Mobility Management Planning Study

Improving Rural Human Services Transportation Coordination through Partnership with "211/511, Office of Emergency Services

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Caltrans

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Table of Contents

Chapter 1 – Introduction

1.1 Background

The California Department of Transportation (Caltrans) Division of Mass Transportation (DMT) sponsors this planning project. Caltrans DMT serves as the designated recipient in non-urbanized areas of California for Federal Transit Administration (FTA) grant programs for public transit and human services transportation.[1] Through these funding programs, DMT provides technical assistance and funding to agencies responsible for transportation services such as buses, facilities, planning, information technologies, and human services transportation for the elderly, disabled, and low income.

In February 2004, Presidential Executive Order #13330 on Human Services Transportation Coordination established the Interagency Transportation Coordinating Council on Access and Mobility (CCAM) to oversee activities and to make recommendations that advance the goals of the Order to improve human services transportation coordination through multiple federal programs (including the FTA grant programs).

The Executive Order's provisions aim to improve transportation services by ensuring that communities coordinate transportation resources. Coordination will enhance transportation access, minimize duplication of services, and facilitate the most appropriate cost-effective transportation possible within available resources. The General Accounting Office (GAO) has documented the benefits of coordination efforts among federal programs that fund or sponsor transportation for their clients.[2]

CCAM created United We Ride (UWR) as a federal interagency initiative aimed at improving the availability, quality, and efficient delivery of transportation services for older adults, people with disabilities, and individuals with lower incomes. UWR facilitates coordination between transportation and human services programs and provides useful information, reports, and strategies through its acclaimed information portals on the FTA website.[3]

In August 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) mandated that projects selected for funding from the FTA Section 5310 Elderly and Disabled Specialized Transit Program, FTA Section 5316 Job Access and Reverse Commute Program, and FTA Section 5317 New Freedom Grant Program must be derived from a Coordinated Public Transit-Human Services Transportation Plan (Coordinated Plan). The Coordination Plan identifies transportation needs, available services, strategies, and implementation priorities.
Beginning in November 2005, DMT began a successful UWR outreach effort with state

[1] The term "non-urbanized area" includes areas fewer than 50,000 in population.
[2] GAO reports entitled: "Transportation Disadvantaged Populations, Some Coordination Efforts among Programs Providing Transportation, but Obstacles Persist" (June 2003), and "Transportation Disadvantaged Seniors-Efforts to Enhance Senior Mobility Could Benefit from Additional Guidance and Information" (August 2004).
[3] Website: http://www.unitedweride.gov/

departments and agencies. Over the next three years, DMT's outreach was expanded to include local and regional agencies through grant workshops, information portals on the Caltrans DMT website, and community outreach meetings as part of the Coordinated Plan effort.[4] It was through this comprehensive effort that DMT joined with OUTREACH to execute its purpose to provide a prototype for a "one-call" center for public transportation access to information about and referral to health and human services. As a result of this new partnership, a study was commissioned with the purpose of seeking to improve the mobility of individuals who are disabled, elderly, or of low-income through coordination of services. To this end, OUTREACH received FTA rural planning grant funds to conduct a study using long standing mobility management concepts for coordinating human services, transportation and emergency preparedness in rural areas. This is the first effort of its kind instituted by Caltrans DMT through the FTA grant funding programs and will provide a useful model for implementing mobility management concepts through partnerships with "2-1-1" and "511" and the Office of Emergency Services statewide.

BACKGROUND: Outreach & Escort, Inc. (a.k.a. OUTREACH)

OUTREACH is located in Santa Clara County, California, which is composed of 12 urbanized areas and three rural areas. The rural sections are the environs in and around the localities of the cities of Gilroy, Morgan Hill, and San Martin. Gilroy is a community that was selected by the Metropolitan Transportation Commission (MTC) for a Community Transportation Based Plan (CTBP) given that it is a low-income area with concentrations of minority populations. When the region's Coordinated Plan[5] was developed in 2007, the Gilroy CTBP (2006)[6] was factored into the plan.

OUTREACH has a long and successful history of coordinated transportation and social services in both the urban and rural areas in the County. In 1974, the Senior Outreach program was part of the Community Action Agency providing diversified anti-poverty services in Santa Clara County. The trained social workers/case managers of the Senior Outreach program connected low-income persons, seniors, persons with disabilities, and limited English speaking persons (including migrant workers in the rural sections) to the services and benefits they needed in order to live independently and with dignity. This is a holistic-client centered approach that goes beyond referrals with actual assistance in filling out applications, attending eligibility appointments with the client, trouble-shooting barriers to applications, benefits or services and so forth.

The success of the Senior Outreach program rests in the training of social workers/case management in all of the public and private services and programs and their guidelines, regulations, funding sources, eligibility requirements, and strong relationships with the entities managing these programs and services. The range of assistance includes but is not limited to: housing assistance, energy assistance, immigration services, MediCal

[4] Website: http://www.dot.ca.gov/hq/MassTrans/Coord-Plan-Res.html
[5] Coordinated Public Transit Human Services Transportation Plan, Elderly and Disabled Components and Low-Income Components, MTC. 2007.
[6] Gilroy Community Based Transportation Plan, MTC and VTA, 2006.

and Medicare applications, Social Security benefits, general assistance, and financial assistance, among others including transportation assistance. The early lesson is that information and referral to transportation options alone may not sufficiently meet the real mobility needs of these populations, especially those who require specialized transportation due to accessibility requirements.

In the 1970s, OUTREACH began the initial steps in becoming a coordinated community transportation provider, partnering with public and private transportation providers, dozens of health and human service agencies, educational providers, aging entities, and employment programs, incorporating the advice and guidance of the customers themselves into each aspect of service. In 1979, OUTREACH incorporated as an independent nonprofit and was well on its way to becoming the largest coordinated community based transportation provider, and social service provider, in Santa Clara County. OUTREACH was a designated CTSA (Consolidated Transportation Services Agency; Government Code Section 15975) from 1982 through the early 1990s, when the regional metropolitan transportation planning organization (MTC – Metropolitan Transportation Commission) implemented policy that no longer designated CTSAs in the San Francisco Bay Area. Concurrently, OUTREACH became the ADA Paratransit Broker for the Santa Clara Valley Transportation Authority (VTA is the transit agency for Santa Clara County) in the early 1990s and continues that valuable partnership with fixed-route for planning, service delivery, multi-modal connections and travel training among other joint activities.

Today, OUTREACH continues to provide a holistic approach to each caller/customer/client and provides an array of social services and coordinated transportation services to the following populations:

- Seniors
- Low-income persons, families and youth
- Persons ADA-certified with functional disabilities
- CalWORKS
- Veterans
- Homeless
- Limited-English speakers
- Persons without cars and/or transit-dependent
- MediCal

Some of these populations are consistent with those targeted by FTA Section 5316, 5317, and 5310 funding sources.

OUTREACH performs over 1 million trips each program year, with a single point of entry into this one-stop system and automatic client eligibility verification; a virtual payment system linked to individual accounts, agency sponsors or providers that allows unlimited combinations of financial arrangements for paying for transportation, invoicing and reporting; connections to fixed-route, accessible vehicles, taxis, volunteer drivers, gas cards, and other options including access to other large and small transportation

providers. The fleet jointly owned by OUTREACH and VTA has over 280 vehicles, fully equipped with AVL/GPS (Automatic Vehicle Location systems with Global Positioning Satellite) and MDTs (Mobile Data Terminals). OUTREACH additionally utilizes 100 taxis with GPS that are also tracked and viewed in the Day of Service Department (centralized Dispatch).

OUTREACH operates an enhanced call center operating 365 days a year, which receives over 160,000 calls per month (close to 2 million calls per year). To put this in perspective: in 2007, the 2-1-1 systems handled 924,000 calls in California, including 130,000 in the five days during the devastating Southern California wildfires of October

> This comparative experience enables OUTREACH to approach the topic of integration with 511 and 2-1-1 systems from a knowledgeable frame of reference. The 511 transportation information system is administered by MTC (located in Oakland and serving the San Francisco Bay Area), which has a long-standing relationship with OUTREACH working on topics like paratransit, senior transportation, welfare-to-work transportation, Community Based Transportation Plans for disadvantaged areas, and coordinated services among other topics. The 2-1-1 information and referral system is administered by the local United Way of Silicon Valley/Santa Clara County, and OUTREACH has been a United Way organization for decades. OUTREACH has a 30 year history of building partnerships with public partners like FTA, VTA, Caltrans, MTC, County of Santa Clara, local cities and numerous private partners and community- based organizations.

Given this experience with health and human services coordinated with transportation, and the range of partnerships in place, OUTREACH is an ideal and willing partner with Caltrans to undertake a planning study using mobility management concepts for coordinating human services transportation and emergency preparedness in rural areas. The challenge and opportunity for OUTREACH is to plan for the transformation of the "Intelligent Transportation Systems (ITS) brokerage coordination model" into a Mobility Management Center (MMC) model with the embracing of additional mobility management concepts.

Mobility Management may have different functions, including but not limited to:

- Information and Referral Services;
- Trip Service Connections or Provisions; and
- Transportation coordination planning among and across public and private transit/transportation providers, large and small, and health and human service agencies, for day-to-day services and in times of disaster or emergencies.

The 2009 CalACT Spring Conference provided a session on the topic of MMCs. It is clear that the models may vary from Paducah, Kentucky to Monterey/Salinas, California,

[7] 2-1-1 Plan, page 12

two sites that presented at the conference. It is clear that around the nation and around the state there are many valid approaches and many key stakeholders. What is unique about mobility management is that it promotes by design both non-traditional and traditional partners and stakeholders to the table. Aging, employment services, emergency planners, paratransit, low-income, community action agencies, transportation providers and transit are just a sample of the potential egalitarian seats at the table. MMCs differ from traditional transit services in the following ways:[8]

- Mobility management disaggregates service planning and markets in order to better serve individuals and the community. Traditional transit service planning aggregates demand on centralized, highly traveled routes of a transit system;

- Mobility management focuses on service diversity and a "family of transportation services" to reach a wide range of customers versus traditional transit systems that are built on the principle of unified regional service coverage. A "family of transportation services" is a wide range of travel options, services, and modes that are matched to community demographics and needs;

- Mobility management uses multiple transportation providers to offer the most efficient and effective service to all individuals. Traditional transit agencies typically use a single operator to deliver all services; and

- Mobility management underscores the importance of service advocacy as a way to improve public transportation management and delivery. A mobility manager acts as a travel agent/service coordinator to seek the most effective means for meeting an individual's transportation needs. Transit agencies generally focus on the direct provision of services.

Key to the transformation of this ITS brokerage to a MMC involves:

- Planning for new IT tools for expanded activities beyond what an ITS brokerage generally performs;

- Providing access to a wide variety of stakeholders to these tools in order to promote coordination and mobility management concepts day-to-day and in times of emergencies;

- Expanding or building new partnerships;

- Engaging stakeholders and partners to embrace mobility management concepts to better integrate with 2-1-1 and 511;

- To better plan for the coordination of mobility as part of emergency planning efforts among health and human service agencies; and

[8] Bulleted information provided by United We Ride, www.unitedweride.gov, Nov. 2007.

- To better coordinate with first responders and public agencies equally concerned about addressing the needs of varied individuals, including but not limited to seniors, persons with varying functional abilities, paratransit riders, low-income, transportation-disadvantaged, limited-English speakers, etc.

1.2 Overview

The following are some of the guiding principles for this planning project:

1) The use of mobility management concepts to coordinate human services transportation and emergency preparedness planning consistent with the needs and strategies identified in rural area Public Transit-Human Services Transportation Coordination Plans;

2) A focus on coordinated mobility management in rural areas as an integral element of the development of a statewide technology and emergency operations plan as outlined in the "2-1-1 California State Business Plan" (2-1-1 CSBP) and the "2-1-1 California Rural Mobility Management Planning Study" (2-1-1 CRMMPS);

3) Mobility management concepts that include information technologies that interface with 2-1-1 call centers and County Emergency Services departments for improved coordination of service calls and transportation for vulnerable populations in response to an emergency;

4) A focus on the non-urban/rural areas of Santa Clara County;

5) A focus on creating employment services transportation options;

6) A focus on strategies that reduce carbon emissions to help mitigate climate change; and,

7) A focus on strategies that promote vehicle sharing as promoted under "United We Ride."

The 2-1-1 California Rural Mobility Management Planning Study (2-1-1 CRMMPS), published in February 2009, is cited throughout this paper given these guiding principles. Tasks identified in "2-1-1 CRMMPS" included:

- Identification of existing rural human service transportation providers;

- Access to information and referral and real-time transit, traffic and transportation information;

- Working with emergency services to identity service gaps in order to respond to the emergency-preparedness needs of the elderly, disabled, and low income individuals in the rural areas;

- Public participation through focus groups, stakeholder meetings, and coordinated plan documentation; and

- Strategies for interfacing 2-1-1 call centers with mobility management concepts through technologic advances.

These are important tasks to be accomplished in rural communities, and each may take a different path or approach to the integration of mobility management concepts with information and referral (such as 2-1-1 but there may be other entities performing that function in one's community), with automated transit and traffic information systems (such as 511 systems and other Google Transit Services), and with various other stakeholders from the transportation, health and human service area arena, ITS brokerages, and the emergency services entity among the many and diverse stakeholders.

1.3 Partnerships

Depending on the vision in the rural area, the tools, strategies, resources, policies, and communications networks will need to be identified, as will the cooperation between human service agencies, transportation providers, emergency services providers and partners. Key partnerships on this project are described in Chapter 3.

In general, a typical delineation of sample partners and stakeholders in a rural area to bring together to discuss mobility management concepts include but are not limited to:

- CTSA's (Consolidated Transportation Service Agencies)
- ITS (intelligent Transportation System) Brokerages Coordinating Transportation
- Transit Authorities
- State Agencies including State Office of Emergency Services
- Regional Agencies
- County Agencies
    - Office of Emergency Services
    - Social Services Agency
    - Immigrant/Refugee groups
- Area of Agency on Aging, Senior Citizen Commissions, AARP (American Association of Retired Persons)
- Chambers of Commerce
- City Officials
- Public and Private Transportation Providers
- Users/Customers/Consumers

- Caltrans Division of Mass Transportation
- Community Action Agencies
- 2-1-1 and 511
- Local foundations
- Disaster preparedness entities – including public and private agencies, associations, volunteer groups, etc.
- Workforce Investment Act (WIA) partners
- TANF (Temporary Assistance to Needy Families) partners
- Vocational Rehabilitation Services
- Veterans Services
- Developmentally Disability Services
- Home and Community-Based Services
- Non-Emergency Medical Transportation
- Medicaid and MediCal Transportation Services
- Public Transit Services
- Homeless, Social Services, Immigrant/Refugee, Migrant/Farm Worker Services
- FTA/FEMA and other federal agencies

What stands out in the above list is the range of stakeholders needed when one attempts to integrate mobility management concepts not just into existing transportation services, information and referral services, but also in terms of emergency services.

The additional project partners and stakeholders involved in the Coordinated Plan, the Gilroy Community Based Transportation Plan, the County's Welfare-to-Work Transportation Plan, and Emergency Preparedness Planning include:

- County of Santa Clara Office of Emergency Services
- County of Santa Clara Facilities and Fleet Departmen
- City of Gilroy Police Department
- City of Gilroy Fire Department
- Santa Clara County Emergency Managers Association, Vulnerable Populations Subcommittee
- Santa Clara County Social Service Agency and Employment Services
- City of Morgan Hill Police Department
- City of Morgan Hill Recreation Department
- Volunteer Center of Silicon Valley, Inc.
- South County Collaborative
- CADRE – Collaborative Agencies Disaster Relief Effort
- Hope Services
- Hope Services – South Valley District
- SJSU Emergency Management
- Council on Aging Silicon Valley

- Housing Authority of the County of Santa Clara
- Silicon Valley Independent Living Center – South County Brand
- American Red Cross – Santa Clara Valley Chapter
- United Way Silicon Valley
- 2-1-1 – Santa Clara County
- 511 – Metropolitan Transportation Commission (Regional)
- Metropolitan Transportation Commission
- Santa Clara Valley Transportation Authority
- Silicon Valley Independent Living Center
- San Andreas Regional Center
- Achieve Kids
- Advent Group Ministries
- Avenidas Senior Center/Adult Day Care
- Breathe California (formerly American Lung Assn)
- Boys and Girls Club of Silicon Valley
- California Employment Development Department
- Catholic Charities Immigration Project
- Catholic Charities Navigator Project
- Catholic Charities Senior Nutrition Program and Day Break
- Center for Employment Training (CET)
- Chamberlain's Day Center
- Child Advocates
- City of Gilroy HCD
- Community Solutions
- Community Technology Alliance
- Emergency Housing Consortium Life-builders
- Gardner Family Health Services
- Gilroy Library
- Gilroy Presbyterian Church
- Gilroy Senior Center
- Go Kids/GANAS
- Gilroy United School District Cal-SAFE
- Gilroy United School District Health Services
- The Health Trust
- Kaiser Permanente Gilroy
- Learning and Loving Center
- Morgan Hill Centennial Recreation Senior Center
- Mount Madonna YMCA

- Nar-Anon and Nar-a-Teen
- Planned Parenthood Mar Monte
- Rebekah Children's Services
- Rota-Care Bay Area Clinics
- Salvation Army
- Santa Clara County Office of Education – Head Start
- Santa Clara Family Health Plan
- School Health Clinics of Santa Clara County
- Silicon Valley Independent Center South County
- South County Housing
- South County Mental Health
- South Valley Pregnancy Care Center
- St. Joseph's Family Center
- St. Louise Regional Hospital
- United Way Silicon Valley
- Veterans Administration
- Work2Future

Partnerships in Rural Areas of Santa Clara County

Chapter 3 provides additional information on the key stakeholders specific to this planning project. A rural area considering a similar project may wish to ascertain if one or more of their potential key stakeholders may already have established partnerships with health and human service agencies, and with private and public agencies who are involved in transportation and emergency services. In this rural area planning project, OUTREACH already had established experience with such partnerships which helped expedite the planning process:

Non-profit Relationships: OUTREACH has standing partnerships with over 400 nonprofits in the local nonprofit network, including faith-based programs, educational programs, nutrition programs, adult day care providers, nutrition sites for seniors, homeless shelters, training programs, community colleges and universities, job sites, medical providers and centers, and other locations countywide and in the rural areas. OUTREACH travels to over 3,000 origins and destinations daily in Santa Clara County, including hundreds of origins and destinations in the rural areas. OUTREACH is a United Way organization, which administers 2-1-1 and is a member of the Silicon Valley Council of Nonprofits.

Social Services Relationships: OUTREACH social workers/case managers/mobility managers have standing relationships with key public programs and offices serving persons with disabilities/persons with varying functional abilities, seniors, low-income persons, youth and families, homeless persons, Veterans, CalWORKS, transportation disadvantaged and transit dependent persons, and persons with limited English speaking capabilities.

Public Agency Partnerships: OUTREACH has been a long standing nonprofit partner to many public agencies providing community services. Some of these public agencies also have responsibilities for emergency services and/or transportation during emergencies and share the same concern about planning for the well-being and mobility options for vulnerable populations during disasters and emergencies. This historicity enabled OUTREACH to more easily reach out to these partners to collaborate on this MMC planning project and focus on emergency preparedness partnerships. Specifically, some of these public agencies include the County of Santa Clara, VTA, MTC, and the local cities in the rural areas.

Chapter 2 – Definitions

2.1 OUTREACH/Mobility Management Overview

2.1.1 Mobility Managers and Workforce

> Mobility managers provide the connection between community partners and transportation providers. They disseminate information on what transportation services are available, collaborate with workforce development and human service professionals about their customers' and clients' needs, facilitate travel training and orientation for individuals, and feed data on unmet needs into the transportation planning process.[9]
>
> - Easter Seals' "Project ACTION"

Mobility Managers also play an active role in pursuing opportunities for transportation coordination between transportation providers and consumers that leads to increased shared rides and lower transportation costs. In this role as transportation coordinator, Mobility Managers serve a crucial role in the preparation of emergency-preparedness plans that require the coordination of transportation resources to serve the evacuation or relocation needs of vulnerable populations in the face of a disaster or emergency event.

As the MMC develops, the role of a Mobility Manager may expand into providing direct benefits to callers that can include:

- The preparation of individualized transportation plans for parties interested in using public transit options;
- Qualifying and enrolling individuals into available human service transportation programs; and
- Scheduling rides for qualified individuals through programs coordinated by the MMC.

Continued growth of the MMC may result in Mobility Managers training the staff of other organizations on topics such as mobility management strategies to enhance their abilities to address the transportation needs of their clients, vehicle fleet management, and emergency-preparedness planning. Mobility Managers may also be called upon to assist with the processing of ride requests for a range of client populations served by multiple transportation providers that may include taxicabs, public transit, dedicated transportation providers and volunteer driver programs.

[9] Easter Seals Project Action, http://projectaction.easterseals.com/site/PageServer?pagename=ESPA_technical_assistance_ARRA

To coordinate the efforts of Mobility Mangers within the MMC and/or within partner agencies, the MMC staff must be very well trained in transportation subject matters including all of the technology and communication systems internal and external to the MMC, the complexity of eligibility guidelines for various funds and programs, the capabilities and constraints on various providers and services, accessibility challenges for various mobility devices and/or special needs for persons with varying functional abilities, regulations, laws, among many other topics.

