

City of Santa Maria Bus Stop Improvement Plan

Senior Project by Jessica Wafer and Erin Gorman
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Executive Summary

Background

The City of Santa Maria and Santa Maria Area Transit seek to provide a framework for maintaining and developing bus stops that are easily identifiable, safe, and accessible. The guidelines outlined in the City of Santa Maria's Bus Stop Improvement Plan will focus on increasing rider safety by analyzing stop locations, stop accessibility, and developing design consistency. The Plan does acknowledge that bus stops will not always satisfy the requirements and guidelines set forth in this document. However, by implementing the goals and policies outlined in the Santa Maria Bus Stop Improvement Plan, the City can establish an overall positive, effective, and safe service for the Santa Maria community.

Purpose

The purpose of this document is to:

1. Establish an inventory of bus stops in ArcGIS.
2. Set guidelines for the design of and types of amenities for bus stops.
3. Determine areas of concern and opportunity within the transit system.

Existing Conditions

An extensive inventory of existing bus stops was completed in order to conduct an analysis for the Bus Stop Improvement Plan. The analysis asserts that graffiti and regular maintenance of bus stops are the most problematic areas. These issues will need to be resolved in order to maintain usable and aesthetically pleasing bus stops. As proposed, anti-vagrant and anti-graffiti amenities are highly recommended as well as innovative programs to help maintain bus stops.

ADA Accessibility

It is essential that the City of Santa Maria and Santa Maria Area Transit strive to provide ADA compliant bus stops whenever possible. The Bus Stop Improvement Plan proposes that these areas should receive priority in receiving improvements:

- **Landing Areas:** In order to provide accessible and safe landing areas, all grass, gravel, or dirt landing areas should be constructed with asphalt or concrete to increase mobility.
- **Lighting:** All stops should have adequate lighting, with increased lighting for evening bus stops and timed stops. If city lights are determined as not an adequate source, alternative lighting sources should be included.

- **Landscaping:** Increased maintenance can reduce accessibility issues caused by overgrown landscaping.
- **On-Board Accessibility:** Implementation of consistent on-board auditory and visual announcement of bus stops can enhance the overall accessibility of the transit system.

Bus Stop Spacing and Location

Regulation of stop placement and spacing creates a walkable environment that is essential to a productive and efficient transit system. As a result, the Bus Stop Improvement Plan proposes the following guidelines:

- Higher density areas allow for more bus stops, ranging from 1/8th of a mile to 1/4th of a mile.
- Lower density areas may have bus stops spaced greater than 1/4th of a mile apart; however it is recommended that stop spacing does not exceed the 1/4th mile distance.
- Farside bus stops should be utilized whenever possible.

Bus Stop Classification

Bus stop classification for Santa Maria Area Transit is determined by Santa Maria’s population and employment densities. The Bus Stop Improvement Plan proposes four different bus stop types, with amenities ranging from only a bus stop sign to a shelter, bike rack, and newspaper boxes. Bus stop amenities were chosen from Tolar Manufacturing and Landscape Forms Incorporated to be installed at all bus stops.

Recommended Programs

The Bus Stop Improvement Plan recommends the following programs to be implemented in order to establish a safe, accessible, and regularly maintained transit system:

- **AVL system:** The Automatic Vehicle Locator system can benefit the transit system by allowing SMAT to collect accurate ridership data. This can result in the creation of a more accurate and implementable classification system.

- **Adopt-a-Stop:** By incorporating an Adopt-a-Stop program, Santa Maria Area Transit can develop a partnership between the City and other interest groups. Those who agree to perform routine check-ups on their adopted stop can receive recognition from the City. The transit system can benefit from more regulated maintenance of bus stops.
- **Recycling:** The Bus Stop Improvement plan proposes a dual trash and recycling system be incorporated at high ridership stops. When feasible, Santa Maria Area Transit should incorporate this recycling program at serviceable stops.

Budgeting and Phasing

Naturally, all of these proposed changes and improvements will result in heavy expenditures. The Bus Stop Improvement Plan organizes a budget based on the proposed improvements and amenity changes. In order to implement these changes, a phasing plan has also been established. By following the implementation guidelines and utilizing the proposed funding strategies, the necessary improvements outlined in the Bus Stop Improvement Plan can become a reality. As a result, the City of Santa Maria would be served by a safe, accessible and identifiable transit system.

Introduction

Background As of June 19th, 2011, Santa Maria Area Transit (SMAT) adopted new transit routes (Appendix A). In order to effectively serve the community, these newly implemented routes must be incorporated into a transit system that is easily identifiable, safe, and accessible. This Bus Stop Improvement Plan supported the effort by establishing an inventory of existing conditions, a set of bus stop design standards, and determines specific areas of concern and opportunity within the transit system. Through specific goals and objectives, clear explanations, and illustrative graphics, the Bus Stop Improvement Plan provides decision makers and developers with the standards and tools necessary to plan and develop identifiable, safe, and accessible bus stops. The plan was developed to realize the goals and objectives outlined in the following subsections.

GOAL 1 PROVISION OF AMENITIES AND SERVICES FOR IMPROVED PEDESTRIAN AND VEHICULAR SAFETY AT ALL BUS STOPS IN THE CITY OF SANTA MARIA.

Objective 1.1 Ensure all stops receive adequate lighting. All timed and evening bus stops shall incorporate light sources that are used exclusively for the bus stop (as opposed to City lights). See example in Figure 1.

Objective 1.2 Place advertisements, shelters, benches, or any other amenities in a location that does not obstruct the visibility of passengers or pedestrians from transit drivers or other vehicular traffic.

Objective 1.3 Maintain proper landscaping of bus stops to allow proper distribution of lighting and mitigate any hazards from tree branches, oversized bushes, or overgrown grass. See example in Figure 2.



Figure 1: Freestanding light fixture, used for bus stops without shelters.

Source: Tolar Manufacturing, Omnilight



Figure 2: The Clark at Bradley Northbound stop illustrates well-maintained landscaping and proper placement of amenities.

Objective 1.4 Locate bus stops near crosswalks, sidewalks and other well-established pedestrian connections when reasonable.

Objective 1.5 Replace or repair damaged or worn bus stops in a timely matter.

GOAL 2 UTILIZATION OF RESOURCES TO EFFECTIVELY PROMOTE THE PARTNERSHIP BETWEEN SANTA MARIA AREA TRANSIT AND THE COMMUNITY.

Objective 2.1 Utilize advertisement space on shelters, benches, and buses to raise additional revenue. See example in Figure 3.



Figure 3: McCoy at Albertson's stop utilizes the available advertisement space, creating additional revenue for the transit system.

Objective 2.2 Promote transit usage to different demographics within Santa Maria.

Objective 2.3 Incorporate programs that promote the partnership between SMAT, transit riders, and local businesses. See example in Figure 4.

Objective 2.4 Identify bus stops with the community, such as, encouraging community bulletin boards.



Figure 4: An Adopt-a-Stop program, a bus stop garden.
Source: Metro Transit, Austin, TX

GOAL 3 INCREASED ACCESSIBILITY FOR ALL RIDERS USING SANTA MARIA AREA TRANSIT.

Objective 3.1 Locate bus stops in areas with existing sidewalks or planned sidewalk development.

Objective 3.2 Develop and improve bus stops (where reasonable) to comply with standards set by the Americans with Disabilities Act (ADA). See example in Figure 5.



Figure 5: Passenger boarding bus from accessible landing pad.

Objective 3.3 Locate bus stops in high ridership areas or areas with potential to attract future ridership.

Objective 3.4 Provide bus stop amenities that serve all demographics and riding purposes.

Objective 3.5 Include bike racks at bus stops with potential demand for bicyclists, further implementing the Santa Maria Bike Plan.

Objective 3.6 Install GPS and Automatic Vehicle Locator System for consistent bus stop announcements and up-to-date information once funding has become available.

Objective 3.7 Locate bus stops in areas that do not require the rider to walk more than a quarter of a mile.

GOAL 4 A TRANSIT NETWORK THAT EMBODIES SUSTAINABILITY.

Objective 4.1 Promote sustainability through advertisements, marketing, and education for alternative transportation means.

Objective 4.2 Install recycling bins at all bus stops that require trash cans in order to further implement the goals found in Santa Maria’s Source Reduction and Recycling Element.

Objective 4.3 Include solar lighting at appropriate bus shelters for shelter lighting, advertisement lighting, schedule lighting and/or sign lighting. See example in Figure 6.



Figure 6: Solar lighting used for evening shelter and advertisement lighting.
Source: Apex Lighting

GOAL 5 CONSISTENCY IN DESIGN OF SANTA MARIA AREA TRANSIT SYSTEM BUS STOPS, MAKING THE TRANSIT SYSTEM EASILY IDENTIFIABLE TO RIDERS.

Objective 5.1 Follow the design guidelines set forth and the City approved amenities listed in the Bus Stop Improvement Plan in the development or improvement of new stops.

Objective 5.2 Keep a consistent schedule of maintenance for bus stops and investigate creative solutions to developing partnerships in establishing a shared responsibility for maintaining bus stops.

Organization of the Report

The Bus Stop Improvement Plan is separated into ten major sections:

- **Introduction:** The introduction provides a brief overview of the existing transit system conditions within Santa Maria. This section also discusses the various goals and objectives that set the framework for bus stop improvements and development.
- **Literature Review:** This section focused on key documents used in the conduct of this study with brief summaries of how they were applied and built upon to help develop the Bus Stop Improvement Plan.
- **Existing Conditions:** This section explains the inventory process and analysis of existing conditions. It provides detailed maps and graphics illustrating the areas of opportunity and concern within the SMAT system.
- **Stop Classification:** This section discusses a systematic approach for classifying bus stops by type. The classification system explains in detail how classification by bus stop type can be an implementation tool for future developments.
- **Bus Stop Design:** One of the major goals of SMAT is to develop an easily identifiable transit system that provides adequate amenities in a safe manner. This section outlines bus stop designs for each classification type, determining which amenities to be incorporated at each bus stop type and creating a design consistency.
- **Recommendations:** Several bus stop shelter and amenity manufacturers were researched for pricing and cost analysis. This section presents amenities recommended by SMAT management that are to be incorporated into bus stop designs.

- **Programs:** The SMAT system exists to serve the community. It is essential therefore to provide a system that adapts to technological advances, promotes sustainable practices, and recognizes the partnership between the City and the community. The recommended programs outlined in this section acknowledge these needs and partnerships in order to enhance the overall transit system.
- **Budget and Phasing:** Preparing a budget and a phasing schedule help implement the goals and policies set forth in the Bus Stop Improvement Plan. These two sections explain in detail the cost of amenities and phasing strategies for implementing bus stop improvements and developments. Funding sources are also identified under the Budget section.
- **Conclusion:** The final section summarizes the concluding observations from this documentation.

Statement of Objectives

The Bus Stop Improvement Plan contains an extensive inventory of all existing bus stops. The Plan addresses issues with existing bus stops, including location, safety concerns, and amenity conditions. The Bus Stop Improvement Plan also incorporates a budget and implementation schedule for the renovation, removal, or development of stops. Finally, the Bus Stop Improvement Plan utilizes Santa Maria population and employment densities for bus stop classification determination. Recommendations are made for future bus stop placements, amenities, and programs to further improve Santa Maria Area Transit service and safety.

Methodology

In order to develop a successful Bus Stop Improvement Plan for the City of Santa Maria that improves service quality and mitigates safety concerns, other adopted plans were researched for techniques and strategies that are applicable to Santa Maria. Plans were organized by strengths and weaknesses and evaluated on relevancy to the City of Santa Maria. (See Appendix B for the city matrix.) Several plans helped guide the development of Santa Maria’s Bus Stop Improvement Plan, such as Easter Seal’s “Toolkit for Assessment of Bus Stop Design and Safety”. This document helped direct the development of the data dictionary necessary for completing an inventory of existing bus stops.

The County of Santa Barbara's latest Short Range Transit Plan also provided information on the demographics of current transit riders within Santa Maria.

The finalized data dictionary contained over 200 individual categories discussing stop location, accessibility, amenities, and safety. The City of Santa Maria conducted an inventory of each existing individual bus stop in the fall of 2010. Each stop was evaluated and its geoposition was recorded. Pictures were taken of each stop and organized in a photo database on the City server.

After completing the inventory of existing Santa Maria Area Transit bus stops, the data was analyzed to determine needed amenities at stops, to establish unsafe stops, to organize and eliminate unnecessary stops along new SMAT routes, and to create a budget and implementation schedule based off of the findings. After gathering information on existing bus stops, a set of goals and objectives were created to respond to problem areas within the Santa Maria Area Transit system. These goals and objectives will serve as guidelines to further implement the City's General Plan while satisfying the needs of the transit community.

The goals and objectives in the Bus Stop Improvement Plan outline a need for increased safety, incorporation of advertisement, improved accessibility, and the promotion of sustainability. In order to accomplish these goals, the Bus Stop Improvement Plan dictates amenity requirements for each bus stop classification, providing illustrative schemes of each. Several manufacturers, including Tolar Manufacturing and Landscape Forms, were contacted regarding amenity pricing for budget preparation.

The Bus Stop Improvement Plan also includes amenity recommendations, program outlines, and potential future data collection methods. A budget and phasing plan was developed to organize the implementation of the proposals laid out in the Santa Maria Bus Stop Improvement Plan, which will be used by the City to efficiently transition from the old bus routes to the new bus routes and stops.

Literature Review

By incorporating policies and programs proposed in Santa Maria’s Bus Stop Improvement Plan, Santa Maria Area Transit will create comfortable and safe bus stops for transit riders. The Santa Maria Bus Stop Improvement Plan will contain goals and objectives that enhance service quality factors, both on and off-board, within the Santa Maria Area Transit System. Furthermore, implementing the programs will help guide future bus stop analysis for Santa Maria Area Transit and will create partnerships between the City, the community, and the transit riders.

Key Documents

Appendix B organizes main attributes of cities researched for this study. The following subsections present brief summaries of the key documents used with explanation on how information from these sources were applied and built upon to help develop the Bus Stop Improvement Plan.

San Luis Obispo: Short Range Transit Plan, 2004

The San Luis Obispo Short Range Transit Plan (SRTP) of 2004 addresses several key issues pertinent to the Santa Maria Bus Stop Improvement Plan. The SRTP discusses categories used for existing service stop inventory, along with examples of how to evaluate and present the data gathered. The Santa Maria Bus Stop Improvement Plan follows the San Luis Obispo’s SRTP’s technique for classifying different types of bus stops according to ridership. Figure 7 shows that bus stops with the lowest ridership amount are classified as Type 1, and as ridership increases, the classification becomes Type 2, Type 3 or Type 4 respectively. Using this assigned classification, amenities provided at each bus stop are assigned to the particular classification.

Table 5-4 Service Stop Classification

Daily Boardings	Classification
1 to 7	Type 1
8 to 14	Type 2
15 to 64	Type 3
65 or More	Type 4

Table 5-5 describes the amenities to be provided for each stop type. All Type 1 stops should be equipped with a transit sign that lists the route numbers serving the stop. All Type 2 stops should be equipped with a transit sign that also displays schedule information, as well as a bench (located on the sidewalk by the sign). All Type 3 stops should have a second bench to accommodate increased ridership, and a shelter. Finally, all Type 4 stops should have all of the previously mentioned amenities in addition to a trash container, night lighting, a payphone, a bike rack and an electronic messaging sign to communicate information to riders.

Table 5-5 Service Stop Amenities by Stop Class

Service Stop Classification	Transit sign	Schedule information	Bench on sidewalk or in parkway	Second bench	Shelter	Electronic messaging sign*	Trash container	Night lighting	Pay phone*	Bike rack^
Type 1	X									
Type 2	X	X	X							
Type 3	X	X	X	X	X					
Type 4	X	X	X	X	X	X	X	X	X	X

NOTES: * Installation of pay phone is subject to phone company decision.

^ Bike rack installation is subject to passenger demand.

* Electronic messaging signs are installed at the discretion of the city.

Figure 7: Classification and amenities by class for San Luis Obispo bus stops.

Source: City of San Luis Obispo, SRTP 2004

*Santa Barbara
Metro Transit
District: Final
Transit Needs
Assessment,
2010*

In Santa Barbara’s 2010 Final Transit Needs Assessment, there is up-to-date information on the City of Santa Maria’s demographics and transit dependency, based on disability, income and age. It also provides information on vehicle availability by household. With this data, the Santa Maria Bus Stop Plan is able to evaluate which amenities would be best suited for the citizens frequently utilizing the transit system as well as adequately position new bus stops along the new routes. The document also includes public input and comments specifically regarding issues or concerns with the Santa Maria Area Transit service.

*Texas
Transportation
Institute:
Guidelines for
the Location
and Design
of Bus Stops,
1996*

These guidelines serve a critical part in the overall process of initiating improvements to bus stops as well as determining the location of bus stops. Explanations are given for bus stop spacing recommendations based on locations in different areas, such as rural areas compared to a Central Business District (Appendix C, Figure C-1). Placement considerations are discussed at great length as related to safety for the passengers and boarders and operational considerations for the transit agency and drivers. With Santa Maria adopting new transit routes, it is essential to reference these guidelines when establishing new bus stops along these routes.

Texas Transportation Institute also explains different recommendations and requirements for bus stop zone design types, such as bus bays or curbside bus stop zones. Finally, the guidelines give a street-side placement checklist to go through before the finalization of any new bus stops (Appendix C, Figure C-2). This was helpful when determining new bus stop locations for the Santa Maria Bus Stop Improvement Plan, which proposes changes that are safe and consistent with recommendations of the Texas Transportation Institute.

Pedestrian access features are essential to any well-designed bus stop. Guidelines and recommendations set by the Texas Transportation Institute helped dictate where waiting pads should be located and the size necessary to meet ADA standards. The Texas Transportation Institute also discusses the importance of coordinating bus stop improvement designs and locations with local commercial, business, or residential development located near bus stops.

As cooperation between SMAT and the community is essential to running a successful transit system, this is a critical component in bus stop location and gaining advertisement revenue. Most importantly, ADA standards are extensively discussed within this document, giving information on appropriate ways to deal with obstacles, surfaces, signs, and telephones so that they meet ADA standards. With Santa Maria's main riders consisting of the elderly, handicapped, and low-income demographics, it is essential to make sure all bus stops are up-to-date with ADA standards (Appendix C, Figure C-3). Finally, the guidelines provide detailed information regarding shelter locations and need based on ridership, including the wide variety of amenities that can be provided at stops and recommendations for each.

*Chico, Butte
Regional
Transit:
Bus Stop
Improvement
Plan, 2007*

This Bus Stop Improvement Plan was a great tool and resource for the layout and preparation of Santa Maria's Bus Stop Improvement Plan, including appropriate maps and charts to show information appropriately. Chico's plan provides an example of how to lay out planned improvements within the document, adequately showing the prioritization of the stops. Santa Maria's Bus Stop Improvement Plan built on this example and includes a more extensive budget analysis. Furthermore, Santa Maria's Bus Stop Improvement Plan includes designs of new transit signs that can be incorporated throughout the new route system. In Chico's Bus Stop Improvement Plan, there is extensive analysis into how a well-designed transit sign can promote transit usage and increase ridership. This was helpful in guiding the new Santa Maria Area Transit sign design.

*Toolkit for
Bus Stop
Accessibility
and Safety,
2006*

This document served as the primary guiding document for conducting an inventory of all existing bus stops. It helped guide the development of the data dictionary for the Trimble GPS device. The Toolkit for Bus Stop Accessibility and Safety organizes bus stop inventory into six sections: Identification/Location, Pedestrian Access Features, Passenger Comfort Amenities, Safety and Security Features, Information Features, and Diagrammatic Photograph (Appendix D). Working with the City of Santa Maria, a data dictionary was created following the guidelines from these main sections.

Discussion

Based on what has been successful in other areas and what is relevant to Santa Maria, it was determined that the Santa Maria Bus Stop Improvement Plan should include extensive information regarding technology, bus stop location and design, ADA criteria, and bus stop amenities. The amenities outlined in Santa Maria's Bus Stop Improvement Plan include shelters, signage, trash cans, and benches. Recommendations for new bus stop locations are included in the Plan, with appropriate sketches of the layout design.

The new design and amenities at bus stops directly reflect the needs of the varying demographics within Santa Maria. Safety, functionality, and feasibility are the top priorities in determining bus stop locations and bus stop amenities. All bus stops are to be ADA compliant, implementing standards from the Texas Transportation Institute: Guidelines for the Location and Design of Bus Stops, 2006. When feasible, the Santa Maria Bus Stop Improvement Plan requires innovative technology to promote sustainability and to bring the transit system up-to-date with current transit technology.

Inventory

Data Collection

In 2011, Santa Maria Area Transit implemented new transit routes. In order to properly plan for new bus stop locations along these routes, an inventory of existing stops and their conditions was needed. The completed inventory allowed for proper bus stop placement and designation. Furthermore, it provided up-to-date and easily classifiable information regarding bus stop improvements.

Data Dictionary

In order to obtain information in an effective and organized manner, a data dictionary was developed for the Trimble GPS. The data dictionary contained over one hundred attributes that were used to evaluate each bus stop. The data dictionary included sections on identification and location, pedestrian access, pedestrian amenities, safety, information features, and sketches or photographs (Appendix E). A database was created on the City server to provide photographic documentation of each stop. The photographic documentation referred to such categories as: sign condition, seating condition, shelter condition, landing area detail and any damage to the site.


The Santa Maria Area Transit All Routes Map that was used to conduct the inventory is shown in Map 1. As this Map is no longer being implemented, all inventoried bus stops included information regarding the 2011 transit routes (Appendix A). By including this information, the ArcGIS data accurately represented stops that needed be removed or incorporated into the 2011 transit routes.


Old SMAT ROUTES MAP

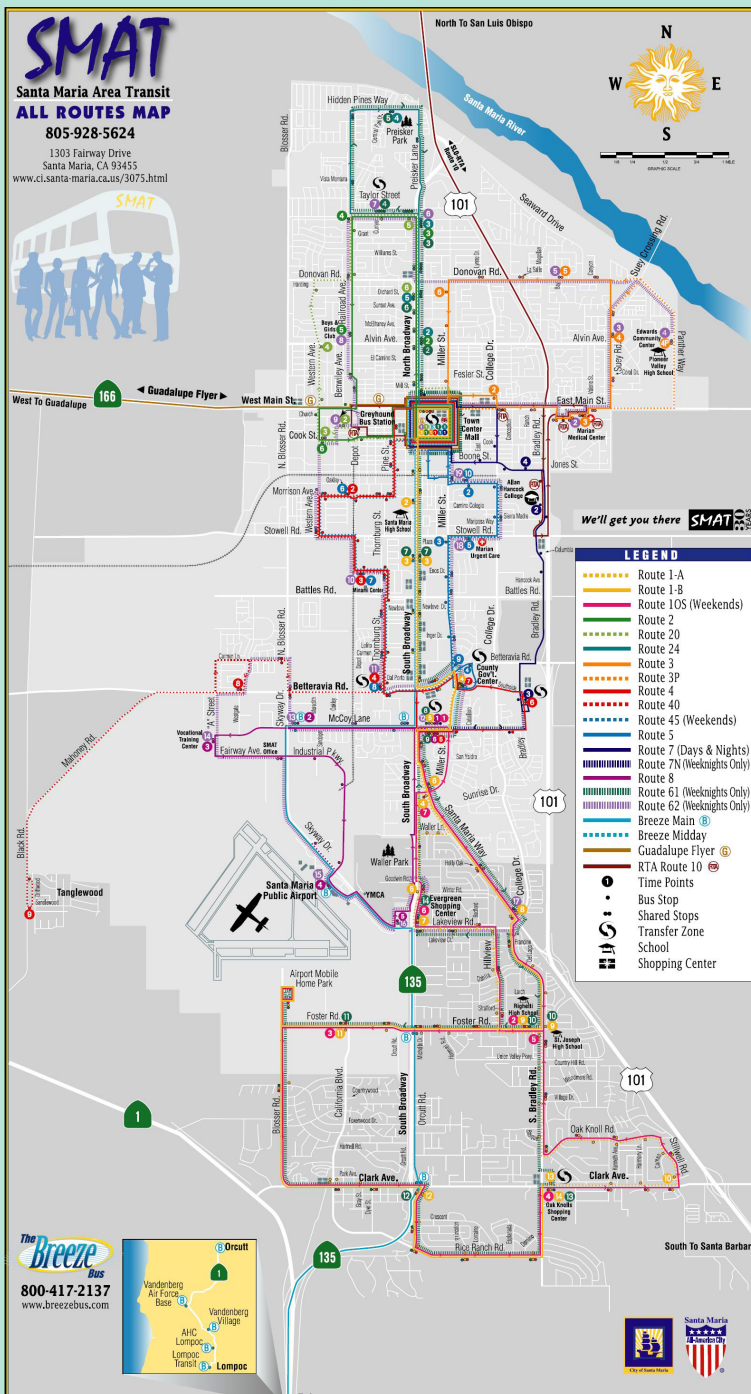
Map 1

SANTA MARIA AREA TRANSIT

SMAT
Santa Maria Area Transit
ALL ROUTES MAP
805-928-5624
1303 Fairway Drive
Santa Maria, CA 93455
www.ci.santa-maria.ca.us/3075.html







LEGEND

- Route 1-A
- Route 1-B
- Route 1OS (Weekends)
- Route 2
- Route 20
- Route 24
- Route 3
- Route 3P
- Route 4
- Route 40
- Route 45 (Weekends)
- Route 5
- Route 7 (Days & Nights)
- Route 7N (Weeknights Only)
- Route 8
- Route 61 (Weeknights Only)
- Route 62 (Weeknights Only)
- Breeze Main
- Breeze Midday
- Guadalupe Flyer
- RTA Route 10
- Time Points
- Bus Stop
- Shared Stops
- Transfer Zone
- School
- Shopping Center

ROUTE 1A/1B WEEKENDS/RCUTT
RUTA 1A/1B LOS FINES DE SEMANA/RCUTT

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 2 / RUTA 2

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 20 / RUTA 20

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 24 / RUTA 24

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 30 WEEKDAYS
RUTA 30 LOS DIAS LABORALES

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 24 WEEKENDS*
RUTA 24 LOS FINES DE SEMANA*

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 3 & 3P/ RUTA 3 Y 3P

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 4 & 40/ RUTA 4 Y 40

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 3 & 3P WEEKDAYS
RUTA 3 & 3P LOS DIAS LABORALES

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 40 / RUTA 40

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 7 / RUTA 7

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 45 WEEKDAYS
RUTA 45 LOS DIAS LABORALES

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 8 / RUTA 8

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM


ROUTE 8 / RUTA 8

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 61 / RUTA 61
ROUTE 61 WEEKNIGHT OWL SERVICE
RUTA 61 SERVICIO YESPENTINO SEMANAL

Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

ROUTE 62 / RUTA 62
ROUTE 62 WEEKNIGHT OWL SERVICE
RUTA 62 SERVICIO YESPENTINO SEMANAL



Direction	Stop	Time
Northbound	North San Luis Obispo	7:00 AM, 8:00 AM, 9:00 AM, 10:00 AM, 11:00 AM, 12:00 PM, 1:00 PM, 2:00 PM, 3:00 PM, 4:00 PM, 5:00 PM
Southbound	South Broadway	7:15 AM, 8:15 AM, 9:15 AM, 10:15 AM, 11:15 AM, 12:15 PM, 1:15 PM, 2:15 PM, 3:15 PM, 4:15 PM, 5:15 PM

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Effective February 1, 2007

Analysis

Using ArcGIS, the collected data was analyzed for different purposes. In order to upgrade existing bus stops, the conditions of amenities were noted throughout the inventory process. Furthermore, any obstacles or obstructions preventing easy access to the bus stop were noted. By analyzing the data in this way, current safety issues within the transit system can be addressed. The following subsections present a break down of the analysis prepared using ArcGIS.

Amenity Conditions

Research has shown that safety is one of the top factors in determining ridership in an area. By increasing both on-board and station safety, people are more inclined to ride the transit system (e.g. Taylor and Fink, 2003, Factors Influencing Transit Ridership). In order to accomplish both on-board and station safety, it is important to keep bus stops and their amenities well maintained. Any significant damages should be quickly noted and appropriately taken care of. The following analysis indicates areas of opportunity, where amenities needed to be repaired or replaced.

As shelters are one of the most prominent bus stop amenities, any damages to them are easily noticed by riders or potential riders. Currently, there are 53 existing shelters. Out of these 53 shelters, 22 are damaged to the point of being considered in “fair” or “poor” condition. Damages were categorized as graffiti, missing or broken pieces, and worn paint. Over seventy percent of shelters have graffiti damage or worn paint (Table 1). Table 1 shows the distribution of shelter conditions and their existing damages.

Shelter Condition	Total Shelters	Type of Damage (%)		
		Broken Pieces	Graffiti	Worn Paint
1 - Hazardous	0	0%	0%	0%
2 - Poor	2	2%	4%	2%
3 - Fair	20	4%	28%	30%
4 - Good	29	9%	40%	38%
5 - Excellent	2	0%	2%	2%
TOTALS:	53	15%	74%	72%

As with shelters, seating can also be a significant factor in the appearance and safety of a bus stop. As seen in Table 2, eighty percent of benches have worn paint, making worn paint the most prevalent damage between shelters and benches.

Table 2: Seating Conditions by Type of Damage					
Seating Condition	Total Seating	Type of Damage (%)			
		Broken Pieces	Graffiti	Insecure Install	Worn Paint
1 - Hazardous	0	0%	0%	0%	0%
2 - Poor	0	0%	0%	0%	0%
3 - Fair	26	7%	9%	1%	15%
4 - Good	121	11%	19%	0%	62%
5 - Excellent	12	0%	0%	0%	4%
TOTALS:	159	18%	28%	1%	81%

With over seventy percent of shelters being damaged by graffiti and over eighty percent of benches needing new paint, new amenities must acknowledge the need for long lasting paint, durability, and graffiti deterrents. Adequate lighting, consistent maintenance, and specific amenities that cater to durability are discussed in more detail in the Recommendations Chapter.

Along with graffiti, litter has become a major issue at bus stops. Currently, 59 bus stops are littered, but over thirty of these littered stops contain trash cans. This indicates that the areas are not regularly maintained, and the trash cans are underutilized. The City of Santa Maria should increase promotion of proper waste disposal at bus stop locations and implement a consistent maintenance schedule by City workers or volunteer groups. The Programs Chapter discusses in greater detail different strategies to implement consistent maintenance. Fourteen percent of trash cans have graffiti, again reaffirming the need for durable, graffiti-resistant amenities.

There are a handful of poles, signs, and schedule racks that also need replacement. Table 3 breaks down these amenities and their damages.

Table 3: Damaged Amenities				
Type of Amenity	Trash	Schedule Rack	Sign	Pole
Type of Damage	Overfilled, insecure installation, carts present, graffiti, littered stop	graffiti, missing schedule, paint worn	broken pieces, worn, graffiti	graffiti, bent, unsecure installation
Total	47	34	70	19

After analyzing the existing conditions of amenities, it is clear that graffiti and regular maintenance of bus stops are the main concerns. It is recommended that future amenities be well-equipped with anti-vagrant and anti-graffiti options. Furthermore, this chapter illustrates the need for regular maintenance of bus stops. Programs and more specific amenity recommendations are discussed in the Recommendations Chapter. For a detailed spreadsheet regarding bus stops needing improvements, see Appendix F or the ArcGIS data.

Americans with Disabilities Act

The Americans with Disabilities Act is intended to make public areas more accessible to those with disabilities. According to the Texas Transportation Institute, ADA compliancy involves, “accessibility from the point of origin to the final destination” (TTI, (1996) Chapter 4, pg. 60, Part C). As such, transit riders with disabilities should be able to navigate their way to a bus stop, within the stop, and on the bus without any visual or physical obstructions. This section discusses any existing problem areas or potential areas that may pose accessibility issues in the future.

In December, 2010, 27 bus stops were classified as being minimally accessible or not accessible due to landing area material. The most problematic materials were grass, dirt, and gravel. During the winter, muddy conditions make the landing area difficult to navigate (e.g. Figure 8). As a result, riders are forced to walk in the street or access stops by neighboring driveways. These stops should receive priority for landing area updates with concrete or asphalt connections.



Figure 8: The Cypress at Nicholson bus stop does not have an appropriate landing pad or adequate space on the sidewalk.

The majority of landing areas within Santa Maria are made of concrete; however, these landing areas still pose accessibility issues. Several stops were noted for not having adequate space between stop amenities and the curb, and many intersections do not have curb cuts or sidewalks (e.g. Figure 9). These findings suggest that pedestrian and rider mobility is severely limited, creating hazardous transit stops at certain locations.

Landscaping has also created accessibility issues, with roots uplifting the sidewalk or overgrown bushes impeding sidewalk space (e.g. Figure 10). In order to mitigate any landscaping issues, proper maintenance and planning of sidewalks, landing areas, and landscaping features is necessary.



