Community Transit Planning and Funding Guidebook

San Mateo County Transit District
Senior Mobility Initiative

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samTrans

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Preface

This Community Transit Planning and Funding Guidebook has been created by the San Mateo County Transit District (SMCTD) as part of its Senior Mobility Initiative, in cooperation with the Peninsula Traffic Congestion Relief Alliance (the Alliance), the City/County Association of Governments of San Mateo County (C/CAG), and the San Mateo County Transportation Authority (TA). The guidebook was planned in consultation with the Steering Committee of the Senior Mobility Plan and Initiative, including cities, community organizations, and interested individuals throughout San Mateo County. The guidebook responds to the *San Mateo County Senior Mobility Action Plan*, which recommends, as one of its seven key strategies for maintaining senior mobility, to expand community transit services that accommodate short distance trips within communities and link to regional bus and rail services.

Chapter 1. Introduction

This guidebook is intended to assist cities and other entities within San Mateo County plan and implement successful community transit services. It is designed to be a practical and realistic guide to the community transit planning process. It covers:

- Community consultation
- Clarifying service needs
- Evaluating service alternatives
- Designing and implementing service
- Vehicles
- Funding Opportunities
- Performance monitoring and reporting

A successful community transit planning process will observe some basic principles:

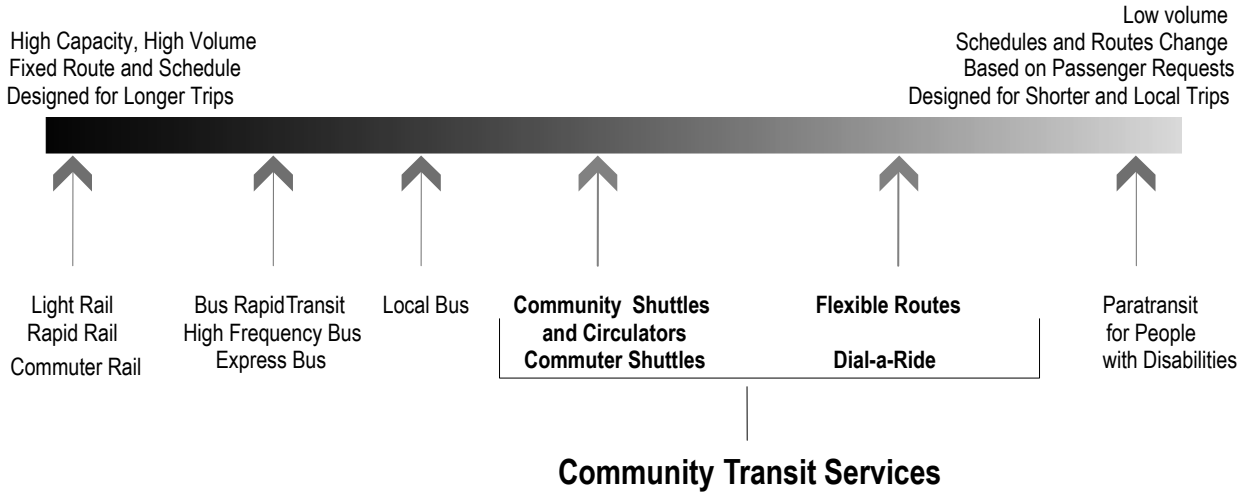
- Be realistic in expectations and plans.
- Base plans on real and objective data.
- Engage the community in meaningful ways and consult the public throughout the process.
- Build on planning work that has already been done.
- Coordinate with and don't duplicate services provided by other agencies.

What is Community Transit?

Community transit consists of *local transit services that use smaller capacity vehicles to serve short trips within communities, to local transit stations, shopping, appointments, employment centers, and other activities.* Community transit services typically serve residents of a community, but sometimes are operated in combination with commuter shuttles that carry employees between rail stations and employment sites. Community transit services usually connect to regional transit services, such as SamTrans, BART, and Caltrain that enable riders to make trips to other cities and throughout the Bay Area.

Types of community transit include shuttles, local circulators, dial-a-ride (also known as demand responsive transit), and flexible routes (also known as route deviation). Community transit is one piece of the larger public transportation system, as shown below in Figure 1.

Figure 1. Spectrum of Transit Services



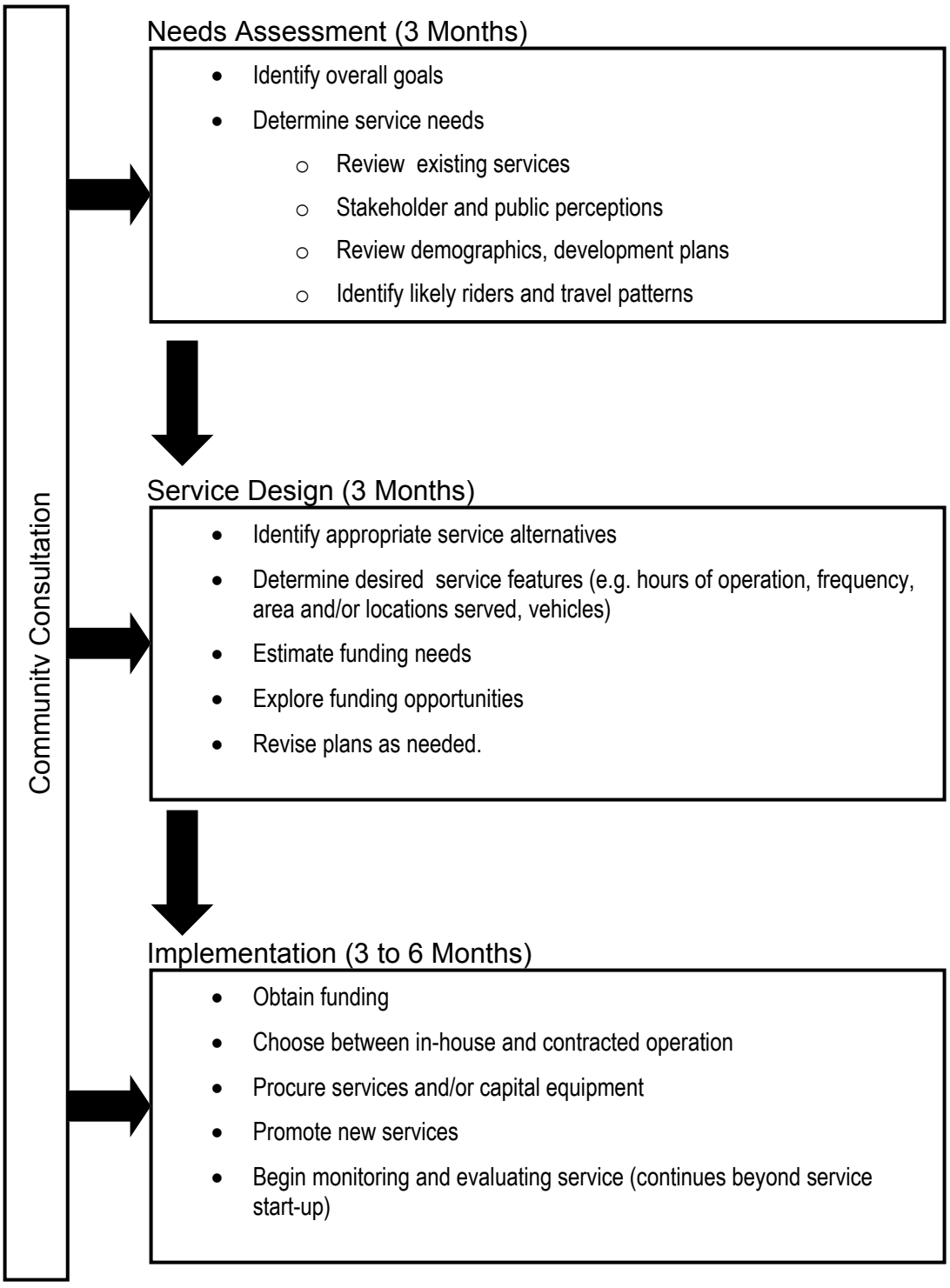
The Community Transit Planning Process

Figure 2 presents a flow chart of the community transit planning process. It identifies three major phases within the process:

- Needs Assessment
- Service Design
- Implementation

Community consultation, or public involvement, is shown as an ongoing process, in place throughout the other phases. The graphic highlights the amount of time, in months, that should be allowed for each phase. These are conceptual estimates— the time required for each phase will depend on community needs, the level of data and plans already in place and the focus placed on these planning activities.

Figure 2. Planning Process



Chapter 2. Community Consultation

Community consultation is essential to every step of the planning process. This chapter explains how community consultation can help in the planning process and describes methods of community consultation, including surveys, public meetings, workshops, open houses, focus groups, and websites.

Community consultation includes both stakeholders and the public.

- A stakeholder is a person, group, or organization that has a direct stake in a proposed service. In principle every member of the community is a stakeholder, but in the planning process, stakeholders typically include elected officials, members of key commissions and boards, nonprofit organizations representing people with special needs or interests, transit and planning agencies, neighboring cities, and private businesses or associations. Stakeholders should be involved throughout all stages of planning or project development, but are particularly helpful in the early stages of clarifying goals and identifying transportation needs in the community.
- The public refers to any member of the community regardless of affiliation. Public involvement generally comes later in the planning process and is often done when evaluating proposed projects or draft plans. It is easier to involve the public once there is a proposed plan or service to respond to.

Why Consult the Community?

The purpose of community consultation evolves during the planning process. As the process proceeds, community consultation helps to:

- Learn about transportation needs and clarify goals for community transportation services. Analysis can quantify needs, but only the community can decide what needs it considers important.
- Gather useful information. Many stakeholders will have useful information about existing services, potential partners, and sources of funding or support.
- Educate the community about community transportation, including realistic expectations for what it can do.
- Evaluate and improve proposed services. As potential services are developed, the community should be consulted to test how well they meet the needs of the public.
- Build support for community transportation. If stakeholders and the public participate in the process they are more likely to understand proposals that result from it and support those proposals.

Principles of Community Consultation

Ideally community involvement will give the general public and people affected by the plan or proposal an opportunity to voice their opinions, concerns, ideas, and objections. Successful community involvement is:

- **Inclusive**: An effort should be made to include the full range of potential stakeholders and interested community members when conducting involvement activities.
- **Transparent**: The process for identifying involved stakeholders and the methodology for outreach should be clear, understood by those involved, and well-documented.

- **Fair**: The process should be conducted impartially and without bias toward any stakeholder.
- **Effective**: The process should be well-organized and anticipate ways to elicit valuable feedback from stakeholders and the public.
- **Responsive**: The process should be responsive to community inputs and build confidence.

A proactive approach to public involvement will anticipate potential obstacles and carefully consider the appropriate means for involvement. Public involvement can be particularly challenging if the public does not see the direct relevance of the plan or project. When possible, the approach should be tailored to the needs and circumstances of the population. For example, special transportation arrangements can be made to help people with disabilities attend meetings and meeting announcements can be printed in different languages to reach non-English speaking populations. Working with nonprofit organizations or associations that work with or represent difficult-to-reach groups can be effective.

Methods of Community Consultation

This section outlines a range of options for involving the community in the planning process. Portions of this section use material from the U.S. Department of Transportation's publication, "Public Involvement Techniques for Transportation Decision-Making."

Stakeholder Interviews

An effective strategy is to conduct one-on-one or group interviews with key project stakeholders. Early in the planning process, stakeholder interviews help to identify needs, learn about existing services and possible partners, and map out the rest of the process. Stakeholder interviews work better if participants are prepared and have had a chance to think about the issues or consult with others. For a one-on-one interview, it is useful to send a list of questions in advance. This is especially useful when soliciting data about transit or other services and budget information. One-on-one interviews can be conducted in person or by phone. In the case of group interviews, as with any meeting, it is best to provide an agenda and any important background information in advance.

Identifying the appropriate stakeholders should involve careful consideration to ensure that an appropriate range of interests and sources of information are represented. Stakeholders with an interest in community transit include:

- Members of commissions and advisory groups: seniors, parks and recreation, traffic and transportation
- Directors of senior independent living facilities
- Directors of senior, youth, and community centers
- Administration of schools (public and private)
- Chambers of commerce or other business associations
- Staff of neighboring cities and the County
- Staff of public transportation agencies: in San Mateo County, these include SamTrans and the Peninsula Traffic Congestion Relief Alliance

- Staff of potential funding agencies including the City/County Association of Governments of San Mateo County

Surveys

Two types of surveys should be distinguished:

- An informal survey designed to gather input and ideas
- A formal, statistically valid survey, designed to measure public opinion, rider characteristics, or other quantifiable statistics

An informal survey can be distributed among community agencies and residents to solicit input on community transportation needs and priorities, as well as ideas about solutions to address these needs. An informal survey can reach a wide cross-section of community residents or can be targeted to a particular group of interest. Questionnaires, which can be translated into languages appropriate for the community, can be distributed in a variety of ways:

- through project stakeholders
- through caseworkers at community agencies
- at existing community meetings or events
- in person, such as at bus stops, transit centers and community centers
- through the mail directly to households
- on-line – posted on various websites

Conducting any survey and documenting the responses can be time-consuming and labor intensive. For some groups, on-line survey applications such as Survey Monkey or Hosted Survey offer a cost-effective way to gather and tabulate results. However, many potential users of community transit service do not have easy access to the Internet or do not feel comfortable using it.