Several well-known sources of such information[10] include the Easter Seals' "Project ACTION" – Mobility Planning Services Institutes[11]; the California Association for Coordination Transportation: Rural Transit Assistance Program (RTAP)[12]; National Transit Institute (NTI) at the State University of New Jersey – Rutgers[13]; and the Community Transportation Association of America (CTAA)'s "Transportation Solutions Coordination Training" opportunities.[14] Parties who may benefit from the information provided at each of these training sessions include:

- Current/future mobility managers, coordinators, and specialists;
- Supervisor-level staff within human service and workforce development agencies, medical services organizations, and education systems;
- Coordinator-level staff or volunteers within nonprofit community service organizations; and
- Academic staff who wish to incorporate transportation solutions into their curriculum.

The California Association for Coordinated Transportation (CalACT) is under contract to Caltrans to implement RTAP in California, with the goal of "making the professional lives of rural transportation providers easier."[15] RTAP offers management workshops – which address general management issues, policies, leadership, motivation, and team building – and special workshops, which address drivers' training, vehicle maintenance, emergency federal requirements, safety, and other related topics. These workshops provide information for the building blocks of a MMC. California's RTAP training programs promise to:

- Promote the safe and effective delivery of public transportation in non-urbanized and small urban areas of California;

[10] Additional training opportunities are cited in the Resources section in Appendix J.
[11] Further information available on Easter Seals Project Action website, www.projectaction.org .
[12] Further information available on RTAP's website, www.nationalrtap.org.
[13] Further information available on NTI's website, www.ntionline.com
[14] Further information available on CTAA's website, www.ctaa.org.
[15] "California Rural Transit Assistance Program," 2008-2009, California Association for Coordinated Transportation, http://www.calact.org/doc.aspx?13

- Assist in building a national and state of California database on the non-urbanized and small urban segment of the public transportation industry; and

- Improve the quality of information and technical assistance available through the development of training and technical assistance resources.

With similar goals in mind, the CTAA's "Transportation Solutions Coordination Training" aims to "enhance collaboration among all those invested in improving transportation options in the community."[16] This program includes a required on-line module (prerequisite to in-person training) and an in-person, 1 1/2-day class with a variety of modules to further your experience of mobility management. For those who may find it difficult to attend the previously mentioned training sessions due to distance and time constraints, the CTAA's program is conveniently offered at regional venues across the country. Additional information may be found at the agency's website, http://www.ctaa.org.

FTA Ambassadors: United We Ride supports activities on coordinating and mobility management concepts through their Regional Ambassador programs. These individuals are very informed about what is going on nationwide and in California. The FTA United We Ride site provides the list of Ambassadors and their contact information. To find the contact information for the current 10 regional ambassadors, along with the areas that they cover, access: http://www.unitedweride.gov/1_973_ENG_HTML.htm

There are very good examples of effective mobility management projects that focus on training individuals to be Mobility Managers, and the formation of these networks can be done on a statewide, regional or local basis through a lead agency taking initiative. A few examples of this concept include:

- Wisconsin DOT – Developed a mobility manager training curriculum and trained over 40 mobility managers statewide. These mobility managers assume responsibility to manage and staff coordination efforts and

- Southwest Regional Development Commission (SRDC) in Southwest, Minnesota – Researched training opportunities and hired a mobility manager.

- Locations in California such as San Luis Obispo and Monterey/Salinas are working on integrating a range of mobility management concepts with varied partnership arrangements.

- In the Midwest, the Southwest Wisconsin Transit Team (SWTT) has managed to effectively serve the commuting, aging, disabled and low income populations in their rural region through the SWTT's Leadership in Innovation Flexible

[16] http://web1.ctaa.org/webmodules/webarticles/anmviewer.asp?a=813&z=5

Transportation (LIFT) program.[17] LIFT "seeks to maximize resources and mobilize support for effective rural community transportation" by utilizing mobility management concepts such as:

- Ride referrals;
- Setting up transportation for specific events;
- Coordinating Southwest Wisconsin's transportation services;
- Car seat installation and checks;
- Rideshare and carpool services;
- CarFit (helping individuals to have their vehicles personally fitted to optimize safe driving);
- Training programs for Volunteer Driver Programs;
- Travel training; and
- Free transportation information for Southwest Wisconsin.

To provide these services, the SWTT partnered with the Southwestern Wisconsin Community Action Program (SWCAP), a nonprofit agency governed by a 24-member Board of Directors and created as part of the Economic Opportunity Act of 1964. The mission of this organization is to:[18]

- Significantly and meaningfully involve low-income people in developing and carrying out anti-poverty programs;

- Mobilize public and private resources in support of anti-poverty programs. Plan and evaluate both long and short-range strategies for overcoming poverty in the community;

- Serve as an advocate of low-income people on matters of public policy which affect their status, promote institutional improvements, and desirable changes in social policy; and

- Conduct or delegate to other agencies the operation of programs financed through federal, state, local, or other available funds.

Community Action Agencies (CAA) such as SWCAP help people to achieve self-sufficiency in a state of low-income or unemployment. Child care, education, energy assistance, emergency assistance, financial and legal services, food programs, housing programs, etc. – these are only a few of the services provided by CAAs. These organizations are an excellent model for incorporating low-income/unemployed population needs into the coordination of an MMC. As previously stated in this paper, OUTREACH as an organization, had its origins as a local CAA program.

[17] Southwest Wisconsin Transit website: http://www.swt-lift.org
[18] All information provided at SWCAP's website: http://www.swcap.org

Mobility Managers and Rural Areas of Santa Clara County

OUTREACH has staff that has functioned as "mobility managers" since 1974, when this task was first performed by trained social workers/case managers who not only connected the client/customer with the ride but frequently rode with them to and from appointments as a personal care attendant (PCA).

Since the early 1980s, staff with transportation and paratransit training has also filled the ranks of "mobility managers," although the term in vogue was "transportation resource coordinators".

Since 1998, using JARC funds for welfare-to-work and employment-related transportation, these same principles were applied to CalWORKS and low-income persons including rural area residents and stakeholders. The "transportation resource coordinators" connected the clients/customers and their families with a range of transportation services including van rides, van pools, taxi rides, subsidies, car repair programs, car loan programs, and fixed route passes among other options. Each participant was involved in trip planning and long-term transportation planning with the OUTREACH "transportation resource coordinator" who worked in unison with the County's case manager. This JARC project also provided transportation resource planning to the social workers and case managers employed by the County so that they too could better function as "Mobility Managers" with their CalWORKs participants. MTC's 511 resource is used but so are all of the resources of the smaller local providers in the area.

After the FTA United We Ride initiative, OUTREACH engaged in this federal vision and began to transition "transportation resource coordinators" and other staff into mobility managers in 2005.

A future goal after this initial planning grant is to utilize training to create "mobility managers" at partner agencies/stakeholder entities to function as day-to-day mobility managers and to be the point person in their chain of command for mobility planning and implementation during disasters and emergencies. This creates a network of collaborative mobility managers within many types of organizations that network with each other and the MMC as the hub.

2.1.2 Type of Passengers/Clients

MMC are prepared to respond to inquiries from a wide range of potential clients and their caregivers due to their role in coordinating human service transportation for a given

community. While OUTREACH does serve the public and a large number of different populations, this particular planning project focuses on the topic of "vulnerable populations" given the emphasis on also applying mobility management concepts to emergency preparedness planning.

The largest passenger/client groups served by the MMC are likely to be persons with disabilities, frail older adults, and individuals moving from public assistance to self-supporting employment because these are the groups whose transportation needs are addressed by the major federal transportation programs: Federal Transit Administration's New Freedom, Job Access/Reverse Commute (JARC) and FTA Section 5310 programs.

The passenger/client population served by the MMC will continue to grow as a function of the emergence of transportation-disadvantaged populations and growth of additional human service transportation resources in the MMC's service area. These passengers/clients may include: the homeless, limited/non-English speaking individuals, veterans, low-income/unemployed, youth, children, etc.

The passenger/client population served by the MMC will also expand as the demographic trend reflects the aging of older adults in many rural areas. Frequently, this involves expanding passenger/client groups to include all older adults over 65 years of age. AARP represents this particular population of aging Americans. With the expectation that nearly 71 million people will have reached age 65 or older by the year 2030,[19] this nonprofit organization has actively pursued legislation to "make roads safer for drivers of all ages and also offer more user-friendly options for pedestrians and transit users." AARP recently joined the Transportation for America (T4America) campaign – a group of organizations dedicated to building a modernized infrastructure to support livable communities where people can live, work, and play – to further these goals.[20] Aging populations will become a primary target for transportation coordinators in the coming decades, and it is important to include the special needs of seniors in any present or near-future project planning.

[19] AARP Press Center, http://www.aarp.org, March 24, 2009.
[20] http://www.aarp.org/aarp/presscenter/pressrelease/articles/transportation_for_america_campaign.html

Populations served in an MMC

OUTREACH already has an expansive client base in the rural areas of Santa Clara County including but not limited to:

Persons with disabilities and/or persons with varying functional abilities
Seniors
Welfare-to-work clients
Unemployed
Underemployed
Homeless
Non/limited-English speaking
Refugees/Immigrants
Veterans
Carless individuals and families
Children
Youth
Residents of institutionalized settings
Farm workers and migrant workers in the rural parts of the County
General Public (including tourists and visitors)

As the MMC integrates transportation, social services and emergency planning for mobility options, both partner and client groups may expand. The range of riders to be served under emergency operations is often referred to generically as "vulnerable populations." Some may find this term unfavorable given connotations of dependence rather than independence among other implications. OUTREACH understands that this is less about "correct terminology" and more about advocating for authentic inclusion of diverse individuals with varying abilities and backgrounds in the planning process who can best speak to their own needs and challenges.

In the rural area in this planning project, the Santa Clara County Emergency Managers' Association uses the term "Vulnerable Populations" for their standing subcommittee. Therefore, for ease of local discussion that term is the one frequently used in this paper.

Vulnerable populations in rural areas

Definition: Any person who may need community support to successfully respond to and recover from a disaster or emergency.[21]

These populations may include, but are not limited to,

Persons with disabilities/persons with varying functional abilities
Non/Limited English speaking
Residents of institutionalized settings
Welfare to work and low income
Veterans
Transportation-disadvantaged
Seniors
Homeless Children
and youth
Refugees and immigrants

It is important to note that there is a definite overlap in the types of persons served by OUTREACH and those who may need some community support before, during, and after a disaster or emergency.

2.1.3 Developing an MMC – Step-by-Step Instructions

The development of a MMC in a rural area may involve a number of steps. The premise begins with a lead agency or core partnership with an informed understanding of all of the diverse stakeholders; the history of services and entities in one's community; knowledge of who is responsible for what services in that community; and how these services are structured and funded. Success means that the many different parties must be welcomed to the table, including but not limited to individuals representing seniors, disabled/persons with varying abilities, employment services, immigrants/refugees, veterans, migrant/farm workers, homeless, low-income, transit-dependent, carless persons, limited English-speaking persons, parties involved in information and referral, parties involved in automated transit and traffic information systems and trip planning, parties who coordinate transportation, those who provide ADA public paratransit, other small and large public and private transportation providers, community based organizations, faith based groups, and public and private entities responsible for

[21] See discussion of "vulnerable populations" available in Appendix A.

emergency planning, response and recovery and volunteer activities. A broad and inclusionary process is needed to build momentum, to leverage funding, to promote cooperation, and to better guarantee sustainable success.

Assuming an inclusionary foundation is in place, FTA's "United We Ride" Program provides many excellent resources to readily enable a rural community to move forward with their mobility management planning. Herein are eleven typical steps that a rural community can follow, specific to the mobility management aspects of this process:[22]

1) **Vision**

   "Individuals and organizations are catalysts for envisioning, organizing, and sustaining a coordinated system that provides mobility and access to transportation for all."[23] The development of a MMC is essentially a political process whose success requires participants to embrace the common goals for their community. The vision adopted for the MMC should recognize the political nature of the project and ensure that the vision reflects goals that will encourage broad acceptance of the MMC.

2) **Advisory Group**

   The Advisory Group should be comprised of individuals or organizations that agree with the vision for the MMC and are willing to contribute to its development. This is typically a small group of individuals or organizations who share a willingness and ability to work together to achieve the initial objectives of the MMC.

3) **Training and Education**

   Many opportunities exist to become more informed of the development of MMCs and transportation coordination options to support the establishment of a MMC. As previously cited in Section 2.1.1., training available through Easter Seals' "Project ACTION" – Mobility Planning Institute and the Community Transportation Agency of America's (CTAA) "Institute for Transportation Coordination" provide an excellent opportunity for groups to improve their understanding of the potential of mobility management practices and to clarify their vision or action plan. For rural areas specifically, the California Association for Coordinated Transportation (CalACT) provided technical and training materials produced by the National Rural Transit Assistance Program (RTAP). Training and resource materials available from federal and state agencies as well as local organizations and sample lists are provided in Appendix J. Additionally, training and education materials on enhanced call centers are available through the California Alliance

[22] The OUTREACH Case Study experience following this framework is available in Appendix B.
[23] United We Ride – Framework for Action – A Self-Assessment Tool for Communities, page 2.

of Information & Referrals Services (CAIRS), United Ways of California (UWCA) and Volunteer Centers of California.[24]

4) **Community Assessment**

An essential step in the development of a MMC is conducting a Community Assessment to identify the transportation resources that may be available for coordination, as well as the unmet transportation needs that exist for a community's transportation-disadvantaged populations. A useful guide to accomplish this step is the "United We Ride Self-Assessment for Communities". The local Coordinated Plan and other transportation studies should also be included in the community assessment as there may be planning processes underway and documents and plans in place that have already established critical needs, gaps, strategies, and funding opportunities, and could be readily used to facilitate greater engagement and a more informed context for considering the application of mobility management concepts. Steps can be readily taken to review and update such prior analysis in a cost-effective manner.

5) **Coordinating Committee**

As a product of the community assessment, the MMC will likely identify individuals and/or organizations who are interested in the work of the MMC. To support the development of coordinated transportation for your community, it is often useful to establish a coordination committee to complement the work of the MMC's Advisory Group. This will assist in establishing a forum through which interested parties can communicate and coordinate services. Participation should be as inclusive as possible and should, at a minimum, provide a team approach that brings representative/individuals from aging agencies, employment agencies, transit, paratransit, emergency planners, and all other appropriate stakeholders. Varied and diverse stakeholders engaging in an egalitarian manner is an essential principle of mobility management.

6) **Action Plan – Coordination Strategies**

The completed Community Assessment and creation of a Coordination Committee should lead to improved transportation conditions in your community. Additionally, this process may result in the identification of unmet needs that are universally recognized as needing attention. Developing an Action Plan will require careful examination of these unmet needs in order to determine the corresponding coordination possibilities. By including representatives of transportation providers as well as potential transportation consumers as members of the Coordination Council, the MMC is more likely to craft solutions that meet the needs of the parties affected by the transportation coordination agreements.

[24] 2-1-1 California Rural Mobility Management Planning Study, February 2009, page 11.

7) **Coordination with 2-1-1 and 511 Systems**

Local 2-1-1 and 511 systems provide information on the availability of a range of human services in a given service area. Effective collaborative relationships with these entities ensure that transportation-related inquiries are responded to with accurate and up-to-date information. If the MMC is a separate entity from the 2-1-1 and/or 511 provider(s), systems should be established to provide seamless transfer of calls between these providers and the MMC.

8) **Emergency Preparedness Planning**

In collaboration with local emergency-preparedness planners (County Office of Emergency Services, etc.), the MMC will take a lead role in coordinating information regarding the availability of vehicles and other resources used in human service transportation for possible deployment before, during and after a disaster or emergency event. Training and resource materials also available from federal and state agencies among other groups and sample lists are provided in Appendix J.

9) **Funding**

Please see section 2.1.4 “MMC Funding Overview.”

10) **Review and Evaluation**

To demonstrate the effectiveness of the efforts of the MMC, measureable outcomes that are both quantitative and qualitative in nature should be developed and periodically monitored. Such findings can be useful when pursuing funding opportunities to support the efforts of the MMC.

2.1.4 MMC Funding Overview

Federal transportation funding for mobility management in California’s rural counties is available through the FTA Section 5310 – Elderly and Disabled Specialized Transit, FTA Section 5316 – Job Access and Reverse Commute (JARC), and FTA Section 5317 – New Freedom programs that are administered by Caltrans. Caltrans serves as the designated recipient for these funds that are used in rural and small-urbanized areas of the state. As designated recipient, Caltrans is required to select projects for use of SAFETEA-LU funds through a competitive process, and to certify that projects funded are derived from the Coordinated Plan.

FTA Section 5310 Elderly and Disabled Specialized Transit Program

The Section 5310 formula grant program provides capital funding to meet the transportation needs of elderly persons and persons with disabilities in areas where

public mass transportation services are otherwise unavailable, insufficient, or inappropriate.

Examples of eligible Section 5310 projects include:

- Procurement of accessible vans and buses;
- Procurement of communication equipment;
- Procurement of computer hardware and software; and
- Mobility management activities for eligible applicants.

Eligible applicants include private nonprofit corporations or public agencies where no private nonprofits are readily available to provide the proposed service or that have been approved by the State of California to coordinate services for elderly persons and persons with disabilities.

OUTREACH is a 5310 recipient, and this project demonstrates how the capital secured with 5310 funds can play an essential role in a MMC, including coordination for emergency-preparedness planning. OUTREACH currently operates nearly 50 vehicles secured through the 5310 program.

FTA Section 5316 Job Access and Reverse Commute (JARC) Program

The purpose of the JARC program is to fund local programs that offer job access services for low-income individuals. JARC funds are distributed to states on a formula basis, depending on that state's rate of low-income population. This approach differs from previous funding cycles, when grants were awarded purely on an "earmark" basis. JARC funds will pay for up to 50% of operating costs and 80% of capital costs. The remaining funds are required to be provided through local match sources.

Examples of eligible JARC projects include:

- Late-night and weekend service
- Guaranteed ride home programs
- Vanpools or shuttle services to improve access to employment or training sites
- Car-share or other projects to improve access to autos
- Access to childcare and training
- Mobility management

Eligible applicants for JARC funds may include state or local governmental bodies, Metropolitan Planning Organizations (MPOs), RTPAs, Local Transportation Commissions (LTCs), social services agencies, tribal governments, private and public transportation operators, and nonprofit organizations.

OUTREACH has been a JARC recipient since 1998 when it partnered with the County of Santa Clara, MTC and VTA to develop and deliver a Guaranteed Ride Program (GRP) for persons leaving welfare and training or entering the workforce including CalWORKS recipients and low-income persons. In addition to the GRP, OUTREACH offers transportation to the young children of CalWORKS families, car repair programs, and car loan programs. These programs have been available in the rural areas of Santa Clara since the onset. This project demonstrates how 5316 funds may also be used to foster mobility management concepts.

FTA Section 5317 New Freedom Program

The New Freedom formula grant program aims to provide additional tools to overcome existing barriers facing Americans with disabilities seeking integration into the workforce and full participation in society. The New Freedom Program seeks to reduce barriers to transportation services and expand the transportation mobility 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 beyond those required by the ADA. These funds are designed to assist individuals with disabilities with accessing transportation services, including transportation to and from jobs and employment support services. The same match requirements for JARC apply for the New Freedom Program.

Examples of eligible New Freedom Program projects include:

- Expansion of paratransit service hours or service area beyond minimal requirements
- Purchase of accessible taxi or other vehicles
- Promotion of accessible ride sharing or vanpool programs
- Administration of volunteer programs
- Building curb cuts, providing accessible bus stops
- Travel training programs
- Mobility management

Eligible applicants may include state or local governmental bodies, MPOs, RTPAs, LTCs, social services agencies, tribal governments, private and public transportation operators, and nonprofit organizations.

OUTREACH has been a New Freedom recipient through the regional Lifeline program which funds projects for low-income persons. OUTREACH partners with MTC, VTA, the County of Santa Clara, and other community-based organizations to deliver Lifeline services. OUTREACH provides a range of services with these funds including taxi services, volunteer programs, and senior transportation. These programs have been available in the rural areas of Santa Clara since the onset. This project demonstrates how 5317 funds may also be used to foster mobility management concepts.

Other Funding

The discussion in this paper focuses on transportation-related funding for mobility management and does not address alternative funding available for 2-1-1 and 511 systems. Services may require operational funds from other sources.

The types of funding may depend on the mobility management concepts one wishes to integrate into a particular organization, including its structure, its funding base and portfolio, and its own purpose and vision. Mobility management concepts may be applied by a one-person entity, a small unit or organization, a large countywide, statewide, or regional entity, or a range of networks. In a given rural area, there may be both funding opportunities and challenges in securing funding beyond the FTA Section 5310, 5316, and 5317 programs cited in this paper. Each rural area will have to envision initial funding and the scale of their operation whether is it small, medium or large, in light of their ability to secure funding to sustain their efforts.

Funding, by nature, tends to be categorical (often with restrictive eligibility rules), fragmented, and often challenging to coordinate easily, cost-effectively and efficiently. Expertise and knowledge in funding categories, eligibility requirements, types of services allowed, and the ability to coordinate and manage all of this information (disparate funding sources, contracts, invoices, reporting, and evaluation) is essential to effective mobility management.

Figure 1 on the following pages present a snapshot of some of the funding sources utilized by OUTREACH and the specific populations linked to those sources via eligibility requirements, specific funding and contractual guidelines, and other factors. Mobility management concepts attempt to break down the barriers in these traditional funding silos that make it challenging to share riders, vehicles, and other resources, as well as restricting one from serving new clients which may not be eligible within the categorical funding sources.

Figure 2 provides an actual 2009 OUTREACH funding chart that shows two additions (shaded areas) secondary to working with partners on mobility management concepts:

- Funding for ARRA employment transportation with matching dollars from Santa Clara County TANF (Temporary Aid to Needy Families).

- Prop 1 B funding for chargers and pool of hybrids and plug-in vehicles to serve a range of low-income populations through vehicle sharing.

