesses
Route 1	<ul style="list-style-type: none">+ Serves large portion of the city+ Serves several key destinations (downtown, Madera Hospital, Walmart)+ Most frequent route in the system+ “Workhorse” of the system	<ul style="list-style-type: none">– Route is circuitous which impacts travel times/reliability and is confusing for customers– Stops are unevenly spaced– Few opportunities to transfer to the other two routes– Schedule is confusing for customers
Route 2	<ul style="list-style-type: none">+ Covers NW and SW quadrants of city well+ Serves Walmart and Madera Hospital	<ul style="list-style-type: none">– Route is infrequent– Stops are unevenly spaced– Few opportunities to transfer to other two routes
Route 3	<ul style="list-style-type: none">+ Covers NW and SW quadrants of city well+ Serves Walmart and Madera Community College	<ul style="list-style-type: none">– Route is infrequent– Few opportunities to transfer to other two routes

Additionally, each bus stop in the Madera Metro system was visited to document and analyze existing conditions. Information collected during these site visits included ADA accessibility of the stop, availability of route information, and stop amenities including the presence of benches, shelters, trash cans, and lighting. These findings were then summarized in bus stop fact sheets and used to determine whether each stop should be retained, removed, or relocated. An example of a bus stop fact sheet is shown in Figure 6.

Figure 6 Sample Bus Stop Fact Sheet



2.2 IDENTIFY BEST PRACTICES

Industry best practices concerning common route design concepts were reviewed for applicability to Madera Metro and incorporated into the route redesign recommendations. Known as Service Design Guidelines (SDG), the SDG are an overarching framework for assisting with the design and operation of transit service. A separate report, titled “Madera Metro Service Design Guidelines” documents those recommendations. The operating SDG concepts were identified through an analysis of industry best practices from peer transit agencies. Figure 7 lists some of these concepts that were used to redesign the routes and determine bus stop locations.