Figure 9: Santa Maria Way at Holly Oak stop with no pedestrian connections.



Figure 10: Miller at Battles stop with uneven sidewalk.

When feasible, pedestrian connections, sidewalks, and landing areas should follow the guidelines and standards set forth by the Texas Transportation Institute, as illustrated in Figure 11. Landing areas should be at least 5' x 8' and made of impervious material. Furthermore, the shelter must be located in an area that does not obstruct pedestrian or rider circulation. The minimum sidewalk width for all pedestrian connections should be three feet with no obstructions.

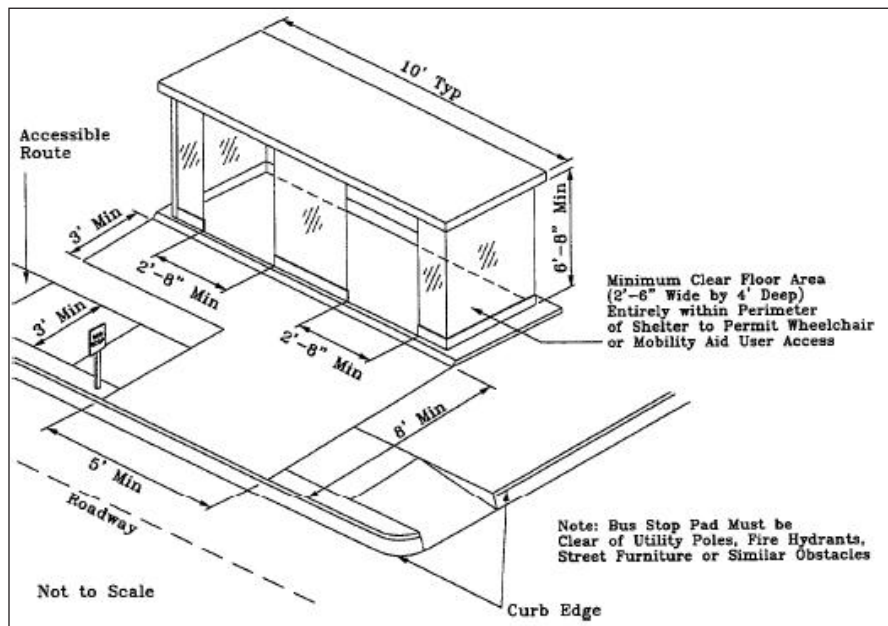


Figure 11: Minimum shelter and landing area dimensions to meet ADA requirements.

Source: Texas Transportation Institute, *Guidelines for the Location and Design of Bus Stops*, 1996

Adequate lighting is another essential amenity in providing an accessible and easily identifiable bus stop. As stated in the Goals and Objective of the Santa Maria Bus Stop Improvement Plan, it is proposed that all stops receive adequate lighting. All timed and evening bus stops should also incorporate light sources that are used exclusively for the bus stop. Overall, 121 stops were classified as having poor sign or stop lighting, with 91 stops lacking any light source. With almost half of existing stops not receiving adequate light, this issue should be given priority in establishing safe and accessible bus stops.

No evaluation or inventory was conducted of accessibility features on-board Santa Maria Area Transit's bus fleet. However, having consistent auditory and visual announcements of bus stops can enhance the overall accessibility of the Transit system. A GPS with Automatic Vehicle Locator system program is further discussed in the Program section of the Recommendations Chapter.

Stop Locations

Proper bus stop spacing is essential in balancing walkability and efficiency within the transit system. The City of Santa Maria and Santa Maria Area Transit promote quarter mile spacing between bus stops. Bus stops located in Central Business Districts or main

shopping corridors within Santa Maria may be spaced an eighth of a mile apart. The City of Santa Maria shall use their discretion when deciding bus stop spacing, as it directly influences bus stop frequency and total trip duration. In rural areas, it is encouraged that bus stops be spaced greater than a quarter mile apart in order to reduce stop frequency. Overall, by encouraging bus stop spacing that is proportional to the area density, both operating expenses and trip duration can be reduced. This will inevitably lead to more accurate bus schedules, less bus bunching, and happier transit riders (Cooper and Nuworsoo, 2010).

The requirements for bus stop spacing are outlined in Table 4. As shown, higher density areas will be served by more frequent bus stops spaced within an eighth of a mile. Whereas, medium density areas will have stops spaced every quarter mile. Finally, low density areas will be served by stops spaced greater than a quarter mile apart as to decrease stop frequency and trip duration.

Table 4: Stop Spacing Requirements		
Santa Maria Area Transit	People/Acre	Stop Spacing
High Density	23 - 55	1/8 mi
Med to High Density	13 - 22	1/4 mi
Med to Low Density	8 - 12	1/4 mi
Low Density	< 8	> 1/4 mi

Bus stop placement is also a crucial factor in providing a safe and efficient transit system. The City of Santa Maria shall utilize far-side bus stops whenever possible and avoid mid-block bus stops. Far-side stops are encouraged as they do not impede traffic turning right, they provide a greater sight distance for pedestrians, and they take advantage of traffic breaks caused by traffic lights. Overall, when determining stop placement, the following should be taken into account:

- Sight distance for autos, pedestrians, and the bus driver
- Passenger access to street crossings
- Bus stop zone design i.e., Curb Side, Bus Bay, Nub
- Traffic flow
- Public input
- Pedestrian connections
- Trip generators

Portland's Tri-Met (2002) developed specific criteria for bus stop placement. The City of Santa Maria should follow these guidelines when determining their own bus stop placements. Figure 12 outlines the criteria for far-side, near-side, mid-block, and off-street stop placements.

Situation	Preferred Placement
Any signalized intersection where bus can stop out of travel lane	Farside
If bus turns at intersection	Farside
Intersection with many right turns	Farside
Complex intersections with multi-phase signals or dual turn lanes	Farside
If nearside curb extension prevents autos from trying to turn right in front of bus	Nearside
If two or more consecutive stops have signals	Alternate nearside and farside (starting nearside) to maximize advantage from timed signals
If obvious, heavy single-direction transfer activity	One nearside; one farside to eliminate crossing required to transfer
If blocks are too long to have all stops at intersections	Midblock*
Major transit generators not served by stops at intersections	Midblock*
Midblock pedestrian-crossing defined by refuge island and/or striping	Midblock*
Transit center	Off-street
Major transit generator that cannot be served by on-street stop, or where ridership gain will far outweigh inconvenience to passengers already on-board	Off-street

*Midblock bus stops are generally less desirable than stops at intersections, however they must be considered when stable nearside and farside options are unavailable.

Figure 12: Criteria for Stop Placement

Source: Tri-County Metropolitan Transportation District of OR, *Bus Stop Guidelines*, 2002

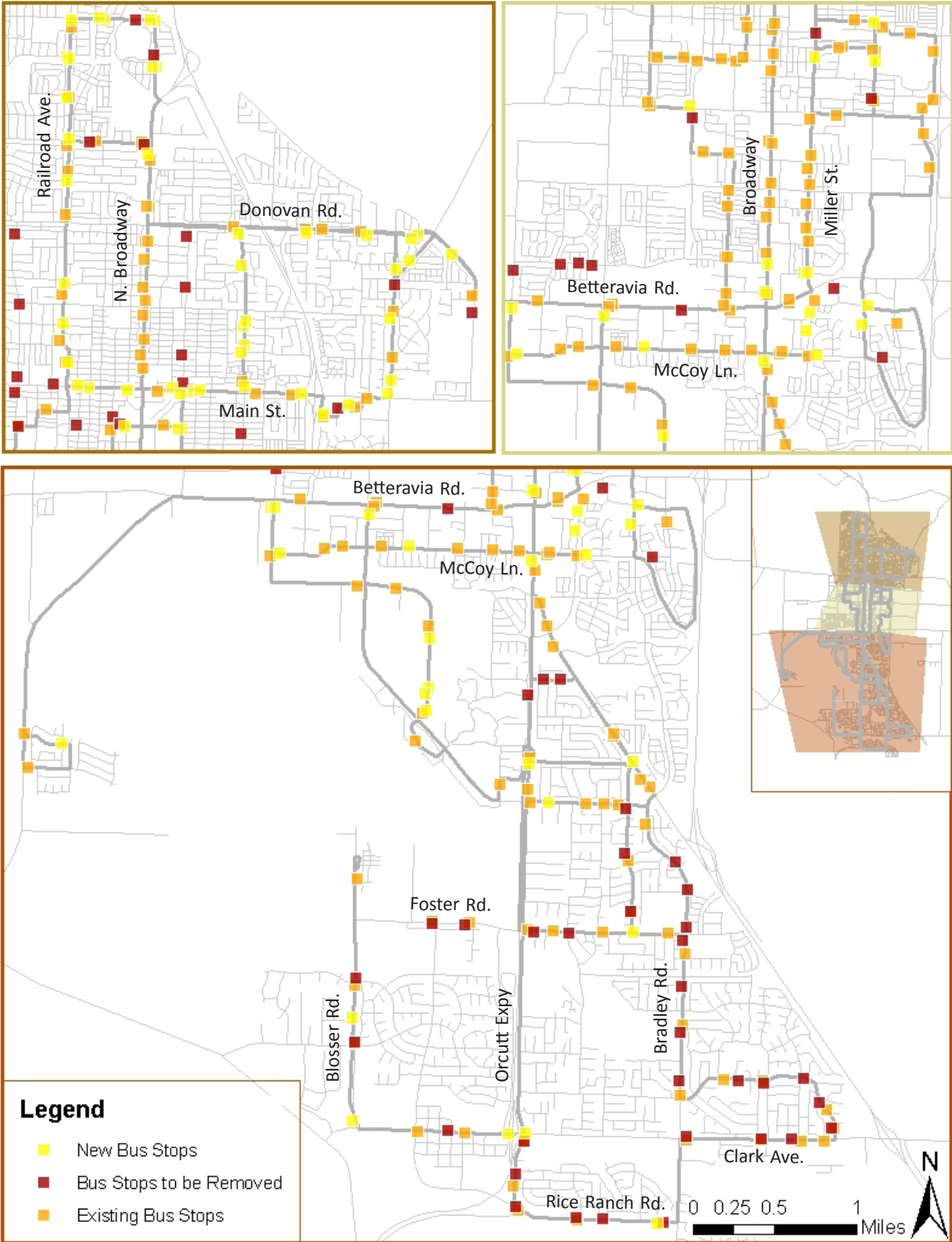
For a glimpse of current bus stop spacing and placement trends, the ArcGIS data includes up-to-date bus stop locations. By using this, Map 2 was created to analyze existing bus stops and their potential for future usage. Stops to be removed include those that did not fall along the newly implemented transit routes, were unsafe, or were replaced. Additional stops have been added in certain areas to enhance the overall system. These new stops shall follow the proposed bus stop spacing and placement guidelines discussed previously. Map 2 illustrates existing stops, stops to be removed, and new stops necessary for serving the 2011 SMAT transit routes. For more detailed information regarding stop placement by route, see Appendix G.

After analyzing the GIS data, it was evident that the majority of Santa Maria Area Transit bus stops are located within a quarter mile of each other, particularly in the denser areas of Santa Maria. However, for shorter trip durations and increased transit efficiency, it is proposed that several stops be removed or relocated in order to reduce stop frequency. Table 5 is a summary of the number of stops to be kept or removed along each route. Stops located in South Santa Maria and Orcutt are spaced greater than a quarter mile. This spacing is appropriate as it is proportional to the surrounding area's density and transit usage (See Appendix H for the detailed maps for each route).

Route	Stops to be removed	Stops to be moved	New stops to be added	Total stops
Route 1 Blosser	8	3	-	57
Route 1 Orcutt	11	-	-	68
Route 2	4	3	-	45
Route 3	1	-	-	29
Route 4	7	3	-	64
Route 7	2	4	-	29
Route 8	5	-	-	18
Route 7 Night	1	2	-	18
Route 61	9	2	1	100
Route 62	10	3	-	74
Totals	58	20	1	-

NEW, EXISTING, AND REMOVED STOPS MAP

Map 2



Classification

This chapter reveals how population and employment density maps are used to determine that there were a couple of areas in Santa Maria that are not within a quarter mile of a bus stop. These areas include the neighborhood to the west of Tommie Kunst Junior High School, Sunset Ridge Golf Course, Manzanita Berry Farms, and Driscoll Strawberry Associates and are located in Type 3 and Type 4 bus stop zones according to the population and employment density data.

In order for Santa Maria Area Transit stops to adequately serve riders, bus stops must be equipped with proper amenities. A functional way of organizing amenities is by bus stop type, classification of individual bus stops. With this in place, it enables standardization of costs for new bus stops or bus stop improvements, further streamlining the process for both developers and the City.

Santa Maria bus stops are categorized into four different types based on ridership (Appendix I has details). In order to determine daily boardings, daily ridership data must be collected at each stop. It is recommended that the City of Santa Maria invest in a GPS integrated Automatic Vehicle Locator system and an Automatic Passenger Counter. With this system, the City can monitor daily boardings at individual bus stops. This will enable the City to use accurate and up-to-date data when requiring the development or upgrade of bus stops. For additional information regarding the AVL and APC systems, please refer to the Recommendations Chapter.

The classification of bus stops should ideally take into consideration daily boarding, physical constraints, population and employment densities, and proximity to points of interest. Until daily boarding data is collected, the classification in Table 6 should serve as Santa Maria Area Transit's guidelines. As these are estimates, the amenities provided at new bus stops or the creation of new bus stops must take into account their proximity to points of interest and the employment and population densities of the area. Once ridership data is collected, the City should consider implementing a two-step classification process. In the two-step process, employment and classification densities are used to determine the initial classification. Ridership data is then used to further evaluate transit usage in a given area.

Table 6: Santa Maria Bus Stop Classification by Boarding	
Daily Boardings*	Bus Stop Type
0-10	Type 1
11-30	Type 2
31-60	Type 3
61 or more	Type 4
*Daily boardings were calculated by finding the ratio between SLO Transit's and the City of Santa Maria's annual ridership.	

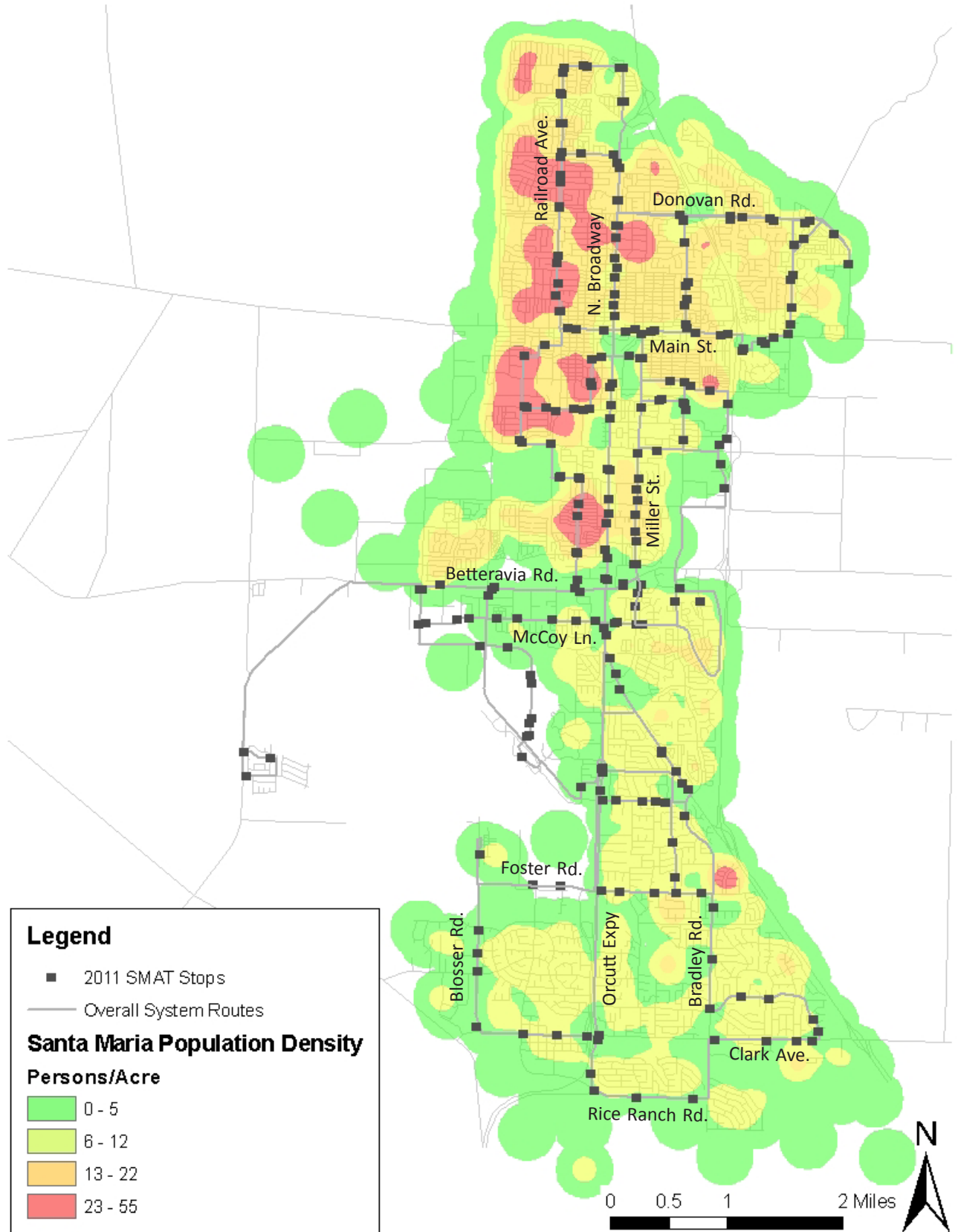
By referencing population and employment distribution, areas of greater densities can be established as having higher potential ridership. According to Santa Maria's 2010 Short Range Transit Plan, more than 52% of transit riders' final destinations were to work or school, confirming that areas of higher population or employment densities are more likely to be frequented by transit riders (Santa Maria SRTP 2010).

The population density analysis is shown in Map 3. This map shows the delineation of persons/acre within Santa Maria and the location of all SMAT bus stops. A quick analysis shows that the 2011 Santa Maria Area Transit routes serve the majority of densely populated areas, with the potential to expand service to the west of Railroad Avenue. Furthermore, Map 4 shows the employment density analysis. This map shows that areas with greater jobs per square mile are also served by the 2011 Santa Maria Area Transit routes.

Both population and employment densities are broken up into four different values. The ranges of values correspond to the four different bus stop classifications. Therefore, if a bus stop is located in the lowest populated density and the lowest employment density area that bus stop will be classified as type 1. By using this analysis, a matrix as shown in Table 7 is developed for determining the bus stop classification based on the employment and population densities.

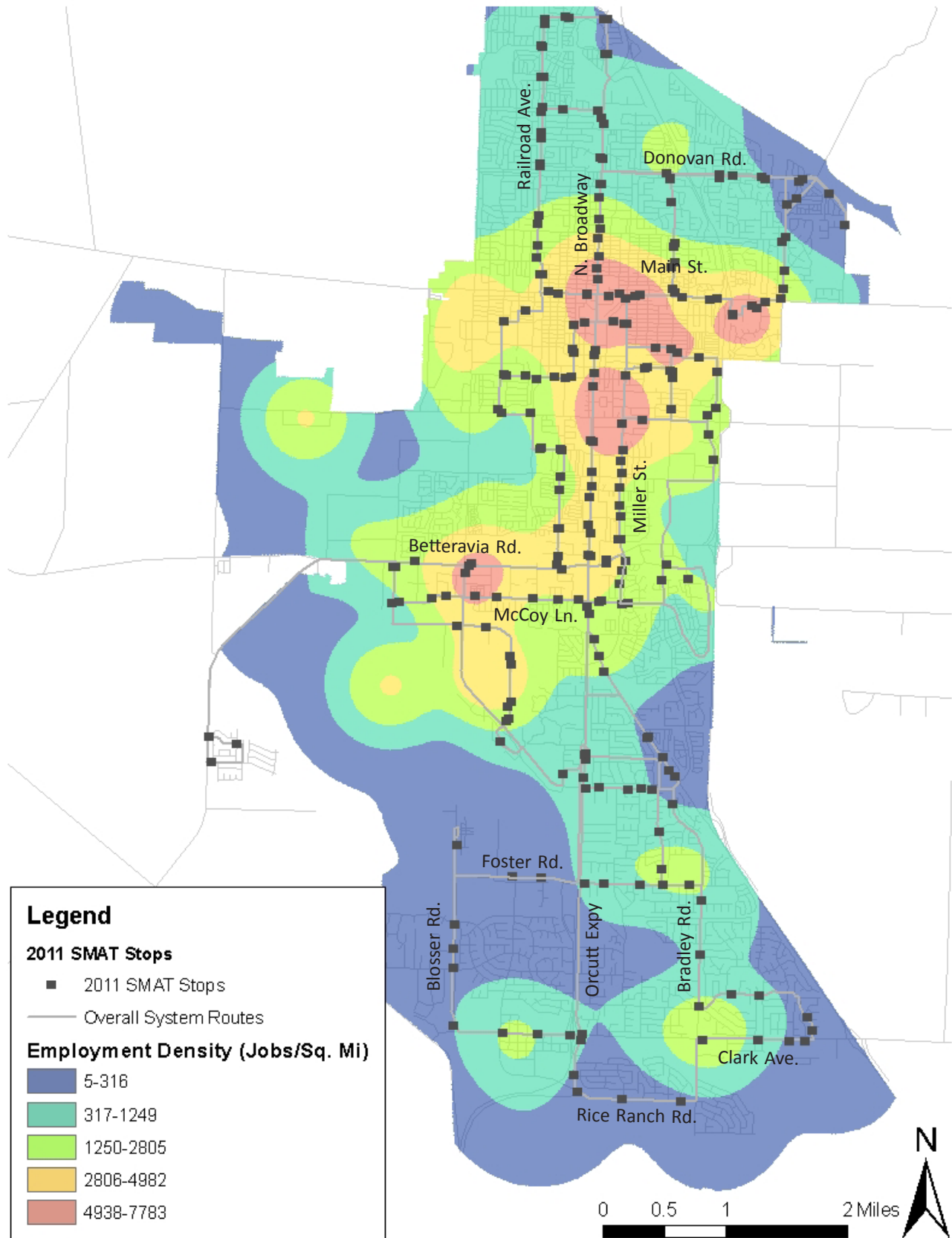
POPULATION DENSITY MAP

Map 3



EMPLOYMENT DENSITY MAP

Map 4



By knowing the population and employment densities for a given area, the final classification can be determined as shown in Table 7. For more detailed information, Appendix H contains the classification spreadsheet.

Table 7: Bus Stop Type Classification Matrix by Densities*					
Population → Employment ↓	0	1	2	3	4
0	0	1	1	2	2
1	1	1	1	2	2
2	1	1	2	2	3
3	2	2	2	3	3
4	2	2	3	3	4

*Stop classification based on population and employment densities.

When new developments occur within Santa Maria, the housing units and potential jobs created by the development will impact the area’s population and employment densities. By inputting the development information into the designated parcels within ArcGIS, the resulting density will determine the type of bus stop that is required in that location or if an existing bus stop will need to be upgraded at the cost of the developer. Please see Appendix J for further calculation explanations.

Furthermore, areas of interest, such as parks, shopping malls, and government centers should be taken into consideration when planning for new bus stop locations and classifications. These points of interest are shown in Table 8. Bus stops should be located within one-quarter mile of a point of interest, to provide a walkable connection from stop to destination as shown in Map 5. Bus stops within one-quarter mile of a point of interest should consider providing more amenities. However, the resulting classification of a bus stop due to proximity of a point of interest remains at the discretion of the City of Santa Maria.

Each bus stop classification type determines the amenities provided at that particular bus stop, as seen in Table 9. By determining the type of the new bus stops, developers and city decision makers can instantly know what is required at the stop. By utilizing the City-approved amenities listed in the Recommendations chapter, the cost of amenities are pre-calculated.

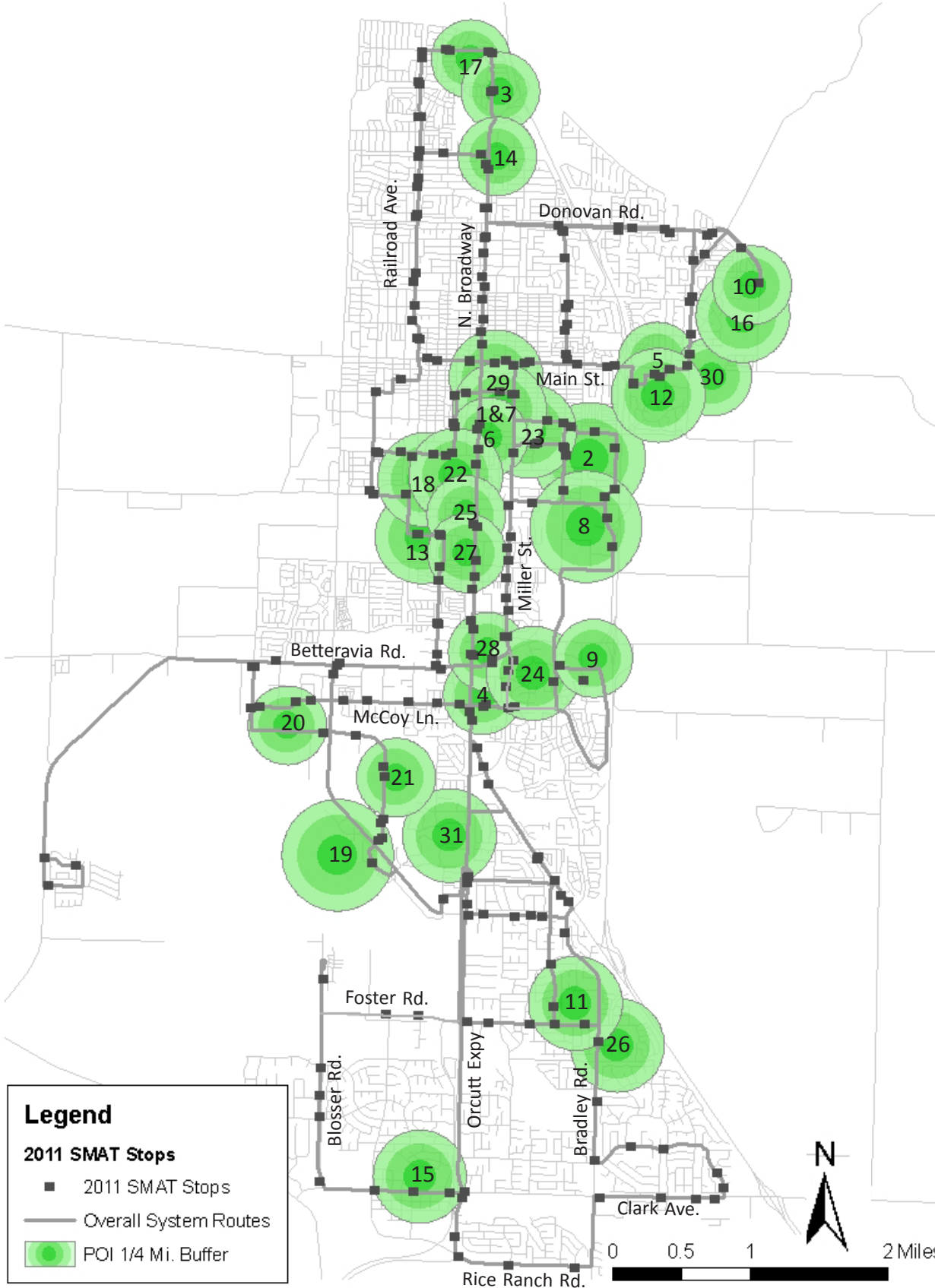
Table 9: Transit Stop Amenities				
	Type 1	Type 2	Type 3	Type 4
Red Curb	X	X	X	X
Schedule Info	X	X	X	X
Transit Sign	X	X	X	X
Bench		X	X	X
Bike Rack		X*	X*	X*
Night Lighting		X**	X**	X**
Recycling		X	X	X
Trash		X	X	X
Extra Trash			X*	X*
Shelter			X	X
Advertisements				X
Electronic Sign				X^
Newspaper				X*
Routes Map				X
Second Bench				X*
X* Bike rack installation subject to demand.				
X** Amenity is dependent upon location and need.				
X^ Electronic messaging signs are installed at the discretion of Santa Maria Area Transit.				

Table 8: Points of Interest

1	Abel Maldonado Youth Center
2	Allan Hancock College
3	Boomers!
4	Broadway Pavillion Shopping Center
5	Central Coast Kidney Disease Center
6	Children's Discovery Museum
7	Civic Center
8	Costco Power Shopping Center
9	Crossroads Shopping Center
10	Edwards Community Center
11	Ernest Righetti High School
12	Marian Medical Center
13	Minami Community Center
14	North Broadway Plaza Shopping Center
15	Old Town Orcutt
16	Pioneer Valley High School
17	Preisker Park
18	Santa Barbara County Fairgrounds
19	Santa Maria Airport
20	Santa Maria Area Transit
21	Santa Maria Country Club
22	Santa Maria High School
23	Santa Maria Intermodal Transit Center
24	Santa Maria Plaza Shopping Center
25	Santa Maria Shopping Center
26	St. Joseph High School
27	Stowell Shopping Center
28	Target
29	Town Center Mall
30	Veterans Administration
31	Waller Park

BUS STOPS AND POINTS OF INTEREST MAP

Map 5



Design

To better illustrate how the bus stop amenities will interact with the bus stop, the following sketches illustrate the requirements for and elements of amenities for each bus stop classification. On the following pages, Figures 13 to 18 show example sketches of each bus stop classification and their requirements. Safety, visibility, and ease of use are primary concerns in determining the location of amenities.

Bus Stop Type Amenities

Each type of bus stop is required to provide certain amenities (Table 9). The following illustrations depict the amenities for each bus stop type.

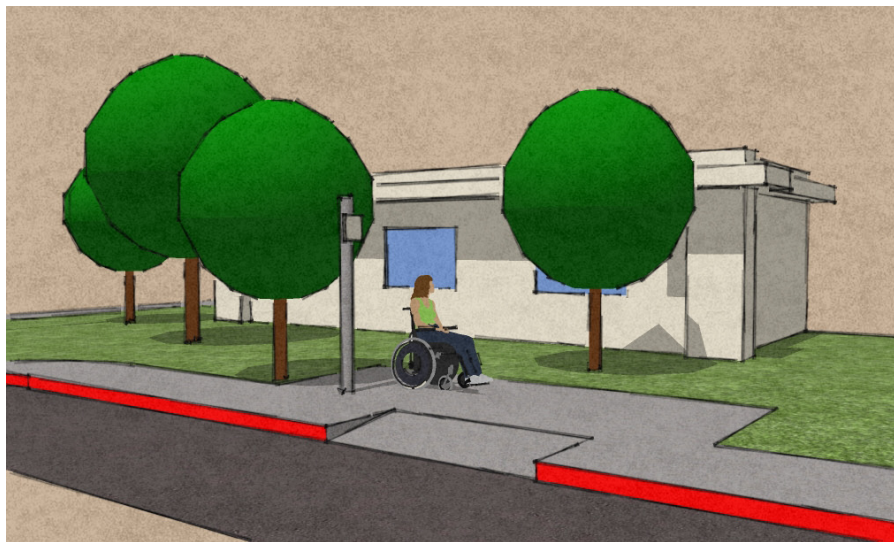


Figure 13: Type 1 includes a transit sign, a painted red curb, and schedule information.

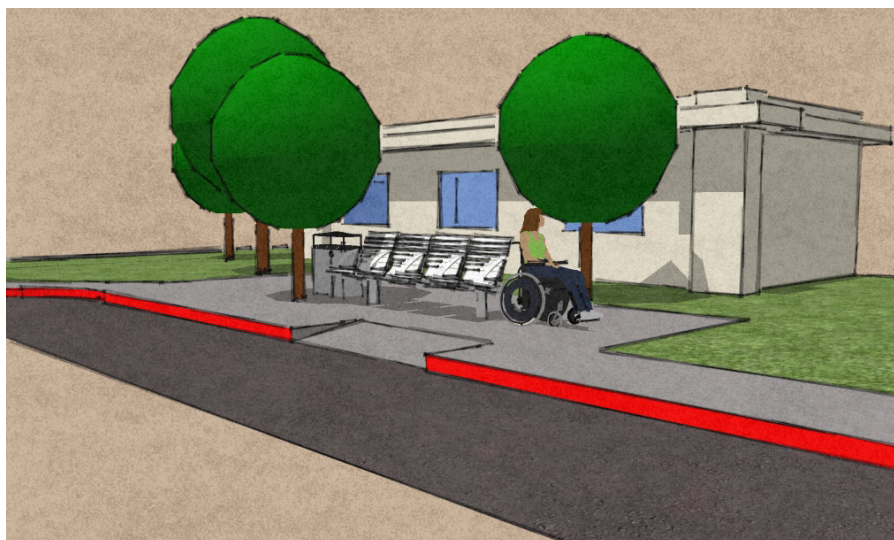


Figure 14: Type 2 includes a transit sign, a painted red curb, schedule information, seating, and a trash receptacle.