Figure 1: Snapshot of OUTREACH Funding Sources and Related Populations Served (2009)

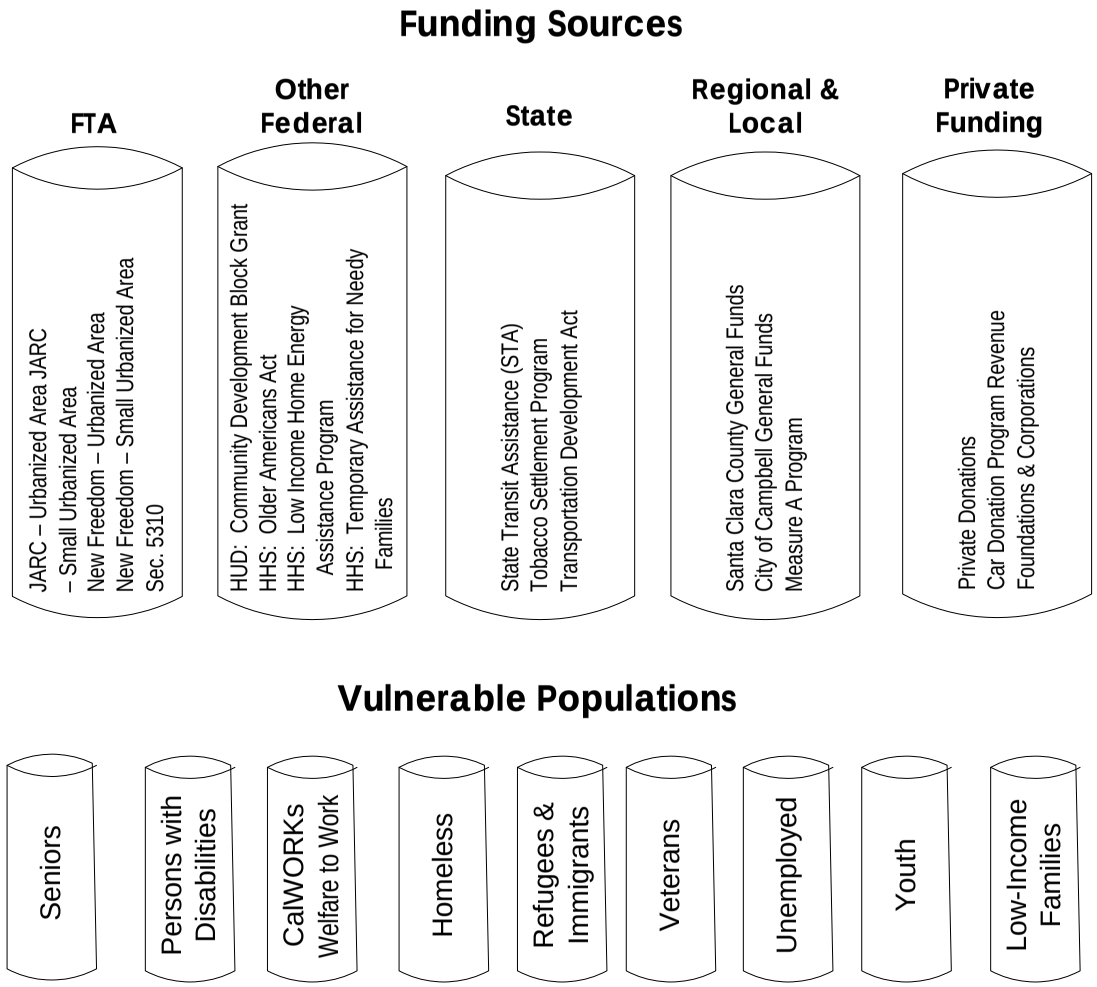
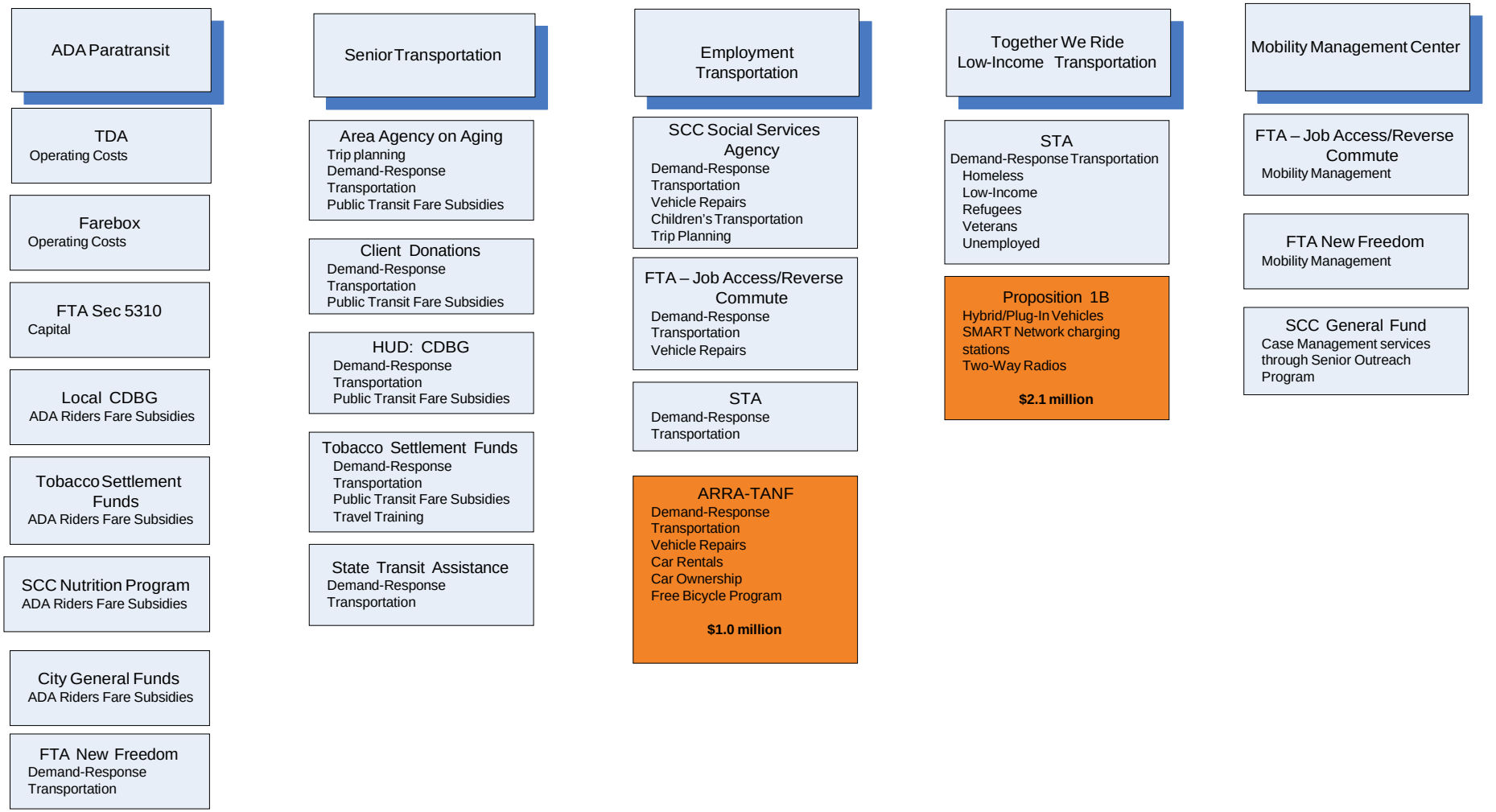


Figure 2: Chart of OUTREACH Populations Served and Their Various Funding Sources (Brown-Shaded Boxes Indicating Newer Funding and Programs of MMC)



Benefit of Mobility Management Concepts Integrated in a Rural MMC in Terms of Efforts to Seek and Coordinate Diverse Funding and Partnerships

Despite funding challenges - even during the recession (2007-2009) - the OUTREACH project shows gains that can be made when an organization embraces mobility management concepts (Figure 2). With the establishment of a MMC, there is impetus to do more for the public and other client/customer groups by applying mobility management concepts, partnerships, and technology and by making efforts to secure additional funding sources.

At the conclusion of this demonstration project (2009), the funding pool was increased $2 million as follows:

Employment Transportation - Secured $1 million grant through partnership with the County of Santa Clara to provide new employment transportation using stimulus (ARRA) funds. New funding for employment transportation is particularly relevant for rural communities of concern like Gilroy.

Increased JARC funding - Secured additional MTC Lifeline funding (joint powers between VTA, County of Santa Clara) for additional JARC dollars for CalWORKS families needing transportation services. This also benefits those in the rural area who need transportation assistance to the County's employment service center in South County (Morgan Hill, San Martin, and Gilroy).

Green and Energy Efficient Vehicles - Secured grant award notification for $1.7 million in state Prop 1B funds for plug-in vehicles and chargers - some of which are located in the rural area and open to public usage - to be a shared vehicle resource pool for paratransit, seniors, low-income persons, veterans, migrant/farm workers, CalWORKS participants, and employment seekers.

5310 Application (Fiscal Year 2009 Cycle) - Applied for additional accessible vehicles to provide capacity for passengers with large and over-sized mobility devices and to be used for emergency purposes given the larger capacity.

Continued Social Service Funding: The mobility management model operated by OUTREACH utilizes social services funds to provide other non-transportation needs of the clients. These funds are supplemented with cash donations, car donations, corporate grants, etc.

2.2 2-1-1/Mobility Management Coordination

2.2.1 Integration and Enhancement of Existing Services

According to "2-1-1 California Rural Mobility Management Planning Study" ("2-1-1 CRMMPS, February 2009), the existing 2-1-1 system in California consists of a number of collaborating but otherwise independent 2-1-1 providers, each providing service to one or more counties. The statewide plan for 2-1-1 is for these entities to be operative for day-to-day information and referrals as well as to be robust enough to remain functional during a disaster in order to provide emergency-related public information.

As of September 2008, 19 of California's 58 counties have 2-1-1 service covering 84% of the state's populations. More than 924,000 calls were handled in 2007 in California, including 130,000 during five days during the devastating Southern California wildfires of October 2007.[25]

According to the "2-1-1 CRMMPS," the coordination of 2-1-1 call centers with mobility management will provide an effective means to obtain access to human services transportation information for employment opportunities for low-income individuals via the integration of 2-1-1 technologies with human services transportation and/or public transportation providers in rural areas. Integration of information technologies through 2-1-1 and existing transportation system technologies may achieve cost-effective human services transportation coordination.

In rural areas in California, the coordination of 2-1-1 call centers with mobility management may differ from rural areas in other states. There is no one-size-fits all model that is appropriate in all rural communities as each has its own history, stakeholders, and organizations as well as other practical, political, and funding realities. In this discussion, it is understood that 2-1-1 providers have both web access as well as call centers. One may consider a few of the following sample approaches - by no means intended to be a comprehensive list - provided to add flexibility to the dialogue on how different rural areas may coordinate information and referral services, automated transit, traffic and trip planning services, and coordinated human service transportation coupled with emergency preparedness:

<u>Approach 1: 2-1-1 Integrates Transportation Directly or Indirectly (Brokerage)</u>

In a direct model, 2-1-1 call centers may go beyond information and referral to making trip reservations directly or indirectly depending on the local context, contractual arrangements, transportation resource availability, a range of vehicle types including accessible vehicles, budgetary support, ability to cost-account, access to ITS and IT tools, and numerous other required features. This may well be an appropriate model where the CTSA, or a similar type of entity or brokerage or transit agency, regional entity, or Community Action Agency, is also the 2-1-1 provider. Direct transportation

[25] 2-1-1 report, page 12

provisions or arrangements for indirect transportation provision can be very complex and costly if not managed well with persons who have knowledge and expertise specific to this highly specialized field when including access not only to the public but to vulnerable populations.

Approach 2: 2-1-1 Staff as Mobility Managers

It must also be kept in mind that 2-1-1 has a broad responsibility to provide information and referrals on a very wide range of social services and that the balance between this type of call taker and one who can become a "Mobility Manager" providing a more informed source of information to callers needs to be taken into consideration. Training to create "Mobility Managers" is very feasible and at a minimum this may enable a more informed referral when addressing the specific topic of transportation. However, to have the "Mobility Manager" make real-time trip reservations or provide related services may require access to affordable IT tools with underlying resources and contractual arrangements in place.

Approach 3: 2-1-1 Linked to External MMC

In rural areas where there is a party external to 2-1-1 that has transportation history, knowledge, and expertise, it may be more feasible for the 2-1-1 system to work with that party to jointly realize mobility management concepts. With the number of CTSAs, paratransit and/or regional center (developmentally disabled) brokerages, aging organizations with reservation and transportation capabilities, as well as organizations from the employment servicers arena, and any other stakeholder with call center and transportation expertise, it may be most cost-effective to take the steps to forge a strong linkage between 2-1-1 and this external stakeholder better suited to be the MMC. If one has an MMC with experienced mobility managers, there is potential to cross-train other partners and stakeholders, including information and referral providers, in the activities of mobility management. More specifically, one strategy would be to create a network of mobility managers through training. If possible, the concept would be for the MMC to make IT tools available for use by this distributed network of mobility managers.

Approach 4: 2-1-1 performed by MMC

In rural areas where there is an existing CTSA, brokerage, or entity similar to those described in Approach 3, it may be more cost-effective to have the MMC also function as the direct 2-1-1 provider. This may be appropriate where there is already a great deal of sunk cost into systems infrastructure with existing organizations and trained local call takes residing in your community - to duplicate these enhanced call centers and other infrastructures for 2-1-1 is not desirable as technology often comes with a high initial cost. ADA paratransit programs around the nation and state have some of the most sophisticated enhanced call centers that could cost-effectively adapted to incorporate 2-1-1. In this case, the trained transportation call-takers would inversely be trained in social service information and referral using a 2-1-1 database method which is in effect a centralized database system maintained at one central location in the U.S.

and updated routinely. Approach 4 may also be appropriate in those rural communities that are starting from step one, but have an existing enhanced call center via paratransit or similar transportation program, and would like to bring 2-1-1 to their community in a way that will initiate concepts of mobility management from the start.

Approach 5: IT Tools Applicable to Approach 1-4

ITS tools and new IT tools for trip planning or on-line reservations and similar approaches could be integrated with any of the four approaches above.

Serving the rural areas using the IT tools for Mobility Management

Approach 3 and Approach 5 described above best represent the arrangement in place for the rural areas in Santa Clara County with the addition of IT tools for Mobility Management.

The rural areas in this project have been served by both OUTREACH and United Way for decades. Residents can call 2-1-1 as this is a countywide resource for many topics or inquiries. Concurrently, residents routinely call the OUTREACH 800 number for multi-lingual social services and transportation. Hundreds of rural residents are enrolled in one or more OUTREACH program(s) and thousands of rides are provided in this rural area monthly. OUTREACH vehicles pull up to dozens of senior centers, independent living centers, adult day care sites, social service agency programs, medical complexes, schools, dialysis centers, nutrition programs, shopping plazas and so forth in the rural areas of the County.

OUTREACH was already in the local 2-1-1 database prior to this project. After productive meetings with 2-1-1, OUTREACH updated its profile with 2-1-1 to ensure that mobility management concepts were included in a meaningful way for day-to-day information, referrals, and in terms of building partnerships to be “disaster-ready.”

The local 2-1-1 system in Santa Clara County is still in its early years and is not as yet adequately funded. An approach to incorporating mobility management concepts that did not require financial investment by the local 2-1-1 is most appropriate in Santa Clara County at this time.

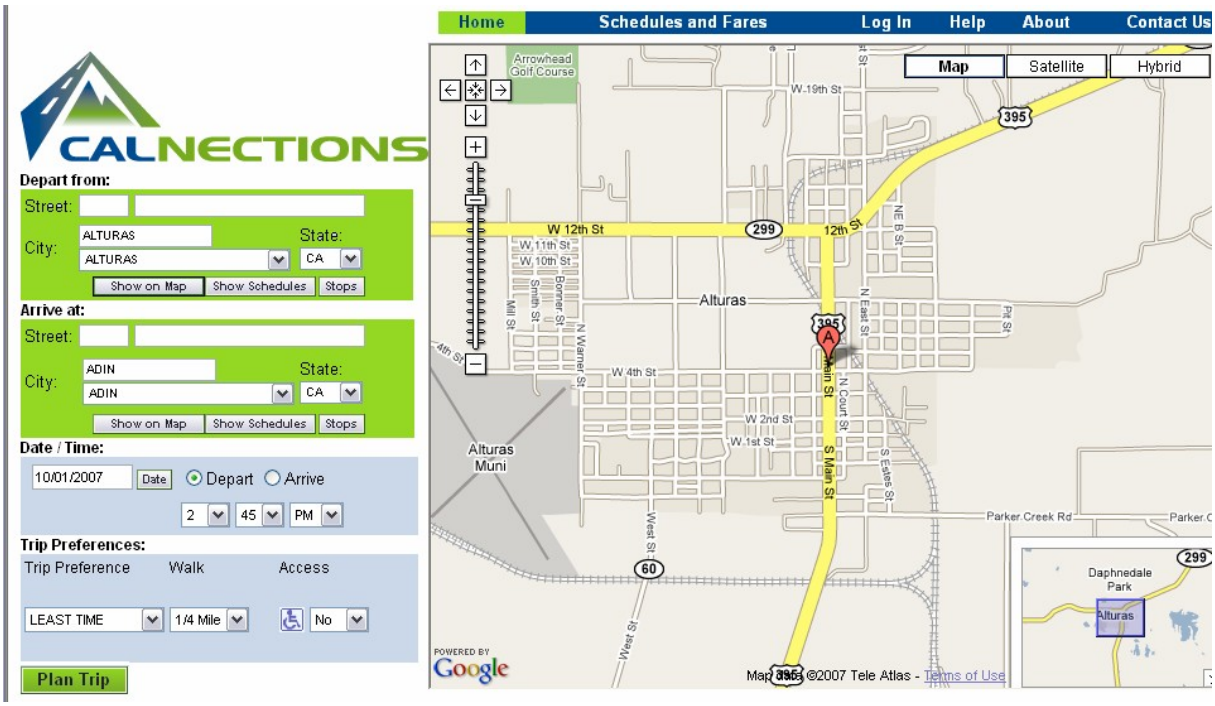
In the future, it may be feasible for the local 2-1-1 to use the OUTREACH web portal TripNET system and other OUTREACH MMC web based mobility options if desired. In the future, OUTREACH could facilitate training to create “Mobility Manages” among those who are the call-takers for 2-1-1. These call takers reside in Ventura County as calls are routed from Santa Clara County to Southern California with Bay Area back-up for emergencies. However, that training challenge could easily be addressed.

Examples of ITS and IT tools that could for different purposes with the different approaches discussed include:

CALNECTIONS. At the time of this study, advanced ITS applications are not fully implemented in 18 of the 23 rural counties. Five counties – Modoc, Lassen, Plumas, Mono and Inyo – have embarked on an ITS project entitled CALNECTIONS.[26] Caltrans DMT provided information on this collaboration of local partners along the Sierra Highway US 395.

CALNECTIONS is a functional web-based system of advanced technology tools (modules) for operations management, monitoring and reporting with an integrated information database of public, human service and private ground transportation operators and providers. CALNECTIONS helps travelers plan trips seamlessly using available/participating services. It provides detailed, comprehensive information about transportation options throughout California including human service and specialized transportation services and nontraditional travel options in rural California regions. With further development, CALNECTIONS could ultimately interface with 2-1-1 implementation in these same rural counties. The information portal is depicted below:

Figure 3: CALNECTIONS Information Portal

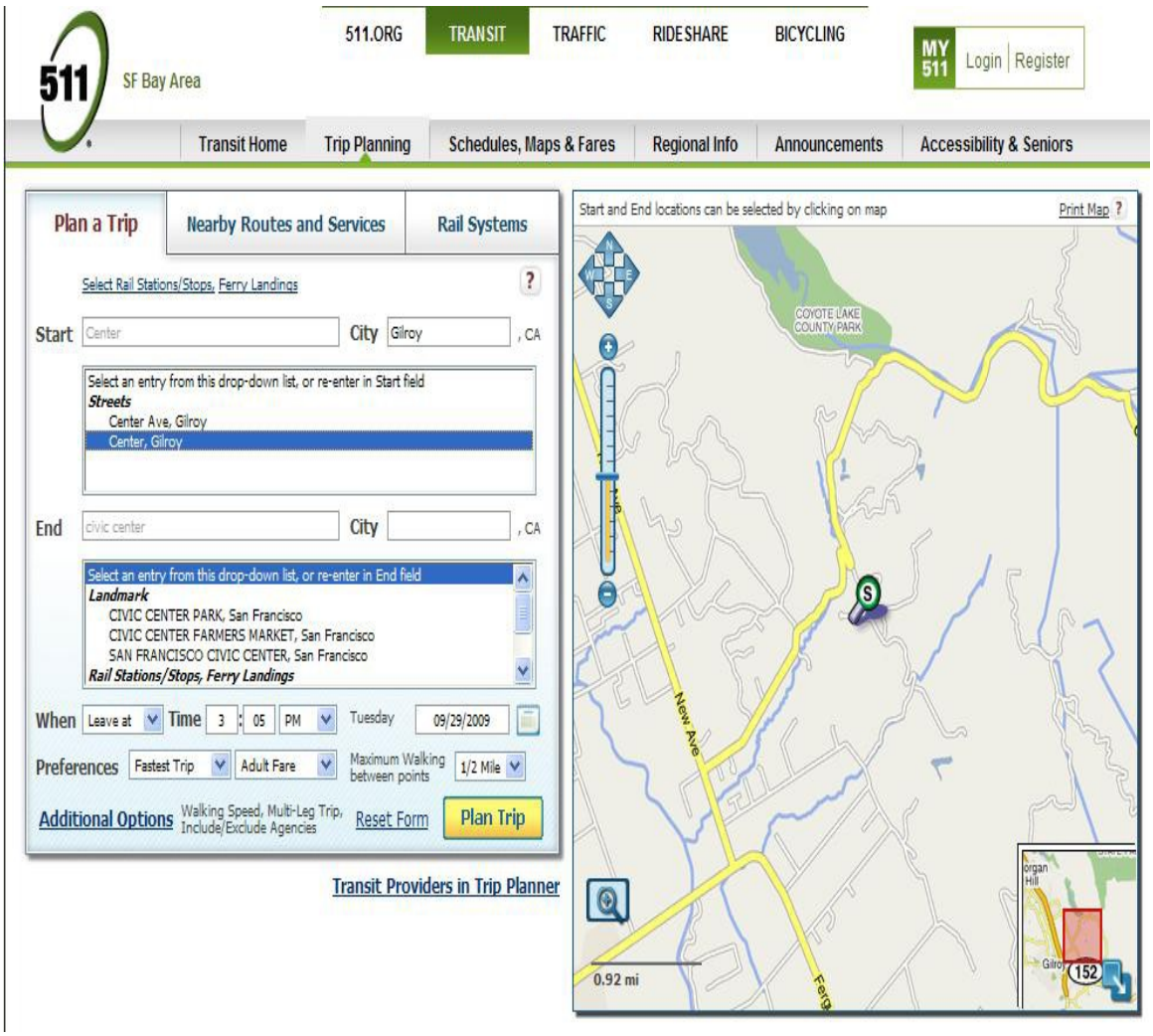


[26] Access CALNECTIONS at http://calnections.com/

In the rural areas of Santa Clara County, there is coverage by the MTC 511 system which provides very robust multi-modal transit, transportation, and trip planning as well as numerous other features (Please see Section 2.3 of this paper for more information on 511). Rural residents in Santa Clara County are serviced by the VTA for bus and light rail and are served by the CalTrain (rail) system. Rural residents may also access web-based trip planning directly from the VTA web site at www.vta.org. VTA also has live, multi-lingual operators that can assist in trip planning over the phone. Given these excellent resources, organizations like OUTREACH and United Way 2-1-1 have ready access to these web sites and need not duplicate these quality services.