Informal surveys do not generally provide statistically significant or reliable measures. But they do offer an effective way to reach a broad spectrum of residents. Community members have some flexibility on when they provide their opinions – either on-the-spot, or completing and returning surveys at a later date to an address or location noted on the form. The process of conducting an informal survey also helps to involve stakeholders.

Statistically valid surveys require much more rigorous methods. Surveys must be distributed or administered in a carefully controlled process, so that all members of the group being surveyed have the same chance of being included in the survey. Multiple attempts to follow up with potential respondents are needed to avoid skewed results, since people who are not at home or hard to reach are often different than those who are easy to reach. These methods help make those who respond a true random sample that is a fair representation of the entire population of interest. A sample of at least 300 to 400 completed questionnaires is typically required in order for the survey to be considered reasonably accurate.

Statistically valid surveys can be conducted by phone, by mail, on-board transit vehicles, or at a particular location. However, surveys at locations such as shopping districts, parking lots, schools, or senior centers (known as intercept surveys) are extremely difficult to control sufficiently to ensure statistical validity. Conducting a statistically valid survey typically requires professional expertise, such as available from a professional market research firm, and may be beyond the resources of most community transit planning processes.

Focus Groups

A focus group is a structured interview, usually with members of the public, designed to learn about attitudes or opinions on a specific topic. A discussion outline should be prepared in advance and strictly adhered to. Ideally, a focus group would be facilitated by a professional facilitator who is not directly involved in the issue being discussed. If possible, decision makers should not participate and even not be visible so participants will speak their minds rather than saying what they may feel is expected or appropriate. Each focus group is usually limited to a specific population group, such as youth, seniors, or commuters, who will share enough perspective in common to allow the group to focus on providing input and not be distracted by exploring differences. The participants should be recruited by some process that attempts to create a representative group, not limited to people who have been involved in the planning process or who happen to know people involved in the process. The results of a focus group are not statistically valid, but the open-ended form of a focus groups allows for more exploration and follow-up than is usually possible in a survey. Focus groups provide an opportunity to test new ideas or solutions. They may be used to help interpret the results of a survey or guide the design of a survey.

Public Meetings, Workshops, and Open Houses

A public meeting is an event at which project staff provide information to the general public or people affected by a particular project. Typically a public meeting will include a presentation about plans or issues and a time for participants to ask questions or give comments. It can be difficult to schedule a meeting at a time when all sectors of the community, such as working parents, older adults, and youth can attend.

A public workshop is usually a more participatory event, often including periods during which participants break into small groups to discuss particular topics or issues. Workshops are particularly useful for smaller groups of people who want to participate intensively. A small number of participants gives each a way of being heard and registering thoughts and opinions. Small groups allow a greater appreciation of others' views through opportunities for more extensive interaction.

An open house is an informal setting in which people get information about a plan or project. It has no set, formal agenda. Unlike meetings, open houses have no formal discussions or presentations; sometimes there may be no audience seats. Instead, people get information informally from exhibits and staff and are encouraged to give opinions, comments, and preferences to staff either orally or in writing. Information is presented buffet-style, and participants shop for information, including graphics, maps, photos, models, videos, or related documents. Space is allocated for tables or booths, and information is mounted on walls. Comment sheets are provided where people write their opinions. Participants turn in comment sheets during the event or mail them in later. Pre-paying postage for comment sheets increases the likelihood they will be returned. Since there is no fixed agenda, open houses are usually scheduled for substantial portions of a day or evening, so that people can drop in at their convenience and fully participate. Hours should be clearly set and well-publicized. In areas where people work in shifts, open houses/hearings can be scheduled to overlap the shift changes.

The term open forum is sometimes used to describe an event that includes elements of public workshop and open house.

Public meetings, workshops, and open houses need to be publicized, for instance by sending a press release to local media contacts, posting a notice on relevant websites, and sending a notice by email or regular mail. Notices may be posted at locations likely to be seen by interested individuals, such as at schools, community centers, libraries, or workplaces. Teaming with local organizations can be an effective way of reaching potential attendees.

Attending Regularly Scheduled Community Meetings/Events

Instead of creating a special-purpose event, it may be more effective to participate in regularly scheduled meetings of interested organizations. Opportunities include meetings of all of the stakeholder groups mentioned before, such as standing commissions and boards. Other opportunities include neighborhood or resident associations, civic associations like Rotary, Kiwanis, and Lions Clubs, senior or youth clubs, and religious congregations.

Participating in regularly scheduled community meetings is a cost effective way to inform community members about the planning process and solicit feedback. Many meeting hosts will accommodate a brief presentation on the agenda of an already scheduled meeting or event. Surveys or questionnaires can be distributed to meeting attendees who can either return completed surveys before leaving the meeting or return them as instructed at a later date.

Special Events

Special events, such as street fairs, festivals, farmers markets, etc. offer opportunities to host a booth or provide the public with written information or displays about local services, and solicit their comments. Participating in special events can reach people who do not ordinarily come to public buildings or participate in agency meetings.

Websites

Information about the planning process, plans or new service can be posted on a project website or a page on a City website. Websites should be kept current and offer the public an approachable and clear way to provide input. Websites should include important project dates, relevant contact information, planning documents and current updates.

Chapter 3. Clarifying and Quantifying Service Needs

Any proposed transportation service should be designed to meet documented needs. Funding agencies often make decisions about awarding grants based on the ability of applicants to articulate and provide supportable evidence of community transportation needs. Sources for clarifying needs include:

- Existing plans and studies
- Opinions and perceptions of the public and stakeholders
- Data about existing public transportation services
- Information about the location of potential riders and destinations

Existing Plans and Studies

A good place to start is by reviewing other relevant planning efforts that have developed comprehensive needs assessments. Some of these are described in this section.

Short-Range Transit Plan

The San Mateo County Transit District (SMCTD) Short Range Transit Plan (SRTP) includes useful information about ridership on all SamTrans bus routes, paratransit, and shuttle services and describes how the District plans to modify services over a five-year period. The current plan covers fiscal years 2008 through 2013. It is available on-line in the General Information section of the SamTrans website (http://www.samtrans.com).

San Mateo County Transit District Strategic Plan

SMCTD's Strategic Plan is a policy framework that will guide District investments over the next five years. It focuses on addressing the District's structural deficit, reinventing the SamTrans family of services, linking transportation and land use investments, evolving business practices, partnering with its communities and investing in District employees to continue to achieve excellence. This plan, in conjunction with the strategic plans already established for Caltrain (2004) and the San Mateo County Transportation Authority (2008), provides a road map to a sustainable business focused on excellent public service. The Strategic Plan is available on-line in the General Information section of the SamTrans website (http://www.samtrans.com).

Senior Mobility Action Plan

The San Mateo County Senior Mobility Action Plan was completed in 2006, and represents the results of a broad coalition of concerned entities in San Mateo County, with the leadership of the San Mateo County Transit District (SamTrans). The Plan is a joint effort to keep older people safe and connected to their communities as problems related to aging make it harder for them to get around. It provides documentation of need, and recommends numerous strategies to enhance mobility for older adults, including community transit services. Information about existing community transit services in San Mateo County and elsewhere is also provided. The plan is available on-line at http://www.seniormobilityplan.com/documentation.html.

San Mateo County Community-Based Transportation Plans

The Metropolitan Transportation Commission (MTC) sponsors the development of community-based transportation plans specific to low-income communities within the nine-county Bay Area. In San Mateo County. Two such plans have been completed—East Palo Alto and the Bayshore neighborhood of Daly City—and additional plans are anticipated for North San Mateo, and South San Francisco/San Bruno. These plans focus on the transportation needs of low-income persons within those communities in order to determine how to improve access to employment, shopping, medical, or other destinations.

They examine solutions such as expanding transit services as well as community shuttles, vanpools, etc. Projects emerging from the community-based plans are eligible to receive funding through the Lifeline Transportation Program, which is funded by MTC and administered at the local level through the City/County Association of Governments of San Mateo County (See Chapter 5). Copies of completed Community-Based Transportation Plans can be found on the MTC website at: http://www.mtc.ca.gov/planning/cbtp/

Coordinated Public Transit Human Services Transportation Plan

As the designated recipient of certain federal transportation funds, MTC was required to develop a Coordinated Public Transit Human Services Transportation Plan to identify needs and corresponding strategies for persons who are elderly, disabled, and low-income. The federal funds in question are FTA Section 5310, New Freedom, and Job Access/Reverse Commute (see Chapter 5). Projects funded through these programs need to correspond to the strategies in the coordinated plan. The Plan was completed in 2007, and can be found on MTC's website at http://www.mtc.ca.gov/planning/pths/index.htm. Appendix D of the coordinated plan documents unmet needs for elderly and disabled by county, and provides useful information specific to San Mateo County.

Opinions and Perceptions of the Public and Stakeholders

Consultation with the public and stakeholders is an essential first step in clarifying needs. Consultation with stakeholders and the public is the only way to clarify goals and objectives for community transit services. Chapter 2 reviews community consultation methods including stakeholder interviews, informal and statistically valid surveys, focus groups, public meetings, workshops, open houses, participation in special events, and regularly scheduled meetings of boards, commissions, or community groups.

Surveys are often used to ask respondents about their transportation needs. However, great care should be taken in designing any surveys used for this purpose to elicit useful information that represents realistic assessments of trips that people might make on possible services that could actually be implemented.

Existing Public Transportation Services

Community transit services should fill gaps and meet needs left by existing transit services such as SamTrans bus routes, BART, and Caltrain, as a group called "regional transit services" in this guidebook. Duplicating existing services is not only wasteful, it may compete with them, resulting in poorer performance and possible loss of service. Community transit services should also coordinate with regional transit services, for example enabling riders to make connections for

longer trips. This coordination makes both the community service and the regional service more attractive for riders. In some parts of the county, connections with San Francisco Muni and Santa Clara VTA may also be important as well as connections to Alameda County via the Dumbarton Express (operated by VTA) and the AC Transit M Line. In other cases, it may be important to coordinate with community transit services in neighboring cities.

SamTrans, Caltrain, and BART

Basic information about regional services in the form of system maps and schedules is available online, at libraries and community centers, and many other locations. For SamTrans and Caltrain information, go to www.samtrans.com or www.caltrain.com. For BART information, go to www.bart.gov. The SMCTD's Short-Range Transit Plan, described earlier, provides data about ridership and levels of service on specific routes. For further information about SamTrans services, such as patterns of ridership, contact Jim DeHart, Senior Planner in the District's Planning Department, at (650) 508-6227.

Information about SMCTD's Redi-Wheels paratransit service for people with disabilities may also be useful for planning community transit services. Redi-Wheels information is available on the SamTrans website or from the SMCTD Accessible Services department. Many of the people who ride Redi-Wheels may also be able to use community transit services. SMCTD can provide information about concentrations of Redi-Wheels riders and information about the places that Redi-Wheels riders go. Contact Welch, SMCTD's Manager of Accessible Services at (650) 508-6475.

Shuttles

There may also be opportunities to Bill benefit by cooperation with providers of existing shuttle services in the county. These shuttles include community shuttles and shuttles connecting Caltrain and BART stations to employment locations. These shuttles are sponsored by a variety of organizations including SMCTD, the Peninsula Traffic Congestion Relief Alliance (Alliance), the City/County Association of Governments of San Mateo County (C/CAG), and the San Mateo County Transportation Authority (TA). Basic information is available in the Shuttle section of the SamTrans website and the Shuttle Info section of the Alliance website (www.commute.org). For more detailed information about operating arrangements, contact Richard Cook of SMCTD at (650) 508-7979 or Mike Stevenson of the Peninsula Traffic Congestion Relief Alliance at (650) 588-8170.