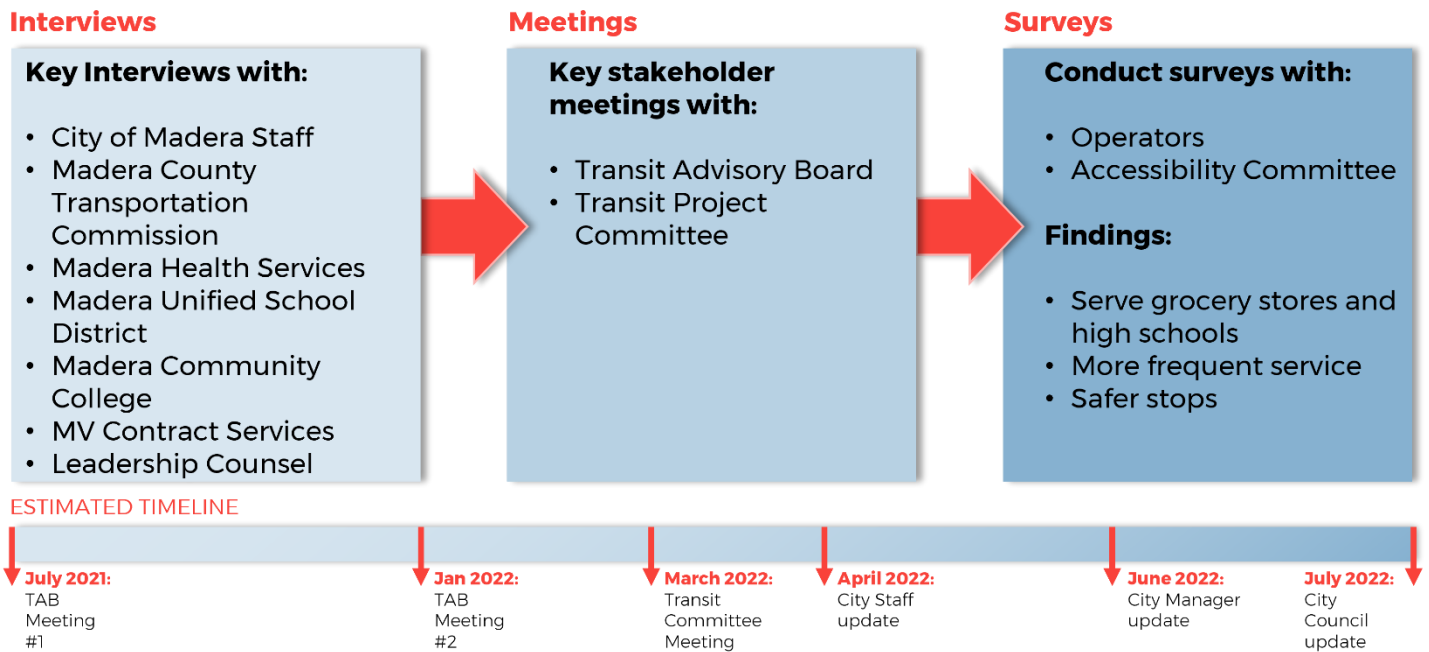
Figure 7 Route and Bus Stop Standards

Route Design	Bus Stop Location
<ul style="list-style-type: none">✓ Straight, short route path✓ Serve key destinations✓ Provide easy connections to other routes✓ Reduce route redundancy	<ul style="list-style-type: none">✓ Spaced evenly throughout route✓ Located near key destinations✓ Located near adequate pedestrian infrastructure (where possible)✓ Placed at far or near-side of intersection based on pedestrian environment, traffic levels, etc.