Type 3 bus stops include a transit sign, a painted red curb, schedule and route information, a trash can, and a shelter. Below are two illustrations showing the amenities found at Type 3 bus stops.

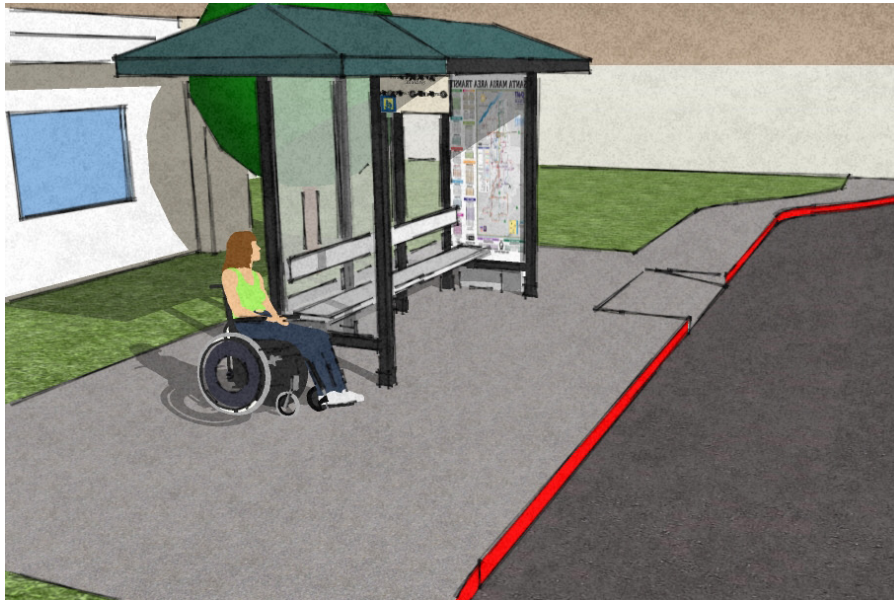


Figure 15: Type 3 bus stop with all necessary amenities.

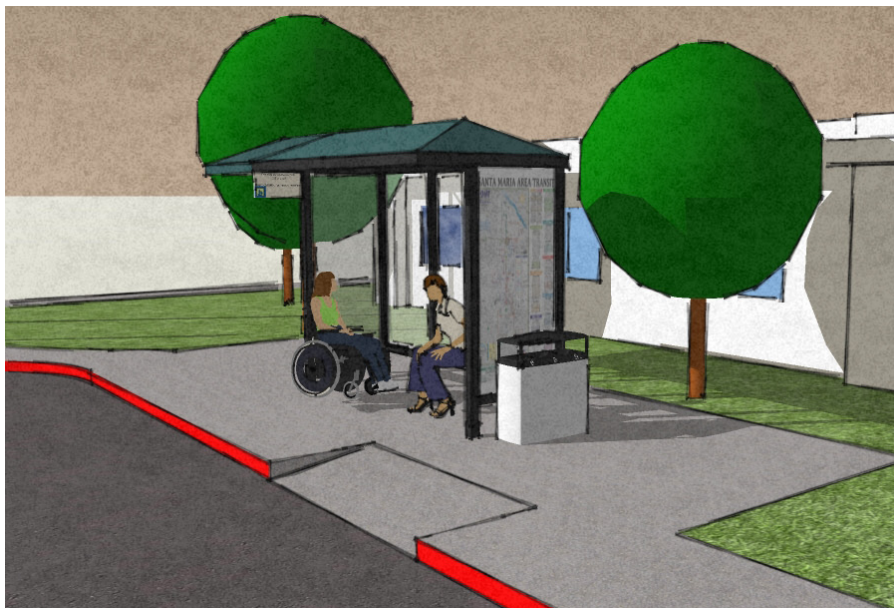


Figure 16: Type 3 bus stop with all necessary amenities, including ADA accessibility.

Type 4 bus stops include all the amenities found in Type 3 bus stops along with several additional amenities as shown in Figures 17 and 18. Type 4 bus stops include an all-routes map and advertising within the shelter. Depending on location, Type 4 bus stops may also include bike racks, newspaper stands, additional seating, or an additional shelter.



Figure 17: Type 4 bus stop with newspaper boxes and all-routes map.

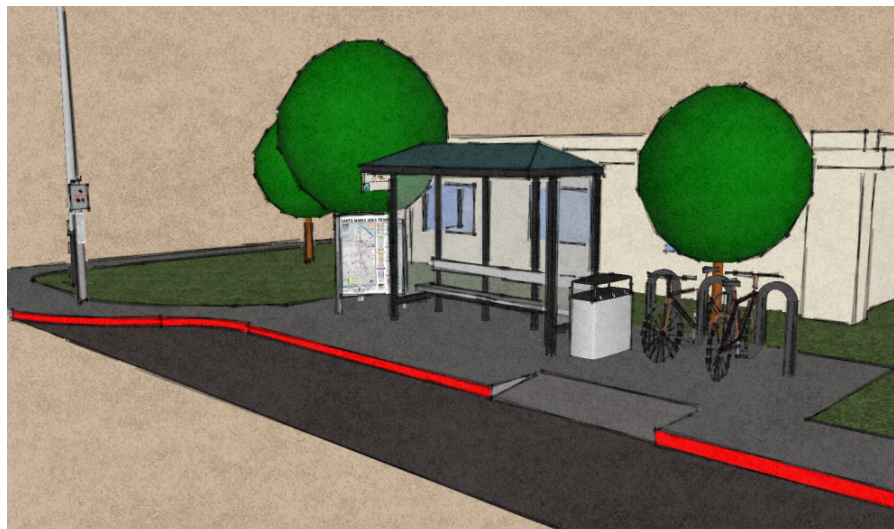


Figure 18: Type 4 bus stop with bike racks and all-routes map.

Recommendations

Information on design, safety, and pricing of all bus stop amenities, including bicycle parking, shelter types, benches, signage, lighting, trash and recycling receptacles, and route information, are presented in subsequent sections of this chapter. The Santa Maria Bus Stop Improvement Plan is to implement strategies to accomplish the outlined goals and objectives outlined in the first chapter. There is considerable focus on Santa Maria's demographics and the new routes.

Detailed information about desired bus stop elements and requirements for improvements or new bus stops are discussed. These elements include the landing area, ADA requirements, signage, safety and security features, newspaper and vendor boxes, and pedestrian connections.

The landing area must meet ADA requirements and be in good condition. All newspaper and vendor boxes must be adequately secured and free of graffiti. All bus stops must have adequate pedestrian connections to surrounding facilities, while meeting ADA requirements.

Amenities for New Bus Stops

The following is an outline of the amenities and characteristics incorporated into Santa Maria's Bus Stop Improvement Plan.

Bicycle Parking

Bike racks should be included at bus stops that have potential to attract bicycle riders. Figure 19 shows an example of a bike rack. This will be encouraged in order to be compliant with the Santa Maria Bikeway Master Plan, implemented in 2009. By encouraging cyclists to bike to transit stops, it will encourage more sustainable practices and an active lifestyle within Santa Maria.

Shelter Types

The style of new shelters should mimic the style of the shelters found at the new Transit Center. Perforated metal should be the dominant material for the shelter in order to discourage any graffiti. Roofs should be included on all shelters in order to provide shade during Santa Maria's warm summers. Three-sided shelters are encouraged in order to protect users from Santa Maria's strong winds in the fall and winter. All seating in shelters should have anti-vagrant bars, shown in Figures 20 and 21. Bus stops that are categorized as type 4 should have shelters that include advertisements. Advertisements can be located on the shelter or on a kiosk attached to the shelter. Advertisements must have their



Figure 19: Cycle-Safe, Breton Bike Rack
Source: CycleSafe

own lighting if on a kiosk. Shelters must be lighted by in-shelter lighting. If possible, the shelter panels and advertisements should be coated with anti-graffiti paint. Trash cans should be attached to shelters and additional trash or recycling cans can be installed, but they must meet the guidelines discussed in the trash and recycling sections. All shelters should be ordered in black to match the bus stop amenities at the Transit Center.



Figure 20: Covered bus shelter (Tolar Manufacturing) with perforated metal siding and bench, with anti-vagrant bars.



Figure 21: Covered bus shelter (Tolar Manufacturing) with perforated metal siding and a trash can.

Seating

All seating should have anti-vagrant bars and be made of perforated metal (Figures 22 and 23). Seating styles should also mimic the shelter designs and may be ordered through Landscape Forms, pending cost estimates. If possible, the seating should be coated with anti-graffiti paint. Seating in shelters should also have anti-vagrant bars and be made of perforated metal (Figure 23), but may be ordered through Tolar Manufacturing, along with the shelters. All seating should be ordered in black to match the shelters.



Figure 22: Metal seating (with possibility of anti-vagrant bars)
Source: Landscape Forms (Plexus)



Figure 23: Metal seating with a back and anti-vagrant bars
Source: Landscape Forms (Plexus)

Signage

All bus stops shall have a SMAT sign indicating the location of the bus stop. The sign can be located on a utility pole or on its own pole. The sign should be two sided and placed on the side of the pole, in order for the information to be readable from both sides. Signs should also be placed at heights above seven feet as to discourage graffiti or damage to the sign. Information on the sign should include SMAT’s contact number, the routes serving that stop, and the main locations served by those routes (Figure 24). The overall design of the sign should reflect the City of Santa Maria’s logo.

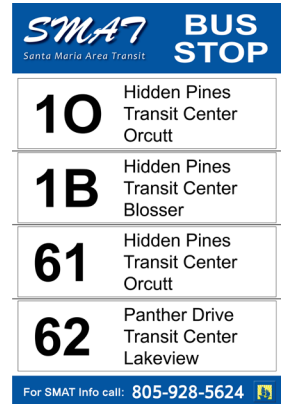


Figure 24: Double-Sided Bus Stop Sign

Lighting

Light should be distributed adequately, properly lighting all signage. Figure 25 shows a freestanding Omnilight light fixture with an attached schedule rack. When appropriate, street lighting can serve as the primary bus stop lighting. Solar lighting should be considered for any new light installation at all bus stops. Shelters can implement solar lighting into advertisements and shelter lighting. Shelters ordered from Tolar Manufacturing can have solar lighting installed at an additional cost. Adequate lighting is a high priority at bus stops and it can increase safety, which can result in increased ridership. All bus stops should install lighting, either in the form of the freestanding Omnilight, a street light, or solar lighting in shelters.

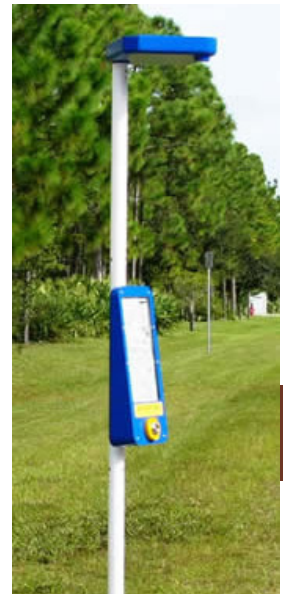


Figure 25: Adequate bus stop lighting.

Source: Tolar Manufacturing, Omnilight

Trash Receptacles

Trash receptacles should be installed at all bus stops that include a shelter and at all bus stops that include a bench, unless there is strong evidence that it is not needed. For bus stops without shelters, trash receptacles should be bolted to the sidewalk in an accessible area that is visible to users. The receptacles should be made of galvanized steel with a polycarbonate shield which makes them less prone to permanent graffiti. If possible, receptacles should also be coated in anti-graffiti paint. The trash receptacles in Figure 26 can be used at any type 2 bus stops, as well as any type 3 or 4 bus stops that need additional trash containers. For stops with large amounts of discarded cigarettes, ash trays should be considered as an addition to trash cans, and should be bolted onto the side or incorporated into the top of the receptacle. All trash receptacles should be ordered in black to match the shelters.

*Recycling
Receptacles*

Since almost all items thrown away at bus stops are recyclable and in order to promote sustainability through Santa Maria’s Recycling Program, all stops that require a trash receptacle should also require a recycling receptacle. Similar to the trash receptacle, the cans should be made of galvanized steel covered with a polycarbonate shield which makes them less prone to permanent graffiti. If possible, receptacles should be coated in anti-graffiti paint. The same containers used for trash may also be used for recycling, but should be ordered in blue instead of black in order to distinguish the two types of receptacles.



Figure 26: Trash receptacle options
Source: Landscape Forms (Plexus)

*Programs
GPS Ridership
Data Collection*

Ridership data is currently collected on a random basis, for both the route and time of day. Because of this, there was not enough data to determine the daily ridership for each stop. Installing an Automatic Vehicle Location (AVL) system will enable SMAT to collect accurate ridership data that can help the transit system enhance the bus stops classification system. AVL systems can also help the transit department with possibilities for fleet, fuel, non-revenue mile, and wait time reductions, as well as fewer missed connections and increased ridership. When an AVL system is combined with Computer-Aided Dispatch (CAD) and Geographic Information Systems (GIS), it optimizes the system’s dispatching and allows the bus system to provide service to more passengers. Using GIS enables the ridership data to be connected to a specific location, making it easy to determine which bus stop the ridership belongs to. See Appendix K for a brochure from the Federal Transit Administration about AVL systems and their estimated costs and benefits to a variety of sizes of transit systems.

Adopt-A-Stop

One major goal of Santa’s Maria Bus Stop Improvement Program is to provide dependable and safe bus stops that are easily identifiable. Being able to properly maintain these bus stops is an essential step to accomplishing these goals. By implementing an Adopt-A-Stop Program, individuals, civic organizations, private companies, and church groups could have the opportunity to volunteer to help maintain the bus stop. Not only can this help with ongoing maintenance, but it can serve as an active partnership between Santa Maria Area Transit and the community.

Volunteers would select a bus stop and agree to keep their designated bus stop clean by removing litter. They would also agree to inform SMAT of any graffiti, damage, or other concerns at their bus stop. By making the pledge to volunteer, they could receive a recognition certificate, a sign could be put up at the bus stop to acknowledge their volunteer work, and SMAT could put a link on the website listing all volunteer participants of the Adopt-A-Stop Program. Everyone could benefit from this service, including Santa Maria Area Transit agency, property owners, businesses and transit riders. Currently, Adopt-a-Stop programs have been implemented in Portland, Oregon; Santa Clara, California; Denver, Colorado; Durham, North Carolina; Anchorage, Alaska; and Orlando, Florida; and Portland, Maine.

Recycling

The majority of items thrown away at bus stops are recyclable. In order to further promote Santa Maria’s Recycling Program, all bus stops with shelters or high ridership should require a recycling receptacle. This program has been enthusiastically accepted by both Transit staff and the Utilities department. Further research into the logistics of implementing the program should be discussed with the Recreation and Parks Department.

Budget

Improvement Costs

By using the proposed classification system, the budget for refurbishing existing bus stops and for installing new bus stops was easily developed. Table 10 displays the total amenities to be refurbished or replaced. See Appendix L for the complete list of bus stop amenity necessities.

Table 10: Amenity Necessity for Budget		
	REFURBISH TOTALS	NEW TOTALS
Pole	15	81
SMAT Sign	55*	245
Landing Pad	17	19
Bench	105*	-
Free-standing Bench	-	59
Bench in Shelter	-	170
Shelter	47*	170
Light	2	-
Free-standing Light	-	57
Light in Shelter	-	92
Trash	65*	-
Free-standing Trash	-	59
Trash on Shelter	-	170
Recycling	-	0
Trash/Recycling Combo	-	0
Schedule Rack	27*	245
Schedule Rack Insert	2*	245
Sidewalk	18	13
Crosswalk	1	5
Red Curb	1	3
No Park Signs	1	1
Landscaping	13	-
Schedule Poster	0*	170
Advertisement	20	0
Newspaper boxes	2	83
Bike Rack	0*	87
Bus Stop Removal	66	-

*Refurbish Totals may be replaced by new amenities. New Totals are not in addition to Refurbish Totals.

The preferred manufacturers for providing new bus stop amenities are Tolar Manufacturing and Landscape Forms Incorporated. Total pricing for these proposed upgrades were calculated based on the given amenity costs from these manufacturers (Table 11). See Appendix M for an extensive budget breakdown.

Table 11: Amenity Pricing			
Amenity	Individual Cost	Total Needed	Total Cost
Landscape Forms Options			
backless Plexus bench with armrests	\$1,600	59	\$94,400
Plexus bench with back (3 seats, 4 arms)	\$1,870 (\$1,605.94)	59	\$110,330
28" top opening, 30 gallon Plexus trash can	\$810 (\$689.51)	59	\$47,790
Tolar Manufacturing Options			
8' shelter	\$6,075	170	\$1,032,750
13' shelter	\$6,950	170	\$1,181,500
17' shelter	\$7,355	170	\$1,250,350
ability to extend roof depth from 4'8" to 5'8"	\$650 per shelter	170	\$110,500
in shelter trash can package	\$250 per shelter	170	\$42,500
post mount schedule holder (min. 12)	\$94.50	245	\$23,153
flat back-to-back shelter advertising kiosk (downstream)	\$825 per shelter	87	\$71,775
shelter map case	\$375	107	\$40,125
stand alone Omnilight and 10' schedule 40 pole (min. 120)	\$975	57	\$55,575
110 V illumination in shelter kiosks	\$225	87	\$19,575
CycleSafe			
The Breton bike rack (surface mount)	\$310	87	\$26,970

Funding Sources

In order to fund the proposed recommendations, multiple funding sources will need to be utilized. Developers of approved projects are to be responsible for the funding of new bus stops and stop upgrades that are necessary as a result of the proposed project. Furthermore, the Federal Transit Agency (FTA) offers a Federal Grant 5307. Federal Grant 5307 makes federal resources available to urbanized areas and transportation related projects. According to the Santa Barbara County Association of Governments (SBCAG), Santa Maria is estimated to receive \$2,251,218 from the grant in 2011 and \$2,296,242 in 2012. Either the Office of Program Management or the Office of Resource Management and State Programs must be contacted to receive qualification and application information. This grant, however, only funds up to eighty percent of the project, therefore, a state or local grant must then be used to fund the remaining twenty percent of the project.

The Transit Development Act (TDA) is a potential state funding option that allocates 0.25% of the state sales tax to transit agencies. TDA provides transit agencies with the Local Transportation Fund (LTF), which is the fund that administers the sales tax. In order for transit agencies to receive the money, they must meet a farebox recovery standard of 10-20%, determined by the percentage of their service that is classified as either urbanized or non-urbanized. According to David Whitehead, the Director of Public Works, the City of Santa Maria is allocated \$2,642,842 for the 2011-2012 fiscal year. Proposition 1B, the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act (2006), can also be used as a local funding source. Funds for Proposition 1B are to be allocated annually over a ten year period to transportation related projects that plan to better the environment and the community. According to SBCAG, SMAT is estimated to receive \$2,122,157 for the 2011-2012 fiscal year from Proposition 1B, based on population and farebox revenue. Table 12 shows the total allocation for each funding source and how it applies to the budget.

Table 12: Funding Sources				
Funding Source	Total Available for 2011	Total Available for 2012	% of "Grand Total"	Total Funds from Source
Grant 5307	\$2,251,218	\$2,296,242	80%	\$3,240,740
LTF	\$2,642,842*		20%	\$810,185
Prop 1B	\$2,122,157*		20%	\$810,185
*2011-2012 Fiscal Year				
**Can use either LTF or Prop 1B				

FTA's Grant 5307 and LTF are grants that require an annual assessment of regional transit needs and must be applied for by the City of Santa Maria to determine how much money will be allocated to SMAT. By utilizing these potential funding sources, seeking to improve advertisement revenue, and building relationships with business owners and other city residents, the City of Santa Maria can work to obtain funding sources in order to complete the individual phases proposed in the Bus Stop Improvement Plan.

Phasing

Phasing of the project can allow Santa Maria’s Transit Department to effectively implement all necessary bus stop improvements. New SMAT bus stop signs, new route maps, and schedule rack inserts are of highest priority and they should be installed before the adoption of the new system routes in December of 2011. All new stops may begin as a Type 1, and as ridership data is collected, the bus stop’s classification should be reevaluated based on population density, employment density, and ridership data, and the bus stop type should be revised if necessary. Updating all existing bus stop amenities is the next important phase of the project. All Type 1 bus stops should be updated first, along with lighting for all bus stops, new SMAT signs, schedule racks, and schedule inserts. New trash cans should be installed next at all appropriate bus stops. Following the previous installations, benches and shelters should be installed concurrently. Extra amenities such as bike racks and newspaper boxes should be installed last. As new shelters are installed, advertising and system route maps should be included where appropriate. Table 13 presents a phasing diagram of the proposed improvements.

Table 13: Phasing					
Task	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
New route maps	X				
Schedule rack inserts	X				
New SMAT bus stop signs		X			
Lighting		X			
Schedule racks			X		
Trash cans			X		
Benches				X	
Shelters				X	
Bike racks					X
Newspaper boxes					X

Conclusion

The Santa Maria Bus Stop Improvement Plan addressed areas of concern and proposed changes in order to create an easily identifiable, safe, and efficient transit system. By following and utilizing the goals, policies, and proposed funding strategies presented in the Bus Stop Improvement Plan, the City of Santa Maria can further enhance the transit system and properly plan for future bus stop developments.

References

- Alameda-Contra Costa Transit District (2004). *Designing with Transit: Making Transit Integral to East Bay Communities*. Oakland, CA.
- Apex Lighting, Inc. (2011). *Apex Lighting Solutions*. Retrieved from: <http://www.apexltg.com>
- Association of Monterey Bay Area Governments. (2010). *Draft Monterey Bay Area Mobility 2035*. Marina, CA.
- Butte Regional Transit. (2007). *B-Line Bus Stop Improvement Plan Draft*. Chico, CA.
- City of Fresno. (2007). *Downtown Transportation and Infrastructure Study*. Fresno, CA.
- City of Glendale. (2009). *Glendale Beeline 2009 Line by Line Analysis Final Report*. Glendale, CA.
- City of San Luis Obispo. (2004). *San Luis Obispo Transit Short Range Transit Plan*. San Luis Obispo, CA.
- City of San Luis Obispo. (2009). *Short Range Transit Plan – San Luis Obispo Transit*. San Luis Obispo, CA.
- City of Santa Maria. (2010). *Santa Maria Short Range Transit Plan 2010-2015*. Santa Maria, CA
- Collier Area Transit. (2009). *Bus Stop Bench Improvement Project*. Naples, FL.
- Cooper, Erin and Cornelius Nuworsoo. (2010). *Determination of Transit Bus Stop Spacing: A Case Study of Route 1 in San Francisco*. Paper for the 90th Annual Meeting of the Transportation Research Board.
- Cycle-Safe, Inc. (2011). *Bike Lockers, Bike Racks, Bike Storage & Bike Parking*. Retrieved from: <http://www.cyclesafe.com>
- Easter Seals Project Action. (2006). *Toolkit for Bus Stop Accessibility and Safety Assessment*. Washington, DC.

- Golden Empire Transit District. (2008). *Transit Facilities Design Manual*. Bakersfield, CA.
- Inter City Transit. (2010). *Bus Stop Specification Guidelines*. Olympia, Washington.
- Landscape Forms, Inc. (2011). *Benches, Chairs, Litter Receptacles, Ash Urns, Tables, Umbrellas - Site Furniture*. Retrieved from: <http://www.landscapeforms.com>
- Omnitrans. (2006). *Bus Stop Design Guidelines*. San Bernardino, CA.
- Omnitrans. (2007). *Omnitrans Short Range Transit Plan, 2008-2013*. San Bernardino, CA.
- Riverside Transit Agency. (2009). *Short Range Transit Plan, 2010-2012*. Riverside, CA.
- San Diego Association of Governments. (2004). *Regional Short-Range Transit Plan, FY 2004-2008*. San Diego, CA.
- Santa Barbara County Association of Governments. (2009). *Transit Needs Assessment*. Santa Barbara, CA.
- Santa Barbara County Association of Governments. (2007). *Transportation Connections*. Santa Barbara, CA.
- Santa Cruz Metro. (2008). *Santa Cruz Metro Short Range Transit Plan, 2007-2008*. Santa Cruz, CA.
- SunLine Transit Agency. (2006). *Transit Facilities Design Manual*. Thousand Palms, CA.
- Taylor, B.D, & Fink, C. (2003). *The Factors Influencing Transit Ridership: A Review And Analysis Of The Ridership Literature*. UCLA Department of Urban Planning. March 22, 2003.
- Texas Transportation Institute. (1996). *Guidelines for the Location and Design of Bus Stops*. TCRP Report 19. Transit Cooperative Research Program. Transportation Board, National Research Council. College Station, TX. National Academy Press, Washington D.C.

Texas Transportation Institute. (1996) *Guidelines for Transit Facility Signing and Graphics*. TCRP Report 12. Transit Cooperative Research Program, Transportation Board. National Research Council. College Station, TX. National Academy Press, Washington DC.

Tolar Manufacturing Inc. (2011). *Transit Shelters, Street Furniture and Kiosks*. Retrieved from: <http://www.tolarmfg.com>

Toronto Transit Commission. (2009). *Transit City Bus Plan*. Toronto, ON.

Tri-County Metropolitan Transportation District of Oregon. (2002). *Bus Stop Guidelines 2002*. Portland, OR.

Tri-County Metropolitan Transportation District of Oregon. (1989). *TriMet Service Standards*. Portland, OR.

Appendix A

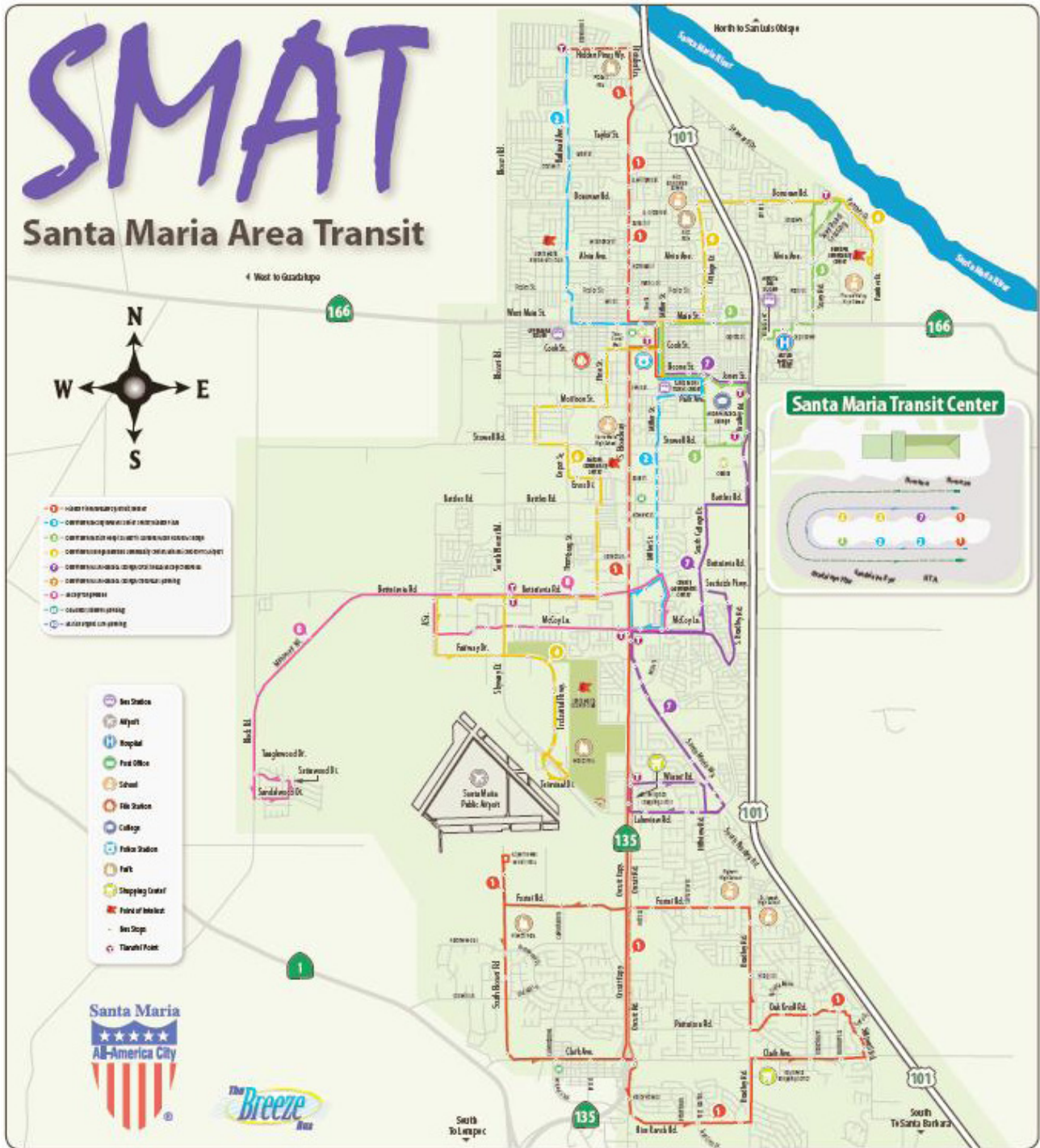


Figure A-1: 2011 Santa Maria Area Transit System Routes

Appendix B

Santa Maria Bus Stop Assessment Research															
CITY	Info. On Santa Maria's demographics	Discussion of passenger amenities	SMAT	Bus stop location	Safety	Drawings and Sketches	ADA Standards	Sustainability components	Inventory information	Implementation tools	Organization of report	BRT	Public Input	ITS, "Smart" Signals	Street Design
SLO		x		x		x			x	x	x		x		x
SB Metro Transit District	x		x										x		
SD Metro Transit System				x	x										
AC Transit Oakland		x		x	x	x	x	x							x
Fresno Dept of Trans.				x											
Texas Trans. Institute		x		x	x	x	x	x						x	x
Monterey/ Salinas Transit		x		x	x			x			x	x		x	
Chico: Butte Regional Transit		x		x	x	x	x		x	x	x				x
Toronto, Canada						x		x			x	x		x	x
Collier Area Transit: Collier County, FL				x						x					
City of Glendale, CA	x	x											x		
bold indicates cities or research with most pertinent information												<i>Source: City of Santa Maria</i>			
Indicates subject area of importance															

Figure B-1: Background Research City Matrix, part 1

Santa Maria Bus Stop Assessment Research

CITY	Info. On Santa Maria's demographics	Discussion of passenger amenities	SMAT	Bus stop location	Safety	Drawings/Sketches	ADA Standards	Sustainability components	Inventory information	Implementation tools	Organization of report	BRT	Public Input	ITS, "Smart" Signals	Street Design	
Golden Empire Transit District		x		x												x
Livermore Amador Valley Transit Authority		x				x										
OMNITRANS San Bernardino	x	x		x		x					x					
Riverside Transit Agency	x	x				x								x		
Santa Cruz Metro Transit District											x					
SunLine Transit Agency				x		x					x					
Toolkit for Bus Stop Accessibility & Safety		x		x	x	x	x		x	x	x					
Inter City Transit Olympia, WA		x		x	x	x	x									

bold indicates cities or research with most pertinent information

Source: City of Santa Maria

indicates particular subject of importance

Figure B-2: Background Research City Matrix, part 2

Appendix C

Environment	Spacing Range	Typical Spacing
Central Core Areas of CBDs	300 to 1000 feet	600 feet
Urban Areas	500 to 1200 feet	750 feet
Suburban Areas	600 to 2500 feet	1000 feet
Rural Areas	650 to 2640 feet	1250 feet

Figure C-1: Typical Bus Stops Spacing by Development Type

Source: TCRP 19 – Guidelines for the Location and Design of Bus Stops

Chapter
3

STREET-SIDE FACTORS

STREET-SIDE PLACEMENT CHECKLIST

Several items should be considered when designing and locating a bus stop on a roadway. The following checklist of street-side items should be reviewed with each design because it brings together related issues that can have a significant impact on the safe operations of the bus stop.

- ❑ **Standardization:** One of the most critical factors in the street-side design and placement of a bus stop involves standardization or consistency. Standardization is desirable because it results in less confusion for bus operators, passengers, and motorists. Consistency in design, however, can be difficult to achieve since traffic, parking loss, turning volume, community preference, and political concerns can influence the decisions.
- ❑ **Periodic Review:** A periodic review of bus stop conditions (both street side and curb side) is recommended to ensure the safety of bus passengers. This will encourage the timely reporting of items such as missing bus stop signs and poor pavement.
- ❑ **Near-Side/Far-Side/Midblock Placement:** Each type of placement has advantages and disadvantages. In general, each bus stop location should be evaluated individually to decide the best placement for the stop.
- ❑ **Visibility:** Bus stops should be easy to see. If the bus stop is obscured by nearby trees, poles, or buildings, the bus operator may have difficulty locating the stop. More importantly, however, motorists and bicyclists may not know of its existence and will be unable to take necessary precaution when approaching and passing the stop. In addition, visibility to pedestrians crossing a street is also an important consideration in areas that permit "right turns on red."
- ❑ **Bicycle Lanes and Thoroughfares:** When a bike lane and a bus stop are both present, the operators need to be able see cyclists in both directions while approaching the stop. Sufficient sight distance for cyclists to stop safely upon encountering a stopped bus is also needed.
- ❑ **Traffic Signal and Signs:** Bus stops should be located so that buses do not restrict visibility of traffic signals and signs from other vehicles. Because all bus passengers become pedestrians upon leaving the bus, pedestrian signal indicators should be considered at nearby signalized intersections.