Information about the Location of Potential Riders and Destinations

Useful data for planning community transit service may include:

- Census data about people without cars, people with low incomes, and older people
- Data about employment locations
- Shopping, community service, and cultural destinations
- Local knowledge

United States Census Data

The United States Census provides information at a very fine level of geographic detail about numbers of people living in low-income households, living in households without cars, with limited English speaking ability, over the age of 65, etc. The Senior Mobility Action Plan, referred to above, presents maps that illustrate, for example, areas where there is a higher concentration of seniors, and areas where languages other than English are spoken. The finest level of detail available for this kind of information is the "block group." There are usually several block groups per census tract. This information is particularly effective when shown on maps combined with transit routes and locations of important destinations using Geographic Information System (GIS) software. Census data is easily tabulated from the Census website at www.factfinder.census.gov. Most information of interest is contained in the so-called "Summary File 3" which is based on the long questionnaire that is sent to one household in six.

A significant limitation of the Census is that the most recent detailed data are from the 2000 Census. More recent data is available from the Census's American Community Survey (ACS), but that information is not available for small geographic areas that would be useful for planning community transit service.

Other Government Sources

The State Department of Education (DOE) has a wide variety of information available about student demographics that can be accessed online. DOE provides a simple interactive tool that can be found at http://dq.cde.ca.gov/dataquest/.

The San Mateo County Human Services Agency may be able to provide information about concentrations of people receiving assistance through various programs such as CalWORKS or food stamps. Many of these individuals would be potential users of certain community transit services.

City planning departments may have additional useful data based on building permits or business licenses.

Local Knowledge

The location of important destinations should be used in planning possible transit routes. Examples of important destinations include shopping centers or districts, large stores, community centers, libraries, and medical centers. This information is generally known to staff and stakeholders. Involving a variety of stakeholders in the process of identifying important destinations will help make the list comprehensive, and can also help determine which destinations are actually of greatest interest to potential riders of community transit services. Staff and stakeholders can also provide the locations of large residential complexes that may be sources of ridership. As in the case of destinations, involving a range of stakeholders may help determine whether the residents of a given building or complex are likely riders of community transit services.

Chapter 4. Service Alternatives

This chapter presents a variety of community transit service alternatives. It describes their characteristics, discusses advantages and circumstances under which they may be most effective, and basic service design concepts. This chapter also presents organizational models for community transit, including the operation and administration of services.

Fixed-Route Services

Fixed-route transit service conforms to the common notion of bus service—transit vehicles operating on specified routes, following set schedules, and stopping at specific bus stops. Fixed-route service is very convenient for people making trips that begin and end along the route. It can carry large numbers of people and is the most efficient way of moving people in areas of concentrated travel demand. Planners generally figure that passengers are willing to walk up to one quarter mile to reach a bus stop.

Varieties of fixed-route service used in community transit service include business district shuttles, community circulators, and commuter shuttles. The terms “shuttle” and “circulator” are used interchangeably in practice. They key distinctions among these services concern the type of area and types of trips that are served.

Business District Shuttles

Business District Shuttles typically travel short routes in areas of relatively dense development, such as a downtown shopping district. Large employers, government buildings of interest to the general public, and concentrated residential areas may also be served. These services let people park once and conduct all their business, let employees who have commuted by transit conduct business during their lunch hour, and let downtown area residents conduct business without using a car.

A Bay Area example is the Emery Go Round in Emeryville, California, a shuttle service sponsored by a consortium of large employers, developers, and retailers near a BART station. In San Mateo County, the Burlingame Trolley connects hotels east of Highway 101 with the Burlingame shopping districts and Caltrain stations. It is managed by the Alliance and sponsored by downtown business, the hotels, and the City. To be convenient for hotel guests and shoppers, the Trolley operates from 11:35 AM to 9:38 PM seven days a week.

Community Circulators

Community circulators operate on fixed schedules and routes, but are designed to be particularly attractive to specific groups such as older adults or school children. Community circulators (also known as “service routes” or just “community buses”) often have winding routes that provide “front door” service to key locations like community or senior centers, major retail locations, and schools. For a circulator designed to appeal to older people, drivers are trained to provide extra assistance in boarding and alighting, sometimes even helping with packages.

A local example of a community circulator is the Menlo Park Midday Shuttle, a free bus route that operates in the midday between 9:30 AM and 3:30 PM. Two 20-passenger buses operate on a single route connecting senior housing, grocery stores, senior centers, the library, shopping centers, and downtown Menlo Park. The Midday Shuttle was designed to serve the needs of older adults. The buses drive into major activity centers such as Safeway to pick up and drop off

passengers at the front door, and drivers are able to help passengers carry packages and groceries onto the bus.

Commuter Shuttles

Commuter shuttles are not always considered community transit, since they do not mainly serve residents. But they share some features with community transit, such as use of small vehicles and short routes. Commuter shuttles typically connect a transit hub and one or more employment sites. They usually operate only during the morning and evening peak, so opportunities exist to share vehicles and/or drivers with community service during the midday. Local examples include Caltrain and SamTrans shuttles, which connect Caltrain and BART with major employers along the Peninsula. The Peninsula Joint Powers Board (operator of Caltrain) is the primary sponsor of the Caltrain shuttle program and SamTrans is the primary sponsor of the BART shuttle program. Commuter shuttles are often employer-subsidized as they may attract employees and reduce the need for onsite parking.

Fixed-Route Service Design

Designing a fixed-route transit service requires laying out a route or routes and a setting up a schedule. In most cases, stop locations need to be identified, even if these stops are not marked by bus stop signs. There is no one way to design routes and schedules, but some general guidelines apply:

- The route should connect important origins and destinations identified during the needs assessment process.
- For each place to be served, possible locations need to be identified where vehicles can safely pickup and discharge passengers. Vehicles need to be able to safely pull out of traffic to a curb location that will not be blocked by parked cars. It may be possible to use existing SamTrans bus stops, but such plans must be coordinated with SamTrans staff to avoid operating conflicts.
- If serving some locations involves operating on private property, for example in a shopping center, housing complex, or nonprofit senior center, permission needs to be obtained and safe stopping points need to be identified.
- Designing a route and schedule is an interactive, iterative process. The total route can only be as long as a bus can safely travel in the time available to achieve whatever schedule frequency is desired. For example, if hourly service is desired and only one bus will be in operation, the bus needs to make a complete circuit in one hour. If two buses will be operating, the route can be longer or service can be more frequent.
- Depending on congestion, the time needed to board and discharge passengers, and whether buses will provide front-door service to any facilities, a bus can typically operate ten to fifteen miles in an hour. Higher speeds may be possible if there will be significant stretches on freeway or other roads where there will be few delays for traffic, stop lights, or passengers.
- The more patronage is expected, the shorter the distance a bus can cover in any allotted time. If some passengers will need extra time to board or alight, for instance due to age, disability, packages, or baby strollers, that will reduce the effective speed of operation and reduce the length of the route that can be served in a given period of time. Routes with heavy ridership on local streets will typically have an average operating speed of 10 to 15

miles per hour. Routes with light ridership or with long stretches without stops may be able to achieve average operating speeds of 20 miles per hour.

- Once a tentative route has been identified, actual operating time should be estimated by driving the route. This should be done either in a bus similar to one that will be operated in actual service, or in a car making a conscious effort to drive "like a bus," i.e. allowing for limited rear visibility and decreased maneuverability. Stops for passengers can be simulated, including the delays involved in getting in and out of traffic. The route should be driven at various times of day and days of the week to determine the range of likely operating times. The planned operating time used for creating a schedule should be based on times toward the long end of those observed. This will enable the bus to keep to its schedule most of the time, without excessive amounts of unused time at other times.
- Allow enough time for driver breaks and identify potential break locations with restroom and water opportunities.

Fixed-Route Service: Where to Use It and Why

The advantages of fixed-route service are:

- Ability to carry large numbers of people
- Cost efficiency if there is enough demand
- Good schedule reliability with proper planning
- Ability of passengers to make spur of the moment trips without advance reservations
- A familiar service concept that is easy for passengers to understand

Fixed-route service works:

- In areas of concentrated travel demand, for example downtown shopping and business districts
- Where significant concentrations of people live or stay close enough to major destinations that they can be linked by a feasible bus route
- Where large employment concentrations can be linked to rail stations
- Where street networks allow reasonably efficient bus routing

ADA Considerations

Whenever a public entity operates a fixed-route transit service, it is required by the Americans with Disabilities Act to provide "complementary paratransit" to serve people who cannot use the fixed-route service due to a disability. The complementary paratransit service is required to and from all locations within three-quarters of a mile of the route, regardless of city or county boundaries, whenever it operates. In most cases, community fixed-route services will operate within the overall area already served by SamTrans buses and Redi-Wheels paratransit. In this case there will be no need to provide separate paratransit service.

The ADA also requires that vehicles used in fixed-route transit service operated by a public entity be accessible to people with disabilities, including wheelchair users. "Operating" a transit service also includes contracting with a private company to operate service.

Demand-Responsive Transit Services

An alternative to fixed-route service is demand-responsive transit service, so named because vehicle routing changes in response to passenger requests. Demand-responsive transit services include flexible-route services, also called route deviation service, dial-a-ride service, and taxi subsidies. These services can allow a vehicle to cover a larger area than a fixed route, at least in situations where demand is relatively low. They are commonly used in low-density areas (e.g. newer suburbs, small cities, and rural areas) and to serve limited populations who may have difficulty walking to a bus stop. One of the primary challenges with demand-responsive service is the additional work required for vehicle dispatching and scheduling. To provide a reasonable amount of flexibility, a lenient definition of on-time performance is typically used.

Flexible-Route Services

In flexible-route services (or route deviation service), transit vehicles follow a specific route but leave the route in response to requests to pick up or drop off passengers at other locations. Commonly passengers telephone requests for pickups off the route but may request dropoffs off the route while on-board the vehicle. Policies vary about how far off-route vehicles can flex. Typically there are marked bus stops along the route where service is guaranteed without a reservation. The more closely spaced these stops are, the less flexibility there is in how the vehicle will flex from the route. If it is desired to serve all intersections along the route, then vehicles need to return to the designated route within one block of the point of deviation. Passengers on the bus may have a longer travel time than for fixed-route service; passenger travel times and arrival times at stops will be less predictable.

Some means is needed for passengers to phone in requests, either through a dispatcher or by calling the driver directly. Policies vary about how far in advance passengers should call to request an off-route pickup. Requiring requests a day in advance allows for advance planning, and is convenient if passengers call into an office. For passenger convenience, however, it is common to allow calls up to an hour before the requested time. If calls come directly to the driver, this may be the simplest and most practical policy. Since a flexible route needs to keep to a schedule, the number of deviations needs to be limited, usually to a handful each time a bus completes a circuit of the route.

The Napa County Transportation & Planning Agency operates flexible-route services in St. Helena and Yountville (see www.nctpa.net). Sacramento Regional Transit operates nine "Neighborhood Ride" routes that will deviate off-route up to three-quarters of a mile to pick up and drop off seniors age 62 and older, and disabled passengers who qualify for paratransit service. Off-route deviations must be reserved one day in advance and require payment of an additional fee of $1.10 per passenger.

Dial-a-Ride

In dial-a-ride service, vehicle routing is determined entirely or primarily in response to passenger requests. Typically passengers may request to be picked up from and taken to any safe location within the defined service area. Dial-a-ride services are called "door-to-door" if drivers will assist passengers between vehicles and the front door of pickup and dropoff locations, otherwise the service is called "curb-to-curb." In a large dial-a-ride system, with multiple buses operating throughout a large service area, trips must be requested through a call center where vehicles are scheduled and dispatched. In community transit services, however, it is common to have a single

vehicle providing dial-a-ride service in a small area, with all requests received and scheduled by the driver.

One example of a dial-a-ride service in San Mateo County, is the Bayshore/Brisbane Senior Shuttle, a pilot program funded by SamTrans and the San Mateo County Transportation Authority. Another example is the Climate Best Express in Redwood City, a pilot program funded by C/CAG, the MTC Lifeline program, and the City of Redwood City. It serves a designated area of eastern Redwood City with door-to-door service and will also stop at two designated locations outside this boundary – a senior center and a shopping plaza. For both services, passengers call the driver directly to request trips.

A common variety of dial-a-ride in community transit service makes regularly scheduled stops at a rail station, transit hub, or large activity center. The stop locations are sometimes called "checkpoints" and the service type is sometimes called "feeder" or "connector" service. Passengers who board at the checkpoint do not need a reservation and may request to be dropped off anywhere in the defined service area. Passengers who want to be picked up at other locations need to call, usually directly to the driver. In order to serve all the passengers who board without a reservation (as well as some pickup requests that may have been phoned in) and still make it back to the checkpoint at the scheduled time, the driver may negotiate pickup and dropoff points up to a few blocks from some passengers' ultimate destination or origin. There are no dial-a-ride connectors currently operating in the Bay Area. Good examples can be found in Denver, where they are called Call-n-Ride, and Dallas, where they are called DART On-Call. The Dallas On-Call services provide connector service during peak hours and completely demand-responsive dial-a-ride at other times.