2.3 STAKEHOLDER COORDINATION

Throughout Phase I of the MTP, the project team met with various stakeholders to promote collaboration, solicit feedback on the existing Madera Metro system, and build consensus among various parties on potential improvements to the system. A summary of the various stakeholder coordination activities completed are shown in Figure 8.

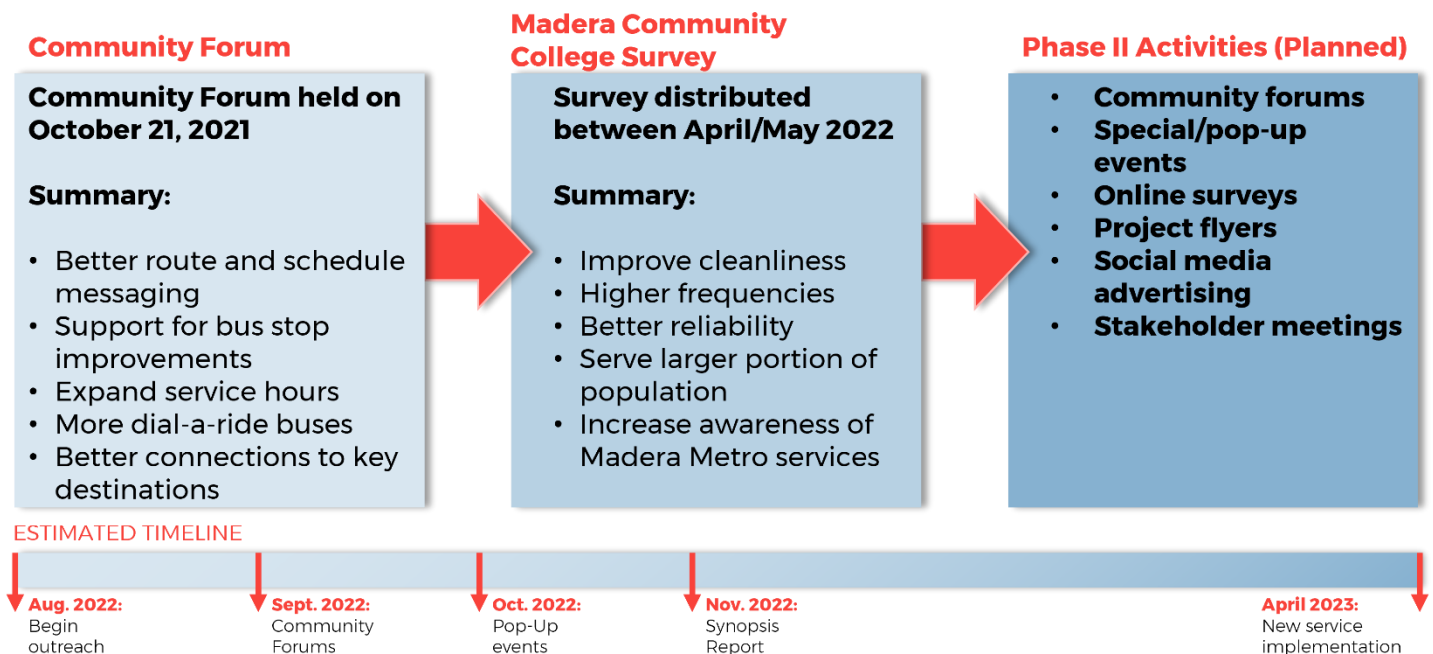
Figure 8 Stakeholder Coordination Summary