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Figure C-2: Street Side Safety Checklist for Bus Stop Placement, Part 1.

Source: TCRP 19 – Guidelines for the Location and Design of Bus Stops

STREET-SIDE FACTORS

Chapter

3

STREET-SIDE PLACEMENT CHECKLIST

- ❑ **Roadway Alignment:** Horizontal and vertical roadway curvature reduces sight distance for bus operations, motorists, bicyclists, and pedestrians. Additionally, bus stops located on curves make it difficult for the bus operator to stop the bus parallel to the curb and safely return to the driving lane. Where possible, bus stops should be located on sections of relatively straight and flat roadway. Trees and poles should not obstruct the visibility of the bus operator for cross traffic and passenger and pedestrian movement.
- ❑ **Driveways:** Avoid locating bus stops close to a driveway. If placing a bus stop close to a driveway is unavoidable (for example, to lessen the loss of parking in a commercial area), keep at least one driveway open to vehicles accessing the adjacent development while a bus is loading or unloading passengers. Also, locate bus stops to allow full visibility for vehicles leaving an adjacent development and to minimize vehicle/bus conflicts. Placing bus stops on the far side of driveways will minimize conflicts; however, sight distance for left-turning vehicles from the driveway will still be a concern.
- ❑ **Location of Pedestrian Crosswalks:** A minimum clearance distance of 5 feet between a pedestrian crosswalk and the front or rear of a bus at a bus stop is desirable.
- ❑ **Location of the Curb:** Where possible, locate stops where a standard curb height of 6 inches exists. Bus stops are designed with the assumption that the curb is the first step. It is more difficult for elderly persons and passengers with mobility impairments to board and alight from the bus if the curb is absent or damaged.
- ❑ **Street Grades:** Where possible, bus stops should not be located on an upgrade in a residential area, since the bus engine noise created when the vehicle accelerates from a stop will bother area residents. Placing bus stops on steep grades should be avoided if slippery winter conditions prevail.
- ❑ **Road Surface Conditions:** Since alighting passengers generally move from their seats when the bus decelerates on approach to a bus stop, do not locate a bus stop where the roadway is in poor condition such as areas with broken pavement, potholes, or ruts or where a storm drain is located. The resultant motion of the bus in such a situation may cause bus passengers to fall and injure themselves. Boarding and standing passengers are also susceptible to falls or injuries where poor pavement conditions or low drainage basins exist.

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Figure C-3: Street Side Safety Checklist for Bus Stop Placement, Part 2.
Source: TCRP 19 – Guidelines for the Location and Design of Bus Stops

Appendix D

BUS STOP CHECKLIST

PART A: IDENTIFICATION/LOCATION

Route Name:	Location:	Weather Conditions:	Stop No.:
-------------	-----------	---------------------	-----------

PART A: IDENTIFICATION/LOCATION		Yes	No	N/A
A1	Is there a bus shelter?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<i>If YES, what is the number of the shelter?</i>			
	<i>If NO, is there an exterior alternative shelter nearby (i.e. - awning, overhangs, underpass)?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A2	Street Name:			
A3	Nearest Cross Street (street name or landmark if mid-block):			
A4	Bus Route Direction:			
	North Bound <input type="checkbox"/>	South Bound <input type="checkbox"/>	More than one direction <input type="checkbox"/>	
	East Bound <input type="checkbox"/>	West Bound <input type="checkbox"/>		
A5	What is the purpose of the stop?			
	Park and Ride <input type="checkbox"/>	Boarding <input type="checkbox"/>	Both Boarding and Alighting <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
	Kiss and Ride <input type="checkbox"/>	Alighting <input type="checkbox"/>	Transfer <input type="checkbox"/>	
A6	What is the average number of daily boardings at the stop?			
A7	Where is the bus stop positioned in relation to the nearest intersection?			
	Nearside (Before the bus crosses the intersection)	<input type="checkbox"/>		
	Far Side (After the bus crosses the intersection)	<input type="checkbox"/>		
	Mid-block	<input type="checkbox"/>		
	Not near an intersection	<input type="checkbox"/>		
	Freeway bus pad	<input type="checkbox"/>		
	N/A	<input type="checkbox"/>		

BUS STOP CHECKLIST

PART A: IDENTIFICATION/LOCATION

Route Name:	Location:	Weather Conditions:	Stop No.:
-------------	-----------	---------------------	-----------

A8	Distance from bus stop pole to curb of cross street in feet:			
A9	Adjacent property address or name of business (only if readily visible):			
A10	Adjacent Property Description:			
	Apartment Building <input type="checkbox"/>	Industrial Site/Bldg. <input type="checkbox"/>	Park <input type="checkbox"/>	School <input type="checkbox"/>
	Day Care <input type="checkbox"/>	Library <input type="checkbox"/>	Park and Ride <input type="checkbox"/>	Supermarket <input type="checkbox"/>
	Government Building <input type="checkbox"/>	Mall/Shopping Center <input type="checkbox"/>	Place of Worship <input type="checkbox"/>	Transit station/center <input type="checkbox"/>
	Hospital <input type="checkbox"/>	Nursing Home <input type="checkbox"/>	Residence – townhouse <input type="checkbox"/>	Vacant lot <input type="checkbox"/>
	Human Service Agency <input type="checkbox"/>	Office Building <input type="checkbox"/>	Residence – detached <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
			Retail Store <input type="checkbox"/>	
A11	Distance from previous bus stop (in feet):			

BUS STOP CHECKLIST

PART B: PEDESTRIAN ACCESS FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
--------------------	------------------	----------------------------	------------------

PART B: PEDESTRIAN ACCESS FEATURES				
Section B-1: Landing Area Assessment				
B1	Is there a landing area at least 5 feet wide and 8 feet deep adjacent to the curb/street?			Yes No <input type="checkbox"/> <input type="checkbox"/>
B2	Where is the landing area positioned in relation to the curb/street?			
	Below street level (low ground or shoulder) <input type="checkbox"/>	Shoulder <input type="checkbox"/>	Other (specify): <input type="checkbox"/>	
	Adjacent <input type="checkbox"/>			
	Sidewalk <input type="checkbox"/>	Bus Bulb <input type="checkbox"/>	Off-Road/No sidewalk <input type="checkbox"/>	
B3	What is the material of the landing area?			
	Asphalt <input type="checkbox"/>	Dirt <input type="checkbox"/>	Gravel <input type="checkbox"/>	Other (specify): <input type="checkbox"/>
	Concrete <input type="checkbox"/>	Grass <input type="checkbox"/>	Pavers <input type="checkbox"/>	
B4	Are there problems with the landing area surface?			Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, rank resulting accessibility potential:</i>			
		Not Accessible	Minimally Accessible	Accessible
	Uneven	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Slopes up from the street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Slopes down from the street	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Requires stepping over drain inlet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B5	Are there any obstacles that would limit the mobility of a wheelchair?			Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, describe obstruction:</i>			

BUS STOP CHECKLIST

PART B: PEDESTRIAN ACCESS FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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B6	Additional landing area comments:		
B7	Landing area recommendations:		
	Widen sidewalk to expand landing area to 5 feet wide and 8 feet deep		<input type="checkbox"/>
	Install curb bulb or remove on street parking		<input type="checkbox"/>
	Move object to improve accessibility (specify where):		
	Make the following repairs (specify):		
Other (specify):			

Section B-2: Connections (Trip Generators)

B8	What are the primary trip generators for passengers at this stop? (Check all that apply)		
	Apartments - large building/complex <input type="checkbox"/>	Human service agency – what kind? <input type="checkbox"/>	School –Elementary/Middle <input type="checkbox"/>
	Apartments - small building <input type="checkbox"/>	Library <input type="checkbox"/>	School -High <input type="checkbox"/>
	Townhomes <input type="checkbox"/>	Major Shopping/employment (Mall, Wal-Mart, Kmart, Target, other big department store) <input type="checkbox"/>	School - College/University/ Technical school <input type="checkbox"/>
	Detached homes <input type="checkbox"/>	Neighborhood Shopping (supermarket, drugstore, Goodwill, strip mall with basic needs shopping) <input type="checkbox"/>	Senior center <input type="checkbox"/>
	Day care/pre-school <input type="checkbox"/>	Nursing home/assisted living <input type="checkbox"/>	Transfer to other bus routes <input type="checkbox"/>
	Gas station <input type="checkbox"/>	Office building/employment <input type="checkbox"/>	Transit station/center <input type="checkbox"/>
	Government building <input type="checkbox"/>	Park and Ride lot <input type="checkbox"/>	Other (Specify): <input type="checkbox"/>
	Hospital/major clinic <input type="checkbox"/>	Place of worship <input type="checkbox"/>	
	Hotel <input type="checkbox"/>	Restaurant <input type="checkbox"/>	

BUS STOP CHECKLIST

PART B: PEDESTRIAN ACCESS FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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B9	How wide is the sidewalk?				
	No sidewalk <input type="checkbox"/>	less than 3' <input type="checkbox"/>	3'-5' <input type="checkbox"/>	5' or greater <input type="checkbox"/>	N/A <input type="checkbox"/>
B10	Are there physical barriers that constrict the width of the sidewalk within the block on which the bus stop is located?				Yes <input type="checkbox"/> No <input type="checkbox"/>
	<i>If YES, what is the narrowest useable width:</i>				
	Less than 3' <input type="checkbox"/>		3' or greater <input type="checkbox"/>		
B11	Rank the condition of the sidewalk:				
	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
	<i>1=hazardous – large breaks, cracks, root uplifting, someone could get hurt from normal use or use of a wheelchair would be difficult</i>				
	<i>2=in poor shape though not hazardous – very rough, some root uplifting, cracks, breaks</i>				
	<i>3=fair – minor root uplifting, minor cracks or breaks</i>				
<i>4=good – not perfect but no immediate repair</i>					
<i>5=cosmetically excellent; new</i>					
B12	Does the landing pad connect to the sidewalk?				Yes <input type="checkbox"/> No <input type="checkbox"/>
	<i>If YES, what does the sidewalk connect to:</i>				
	One of the trip generators listed in Question B8 <input type="checkbox"/>		The nearest intersection <input type="checkbox"/>		
B13	Where is the nearest street crossing opportunity?				
	The nearest intersection <input type="checkbox"/>		Mid-block crosswalk <input type="checkbox"/>		
B14	What pedestrian amenities are at the nearest intersection (or other crossing opportunity)?				
	Curb cuts all corners/ both sides <input type="checkbox"/>	Pedestrian crossing signal <input type="checkbox"/>	Traffic Light <input type="checkbox"/>		
	Visible crosswalk <input type="checkbox"/>	Audible crosswalk signal <input type="checkbox"/>	Crossing guard assistance <input type="checkbox"/>		
	Curb cuts at some corners/one side <input type="checkbox"/>	Accessible Pedestrian Signal (APS) <input type="checkbox"/>	Tactile warning strip on curb cut <input type="checkbox"/>		
			Other (specify): <input type="checkbox"/>		

BUS STOP CHECKLIST

PART B: PEDESTRIAN ACCESS FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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B15	Is there a companion bus stop across the street?	Yes	No	N/A
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
B16	Are there connections to other transportation services at this bus stop?			
	<i>If YES, check all that apply</i>			
	Bus services, same or other agency	<input type="checkbox"/>	Local Rail	<input type="checkbox"/>
	Commuter Rail	<input type="checkbox"/>	Greyhound	<input type="checkbox"/>
B17	Pedestrian connection recommendations:			
	Construct sidewalk	<input type="checkbox"/>		
	Widen sidewalk	<input type="checkbox"/>		
	Improve landing area connections to sidewalk	<input type="checkbox"/>		
	Install curb cut(s) at:			
	Move object to improve accessibility (specify where):			
	Make the following repairs (specify):			
	Other (specify):			
B18	Additional pedestrian connection comments:			

BUS STOP CHECKLIST

PART C: PASSENGER COMFORT AMENITIES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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PART C: PEDESTRIAN COMFORT AMENITIES

Section C-1: Shelters (move to Section C-2 if there is no shelter)

C1	What is the orientation of the bus shelter in relation to the street?				
	Facing towards the street		<input type="checkbox"/>		
	Facing on-coming traffic		<input type="checkbox"/>		
	Facing away from the street		<input type="checkbox"/>		
C2	What kind of shelter is it? Insert shelter relevant to your system.				
	Own transit agency <input type="checkbox"/>	Another transit agency (shared stop) <input type="checkbox"/>	Other (Specify): <input type="checkbox"/>		
C3	If non-standard shelter, what are the approximate dimensions (width, height and depth in feet) of the interior standing area?				
	Width:				
	Height:				
	Depth:				
C4	Does the shelter have a front center panel (i.e. two openings)?		Yes No <input type="checkbox"/> <input type="checkbox"/>		
	If YES, what are the dimensions of the opening?				
C5	Could a person using a wheelchair maneuver into the shelter?		Yes No <input type="checkbox"/> <input type="checkbox"/>		
C6	Could a person using a wheelchair fit completely under the shelter (minimum space of a common mobility device is 30 in. by 48 in. (760 mm by 1200mm))?		Yes No <input type="checkbox"/> <input type="checkbox"/>		
	What are the dimensions of the clear space in the shelter?				
C7	What is the distance of the front of the shelter from the curb in feet?				
	0 - 2' <input type="checkbox"/>	2' - 4' <input type="checkbox"/>	4' - 6' <input type="checkbox"/>	6' - 8' <input type="checkbox"/>	8' - 10' <input type="checkbox"/>

BUS STOP CHECKLIST

PART C: PASSENGER COMFORT AMENITIES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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C8	Are there damages to the bus shelter?			Yes No <input type="checkbox"/> <input type="checkbox"/>
	If YES, check all that apply:			
	Broken panels			<input type="checkbox"/>
	Graffiti			<input type="checkbox"/>
	Holes in the roof			<input type="checkbox"/>
	Missing panels			<input type="checkbox"/>
	Needs repainting			<input type="checkbox"/>
C9	What is the approximate age of the shelter?			<input type="checkbox"/>
C10	Rank the condition of the shelter:			
	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>
1=hazardous – broken glass, unstable 2=in poor shape though not hazardous 3=fair – needs repainting, glass panels need thorough cleaning, protruding but not hazardous bolts 4=good – not perfect but no immediate repair need 5=cosmetically excellent; new				
C11	Additional shelter comments:			

BUS STOP CHECKLIST

PART C: PASSENGER COMFORT AMENITIES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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C12	Shelter recommendations:				
	Remove center panel	<input type="checkbox"/>			
	Make the following repairs (specify):	<input type="checkbox"/>			
	Move object to improve accessibility (specify where):				
	Move shelter to improve accessibility (specify where):				
	Other (specify):				
Section C-2: Seating Assessment (move to Section C-3 if there is no seating)					
C13	What is the type of seating available?				
	Bench inside shelter – <i>skip to question C15</i>	<input type="checkbox"/>			
	Freestanding bench	<input type="checkbox"/>			
	Fold down bench	<input type="checkbox"/>			
	Leaning bench	<input type="checkbox"/>			
	Other (specify):	<input type="checkbox"/>			
C14	If not inside shelter, what is the distance of the seating from the curb in feet?				
	0 - 2' <input type="checkbox"/>	2' - 4' <input type="checkbox"/>	4' - 6' <input type="checkbox"/>	6' - 8' <input type="checkbox"/>	
C15	8' - 10' <input type="checkbox"/>	>10' <input type="checkbox"/>			
	Are there problems with the seating?			Yes	No
	If YES, check all that apply:			<input type="checkbox"/>	<input type="checkbox"/>
	Broken pieces			<input type="checkbox"/>	
	Needs painting			<input type="checkbox"/>	
	Graffiti			<input type="checkbox"/>	
	Not securely installed			<input type="checkbox"/>	
Other (specify):			<input type="checkbox"/>		

BUS STOP CHECKLIST

PART C: PASSENGER COMFORT AMENITIES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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C16	Rank the condition of the seating:									
	<table border="1"> <tr> <td>1</td> <td><input type="checkbox"/></td> <td>2</td> <td><input type="checkbox"/></td> <td>3</td> <td><input type="checkbox"/></td> <td>4</td> <td><input type="checkbox"/></td> <td>5</td> <td><input type="checkbox"/></td> </tr> </table> <p> <i>1=hazardous – broken, someone could get hurt from normal use</i> <i>2=in poor shape though not hazardous</i> <i>3=fair – needs repainting, needs cosmetic attention,, protruding but not hazardous bolts</i> <i>4=good – not perfect but no immediate repair need</i> <i>5=cosmetically excellent; new</i> </p>	1	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5
1	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	
C17	Additional seating comments:									
C18	Seating recommendations:									
	Move seating to improve accessibility (specify where):									
	Make the following repairs (specify):									
	Other (specify):									

BUS STOP CHECKLIST

PART C: PASSENGER COMFORT AMENITIES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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Section C-3: Trash Assessment (move to Section C-4 if there is no trash receptacle)		
C19	What is the type of installation for the trash receptacle?	
	Attached to the shelter	<input type="checkbox"/>
	Free standing	<input type="checkbox"/>
	Garbage bag	<input type="checkbox"/>
	Bolted to sidewalk	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
C20	Are there problems with the trash receptacle and surrounding area?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, check all that apply:</i>	
	Trash can very full	<input type="checkbox"/>
	Graffiti at bus stop	<input type="checkbox"/>
	Bus stop littered	<input type="checkbox"/>
	Grocery carts left at stop	<input type="checkbox"/>
	Trash can not securely installed	<input type="checkbox"/>
	Adjacent property littered	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
C21	Additional Comments:	
C22	Trash recommendations:	
	Install trash can due to litter problem	<input type="checkbox"/>
	Make the following repairs (specify):	
	Move trash can to improve accessibility (specify where):	
	Other (specify):	

BUS STOP CHECKLIST

PART C: PASSENGER COMFORT AMENITIES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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Section C-4: Newspaper Boxes (move to Part D if there are no newspaper boxes)		
C23	Are the newspaper boxes a barrier to sidewalk use?	Yes No <input type="checkbox"/> <input type="checkbox"/>
		Yes No <input type="checkbox"/> <input type="checkbox"/>
C24	Are the newspaper boxes a barrier to bus access/egress?	Yes No <input type="checkbox"/> <input type="checkbox"/>
		Yes No <input type="checkbox"/> <input type="checkbox"/>
C25	Are they chained to the bus stop pole, shelter, or bench?	Yes No <input type="checkbox"/> <input type="checkbox"/>
		Yes No <input type="checkbox"/> <input type="checkbox"/>
C26	Are they blocking access to posted bus schedule info?	Yes No <input type="checkbox"/> <input type="checkbox"/>
		Yes No <input type="checkbox"/> <input type="checkbox"/>
C27	Additional newspaper box comments:	
C28	Newspaper box recommendations:	
	Move trash can to improve accessibility (specify where):	
	Other (specify):	

BUS STOP CHECKLIST

PART D: SAFETY AND SECURITY FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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PART D: Safety and Security Features		
Section D-1: Traffic and Pedestrian Issues		
D1	Where is the bus stop area located?	
	In travel lane	<input type="checkbox"/>
	Bus lane/pull off area	<input type="checkbox"/>
	Paved shoulder	<input type="checkbox"/>
	In right turn only lane	<input type="checkbox"/>
	Unpaved shoulder	<input type="checkbox"/>
	Off street	<input type="checkbox"/>
	"No Parking" portion of street parking lane	<input type="checkbox"/>
Other (specify):	<input type="checkbox"/>	
D2	Is the bus stop zone designated as a no parking zone?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>if YES, indicated by:</i>	
	One "No Parking" sign	<input type="checkbox"/>
	2 or more "No Parking" signs	<input type="checkbox"/>
	"Bus Only" sign	<input type="checkbox"/>
	Painted curb	<input type="checkbox"/>
	Painted street	<input type="checkbox"/>
D3	Are cars parked between the landing area and the bus stopping area?	Yes No <input type="checkbox"/> <input type="checkbox"/>
D4	What is the posted speed limit in MPH? Not posted	<input type="checkbox"/>
D5	What are the traffic controls at the nearest intersection for the street?	
	Traffic signals	<input type="checkbox"/>
	Flashing lights	<input type="checkbox"/>
	Stop/Yield sign	<input type="checkbox"/>
	None	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>

BUS STOP CHECKLIST

PART D: SAFETY AND SECURITY FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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D6	How many total lanes are on both sides of the road?	
	1 <input type="checkbox"/>	2 <input type="checkbox"/>
	3 <input type="checkbox"/>	4 <input type="checkbox"/>
	Other (specify): <input type="checkbox"/>	N/A <input type="checkbox"/>
D7	Is there on-street parking permitted just before or after the bus stop zone? <i>If YES, what is the length of the "No Parking" area in feet:</i>	Yes No N/A <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
D8	Are there potential traffic hazards? <i>Yes, check all that apply:</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
	The bus stop is just over the crest of a hill	<input type="checkbox"/>
	The bus stop is just after a curve in the road	<input type="checkbox"/>
	The bus stop is near an at-grade railroad crossing	<input type="checkbox"/>
	Waiting passengers are hidden from view of approaching bus	<input type="checkbox"/>
	A stopped bus straddles the crosswalk	<input type="checkbox"/>
	Bus stop just before crosswalk	<input type="checkbox"/>
	High speed traffic	<input type="checkbox"/>
	No crosswalk	<input type="checkbox"/>
	Other (specify)	<input type="checkbox"/>
D9	Additional traffic safety comments / recommendations:	
Section D-2: Lighting Assessment (assessment preferably taken in the evening or at night) Go to Section D-3 if no lighting		
D10	What type of lighting is available?	
	Street light	<input type="checkbox"/>
	Shelter lighting	<input type="checkbox"/>
	Outside light on adjacent building	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>

BUS STOP CHECKLIST

PART D: SAFETY AND SECURITY FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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D11	Does the light produce a glare?	Yes No <input type="checkbox"/> <input type="checkbox"/>
D12	How even is the light distributed?	Yes No <input type="checkbox"/> <input type="checkbox"/>
D13	Additional comments:	

Section D-3: Pay Phone

D14	Is there a pay phone within the immediate vicinity? <i>If NO, skip to Question D16.</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
D15	Is the pay phone within reach of a wheelchair user?	Yes No <input type="checkbox"/> <input type="checkbox"/>
D16	If no pay phone is provided, is there a police call box?	Yes No <input type="checkbox"/> <input type="checkbox"/>
D17	Additional comments:	

Section D-4: Landscaping Assessment

D18	Are there problems with the landscaping around the bus stop? <i>If YES, check all that apply.</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
	Trees/bushes encroaching on the landing area	<input type="checkbox"/>
	Trees/bushes encroaching on the sidewalk	<input type="checkbox"/>
	Tree branches that would hit the bus	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>

BUS STOP CHECKLIST

PART D: SAFETY AND SECURITY FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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D19	Additional comments:	
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Section D-5: Safety Recommendations

D20	Improve pedestrian safety by:	<input type="checkbox"/>
	Trim trees or branches	<input type="checkbox"/>
	Move bus stop to:	
	Other (specify):	

BUS STOP CHECKLIST

PART E: INFORMATION FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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PART E: Information Features		
E1	Is there a bus stop sign? <i>If NO, move to question E6.</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
E2	What provider name is on the bus stop (<i>list all providers utilizing stop</i>)? Provider 1: Provider 2: Provider 3: Provider 4:	
E3	Are bus routes indicated on the bus stop sign? <i>If YES, what routes?</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
E4	How is the sign installed? On its own pole On a building On a utility pole On a shelter Other (specify):	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
E5	Are there problems with the signage? <i>If YES, check all that apply:</i> Sign in poor condition Pole in poor condition Sign position hazardous to pedestrians Sign not permanently mounted Lighting on sign is poor Other (specify):	Yes No <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

BUS STOP CHECKLIST

PART E: INFORMATION FEATURES

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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E6	Is there route/schedule/map (circle as appropriate) information posted? <i>If NO please move to question E9.</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
	E7 Where is the route/schedule/map (circle as appropriate) information posted?	
	On Pole under bus stop sign	<input type="checkbox"/>
	On its own pole	<input type="checkbox"/>
	On a building	<input type="checkbox"/>
	On a utility pole	<input type="checkbox"/>
	On a shelter	<input type="checkbox"/>
	In a shelter	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>
E8	Is the information at eye level of a wheelchair user?	Yes No <input type="checkbox"/> <input type="checkbox"/>
E9	Is there a schedule rack?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, are repairs needed?</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
E10	Is there real time information display?	Yes No <input type="checkbox"/> <input type="checkbox"/>
	<i>If YES, is it at eye level of a wheelchair user?</i>	Yes No <input type="checkbox"/> <input type="checkbox"/>
E11	Is signage text ADA compliant (refer to the <i>Toolkit for the Assessment of Bus Stop Accessibility and Safety</i> for guidelines)?	Yes No <input type="checkbox"/> <input type="checkbox"/>
E12	Is information provided in Braille or by a Talking Signs® transmitter for people with visual impairments?	Yes No <input type="checkbox"/> <input type="checkbox"/>
E13	Additional signage & information comments:	
E14	Signage & information recommendations:	
	Make the following repairs:	<input type="checkbox"/>
	Other (specify):	<input type="checkbox"/>

BUS STOP CHECKLIST

PART F: DIAGRAMMATIC SKETCH OR PHOTOGRAPH

<i>Route Name:</i>	<i>Location:</i>	<i>Weather Conditions:</i>	<i>Stop No.:</i>
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PART F: Diagrammatic Sketch or Photograph		
Sketch or photograph the layout of the bus stop area and any traffic controls. On sketch or photograph, be sure to note locations of:		
Bus stop sign pole	Newspaper boxes	Traffic signals/stop signs
Other poles	Anything else installed at bus stop	Railroad tracks
Landing Pad	Sidewalks	Bus stop across the street
Shelter	Sidewalk barriers	Heating units in shelters
Bench	Crosswalks	Bike racks
Trash can	Curb cuts	North/South/East/West

Appendix D-1: Bus Stop Checklist

Source: Toolkit for the Assessment of Bus Stop Accessibility and Safety

Appendix E

Part A - Identification and Location		
Attribute	Data Entry	Further Explanation
"Existing_Route_1"	""Breeze", " 1 - SMAT", "2 - SMAT", "3 - SMAT", "3P - SMAT", "4 - SMAT", "5 - SMAT", "7 - SMAT", "7N - SMAT", "8 - SMAT", "20 - SMAT", "24 - SMAT", "40 - SMAT", "45 - SMAT", "61 - SMAT", "62 - SMAT", "All", "All SMAT"	Existing routes which serve particular bus stop: SMAT and The Breeze only.
"Existing_Route_2"		
"Existing_Route_3"		
"Existing_Route_4"		
"Existing_Route_5"		
"Existing_Route_6"		
"Existing_Route_7"		
"Existing_Route_8"		
"Existing_Route_9"		
"Existing_Route_10"		
"Existing_Route_11"		
"Future_Route_1"	"Breeze", "1 - SMAT", "2 - SMAT", "3 - SMAT", "4 - SMAT", "7 - SMAT", "8 - SMAT", "9 - SMAT", "11 - SMAT", "All", "All SMAT"	Routes that will serve particular bus stop under the new SRTP: SMAT and The Breeze only.
"Future_Route_2"		
"Future_Route_3"		
"Future_Route_4"		
"Future_Route_5"		
"Future_Route_6"		
"Future_Route_7"		
"Future_Route_8"		
"Future_Route_9"		
"Other_Services_1"	"The Breeze", "Greyhound", "Clean Air Express", "SMAT", "Guadalupe Flyer", "RTA - 10", "Smooth"	
"Other_Services_2"		
"Other_Services_3"		
"Landmark"	100 characters	
"Stop_Seq_Num_1"	"1", "2", "3", "4", "5", "6", "7", "8", "9", "10", "11", "12", "13", "14", "15", "16", "17", "18", "19", "20"	Number value for stop along particular route - SMAT and The Breeze only.
"Stop_Seq_Num_2"		
"Stop_Seq_Num_3"		
"Stop_Seq_Num_4"		
"Stop_Seq_Num_5"		
"Stop_Seq_Num_6"		
"Stop_Seq_Num_7"		
"Stop_Seq_Num_8"		
"Stop_Seq_Num_9"		
"Stop_Seq_Num_10"		
"Stop_Seq_Num_11"		
"Stop_ID_Num"	3 Characters	Unique ID number for bus stop, no correlation to routes.
"Stop_Name"	100 characters	Technical name of bus stop, such as "S. Broadway at Betteravia"
"Street_Name"	50 characters	
"New_or_Existing"	"New" or "Existing"	For distinguishing between potential bus stop locations and existing bus stop locations.
"Stop_Install Date"	50 characters	Date of installation of existing bus stops, OR goal installation date of a new bus stop
"Shelter_length"	10 characters	Measurement of whole shelter.
"Shelter_Manufacturer"	50 characters	
"Shelter_ID_Num"	10 characters	

Part A - Identification and Location

Attribute	Data Entry	Further Explanation or questions if needed
"Route_Dir"	"North Bound", "East Bound",	
"Route_Dir_Mult"	50 characters	For multiple routes.
"Stop_Function_1"	"Park and ride", "Kiss and ride", "Boarding", "Alighting", "Boarding and Alighting", "Transfer"	
"Stop_Function_2"		
"Future_Transfer"	"Yes" or "No"	Note if it will be a good mid-route transfer spot.
"Daily_Boardings"	"0-9", "10-30", "30-50", ">50"	
"Stop_Position"	crosses the intersection", "Far Side - after the bus crosses intersection", "Mid-Block", "Not near an intersection", "Freeway bus pad", "N/A"	
"Directional_Side_Street"	"N", "S", "E", "W"	
"Directional_Intersection"	"N", "S", "E", "W"	
"Pole_to_cross_street"	10 characters	
"Adjacent_Prop_Address"	50 Characters	
Adjacent_Prop_Desc_1"	"Apartment Bldg", "Day Care", "Govt Bldg",	
Adjacent_Prop_Desc_2"		
Adjacent_Prop_Desc_3"		
Adjacent_Prop_Desc_4"		
"Adjacent_Prop_Other"	50 characters	
"Dist_Previous_stop"	10 characters - numerical	Distance from pervious bus stop
"Identification_Notes"	100 Characters	
"Future_Classification"	50 characters	complete the different classifications for bus stops. This is referencing what classification we want it to become
"Exisiting_Classification"	50 characters	
"Eliminate_Stop"	"Yes", "No", "Needs further	
"Eliminate_Explanation"	100 Characters	If getting rid of bus stop, all information must still be filled out and an explanation of why.