Taxi Subsidies

Taxi subsidies are a flexible way to provide added mobility to a limited group of people, usually seniors and people with disabilities. For example, a city may give or sell scrip or coupons to eligible people which they can redeem for taxi rides. The amount of subsidy may vary from as much as 90% to 50% or less. Usually, each participant is limited to taking a small number or value of rides per month. Taxi subsidy programs can be very popular, so strict limits on trips per month and the amount of the subsidy may be needed to control costs. Common problems with taxi subsidy programs include fraud by taxi drivers or participants (for example selling coupons) and complaints about service quality, including reluctance by drivers to accept the scrip or coupons. For these reasons, taxi subsidy programs should only be considered where good taxi service is available and the public entity has effective taxi regulations in place. In San Mateo County, each City has its own taxi regulations. The effectiveness of taxi regulation varies considerably among jurisdictions.

Most communities in San Mateo County have no accessible taxicabs. This is not a violation of ADA, but does limit the usefulness of a taxi subsidy program to some people. With an appropriately designed subsidy program and City regulations or incentives, it may be possible to establish accessible taxicab service. Larger cities commonly require some percentage of taxi fleets to be wheelchair accessible.

Demand-Responsive Service Design

The various kinds of demand-responsive service require different approaches to service design:

Flexible-Route Services: The same principles as used in designing a fixed-route service apply to flexible-route services, except that additional time needs to be built into schedules for deviations. Policies need to be established for how far off the route buses will deviate, how far in advance deviation requests need to be made, and whether passengers can request a deviated dropoff at the time of boarding. The larger the allowed deviation area the more time must be allowed for deviations. For example a well-known service near Washington, DC will deviate up to three-quarters of a mile off the route and began by allowing a 25% cushion for deviations, or about ten minutes per run, and then made adjustments based on experience.[1] No matter how much time is allowed, it will never be possible to accept all deviation requests. An approximate idea of needed time for deviations can be obtained by the same method used to estimate fixed-route schedule times, that is by simulating the process of driving off the route to potential deviation spots, making a pickup, and driving back to serve the next scheduled stop.

Dial-a-Ride: Critical decisions for a dial-a-ride service include the size of the area to be served, how far in advance requests will be taken, whether requests will be phoned directly to the driver or through a dispatcher, and whether unscheduled boardings will be allowed at a transfer point with a bus or rail route. A large service area may generate high levels of demand, but also limits the number of trips that can actually be served with each vehicle since each trip is likely to be longer than in a smaller service area. If unscheduled boardings are allowed at a transfer point, the area served needs to be balanced against the service frequency and the number of vehicles used. For example, if it is desired to meet a train every 30 minutes using one vehicle, then the service area needs to be small enough that all the likely dropoff points can be served and the vehicles can return to the transfer point in 30 minutes.

Taxi Subsidies: A taxi subsidy program requires a mechanism for paying the subsidy and decisions about the amount of subsidy per trip and limits on the number or value of trips that will be provided per month. Some large taxi subsidy programs use automated means and central call centers, but small-city or community programs usually use coupons or scrip in some form. If the program is limited to one or a small number of selected taxi companies, it may be possible to establish a system administered by the companies with City oversight. Auditing and fraud control measures need to be established.

Demand-Responsive Service: Where to Use It and Why

Demand-response can be an effective way to serve low-density areas, where there is not sufficient demand for fixed-route service.

The advantages of flexible services are:

- Ability to provide transit coverage to low-density areas or during low-demand periods
- No need for detailed route and schedule planning or bus stop placement
- Easier access for some seniors and people with disabilities

Demand-responsive service works:

- Where demand is light enough not to overwhelm the limited ability to make deviations or serve dial-a-ride requests.

[1] Eric Bruun and Eric Marx, "OmniLink--A Case Study of a Successful Flex-Route Capable ITS Implementation," paper presented at the January 2006 Annual Meeting of the Transportation Research Board.

- Where passenger front-door convenience is more important than precise on-time performance or fast travel times.
- Where street networks make it hard to create useful bus routes. Where there are numerous cul-de-sacs, it may be necessary to arrange meeting points rather than making all pickups at passengers' homes.
- As an interim step towards fixed-route service during a period when demand is expected to grow or travel patterns are not yet known.

ADA Considerations

Complementary paratransit is not required for demand-responsive services. ADA-accessible vehicles must be used for flexible-route and dial-a-ride service. Some non-accessible vehicles can be used only if it is possible to guarantee that passengers who use wheelchairs will receive equivalent service to other passengers, with no difference in response time or availability of service.

Figure 3 below provides a summary table of community transit service delivery models.

Figure 3. Types of Community Transit Service

Type	Route	Schedule	Locations served	Market	Examples
Fixed-Route					
Business District Shuttles	Fixed	Established timetables	Transit hubs, major activity centers, shopping districts, mixed-use and high-density residential development.	Shoppers, business district employees, residents, hotel guests.	Burlingame Trolley Emery Go Round in Emeryville, CA
Community Circulators	Fixed	Established timetables	Concentrated residential locations, community centers, shopping that can be linked by a workable route and schedule.	Residents, but mainly targeted to youth, seniors, and disabled	Menlo Park Midday Shuttle Palo Alto Crosstown Shuttle
Commuter Shuttle	Fixed	Established timetables	Transit hub, employment center.	Rail or bus commuters	Caltrain and BART shuttles
Demand-Responsive					
Flexible-Route	Fixed stops with deviations between stops	Stops served on a fixed schedule. Deviations are scheduled based on passenger requests.	Similar to community circulators	Residents, but mainly targeted to youth, seniors, and disabled	Bayshore/Brisbane Senior Shuttle St. Helena, Yountville
Dial-a-Ride	Route based on passenger requests, except for one or two checkpoints, usually at a transit hub.	Stops at a checkpoint are scheduled, otherwise all stop times based on passenger requests.	Any defined residential area within proximity of a transit hub or significant destinations	Residents, sometimes targeted to seniors and disabled	Denver Call-n-Ride Dallas On-Call
Taxi Subsidy	Routing determined by passenger request.	Pickups at times requested by passengers.	Usually a city and nearby areas, limited by subsidy amount and taxi fares	Usually seniors and/or people with disabilities	San Francisco, Oakland, other East Bay cities

Organizational Models

The functions associated with providing a community transit service can be divided into administration and operation.

- **Administration** includes planning, marketing, budgeting, service oversight, and evaluation. If a contractor is used to operate service, time must be devoted to contractor selection and oversight. Administering a transit service requires a considerable level of expertise and ongoing effort. Community transit services may be administered by various entities, including nonprofit organizations, public transit agencies, or local government. If operations are to be contracted to a private operator, administrative bodies typically use a Request for Proposals (RFP) process to select a provider. If a fare is charged, provisions need to be made to account for and verify fare revenue or to sell passes or tickets.
- **Operation** refers to the actual day-to-day operation of transit service, including bus operations, maintenance, scheduling, and labor management. Regardless of what organization administers transit services, it can be operated with an in-house staff (driver/operators, dispatch, etc.) or another entity under contract. Services provided by a contract operator are often referred to as purchased transportation. Contract operators may be private for-profit companies, public transit agencies, or nonprofit organizations. The operations contract may include provision of an operating facility, fuel, vehicles, and other equipment or these may be provided by the sponsoring public agency. A contract that provides everything needed for all aspects of day-to-day operation is called a "turnkey" contract.

Figure 4 provides a summary of costs and benefits associated with in-house operation or a contracted service.

Many community transit services use volunteers for some aspect of service delivery. Leveraging volunteer labor can make community transit services more affordable. If volunteers are used, time needs to be devoted to continuing volunteer recruitment, recognition, and training.

Figure 4. Comparison of In-House and Contracted Transit Operations

In-House Operations		Contracted Operations	
Benefits	**Costs / Issues**	**Benefits**	**Costs / Issues**
• Direct control over operations • Efficient coordination of marketing, outreach and service provision functions • Direct control over driver training and safety procedures • Staff may be shared with other functions • Long-term ownership of grant-funded capital equipment is generally cheaper	• Likely to have higher operating costs over long-term • Possibly difficult to find and retain qualified operations management staff • Difficult to quickly add staff and capital resources necessary for large service increases • Capital facility development and vehicle purchasing process may be slow	• Likely to have slightly lower operating cost • Opportunities to save cost by joint contracting with other cities or agencies • Contractors can bring operations experience, management practices and monitoring systems • Some contractors can draw from a nationwide labor and expertise pool • Allows for development of monetary incentives for performance and service quality • Ability to quickly bring on line new vehicles and garage facilities	• Less direct control over customer service • May require some duplication of staffing (or higher staffing levels) for contract and service performance monitoring • Less flexibility to respond directly to customer concerns about services or operators • May be difficult to solicit competitive bids for a small system • May be combined with in-house vehicle ownership and maintenance

Chapter 5. Vehicles

This chapter provides an overview of the vehicle types that are typically used to operate community transit, including major features of each and their advantages and disadvantages. Information is included about key issues to take into consideration when choosing a community transit vehicle, alternate power sources, and resources related to vehicle procurement.

For each of the major vehicle types, one or more specific vehicles available through the State of California's most recent vehicle procurement contract is provided as an example in order to give a clearer picture of the features, passenger capacity, and accessibility of available community transit vehicles. This does not constitute an endorsement of any particular vehicle make or model and is provided for illustrative purposes only.

Considerations for Evaluating Vehicle Options

The most appropriate vehicle to use in community transit service depends on the type of service to be operated, the needs of passengers, the nature of the service area, and issues related to drivers and licensing. Some considerations include:

- **Vehicle capacity:** The level of demand and frequency of service on a given route will influence the size of vehicle that is required. Smaller buses or vans are less expensive to purchase and easier to maneuver, but can carry fewer passengers (seated, standing or with a mobility device) than larger buses. Operator salaries, benefits, and fuel costs are among the primary components of operating expenses. Larger capacity vehicles use more fuel per mile but can sometimes reduce the need for multiple buses and drivers in operation at the same time.
- **Ability to operate in neighborhoods:** A large bus may be considered inappropriate to operate on neighborhood streets and may not be able to negotiate certain turns. Vans and smaller buses may be better able to go to the front door of housing complexes and businesses.
- **Licensing:** A commercial drivers license is required to drive a vehicle that carries ten or more passengers, including the driver. This requirement makes it more difficult and more expensive to find drivers to operate larger vehicles than smaller ones.
- **Fuel:** Smaller vehicles are available with gasoline engines that do not require special expertise to maintain, while large vehicles are typically available only with diesel or alternative fuel engines. Alternative-fuel vehicles reduce harmful emissions. However, certain alternative fuel technologies are not available for all sizes of vehicles and some are not adequate for operation on steep roadways or at high elevations. Purchase and maintenance costs may be higher for non-traditional propulsion systems as well.
- **Accessibility:** Vehicles used in public transportation service need to be accessible to passengers who use wheelchairs or other mobility devices. Vans and buses typically achieve this with ramps and lifts. Medium and large transit buses may also offer low-floor designs or "kneeling" operation that allow for boarding with little or no step up into the vehicle from the curb.

Vehicle Types

There are three basic vehicle types that are appropriate for community transit services:

- **Vans:** Accessible vans typically carry five to eight passengers and are commonly used in demand response or dial-a-ride service.
- **Cutaway vehicles:** These "body-on-chassis" vehicles are built using a truck chassis and typically carry from eight to 30 passengers. They are often used in dial-a-ride service, local shuttles, or circulator routes.
- **Mid-size transit vehicles:** These "purpose-built" transit vehicles carry between 18 and 35 passengers and are usually used in conventional transit services that operate in neighborhoods. Compared to vans and cutaway vehicles, they are more expensive but support a wider range of amenities, are more durable, and are more commonly available in low-floor designs.

Vans

The term "van" can apply to a range of vehicles. These include "standard" vans and minivans produced by auto manufacturers for personal use (i.e., not designed for use as transit vehicles) and "modified" vans that are accessible for individuals using wheelchairs and other mobility devices, and have features supporting their use as transit vehicles. Vans are well-suited for small passenger loads, highly maneuverable, and easy to operate with volunteer and non-commercially licensed drivers.

Standard versus Modified Vans

While standard vans are less expensive, potentially easier to buy, and sometimes easier to handle than modified vans, there are several disadvantages to using this type of vehicle for community transit. These include accessibility barriers related to boarding, alighting, and movement within the vehicle, and reduced durability compared with modified vans designed for transit service.