2.4 COMMUNITY OUTREACH

In addition to meeting with various stakeholders, the project team held a community forum in October of 2021 and distributed a survey to Madera Community College students throughout April and May of 2022. A summary of the community outreach activities conducted, including frequent comments heard that were incorporated into the design of the proposed system, are shown in Figure 9.

Figure 9 Community Outreach Summary



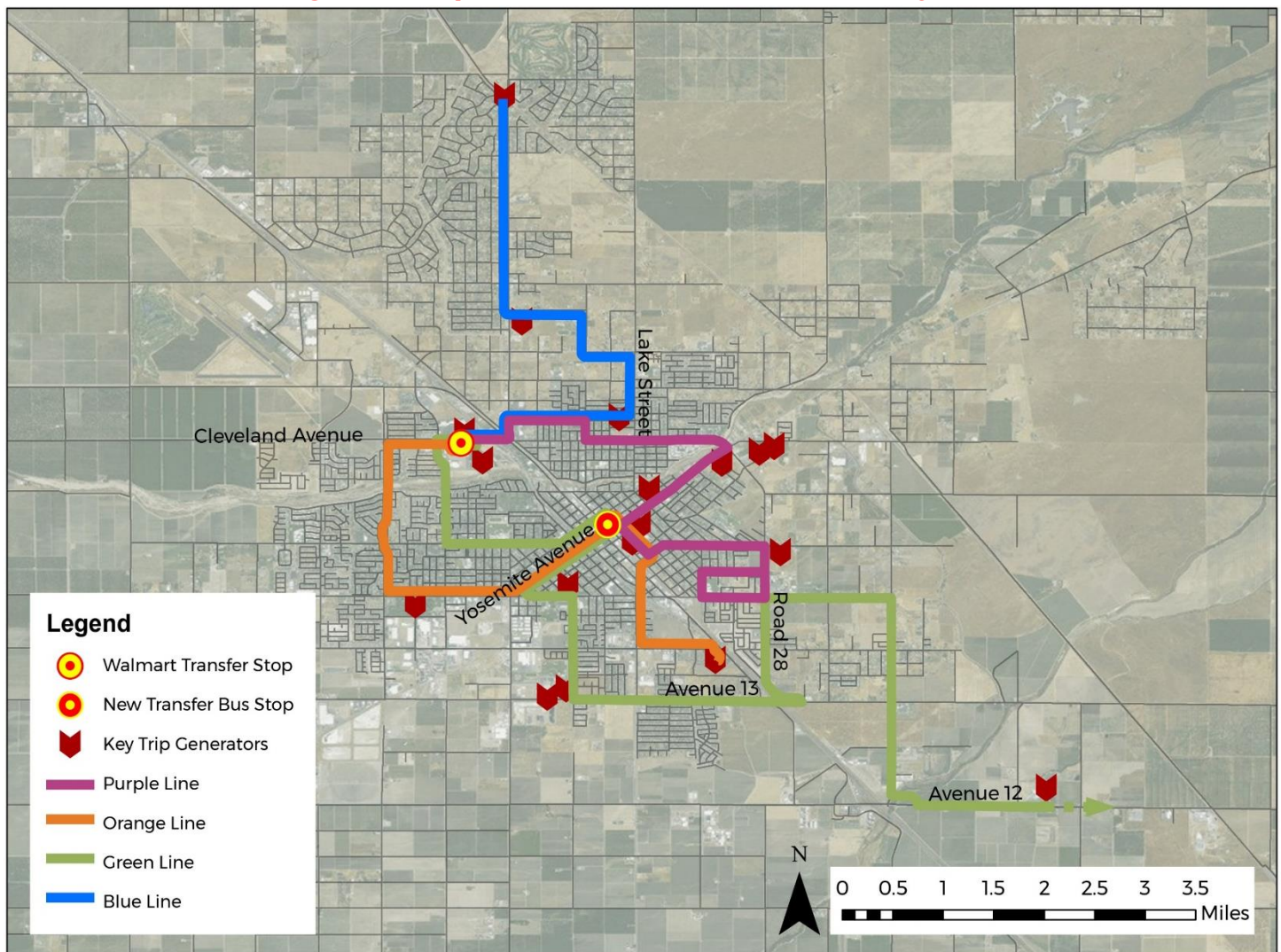
3 PROPOSED ROUTES

In addition to proposing changes to route alignments, the MTP recommends changing the route names and colors to reflect the new routes. The following routes make up the proposed Madera Metro system:

- Purple Line
- Orange Line
- Green Line
- Blue Line

As the proposed system map shows in Figure 10, a new transfer point for the Purple/Orange/Green lines will be located at the Madera Intermodal Station at the intersection of North E Street and East Yosemite Avenue. There will also be a transfer point located at Walmart where all four routes will meet. These transfer points will provide an easy and convenient opportunity for customers to transfer between routes to access more of the city. Further details on each new route are described in the following sections.

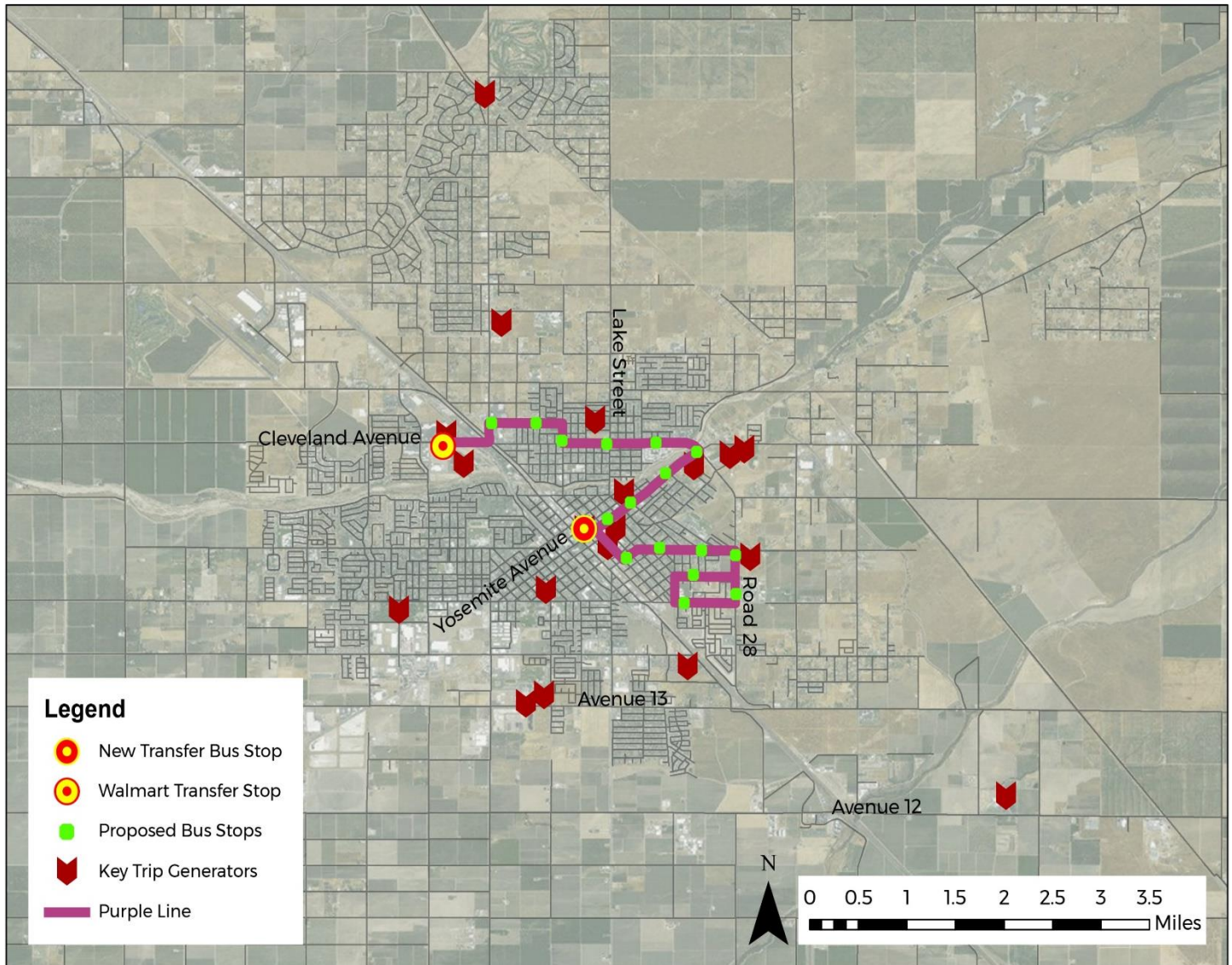
Figure 10 Proposed Madera Metro Fixed-Route System