511 San Francisco Bay Area has many programs and features discussed further in section 2.3 of this paper. The following depicts a trip plan using 511 from Gilroy in the rural southern area of Santa Clara County to San Francisco that is multi-modal, using the VTA bus system and CalTrain.

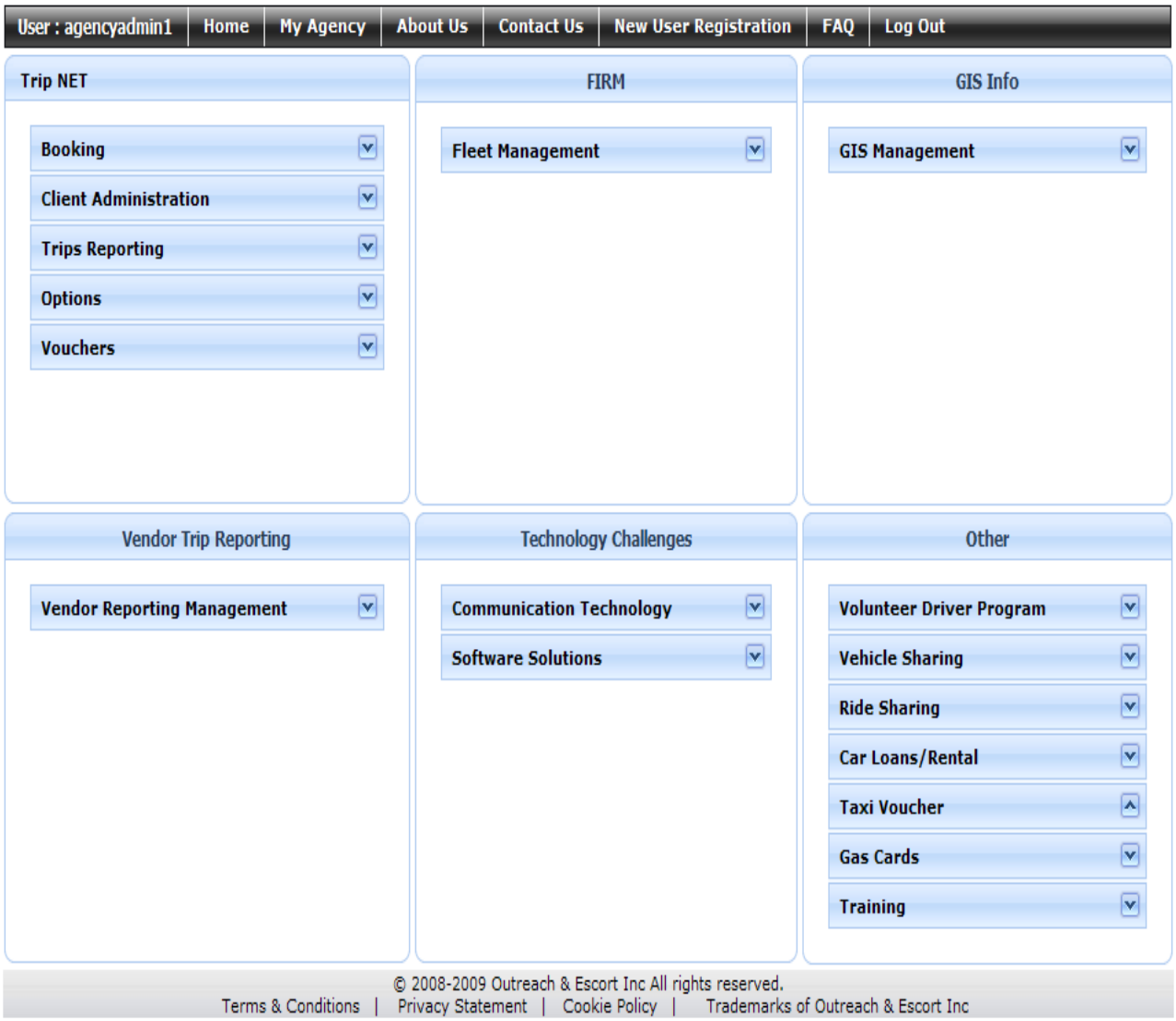
Figure 4: 511 Trip Planner – Sample Trip from Gilroy to San Francisco



Understanding that many of the web tools and websites in the state of California focus on information at a level that may not include adequate information on health and human service transportation, the OUTREACH MMC Cloud Computing Model provides a rural area with technology tools to specifically coordinate health and human services transportation day-to-day and during times of disasters and emergencies.

This web-based system includes many features that are fully described in the Technology Plan and the Emergency Operations Plan in Chapter 5 and in Chapter 6 of this paper. A sample screen shot below shows that a user may easily click and then select any number of features. This system is operating with select external users but is in what one would term “pre-lease” status as further development continues.

Figure 5: OUTREACH Screenshot of MMC Web System



2.2.2 Research: 2-1-1, Human Services Transportation Coordination

One of the guiding principles of this planning project is linked to the "2-1-1 CRMMPS," the following information is provided given the roll of information and referral in human services transportation coordination. The following two paragraphs present related information from a 2004 Volpe study:

At the national level, the FTA has studied the utilization of 2-1-1 call centers as a viable part of human services transportation coordination. In a document prepared by the Volpe Center, "2-1-1, 511, and Human Services Transportation,"[27] it is stated: "2-1-1 is a more logical choice for a service oriented toward the transportation-disadvantaged and others who are having difficulties meeting their basic needs…" The report also states: "The databases used by 2-1-1 services already include the vast array of small-scale, often informal transportation services…these database entries would be extremely useful 'building blocks' for the development of the consolidated scheduling module envisioned by United We Ride and Mobility Services Across America. 2-1-1 databases also include information about how to get help in paying for transportation…"[28]

The report also states: "On the whole, however, there is no match for 2-1-1 when it comes to providing information and access to human services for people in need. Its one-on-one, interactive human communication is indispensable for helping those who aren't sure where to turn, what name to attach to their need, or what programs might be available. Because it allows users to describe their concerns in their own words, 2-1-1 is also more able to develop a holistic understanding of callers' needs in all of their complexity, and, where necessary, to suggest creative alternatives when no programs are available."

The core concepts in the above two paragraphs relate to rider choice for disadvantaged populations, consolidated providers and scheduling, holistic understanding of customer needs, and human contact to present one's needs and to obtain assistance. OUTREACH concurs with the importance of these features when considering coordinated health and human service transportation. In the rural area of Santa Clara County, OUTREACH already performs these tasks, offering these features and taking referrals from 2-1-1 and from 511.

As previously discussed in Section 2.2.1 ("Integration and Enhancement of Existing Services"), different approaches may fit different rural communities. For example, in Stueben County (a rural county in the state of New York), Steuben Coordinated Transportation (SCT) provides "transportation assistance to Stueben County's elderly and needy who live at home and are in need of transportation help" in going to medical appointments, the grocery store, or a one-time trip to human service agencies. [29] In order to accomplish these services, SCT partners with 2-1-1 Helpline

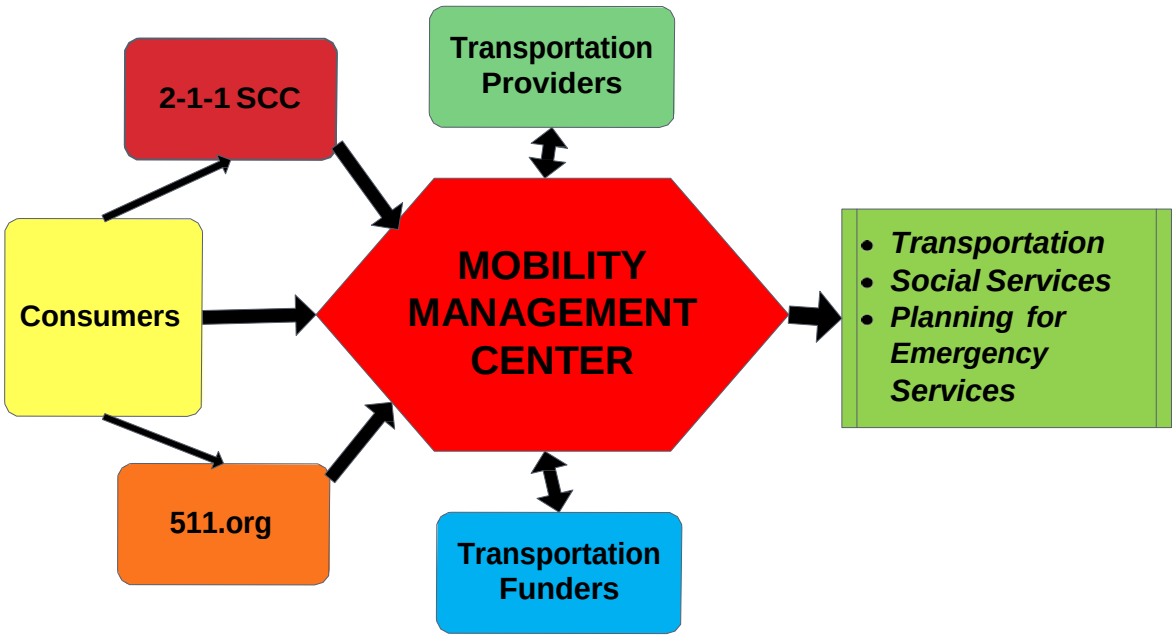
[27] 2-1-1 and 5-1-1 Human Services Transportation", December 2004, Volpe National Transportation Centers
[28] Additional information on MSAA: http://www.its.dot.gov/msaa/
[29] Institute for Human Services: http://www.ihsnet.org

(www.211helpline.org), the Steuben County Office for the Aging, the New York State Office for the Aging, and United Way of the Southern Tier. Having this broad support network assists the rural Stueben County in maximizing its resources to provide the widest range of health and human services possible for their area.

It should also be noted that the issues raised by Volpe may also have been identified in rural areas through the Coordinated Plan process. Specifically, in Santa Clara County, both the Coordinated Plan and the Community Based Transportation Plan for Communities of Concern (Gilroy, California) addressed these needs, gaps, and strategies, and OUTREACH has been involved with each step. Additional information on these studies is found in Appendix C.

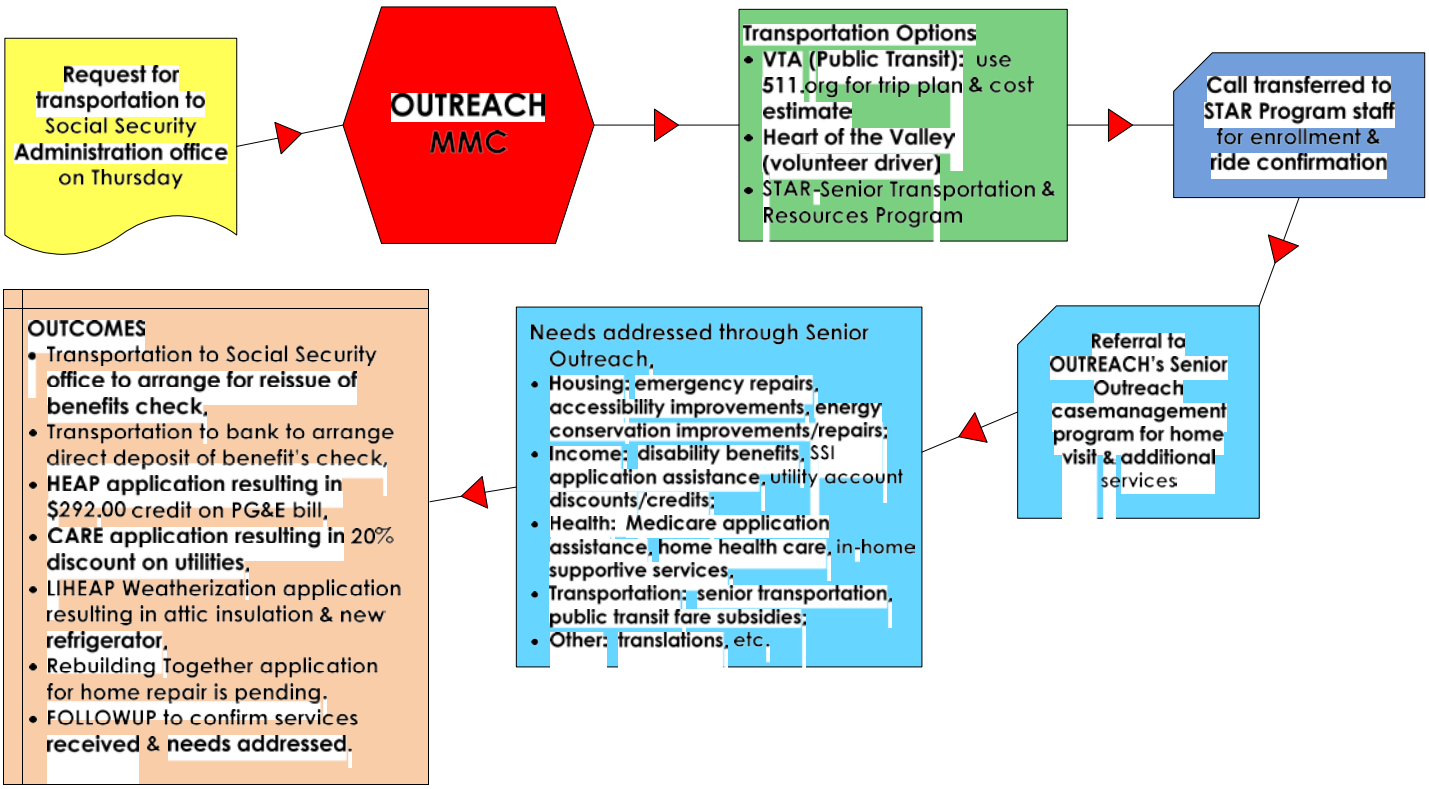
Also unique to this rural area case study, OUTREACH, as an existing stakeholder, began as an anti-poverty program and retains its social worker/case managers to assist the disadvantaged. OUTREACH has a long history of assisting persons who cannot pay for transportation, to connecting them to affordable and appropriate options, and working with partners to meet individual customer needs. OUTREACH raises over $250,000 each year to pay the fares for customers who cannot afford paratransit, fixed route, or discounted/free taxis.

Figure 6: Simplified MMC Figure



Callers referred by 2-1-1 may be seeking assistance with social services or may be seeking assistance with transportation. The OUTREACH model treats each caller in a holistic manner and will address all issues presented by the caller. An example of such a call is presented in the following flow process figure: A low-income elderly woman is referred by 2-1-1 and calls for a ride to the Social Security Administration but also has numerous other immediate challenges to her well-being to be addressed.

Figure 7: Sample 2-1-1 Inbound Call to OUTREACH'S MMC

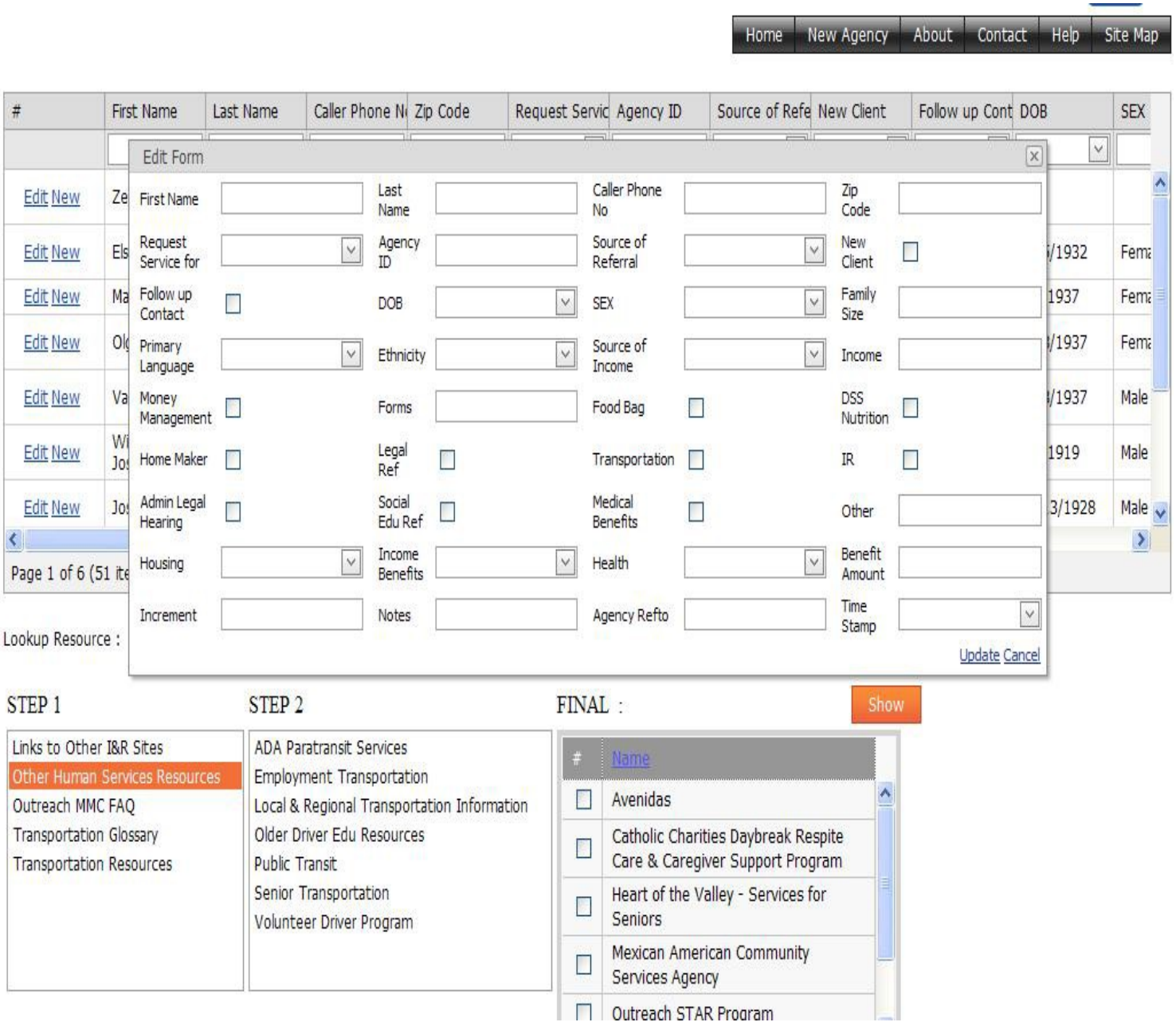


The above figure shows the holistic nature of the range of social services, financial services (HEAP and LIHEAP are energy assistance programs for low-income) and transportation services provided by OUTREACH.

OUTREACH is in the 2-1-1 database to receive referrals from such callers. OUTREACH updates its 2-1-1 profile in the database at least once a year. On an annual basis, OUTREACH may receive 160 calls where callers indicate that they were referred by the 2-1-1 call-takers or web site. OUTREACH tracks inbound calls and contacts from 2-1-1 callers and other referral sources. The following screenshot illustrates the data input

program used by Mobility Managers to track services and information on call center accounting and statistics.

Figure 8: Screenshot of OUTREACH's MMC Data Input from 2-1-1 and Other Referrals



2.3 511/Mobility Management Coordination

2.3.1 Integration and Enhancement of Existing Services

Not all rural areas have access to or coverage of a 511-type system in the state. However, the rural areas of Santa Clara County do have such access, and the 511 system is routinely used by OUTREACH's Mobility Managers.