Part B - Pedestrian Access

Attribute	Data Entry	Further Explanation or questions
"Landing_Area_5 x 8"	"yes" or "no"	
"Landing_Location"	"Below Street Level", "Sidewalk", shoulder, "Adjacent Bus Bulb", "Other", "None"	
"Landing_Material"	"Asphalt", "Dirt", "Gravel", "Concrete", "Grass", "Pavers"	
"Landing_Surface_Prob_1"	"None", "Uneven", "Slopes Up from Street", "Slopes down", "Requires	
"Landing_Surface_Prob_2"	100 characters	
"Landing_Surface_Other"	"Not Accessible", "Minimally Accessible", "Accessible"	
"Wheelchair_Obstacles"	100 characters	Link to photograph
"Landing_Rec_1"	"None", "Widen Sidealk to Expand to 5ft x 8ft", "Install Curb Bulb", "Remove on Street Parking", "Move Object to Improve Accessibility", "Other"	
"Landing_Rec_2"	100 characters	
"Landing_Rec_Other"	"Large Apartment Complex", "Small Apartment Complex", "Townhomes", "Detached Homes", "Day Care", "Gas Station", "Gov't Building", "Hospital/Major Clinic", "Human Service Agency", "Library", "Major Shopping/Employment", "Neighborhood Shopping", "Nursing Homes", "Office Builing", "Park and Ride Lot", "Place of Worship", "Restaurant", "School - Elementary", "School - High School", "School - College", "Senior Center", "Transfer to Other Bus", "Transit Station", "Other".	
"Trip_Generator_1"	50 characters	
"Trip_Generator_2"		
"Trip_Generator_3"		
"Trip_Generator_4"		
"Trip_Generator_Other"		
"Sidewalk_Width"	"No Sidewalk", "Less than 3'", "3'-5'", "5' or greater"	
"Sidewalk_Barriers"	"Yes" or "No"	
"Sidewalk_Barriers_Width"	"Less than 3'", "3'-5'", "5' or greater"	
"Sidewalk_Condition"	"1 - Hazardous: Large break, cracks, root uplifting, potential danger"; "2 - In poor shape though not hazardous, very rough, some root uplifting, cracks and breaks"; "3 - Fair: Minor root uplifting, cracks or breaks"; "4 - Good: not perfect but no immediate repair"; "5 - Cosmetically excellent, New."	Link to photograph for any damage.
"Landing_Connection"	"There is no sidewalk", "A Trip Generator", "Intersection"	
"Crosswalk_Location"	"Nearest Intersection", "Mid-block Crosswalk"	

Part B - Pedestrian Access

Attribute	Data Entry	Further Explanation or questions
"Intersection_Amen_1"	"None", "Curb cuts all corners/both sides", "Visible crosswalk", "Curb cuts at some corner/one side", "Pedestrian crossing signal", "Audible crosswalk signal", "Accessible Pedestrian Signal", "Traffic light", "Crossing guard assistance", "Warning strip on curb"	
"Intersection_Amen_2"		
"Intersection_Amen_3"		
"Intersection_Amen_4"		
"Intersection_Amen_Other"		
	50 characters	
"Companion_Stop"	"Yes" or "No"	
"Ped_Connection_Rec_1"	"Construct sidewalk", "Widen sidewalk", "Imrpove landing area connections to sidewalk", "Install curb cut", "Move object"	
"Ped_Connection_Rec_2"		
"Ped_Connection_Rec_3"		
"Ped_Connection_Notes"	100 Characters	
"Pedestrian_Comments"	100 characters	

Part C - Pedestrian Comfort Amenities

Attribute	Data Entry	Further Explanation
"Shelter_Orientation	"Facing towards the street", "Facing on-coming traffic", "Facing away from the street"	
Shelter_Standing_W"	5 characters	Needed for ADA compliance
Shelter_Standing_H"	5 characters	
Shelter_Standing_Depth"	5 characters	
"Shelter_Opening_W"	5 characters	Needed for ADA compliance
"Shelter_Opening_H"	5 characters	
"Wheelchair_Accessible"	"Yes" or "No"	Needed for ADA compliance - at least 30 in x 48 in
"Dist_shelter_to_curb"	"0' - 2'", "2' - 4'", "4'-6'", "6'-8'", "8'-10'", ">10'"	
"Damages_Shelter_1"	"None", "Broken panels", "Graffiti",	Link to photograph of any damages
"Damages_Shelter_2"		
"Shelter_Condition"	"1 - Hazardous: Broken glass, unstable"; "2 - In poor shape though not hazardous"; "3 - Fair: needs repainting", "Glass panels need thorough cleaning", "Protruding but not hazardous bolts"; "4 - Good: not perfect but no immediate repair needed"; "5 - cosmetically	Link to photograph of any damages
"Shelter_Advertising"	"Yes", "Yes and needs replacing", "No"	
Shelter_Type_1	"Full roof", "Partial roof", "Two-sided",	
Shelter_Type_2	"Three-sided", "Four-sided", "Front Panel"	
"Shelter_Rec_1"	"None", Remove center panel", "Make following repairs:", "Move object to improve accessibility", "Move shelter to improve accessibility", "Other"	
"Shelter_Rec_2"		
"Shelter_Rec_3"		
"Shelter_Notes"	100 characters	
"Seating_type"	"Bench inside shelter", "Freestanding bench", "Fold down bench", "Leaning bench", "None"	
"Dist_seating_to_curb"	"0-2'", "2'-4'", "4'-6'", "6'-8'", "8'-10'", ">10'"	
"Seating_Prob_1"	"None", "Broken pieces", "Needs painting", "Graffiti", "Not securely installed"	
"Seating_Prob_2"		
"Seating_Prob_3"		
"Seating_Condition"	"1 - Hazardous: broken, someone could get hurt from normal use"; "2 - In poor shape though not hazardous"; "3 - Fair: Needs repainting and cosmetic attention, protruding but not hazardous bolts"; "4 - Good: not perfect but no immediate repair needed"; "5 - Cosmetically excellent, New"	Link to photograph of any damages
"Seating_Rec"	"Move seating to improve accessibility", "Make the following repairs)", "None"	
"Seating_Notes"	100 characters	

Part C - Pedestrian Comfort Amenities

Attribute	Data Entry	Further Explanation
"Trash_Installation"	"Attached to the shelter", "Free standing", "Garbage bag", "Bolted to sidewalk", "Other" "No Trash can"	
"Recycling_Available"	"Yes" or "No"	
"Trash_Prob_1"	"None", "Trash can very full", "Graffiti at bus stop", "Bus stop littered", "Grocery carts left at stop", "Trash can not	
"Trash_Prob_2"		
"Trash_Prob_3"		
"Trash_Rec_1"	"None", "Install trash can due to litter	
"Trash_Rec_2"		
"Trash_Rec_3"		
"Trash_Notes"	100 characters	
"News_Box_prob"	"Barrier to sidewalk use", "Barrier to bus acceses/egress", "Blocking access to posted bus schedule info", "None", "No newspaper box"	
"News_Box_Location"	"Chained to bust stop pole", "Shelter or bench", "No newspaper box"	
"Newspaper_comments"	100 characters	

Part D - Safety and Security

Attribute	Data Entry	Further Explanation or questions
"Stop_Area_Location"	"In travel lane", "Bus lane/pull of area", "Paved shoulder", "In right turn only lane", "Unpaved shoulder", "Off street", "No parking portion of street", "Parking lane", "Other"	
"Stop_Area_Location_Other"	100 characters	
"No_park_zone_1"	"None", "One 'no parking' sign", "2 or more 'no parking' signs", "Bus only" sign, "Painted curb", "Painted street"	
"No_park_zone_2"		
"No_park_zone_3"		
"Red_Curb"	"Yes" or "No"	
"Cars_Parked"	"Yes" or "No"	
"Speed_limit"	10 characters	
"Traffic_controls_1"	"Traffic signal", "Flashing lights", "Stop/yield sign", "None", "Other"	
"Traffic_controls_2"		
"Total_Lanes"	"1", "2", "3", "4"	
"No_Park_Length"	10 characters - numerical	
"Traffic_hazards_1"	"Bus stop is over the crest of a hill", "Bus stop is just after a curve in the road", "Bus stop is near an at grade railroad crossing", "Waiting passengers are hidden from view of approaching bus", "A stopped bus straddles the crosswalk", "Bus stops just before crosswalk", "High speed traffic", "No crosswalk", "None"	Link to photograph of any damages.
"Traffic_hazards_2"		
"Traffic_hazards_3"		
"Traffic_hazards_4"		
"Traffic_comments"	100 characters	
"Lighting_source"	"None", "Street light", "Shelter lighting", "Outside light on adjacent building"	
"Light_glare"	"Yes" or "No"	
"Light_distributed"	"Yes" or "No"	
"Payphone"	"Yes" or "No"	
"Payphone_accessible"	"Yes" or "No"	
"Police_call_box"	"Yes" or "No"	
"Landscaping_Prob_1"	"Trees/bushes encroaching on the landing area", "Trees/bushes encroaching on the sidewalk", "Tree branches that could potentially hit the bus", "None"	
"Landscaping_Prob_2"		
"Ped_Safety_Rec_1"	"None", "Trim trees or branches", "move bus stop", "Other"	
"Ped_Safety_Rec_2"		
"Safety_Comments"	100 characters	if moving bus stop, specify where and why.

Part E - Information Features

Attribute	Data Entry	Further Explanation or questions
"Bus_Stop_Sign"	"Yes" or "No"	
"Bus_Stop_Provider"	100 characters	
"Sign_Routes"	"Yes" or "No"	
"Sign_Routes_Notes"	100 characters	
"Sign_installation"	"On its own pole", "On a shelter", "On a building", "On a utility pole"	
"Sign_Prob_1"	"None", "Sign in poor condition", "Pole in poor condition", "Sign position hazardous to pedestrians", "Sign not permanently mounted", "Lighting on sign"	Link to photograph for damages.
"Sign_Prob_2"		
"Sign_Prob_3"		
"Sign_Prob_4"		
"Schedule_Posted"	"No", "On pole under bus stop sign", "On its own pole", "On a building", "On a utility pole", "On a shelter", "In a shelter"	
"Information_Accessible"	"Yes" or "No"	
"Schedule_Rack"	"Yes and repairs are needed", "Yes", "No"	
"Real_Time_Info"	"Yes" or "No"	

Appendix F

questionable damage

Stop Name	Landing Surface Prob.	Landing Surface Prob.2	Landing Surface Other	Landing Access	Wheelchair Obstacles	Landing Rec.	Landing Rec.2	Landing Rec. Other
A Street at McCoy (Vocational Training Cntr)				Not Accessible	no sidewalk or curb cut to get to shelter	widen sidewalk		construct sidewalk to near driveway and curb cut
Autopark at Mercury (Casino Bus Center)				Minimally Accessible	landscaping	other		trim bushes and surrounding
Betteravia at Thornburg	Other		narrows after stop and dirt			other		install landing area with curb cut
Blosser at Solomon	Uneven	Drain Inlet Issue		Not Accessible	grass, no curb cuts	other		
Bradley at Allan Hancock SB					some debris from trees			
Bradley at Patterson	Uneven	Drain Inlet Issue		Minimally Accessible	grass	other		install landing pad
Bradley at Stowell SB	Uneven	Slopes Up		Minimally Accessible	sidewalk very uneven	other		repair sidewalk
Broadway at Hermosa (Walgreens)	Uneven		due to tree			other		pavement, difficult for
Broadway at Orchard SB	Uneven		cracks in sidewalk		crack in sidewalk	other		fix sidewalk
College at Park SB (Hancock College)			graffiti	Not Accessible	bench takes up all concrete			
Cypress at Nicholson	Uneven		wheelchair	Not Accessible	mud, no path to sidewalk	other		concrete landing

Donovan at Bay	Other				only 5'x7'			street parking potential for obstacle	other			maybe make landing area larger
Donovan at Canyon									remove street parking			
Donovan at College	Other				bolts from previous shelter sticking up slightly							
Donovan at La Salle (Pepperwood)									plant tree			
Enos at Minami Center SB							Not Accessible	bench too close to sidewalk	move object			move bench onto grass
Foster at California SB	Uneven		Drain Inlet Issue				Minimally Accessible	dirt, grass, gravel	other			install landing pad
Foster W of Broadway (across Mental Health)	Uneven		Drain Inlet Issue				Minimally Accessible		widen sidewalk	install curb bulb		
Foster at Hummel SB	Uneven		Drain Inlet Issue		stops right at bus stop. 1/2		Minimally Accessible	sidewalk stops, turns to grass	widen sidewalk			
Foster at Orcutt Frontage (The Jetty)							Minimally Accessible	grass and wheelchair ramp only to restaurant	other			install ramp
Hillview at Cambria NB	Uneven											fix sidewalk/landing concrete

Hillview at Stratford NB	Uneven			Minimally Accessible				other		move stop closer to phone pole
Industrial at RR Tracks				Not Accessible			no sidewalk, only street and grass	other		construct sidewalk and landing area
Industrial at Skyway				Not Accessible			no sidewalk and no curb cut			
Lakeview at Bedford				Not Accessible			No sidewalk	other		install sidewalk
Lakeview Rd. at Lakeview Ct.	Uneven	Drain Inlet Issue		Minimally Accessible			sidewalk ends at bus stop	widen sidewalk		
Miller at Battles	Uneven			Not Accessible			sidewalk uneven due to tree root	widen sidewalk		
Morrison at Thornburg (SMHS)							distance between bench/shelter and edge of sidewalk is too narrow	widen sidewalk		
Morrison at Western NB	Uneven			Not Accessible			dirt but next to driveway	widen sidewalk		
Orcutt Frontage at Evergreen Shop Cntr							bench on too much of sidewalk			
Pine at Jones SB	Uneven			Minimally Accessible			small sidewalk to curb but cars parked in front blocking access to bus	remove street parking		

questionable damage

Stop Name	Sidewalk Barriers	Sidewalk Condition	Pedestrian Connect	Ped. Connect Rec.1	Ped. Connect Rec.2	Ped. Connect Rec.3	Ped. Connect Notes
A Street at McCoy (Vocational Training Cntr)			Construct Sidewalk	Install curb cut			
Autopark at Mercury (Casino Bus Center)	Yes						
Blosser at Solomon			Install Curb Cut	Construct Sidewalk			
Bradley at Patterson	Yes		Move Object			move seating out of sidewalk or widen sidewalk	
Bradley at Stowell SB	Yes	2 - poor					fix sidewalk cracks
Broadway at Hermosa (Walgreens)		3 - fair					
Broadway at Jones SB (RR Tracks)		3 - fair	Improve Connections			sidewalk is uneven	
Church at Palisade (Marian Hospital)			Construct Sidewalk				
College at Chapel			Improve Connections			install crosswalk	
Donovan at Canyon						consider crosswalk at Donovan and Canyon intersection	
Enos at Minami Center SB	Yes						
Foster at California SB			Improve Connections	Construct Sidewalk	Make Repairs	crosswalk to California	

Foster W of Broadway (across Mental Health)				Construct Sidewalk	Improve Connections	Install Curb Cut		
Foster at Hummel SB	Yes			Construct Sidewalk	Improve Connections			
Foster at Orcutt Frontage (The Jetty)	Yes			Construct Sidewalk	Improve Connections			
Hilview at Stratford NB		3 - fair						if keeping stop, construct sidewalk
Industrial at RR Tracks				Construct Sidewalk				
Industrial at Skyway				Construct Sidewalk	Install Curb Cut			
Lakeview at Bedford	Yes			Construct Sidewalk	Improve Connections	Install Curb Cut		not ADA accessible
Lakeview Rd. at Lakeview Ct.		3 - fair		Construct Sidewalk	Improve Connections			trim landscape so that it doesn't block sidewalk
McCoy W of Thompson	Yes			Make Repairs				fix sidewalk, slopes up, barrier for wheelchairs
Miller at Battles		3 - fair		Improve Connections Widen Sidewalk				
Morrison at Western NB								

Orcutt Frontage at Evergreen Shop Cntr	Yes		Move Object			move bench back, uses too much sidewalk	
Orcutt Frontage at Winter Rd SB			Improve Connections			consider crosswalk at stop	
Pine at Jones NB			Construct Sidewalk	Improve Connections		sidewalk doesn't continue to Jones	
Railroad at Grant			Improve Connections			sidewalk painting worn	
Railroad at Vista Montana			Improve Connections			consider installing crosswalk from stop to other side of street	
Rice Ranch Rd at Graciosa			Construct Sidewalk	Make Repairs			
Santa Maria Way at Del Cielo MHP NB		hazardous	Sidewalk	Connections	Cut		
Santa Maria Way at Holly Oak SB (Del Cielo MHP)			Construct Sidewalk	Improve Connections	Move Object	move stop north	
Suey at Fesler	Yes		Widen Sidewalk	Move Object		bench takes up sidewalk space, move or widen	



Taylor at Casa Grande MHP	Yes								move bench away from pole so wheelchair can fit	
Thornburg at Newlove				Move Object					install painted crosswalk	
Thornburg at Betteravia NB (N of Betteravia)				Improve Connections Construct Sidewalks	Make Repairs Connections			Install Curb Cut		
TOTALS:										2
										11
										7
										29
										16
										6
										35

questionable damage

Stop Name	Shelter Damages	Shelter Damages2	Shelter Condition	Shelter Advertising	Shelter Rec.	Shelter Rec.2	Shelter Rec.3	Shelter Notes
Main at Bradley (Freeway)	Graffiti	Needs Repainting			Make Repairs			
Betteravia East of Broadway	Graffiti	Needs Repainting		Needs Replacement	Make Repairs			
A Street at McCoy (Vocational Training Cntr)	Needs Repainting	Other	3 - fair	Needs Replacement	Make Repairs			cloudy glass
Airport Mobile Home Park	Needs Repainting		3 - fair		Make Repairs			
Betteravia at Target	Graffiti	Needs Repainting		Needs Replacement	Make Repairs			
Bradley at Allan Hancock SB	Needs Repainting	Graffiti		Needs Replacement	Make Repairs			
Bradley at Crossroads Shopping Cntr	Graffiti	Needs Repainting	3 - fair	Needs Replacement	Make Repairs			
Bradley at Stowell NB (In-N-Out)	Needs Repainting	Graffiti		Needs Replacement	Make Repairs			
Bradley at Taco Bell	Graffiti	Needs Repainting	3 - fair	Needs Replacement	Make Repairs			
Broadway at Alvin	Broken Panels	Needs Repainting		Needs Replacement	Make Repairs			
Broadway at Battles	Graffiti	Needs Repainting	3 - fair		Make Repairs			rust, damaged panels
Broadway at Betteravia (CVS)	Needs Repainting	Graffiti	3 - fair		Make Repairs			panels need replacement
Broadway at Carmen	Needs Repainting	Missing Panels	3 - fair		Make Repairs			
Broadway at Colegio (SMHS)	Graffiti	Needs Repainting	3 - fair	Needs Replacement	Make Repairs			
Broadway at Williams NB (Donovan)	Needs Repainting	Graffiti			Make Repairs			scratches on panels

Broadway at Enos NB	Graffiti	Needs Repainting			Make Repairs		advertising needs replacement on breeze shelter also breeze shelter, panels need replacement and has advertising
Broadway at Enos SB	Graffiti	Needs Repainting			Make Repairs		
Broadway at Fesler	Needs Repainting			Needs Replacement	Make Repairs		take out 1 advertize ment and put in route info
Broadway at Grant	Graffiti				Make Repairs		
Broadway at McElhany	Needs Repainting		3 - fair		Make Repairs		needs additional panels
Broadway at Mill	Holes in Roof			Needs Replacement	Make Repairs		
Broadway at Newlove SB	Graffiti	Needs Repainting	3 - fair	Needs Replacement	Make Repairs		
Broadway at Orchard NB	Graffiti				Make Repairs		
Broadway at Orchard SB	Graffiti	Needs Repainting			Make Repairs		graffiti and clean
Broadway at Stinky's	Missing Panels	Needs Repainting	3 - fair		Make Repairs		

Broadway at Williams SB (N of Donovan)	Needs Repainting	Graffiti	3 - fair		Make Repairs		replace or clean panels, due to scratches
Church at Palisade (Marian Hospital)	Broken Panels				Needs Replacement		
Clark at Oak Knoll Center EB (S of st.)	Graffiti	Needs Repainting			Make Repairs		
College at Park NB (Hancock College)	Needs Repainting	Graffiti			Make Repairs		
College at Park SB (Hancock College)	Missing Panels	Graffiti	3 - fair		Make Repairs		
Cook at Western WB	Graffiti	Other			Make Repairs		panels have scratches
County Government Center	Graffiti	Needs Repainting			Needs Replacement		2 shelters at stop of different styles
Foster at Bradley (Righetti HS)	Graffiti	Needs Repainting	3 - fair		Make Repairs		replace some panels
Main at College	Needs Repainting	Graffiti	3 - fair		Needs Replacement		noticeable trash problem at shelter, graffiti on plastic panels, no schedule in panels or advertisement

Main West of Suey										SMAT sign has stickers and is bent
McCoy at Broadway (Albertson's) (N side st.)	Needs Repainting							Make Repairs		
McCoy at Broadway (S side st.)	Graffiti	Needs Repainting						Make Repairs		panels need replacement
McCoy W of Broadway	Graffiti	Needs Repainting	3 - fair				Needs Replacement	Make Repairs		
Miller at Stowell	Needs Repainting	Graffiti					Needs Replacement	Make Repairs		
Morrison at Thornburg (SMHS)	Graffiti	Needs Repainting						Make Repairs		
Orcutt Frontage at Winter Rd NB	Graffiti							Make Repairs		graffiti on schedule holder
Pine at Morrison (BV Park)	Graffiti							Make Repairs		graffiti scratches on panels
Railroad at Donovan SB	Graffiti							Make Repairs		replace panels due to graffiti
Railroad at Taylor	Graffiti	Needs Repainting	3 - fair					Make Repairs		
Santa Maria Airport	Needs Repainting						Needs Replacement	Make Repairs		
Stowell at Cecelia (Marian Urgent Care)	Graffiti							Make Repairs		graffiti on glass
Tanglewood Market	Graffiti	Broken Panels	2 - poor					Make Repairs		missing and damaged panels

Town Center Mall Transit Cntr	Broken Panels	47	Graffiti	34	3 - fair	19	Needs Replacement	20	Other	47	Make Repairs	1	Move Shelter	1	all 5 shelters need to be replaced or taken out and replaced with shelters to serve new routes	22
								20								
TOTALS:																
48																

questionable damage

Stop Name	Seating Prob.1	Seating Prob.2	Seating Prob.3	Seating Condition	Seating Rec.	Seating Notes
Main at Bradley (Freeway)	Needs Painting				Make Repairs	needs cleaning
Betteravia East of Broadway	Needs Painting				Make Repairs	
A Street at McCoy (Vocational Training Cntr)	Needs Painting				Make Repairs	
Airport Mobile Home Park	Needs Painting				Make Repairs	
Alt. Town Center Mall	Broken Pieces	Needs Painting			Make Repairs	
Autopark at Mercury (Casino Bus Center)	Broken Pieces	Needs Painting		3 - fair	Make Repairs	
Betteravia at Target	Needs Painting				Make Repairs	
Betteravia at Westgate	Needs Painting				Make Repairs	
Bradley at Allan Hancock NB	Needs Painting				Make Repairs	
Bradley at Crossroads Shopping Cntr	Needs Painting			3 - fair	Make Repairs	
Bradley at Francine	Needs Painting	Graffiti			Make Repairs	
Bradley at Parkland (St. Joe HS)	Broken Pieces	Graffiti	Needs Painting	3 - fair	Make Repairs	
Bradley at Patterson	Broken Pieces	Needs Painting	Graffiti	3 - fair	Make Repairs	
Bradley at Stowell NB (In-N-Out)	Needs Painting				Make Repairs	
Bradley at Stowell SB	Broken Pieces	Needs Painting			Make Repairs	
Bradley at Taco Bell	Needs Painting				Make Repairs	
Bradley at Village NB	Graffiti	Needs Painting	Broken Pieces	3 - fair	Make Repairs	

Broadway at Alvin								also another concrete bench that needs painting
Broadway at Battles	Needs Painting	Graffiti				Make Repairs		
Broadway at Betteravia (CVS)	Needs Painting	Broken Pieces			3 - fair	Make Repairs		
Broadway at Carmen	Needs Painting					Make Repairs		
Broadway at Colegio (SMHS)	Graffiti	Needs Painting	Broken Pieces		3 - fair	Make Repairs		
Broadway at Enos NB	Needs Painting					Make Repairs		
Broadway at Enos SB	Graffiti	Needs Painting				Make Repairs		breeze free standing bench, needs painting
Broadway at Fesler	Needs Painting					Make Repairs		
Broadway at Jones NB	Broken Pieces	Graffiti				Make Repairs		
Broadway at Jones SB (RR Tracks)	Graffiti	Needs Painting			3 - fair	Make Repairs		
Broadway at McElhany	Needs Painting				3 - fair	Make Repairs		
Broadway at Mill	Needs Painting					Make Repairs		
Broadway at Morrison (SMHS)	Needs Painting	Graffiti				Make Repairs		
Broadway at Newlove NB	Broken Pieces	Needs Painting				Make Repairs		

Broadway at Newlove SB	Graffiti	Needs Painting			Make Repairs	
Broadway at Orchard NB	Insecure Install		3 - fair		Make Repairs	bench bent down a little
Broadway at Orchard SB	Needs Painting				Make Repairs	
Broadway at Sunset	Needs Painting				Make Repairs	
Broadway at Tunnel	Needs Painting				Make Repairs	
Broadway at Williams SB (N of Donovan)	Needs Painting				Make Repairs	rusty and needs repainting
Church at Palisade (Marian Hospital)	Broken Pieces				Make Repairs	4 benches total, 1 in shelter, 1 bench needs repair
Clark at Dyer	Needs Painting				Make Repairs	
Clark at Oak Knoll Center EB (S of st.)	Needs Painting	Graffiti			Make Repairs	
Clark at Stillwell	Needs Painting				Make Repairs	
College at Mariposa NB	Needs Painting				Make Repairs	
College at Park NB (Hancock College)	Needs Painting				Make Repairs	
College at Chapel	Needs Painting				Make Repairs	
Cook at Western WB	Needs Painting				Make Repairs	
County Government Center	Needs Painting				Make Repairs	



Cypress at Depot (Greyhound)	Needs Painting				Make Repairs	
Depot at Mill	Needs Painting				Make Repairs	
Donovan at Canyon	Needs Painting				Make Repairs	skateboarding marks on edge of bench
Enos at Minami Center NB	Needs Painting				Make Repairs	
Enos at Minami Center SB	Needs Painting				Move Seating	move onto grass and paint
Enos at Thomburg NB	Needs Painting		Graffiti		Make Repairs	
Enos at Thomburg SB	Needs Painting				Other	See if stop should include seating based off of ridership
Foster at Bradley (Righetti HS)	Needs Painting		Graffiti		Make Repairs	
Foster W of Broadway (across Mental Health)	Needs Painting				Make Repairs	3 - fair
Foster at Orcutt Frontage (The Jetty)	Needs Painting				Make Repairs	
Hillview at Cambria NB	Graffiti		Needs Painting		Make Repairs	Broken Pieces
Industrial at Skyway	Needs Painting				Make Repairs	
Jones at College	Needs Painting				Make Repairs	

Jones at Bradley (Allan Hancock)	Broken Pieces	Needs Painting			Make Repairs	
Lakeview at Bedford	Graffiti	Needs Painting			Make Repairs	
Lakeview at Orcutt Frontage	Needs Painting				Make Repairs	
McCoy at Broadway (Albertson's) (N side st.)	Broken Pieces	Needs Painting			Make Repairs	
						also concrete bench that needs painting
McCoy at Broadway (S side st.)	Needs Painting				Make Repairs	
McCoy at Skyway	Needs Painting				Make Repairs	
McCoy W of Broadway	Needs Painting			3 - fair	Make Repairs	
Miller at Enos NB	Needs Painting	Graffiti			Make Repairs	
Miller at Enos SB	Needs Painting				Make Repairs	
Miller at Inger SB	Needs Painting				Make Repairs	
Miller at Newlove	Needs Painting				Make Repairs	
Miller at Stowell	Needs Painting				Make Repairs	
Morrison at Depot	Needs Painting	Graffiti			Make Repairs	
Morrison at Railroad	Needs Painting				Make Repairs	
						also concrete bench that needs painting
Morrison at Thornburg (SMHS)	Needs Painting				Make Repairs	

Morrison at Thornburg SB	Needs Painting				Make Repairs	
Orcutt Frontage at Clark SB	Needs Painting	Broken Pieces			Make Repairs	
Orcutt Frontage at Evergreen Shop Cntr	Needs Painting	Graffiti	Broken Pieces		Make Repairs	
Park at Elizabeth (Mussel Sr center)	Needs Painting				Make Repairs	
Park at Oakwood (Mussell Senior Cntr)	Needs Painting	Graffiti			Make Repairs	
Pine at Cook SB	Needs Painting				Make Repairs	
Pine at Jones NB	Needs Painting				Make Repairs	
Pine at Morrison (BV Park)	Graffiti	Needs Painting			Make Repairs	paint to cover graffiti scratches
Railroad at Alvin (Boys/Girls Club)	Needs Painting				Make Repairs	worn, needs painting
Railroad at Donovan NB	Needs Painting	Graffiti			Make Repairs	slot for advertise ments but none there, some minor graffiti
Railroad at Fesler	Graffiti	Needs Painting			Make Repairs	
Railroad at Grant	Needs Painting	Graffiti		3 - fair	Make Repairs	
Railroad at Hidden Pines	Needs Painting				Make Repairs	
Railroad at Taylor	Needs Painting			3 - fair	Make Repairs	

Rice Ranch Rd at Graciosa	Graffiti	Needs Painting		3 - fair	Make Repairs	
Santa Maria Airport	Needs Painting				Make Repairs	
Santa Maria Way at Bradley	Needs Painting	Graffiti			Make Repairs	
Santa Maria Way at Broadway	Needs Painting	Graffiti	Broken Pieces		Make Repairs	
Santa Maria Way at Sunrise (K-Mart)	Needs Painting				Make Repairs	
Stowell at Western	Needs Painting	Graffiti			Make Repairs	
Suey at Alvin	Needs Painting			3 - fair	Make Repairs	seating is worn and in need of painting
Suey at Fesler	Needs Painting				Make Repairs	currently installed taking up sidewalk space, needs touch up paint
Tanglewood at Black Rd	Needs Painting	Broken Pieces			Make Repairs	
Tanglewood Market	Needs Painting	Insecure Install		3 - fair	Make Repairs	
Taylor at Casa Grande MHP	Needs Painting	Graffiti		3 - fair	Make Repairs	
Taylor at Lincoln	Needs Painting				Make Repairs	
Thornburg at Battles	Needs Painting				Make Repairs	
Thornburg at Carmen NB	Needs Painting				Make Repairs	
Thornburg at Carmen SB	Needs Painting				Make Repairs	

	Needs Painting	Broken Pieces	Graffiti	3 - fair	Make Repairs	
Thornburg at Newlove						all seating needs to be replaced or taken out and replaced with seating to serve new routes
Town Center Mall Transit Cntr	103	41	8	20	104	17
TOTALS:				104		

questionable damage

Stop Name	Trash Prob.1	Trash Prob.2	Trash Prob.3	Trash Rec.	Trash Rec.2	Trash Notes
Betteravia East of Broadway	Bus Stop Littered					
A Street at McCoy (Vocational Training Cntr)	Insecure Install			Install Trash Can		
Alt. Town Center Mall	Bus Stop Littered			Make Repairs		
Betteravia at Target	Bus Stop Littered	Grocery Carts Present				
Betteravia at Westgate				Install Trash Can		all seating should have a trash can
Bradley at Crossroads Shopping Cntr	Bus Stop Littered			Relocated Trash Can		add trash can in more convenient location
Bradley at Francine	Bus Stop Littered			Install Trash Can		all seating should have a trash can
Bradley at Parkland (St. Joe HS)				Install Trash Can		all seating should have a trash can
Bradley at Patterson	Bus Stop Littered			Install Trash Can		
Bradley at Stowell SB				Install Trash Can		
Bradley at Taco Bell	Bus Stop Littered			Relocated Trash Can		additional trash or cigarette collector

Bradley at Village NB	Bus Stop Littered			Install Trash Can		
Broadway at Alvin						2 trash cans and an oversized ash tray that is used for trash, make it smaller
Broadway at Betteravia (CVS)	Trash Very Full	Bus Stop Littered		Make Repairs		
Broadway at Carmen	Bus Stop Littered	Graffiti Present	Other	make Repairs		trash can dented
Broadway at Colegio (SMHS)	Graffiti Present					
Broadway at Williams NB (Donovan)	Trash Very Full	Bus Stop Littered		Make Repairs	Relocate Trash Can	
Broadway at Enos NB	Bus Stop Littered	Other		Make Repairs		1 free standing , 1 on breeze shelter that is rusted, needs painting
Broadway at Enos SB	Bus Stop Littered					breeze has trash on shelter, needs painting
Broadway at Fesler	Bus Stop Littered	Adj Prop Littered				
Broadway at Grant	Insecure Install	Bus Stop Littered		Install Trash Can		cigarette butts littered
Broadway at Jones NB				Install Trash Can		all seating should have a trash can

Broadway at McElhany	Bus Stop Littered			Install Trash Can		
Broadway at Mill	Bus Stop Littered	Insecure Install	Adj Prop Littered	Make Repairs		
Broadway at Newlove NB				Install Trash Can		all seating should have a trash can
Broadway at Orchard NB	Trash Very Full	Bus Stop Littered	Adj Prop Littered			bigger trash can or empty it more
Broadway at Sunset	Insecure Install			Make Repairs		2 trash cans, 1 free standing, 1 bolted down
Broadway at Tunnel	Bus Stop Littered					
Broadway at Williams SB (N of Donovan)	Bus Stop Littered	Adj Prop Littered	Other	Make Repairs		trash can needs replacement
Clark at Oak Knoll Center EB (S of st.)	Grocery Carts Present	Graffiti Present		Make Repairs		graffiti on ground and shelter
Clark at Stillwell				Install Trash Can		all seating should have a trash can
College at Mariposa NB				Install Trash Can		all seating should have a trash can
College at Park NB (Hancock College)	Bus Stop Littered					