Modified vans have been altered to overcome some of the limitations of standard vans. Modified vans are wheelchair-lift or ramp equipped, accommodate one or more passengers using a wheelchair, and have a "pop top" or lowered floor that allows for additional headroom and easier movement within the vehicle. Modified vans also feature a more durable chassis than standard vans.

Examples of Modified Vans

Two examples of modified vans included in the State of California's vehicle procurement contract are low-floor minivans and raised-top vans.

Low-floor minivans have a side or rear wheelchair ramp and a lowered floor (Figure 5). The low-floor minivan included in the State of California's vehicle procurement contract, the El Dorado National Amerivan, features a fold-out ramp, seating for up to five ambulatory passengers (in addition to the driver), and two wheelchair tie-down positions. One wheelchair replaces a two-passenger foldaway seat, and the second replaces the passenger seat in the front of the vehicle. If two passengers using wheelchairs are being transported, there is room for two ambulatory passengers in addition to the driver.

Figure 5. Low-floor Minivan

Photo courtesy Creative Bus Sales

Raised-top vans have a larger passenger capacity and typically feature a wheelchair lift (Figure 6). Fold-out steps and grab rails may also be provided to ease boarding and alighting for ambulatory passengers. The Braun TranzSporter, a raised-top van included in the State of California's procurement contract, carries up to eight ambulatory passengers in addition to the driver and also has two wheelchair positions. Each wheelchair position replaces one two-passenger foldaway seat, so, when two passengers using wheelchairs are being transported, there is room for four ambulatory passengers.

Figure 6. Raised-top Van

Photo courtesy Creative Bus Sales

Key Features of Modified Vans

- **Capacity**: Vans generally accommodate between five and eight passengers depending on vehicle size and wheelchair capacity. Larger vans than this are often used in commuter or vanpool applications.
- **Boarding and vehicle configuration**: These vehicles have a passenger door in the front of the vehicle and may have a sliding door for rear passengers. Boarding for passengers using wheelchairs or passengers with limited mobility is facilitated with fold-out ramps or mechanical lifts. Modified vans have a lowered floor or raised roof to improve accessibility and movement within the vehicle.
- **Amenities**: Vans generally have limited amenities. They typically feature the convenience and comfort options associated with personal passenger cars.

- **Operating Characteristics**: Vans operate on all streets and in most situations where passenger cars operate, including serving businesses and homes located on lots with limited access.
- **Life span**: The estimated life span for vans is approximately four to five years or 100,000 to 150,000 miles.
- **Cost**: New vans typically cost between $40,000 and $50,000, though cost savings may be achieved through participation in a larger vehicle procurement process.
- **Propulsion System:** Vans typically utilize gasoline engines.

Figure 7 summarizes some of the advantages and disadvantages of choosing modified vans for use as community transit vehicles.

Figure 7. Advantages and Disadvantages of Using Modified Vans to Operate Community Transit

Advantages	Disadvantages
• Relatively low purchase cost • Most maneuverable vehicle option • Easily operated by volunteer and non-commercially licensed drivers • May be easier to maintain than other vehicle types	• Less durable and shorter lived than other types of transit vehicles • Limited passenger capacity • Potentially less comfortable for passengers than other vehicle types • Few alternative fuel options at present

Cutaway Vehicles

Cutaway vehicles, also known as body-on-chassis vehicles, feature a body constructed on a truck chassis (Figure 8). Cutaways are available in a range of sizes and typically carry between eight and 30 passengers. They are more durable than vans, easier to maneuver than larger transit vehicles, and are available with a wide range of amenities.

An example of a typical cutaway vehicle is the El Dorado National Aerolite, a 22-foot, gasoline-powered vehicle (with a diesel option) that seats eight ambulatory passengers in addition to the driver, as well as one or two passengers using wheelchairs, depending on whether the wheelchair lift is installed in the front or rear of the vehicle. Use of the wheelchair tie-down positions does not impact the number of ambulatory passenger seats.

The 32-foot El Dorado National Aero Elite comes standard with a diesel engine and carries 30 ambulatory passengers or 24 ambulatory passengers and two passengers using wheelchairs. Wheelchair positions are located in the front or rear of the vehicle, depending on the location of the wheelchair lift.

Figure 8. Cutaway Vehicle (27-foot)

Photo courtesy Creative Bus Sales

Examples of Cutaway Vehicles

Key Features of Cutaway Vehicles

- **Capacity:** Cutaways typically hold between eight and 30 passengers and feature two wheelchair positions.
- **Boarding and vehicle configuration:** These vehicles usually have only one passenger door and limited low-floor options. Some cutaway vehicles are equipped as kneeling buses allowing easier boarding without the use of a lift for ambulatory passengers. These vehicles are highly flexible with respect to seating options, accommodating a variety of seat and wheelchair position configurations.
- **Amenities:** Cutaways equipped for transit use typically have overhead signs to identify their service or current route, stop request mechanisms to allow passengers to signal when they want to alight, fareboxes, and bike racks to facilitate multimodal travel. Amenities such as rear heat and air conditioning are available, as are a number of entertainment options such as a public address system and monitor screens. Overhead luggage storage or rear luggage storage options are available.
- **Operating Characteristics:** Cutaway vehicles work well on narrow roads with tight corners given their smaller size relative to larger transit buses. Compared to standard transit buses, cutaway buses allow for greater flexibility along narrow roads and better maneuverability on winding roads, though they may not be able to negotiate a grade steeper than 15%. Most vehicles in heavy transit use are equipped with dual rear wheels for added road stability, but are wider and less maneuverable than models with single rear wheels.
- **Life span**: Cutaway vehicles have a shorter life span than larger-sized transit buses but a longer life span than modified vans. Their estimated life span is approximately five to seven years or 150,000 to 200,000 miles.
- **Cost**: New cutaways cost between $60,000 and $115,000 depending on the vehicle size and amenities selected.
- **Propulsion System:** Typically gasoline engines are standard for smaller cutaways. Larger cutaways commonly have diesel engines, although gasoline engines are also available. Diesel engines are popular when large numbers of passengers are to be transported as they have more power and better acceleration under heavy loads. The fuel

consumption of gas and diesel vehicles range between six and 12 miles per gallon based on engine type and vehicle size. Fewer manufacturers produce these vehicles with alternative fuel systems than produce alternative-fuel transit buses. The alternative fuel option can be expensive. For example, a hybrid model can be expected to cost roughly $100,000 more than a standard diesel or gasoline model. A CNG conversion may add around $30,000 to the cost of a cutaway vehicle.

Figure 9 summarizes some of the advantages and disadvantages of cutaway vehicles.

Figure 9. Cutaway Vehicles: Advantages & Disadvantages

Advantages	Disadvantages
• Lower price relative to transit buses for moderate passenger loads • Relatively maneuverable • Does not require specially trained mechanics or expensive maintenance equipment • Higher passenger capacity than vans • Better gas mileage than larger vehicles	• Less durable over time than purpose built transit vehicles • Relatively short vehicle life compared to purpose built transit vehicles • Ride can be uncomfortable • Relatively limited alternative fuel options • Usually requires special training and licensing for drivers

Small and Mid-size Transit Buses

Transit buses are available in a range of sizes, from small buses measuring less than 30 feet in length to large articulated buses measuring 60 feet in length. Small to mid-size buses (defined for the purposes of this guide as vehicles up to 30 feet in length) are often used for community transit, though such services may also be provided using a full-size transit bus (a vehicle 35 to 40 feet in length). Small buses may be built on a medium-duty chassis, while buses 40 feet in length or larger are generally classified as “heavy duty” vehicles based on the chassis and frame structure. Mid-size buses are available in both medium-duty and heavy-duty versions.

Transit buses are “purpose built” for transit service and therefore are more durable than vans or cutaways. Small and mid-size transit buses offer better maneuverability than standard 40-foot transit buses and have a somewhat lower price. Figure 10 shows the mid-sized bus used in Stanford University’s Marguerite shuttle system.

Figure 10. Mid-Size Transit Bus

Linda A. Cicero / Stanford News Service

Example of a Mid-size Transit Bus

Key Features of Small and Mid-size Transit Buses

- **Capacity**: Small and mid-size buses seat between 18 and 35 passengers. A 30-foot bus can hold approximately 35 seated passengers. Transit buses can safely carry standees; approximately 10 standees can be transported on a 30-foot bus.
- **Boarding/vehicle configuration**: Most transit buses are configured with a wheelchair lift and foldaway seats near the front of the bus allowing for at least two wheelchair positions, though rear lift configurations are also available. Unlike full-size transit buses, small and mid-size buses may have only one door for boarding and alighting passengers.
- **Amenities**: Small and mid-size transit buses can be equipped with a wide variety of amenities and customizations. Seating can be arranged in a number of configurations and the type of seating can vary.
- **Operating characteristics**: In general, transit buses tend to be more durable and have longer-lasting components than cutaway vehicles. Transit buses are designed for repetitive start and stop operation rather than sustained high speed travel. Typically these buses operate at a maximum speed of 60 miles per hour and can negotiate no more than a 15% grade.
- **Life span**: The average useful life of a mid-size, heavy duty vehicle is 12 to 15 years or 500,000 to 1,000,000 miles. Small buses built on a medium-duty chassis have a shorter useful life than heavy duty vehicles.
- **Propulsion system**: In addition to the more standard diesel or propane powered propulsion systems, small and mid-sized transit buses are also available with alternative fuel propulsion systems (CNG, LNG and electric diesel hybrids).
- **Cost**: The average purchase price for a mid-size transit bus is approximately $250,000. The cost will vary considerably depending on the type, number of amenities selected and chosen propulsion system. A CNG bus of the same size costs between $370,000-$400,000 for the base model, while a diesel/electric hybrid bus costs about $500,000. Used buses can be purchased, but the cost depends on the condition, age, and mileage.

While used vehicles are more affordable, they may be more costly to maintain, less reliable, and may fail to meet current emissions requirements.

Figure 11 summarizes some of the advantages and disadvantages of transit buses.

Figure 11. Small and Mid-size Transit Buses: Advantages & Disadvantages

Advantages	Disadvantages
• More durable and longer vehicle life than a cutaway vehicle • Higher passenger capacity • More alternative fuel options than a cutaway vehicle • Relatively comfortable ride	• Much more expensive than cutaways • Requires special maintenance equipment and training • Requires special training and licensing for drivers • Less maneuverable than smaller vehicles

Vehicle Procurement

Buy versus Bundle with Service

Vehicle purchase costs can be borne by either the entity sponsoring the transit service or by a contracted service provider. Issues to consider include:

- Public agencies buying large fleets can obtain good prices. Other public agencies may still obtain good prices by buying through the State Contract.
- Some large private transportation providers may be able to buy vehicles at favorable prices by buying fleets to be used in multiple contracts, or may have a used vehicle available from another contract.
- If a contracted provider buys the vehicles, the price of the vehicle will be included in the contracted payment per vehicle hour or vehicle mile.
- Public procurement can be a lengthy process.
- Once purchased by a public agency, a vehicle may be used for multiple purposes and is available for its life regardless of whether the service continues or is operated by the same contract provider.
- The decision about purchasing vehicles should involve consideration of the need for back-up vehicles to act as spares in case of breakdowns or when a vehicle needs to receive preventive maintenance.

The decision about vehicle purchase may also be influenced by issues related to whether maintenance and storage facilities will be provided by the sponsoring agency or contractor. A contractor may be able to provide these without significant set-up costs if they already operate in the area or have access to such facilities.

State Contracts

As discussed above, several types of vans, cutaways and medium-duty transit buses incorporated within the California State Contract are available to public agencies and FTA Section

5310 funding recipients through the Caltrans Division of Mass Transportation's procurement process.[2] As part of its bid process, Caltrans requires that vehicles conform to a variety of state and federal requirements, including relevant Federal Motor Vehicle Safety Standards (FMVSS), the Americans with Disabilities Act (ADA) specifications for transportation vehicles, and California Air Resources Board regulations. Caltrans also provides compliance certifications required for federally-funded vehicle purchases, such as FMVSS and Buy America certifications.

Figure 12 provides a summary of vehicle cost by type, highlighting some of the 2007 California State Contract costs.