3.1 PROPOSED PURPLE LINE

The proposed Purple Line is designed to focus on providing service to the area of the city east of SR 99. This allows for a shorter and more direct travel path compared to the original Route 1 that will improve route reliability and provide an opportunity to reinvest resources into improving frequencies and/or expanding spans for the system. The route will serve several key destinations including multiple grocery stores, the Madera Intermodal Station, and Walmart. Figure 11¹ shows the proposed route alignment. Table 2 provides a summary of the proposed route stats.

Figure 11 Proposed Purple Line Alignment



¹ Stops with multiple directions (e.g. NB and SB) are shown as one stop for presentation purposes.

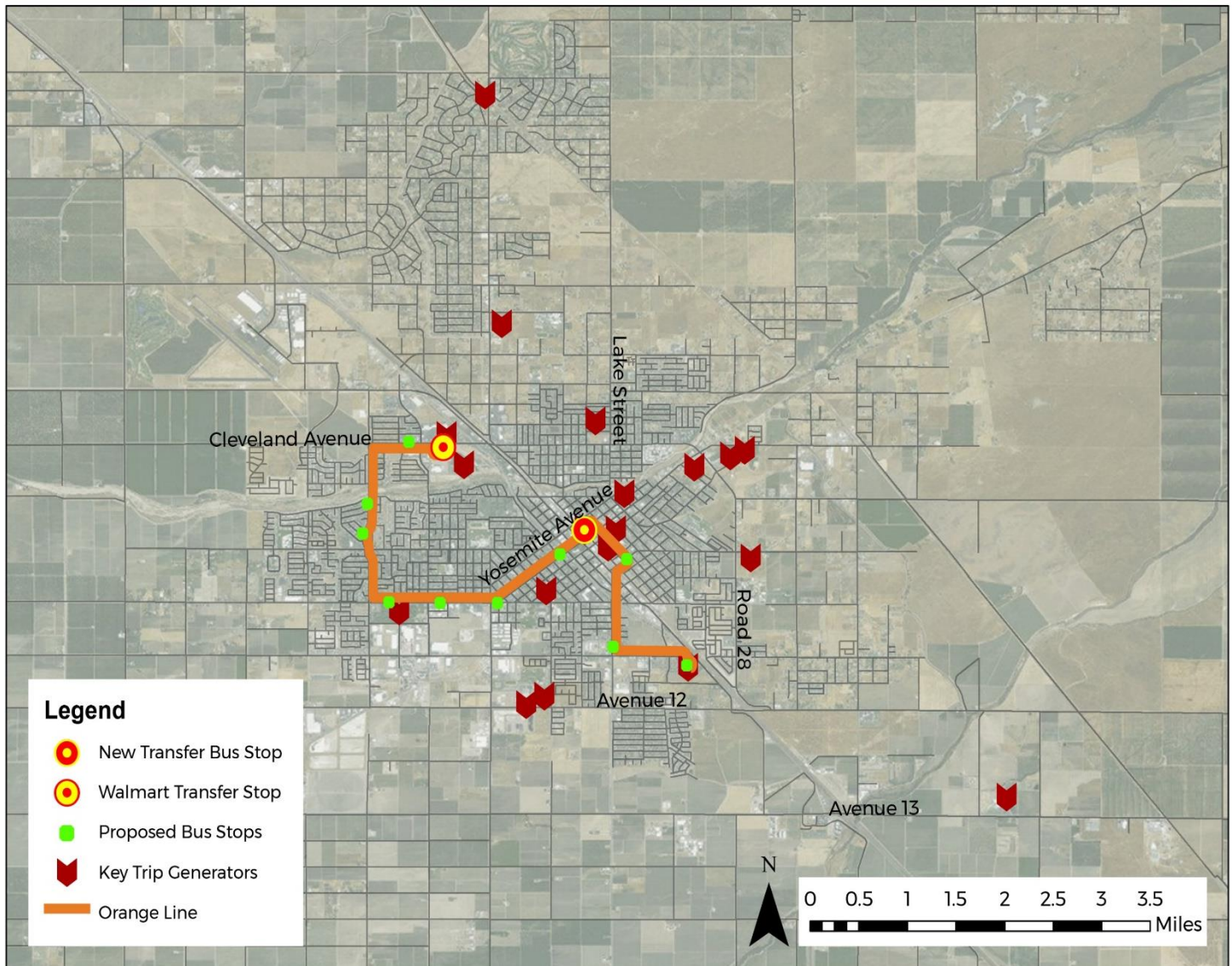
Table 2 Proposed Purple Line Stats

First Stop	NB: Road 28 at County Complex	SB: Walgreens at Cleveland Avenue
Last Stop	NB: Walgreens at Cleveland Avenue	SB: Road 28 at County Complex
Key Destinations Served	Walmart, Madera Intermodal Station, Multiple Grocery Stores	
Route Length	13 Miles	

3.2 PROPOSED ORANGE LINE

The proposed Orange Line is designed to focus on serving the area of the city west of SR 99. This route path provides access to the Madera Intermodal Station for transfer opportunities to the Purple and Green Lines. This route also connects multiple key destinations in the city including Walmart, Madera High School, and Madera Hospital. Figure 12² shows the proposed route alignment. Table 3 provides a summary of the proposed route stats.

Figure 12 Proposed Orange Line Alignment



² Stops with multiple directions (e.g. NB and SB) are shown as one stop for presentation purposes.