MTC has been a provider of traveler information since the mid-1990s. During this period, a multi-modal telephone service was launched along with a separate regional transit information website. Under the various media portals in use by Bay Area 511, four traveler programs – Transits, Traffic, Rideshare, and Bicycle information – were consolidated under 511 to provide a single resource for all of this information. 511 is now a "comprehensive, multi-media, multi-modal traveler information service." [30] 511 provides their program information either on the web (www.511.org) or via phone (511), and while the essential content is the same, there may be certain limitations with each type of media. Users may calculate a particular route's driving time or use by "My 511" enables users to pre-book standard trips to efficiently utilize the transit information available to them.

The 511 phone system is almost entirely automated, recognizing an enormous variety of menu options and word choices using their IVR system. The 511 system is designed to provide both static and real-time information and does so for the San Francisco Bay Area and the Sacramento area.

San Francisco Bay Area 511 system provides a direct link to the appropriate local paratransit providers and automatic call transfer by simply saying "paratransit." As such, any member of the public calling 511 or using its web site is automatically directed straight to OUTREACH if seeking paratransit in Santa Clara County. In 2009 OUTREACH initiated discussions with 511 to collaborate with them and determine if other key words (e.g. "senior transportation") could be added to the menu in order to transfer all other types of human service transportation requests to our MMC.
The 511.org website capacity allows the user to access "broader information and more detailed and interactive information … than what could reasonably be provided via the 511 phone service."[31]

2.3.2 Research: 511, Human Services Transportation Coordination

MTC administers the 511 system and is also the lead on the region's Coordinated Plan for Human Services Transportation. For the urbanized areas of Santa Clara County, MTC creates regional transportation plans which include a focus on all modes of public transit and paratransit and has advisory committees to address human service

[30] MTC "511 Strategic Plan," April 2006, Metropolitan Transportation Commission
[31] MTC "511 Strategic Plan," April 2006, Metropolitan Transportation Commission

transportation for elderly and disabled, seniors, low-income/welfare-to-work, minority and limited-English speaking populations, among others groups and the general public. MTC implements the “Community of Concern” program which provides resources to work with local communities to develop Community Based Transportation Plans. Such a plan – the Gilroy Community Based Transportation Plan – was developed for the rural areas of Santa Clara County.

MTC works in a collaborative fashion with Caltrans to oversee the FTA 5316 and 5317 funds for the rural areas and the 5310 program for both urbanized and non-urbanized areas. MTC also works with local entities in the San Francisco Bay Area through the Lifeline Program. In 2005, MTC established the interim Lifeline Transportation Program to fund projects that result in improved mobility for low-income residents of the nine San Francisco Bay Area counties. On January 5, 2006, the VTA Board of Directors authorized the General Manger to execute a Cooperative Agreement with the County of Santa Clara to develop and administer the Lifeline Transportation Program in Santa Clara County. This approach is innovative in that it by design brings the largest provider of social services/emergency services (County) and transportation (VTA) together for decision making and provides a linkages with regional transportation planning (MTC). This agreement established a Joint Lifeline Transportation Committee (JLTC) to solicit, review and recommend projects to the VTA Board, the County Board of Supervisors and MTC. OUTREACH, as a nonprofit, has been a recurrent recipient of Lifeline funds which enables the provision of services in both the rural and urban areas of the County.

MTC also has a lead role in the technical planning for transit and transportation in the Bay Area and sponsors training, including paratransit. MTC has a multiplicity of roles given it administers the 511 system, has a lead role in joint emergency training exercises in the region, takes a leadership role in regional fare programs, automated bridge toll systems, among many other activities that impact transit and transportation. OUTREACH has been a partner with MTC since the 1970s in the areas of special needs transportation, paratransit, welfare-to-work/employment services transportation, ITS, coordination, mobility management, emergency preparedness, among other joint interests.

Chapter 3 – OUTREACH Key Stakeholders/Partners

3.1 Formulating a Team of Stakeholders/Partners

Key Stakeholders and partners in any rural area mobility management project must be comprised of individuals from different segments of the community who are essential to the effort of coordinating mobility changes both day-to-day and during emergencies. This becomes the "team" that will push this effort, forge the additional partnerships needed, do the research, seek resources/funding, and so forth. Building such teams can be challenging, and there are grant programs and opportunities that a rural area can explore. Two such team training opportunities utilized by OUTREACH are associated with Easter Seals and CTAA.

The Easter Seals' "Project ACTION" Mobility Planning Services Institutes is a three-day program. The program includes organized lectures from mobility management experts and additional sessions available to interested parties who may desire further information about special topics, such as funding, marketing, effective advocacy, service coordination, rural systems, and many other community-based issues. At the conclusion of the program, your team will present a mobility management plan to the other teams in attendance for critique and feedback. This is an excellent program for broadening your understanding of the processes involved in creating a MMC.

Step 1: OUTREACH attended the Easter Seals Mobility Planning Services Institute in 2007 with team members from disability/independent living/paratransit; senior/aging, social services/immigration/refugees, and employment service/CalWORKS. Team members were from both agencies and programs serving such populations, and half the team included consumers/participants of such services. Easter Seals has an excellent ability to accommodate sight-impaired team members and other team representatives with diverse disabilities. After returning to California, members of this team became active stakeholders in the technical advisory body to MTC's process to develop the region's Coordinated Plan; the Coordinated Plan development for Santa Clara County; and an implementation of the Gilroy Community Based Plan. Members of this team became acutely aware of the challenges of mobility for vulnerable populations during times of disaster and emergencies. This understanding led to additional training for such circumstances.

CTAA's "Institute for Transportation Coordination" involved each team developing an action plan for their community and a plan to include additional support from CTAA after the in-person training at the Institute. The CTAA process provides a 90-day through 12-month action plan format.

Step 2: OUTREACH expanded their team to include Caltrans and Emergency Services and wrote a successful application to the CTAA Institute for training. This team attended the 2008 Institute with team members from disability/independent living/paratransit, senior/aging, social services/immigration/refugees, employment service and CalWORKS, as well as Santa Clara County Fleet and Logistics/Emergency Services and the Caltrans Division of Mass Transportation. This team returned to California to become the key stakeholders and advisors on this project.

OUTREACH understands that not all rural areas may be able to attend such "free" training but there are many quality training opportunities now on-line and/or via live phone and web conferences. Additionally, in California there are other excellent opportunities, such as RTAP through CalACT, which were previously discussed in Section 2.1 of this paper.

The strength and effectiveness of a MMC depends largely on the partners and stakeholders. Key stakeholders/partners in the development and ongoing operation of OUTREACH's MMC include the groups and organizations mentioned in the following sections. Similar organizations may serve similar roles in the development of MMCs in other rural or small urbanized regions.

3.1.1 Office of Emergency Services

The Santa Clara County Office of Emergency Services is tasked with preparing the County "to respond to emergencies which threaten life, property, or the environment."[32] In the event of an emergency, the County Office of Emergency Services - Emergency Operations Center (EOC) will be activated, and as it functions as the Operational Area lead agency, the MMC will coordinate the emergency response for Santa Clara County and will act as a "single-point-of-contact" for state and federal agencies. The activation of the EOC will "facilitate the sharing of information between the county, the Operational Area cities, and other agencies. This allows the EOC to efficiently:

- Meet the immediate needs of people (rescue, medical care, food, shelter, clothing);
- Work towards temporary restoration of facilities essential to the health, safety, and welfare of individuals (sanitation, water, electricity, road, street, and highway repairs); and,
- Meet the rehabilitation needs of people (temporary housing, food stamps, employment).

[32] http://www.sccgov.org/portal/site/oes/, Santa Clara County, Office of Emergency Services website.

The participation of the various County departments in the development of the MMC's Emergency Preparedness Planning was invaluable on many fronts including but not limited to:

- Advising on vehicle typing and fleet considerations that was later integrated into the Fleet Inventory Resource Management (FIRM) system;
- Advising on the review and selection of alternate communications systems for OUTREACH testing as part of this project; and
- Advising on GIS compatibility for mapping between MMC and County on different databases and database exchanges for different purposes.

3.1.2 Non-profit Organizations

Non-profit, human service provider organizations are important partners/stakeholders in the MMC because:

- They represent many of the individuals served by the MMC;
- They are often the origin and destination for many of the MMC riders seeking services;
- They may also be providers of transportation through operating their own fleet of vehicles or they may contract with small or large transportation providers and taxi companies or provide vouchers or fare subsidies for paratransit and other services; and,
- They can be active transportation coordination partners resulting in more shared vehicle rides and lowered individual trip costs.
- They are first in line with their clients in the event of a disaster or emergency occurs during their service hours.

3.1.3 Federal, State, Regional, County, and Local Governments

FEMA, Homeland Security, and FTA staff and resources were consulted throughout this project, especially in the area of emergency planning and mobility for vulnerable populations. Publications and on-line training from these agencies were particularly valuable to this project and can be accessed by any rural area. The resource section of this paper (Appendix J) has information on many of these materials. It should also be noted that these agencies do return phone calls and are willing to provide guidance.

On the State level, the project is also indebted to Ms. Kimberly Gayle, Office Chief, Caltrans Division of Mass Transportation-Federal Transit Grants Program and Richard Devylder, Special Assistant to the State Office of Emergency Services, for their support and guidance in the development of the MMC's Emergency Preparedness Planning efforts.

On the regional level, materials from SUASI provided additional information for

emergency planning for the region. From the transportation perspective, OUTREACH has participated in the MTC forums to address issues and challenges in preparing paratransit for emergencies in the region. MTC has also rolled out its FY 09-10 emergency training technical plan for all types of transit and transportation and these documents are available as is the ability to participate in the exercises. One such MTC exercise occurred 10/13/09 and involved several of the mobility management partners on this planning grant.

On the County level, in addition to the Santa Clara County Office of Emergency Services, other local government agencies that have supported the project's Emergency Preparedness Planning efforts include: the Santa Clara County Emergency Managers Association (EMA), City of Gilroy – Police and Fire Departments, City of Gilroy-Housing and Community Development Department, City of Morgan Hill-Police Department, and the Santa Clara County Fleet and Facilities Department.

The County of Santa Clara's Social Services Agency has been a long-time partner supporting OUTREACH social services and senior services for 30 years; and a long-standing partner supporting OUTREACH's CalWORKs (JARC) transportation services for over ten years.

VTA partners with OUTREACH for paratransit services, emergency planning, and by administering and contracting with OUTREACH for Lifeline services for seniors and low-income persons. VTA directly provides marketing to seniors and provides Travel Training; OUTREACH makes monthly referrals to that program.

3.1.4 Community Based Organizations

In addition to the non-profit organizations identified above, OUTREACH has long-time partners in the local area agency on aging, the Council on Aging-Silicon Valley, the Silicon Valley Council of Non-profits, the Health Trust and other organizations that serve the interests of the community's vulnerable populations.

3.1.5 Volunteers

Important volunteer-based organizations that are stakeholders and partners in the MMC include Collaborating Agencies Disaster Relief Effort (CADRE), the local National Voluntary Organization Active in Disaster (VOAD), and the American Red Cross – Silicon Valley Chapter. Volunteer-based organizations that are active partners with the MMC include a number of organizations that provide transportation services through a corps of volunteers. These volunteer driver organizations include: Heart of the Valley-Services for Seniors, Avenidas Senior Centre and Adult Day Care, Catholic Charities-Project Daybreak, and LOVE, Inc. (a faith-based group).

Technical volunteers (local and from Texas Tech) and software programmers, Ham

radio operators among others, were critical to the vision and design of the web portal, and the selection and testing of communications systems to link the MMC to public agencies and also back to private transportation providers and nonprofit parents/health and human service agencies.

3.1.6 Others

Other key stakeholders include local health care providers including Kaiser Hospital, Santa Clara Valley Medical Center among others and private sector transportation companies and taxi companies.

Chapter 4 – Rural Area OUTREACH MMC Impact Summary

4.1 Summary of Mobility Management Concept Delivery for Rural Component (South County)

This mobility management grant was to enable planning, coordination, partnerships and to procure limited capital such as small communication equipment in rural Santa Clara County. Concepts derived from such mobility management grants may require alternative funding sources for operations, implementation, and related activities in a rural area. It is understood that plans, derived from the mobility management grant process, will influence how existing and future funding, services and activities may be enhanced or added in a rural area. It is further understood that the planning process and outcomes are consistent with the Public Transportation-Human Services Coordinated Plan (Coordinated Plan) and the Gilroy Community Based Transportation Plan.

The detailed case study conducted by OUTREACH, including the step-by-step activities on this local rural project, is available in Appendix B.

MTC defined Gilroy as a "Community of Concern" given its concentration of minority residents (78.2%) and low-income (below 200% of the federal poverty level) persons (42.5%).[33] Other factors in the Gilroy area include lower auto ownership, higher transit dependency, and more persons with limited English residing within this "Community of Concern."

As the following map indicates, the rural section surrounding Gilroy is approximately 20 miles south of the largest city in the County, San Jose, with a population close to 1 million persons. While Santa Clara County is home to over 1.7 million persons, only about 80,000 reside in the southern rural sections of the county. South county residents utilizing OUTREACH transportation services take 1,000 to 2,000 passenger trips per month.

[33] Transportation 2035 Plan for the San Francisco Bay Area, Equity Analysis Report, MTC. February 2009, p.9.

Figure 9: Map of Rural Area of Santa Clara County (Gilroy area)

The Coordinated Plan provides a starting point for the development of mobility management concepts to coordinate human services transportation in a rural area. The Coordinated Plan, coupled with the Gilroy CBTP and other plans, provides the process and foundation for this project through the completed elements:

1) Assessment of available services that identifies current transportation providers including public, private and nonprofit;

2) Assessment of transportation needs for individuals with disabilities or older adults, based on plans, data collection efforts, identifications of needs and gaps in services, etc.;

3) Identification of strategies, activities, and/or projects to address the identified gaps between current services and needs, as well as opportunities to achieve efficiencies in service delivery; and

4) Priorities for implementation based on resources (from multiple program sources), time, and feasibility for implementing specific strategies and/or activities identified.

An update to these community assessments was conducted in July 2009 to capture any changes to the project area's transportation resources resulting from the impact of state and local budget cuts.[34]

The Coordinated Plan (Chapter 2), Low-Income Component, identifies barriers in terms of transportation information, including employment transportation, and identified the following public information solutions:

1) Create a local transportation center to serve as a one-stop shop for transportation information.

2) Institute collaborative approach to mobility management among local agencies.

Similarly, the Coordinated Plan (Chapter 6), Elderly and Disabled Component, also identifies public information gaps about transportation options as well as mobility management concepts cited in the Coordinated Plan (Chapter 7) as a solution for improved coordination.

OUTREACH utilizes this foundation from the Coordinated Plan and the Gilroy CBTP (coupled with updated community assessment activities) and vitalizes this information through the collaborative planning process with key stakeholders and participants undertaken as part of this Caltrans planning grant.

This project broadens the planning horizon; the project adds stakeholders and participants from the arena of emergency preparedness and response. The goal is to bring together those from the emergency planning arena to work together with those from the social service and transportation coordination arena. With the addition of these individuals with expertise comes a wealth of plans, documents, resources, and trainings from federal, state, regional, county and local public, private and nonprofit organizations. These project participants bring not only expertise in emergency preparedness and recovery but, given their responsibilities, they are natural advocates of emergency preparedness and response and transportation and evacuation for persons with varying functional abilities, paratransit riders, seniors, low-income persons, and so forth. Herein is the synergy between mobility management concepts for day-to-day enhanced coordination health and human transportation coupled with emergency preparedness, response and recovery.

This mobility management grant transformed a highly coordinating ITS brokerage into a MMC in order to incorporate and sustain all of the mobility management concepts that would be developed during this grant. To facilitate this transformation, OUTREACH MMC Technology Plan and Emergency Operations Plan were created. The following figures illustrate the pre-project infrastructure (Figure 10) and the post-project infrastructure (Figure 11).

[34] The surveyed results of this assessment are available in Appendix C, Table 6.

Figure 10: Pre-Project: ITS Brokerage with Enhanced Call Center

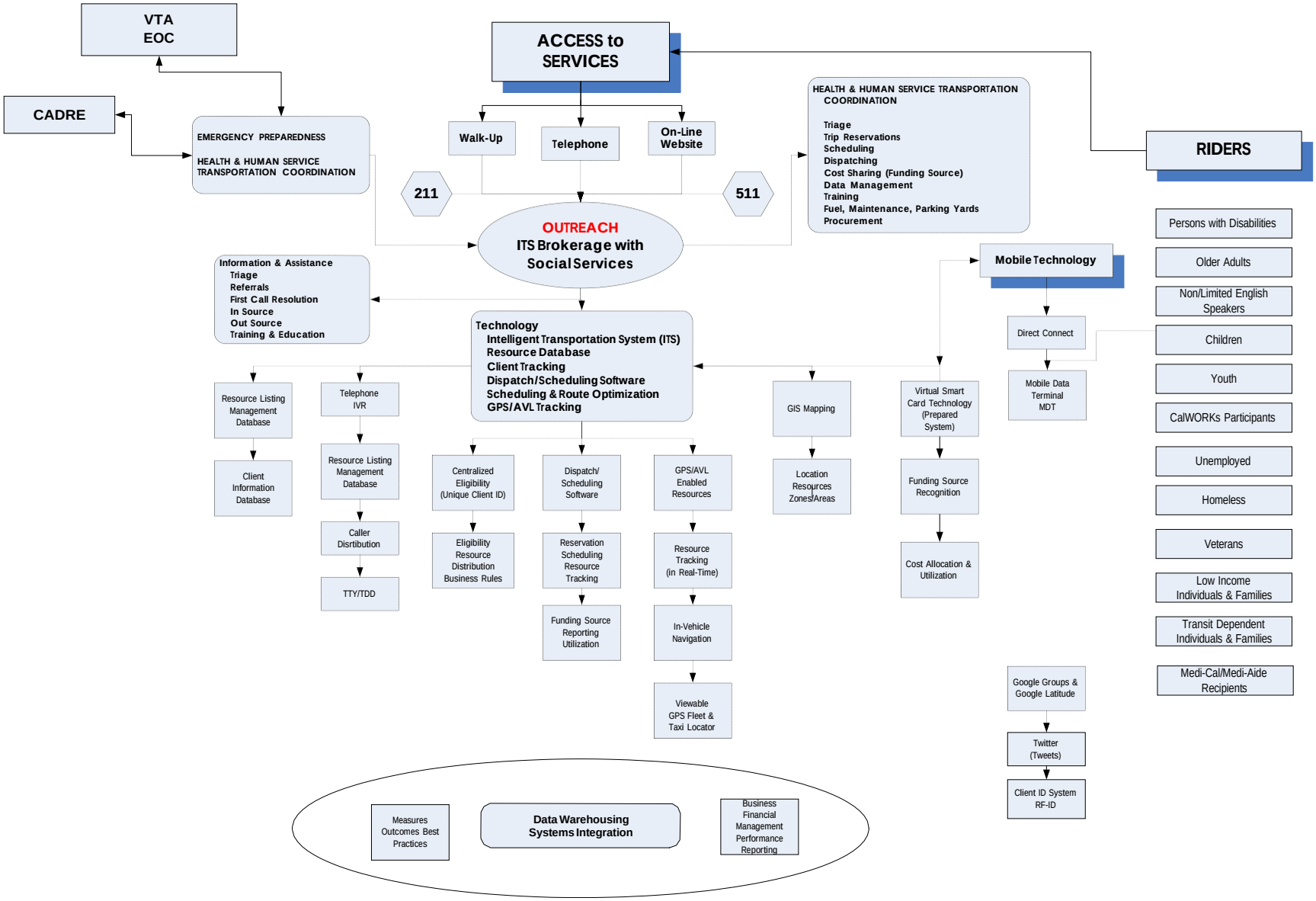


Figure 11: Post-Project: MMC with Enhanced Call Center

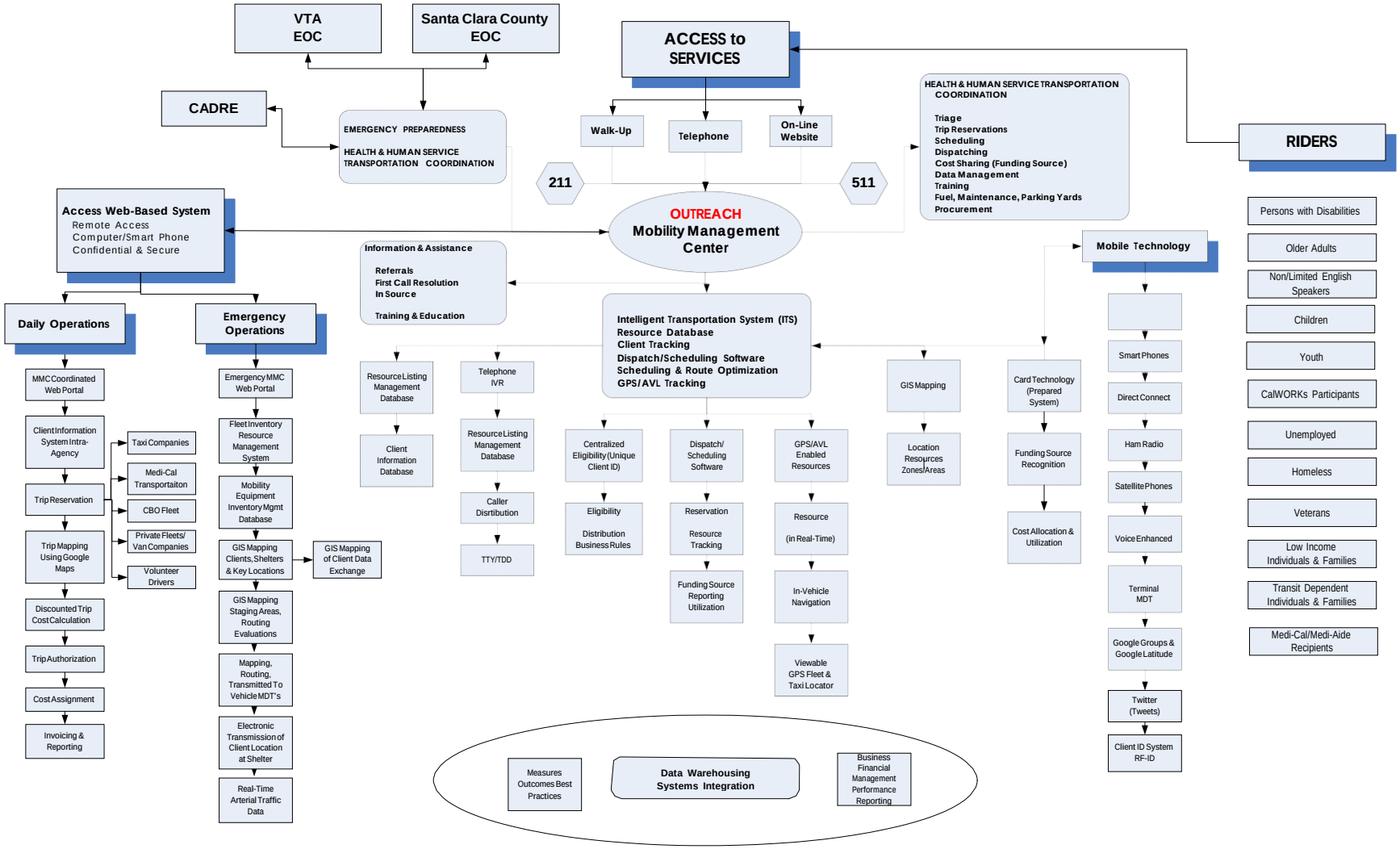


Figure 10 "Pre-Project: ITS Brokerage with Enhanced Call Center" reveals:

- An already extremely robust brokerage system with linkage with 2-1-1 and 511;
- An enhanced call center with advanced call accounting and quantifiable statistics in place;
- An IVR system for automated trip cancellations, confirmations and bookings;
- A single entry for eligibility for multiple programs and services;
- Digitized map integrated with automated scheduling, vehicle routing and tracking with AVL/GPS in place;
- Complex cost-accounting, pre-paid individual client accounting and automated cost distribution system for reporting, invoicing and reporting;
- Primary linkage for emergencies is with VTA and CADRE (Collaborating Agencies Disaster Relief Effort); and,
- Emergency Operations Center (EOC).