Figure 12. Summary of Vehicles Available Through the State Contract

Vehicle type	Passenger Capacity (Seated/Wheelchairs)	California State Contract Cost
Low-floor Minivan (Type 4)	2/2*	$37,200
Raised-top Van (Type 5)	4/2	$42,500
22' Cutaway (Type 1B)	8/2	$51,190
27' Cutaway (Type 7)	22/2	$79,190
29' Cutaway (Type 7)	26/2	$84,580
32' Cutaway (Type 7)	30/2	$86,700

*2 seated passengers with 2 passengers in wheelchairs. Seated capacity is greater if no passengers in wheelchairs are present.
Source: Caltrans State Contract – 2007 Vehicles

Procuring Federally-Funded Vehicles

If vehicles will be purchased using federal funds, it is important to ensure compliance with applicable vehicle-related and third party procurement requirements. For example, certain federal clauses will need to be included in contracts with vehicle vendors, and additional requirements—such as those related to pre-award and post-delivery audits, new model bus testing (Altoona testing), and Buy America provisions—may apply. The agencies administering federal funds (e.g., Caltrans, the Metropolitan Transportation Commission) can provide guidance for funding recipients. The Federal Transit Administration website also provides guidance on third-party contracting requirements.[3] SMCTD can provide some assistance with procurement; for information call Richard Cook at (650) 508-7979.

Power Sources and Emissions-Related Requirements

While most community transit services are provided using gasoline or diesel-fueled vehicles, several alternative power sources are available or under development. This section provides an

[2] Information on the Caltrans DMT vehicle procurement program can be found at http://www.dot.ca.gov/hq/MassTrans/5311-Procurement.html.

[3] See http://www.fta.dot.gov/funding/grants_financing_6036.html.

overview of alternative power sources, as well as general guidance related to compliance with California Air Resources Board regulations related to vehicle emissions.

Overview of Alternative Power Sources

As discussed above, available power sources vary by vehicle size and type. Smaller vehicles in particular have limited options. Several alternative power sources are discussed briefly below.

Natural Gas. Natural gas is available either as compressed natural gas (CNG) or liquefied natural gas (LNG). CNG is more commonly used than LNG, and is the most widely-used alternative fuel in the transit industry. While natural gas vehicles are clean burning and produce reduced levels of harmful emissions, they do not achieve the same fuel economy as diesel vehicles and have a lower vehicle range due to the lower energy content of natural gas. Use of CNG requires specialized fueling and maintenance infrastructure.

Hybrid-Electric. Hybrid vehicles are powered by batteries which in turn are charged by an internal combustion engine. The engines can run on a variety of fossil fuels. At this time diesel hybrids are the most popular in the transit industry due to the ability of the transit agencies to retain their existing fueling infrastructure. Hybrid-electric vehicles achieve higher fuel economies than diesel vehicles and do not require major changes to maintenance facilities, but have a significantly higher capital cost than diesel vehicles. However, this cost differential is likely to decrease as hybrid technologies continue to mature.

Biodiesel. Biodiesel is a renewable fuel that is made from natural ingredients, such as seed crops. It contains no petroleum and has lower emissions than petroleum diesel. One of the most attractive features of biodiesel for transit providers is that it can be used in standard diesel engines with little or no modification (though biodiesel can be incompatible with older fuel system seals). Transit operators using biodiesel often use a blend of biodiesel and petroleum diesel.

Fuel Cell. A fuel cell converts chemical energy directly into electricity by combining oxygen from the air with hydrogen gas. Vehicles powered by fuel cells are known as “zero-emission vehicles.” Only water and unreacted fuel are emitted. At present, the application of fuel cells to community transit is extremely limited. While there are a number of pilot programs underway in the United States, fuel cell technologies are still being refined for use in transit service. Use of fuel cell technology requires new infrastructure such as hydrogen fueling stations and fuel cell transit buses remain prohibitively expensive.

California Air Resources Board Requirements

The California Air Resources Board (CARB) implements and enforces air pollution control rules and regulations in California. When procuring a vehicle for use in providing community transit, it is worth contacting the CARB to ensure that the vehicle complies with applicable regulations.[4] In San Mateo County, SamTrans staff can also serve as a valuable resource for understanding emissions-related requirements for community transit vehicles; contact Richard Cook at (650) 508-7979.

In broad terms, an agency operating diesel or alternative fuel vehicles to provide public transportation services for the general public is subject to the CARB’s Fleet Rule for Transit Agencies, while an agency providing transportation limited to a specific group or population is

[4] See www.arb.ca.gov or call 1-800-242-4450 to be referred to appropriate ARB staff.

subject to On-road Truck and Bus regulations. Currently, community transit services operated using gasoline-powered vehicles are not subject to CARB requirements. In general, diesel vehicles purchased with a 2007 or newer model year engine will include a diesel particulate filter and be compliant with CARB requirements related to particulate matter emissions. Vehicles procured through the California State Contract should also meet requirements, though agencies operating community transit are encouraged to check with the CARB to ensure that this is the case, since regulations change over time and may vary based on the type of service to be offered.

Chapter 6. Funding and Budgeting for Community Transit

Several potential funding sources are available to support the start-up and operation of community transit programs in San Mateo County. This chapter provides basic information about key funding sources, including eligible uses for the funds, eligible applicants, whether or not matching funds are required, and how to apply for the funds. This chapter also discusses the type of information funding agencies may require as part of funding applications, tips for evaluating funding sources, preparing a strong proposal with a realistic budget, and reporting requirements for grantees. The role of fare revenue in funding community transit is also discussed.

Applying for Funds: What to Expect and How to Prepare

The funding sources discussed in this chapter are all awarded through competitive processes that require a formal application to be submitted, usually in response to an annual or biennial call for projects. Funding agencies will provide application forms and written guidance for applicants. Most will also host a workshop where applicants can ask questions about the funding program and application. Typically, applications will require the following:

- **A statement of need for the project,** including identification of intended beneficiaries and the specific issues and mobility needs to be addressed by the community transit service. Stronger applications will quantify beneficiaries in some way and provide documentation of the needs to be addressed, such as survey results, statistics, reports, or needs assessments produced by your agency or another organization, such as a transit operator (SamTrans) or a local or regional planning agency (e.g., C/CAG, the Metropolitan Transportation Commission).
- **Description of the service to be implemented.** This may include the planned service model (e.g., fixed-route, demand-response), routes or service area, hours of operation, eligibility criteria for riders (if any), and fares (if any). While funders typically do not expect that all details of the service will be defined prior to award of funding, stronger applications will demonstrate that your agency has thought through the planned service in detail.
- **Detailed project budget.** Budget requirements will vary. A list of costs that should be included in a detailed budget is provided at the end of this chapter.
- **Implementation schedule.** The schedule should be realistic. Grant rules may dictate that certain funds be used within a specified period of time.
- **Staffing plan.** Funders may request information about the qualifications of the personnel who will be directly involved with implementing the service.
- **Proposed performance measures and targets.** Applicants are typically asked to propose performance measures for evaluating the service and quantifiable targets for service performance. These may include performance indicators such as ridership, on-time performance, cost per passenger trip provided, and customer satisfaction, among others. (See Chapter 6 for more discussion of performance measures.)
- **Discussion of institutional capacity.** Funding applications will often require applicants to demonstrate that their agency has the capacity to effectively implement, monitor, and report on project activities as well as ensure that funds are managed appropriately.

Funders may also ask applicants to identify any issues that would prevent their agency from beginning project activities as soon as funds are released.

- **Discussion of plans for sustainability of the service.** Many funders do not anticipate funding ongoing operations of a community transit project over a long period of time. If this is the case, applicants may be asked to discuss plans for sustaining operations beyond the life of the initial grant—for example, what other sources of funds or partnerships may be pursued in the future.
- **Documentation of community consultation and coordination.** Most funders will want to see that your agency has consulted with key constituents or partners in preparing your project. For example, a proposal for a new community transit service should reflect consultation with local public transit and shuttle operators to ensure that the proposed service complements rather than duplicates existing transit services.
- **Documentation of support.** Letters of support are not always required by funders, but they are often allowed and can strengthen an application. At a minimum it should be clear that your agency's Board and executive official, as well as those of any agencies identified as partners in implementing the service, support the funding application. If you plan to include letters of support, be sure to leave adequate time for potential supporters to review your project and provide a letter from the appropriate person. This may require considerable time, including time for partners' boards to give approval.

If your agency requires additional resources for the research, outreach, data collection and staff time needed to develop a plan for implementation of a community transit project, planning grants (i.e., grants funding planning activities but not service operation) may be available to support this work.

Questions to Ask About Funding Sources

A thorough understanding of a funding program and process will help determine whether it is a good match for your agency. In most cases the answers to the following questions will be provided in the guidance that accompanies a call for projects. It is worth reading through this guidance in detail at the beginning of the application process.

- **Will the funding agency host a workshop for applicants?** Are staff available to assist applicants in other ways? As mentioned above, most agencies do host a workshop for applicants. In some cases—such as the Transportation Fund for Clean Air Grant Program discussed below—applicants are encouraged to consult with a staff member at the funding agency prior to submitting an application.
- **Are matching funds required?** Can in-kind contributions be counted towards a required match?
- **Are planning grants available**, or can funds be used for additional planning work prior to launch of the service?
- **What is the process for scoring applications and selecting grantees?** Some programs—such as the federal 5310 program—have multiple steps, starting at the county level and proceeding to a statewide competition for funds.
- **When will funds be available?** Some funding processes are longer than others. For example, Lifeline Transportation Program grantees receiving funding from the federal Job Access and Reverse Commute Program (discussed below) may experience a 6 to 12-month waiting period while funds are secured from the Federal Transit Administration.

- **How are funds disbursed?** Many grant programs operate on a reimbursement basis.
- **Are there opportunities for ongoing funding,** or is funding available on a one-time basis only?
- **Are there limits on the amount of administrative or indirect costs** that can be included in the project budget?
- **What are the reporting requirements**, and other requirements (e.g., audits, insurance coverage), for grantees? Reporting requirements are discussed in general terms in the section below.
- **Does the funding source require that your service be primarily or wholly used by a particular group** (such as older adults) or meet a particular goal (such as reducing motor vehicle emissions)? Does it require that the service be open to everyone?

Funding Agreements and Reporting Requirements

If your project proposal is successful, your agency will be asked to sign a funding agreement (a contract) with the funding agency that specifies the terms and conditions for your receipt of funds. The funding agreement will specify monitoring and reporting requirements as well as any other requirements, such as those related to insurance. Funding agreements for projects receiving funding from federal programs, such as the 5310 and 5317 programs, will include certain clauses related to federal requirements (these vary by the amount of funding provided).

Reporting requirements vary by funding program, but in general funders require quarterly reporting for operating projects such as community transit services. These reports typically document project status, expenses and services provided during the reporting period, and service performance as it relates to the performance standards or measures identified for the project. It is important that grantees establish a procedure for accurately collecting the data needed for reporting an ongoing basis.

Reporting requirements for specific sources of funds available for community transit projects are discussed in the descriptions of funding programs provided in the next section.

Potential Sources of Funds

Several key funding sources that are available to support community transit projects in San Mateo County are described below. For the most part these funding sources are intended to further specific transportation goals, such as improving transportation for residents of low-income neighborhoods, improving air quality, or enhancing connectivity to regional transportation systems. For this reason, it is important that applicants ensure that their projects are consistent with the goals of the funding program and document how the proposed services help achieve these goals.

C/CAG Local Transportation Services Program

The City/County Association of Governments of San Mateo County (C/CAG) provides matching funds for local shuttle services from a local transportation fund that receives contributions from all 20 cities and San Mateo County. Local Transportation Services Program funding is matched by the San Mateo County Transportation Authority (SMCTA) for eligible projects.

In FY 2009-2010, $500,000 is available from the Local Transportation Services Program. The SMCTA will provide approximately $300,000 in matching funds to support the Program. SMCTA matching funds can only be used for shuttles that serve Caltrain stations. Combined funding from the Local Transportation Services Program and SMCTA cannot exceed 50% of project costs.

Typically the Local Transportation Services Program funds shuttle services that are already up and running and have met performance benchmarks established by C/CAG, though funding is not necessarily limited to established services. Applicants must demonstrate that the shuttle service has local support and does not duplicate services provided by SamTrans. Projects are funded one year at a time. Shuttle sponsors are able to seek ongoing funding for services (i.e., beyond the initial year of funding).

Eligible uses of funds: Program funds support shuttle operations, though capital projects (vehicle purchase) may also be eligible.

Eligible applicants: The 20 cities in San Mateo County and County of San Mateo

Schedule: A call for projects is usually issued in February or March, with funds available as of July 1. C/CAG anticipates releasing a call for projects at the end of March of 2009.

Required match: The Local Transportation Services Program reimburses local entities for up to 50% of the annual cost of operating the shuttle service. The local entity must provide the remaining funding.

Reporting requirements: C/CAG requires quarterly reports from grantees. Grantees are required to report on service costs and ridership, and reports assess shuttle performance in terms of cost per passenger benchmarks (currently $15/passenger for door-to-door service and $6/passenger for fixed-route shuttles).