College at Park SB (Hancock College)	Adj Prop Littered			Install Trash Can		shelters need trash cans
College at Chapel				Install Trash Can		
Cook at Western WB						trash can needs painting
Cypress at Depot (Greyhound)	Bus Stop Littered			Install Trash Can		all seating needs a trash can
Cypress at Nicholson				Trash Can		
Depot at Mill	Bus Stop Littered			Install Trash Can		
Donovan at Bay				Install Trash Can		
Donovan at Canyon				Install Trash Can		
Donovan at College	Other			Make Repairs		trash can has scratches, dents, and paint marks. Looks old, needs replacement
Enos at Minami Center NB	Bus Stop Littered			Install Trash Can		
Fairway at Skyway	Bus Stop Littered			Install Trash Can		all seating should have a trash can

Foster at Bradley (Righetti HS)	Bus Stop Littered			Install Trash Can		install bigger trash can, one present is too small
Foster at California SB				Install Trash Can		secure trash can
Foster W of Broadway (across Mental Health)				Install Trash Can		all seating should have a trash can
Foster at Orcutt Frontage (The Jetty)				Install Trash Can		all seating should have a trash can
Hillview at Cambria NB	Insecure Install	Bus Stop Littered		Make Repairs		
Industrial at Skyway				Install Trash Can		all seating should have a trash can
Jones at College	Bus Stop Littered			Install Trash Can		all seating should have a trash can
Jones at Bradley (Allan Hancock)	Bus Stop Littered			Install Trash Can		
Lakeview at Bedford	Bus Stop Littered			Install Trash Can		
Main at College	Graffiti Present	Bus Stop Littered		Install Trash Can		install recycling
McCoy at Broadway (Albertson's) (N side st.)	Graffiti Present	Bus Stop Littered		Make Repairs	Install Trash Can	
McCoy at Broadway (S side st.)	Bus Stop Littered					

McCoy at Skyway				Install Trash Can		
McCoy W of Broadway	Bus Stop Littered			Relocate Trash Can		
Miller at Enos SB				Install Trash Can		all seating should have a trash can
Miller at Inger SB				Install Trash Can		all seating should have a trash can
Miller at Newlove				Install Trash Can		all seating should have a trash can
Morrison at Depot	Graffiti Present	Bus Stop Littered		Make Repairs		
Morrison at Railroad				Install Trash Can		all seating should have a trash can
Morrison at Thornburg (SMHS)	Bus Stop Littered	Graffiti Present				
Morrison at Western SB				Install Trash Can		all seating should have a trash can
Orcutt Frontage at Clark SB	Bus Stop Littered			Install Trash Can		
Orcutt Frontage at Evergreen Shop Cntr				Install Trash Can		all seating should have a trash can

Orcutt Frontage at Winter Rd NB				Relocate Trash Can		stained lid, need replacement
Orcutt Frontage at Winter Rd SB	Bus Stop Littered			Install Trash Can		
Park at Elizabeth (Mussel Sr center)				Install Trash Can		all seating should have a trash can
Park at Oakwood (Mussell Senior Cntr)	Other			Make Repairs		trash can needs painting
Pine at Jones NB				Install Trash Can		all seating should have a trash can
Railroad at Alvin (Boys/Girls Club)	Bus Stop Littered			Install Trash Can		
Railroad at Donovan NB	Bus Stop Littered			Install Trash Can		cigarette butts, possibly install ash tray
Railroad at Donovan SB	Trash Very Full	Grocery Carts Present				
Railroad at Fesler	Bus Stop Littered			Trash Can		
Railroad at Grant	Graffiti Present	Bus Stop Littered		Install Trash Can		
Railroad at Hidden Pines	Insecure Install			Make Repairs		no longer bolted to ground
Railroad at Taylor	Other			Make Repairs		rusty, needs repainting
Rice Ranch Rd at Graciosa	Bus Stop Littered			Install Trash Can		



Santa Maria Way at Bradley	Bus Stop Littered			Install Trash Can		
Santa Maria Way at Broadway				Install Trash Can		all seating should have a trash can
Santa Maria Way at Holly Oak SB (Del Cielo MHP)	Bus Stop Littered	Adj Prop Littered		Install Trash Can		
Santa Maria Way at Sunrise (K-Mart)	Bus Stop Littered					
Stowell at Western	Bus Stop Littered	Graffiti Present	Adj Prop Littered	Install Trash Can		
Tanglewood at Black Rd				Install Trash Can		
Tanglewood Market	Bus Stop Littered					
Taylor at Casa Grande MHP				Install Trash Can		
Taylor at Lincoln				Install Trash Can		
Thornburg at Battles	Bus Stop Littered					all seating should have a trash can
Thornburg at Carmen NB	Bus Stop Littered			Trash Can		seating should
Thornburg at Carmen SB				Install Trash Can		install trash can if cost effective
Thornburg at Newlove				Install Trash Can		
Town Center Mall Transit Cntr	Trash Very Full	Bus Stop Littered		Install Trash Can	Relocate Trash Can	locate trash cans in appropriate area
TOTALS:	61	21	5	78	3	47
	95					

questionable damage

Stop Name	Newspaper Box Comments	Traffic Hazards 1	Traffic Hazards 2	Traffic Comments	Landscaping Problem 1	Landscaping Problem 2
Main at Bradley (Freeway)				replace no park sign, faded		
Autopark at Mercury (Casino Bus Center)					Trees - Sidewalk	
Bradley at Allan Hancock SB		No Crosswalk			Trees - Sidewalk	
Bradley at Stowell SB					Trees - Landing	
Broadway at Mill				needs red curb for fire hydrant	Trees - Bus Damage	
Broadway at Morrison (SMHS)					Trees - Landing	
Broadway at Orchard SB		High Speed Traffic				
Church at Palisade (Marian Hospital)	no newspaper in them, need repair					
Clark at Michael		No Crosswalk			Trees - Sidewalk	
Clark at Oakridge Park						
Clark at Stillwell					Trees - Sidewalk	Trees - Landing
College at Mariposa NB		Crosswalk Straddle				
College at Chapel		No Crosswalk	High Speed Traffic	install crosswalk		
Donovan at Bay				need to extend red curb by 2 car lengths for room for bus to pull over		

Donovan at Canyon		No Crosswalk		no parking signs need to be added as well as red curb			
Foster at California SB		No Crosswalk					
Industrial at Skyway		Curve In Road					
Jones at College		Curve In Road					
Lakeview at Bedford		No Crosswalk	High Speed Traffic				
McCoy W of Thompson					Trees - Sidewalk		
Morrison at Depot					Trees - Bus Damage		
Orcutt Frontage at Winter Rd SB		No Crosswalk	High Speed Traffic				
Pine at Jones SB		No Crosswalk			Trees - Bus Damage		
Railroad at Vista Montana		No Crosswalk					
Santa Maria Way at Del Cielo MHP NB		Crosswalk					
Santa Maria Way at Holly Oak SB (Del Cielo MHP)		High Speed Traffic	No Crosswalk	add crosswalk to MHP			
Suey at Alvin		High Speed Traffic					
Suey at Fesler	not chained to anything and has graffiti						
Thornburg at Battles		Hidden Passengers	Pre-Crosswalk Stop	bus blocks right turning cars from seeing pedestrians crossing			
Western at Stowell				need red curb			
TOTALS:		2	16	8	10	10	1
		2	20				

questionable damage

Stop Name	Pedestrian Safety Rec	Pedestrian Safety Rec	Safety Comments
Airport Mobile Home Park	Other		lighting
Autopark at Mercury (Casino Bus Center)	Trim Trees		
Blosser at Foxenwood SB	Other		lighting
Blosser at Solomon	Other		lighting
Boone at East	Other		lighting
Bradley at Allan Hancock SB	Other		install additional lighting
Bradley at Parkland (St. Joe HS)	Other		install lighting
Bradley at Stowell SB	Other		repair siewalk
Broadway at Hermosa (Walgreens)			doesn't provide much
Broadway at Mill	Trim Trees		
Broadway at Morrison (SMHS)	Trim Trees		trees block light, move
Broadway at Newlove NB			bench far from lighting, move
Clark at Broadway	Other		lighting
Clark at Michael	Trim Trees		
Clark at Stillwell	Trim Trees		can't see bus sign, in tree, new pole or trim tree
College at Chapel			install lighting for bus stop
Donovan at Canyon			consider installing crosswalk
Donovan at La Salle (Pepperwood)	Other		install light and maybe shade
Enos at Minami Center NB	Other		consider more lighting
Enos at Thornburg NB	Other		install lighting
Enos at Thornburg SB	Other		install lighting
Fairway at Aviation (Coca-cola)	Other		lighting
Foster at Bradley (Righetti HS)			not adequate lighting, install
Foster at California SB	Other		install lighting
Foster W of Broadway (across Mental Health)			install lighting
Hillview at Stratford NB	Other		install lighting
Jones at Bradley (Allan Hancock)	Other		consider more lighting

			relocated for accessibility or make improvements, lighting
Lakeview at Bedford	Move Bus Stop	Other	
Lakeview at Orcutt Frontage	Other		lighting
Main at College	Other		lighting in bus stop needs replacement
McCoy at Skyway	Other		lighting
McCoy W of Broadway	Other		lighting
McCoy W of Thompson	Trim Trees		bushes, not trees
Morrison at Depot	Trim Trees		
Oak Knoll Rd at Kenneth NB	Other		install lighting
Oak Knoll Rd at Tilbury	Other		install lighting
Orcutt Frontage at Clark SB	Other		install lighting
Orcutt Frontage at Winter Rd NB	Other		consider additional lighting
Orcutt Frontage at Winter Rd SB	Other		lighting
Pine at Jones SB	Trim Trees		
Railroad at Alvin (Boys/Girls Club)	Other		install lighting
Railroad at Grant	Other		
Railroad at Hidden Pines	Other		install lighting
Railroad at Vista Montana			install lighting
Rice Ranch Rd at Graciosa	Other		install lighting
Rice Ranch Rd at Princeton SB	Other		install lighting
Santa Maria Way at Bradley	Other		install lighting
Tanglewood at Black Rd	Other		consider installing light
Tanglewood Market	Other		install lighting
Taylor at Casa Grande MHP	Other		
Thornburg at Carmen NB			poor sign lighting
Thornburg at Carmen SB	Other		install lighting
Thornburg at Newlove	Other		install lighting
	46	1	46
TOTALS:			53

questionable damage

Stop Name	Sign Routes Notes	Sign Prob.1	Sign Prob.2	Sign Prob.3	Sign Prob.4	Schedule Rack
Betteravia East of Broadway		Sign Poor				
A Street at McCoy (Vocational Training Cntr)						Needs Repair
Airport Mobile Home Park		Sign Poor	Poor Sign Lighting			
Autopark at Mercury (Casino Bus Center)		Poor Sign Lighting				
Betteravia at Westgate		Sign Poor				
Blosser at Foxenwood SB		Poor Sign Lighting				
Blosser at Solomon		Sign Poor	Poor Sign Lighting			
Boone at East		Poor Sign Lighting				
Bradley at Allan Hancock SB		Poor Sign Lighting				
Bradley at Parkland (St. Joe HS)		Poor Sign Lighting	Sign Poor			
Bradley at Patterson		Poor Sign Lighting				
Bradley at Stowell NB (In-N-Out)		Poor Sign Lighting				
Bradley at Stowell SB		Poor Sign Lighting				
Bradley at Village NB		Poor Sign Lighting	Sign Poor	Pole Poor		
Broadway at Battles		Sign Poor				
Broadway at Betteravia (CVS)		Sign Poor				
Broadway at Carmen		Sign Poor				
Broadway at Colegio (SMHS)	needs replacement	Sign Poor	Poor Sign Lighting			

Broadway at Enos NB		Sign Poor				
Broadway at Fesler	no large map in shelter					
Broadway at Jones NB		Sign Poor				
Broadway at Jones SB (RR Tracks)		Pole Poor	Poor Sign Lighting			Needs Repair
Broadway at McElhany		Sign Not Perman ent	Sign Hazardo us			
Broadway at Morrison (SMHS)		Sign Poor	Pole Poor	Poor Sign Lighting		
Broadway at Newlove SB		Sign Poor				
Broadway at Orchard SB		Pole Poor				
Broadway at Stinky's		Sign Poor				
Broadway at Williams SB (N of Donovan)	large map in advertisin g slot					
Clark at Broadway		Poor Sign Lighting				
Clark at Dyer		Poor Sign Lighting	Sign Poor			
Clark at Michael		Sign Poor	Pole Poor			
Clark at Oak Knoll Center EB (S of st.)		Sign Poor				Needs Repair
Clark at Stillwell		Sign Poor	Poor Sign Lighting	Pole Poor	Sign Hazardo us	
College at Mariposa NB		Sign Poor				
College at Park NB (Hancock College)		Sign Poor				Needs Repair
College at Park SB (Hancock College)						Needs Repair
College at Chapel	sign needs replacem ent, has cracks	Pole Poor	Poor Sign Lighting			

Cook at Western WB	holder needs painting					Needs Repair
County Government Center		Poor Sign Lighting				
Cypress at Depot (Greyhound)	holder needs painting	Sign Poor				Needs Repair
Donovan at College		Poor Sign Lighting				
Donovan at La Salle (Pepperwood)	sign holder needs replacem ent or new glass, both pole and sign have graffiti	Poor Sign Lighting	Sign Poor	Pole Poor		Needs Repair
Enos at Minami Center NB		Sign Poor				
Enos at Thornburg NB		Poor Sign Lighting				
Enos at Thornburg SB		Poor Sign Lighting				
Fairway at Skyway						Needs Repair
Foster at Bradley (Righetti HS)		Poor Sign Lighting				Needs Repair
Foster at California SB		Poor Sign Lighting				
Foster W of Broadway (across Mental Health)	SMAT sign has old "sat only" sticker, remove	Pole Poor	Sign Poor	Poor Sign Lighting		
Foster at Hummel SB		Sign Poor				
Foster at Orcutt Frontage (The Jetty)		Pole Poor				
Hillview at Stratford NB		Poor Sign Lighting				

Industrial at Skyway						Needs Repair
Lakeview at Bedford		Poor Sign Lighting	Sign Poor			
Lakeview at Hillview		Poor Sign Lighting				
Lakeview at Orcutt Frontage		Poor Sign Lighting	Sign Poor			
Lakeview Rd. at Lakeview Ct.		Sign Poor				
Main West of Suey		Sign Poor				
McCoy at Broadway (S side st.)		Sign Poor				
McCoy at Skyway		Poor Sign Lighting				
McCoy W of Broadway	consider moving pole for visibility	Pole Poor				
Miller at Newlove		Pole Poor				
Morrison at Depot		Sign Poor				
Morrison at Railroad		Poor Sign Lighting				
Morrison at Thornburg (SMHS)	schedule rack has no schedule	Sign Poor	Poor Sign Lighting			Needs Repair
Morrison at Western NB						Needs Repair
Morrison at Western SB						Needs Repair
Oak Knoll Rd at Kenneth NB		Poor Sign Lighting				
Oak Knoll Rd at Tilbury		Poor Sign Lighting				
Orcutt Frontage at Clark SB		Sign Poor	Poor Sign Lighting			
Orcutt Frontage at Evergreen Shop Cntr		Sign Poor	Poor Sign Lighting			

Orcutt Frontage at Winter Rd NB		Sign Poor	Poor Sign Lighting			
Orcutt Frontage at Winter Rd SB		Poor Sign Lighting				
Park at Oakwood (Mussell Senior Cntr)		Sign Poor				Needs Repair
Pine at Cook SB						Needs Repair
Pine at Jones NB		Sign Poor				
Pine at Jones SB	graffiti on schedule rack					Needs Repair
Pine at Morrison (BV Park)						Needs Repair
Railroad at Alvin (Boys/Girls Club)		Sign Poor	Poor Sign Lighting			
Railroad at Donovan SB	only box, no route info	Sign Poor				Needs Repair
Railroad at Fesler		Sign Lighting				Needs Repair
Railroad at Grant		Sign Poor				Needs Repair
Railroad at Hidden Pines		Sign Poor				
Railroad at Taylor						Needs Repair
Railroad at Vista Montana		Sign Poor				
Rice Ranch Rd at Graciosa		Poor Sign Lighting	Sign Poor			
Rice Ranch Rd at Princeton SB		Poor Sign Lighting				
Santa Maria Airport						Needs Repair
Santa Maria Way at Bradley		Poor Sign Lighting				
Santa Maria Way at Holly Oak SB (Del Cielo MHP)		Sign Poor				
Santa Maria Way at Sunrise (K-Mart)		Sign Poor				
Stillwell at Cameo NB		Sign Poor				
Stowell at Cecelia (Marian Urgent Care)		Poor Sign Lighting				Needs Repair

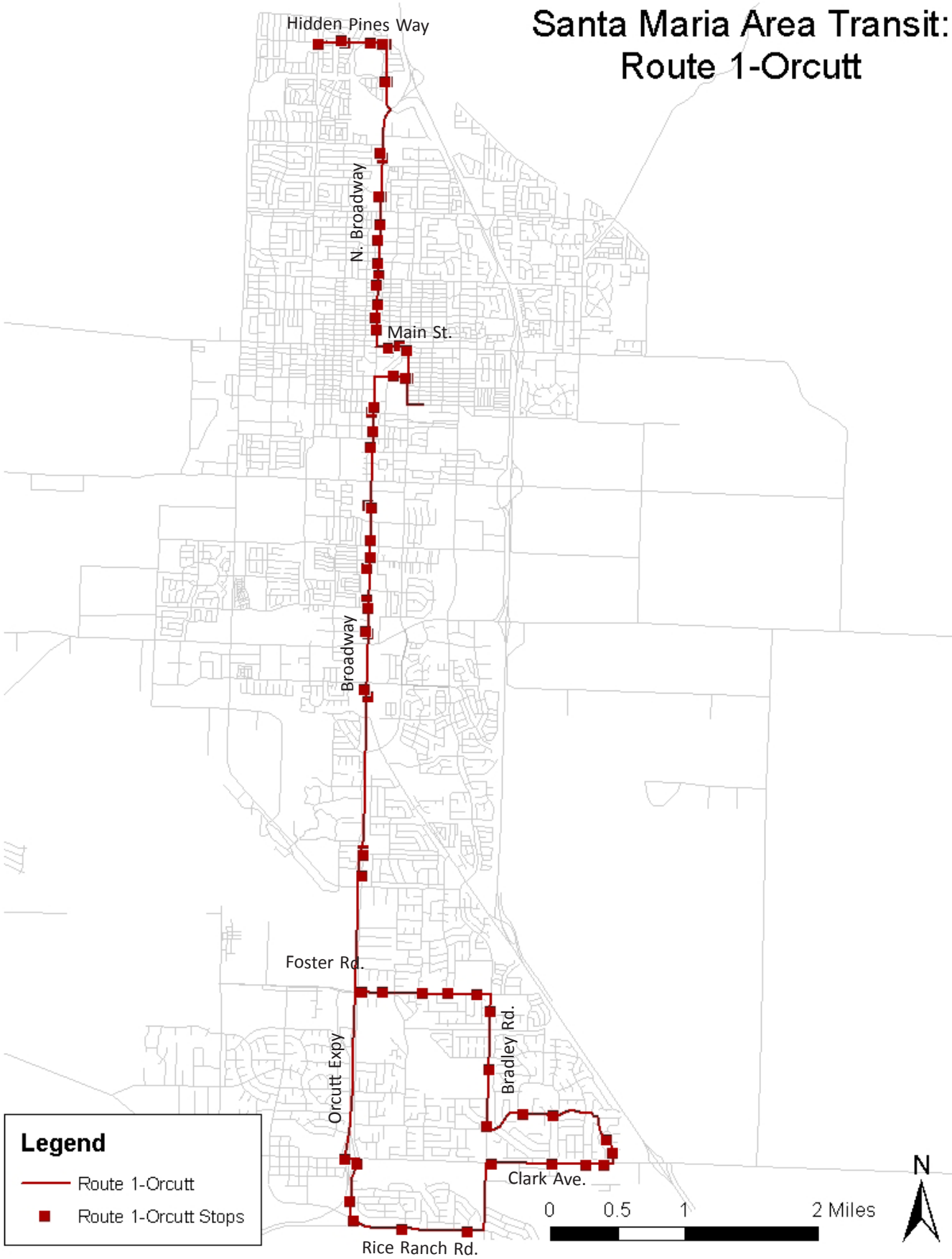
Stowell at Western		Sign Poor				
Tanglewood Market		Poor Sign Lighting				Needs Repair
Thornburg at Battles		Sign Poor	Pole Poor			
Thornburg at Carmen NB		Sign Poor	Sigh Lighting			
Thornburg at Carmen SB		Sign Poor	Poor Sigh Lighting			
Thornburg at Newlove		Sign Poor	Poor Sigh Lighting	Pole Poor		Needs Repair
Thornburg at Betteravia NB (N of Betteravia)		Sign Poor				
Town Center Mall Transit Cntr						Needs Repair
Western at Stowell		Pole Poor	Sign Lighting			
TOTALS:	12	87	27	6	1	27
			91			27