Figure 11 "Post-Project: MMC with Enhanced Call Center" reveals:

- A MMC that includes a robust ITS brokerage with a suite of new Web Tools for Daily Operations and Emergency Operations for coordinating health and human services transportation and resources;
- Expanded Mobile Technologies, especially communication options;
- Strengthened linkages between 2-1-1 and 511 through interaction, planning and infrastructure changes in the OUTREACH enhanced call center system;
- Broadened linkages for emergencies with other public agencies like County OES in addition to VTA and CADRE;
- Broaden customers beyond contracted participants such as Certified Eligible ADA Paratransit riders, or authorized CalWORKS participants, to include the general public and agencies and individuals accessing services through IT web tools outside of the traditional contractual arrangements; and,
- Enhanced Emergency Operations Center (EOC) with external linkages.

The following table illustrates **OUTREACH Outcomes and Impacts** associated with the planning project and related activities.

The **OUTREACH MMC Emergency Operations Plan** in table format is in Chapter 5.

The **OUTREACH MMC Technology Plan** is grouped by Enhanced Call Center items, ITS items followed by the Mobility Management and Cloud Computing (Web) items. It is found in Section 6.

Table 1

OUTREACH Outcomes and Impacts

	Outcomes Achieved	Consistent with Coordinated Plan	Documentation Example of Enhanced Activity Secondary to Integrating MMC Concepts
MMC combining ITS, Web-Based Systems and Emergency Planning		Consistent with Gilroy CBTP	Applying Mobility Management Concepts through the synergy of diverse funding and partnerships
Customers			
Serve more customers/more types of clients/access or mobility for all/service on demand			Examples include rides (partner is managed care MediCal provider agency) being performed via MMC web portal TripNET; Employment riders using stimulus funds (partner is County of Santa Clara).
One-stop for users/easier for users/information on all choices/better services			Two strategies – Enhanced call center of ITS Brokerage and new MMC web portal.
Expand service to transportation for jobs			Continued use of JARC funds for CalWORKS transportation; added new Bikes to Work Program; New employment transportation program in conjunction with County of Santa Clara utilizing $1 million in ARRA funding.
Increasing outreach and information			Linkage with 2-1-1 improved via enhanced call center changes; Enables 2-1-1 to make referrals for mobility management services in a coordinated fashion for Santa Clara County.
Passenger as part of the solution			Suite of Mobility Options allows customers to manage trip vouchers, gas cards, volunteer rides, and other strategies consistent with Coordinated Plan.

	Outcomes Achieved	Consistent with Coordinated Plan	Documentation Example of Enhanced Activity Secondary to Integrating MMC Concepts
Providers			
More providers/include small operators			Additional taxis companies and MediCal providers via MMC web portal. Brings to the table additional providers that may not routinely contract with a brokerage due to size or limited resources.
More multi-modal interaction			MMC web portal allows social service agencies to manage trips for their clients/members including fixed route, taxi, etc.
Share vehicles of different groups			Expansion of sharing vehicles with adult day care centers and regional centers for developmentally disabled.
Operations			
Enhance delivery/coordinate and streamline/transparent to user			MMC Web Portal TripNET – User-friendly dashboards are seen by the social service agency making the trip reservation and the transportation provider in their dispatch center who can select to perform the trip with a click of a mouse. The complexity of the software is not transparent to the user.
Efficiency/eliminate duplication of paper work or service			MMC web portal coordinated fleet inventory system (FIRM) averts fragmented spreadsheets with inconsistent data and provides one point of contact for emergency operations.
Benefits of centralized dispatch and scheduling			MMC web portal tool (TripNET) links social service agency with transportation providers for real-time and future reservations and real-time dispatch, trip completion, and transportation company performance.
Centralized information hub, possibly operation hub			Enhanced call center combines referrals from 2-1-1 and 511 with social service delivery and transportation services. 511 directly links to paratransit calls. Future activities will be to work

	Outcomes Achieved	Consistent with Coordinated Plan	Documentation Example of Enhanced Activity Secondary to Integrating MMC Concepts
Operations (continued)			
Centralized information hub, possibly operation hub (continued)			with 511 to directly link other types of health and human service calls directly to the MMC as feasible.
Unified billing			Existing virtual card and robust billing software for ITS brokerage allows unlimited fare or vendor portion of rides to be distributed or billed to multiple third parties or funding sources. This system expanded for new types of customers including more employment trips. The MMC web portal provides new tools that enable health and human service agencies to generate invoices and reporting for trips, with fares calculated using Google maps and shortest distances used to control cost per trip. The portal also allows management of multiple other resources such as gas cards, bus passes, etc.
Technology for more effectiveness or better service[35]			MMC web portal provides numerous tools for trip reservations, GIS mapping of trips, fare calculations; robust fleet inventory system for everyday use and logistical purposes during emergencies; GIS mapping of key locations and rider categories for Emergency Preparedness; Utilization of Mobility Management funds to test communications equipment to enable improved connections between OUTREACH and public and private partners during emergencies and disasters; Applied for and received grant aware (State Propositions 1B funds in

[35] Information on equipment testing available in Appendix H.

	Outcomes Achieved	Consistent with Coordinated Plan	Documentation Example of Enhanced Activity Secondary to Integrating MMC Concepts
Operations (continued)			
Technology for more effectiveness or better service[36] (continued)			2009 via regional Lifeline program) to test and procure a redundant digital radio system fleet wide for linking to transportation providers and social service partners.
Reduced cost			Examples: Reduced cost per trip in shared vehicle arrangements; reduced cost per trip using MMC web portal Trip Net due to mapping and routing efficiencies.
Green Vehicles and Energy Efficient Strategies			ITS brokerage increased hybrid vehicles from 82 to over 100 between 2007 and 2009 (vehicle owned by VTA and OUTREACH); In 2009 OUTREACH applied to regional Lifeline Transportation Program (JARC funds, STA funds and state Proposition 1B funds) for limited operational funds for employment related passenger trips and capital funds to introduce all electric vehicles and for chargers. These plug-in vehicles shall enable increased coordinated ridership (vehicle sharing) comprised of persons with varying abilities/disabilities, homeless, low-income needing rides to Food Banks, etc.
Riders from different funding sources travel together			Expanded prior practices with new arrangements - Paratransit riders transported with senior center/adult day care riders on their van and fares for the paratransit riders subsidized by third party (County); similar vehicle sharing program between paratransit and regional center (developmentally disabled).

[36] Information on equipment testing available in Appendix H.

	Outcomes Achieved	Consistent with Coordinated Plan	Documentation Example of Enhanced Activity Secondary to Integrating MMC Concepts
Approach			
Start small then expand to more areas or providers			In 2009 beta testing TripNET with one MediCal managed care plan which serves the low-income MediCal population in the County. TripNet can be used by any type of organization with any type of customers.
Regional rather than county/inter-county coordination			The MMC TripNET allows social service agencies to book trips to locations through the region and does not limited to artificial county boundaries.
Phased approach to ease transition for users and providers			Vehicles are being entered into FIRM one agency at a time, including adult day cares; providers of services to persons with developmental disabilities, etc.
Built on current robust system			ITS system and local call center enhanced and new MMC.
Build partnership with and across public agencies with different roles and responsibilities for emergency planning			Increase awareness of the role of paratransit and coordinated health and human service transportation programs and resources in emergency planning, particularly for the mobility challenges of populations with varying functional abilities, low-income persons, transit dependent and/or without autos, limited English speakers, homeless, seniors, and others who may need support during a disaster or emergency.

	Outcomes Achieved	Consistent with Coordinated Plan	Documentation Example of Enhanced Activity Secondary to Integrating MMC Concepts
Paratransit			
Paratransit – Expanded services beyond ADA			Subsidies including County Nutrition funds for eligible riders attending nutrition programs in rural areas; Subsidies for low-income paratransit riders from local cities; Joint enrollment in Senior Transportation program when appropriate offering rider choice and lower-cost service; Joint enrollment in JARC programs when appropriate for employment trips; Referred interested parties to VTA's Travel Training Program; Connections to fixed route bus and rail; Connections to trips with segments connecting to fixed route and segments at end of fixed route portion so rider has seamless multi-modal trip (riding fixed route is free with OUTREACH picture ID card); Integrated social services (benefits counseling/problem solving for social security, Medicare/MediCal, housing assistance, energy assistance, etc.) Expanded fleet with 5310 vehicles; Continue to provide premium services per VTA policy beyond the ADA including Same day trips; Will-Calls/Open Returns; Out of Service Area Trips; Second Vehicles; etc

	Outcomes Achieved	Consistent with Coordinated Plan	Documentation Example of Enhanced Activity Secondary to Integrating MMC Concepts
Employment-Related Transportation			
Job Access and Reverse Commute (JARC) Guaranteed Ride Program			Rides to and from community colleges, County employment offices; to training and jobs. Integrated social services (benefits counseling/problem solving for social security, Medicare/MediCal, housing assistance, energy assistance, etc.)
Job Access and Reverse Commute (JARC) Low-Income Flexible Transportation for CalWorks and Low-Income Children			Rides for the children of CalWORKS and Low-income families while eligible parent is training or working.
Job Access and Reverse Commute (JARC) Trip Planning and Travel Training			Using 511 individualized travel plans with CalWORKS and low-income individual in conjunction with County case worker to build a portfolio of transportation options for mobility (transit passes; Guaranteed Ride Program, etc.)
Car Repair Program			Expanded. Coordinating with County Social Services and California State Auto Club Car Repair (CSAAA).
Car Loan Program			New program partnering with County of Santa Clara.
Bike -to-Work Program			New program partnering with County of Santa Clara; partnering with bike advisory groups and nonprofits.

	Outcomes Achieved	Consistent with Coordinated Plan	Documentation Example of Enhanced Activity Secondary to Integrating MMC Concepts
Employment-Related Transportation (continued)			
Employment Transportation – Stimulus funds			New ARRA Stimulus funding for employment transportation.
Senior Transportation Services			
Improve transportation options for older adults			Provides bus passes; Connections to fixed routes; Free and discounted taxi rides; Integrated social services (benefits counseling/social work); Planning for new senior shopping van to begin in FY 09-10; Coordinated with AAA (Area on Aging) for subsidies.
Coordination of vehicle sharing.			Coordinated with adult dare care for vehicle sharing resulting in greatly reduced cost per trip and joint cost-sharing of County nutrition program, paratransit program, and adult day care van program.

Discussion on the Rural Planning Project - Direct and Indirect Impacts and Outcomes:

The impacts and outcomes in Table 1 in part reflect the specific guiding principles of the planning grant which bring together several different subject matters reflective of the range of efforts underway in the state and coming together because of the common interest in mobility management. To reiterate these guiding principles as stated in Section 1.2.

1) A focus on coordinated mobility management in rural areas as an integral element of the development of a statewide technology and emergency operations plan as outlined in the "2-1-1 California State Business Plan";

2) The use of mobility management concepts to coordinate human services transportation and emergency preparedness planning consistent with the needs and strategies identified in rural area Public Transit-Human Services Transportation Coordination Plans;

3) Mobility management concepts that include information technologies that interface with 2-1-1 call centers and County Emergency Services departments for improved coordination of service calls and transportation in response to an emergency;

4) A focus on the non-urban/rural areas of Santa Clara County;

5) A focus on creating employment services transportation options;

6) A focus on strategies that reduce carbon emissions to help mitigate climate change; and

7) A focus on strategies that promote vehicle sharing as promoted under "United We Ride."

It is worth noting that these principles are very broad given they cover such varied topics as 2-1-1 systems, 511 systems, Coordinated Plans, and emergency preparedness. Each of these topics alone is complex; combining them through a mobility management planning effort into one MMC is also challenging. However, as this planning project reveals, it is possible and the effort can result in a wide range of direct and indirect or related impacts and outcomes given this synergy.

An example of this synergetic process is the positive outcomes, impacts and results linked to the Coordinated Plan. Stakeholders engaged in rural planning grant activities concurrently partnered in other successful endeavors. Table 1 (also Figure 2) shows the addition of new funding for employment transportation using stimulus (ARRA funds matched with TANF); and Prop 1B funds to create a pool of hybrid and plug-in electric

vehicles with charging stations in multiple areas including Gilroy, for vehicles-sharing across vulnerable populations; and Prop 1B funds for capital dollars for procuring alternative communications equipment beyond the testing amount for actual operations. Table 1 also reveals that there are improvements to routine operations that can be enhanced as a by-product of the intensified dialogue and communication among partners working in unison on a planning grant. Specifically, advancement in vehicle sharing arrangements resulting in significantly reduced cost per trip is one such value added outcome.

In terms of direct results, the grant expenditures are informative. OUTREACH received FTA rural planning grant funds from Caltrans to conduct a planning study using mobility management concepts for the coordination of human services transportation and emergency preparedness planning in rural areas. The grant predominately supported planning and coordinating activities, supplies, and funds for procuring communication equipment for testing in order to make planning recommendations for the MMC project (See Chapter 5, Emergency Operations Plan, Table 2 and Appendix H). Overall, the planning aspects of this project were successful.

What is unique about this planning grant is that it spurred simultaneous infrastructure, partnership, technology, service, and changes well beyond the scope and resources of the planning grant. As the planning activities unfolded, OUTREACH, stakeholders, partners and volunteers began to seek ways to actualize ideas in the present as opposed to realize systematic change and to innovate. The OUTREACH MMC web system that serves as a one-stop approach for a standardized fleet inventory system (FIRM) and provides a range of GIS mapping features for emergencies, is the same system that will allow a health and human service agency the everyday IT tools they need to make reservations and manage trips and associated business functions (TripNET) and/or access tools for a Suite of other Mobility Options such as virtual vouchers, volunteer programs, gas cards, etc. Coordinate usage of these tools by health and human service providers also creates the cooperative climate for sharing information on transportation resources, coordination, funding levels, resources, volume and so forth in a centralized and non-threatening manner. Once again, it is the synergy of these functions into one seamless point of entry that captures the full functionality of the MMC.

A dollar value on the time devoted by volunteers from many of the technology companies has not been estimated but OUTREACH is very grateful for the hundreds of hours invested in this project. In addition, OUTREACH invested some of its own nonprofit funding to support the volunteer efforts with professional software programmers as these tasks were well beyond the scope of the planning grant. Given such IT development costs can be prohibitive to rural areas; OUTREACH is open to sharing its IT tools as long as the cost to support and maintain these tools is shared among users.

Chapter 5 – Emergency Operations Preparedness

5.1 Emergency Preparedness

Californians as individuals, communities, and members of local government must be prepared for a range of natural disasters ranging from wild fires and mud slides to floods and earthquakes and tsunamis (as in Del Norte County in 1994).[37] Additionally, Californians must consider the possibility of acts of terrorism as having a high priority in many parts of the state.

Whether it is a natural or man-made event, mobility management for rural areas is based on the coordination of 2-1-1/511 information systems with accessible human services transportation providers to ensure that elderly, disabled, and low-income individuals will have access to much-needed transportation services in the event of an emergency.

MMCs have an important role to play in the event of a terrorist threat, natural disaster, or other emergency incident as a principal transportation coordination planner among public and private transit/transportation providers (large and small) and health and human service agencies. An MMC has access to a detailed inventory of vehicles owned and operated by community partners and the ability to communicate with community partners during a disaster, enabling the MMC to play a useful role in the evacuation and relocation of vulnerable populations. The ability to exchange client data in compatible formats with First Responders to assist in the identification and location of vulnerable individuals will save time during the early stages of a disaster and enable First Responders to deploy their personnel and resources more efficiently and effectively.

The OUTREACH MMC Technology and Emergency Operations Plans include elements that utilize technology to address coordination of accessible human services transportation providers. OUTREACH's technology solutions have GIS-mapped over 20,000 at-risk county residents, the County's network of emergency shelters and staging areas, licensed nursing facilities, health care facilities, and potential evacuation routes. Other technology solutions have catalogued over 400 community-based vehicles that could be deployed in the event of an emergency and established a back- up communications system to ensure the uninterrupted flow of data and information between OUTREACH, the County's Emergency Operations Center, VTA's EOC, and the project's primary community partners.

[37] *Tsunamis Affecting the West Coast of the United States, 1806 - 1994*, Lander,J, Lockridge,P

5.2 Formulating an Emergency Operations Plan

5.2.1 Make Transit a Full Partner If Transit Is Not a Lead Agency in the MMC

As previously acknowledged in this paper, it may well be that transit is the lead in an MMC (one viable approach). In other approaches, transit needs to be a full partner.

In areas where transit is a full partner in local emergency evacuation plans, transit agencies have been involved in the development of such plans and are part of the designated emergency command structure. As a result, it is recommended that transit agencies participate with emergency management agencies and departments of transportation when evacuation plans are developed and be full partners in the command structure established to handle emergency response and evacuation. To the extent that transit agencies are recognized as full partners in emergency evacuation plans, they will have to shoulder new responsibilities and costs and should therefore be eligible for cost reimbursement with other first responders. Transit agency personnel should be considered essential personnel, along with representatives of police, fire, and emergency medical services, when asked to assume a major role in emergency operations. Transit agency centers should be linked with those of emergency management agencies. Transit should have the capability for real-time interoperable communications (both voice and data), be part of the decision-making team for emergency operations, develop effective ways of communicating with transit passengers in advance of and during an emergency, and participate in annual exercises and drills that involve multiple agencies and jurisdictions.

The OUTREACH MMC represents health and human services transportation linked to transit through Paratransit in the rural area. As the paratransit provider under contract with the transit agency, OUTREACH:

- Operates the largest wheelchair accessible fleet in the area;
- Operates the largest dedicated fleet in the area;
- Has multiple taxi contracts and arrangements with large and small providers;
- Is in the chain of command with the transit agency (VTA); and
- Is the largest provider of senior transportation and community transportation in the rural areas.

OUTREACH has contracts in place with many layers of transit including federal, state, regional, and local which enables joint planning and mutual assistance. OUTREACH engages in training with transit (VTA, MTC, and regional transit agencies) and counties (regional) for emergency preparedness.

5.2.2 Formulating an Emergency Operations Plan – Step-by-Step Instructions

In order to coordinate transportation services before, during or after a disaster, the mobility management program must have tools and resources to effectively carry out this responsibility and must have the planning in place. While acknowledging that the following steps are not exhaustive, they are likely a good starting point from the point of view of mobility management. The following steps may guide a rural area to maximize your knowledge of emergency-preparedness plans and resources to ensure that the MMC will be better-equipped to deal with such operations in the event of a disaster:

1) **Enhance Partnerships**: Stakeholders and/or key partners need to be from those entities that engage in emergency preparedness in the rural area. There is a need to indentify as part of the planning process all of the stakeholders beyond the project in order to make sure MMC project team can be informed of the entire arena of emergency preparedness planning in general and what is being considered in terms of vulnerable populations, transportation, communication, etc. Several sample partners are identified in Section 1.3 and Chapter 3.

2) **Coordinate with Transportation Partners**: The MMC can coordinate the preparation and sharing of materials for vehicle operators with transportation provider partners and other stakeholders. This will enable uniform training, standardize information and communication protocols, and provide guidance for actions during and after a disaster or emergency. In addition, the MMC can help facilitate arrangements for vehicles, qualified back-up operators, and fuel and maintenance services during and after disasters and emergencies for fellow health and human service agency fleet and other large and small transportation providers.