Contact: Tom Madalena, Transportation Planning Manager
City/County Association of Governments of San Mateo County
County Office Building
555 County Center, Fifth Floor
Redwood City, CA 94063
Phone: 650-599-1460
Email: tmadalena@co.sanmateo.ca.us

San Mateo County's Half Cent Sales Tax (Measure A)

The 2008 reauthorization of the county's Measure A allocates 4% of a half-cent sales tax, estimated in 2004 at $60 million dollars over 25 years ($2.4 million per year), for shuttle funding. Funding is already committed to existing shuttle services funded by the 1988 Measure A Program, subject to acceptable performance. Funds for new shuttle services under the reauthorized Measure A Program will be awarded through a competitive process. An initial call for projects will take place in 2009. SamTrans will serve as the project sponsor and fiscal agent for the shuttle program, and will contract directly with successful applicants. The priority use for the funds will be to meet local mobility needs and provide access to regional transit services such as Caltrain, BART, or SamTrans. It is envisioned that these services will complement fixed-route bus and rail services, and use vehicles that are typically larger than vans and smaller than transit buses.

Eligible uses of funds: Operating and capital expenses

Eligible applicants: Cities and nonprofit agencies working through SamTrans (the designated sponsor for these funds)

Schedule: As of February 2009, program policies and schedule are under development.

Required match: The match requirement for these funds has not yet been defined.

Reporting requirements: Performance reports will be required and will incorporate performance measures in such areas as service effectiveness, service quality and customer satisfaction.

Contact: Melanie Choy, Capital Project Planning Manager
San Mateo County Transportation Authority
1250 San Carlos Avenue
San Carlos, CA 94070
Phone: 650-508-6200
Email: choym@samtrans.com

Bay Area Air Quality Management District (BAAQMD) Transportation Fund for Clean Air (TFCA) Grant Program

The Bay Area Air Quality Management District (the Air District) oversees the Transportation Fund for Clean Air (TFCA) Grant Program, and distributes funds through two processes. Sixty percent of the TFCA funds are referred to as "Regional Funds." The remaining 40% of funds are returned to a designated Program Manager in each county to be used for local projects. In San Mateo County, C/CAG serves as the Program Manager, and those funds are already fully committed and not available to expand or fund new projects in the near term.

The Regional Fund is funded by a $4 surcharge on motor vehicles registered in the Bay Area. $12 million was available in the TFCA Regional Fund for the FY 2008-09 funding cycle. The minimum grant amount for a single project is $10,000 and the maximum grant amount is $1.5 million for public agencies and $500,000 (single grant or combined grants) for non-public entities. The intent of the TFCA Grant Program is to fund cost-effective projects that reduce motor vehicle emissions.

Eligible uses for funds: The TFCA Regional Fund covers a wide range of project types including the purchase or lease of clean air vehicles, shuttle and feeder bus service to train stations, ridesharing programs to encourage carpool and transit use, and projects to enhance the availability of transit information. Several requirements apply to shuttle and feeder bus projects:

- To be eligible, shuttle and feeder bus services must serve a rail station, airport, or ferry terminal and be timed to meet rail, air or ferry services.
- If the applicant is not a public transit agency, the applicant must submit documentation from the General Manager of the local transit agency stating that the proposed service does not duplicate existing transit service.
- Vehicles used to operate shuttle or feeder bus service must meet applicable California Air Resources Board (CARB) particulate matter standards for public transit fleets. Specific vehicle types that can be used to operate TFCA-funded shuttle or feeder bus services are identified in the Grant Application Guidance.
- TFCA grants provide operating funds for a maximum of two years. Applicants seeking additional operating support must reapply for funding.

The TFCA Grant Application Guidance identifies project characteristics that will strengthen applications for shuttle and feeder bus projects. These include operating shuttle services during the peak period only, serving a large employment hub, providing service using clean fuel or low emissions vehicles, and providing support for operations from a non-TFCA funding source.

Eligible applicants: Any public agency within the jurisdiction of the Air District (including all of San Mateo County). Eligible public agencies include cities, counties, transit districts, school districts, and other special purpose agencies. Non-public entities can apply for TFCA Regional Fund grants, directly or via a public agency, to sponsor and implement certain clean air vehicle projects only.

Schedule: In 2008, a call for projects was issued on April 30, with an application deadline of June 30. Grant application workshops were held in May and June. Grant awards were scheduled for consideration by the Air District Board of Directors in November of 2008.

Required match: Match is not required, but projects that incorporate a match are considered more cost-effective and will score better on that criterion.

Reporting requirements: Requirements vary according to the type of project funded. For example, quarterly reporting may be required for shuttle services, while semiannual reporting may be sufficient for other projects. Monitoring requirements are focused on ensuring that a mode shift is taking place as a result of the project (i.e., people are making trips using a shuttle service instead of using their car) and emissions reductions are being achieved.

Contact (for shuttles, feeder bus service, rideshare programs, transit information and integration):

Andrea Gordon, Senior Environmental Planner
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
Phone: 415-749-4940
Email: agordon@baaqmd.gov

Link to Regional Fund information:

http://www.baaqmd.gov/pln/grants_and_incentives/tfca/regional_fund.htm

Lifeline Transportation Program

The Lifeline Transportation Program is funded by the Metropolitan Transportation Commission (MTC), the regional transportation planning agency for the San Francisco Bay Area, and is administered locally by each Congestion Management Agency (CMA). In San Mateo County, C/CAG serves as the administrator of Lifeline funds. Successful projects are forwarded by C/CAG to MTC for adoption and release of funding.

The Lifeline Transportation Program is intended to fund projects that result in improved mobility for low-income residents. The Lifeline Program supports community-based transportation projects that:

- Are developed through a collaborative and inclusive planning process that includes broad partnerships among a variety of stakeholders such as public agencies, transit operators, and community-based organizations, as well as outreach to underrepresented stakeholders.
- Address transportation gaps or barriers identified in Community-Based Transportation Plans (such as those completed for East Palo Alto and the Bayshore neighborhood of Daly City and made available on MTC's website) or strategies emerging from countywide or regional welfare-to-work transportation plans, the Bay Area's Coordinated Public Transit-Human Services Transportation Plan (also available on MTC's website), or other documented needs assessments.

- Improve the range of transportation choices by adding new or expanded services such as enhanced fixed-route transit services, shuttles, children's programs, taxi voucher programs, improved access to autos and capital improvement projects.

Transportation needs specific to elderly and disabled residents of low-income communities may also be considered. Priority is given to projects identified in Community-Based Transportation Plans and located within MTC-defined "communities of concern."

The Program is funded using a combination of three funding sources: State Transit Assistance (STA), Proposition 1B transit funds, and the Federal Transit Administration's Job Access and Reverse Commute (JARC) Program. Applicants and projects must be eligible for one or more of these funding sources. Projects may be funded for up to three years.

MTC has estimated that nearly $5.2 million will be available in the FY 2009-2011 funding cycle for projects in San Mateo County, but this figure is subject to changes in STA and Proposition 1B funding levels.

Eligible uses of funds: Both capital and operating projects are funded, consistent with the requirements of the funding sources comprising the Lifeline Program.

Eligible applicants: Public agencies, transit operators, county social service agencies, cities and counties, and private operators of public transportation services. Nonprofits are directly eligible for JARC funds, and can partner with an eligible STA recipient (such as SamTrans) to receive STA funds.

Schedule: The schedule for the Lifeline funding process is more variable than other funding programs. A call for Lifeline Transportation Program projects was issued by C/CAG in the summer of 2008. A follow-up call for projects was released in January 2009 in order to program over $1 million in Proposition 1B funds left over from the previous call for projects (Proposition 1B funds can only fund transit capital projects). C/CAG anticipates releasing a second call for Lifeline projects in the spring or summer of 2009.

Required match: The Lifeline Program requires a minimum match of 20% of the total project cost, with two exceptions:

- Operating projects funded by JARC funds require a 50% match. STA funds may be used to cover the 30% difference in match requirement if projects are eligible for both funding sources.
- All auto-related projects require a 50% match.

Match can come from a variety of sources and in-kind contributions toward the match requirement are allowed. Match is computed on a quarterly basis. For example, at the end of each quarter, grantees are able to ask for reimbursement for up to 80% of total project expenditures during that quarter.

Reporting requirements: Grantees must provide quarterly reports to C/CAG. Performance measures that must be included in each report are identified at the time the funding agreement is executed.

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City/County Association of Governments of San Mateo County
County Office Building, 555 County Center, Fifth Floor
Redwood City, CA 94063
Phone: 650-599-1462
Email: jhigaki@co.sanmateo.ca.us

Federal Transit Administration (FTA) Section 5317 New Freedom Program

The New Freedom Program seeks to reduce barriers to transportation services and expand the transportation options available to people with disabilities, beyond the requirements of the Americans with Disabilities Act (ADA). New Freedom funds are available for capital and operating expenses that support new public transportation services and alternatives designed to improve mobility for individuals with disabilities.

Within the urbanized Bay Area, the MTC serves as the grant administrator for this program, and selects projects through a competitive grant process. Applicants from San Mateo County compete with applicants from Marin, San Francisco, western Contra Costa and Alameda counties (the San Francisco – Oakland Urbanized Area). MTC then receives funds from the Federal Transit Administration, and in turn contracts with the local project sponsor. Applicants for New Freedom funds on the Coastside of San Mateo County apply directly to Caltrans (the grant administrator for non-urbanized areas) and compete with other applicants in non-urbanized areas of California.

MTC has issued two calls for projects under the New Freedom Program and plans to issue another one during 2009. Over $1 million is available in each fiscal year for the San Francisco-Oakland Urbanized Area. MTC may include funding for two fiscal years within one funding cycle.

Eligible uses of funds: Capital and operating costs of new services that go beyond the requirements of ADA to meet transportation needs of people with disabilities. Applicants must demonstrate their proposed project's consistency with the transportation needs, proposed solutions, and coordination strategies included in the Bay Area's Coordinated Public Transit Human Services Transportation Plan (available on the MTC website).

Eligible applicants: State or local governmental bodies, social services agencies, tribal governments, public and private transportation operators, and nonprofit organizations.

Schedule: A call for projects is typically issued in the late spring, with applications due during the summer months, project selection and program approval occurring in the late summer or fall, and contract negotiations with grantees completed around the end of the year.

Required match: 20% for capital projects and 50% for operating projects. Non-cash donations, volunteer services, or other in-kind contributions are eligible to be counted towards the local match as long as the value is documented and represents a cost that would be eligible under the program.

Reporting requirements: Grantees are required to report to MTC quarterly on service performance and financial status.

Contact: Kristen Mazur, Transit Program Manager
Metropolitan Transportation Commission
101 Eighth Street
Oakland, CA 94607
Phone: 510-817-5789
Email: kmazur@mtc.ca.gov

Links: For projects in the urbanized area: http://www.mtc.ca.gov/funding/FTA/
For Coastside projects: http://www.dot.ca.gov/hq/MassTrans/5317.html

FTA Section 5310 Transportation for Elderly Persons and Persons with Disabilities

Funds for this program are allocated by a population-based formula to each state for the capital costs of providing services to elderly persons and persons with disabilities. Typically, vans or small buses are awarded to support nonprofit transportation providers. In addition to nonprofit agencies, public agencies that have been designated as a Consolidated Transportation Services Agency (CTSA) can obtain Section 5310 funding; however, no CTSA is designated in San Mateo County. Public agencies may also be eligible if no private nonprofits are available to provide services. Federal rules also allow Section 5310 funding to be used for operations if the service is contracted out, but such projects have not been funded in California. Approximately $12 million was available for applicants in California in federal fiscal year 2008.

Grants are awarded on an annual basis through a statewide competitive grant process. Applications from urbanized areas are first submitted to the local Paratransit Coordinating Council (PCC) for scoring, and are then forwarded to MTC for regional scoring and ranking. The regional project requests are submitted to Caltrans, which develops a statewide program of projects that is submitted to and approved by the California Transportation Commission. Applicants on the Coastside submit applications directly to Caltrans, and would compete with projects from other non-urbanized areas of the state. MTC and Caltrans schedules may differ. A call for projects within the urbanized area is typically issued in the spring.

Vehicles for nonprofit agencies are purchased by Caltrans using the State procurement contract, while public agencies can participate in the Caltrans process or a local procurement process. Applicants should be aware that the vehicle procurement process can add considerable time to a project implementation schedule.

Eligible use of funds: Capital projects to support provision of services to elderly persons and persons with disabilities. Vehicles funded by the program must provide a minimum of 20 hours of service per week. As with 5310 funding, applicants are required to specify how their proposed project addresses transportation gaps or barriers identified in the Bay Area's Coordinated Public Transit-Human Services Transportation Plan.