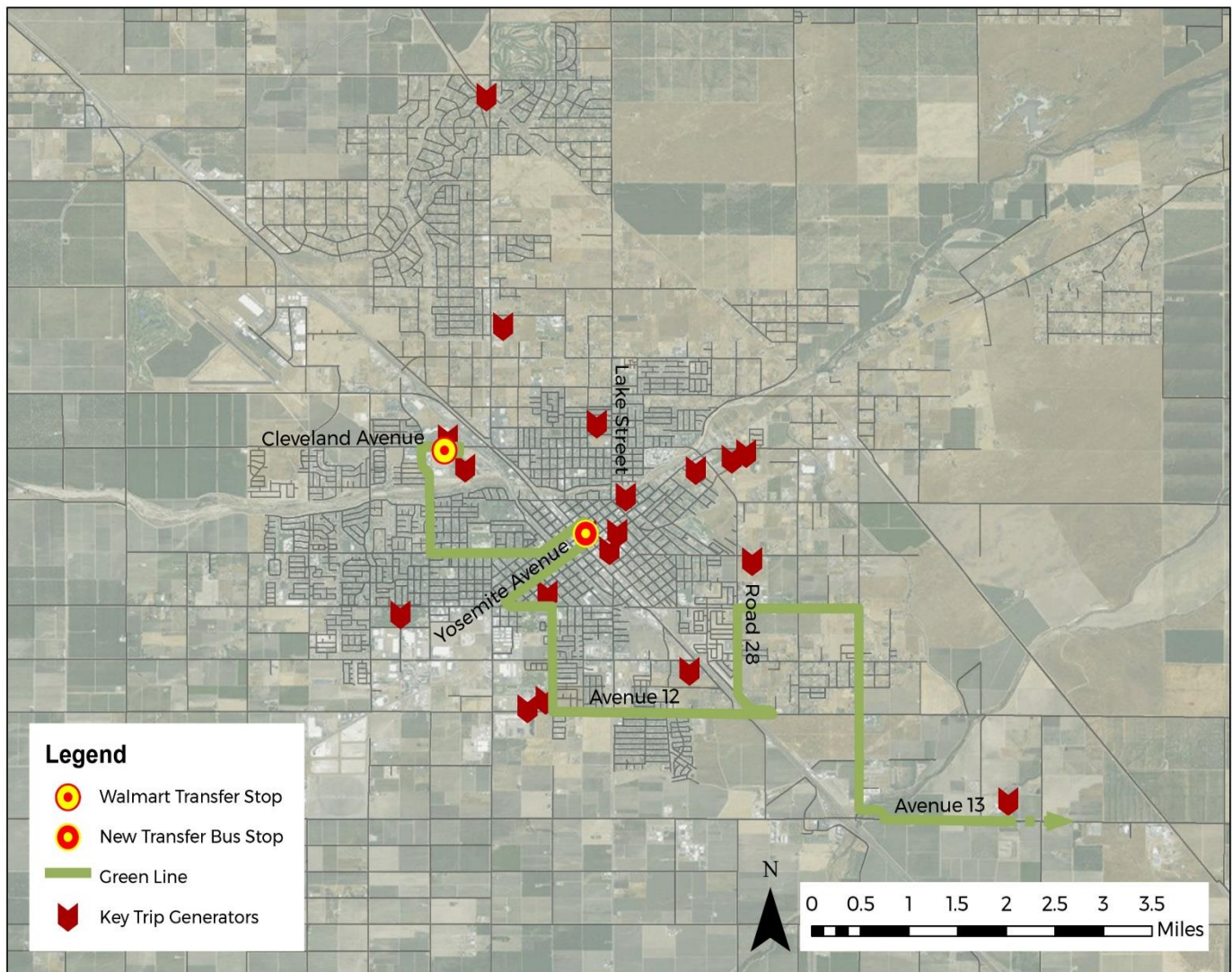
Table 3 Proposed Orange Line Stats

First Stop	NB: Madera Hospital	SB: Walgreens at Cleveland Avenue
Last Stop	NB: Walgreens at Cleveland Avenue	SB: Madera Hospital
Key Destinations Served	Walmart, Madera Intermodal Station, Madera Hospital	
Route Length	13 Miles	

3.3 PROPOSED GREEN LINE

The proposed Green Line is designed to serve the area of the city west of SR 99 and southeast along Avenue 12. The route will maintain existing service to Madera Community College for residents west of SR 99 and will provide a new connection to the area for residents along Road 28, Avenue 14, and Road 29. The route will also serve Walmart as well as the Madera Intermodal Station for convenient transfers to the Purple and Orange Lines. Figure 13³ shows the proposed route alignment. Table 4 provides a summary of the proposed route stats.

Figure 13 Proposed Green Line Alignment



³ Stops with multiple directions (e.g. NB and SB) are shown as one stop for presentation purposes.