3) **Acquire Knowledge**: All parties, especially those outside of the emergency preparedness field, have to be willing to educate themselves with training, publications, resources, conversations, meetings, and so forth with federal, state, regional, county wide, local resources for emergency preparedness planning in your rural area. Examples include FTA, FEMA, Homeland Security, State OES, Red Cross, and other volunteer groups, etc.

4) **Coordinated Emergency Action Planning and Continuity of Operations Planning**: The MMC project needs to promote coordinated training for development of more robust Emergency Action Plans (EAP)[38] and a Continuity of Operations Plans (COOP) among health and human service agencies, with guidance from key emergency services, emergency planning

[38] Emergency Action Plan (EAP) template: http://www.osha.gov/SLTC/etools/evacuation/implementation.html, Occupational Safety and Health Administration, US Department of Labor

and response entities, and transportation and transit entities. This will foster planning for sheltering in place as well as detailed plans for transportation of one's own agency clients in case the regular providers cannot perform the trips; to allow health and human service agencies to share their mobility and transportation challenges and plan for coordination of shared vehicles (via the MMC fleet inventory system) to assist each other directly with assistance by the MMC; to enable a mechanism whereby an agency can share or seek resources (vehicles, vehicle operators, and durable medical equipment) through the MMC; and allow the MMC to be the point of contact for emergency services and transit/transportation entities to seek transportation assistance for transporting vulnerable populations.

5) **Training/Exercise**: The MMC project needs to work with all parties to be able to establish the chain of command and the protocols that will be utilized in order to fit into that process in a meaningful way. Ensure all parties secure NIMS training. Engage in training and exercises with your stakeholders/partners and other external entities.[39] There are many opportunities on the statewide, regional and local levels through partners. This process allows one to identify further steps, actions and equipment needed for the MMC.

6) **Identify Potential Alternate Communications Systems for Use by MMC Health and Human Service Agencies**: The MMC project needs to assess the communication systems and/or affordable equipment and access to determine how the MMC will communicate with public agencies as well as with their riders and health and human service agencies (project specific information in Table 2 and Appendix H.). This is very important as the health and human service agencies serving vulnerable populations will not likely have access to robust communications systems that may stay operative during emergencies like the First Responders may have. This is a critical role for the MMC. Concurrently, determine MMC linkages with 2-1-1 (if 2-1-1 is in your rural community and/or another source of local information and referral) and with 511 (if 511 or similar service is in your rural community) and what information may be exchanged and how during disaster and recovery.

7) **Assess Communication Tools**: At a minimum, the MMC needs to be connected to the transit EOC and County EOC via satellite phones. Consider and test a wide range of systems including but not limited to ham radio (must get sufficient number of persons trained and build relationship with external volunteer ham radio groups), base and portable satellite phones; digital radio systems, access to GETS (Government Emergency Telecommunications Service) dialing cards, WPS (Wireless Priority Service) and new web and smart phone based options, etc. If there is a "First Alert" system in your rural area, make sure MMC is part of that system and assist with the enrolling of

[39] For a list of recommended training sessions, please see Appendix D.

the vulnerable population so they can directly receive “First Alert” messages. The MMC project may need to research affordable additional communication strategies and equipment to fill in communication gaps, or to add redundant layers, to communicate with vehicle operators, health and human service agencies, riders, and public agencies and key volunteer groups.

8) **Database Exchanges and GIS Mapping:** Review and identify the needed database exchanges that can allow the MMC to GIS map and filter a number of different variables such as shelters, at-risk populations, staging areas for vehicles, licensed nursing facilities and other key locations like hospitals and dialysis centers, to determine evacuation routes, etc. Identify any barriers to exchanging databases, such as compatibility factors with addresses and mapping databases, file formats, and resolve with appropriate agreements. Determine compatibility of GIS systems among key stakeholders as part of planning process to avert any issues later. Determine in advance who will access and maintain the data and what protocols will be used for First Responders to access during disasters and emergencies.

9) **Maintain Your Inventory**: A uniform, standardized vehicle inventory system of paratransit and health and human services needs to be compiled as part of the MMC project. This inventory can assist agencies with 5310 vehicle applications as well as other purposes in addition to the logistical value of planning for emergencies. Consider using a web based fleet inventory system (FIRM) like the one developed by OUTREACH to save time and development on this time consuming task. While this information is confidential, secure and observable by only the organization inputting data, the full database will become fully available to emergency response personnel upon the declaration of a disaster or emergency. FIRM can also be used to create an inventory of durable medical equipment (DME) that includes wheelchairs, walkers and other assistive devices that could be distributed if individuals are forced to relinquish their personal equipment during an evacuation. Concurrently, vehicle operator resources (non-profit, paratransit, private transportation companies, etc.) are also catalogued.

10) **Identify Location Issues**: Identify other needs and gaps such as coordination by the MMC of tracking which riders transported to which shelters or locations and/or which of these may need to be picked-up and dropped-off multiple times during their shelter stay in order to go to dialysis or other trip purposes. Consider those vulnerable populations unable to communicate for themselves. Identify solutions, both manual (sign in and out sheets) and technological (e.g. RFID technology is being tested by OUTREACH) to be used by drivers or the MMC shelter teams, for this tracking and interaction. MMC staff and partners need to participate in accessible shelter planning. Using RFID technology, this system is capable of creating a digital record of the location of a system passenger. RFID is also capable of containing an encrypted data file that could include detailed health

care information, medication requirements, etc. for those individuals who have ongoing medical, health care related needs that would be of value to emergency responders and emergency shelter staff. RFID technology can also be used for tagging durable medical equipment and pets, mobility devices among other items essential to the well-being of vulnerable populations.

11) **Review Your Plan**: The MMC project may need to assess its own EOC and determine what needs to be added, enhanced, or changed in order to be viable and sustainable during and after a disaster and emergency. The roll of the MMC to assist with the coordination of inventoried vehicles is essential to the mobility needs of vulnerable populations. Depending on which approach taken to create a MMC, that entity may already be a part of the emergency services EOC or transit system.

5.3 Emergency Preparedness Partners

Because of the strict protocols required of emergency response efforts, it is essential that the mobility management program coordinates its planned operations with both public emergency authorities and community partners. The following lists, although specific to Santa Clara County, provides sufficiently general information readily adaptable to another rural area depending on the context:

- County Office of Emergency Services: the mission of the Office of Emergency Services is to prepare Santa Clara County to respond to emergencies which threaten life, property, or the environment. Under the Standardized Emergency Management System (SEMS), the County's Office of Emergency Services has been designated by the County's Board of Supervisors as the Operational Area (OpArea) lead agency and OpArea Coordinator in Santa Clara County,

- Santa Clara County Emergency Managers Association: an association of Emergency Planning personnel representing the cities within Santa Clara County that serves as the liaisons between the individual cities and county's emergency planning teams,

- CADRE (Collaborative Agencies Disaster Relief Effort): is an organization that unites community-based, non-profit organizations in disaster preparedness, response and recovery activities within the County of Santa Clara. A major role that CADRE plays in emergency preparedness planning is the Vulnerable Population Coalition Plan which is a cooperative approach designed to identify, define and formulate a protocol for local emergency managers and first responders to deliver more effective disaster services to those with special needs. The Vulnerable Population Coalition Plan is the result of a collaborative effort among the various emergency services and community-based

organizations (CBO) that are currently involved in serving the needs of this special portion of the population. CADRE is a VOAD – Voluntary Organization Active in Disasters (see box below). These organizations exist in most counties and regions across the nation,

- American Red Cross - Silicon Valley Chapter: plays an instrumental role in disaster preparedness training and emergency response. The American Red Cross is responsible for the operation of emergency shelters throughout the county in the event of a disaster,

- 211 Santa Clara County: as noted earlier, the primary source of disaster information for residents of the rural areas of Santa Clara County,

- ARES/RACES (Amateur Radio Emergency Services/Radio Amateur Civil Emergency Services): provides amateur radio emergency support for emergency responders during a disaster. This group also provides training on "the Fundamentals of Emergency Communication" and Ham radio study and license exam sessions, and

- OUTREACH: as the MMC and primary provider of human service transportation in the rural and non-rural areas of Santa Clara County.

State Office of Emergency Services and Caltrans:

Conversations with the aforementioned, Richard Devylder, Office of Emergency Services- Office of Access and Functional Needs, Special Advisor to the Director, and Kimberly Gayle, Office Chief of Federal Transit Grant Programs in the Division of Mass Transportation-Caltrans, were critical in guiding the project's emergency preparedness planning activities. Details of statewide emergency preparedness planning efforts provided by Ms. Gayle and Mr. Devylder were used to shape many of the strategies adopted by OUTREACH to prepare for emergency events.

Voluntary Organizations Active in Disasters (VOAD):

A VOAD is an organization in each state or region that works to keep CBOs informed and involved during times of disaster. When a disaster occurs, VOAD members meet at the disaster sites to coordinate the many services that the community members provide.

It is important the MMC determine where it fits with its partners in terms of national and local command structures. Figure 12 and Figure 13 provide an overview for the OUTREACH MMC respectively.

Figure 12: NIMS – FEMA National Incident Management System: Communications Overview: Federal to Local

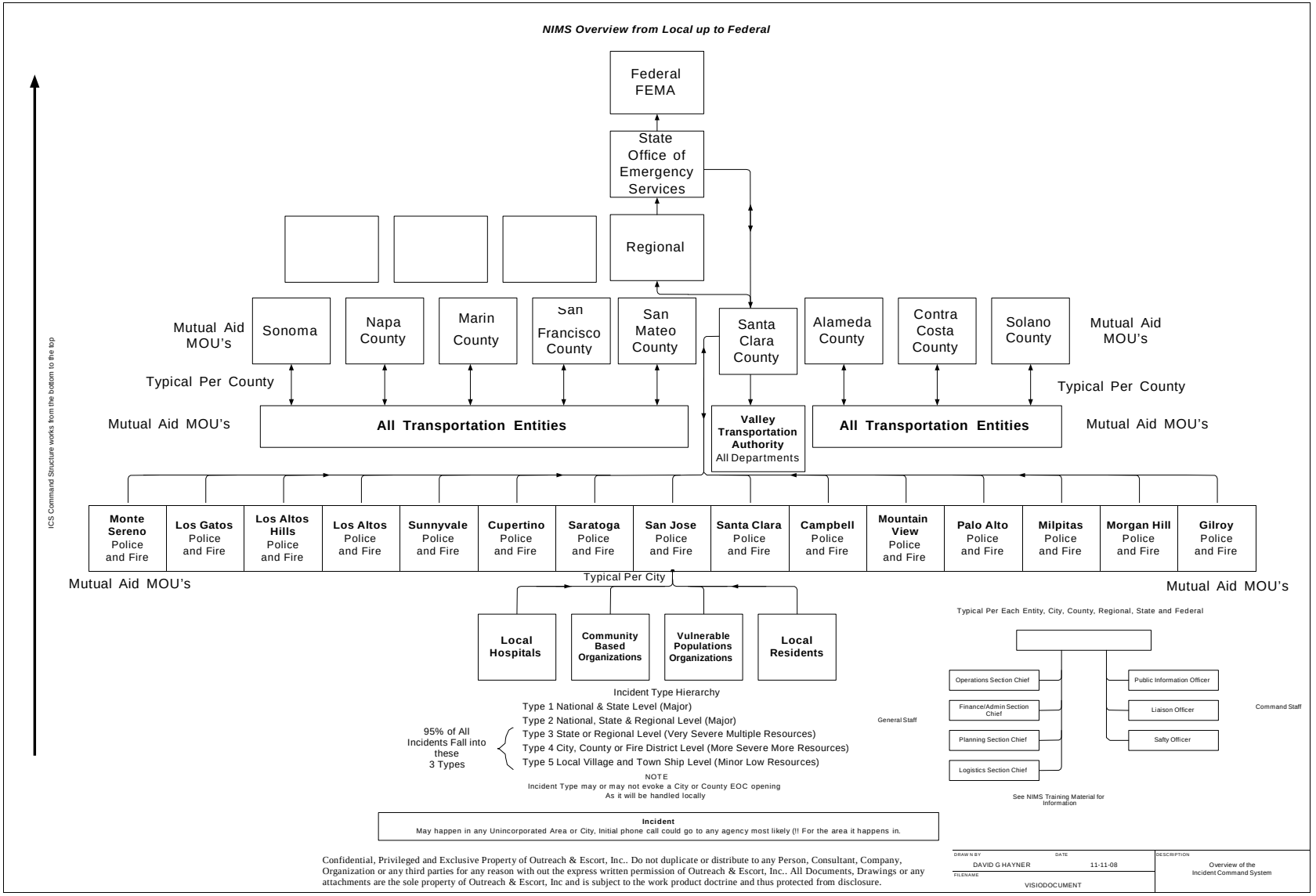
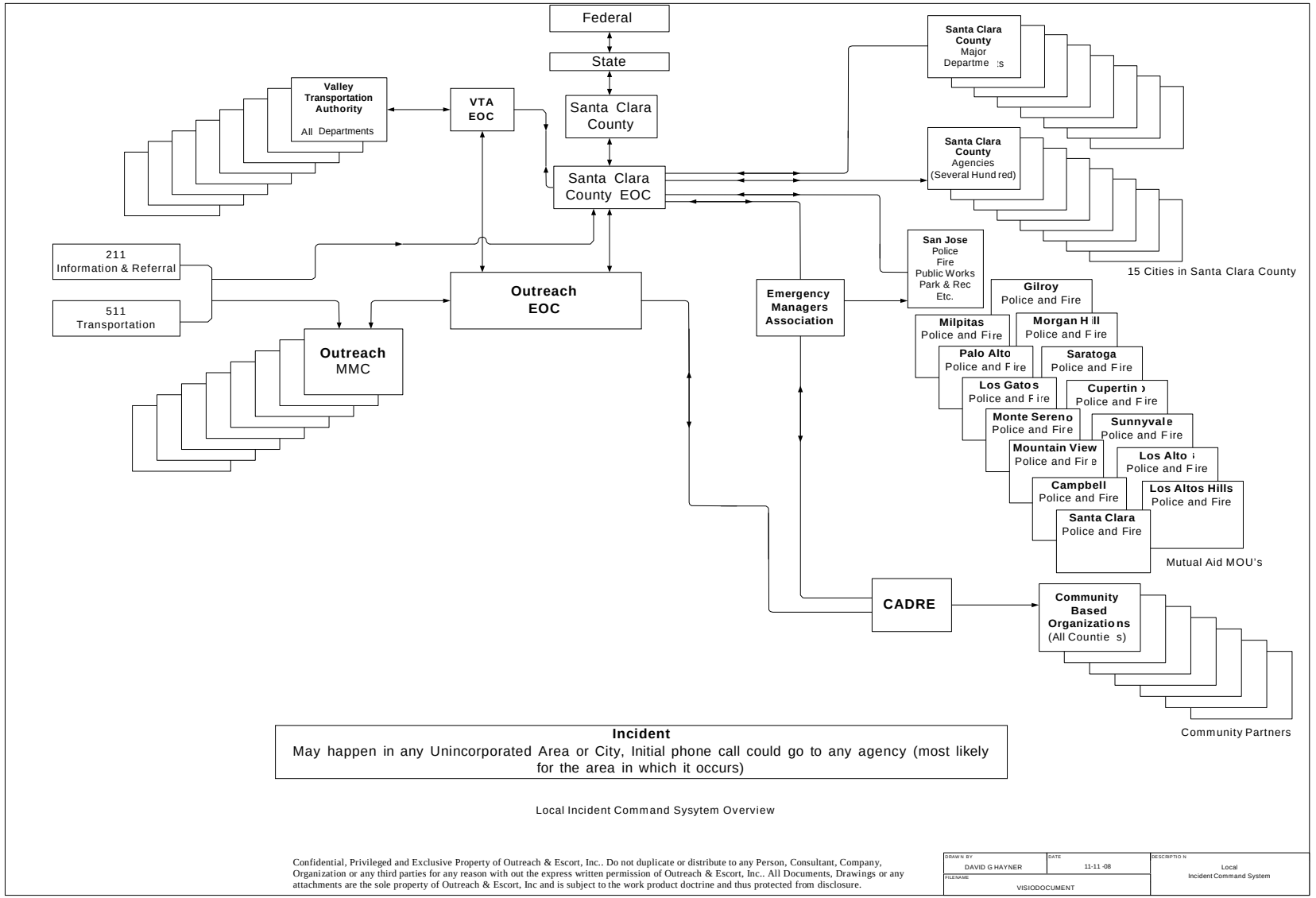


Figure 13: NIMS – FEMA National Incident Management System: Communications Overview: Local



5.4 OUTREACH Emergency Operations Plan

A significant part of this demonstration project involved the role of an MMC as part of emergency preparedness planning concerning vulnerable populations and the integration of the health and human service transportation agencies that serve them and may transport them. Table 2: OUTREACH Emergency Operations Plan follows and delineates activities that were taken as part of this rural area planning project. While Table 2 is breaks down one of the deliverables of this planning project, the content in Table must be considered in light of the other project deliverables:

- Transformation of the ITS Brokerage into a MMC as depicted in Figures 10 and 11 accompanied by Table 1: OUTREACH outcomes and Impacts; and

- Table 3: OUTREACH Technology Plan.

Table 2

OUTREACH Emergency Operations Plan

Baseline Technologies/Activities	Before MMC Project	MMC Concepts Applied During Planning Grant Project	Status, Activity, Related Efforts
MMC Technology Plan, Coupled with Emergency Operations Plan	Brokerage with ITS	Brokerage with Enhanced ITS	Caltrans MMC Grant provided for planning activities and small capital equipment. OUTREACH supplemented with alternative funds and volunteers for software development activities
Training and Education			
NIMS Protocols and Procedures			Staff required FEMA coursework completed.
Exercise/Training with External Parties			Training with County Emergency and Logistical Team; Training with County, VTA and MTC.
Emergency Action Plan (EAP) Continuity of Operations Plan (COOP)			Updated EAP and COOP completed in 2008 through a Department of Homeland Security Grant administered by the County OES involving non-profit health and human service agency participants planning together. EAP and COOP template available to MMC to assist additional nonprofits to plan. Complete Manual with Charts and Procedures. EAP included Electronic and Hardcopy Book of Drawings of All Equipment, Facilities (HVAC, Electrical etc.), Systems (Phone and Data) and Database to support all functions at three sites, including two back-up sites; locating Virtual PBX located out of state.

Emergency Coordination Partners			
Linkage with 2-1-1 for public information during disasters/emergencies; 2-1-1 has seat in County EOC.			2-1-1 has seat in County OEC which is linked by Satellite phone. OUTREACH enhanced call center to accept increased capacity from 2-1-1 for mobility and transportation assistance.
Linkage with 5-1-1 for highway system updates and related transportation and transit information			Provided Mobility Managers and Operational staff second monitor for 5-1-1 access.
Leadership with CADRE (Collaborating Agency Disaster Relief Effort), an association of community based organizations planning on sharing resources and meeting needs of other agencies, clients, and the public.			Received 2008 agency award from CADRE for Fleet Inventory Resource Management (FIRM). CADRE leadership also includes United Way and American Red Cross. Mobility Management tools introduced to CADRE by OUTREACH to recruit social service agencies to place vehicles in FIRM.
Enhance partnerships			Coordinated team participated at CTAA Institute to develop coordinated plan. Members included Gilroy Emergency Manager, Santa Clara County Logistics, and Representatives from Area on Aging and County Employment Services, and Caltrans. Broaden to include advisors from federal, state, regional and local agencies and volunteer and nonprofit associations.

Manager Association (EMA) and the EMA's Vulnerable Population subcommittee.			Coordination on-going via CADRE and additional meetings.
Fuel and Maintenance			Fuel and maintenance services secured during and after emergency through County of Santa Clara
Emergency Communication Systems			
MMC Emergency Operations Center linked to County Office of Emergency Services and VTA EOC.			Direct satellite phone link to both VTA EOC and County EOC. Satellite phone for County connection purchased by Caltrans grant. Collaborating on connecting to first alert systems with both entities. OUTREACH secured GETS (Government Emergency Telecommunications) dialing card.
Ham Radio Licensed Staff and Equipment			Testing units procured by Caltrans grant; 6 staff persons became licensed operators
Digital two-way radios			Tested units procured by Caltrans grant; testing to determine rural coverage and potential usage by social service agencies coordinating with OUTREACH.
Portable Satellite Phones			Tested units procured by Caltrans grant; testing to determine rural coverage. Critical equipment for collaborative staging areas with public and private partners during emergencies.
Alternative Communications Tools for staff, vehicle operators, external third parties including social service agency partners.			Testing tools and devising standardized usage for Google Latitude, Twitter, Facebook, Skype messages, direct-talk/walkie-talkie, etc.