Appendix G

Santa Maria Area Transit: Route 1-Blosser



Santa Maria Area Transit: Route 1-Orcutt



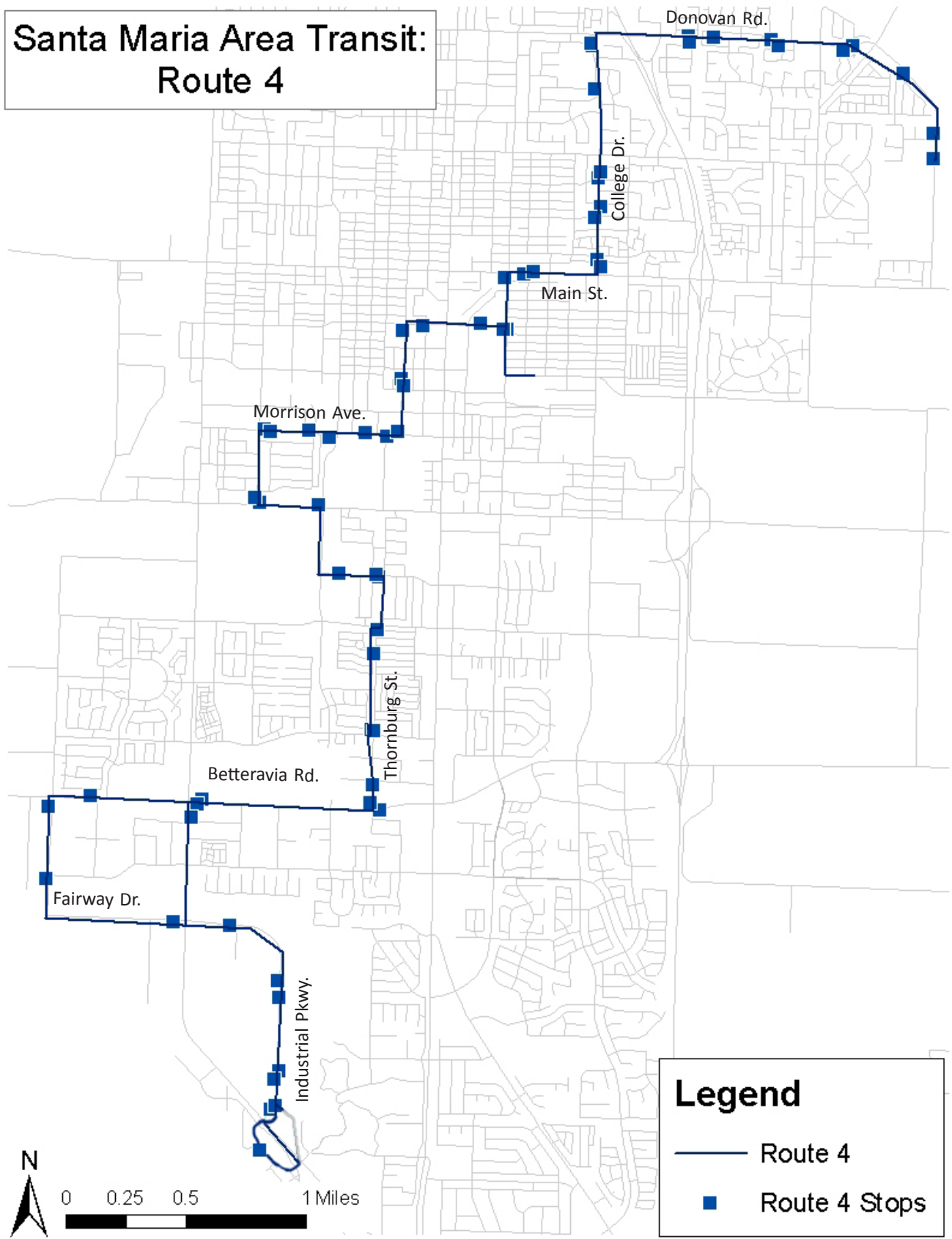
Santa Maria Area Transit: Route 2



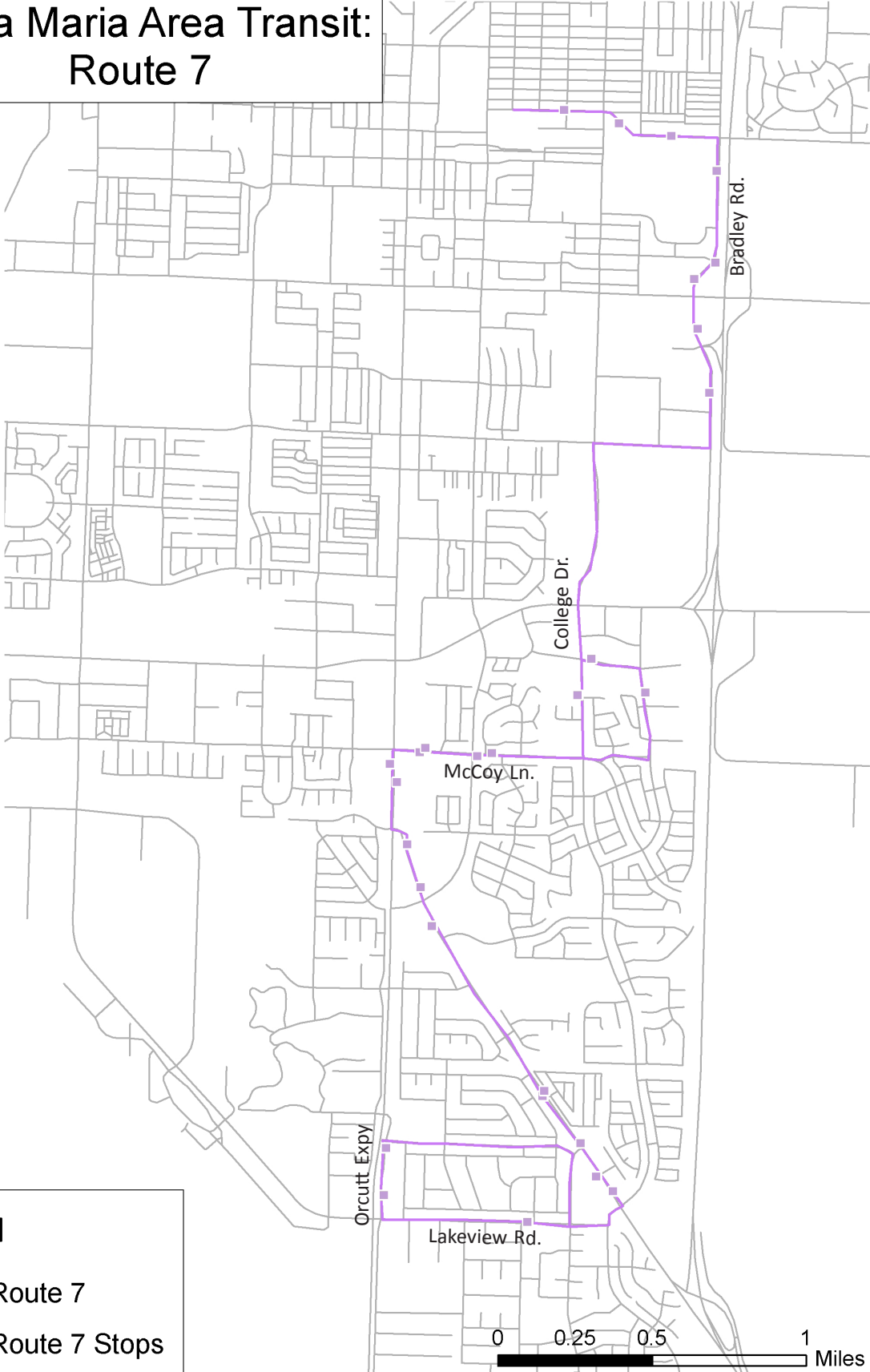
Santa Maria Area Transit Route 3



Santa Maria Area Transit: Route 4

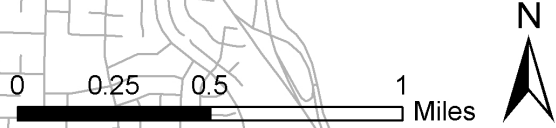


Santa Maria Area Transit: Route 7

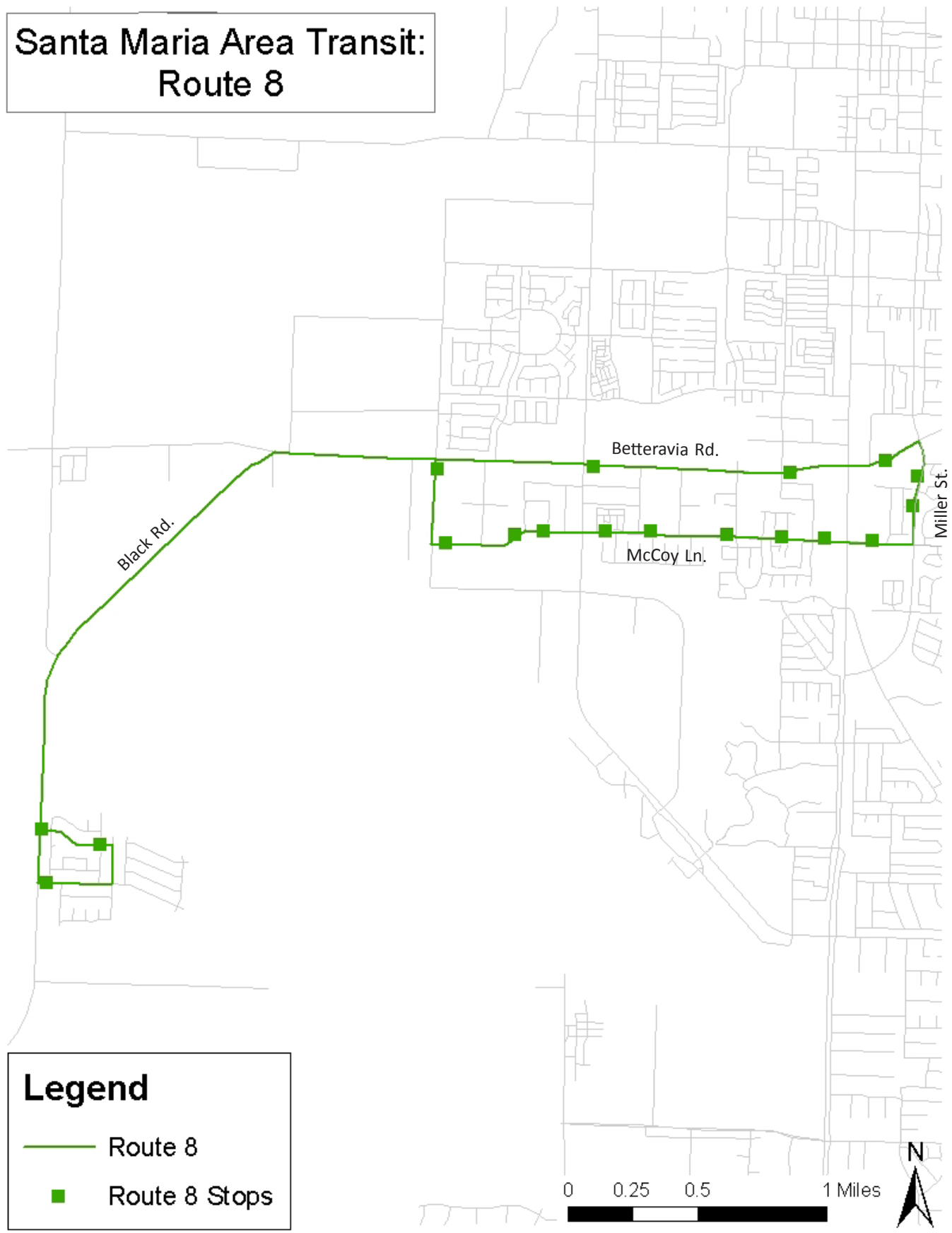


Legend

- Route 7
- Route 7 Stops

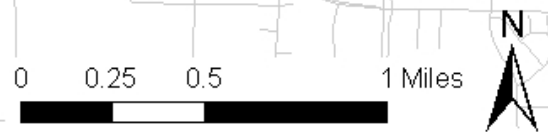


Santa Maria Area Transit: Route 8

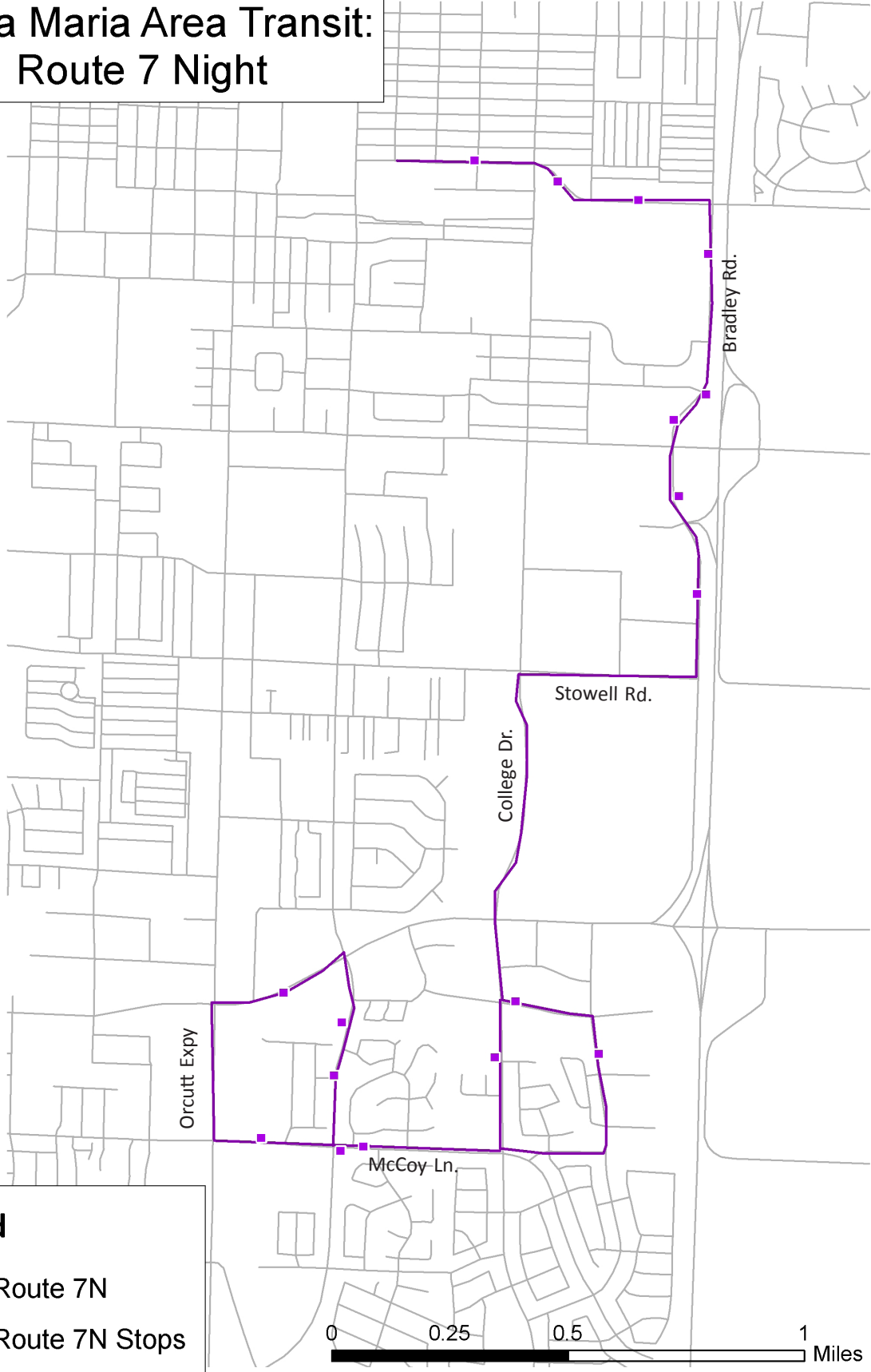


Legend

- Route 8
- Route 8 Stops



Santa Maria Area Transit: Route 7 Night

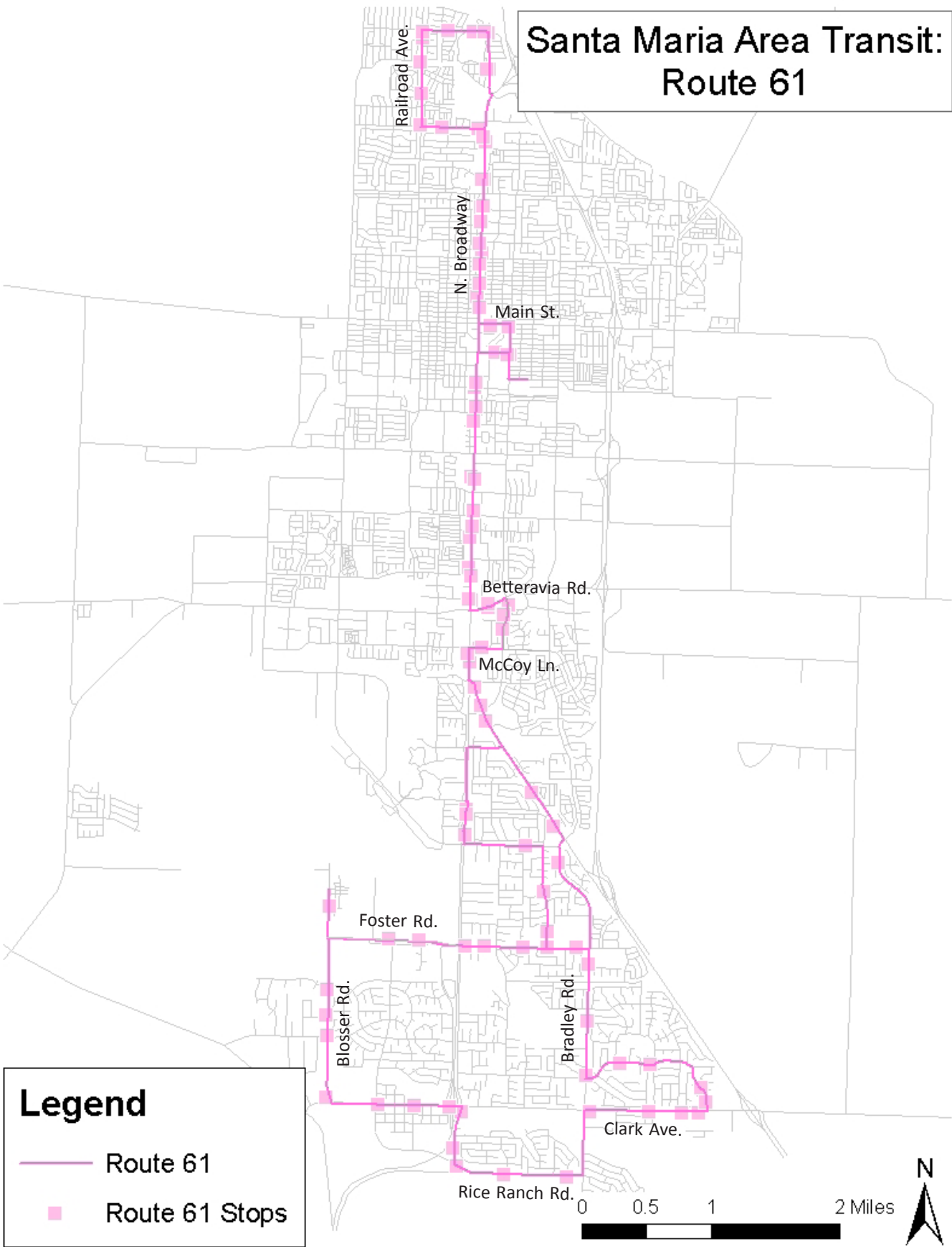


Legend

- Route 7N
- Route 7N Stops



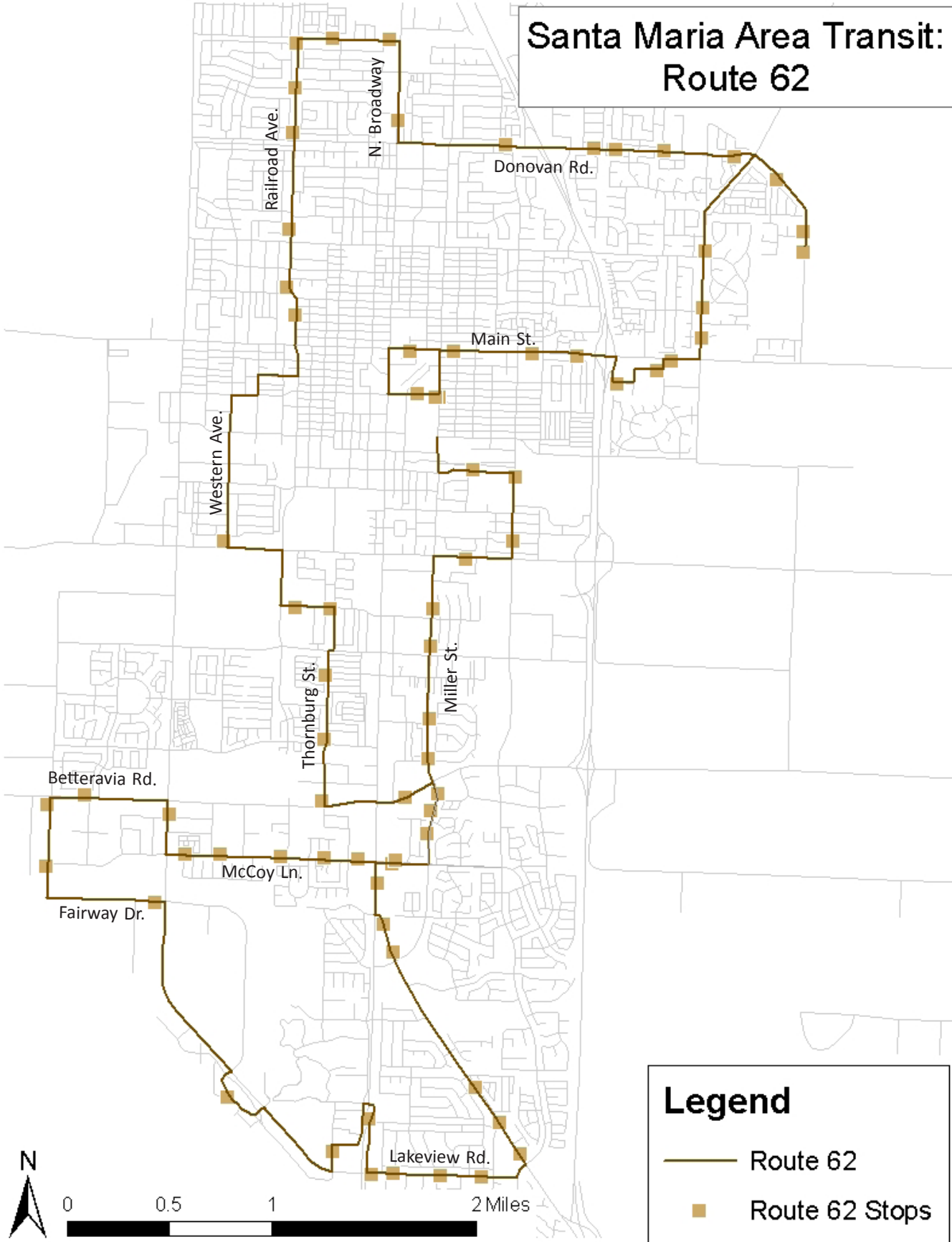
Santa Maria Area Transit: Route 61



Legend

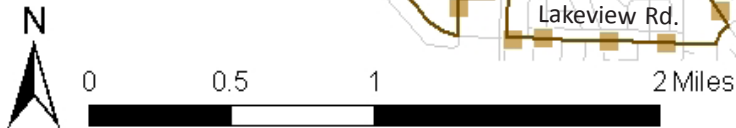
- Route 61
- Route 61 Stops

Santa Maria Area Transit: Route 62



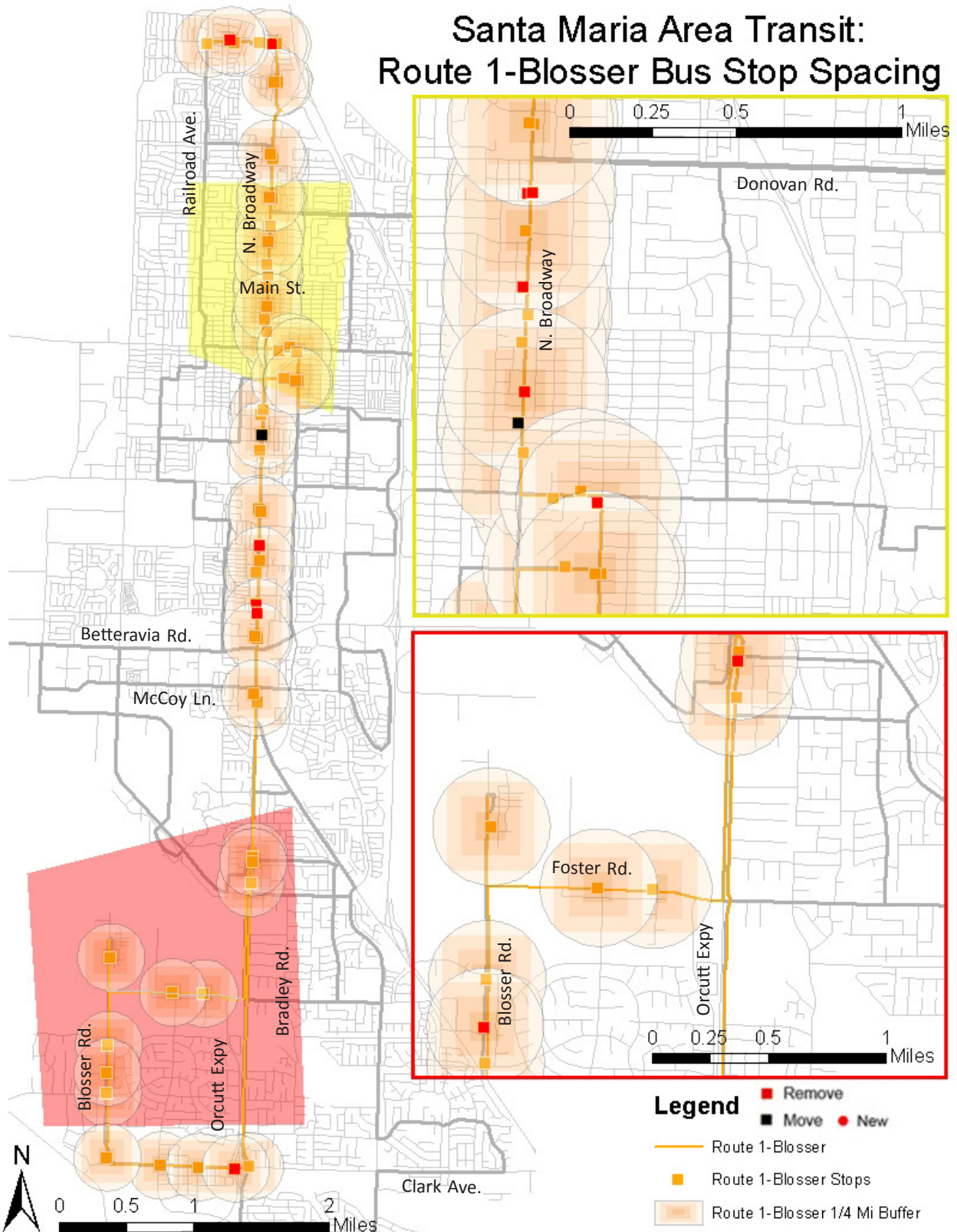
Legend

- Route 62
- Route 62 Stops



Appendix H

Santa Maria Area Transit: Route 1-Blosser Bus Stop Spacing



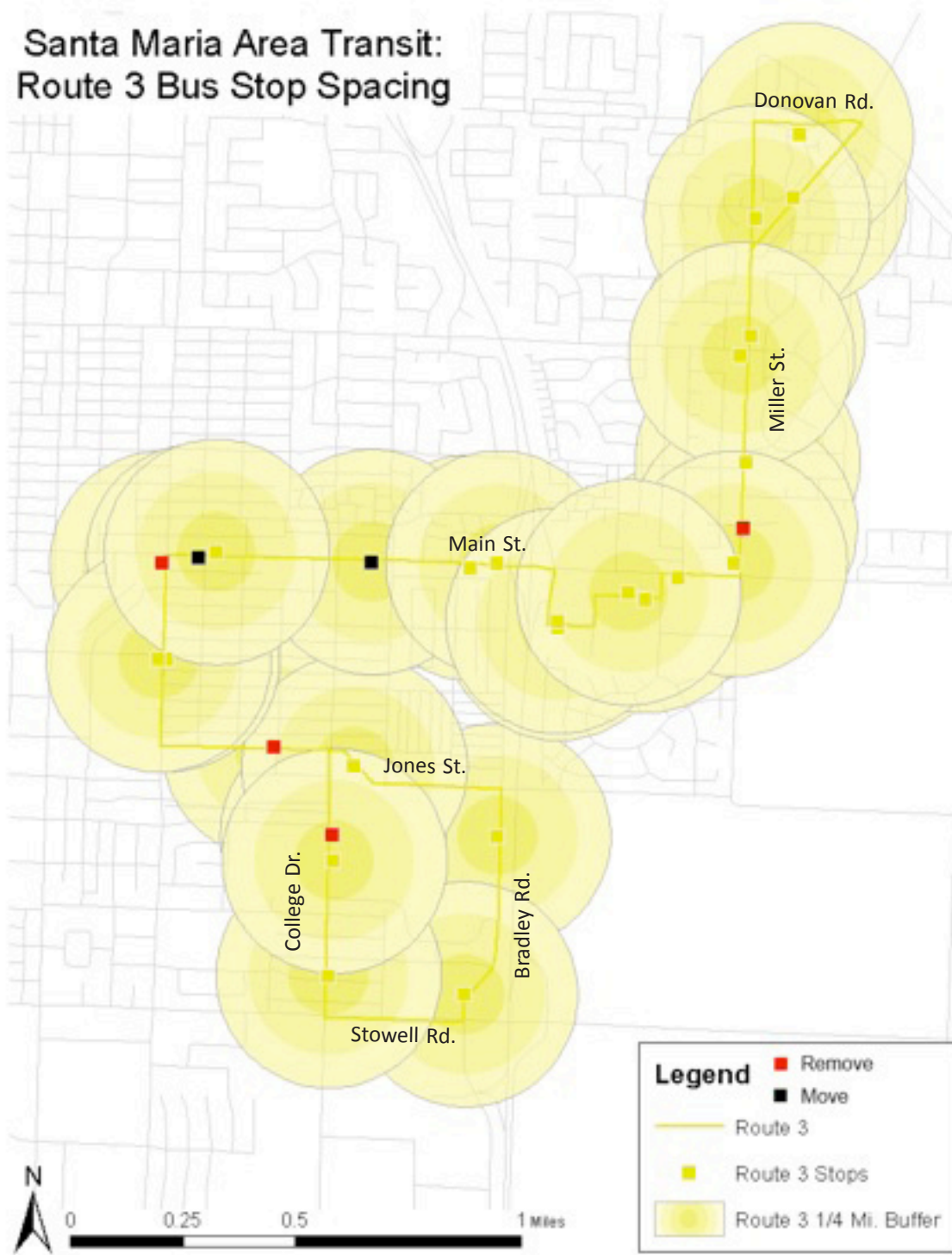
Santa Maria Area Transit: Route 1-Orcutt Bus Stop Spacing



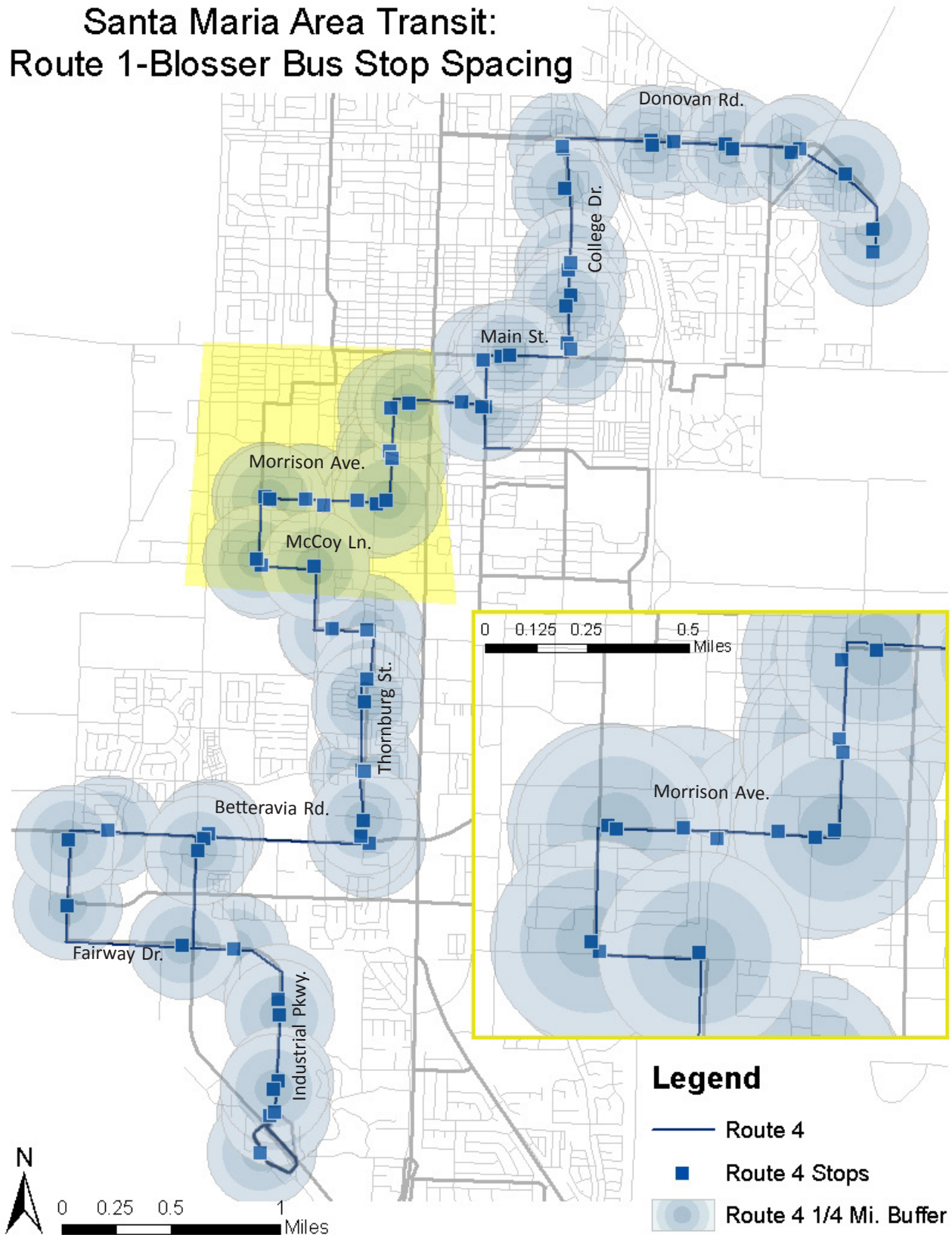
Santa Maria Area Transit: Route 2 Bus Stop Spacing



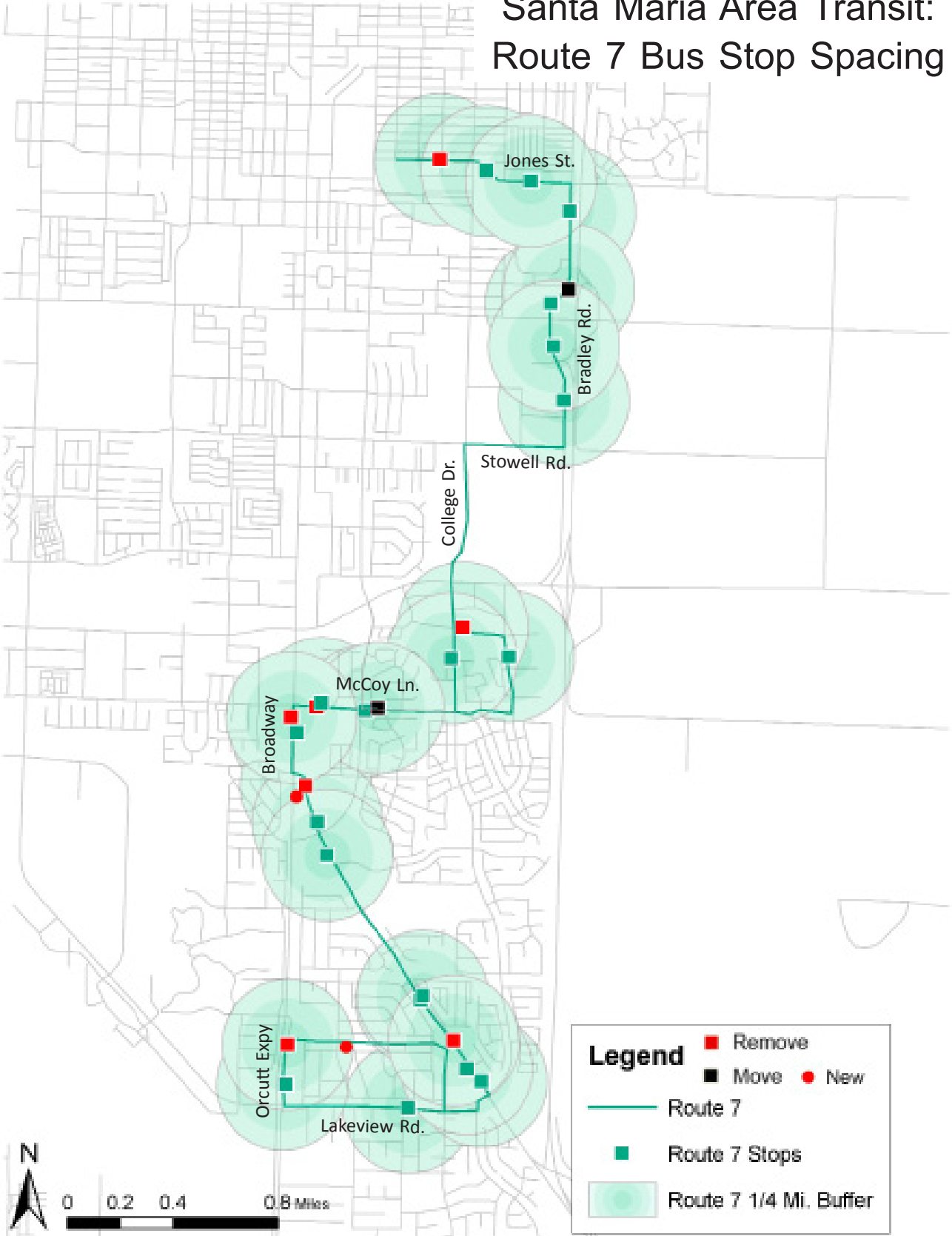
Santa Maria Area Transit: Route 3 Bus Stop Spacing



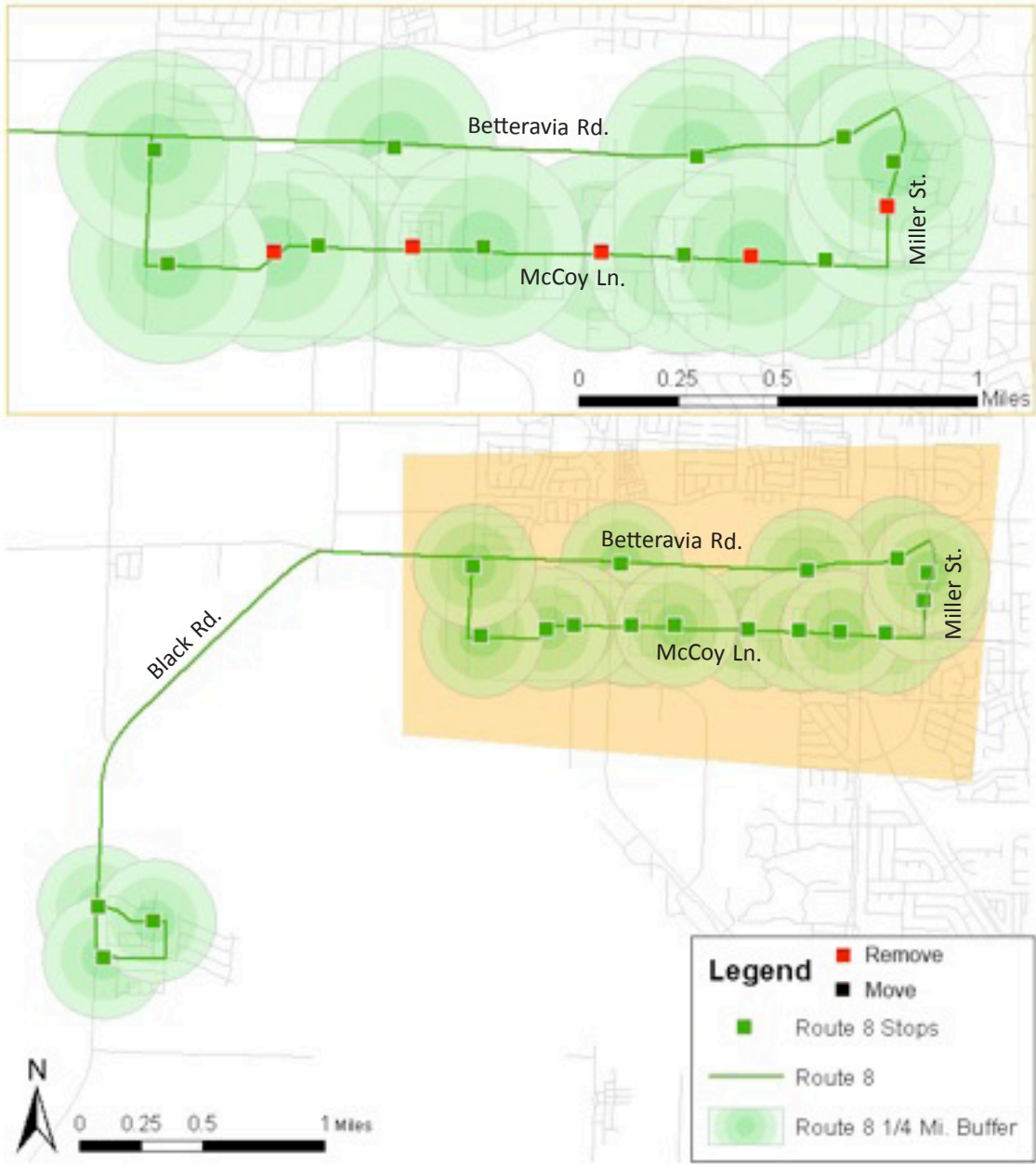
Santa Maria Area Transit: Route 1-Blosser Bus Stop Spacing



Santa Maria Area Transit: Route 7 Bus Stop Spacing



Santa Maria Area Transit: Route 8 Bus Stop Spacing



Santa Maria Area Transit: Route 7N Bus Stop Spacing



Appendix I

Bus Stop:	Existing Classification	Population Density Classification	Employment Classification	Average of columns "C" and "D"	within 1/4mi of POI	+1 if "x" in column F	new class higher than existing
						New Classification	new class lower than existing
Notes							
2300 S. Broadway at Stinky's	3	1	3	2		2	
3070 Skyway (Work, Inc.)	N/A	N/A	N/A	N/A		N/A	
"A" Street (Pole #6529;Carpenter's Union Training Ctr)	-	1	2	2		2	
2240 "A" Street at Betteravia	-	1	2	2		2	
A Street at McCoy (Vocational Training Cntr)	3	0	2	1		1	
Airport Mobile Home Park	3	2	1	2		2	Pop. Class = 2 due to proximity of MHP
Alt. Town Center Mall	2	2	4	3	x	4	
Autopark at Mercury (Casino Bus Center)	2	1	2	2		2	
Betteravia at Blosser	1	1	4	3		3	
Betteravia at Skyway (McD's)	2	1	4	3		3	
Betteravia at Target	4	1	4	3	x	4	
Betteravia at Thornburg	1	1	4	3		3	
Betteravia at Westgate	2	2	3	3		3	
200 E. Betteravia at Broadway	3	1	4	3	x	4	
Blosser at Clark	-	1	1	1		1	
Blosser at Foxenwood SB	1	1	1	1		1	
Blosser at Rick	-	2	1	2		2	
Blosser at Solomon	1	1	1	1		1	
Boone at College	-	2	4	3	x	4	
Boone at East	1	2	4	3	x	4	
Bradley at Allan Hancock NB	2	1	3	2	x	3	
Bradley at Allan Hancock SB	3	2	4	3	x	4	
Bradley at Crossroads Shopping Cntr	4	2	3	3		3	
Bradley at Francine	2	2	2	2		2	
Bradley at Parkland (St. Joe HS)	2	1	2	2	x	3	
Bradley at Patterson	1	2	3	3		3	
Bradley at Stowell NB (In-N-Out)	3	1	4	3	x	4	
Bradley at Stowell SB	2	1	3	2	x	3	
Bradley at Taco Bell	4	1	3	2	x	3	
Bradley at Village NB	2	1	2	2		2	
Broadway at Alvin	4	2	3	3		3	
Broadway at Battles	3	2	4	3	x	4	
Broadway at Betteravia (CVS)	3	1	4	3	x	4	
Broadway at Carmen	3	1	4	3	x	4	