Eligible applicants: Private nonprofit organizations, CTSAs, and public agencies only in cases in which no nonprofits are available to provide service.

Schedule: Typically a call for projects occurs in the early spring, with applications due in the late spring or early summer. The scoring and project selection process usually lasts into the fall.

Required match: In California, a local match of 11.47% is required.

Reporting requirements: Quarterly reports to Caltrans are required. These reports follow a standard format and provide information related to vehicle usage (hours and miles), ridership by elderly individuals and people with disabilities, and any changes in operations.

Contact: Kristen Mazur, Transit Program Manager
Metropolitan Transportation Commission
101 Eighth Street
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Email: kmazur@mtc.ca.gov

Links: For projects in the urbanized area: http://www.mtc.ca.gov/funding/FTA/
For Coastside projects: http://www.dot.ca.gov/hq/MassTrans/5310.html

Older Americans Act (OAA) Title III Funds

(Note: Older Americans Act Title III funds administered by the Area Agency on Aging in San Mateo County are currently committed through FY 2013.)

The Older Americans Act provides funding to support a range of assistance programs aimed at seniors age 60 and older, especially those at risk of losing their independence. No funding is specifically designated for transportation, but transportation is a permitted use of funds under Title III the Act (Support and Access Services), providing needed access to nutrition and other services offered by the federal Administration on Aging, as well as to medical and other essential services required by an aging population.

San Mateo County Aging and Adult Services (AAS) is the Area Agency on Aging for the county and administers OAA funding programs. Aging and Adult Services issues a periodic call for projects for transportation programs serving older adults (age 60 and older). A call was issued in December of 2008 for transportation services to be funded in FY 2009-2013.

The goal of the AAS program is to provide transportation services linking older adults and adults with disabilities to adult day care programs and senior center-based nutrition programs. Priority is given to transportation services to Congregate Nutrition Programs funded by Aging and Adult Services. However, services may also be provided for other trip purposes, such as shopping and medical appointments, if there is a defined need for such services and resources are available to support these services.

Funding recipients are required to coordinate services with all other relevant transit providers and in particular with Redi-Wheels and RediCoast. In its FY 2009-2013 call for projects, AAS suggested that a minimum of 80,956 one-way trips be provided annually by funded programs.

Eligible use of funds: Operation of transportation services for older adults

Eligible applicants: Nonprofit or for-profit organizations and public bodies

Required match: A 10.53% match is required.

Reporting requirements: Monthly, quarterly and annual reports are required. Data to be reported includes units of service (trips) provided, client counts, and client demographic information.

Contact: Area Agency on Aging
San Mateo County Aging and Adult Services
225 37th Avenue
San Mateo, CA 94403
Phone: 650-573-2700

Fares

Passengers fares may be a source of revenue for some community transit services. Many community transit services are free, but others charge a fare, especially services operated directly by transit agencies. Most of the existing community transit services in San Mateo County charge no fare. When a fare is charged, the revenue collected may cover anywhere from 3% or 4% to more than 20%, but usually no more than 10% of total operating cost. If a fare is charged then provision needs to be made to ensure the security of cash payments or else to sell tickets, and fare payment needs to be routinely reconciled against ridership counts.

Budgeting

Most grant applications will require a budget. Developing a realistic budget is essential to determining funding needs, obtaining approval from policy bodies, developing service plans, and continuing program monitoring and evaluation. Usually, many functions will be performed by a private contractor and will end up being included in a payment for contracted services. Regardless of whether certain functions are performed by the public entity or a contractor, estimates are needed of their costs, at least when planning a new service.

As a shortcut, potential contract providers can be asked to provide rough estimates of the cost per vehicle hour to provide services similar to the ones being planned. In requesting such information, it is essential to specify whether the cost per vehicle hour includes provision of vehicles, a facility, maintenance, and fuel. All of these items can be provided either by the public entity or a contract provider. Maintenance may be performed by a maintenance provider (for example a local garage or a city corporation yard; regardless of who will perform this function, some estimate of its costs needs to be included in a realistic budget. As an example of typical contract costs, Caltrain shuttles in San Mateo operated using small vehicles currently have turnkey contract costs (including vehicles, drivers, insurance, a facility, maintenance, and fuel) ranging from $60 to $75 per vehicle hour.[5]

Budgets may follow a variety of formats but should include all relevant costs. Depending on the type of service, any or all of the costs shown in Figure 13 may be pertinent.

[5] Information provided by the Peninsula Traffic Congestion Relief Alliance.

Figure 13. Budget Cost Categories

Commonly Included in a Contract	Sometimes Included in a Contract
Vehicle Operations ● Driver wages and benefits ● Supervisory wages and benefits ● Insurance ● Vehicle depreciation Operations Management ● Labor – Driver hiring and supervision – Driver testing and licensing – Scheduling, dispatching and road supervision – Fare collection (cash counting, reconciliation, deposits) – Data gathering, compilation, and reporting ● Materials and supplies ● Telephone and internet	Vehicle Maintenance ● Maintenance wages and benefits ● Fuel and lubricants ● Parts Facilities ● Lease or use charges for vehicle storage, maintenance, operations management ● Bus stop signs ● Shelters, benches, or other amenities ● Utilities
Performed by Public Entity	
Administration ● Service planning, monitoring, and evaluation ● Contract oversight ● Marketing materials: brochures, schedules, web page ● Grant management and reporting ● Coordination with other jurisdictions	

Chapter 7. Service Evaluation and Performance Monitoring

Routine performance monitoring is essential and valuable in order to allow staff, advisory groups, policy makers, and funding agencies to:

- Identify if a community transit service or program is performing well against established goals and objectives for the service.
- Determine whether or not public funding for the transit service or program is a worthwhile investment in meeting community goals.
- Isolate factors that contribute to the performance of a community transit service or program.
- Evaluate the performance of the contract provider if there is one.
- Receive regular feedback on service performance from staff, advisory groups or policy makers.
- Make adjustments to the performance evaluation framework if necessary.

In many cases, funding agencies will have specific requirements for reporting. However, performance monitoring should not be limited to fulfilling grant requirements. Transit agencies typically have elaborate, formal performance evaluation frameworks in which an overall agency mission leads to goals, objectives, measures, and standards. Recipients of major federal transit funding have particularly detailed reporting requirements. For a community transit service, a simpler process is typically sufficient.

Performance Measures and Indicators

A distinction is sometimes made between *performance measures* and *performance indicators*. A performance measure is a basic quantity such as ridership or operating cost, and a performance indicator is something calculated from the performance measures, such as operating cost per passenger.

Common performance measures are shown in Figure 14. While these measures are all useful, many community transit services only track a few of them.

Figure 14. Common Performance Measures

Performance Measure	Description	Source
Passengers (ridership)	Total passenger boardings, usually including all passengers regardless of fare paid, including passengers transferring from other vehicles. A person making a round trip is counted twice, one for each boarding.	Counts taken by drivers
Fare revenue	Payments by passengers in fareboxes or to buy tickets or passes	Cash counts, bank deposits, sales records
Operating cost	Total expenditures. Ideally operating cost will be measured to be all-inclusive, counting the cost of service operations (payments to a contract provider, drivers, fuel, maintenance, etc.) and administration (mainly staff time).	Invoices, accounting records, budget reports
Vehicle hours	Hours in operation providing service. One vehicle operating for one hour is a vehicle hour.	Driver and vehicle logs, or estimated from schedules
Early/late arrival time at stops (fixed-route services) or passenger pickup points (dial-a-ride)	Actual arrival time minus scheduled arrival time	Driver logs or special observations
Complaints and commendations	Counts of calls, comment cards, emails, website input received from passengers, classified by topic	Complaint logs
Service interruptions	Number of times a vehicle has to be removed from service or wait for assistance	Vehicle logs, maintenance reports
Accidents	Number of incidents involving damage to property or injury of passengers, drivers, or others	Mandatory accident reports

Vehicle hours may be measured as *revenue vehicle hours*, excluding time traveling to and from a garage and driver break time (i.e. time when vehicles are actually available for a passenger to board), or *total vehicle hours*, including all the hours needed to provide service.

These performance measures can used to compute a variety of indicators, for instance:

- Operating cost per vehicle hour
- Operating cost per passenger
- Passengers per vehicle hour
- On-time performance
- Farebox recovery (fare revenue ÷ operating cost)
- Complaints per 1,000 passengers

On-time performance in a fixed-route or flexible-route service is commonly defined as the percentage of times that vehicles arrive no more than five minutes after and no earlier than the scheduled time. In a dial-a-ride system, scheduled time for each pickup is the time promised to each passenger, and the allowed variation from scheduled time is much more than five minutes.

Sometimes it is important to know who is riding the service. For example, some funders want to know how many riders are elderly or have disabilities. Unless passengers are required to show some form of identification or are pre-registered for demand-responsive service, this kind of information may need to be obtained from a passenger survey.

Performance Standards

In some cases a formal standard will be established for certain performance indicators. For example, SamTrans has established standards for cost per passenger on shuttle services. For commuter shuttles, the standard is $10 per passenger at the start of service, with a benchmark goal of less than $4 per passenger after the second year of service. For community shuttles, the benchmark goal is less than $6 per passenger after the second year of service. C/CAG has set performance standards for local community shuttles receiving C/CAG funding. For fixed-route services, the operating cost per passenger should not exceed $6.00 and productivity should be at least 10 passengers per vehicle hour. For door-to-door services, the operating cost per passenger should not exceed $15.00.

In systems that charge a fare, farebox ratios for service in a dense corridor may be in the range of 30% to 40%, but for community transit services, ratios in the range of 5% to 10% are common. SamTrans also measures commuter shuttle performance using an “equivalent farebox ratio” (EFR). This indicator assumes a hypothetical $1 fare, so the EFR for a route is ridership divided by cost. SamTrans uses a graduated scale performance standard, beginning with greater than 10% when service is implemented and ending with greater than 25% (hopefully by the end of the second year of service).

Regardless of formal targets set by funders, it is useful to set some kind of goals or standards for transit services to help make decisions about whether they are meeting expectations, need improvement, should be expanded, or should be curtailed. In addition to cost per passenger, common targets are farebox recovery and passengers per vehicle hour (often called “productivity”). Common targets for on-time performance are from 90% to 95% of arrivals within the established definition of “on-time.”

One way to set expectations for ridership is in comparison to vehicle hours of service provided. Passengers per vehicle hour (usually called “productivity”) is an indicator which is reasonably transferable from one area to another, unlike cost per passenger which is affected by wide variation in the cost of living among areas. Some reported productivity values for various types of service are shown in Figure 15.

Figure 15. Reported Service Productivities

(Passengers per vehicle service hour)

Service Type	Example	Productivity
Commuter shuttles	Caltrain/BART shuttles (average of all routes)	21.0
Flexible-routes	TCRP Synthesis 53—average of 11 services Denver Call-n-Ride—South Inverness Dallas Flex—average of 2 services	9.1 7.4 7.6
Dial-a-ride feeder	TCRP Synthesis 53—average of 4 services Denver Call-n-Ride—Lone Tree Denver Call-n-Ride—Orchard Dallas On-Call—average of 9 services	5.7 3.3 8.7 4.6
Dial-a-ride	Denver Call-n-Ride—Brighton Denver Call-n-Ride—Longmont	5.5 2.9
Business district shuttle	Emery Go Round	36.7
Community circulator	Menlo Park Midday Shuttle (2003) Denver Longmont circulator	9.7 8.5

Performance Reporting

Performance measures and indicators should be routinely reported using a standard report format, either monthly or quarterly. Performance reports may go to management staff, advisory groups, funders, and policy makers. The report should present operating data and performance indicators over time and compared to targets.

Chapter 8. Supplementary Material

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Acronyms and Abbreviations

Abbreviation	Full Name
AAS	San Mateo County Aging and Adult Services
ACS	American Community Survey
ADA	Americans with Disabilities Act
C/CAG	City/County Association of Governments of San Mateo County
CARB	California Air Resources Board
CNG	Compressed Natural Gas
CTSA	Consolidated Transportation Services Agency
FMVSS	Federal Motor Vehicle Safety Standards
FTA	Federal Transit Administration
GIS	Geographic Information System
JARC	Job Access / Reverse Commute

MTC	Metropolitan Transportation Commission
OAA	Older Americans Act
SMCTD	San Mateo County Transit District
SRTP	Short Range Transit Plan
STA	State Transit Assistance
TA	San Mateo County Transportation Authority
TCRP	Transit Cooperative Research Program
TFCA	Transportation Fund for Clean Air
VTA	Santa Clara County Valley Transportation Authority

References

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