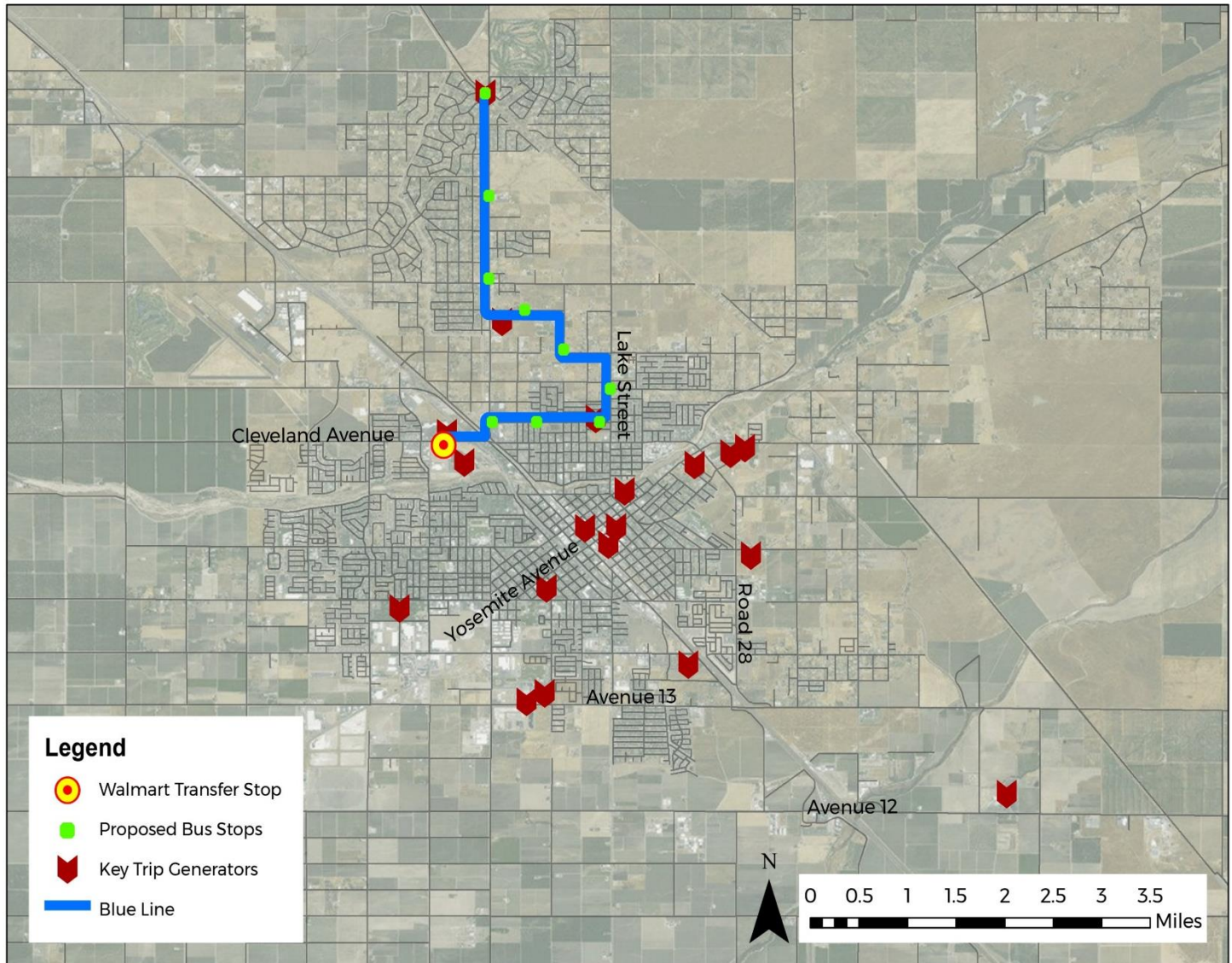
Table 4 Proposed Green Line Stats

First Stop	NB: Community College Center	SB: Walgreens at Cleveland Avenue
Last Stop	NB: Walgreens at Cleveland Avenue	SB: Community College Center
Key Destinations Served	Walmart, Madera Intermodal Station, Community College	
Route Length	25 Miles	

3.4 PROPOSED BLUE LINE

The proposed Blue Line provides service to the area of the city north of West Cleveland Avenue that is not currently served by the Madera Metro fixed-route system. The route will provide access to Walmart, Pan-American Park, Matilda Torres High School, and the existing Amtrak Station. Figure 14⁴ shows the proposed route alignment. Table 5 provides a summary of the proposed route stats.

Figure 14 Proposed Blue Line Alignment



⁴ Stops with multiple directions (e.g. NB and SB) are shown as one stop for presentation purposes.

Table 5 Proposed Blue Line Stats

First Stop	NB: Walgreens at Cleveland Avenue	SB: Amtrak Station
Last Stop	NB: Amtrak Station	SB: Walgreens at Cleveland Avenue
Key Destinations Served	Walmart, Pan-American Park, Existing Amtrak Station	
Route Length	11 Miles	

4 NEXT STEPS

The redesigned network presented in this plan serves as a foundation for a more efficient bus system for the residents of Madera and will be finalized through a collaborative engagement process. Phase II will continue the work from Phase I by presenting the proposed redesigned routes to the community through a robust public outreach effort. Through a wide range of activities, the team hopes to solicit feedback to include in the refinement process before the proposed routes are finalized for implementation. Specific public outreach activities will include:

- Online survey
- Project flyer
- Social media advertisements
- Community forums
- Pop-up events

In addition to meeting with the public, stakeholder engagement will continue with presentations to the following groups:

- Transit Advisory Board
- Madera City Council
- Madera County Transportation Commission
- Madera Unified School District
- City of Madera ADA Advisory Council
- Madera County Social Services Department

Following these public outreach efforts, the proposed routes will be revised and finalized. An implementation plan will outline any schedule or frequency changes, including identifying different cost considerations. The anticipated implementation of new service is April 2023. Figure 15 shows a preview of Phase II activities.

Figure 15 Phase II Timeline