Broadway at Carmen NB Ln	-	1	4	3	x	4	
Broadway at Colegio (SMHS)	3	2	4	3	x	4	
Broadway at Dal Porto NW	-	1	4	3	x	4	
Broadway at Enos NB	4	2	4	3	x	4	
Broadway at Enos SB	4	2	4	3	x	4	
Broadway at Fesler	3	2	4	3	x	4	
Broadway at Grant	3	2	2	2	x	3	
Broadway at Hermosa (Walgreens)	2	2	4	3		3	
Broadway at Jones NB	2	2	4	3	x	4	
Broadway at Jones SB (RR Tracks)	2	2	4	3		3	
Broadway at McCoy (Kohl's)	-	1	4	3		3	
Broadway at McElhany	4	2	3	3		3	
Broadway at Mill	3	2	4	3	x	4	
Broadway at Morrison (SMHS)	2	2	4	3	x	4	
Broadway at Newlove NB	2	2	4	3	x	4	
Broadway at Newlove SB	4	3	4	4	x	4	
Broadway at Orchard NB	3	3	2	3		3	
Broadway at Orchard SB	3	3	2	3		3	
Broadway at Sunset	2	3	3	3		3	
Broadway at Taylor(Vallarta Center)	-	2	2	2	x	3	
Broadway at Tunnel	2	2	4	3		3	
Broadway at Williams NB at Donovan	3	2	2	2		2	
Broadway at Williams SB North of Donovan	3	2	2	2		2	
Church at Palisade (Marian Hospital)	4	1	4	3	x	4	
Church at N Palisades	-	1	4	3	x	4	
Clark at Broadway	1	2	3	3		3	
Clark at Dyer	2	2	3	3		3	
Clark at HW135	-	1	2	2		2	
Clark at Michael	1	2	2	2		2	
Clark at Oak Knoll Center EB (S of st.)	3	1	3	2		2	
Clark at Oakridge Park	1	2	1	2		2	
Clark at Stillwell	2	1	1	1		1	
College at E Boone AHC Entrance #6	-	1	4	3	x	4	
College at Bunny (Pole #2320)	-	2	2	2		2	
College at Chapel	2	2	4	3		3	
College at E Chapel	-	2	4	3		3	
College at E del Norte (Community Park)	-	2	3	3	x	4	
College at El Camino	-	2	3	3		3	
College at Fesler	-	2	4	3		3	
College at Hermosa(Lighting Across street)	-	2	3	3		3	
College at Mariposa NB	2	2	4	3	x	4	
College at Park NB (Hancock College)	3	1	4	3	x	4	
College at Park SB (Hancock College)	3	1	4	3	x	4	
College at Tunnell	-	2	3	3		3	
College at W Vickie	-	1	3	2		2	
College at E Vickie (4246)	-	1	3	2		2	
Cook at Lincoln	-	2	4	3	x	4	
Cook at Western WB	3	4	4	4		4	
County Government Center	4	1	3	2	x	3	
Cypress at Depot (Greyhound)	2	3	4	4		4	
Cypress at Nicholson	2	1	4	3	x	4	
Cypress at N Nicholson(IHOP)	-	1	4	3	x	4	

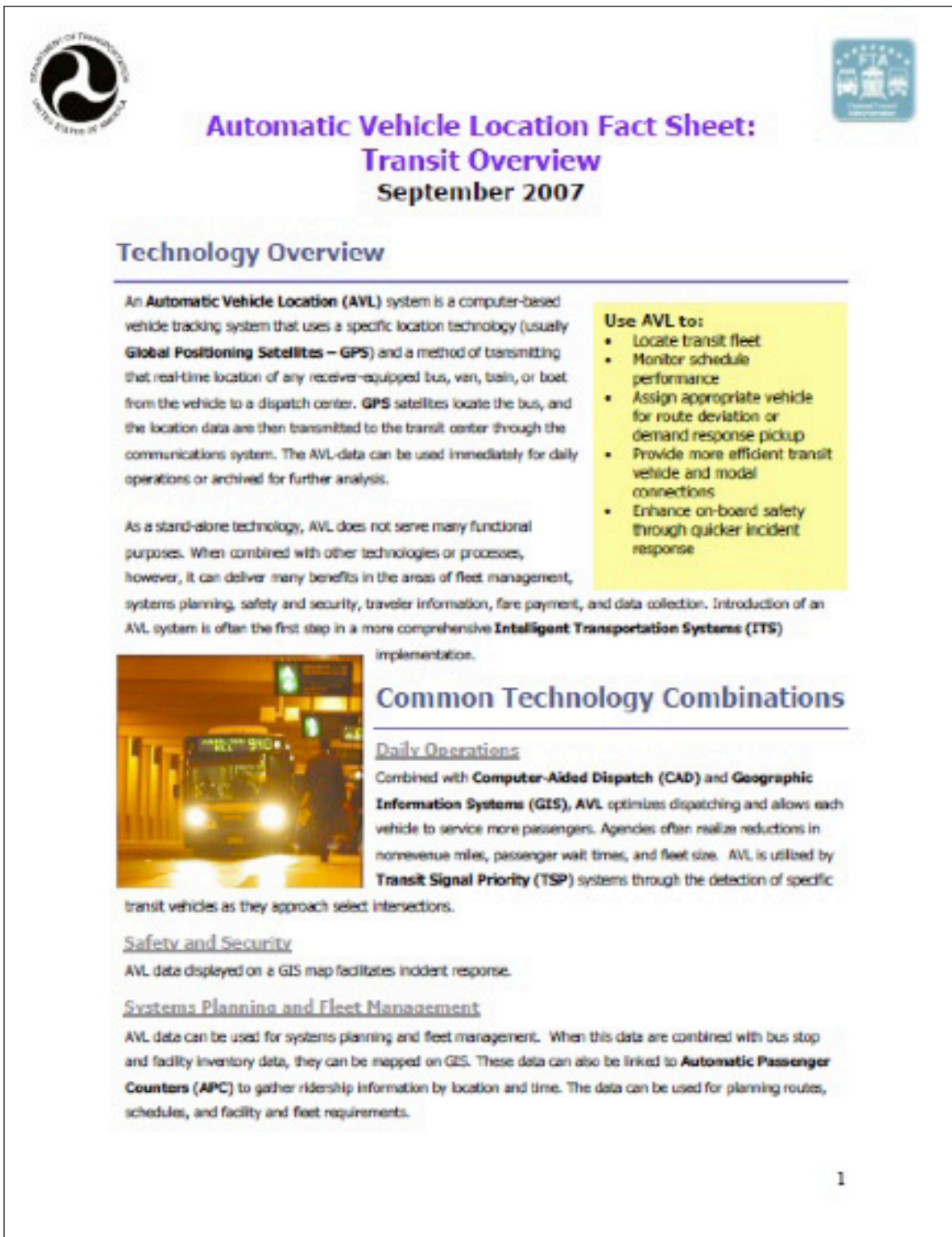
Depot at Mill	2	3	4	4		4	
Depot at E Mill	-	3	4	4		4	
Donovan at Bay	2	2	2	2		2	
Donovan at Canyon	2	2	3	3		3	
Donovan at Charlie (4345)	-	2	1	2		2	
Donovan at College	(3)1	2	3	3		3	
Donovan at Magellan (2551)	-	2	2	2		2	
Donovan @ Merrill Garden Access #4932 pole	-	2	1	2		2	
Donovan at La Salle (Pepperwood)	1	2	2	2		2	
Donovan at River Rock Rd (2238)	-	2	2	2		2	
Enos at Minami Center NB	2	1	3	2	x	3	
Enos at Minami Center SB	2	1	3	2	x	3	
Enos at Thornburg NB	2	2	3	3	x	4	
Enos at Thornburg SB	1	2	3	3	x	4	
Fairway at Aviation (Coca-cola)	1	1	4	3		3	
Fairway at Skyway	2	1	4	3		3	
Foster at Bradley (Righetti HS)	3	2	3	3	x	4	
Foster at California SB	2	1	1	1		1	
Foster at Hillview	-	2	3	3	x	4	
Foster at Hummel SB	1	2	2	2		2	
Foster at Lockford	2	2	2	2		2	
Foster at Orcutt Frontage (The Jetty)	2	2	2	2		2	
Foster at Broadway WB (across Mental Health)	2	1	1	1		1	
Hidden Pines at Boxwood	-	2	2	2	x	3	
Hidden Pines at Boxwood N side (Pole# 4014)	-	2	2	2	x	3	
Hidden Pines at Preisker Lane (Pole #4005)	-	2	1	2	x	3	
Hidden Pines at Transit Circle	-	2	2	2		2	
Hillview at Cambria NB	2	2	2	2	x	3	
Hillview at Stratford NB	1	2	3	3	x	4	
3037 Industrial (Service Entrance)	-	0	4	2	x	3	
3138 Industrial Pkwy (SoCalGasCo)	-	0	3	2	x	3	
Industrial at Construction Entrance Lot #9(1828)	-	0	4	2	x	3	
Industrial at RR Tracks	1	0	4	2	x	3	
Industrial at E RXR (Pole #1568)	-	0	4	2	x	3	
Industrial at Skyway	2	1	3	2	x	3	
Jones at Bradley (Allan Hancock)	2	4	4	4	x	4	
Jones at College	2	2	4	3	x	4	
Lakeview (Across 242 Lakeview)	-	2	2	2		2	
Lakeview at Bedford	2	2	2	2		2	
Lakeview at Hillview	1	2	2	2		2	
Lakeview at Orcutt Frontage	2	1	2	2		2	
Lakeview Rd. at Lakeview Ct.	1	2	2	2		2	
Main at Bradley (Freeway)	3	2	4	3		3	
Main @ N Bradley	-	2	4	3	x	4	
Main @ School (in front of Rabobank) - They run parallel	-	2	4	3	x	4	
Main at College	3	2	4	3		3	
Main at Curryer SW	-	2	4	3		3	

Main at N Lincoln	-	2	4	3	x	4	
Main at S Lincoln	-	2	4	3	x	4	
Main @ School (South West)	-	2	4	3	x	4	
Main at Smith	-	2	4	3		3	
Main at Vine (Sign Craft)	-	2	4	3	x	4	
Main West of Suey	3	2	4	3	x	4	
McCoy at Broadway (S side st.)	4	2	4	3		3	
McCoy at Broadway (Albertson's) (N side st.)	4	2	4	3		3	
McCoy at Caballero SE Midblock	-	2	3	3	x	4	
McCoy at Depot	1	1	4	3		3	
McCoy at Eastbury	1	2	4	3		3	
McCoy at Miller	1	2	3	3	x	4	
McCoy at Sandpiper SE	-	1	4	3		3	
McCoy at Skyway	2	1	4	3		3	
McCoy at Thompson	1	1	4	3		3	
McCoy W of Broadway	3	1	4	3		3	
McCoy W of Thompson	1	0	4	2		2	
2040 McCoy at Westgate	-	0	2	1		1	
Miller at Arboles (Arborwalk gate)	-	2	3	3	x	4	
Miller at Battles	1	2	4	3		3	
Miller at Betteravia (Occupational Medical Group)	-	2	4	3	x	4	
Miller at Cook SE	-	2	4	3	x	4	
Miller at Cook SW	-	2	4	3	x	4	
Miller at E Daniel	-	2	4	3	x	4	
Miller at W Daniel(Betteravia)	-	2	4	3	x	4	
Miller at Enos NB	2	2	4	3	x	4	
Miller at Enos SB	2	2	4	3	x	4	
Miller at Inger NB	1	2	3	3	x	4	
Miller at Inger SB	2	2	3	3	x	4	
Miller @ Main	-	2	4	3	x	4	
Miller at Morrison(1974)	-	2	4	3	x	4	
Miller at Newlove	2	3	4	4		4	
Miller at Stowell	3	2	4	3	x	4	
Morrison at Depot	2	3	3	3	x	4	
Morrison at Railroad	2	3	3	3	x	4	
Morrison at Thornburg SB	2	3	4	4	x	4	
Morrison at Thornburg (SMHS) NB	4	2	4	3	x	4	
Morrison at Western NB	1	4	3	4		4	
Morrison at Western SB	2	4	3	4		4	
Oak Knoll Rd at Kenneth NB	1	2	2	2		2	
Oak Knoll Rd at Tilbury (NB)	1	2	2	2		2	
Orcutt Frontage at Clark SB	2	1	2	2		2	
Orcutt Rd at N of Clark Ave (Breeze stop)	-	1	2	2		2	
Orcutt Frontage at Evergreen Shop Cntr	2	1	2	2		2	
Orcutt Frontage at Valley View	1	2	1	2		2	
Orcutt Frontage at Winter Rd NB	(2)3	2	2	2	x	3	
Orcutt Frontage at Winter Rd SB	2	2	2	2	x	3	
Orcutt Rd at Winter Rd SE	-	2	2	2		2	
Panther Dr at Centennial (4600)	-	2	1	2	x	3	
Panther at Domingues (PVHS)	1	1	1	1	x	2	
Park at Elizabeth (Mussel Sr center)	2	2	4	3	x	4	

Park at Oakwood (Mussell Senior Cntr)	2	2	4	3	x	4	
Pine at Cook SB	2	3	4	4	x	4	
Pine at Jones NB	2	4	4	4	x	4	
Pine at Jones SB	1	4	4	4		4	
Pine at Morrison (BV Park)	3	2	4	3	x	4	
Preisker at Boomers	-	2	2	2	x	3	
Preisker Ln across Boomers	-	2	2	2	x	3	
Preisker at Johnson (Pole#4519)	-	2	1	2	x	3	
Railroad at Alvin (Boys/Girls Club)	2	3	3	3		3	
Railroad at Boys & Girls Club (1784)	-	3	3	3		3	
Railroad at Canal NW	-	2	2	2		2	
Railroad at Canal SE	-	2	2	2		2	
Railroad at Creston	-	3	2	3		3	
Railroad at Donovan NB	2	3	2	3		3	
Railroad at Donovan SB	3	3	2	3		3	
Railroad at El Camino	-	3	3	3		3	
Railroad at Fesler	2	3	3	3		3	
Railroad at Grant	2	3	2	3		3	
Railroad at Hidden Pines	2	2	2	2		2	
Railroad at W Rancho Buena Vista (3796)	-	2	2	2		2	
Railroad at Taylor	4	3	2	3		3	
Railroad at E Taylor	-	2	2	2		2	
Railroad at Vista Montana	1	2	2	2		2	
Rice Ranch at Bradley (Pole #42132)	-	1	1	1		1	
Rice Ranch Rd at Graciosa	2	1	1	1		1	
Rice Ranch Rd at Princeton SB	1	1	1	1		1	
Santa Maria Airport	3	0	3	2	x	3	
Santa Maria Way at Bradley	2	1	1	1		1	
Santa Maria Way at Broadway	2	2	3	3		3	
Santa Maria Way at Del Cielo MHP NB	1	2	1	2		2	
Santa Maria Way at Hillview	1	2	1	2		2	
Santa Maria Way at Holly Oak SB (Del Cielo MHP)	1	2	1	2		2	
Santa Maria WY at Holly Oak Ln (HWY Drive In)	-	2	1	2		2	
Santa Maria Way at Miller	1	1	3	2		2	
Santa Maria Way at Sunrise (K-Mart)	2	1	3	2		2	
2336 Skyway (Pole #3086)	-	1	4	3		3	
Southside Pkwy at Volkswagon	-	1	3	2	x	3	
Stillwell at Cameo NB	1	2	1	2		2	
Stillwell at Tiffany Park Court NB	1	1	1	1		1	
Stowell at Cecelia (Marian Urgent Care)	3	2	4	3	x	4	
Stowell at Depot (pole#6114)	-	2	3	3	x	4	
Stowell at Western	2	2	3	3	x	4	

Suey at Alvin	2	2	2	2		2	
Suey @ W Alvin	-	2	2	2		2	
Suey at Fesler	2	2	3	3		3	
Suey @ Jonathan	-	2	3	3	x	4	
Suey @ Main(4782)	-	1	4	3	x	4	
Suey @ Merrill Garden Main Entrance	-	2	1	2		2	
Suey Rd. Crossing @ Seapark Dr. #4943	-	2	1	2		2	
Tanglewood at Black Rd	2	0	1	1		1	
Tanglewood Market	4	0	1	1		1	
Tanglewood at 3390 Willowood	-	0	1	1		1	
Taylor at Casa Grande	2	2	2	2		2	
Taylor at Lincoln	2	2	2	2	x	3	
Thornburg at Battles	2	4	3	4	x	4	
Thornburg at Betteravia NB North of Bett	1	1	4	3		3	
Thornburg at Betteravia SB at	1	1	4	3		3	
Thornburg at Carmen NB	2	3	4	4		4	
Thornburg at Carmen SB	2	3	4	4		4	
Thornburg at Newlove	2	4	3	4	x	4	
Town Center Mall Transit Cntr	4	1	4	3	x	4	
Western at Stowell	1	2	3	3		3	

Appendix J



The image shows a fact sheet titled "Automatic Vehicle Location Fact Sheet: Transit Overview" dated September 2007. It is published by the Federal Transit Administration (FTA). The document is divided into several sections: "Technology Overview", "Common Technology Combinations", and "Daily Operations".

Technology Overview

An **Automatic Vehicle Location (AVL)** system is a computer-based vehicle tracking system that uses a specific location technology (usually **Global Positioning Satellites – GPS**) and a method of transmitting that real-time location of any receiver-equipped bus, van, train, or boat from the vehicle to a dispatch center. **GPS** satellites locate the bus, and the location data are then transmitted to the transit center through the communications system. The AVL data can be used immediately for daily operations or archived for further analysis.

As a stand-alone technology, AVL does not serve many functional purposes. When combined with other technologies or processes, however, it can deliver many benefits in the areas of fleet management, systems planning, safety and security, traveler information, fare payment, and data collection. Introduction of an AVL system is often the first step in a more comprehensive **Intelligent Transportation Systems (ITS)** implementation.

Use AVL to:

- Locate transit fleet
- Monitor schedule performance
- Assign appropriate vehicle for route deviation or demand response pickup
- Provide more efficient transit vehicle and modal connections
- Enhance on-board safety through quicker incident response

Common Technology Combinations

Daily Operations

Combined with **Computer-Aided Dispatch (CAD)** and **Geographic Information Systems (GIS)**, AVL optimizes dispatching and allows each vehicle to service more passengers. Agencies often realize reductions in nonrevenue miles, passenger wait times, and fleet size. AVL is utilized by **Transit Signal Priority (TSP)** systems through the detection of specific transit vehicles as they approach select intersections.

Safety and Security

AVL data displayed on a GIS map facilitates incident response.

Systems Planning and Fleet Management

AVL data can be used for systems planning and fleet management. When this data are combined with bus stop and facility inventory data, they can be mapped on GIS. These data can also be linked to **Automatic Passenger Counters (APC)** to gather ridership information by location and time. The data can be used for planning routes, schedules, and facility and fleet requirements.

1

Figure J-1: FTA Automatic Vehicle Location Fact Sheet, part 1

Source: Federal Transit Administration, Office of Research, Demonstration, and Innovation, Office of Mobility Innovation Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center. September 2007.

Traveler Information

When linked to an electronic **traveler information infrastructure**, an AVL system will provide information on expected arrival times.

Electronic Fare Payment

An AVL system will collect fare information by location and trigger **electronic fare boxes** to accept different payment amounts across fare zones.

Is This Technology Right for My Agency?

AVL systems provide a number of benefits, including:

- Interoperability with existing and planned technologies
- Flexibility for changes in fleet size
- Capability for testing technology on a subset of vehicles
- Capacity for data storage and analysis
- System-sharing across modes and across agencies in a regional context

Agency Size	Transit Mode					
	Fixed Route Bus	Demand Response	Rural Transit	Human Service Transit	Rail Transit	Ferry/Boat
Large	✓	✓	✓	✓	✓	✓
Medium	✓	✓	If AVL is desired, use low-cost, cell phone, internet-service option		Light Rail with ✓	✓
Small	✓	If AVL is desired, use low-cost, cellular phone, internet-based service option			Transit Signal Priority ✓	✓

AVL systems are available at a wide range of costs and levels of sophistication to satisfy the budget constraints and needs of most agencies. Smaller agencies may wish to consider off-the-shelf, web-based systems, while larger agencies can contract with a vendor to install customized, integrated systems.

Agencies that have already implemented some of the technologies can extract more benefits by adding AVL. In general, AVL is a core technology for

Larger agencies, especially bus and multimodal agencies, as they can spread the cost of the system over a larger fleet size. Larger agencies also require more complex analytical tools for systems planning and fleet management. Human services and demand-response agencies can capture the most benefits from an AVL-based communications and dispatching system that allows for dynamic rerouting and more efficient fleet utilization.

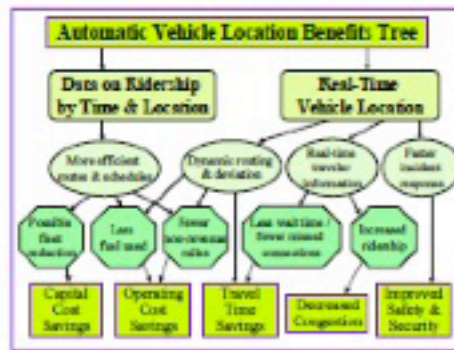


Figure J-2: FTA Automatic Vehicle Location Fact Sheet, part 2

Source: Federal Transit Administration, Office of Research, Demonstration, and Innovation, Office of Mobility Innovation Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center. September 2007.

Benefits and Costs

Benefits

- Decreased passenger late arrivals by 21%.
- Improved on-time bus performance by 9%–23% in large cities.
- Reduced incident-response time by up to 50%.
- Possible savings include:
 - Reduced data-collection costs (Atlanta's MARTA reports saving \$40,000 per year).
 - Decreased labor costs for schedule checkers.
 - Fleet reductions of 2%–5%, especially with CAD (Kansas City saved \$1.6 million).

Costs

Price

Costs for onboard GPS equipment ranges from \$500 to \$2,000 per vehicle. Total implementation costs per vehicle can reach \$15,000, with median per vehicle cost estimated at \$8,000. Atlanta paid \$27,000 per vehicle with CAD integration.

A stand-alone AVL system cost a small rural agency in Iowa \$80,000, whereas Baltimore paid close to \$8 million for its implementation.

A small agency paid \$50,000 for a 12-vehicle deployment of AVL linked to traveler information, while a large urban agency incurred a cost of \$70 million to equip 5,700 buses. The median AVL system deployment cost is in the \$200,000 range.

Operations and Maintenance (O&M)

O&M costs for onboard equipment average 2% of the original capital cost.

- Recurring costs can include telecom service fees.
- Capital costs ranged from \$10,000 to \$50,000 per dispatch center in 1999.

Commercial GPS can pinpoint a vehicle's location to within 3 to 4 feet.

Training

Expect an eight-hour day per driver and dispatcher for AVL and Mobile Data Terminal (MDT) implementation.

Transit Agency Deployments

Agency	Contact Information	Number of Vehicles	Context / Success of Deployment
Los Angeles County Metropolitan Transportation Authority (LAC MTA)	One Gateway Plaza Los Angeles, CA 1-800-COMMUTE (1-800-266-6883)	2,450 buses	Integrated AVL system archives and automatically feeds run-time data to scheduling department.
Denver Regional Transportation District (RTD)	1600 Blake St Denver, CO 303-628-9000	1,335 buses	Use of AVL, combined with an upgrade in the radio communications system and MDTs, improved on-time performance and increased ridership.
Metro Transit (serving Minneapolis/St. Paul)	560 Sixth Ave. N. Minneapolis, MN 612-373-3333	522 buses	Integrated AVL and CAD along with APC and a new regional digital 800MHz radio system.

Figure J-3: FTA Automatic Vehicle Location Fact Sheet, part 3

Source: Federal Transit Administration, Office of Research, Demonstration, and Innovation, Office of Mobility Innovation Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center. September 2007.

Metropolitan Atlanta Rapid Transit Authority (MARTA)	2424 Piedmont Rd. Atlanta, GA 404-848-9000	556 buses	Use of AVL and CAD resulted in operating savings and provided detailed cost information.
Milwaukee County Transit System (MCTS)	1942 North 17th St. Milwaukee, WI 414-344-6660	484 buses	Use of an integrated AVL system improved on-time performance and adherence to schedules.
Massachusetts Area Regional Transit Authority (MART)	Rt1427 Water St. Fitchburg, MA 978-345-7711	23 buses	Employs AVL and MDT for its fixed and demand-response buses.

Additional Resources

- Real-Time Bus Arrival Information Systems Return-on-Investment Study (August 2005); http://www.fta.dot.gov/documents/Final_Report_-_Real-Time_Systems_ROI_Study.doc
- ITS Applications for Coordinating and Improving Human Services Transportation – A Cross-Cutting Study (August 2006); http://www.ftdocs.fhwa.dot.gov/ipdocs/REPTS_TE/14140.htm
- Advanced Public Transportation Systems: State-Of-The-Art Update 2006 (March 2006); http://www.fta.dot.gov/documents/APTS_State_of_the_Art.pdf
- Best Practices for Using Geographic Data in Transit: A Location Referencing Guidebook - Defining Geographic Locations of Bus Stops, Routes and other Map Data for ITS, GIS and Operational Efficiencies (April 2005); Report No.: FTA-ND-26-7044-2003.1; http://www.fta.dot.gov/assistanco/research/research_4611.htm
- Strategies to Expand and Improve Deployment of ITS in Rural Transit Systems – TRB Document 84 / Project J-09 (February 2005); http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_84v6.pdf
- Handbook of Automated Data Collection Methods for the National Transit Database (October 2003); <http://www.ndtr.unf.edu/pdf/473-11.pdf>
- Uses of Archived AVL-APC Data to Improve Transit Performance and Management: Review and Potential - TCRP Web Document 23 / Project H-28 (June 2003); http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_webdoc_23.pdf
- Guidance for Developing and Deploying Real-Time Information Systems for Transit (April 2003); http://ntl.bts.gov/lib/23000/23600/23663/RTTIS_Final.pdf
- Rural Transit ITS Best Practices (March 2003); Report No. FHWA-OP-03-77 / EDL No. 13784; http://www.ftdocs.fhwa.dot.gov/3PODOCS/REPTS_TE/13784.html
- Guidebook for Selecting Appropriate Technology Systems for Small Urban and Rural Public Transportation Operators - TCRP Report 76 / Project B-17 (2002); http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_76.pdf
- Bus Rapid Transit and the use of AVL Technology: A Survey of Integrating Change (2002); California PATH Research Report No. UCS-ITS-PRR-2002-17; <http://reports.trb.org/cgi/viewcontent.cgi?article=15598&context=its/path>
- Advanced Public Transportation Systems for Rural Areas: Where Do We Start? How Far Should We Go? - TCRP Web Document 20 / Project B-17 (June 2001); http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_webdoc_20.pdf
- ITS Decision Website: Automatic Vehicle Location (Last updated: February 2001); Caltrans and California Center for Innovative Transportation at the University of California at Berkeley; http://www.calcol.org/itsdecision/serv_and_tech/Automatic_vehicle_location/automatic_vehicle_location_summ ary.html
- Automatic Vehicle Location Successful Transit Applications: A Cross-Cutting Study (August 2000); Report No. FHWA-OP-99-022/ FTA-TRI-11-99-12 / EDL No. 11487; http://www.ftdocs.fhwa.dot.gov/3PODOCS/REPTS_TE/11487.pdf



Federal Transit Administration – Office of Research, Demonstration, and Innovation – Office of Mobility Innovation
Research and Innovative Technology Administration – John A. Volpe National Transportation Systems Center



Figure J-4: FTA Automatic Vehicle Location Fact Sheet, part 4

Source: Federal Transit Administration, Office of Research, Demonstration, and Innovation, Office of Mobility Innovation Research and Innovative Technology Administration, John A. Volpe National Transportation Systems Center. September 2007.

Appendix K

New bus stops	New Classification	NEW																							
		Pole	SMAT Sign	Landing Pad	Free Standing Bench	Bench in Shelter	Shelter	Free Standing Light	Light in Shelter	Free Standing Trash	Trash on Shelter	Recycling	Trash/Recycling Combo	Schedule Rack	Schedule Rack Insert	Sidewalk	Crosswalk	Red Curb	No Park Signs	Schedule Poster	Advertisement	Newsbox	Bike Rack		
Bus Stop:																									
Broadway at Stinky's	2	1																							
"A" Street (Pole #6529; Carpenter's Union Training Ctr)	2	1	1	1			1		1					1	1										
2240 "A" Street at Betteravia	2	1	1	1			1		1					1	1										
A Street at McCoy (Vocational Training Cntr)	1	1					1		1					1	1										
Airport Mobile Home Park	2	1		1			1		1					1	1										
Alt. Town Center Mall	4	1			1	1	1		1					1	1										
Autopark at Mercury (Casino Bus Center)	2	1		1			1		1					1	1										
Betteravia at Blosser	3	1			1	1	1		1					1	1										
Betteravia at Skyway (McD's)	3	1			1	1	1		1					1	1										
Betteravia at Target	4	1			1	1	1		1					1	1										
Betteravia at Thornburg	3	1			1	1	1		1					1	1										
Betteravia at Westgate	3	1			1	1	1		1					1	1										
Betteravia East of Broadway	4	1			1	1	1		1					1	1										
Blosser at Clark	1	1	1				1		1					1	1										
Blosser at Foxenwood SB	1	1					1		1					1	1										
Blosser at Rick	2	1	1	1			1		1					1	1										
Blosser at Solomon	1	1					1		1					1	1										
Boone at College	4	1	1	1			1		1					1	1										
Boone at East	4	1					1		1					1	1										
Bradley at Allan Hancock NB	3	1			1	1	1		1					1	1										
Bradley at Allan Hancock SB	4	1			1	1	1		1					1	1										
Bradley at Crossroads Shopping Cntr	3	1			1	1	1		1					1	1										
Bradley at Francine	2	1		1			1		1					1	1										
Bradley at Parkland (St. Joe HS)	3	1			1	1	1		1					1	1										
Bradley at Patterson	3	1			1	1	1		1					1	1										
Bradley at Stowell NB (In-N-Out)	4	1			1	1	1		1					1	1										
Bradley at Stowell SB	3	1			1	1	1		1					1	1										
Bradley at Taco Bell	3	1		1			1		1					1	1										
Bradley at Village NB	2	1		1			1		1					1	1										
Broadway at Alvin	3	1			1	1	1		1					1	1										
Broadway at Battles	4	1			1	1	1		1					1	1										
Broadway at Betteravia (CVS)	4	1			1	1	1		1					1	1										
Broadway at Carmen	4	1			1	1	1		1					1	1										

Appendix L

Item	Solar Manufacturing			
	Options	Individual Cost	Total Needed	Total Cost
Bench	4' perf metal bench, no back, 1 anti-vagrant bar	\$325 each	59	\$19,175
	8' perf metal bench, no back, 3 anti-vagrant bars	\$575 each	59	\$33,925
Shelter	8' shelter	\$6,075	170	\$1,032,750
	13' shelter	\$6,950	170	\$1,181,500
	17' shelter	\$7,355	170	\$1,250,350
	ability to extend roof depth from 4'8" to 5'8"	add \$650 per shelter	170	\$110,500
Trash/ Recycling	in shelter trash can package	add \$250 per shelter	170	\$42,500
Schedule Holder	Post Mount Schedule holder	add \$94.50 (min 12)	245	\$23,152.50
Lighting**	stand alone Omnilight and 10' schedule 40 pole	\$975 each (min 120)*	57	\$55,575
	110 V illumination in shelter kiosks	\$225 each	87	\$19,575
TOTAL:				\$3,749,428
CycleSafe Bike Rack	The Breton: Surface mount	\$310	87	\$26,970
*geographic area may require an add-on for an 80 watt panel (to the solar lighting on the shelter)				
**solar lighting price depends on the geographic region				

Item	Landscape Forms			
	Options	Individual Cost	Total Needed	Total Cost
Bench	Plexus backless with armrests	\$1,600 per bench	59	\$94,400
	Plexus with back (3 seat, 4 arms)	\$1,870 \$1,605.94	59	\$110,330
Shelter	-			
Trash/ Recycling	Plexus 28" top opening, 30 gal.	\$810 \$689.51	59	\$47,790
	Plexus 16" top opening, 15 gal.	\$670 per trash can	59	\$39,530
Schedule Holder	-			
Lighting	-			
TOTAL:				\$292,050
	discount: 6%			\$274,527.00
GRAND TOTAL:			\$4,050,924.50	
CMAS/GSA Pricing				