New Technology Tools			
Linkage with ITS and Web System for fleet inventory system, GIS mapping, vehicle routing			Fleet inventory includes not only hundreds of accessible vans, but also taxis and equipment such as manual wheelchairs, etc. GIS mapping of at-risk populations with filtering by types, shelter, key locations, licensed nursing facilities, travel routes to shelters and evacuation routes.
Database Exchanges for At-Risk Pops for GIS mapping and ease of location and evacuations			Exchanged data set samples with County GIS mapping unit to test compatibility with OUTREACH GIS data used in ITS system and for web applications for mapping shelters, hospitals, licensed nursing facilities, and defined “at-risk” populations.
Other Emergency Preparedness Items			
Shelter Accessibility Evaluation Training for Staff			Staff participated in shelter study and shelter accessibility training with coordinating health and human service agencies, County OES staff, and other stakeholder.
RFID - Radio Frequency Identification Technology Project for shelter drop-offs.			Joint project with Texas Tech graduate student to develop application and project protocols; Will seek grant to fund equipment and materials.
Vehicle Operator materials			Developed revised vehicle operator handbook for emergencies; multi-language assistance cards to facilitate communication with non-English speaker passengers; first aid information; communication protocols and alternatives; progressive staging areas

Chapter 6 – Call Centers, Intelligent Transportation Systems and Information Technology

One of the primary guiding principles of this project was the 2-1-1 California Rural Mobility Management Planning Study (February 2009) plan; the information contained in the following sections is in part consistent with that plan. For some readers the topics are very familiar and for others, the topics may be less familiar in whole or part. Many of the following sections in 6.1 and 6.2 are intended to be briefly descriptive of topics like enhanced call centers and ITS features and are consistent with the above cited planning study. When relevant, specifics from the OUTREACH experience are provided as in sections 6.1.4 and 6.2.6 and 6.3. Table 3 provides the OUTREACH MMC Technology Plan, which is one of the deliverables of this rural area planning project and should be reviewed in context with Table 1 and Table 2, as overall these activities converge in practice.

6.1 Call Centers

In Section 6.1.1 and 6.1.2 provide an overview on call center technology and differences between local and enhanced call centers. Figure 14 profiles a local call center while Figure 15 depicts an enhanced call center as these were derived from the 2-1-1 study cited above. Section 6.1.4 describes the OUTREACH Enhanced Call Center and Figures 16-18 provide supporting information as does Table 3: Technology Plan.

6.1.1 2-1-1/511 Call Center (I & R) Systems

"Technology" includes telephone systems, telephony, telecommunications, I & R software packages, directories on diskette, and self-service mechanisms such as automated attendants/interactive voice response systems, fax-on-demand, community kiosks and searchable I & R databases on the Internet. [40]

6.1.2 Enhanced Call Centers (ECC)[41]

Enhanced call centers have robust capacity to serve multiple counties and offer coverage for overflow, nights/weekends, and emergencies with complete 24/7/365 services and sophisticated technology. ECC's:

- Are CPUC-approved for one or more counties;
- Provide complete, comprehensive I & R services 24/7/365;

[40] AIRS Standards, Version 5.2, Revised May 2007
[41] 2-1-1 California Business Plan, October 2005

- May be designed to serve a combined population of 4 million people or more (to optimize cost effectiveness);
- Provide live services during nights and weekends;
- Capacity to handle spikes in call volume;
- Power backup in case of outage;
- Ability to answer calls with the name of the originating county;
- Data tracking based on standards; and
- Maintain maximum disaster response technology with the ability to re-route calls and investment in redundant technology.

6.1.3 Local Call Centers (LCC)

Local Call Centers maintain a local database and provide information and referral to their capacity with support from an ECC to achieve full 2-1-1 functionality. Local Call Centers provide comprehensive I & R to their capacity and:

- Are CPUC approved for one or more counties;
- Reduce their costs for nights/weekend service and technology by partnering with their ECC;
- Are encouraged to meet the needs of statewide service agreements locally, or to turn to the ECC for support and backup; and
- May opt for the ECC to monitor and maintain their resource database.

6.1.4 OUTREACH Enhanced Call Center

OUTREACH maintains a robust enhanced call center that operates 7 days a week, 365 days per year. The call center is made up of 65 call-taking agents/mobility managers and processes over 160,000 calls per month. The call center is TDD/TTY accessible and has the capability of serving 140 languages through in-house bilingual staff and the AT&T language line.

In addition to the technical characteristics noted in section 6.1.2, OUTREACH's Enhanced Call Center includes:

- 2 Toll-free phone lines;
- Three T1 lines with 72 circuits;
- Enhanced call processor & automatic call distribution;
- ACD hourly comprehensive call accounting and reporting;
- Emergency routing to backup phone lines;
  Multiple alternate communication systems including two-way radio, ham radio, satellite phone, etc.; and
- Interactive Voice Response System (voice & touch enabled) for trip scheduling, cancellations and confirmations.

Additionally, OUTREACH is fully integrated with 2-1-1/511 information systems (figure 16). After researching 2-1-1's infrastructure (Appendix G), OUTREACH made changes in its enhanced call processing in order to identify, accept, and account for 2-1-1 calls. Comparison of Figures 17 (pre-project) to Figure 18 (post-project) shows the difference in the enhanced call system infrastructure. This solution makes the linkages with 2-1-1 more robust without requiring 2-1-1 to expend resources. Additional solutions such as 2-1-1 making direct call transfers to the OUTREACH MMC were beyond the scope and expense of this planning project.

511's automated system is structured so that the voice recognition system will send paratransit callers directly to OUTREACH's phone lines to appropriately serve the caller. The enhanced call center is also able to track all of these mobility management calls. Figure 16 depicts that automatic transfer call now in place for paratransit direct but that also has potential for additional health and human service transportation automatic transfers.

For complex transit programs with multiple calling purposes, Interactive Voice Response (IVR) systems help to seamlessly manage all of those calls. OUTREACH, like other paratransit providers, have IVR systems that are ADA compliant and offer voice and touch features designed with persons with disabilities in mind. This is critical to serving vulnerable populations seeking transportation assistance. The OUTREACH IVR system is also linked to the scheduling software system so that callers can automatically cancel trips, confirm trip reservations and do automatic bookings in multiple languages.

While each rural area may wish to address different needs in any planning effort, OUTREACH has a history of commitment to offering training and employment opportunities on the local level to disadvantaged persons; older adults; persons with varying abilities; emancipated Foster Youth, among others. Creating employment on the local level should be a consideration of what a MMC with an enhanced call center can also do to contribute to the well-being of the communities it serves.

2-1-1/Mobility Management Coordination Concepts

Figure 14: Local Call Center

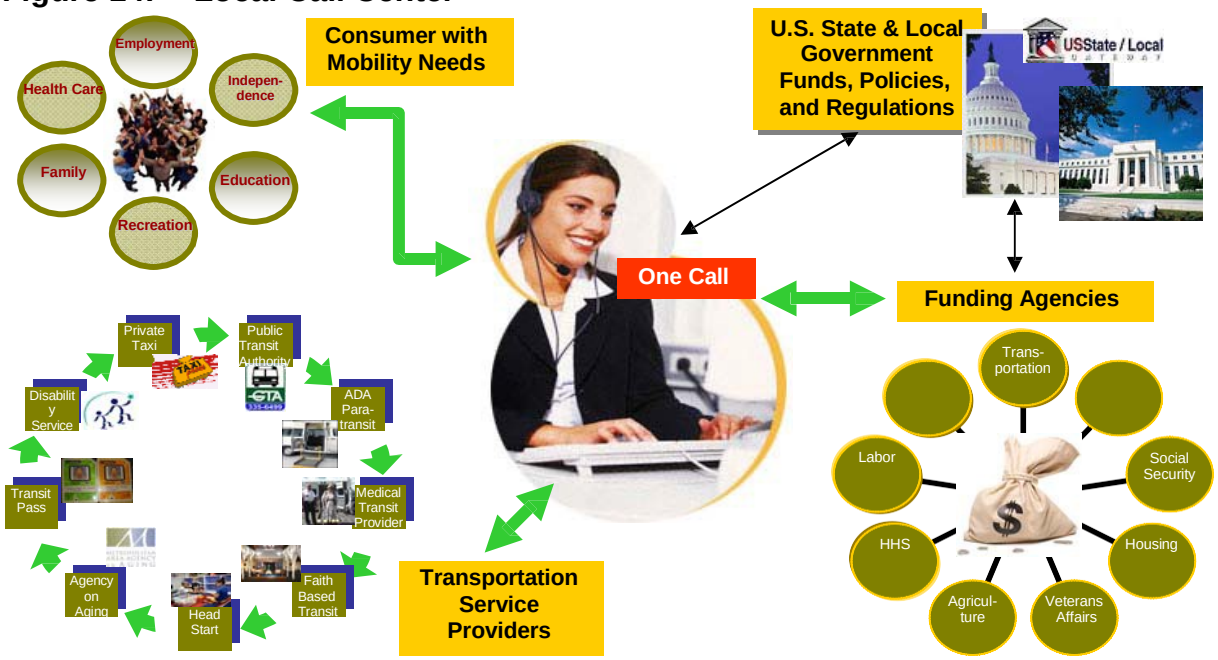


Figure 15: Enhanced Call Center

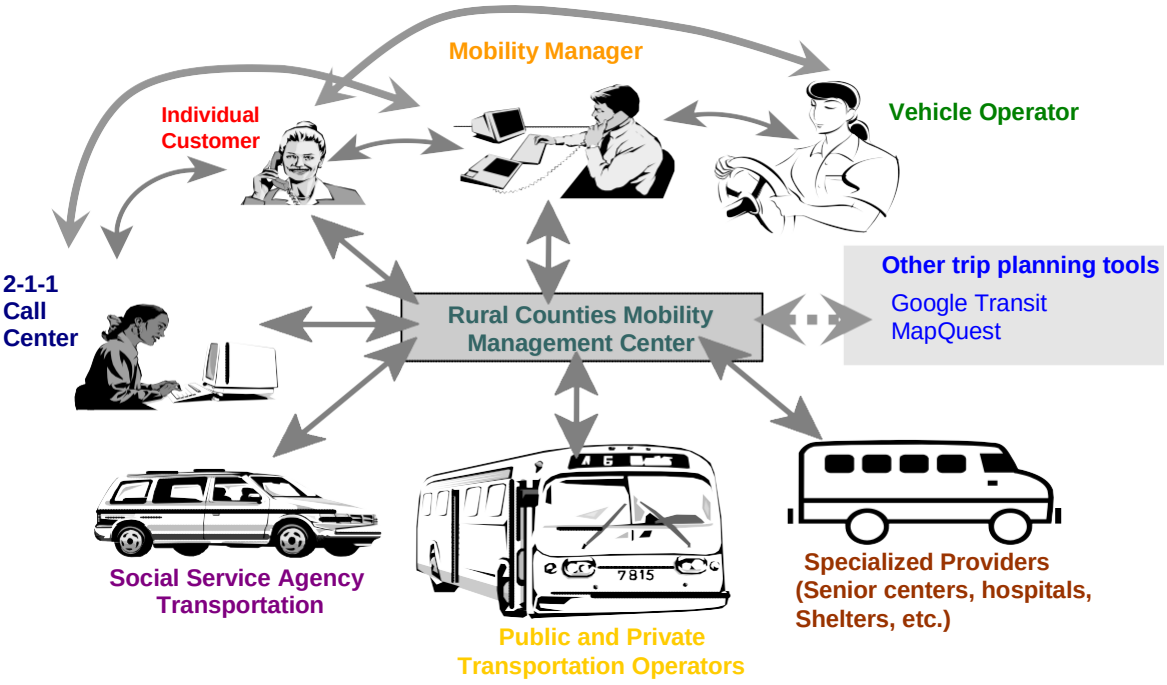
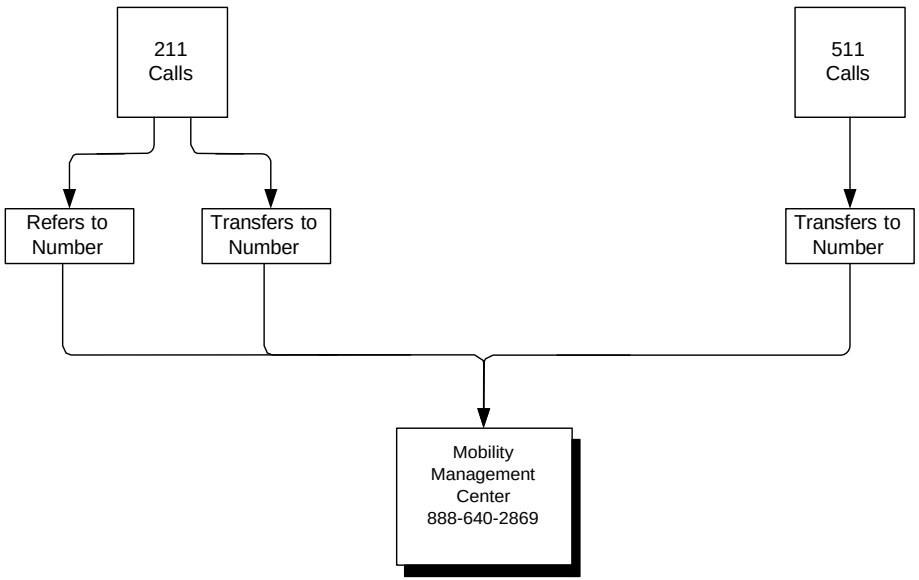


Figure 16: 2-1-1/511 Call Flowchart



DRAWN BY	DATE	DESCRIPTION
DGHayner	2-19-09	Call Flow from 211 and 511 To MMC
FILENAME	VISIODOCUMENT	

Figure 17: Pre-Project: ITS Brokerage – Enhanced Call Center

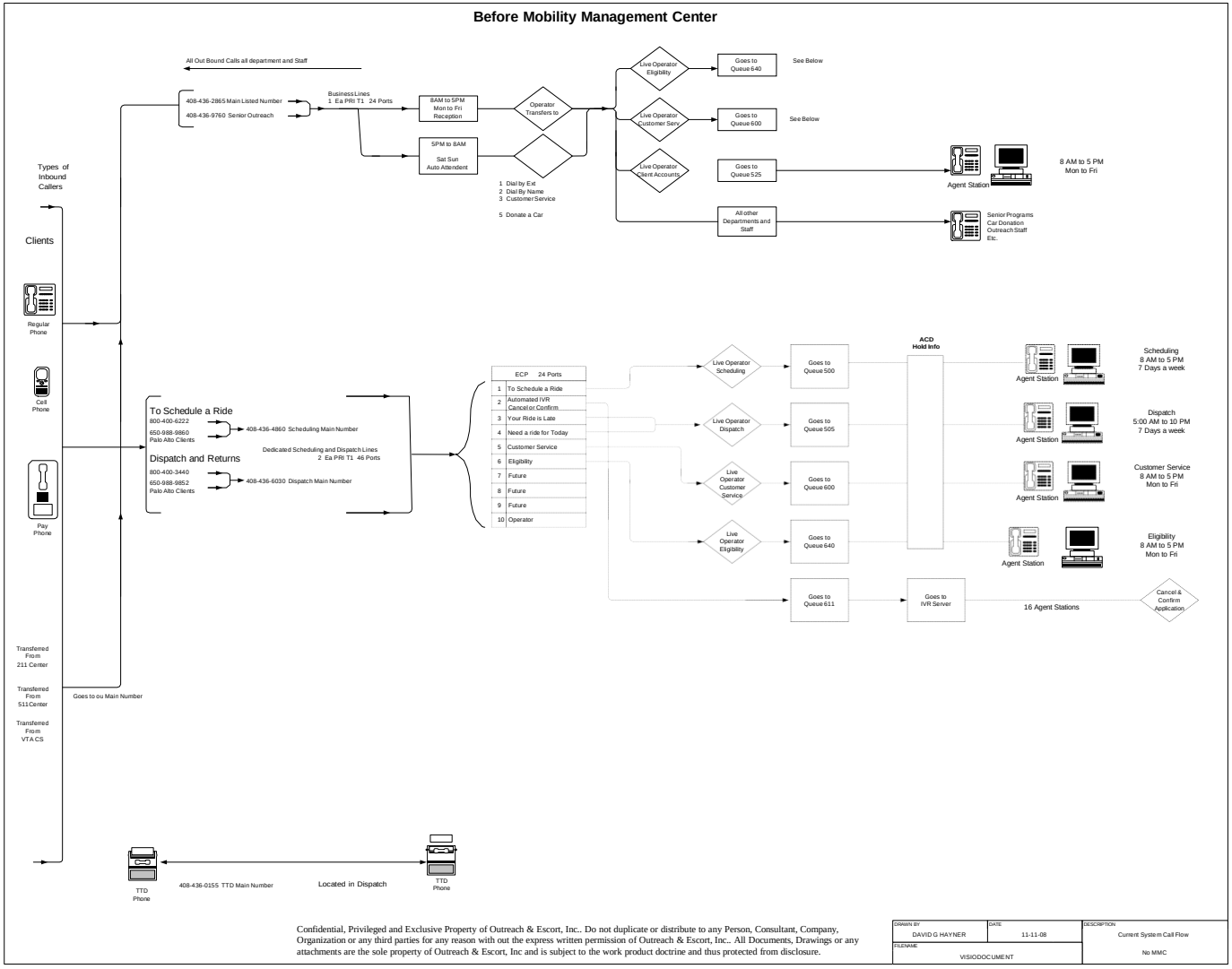
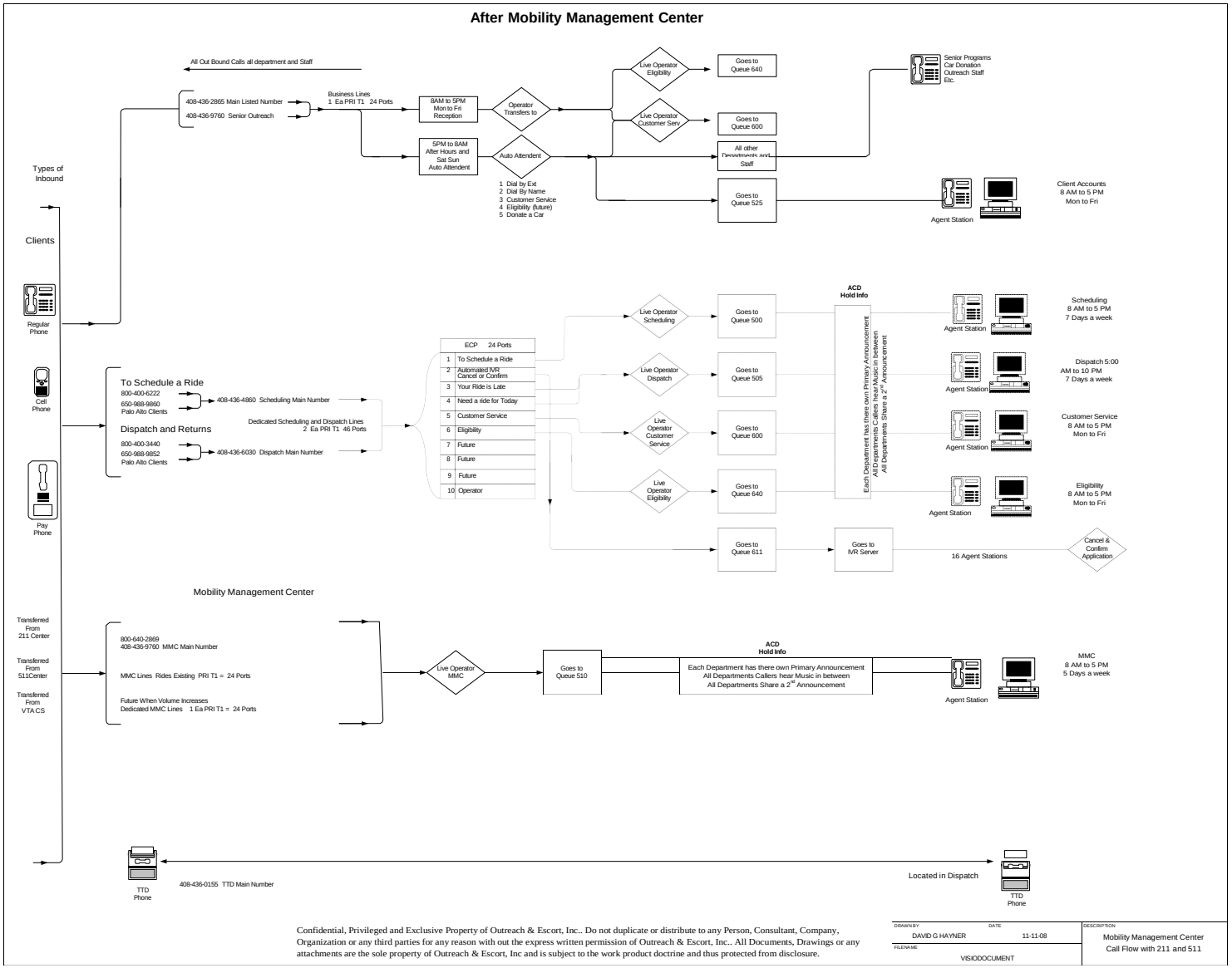


Figure 18: Post-Project: MMC – Enhanced Call Center



6.2 Intelligent Transportation Systems

As referenced in the 2-1-1 state plan, the following functions define Intelligent transportation Systems (ITS) as ITS improves human services transportation planning and operations. Although not fully deployed in rural areas, ITS can be enhanced or integrated with 2-1-1 telephony systems for improved coordination of services.

6.2.1 Customer Management and Eligibility

Customer management and eligibility databases and software allow human service agencies and transportation providers to manage customer account and eligibility information. Information on customers such as eligible funding programs, eligible number of trips, and special needs is maintained and shared seamlessly with other ITS technologies to automate functions such as scheduling, billing, and reporting.

6.2.2 Scheduling, Routing, and Dispatching Software

Scheduling, routing, and dispatching software assists transportation dispatchers in scheduling and routing paratransit and flex-route trips in real time and on a day-to-day basis. It can be used as a scheduling management tool where the software assists the dispatcher in developing trip schedules and routes, or it can automate the process and recommend “optimal” schedules and routes.

6.2.3 Automatic Vehicle Location (AVL)

AVL systems track vehicle locations in real time. This helps transportation providers monitor the locations of their vehicles and helps them manage the operations of their fleets. Vehicle tracking helps to better coordinate transfers of passengers from one provider to another for a seamless trip.

6.2.4 Cost Sharing, Billing, and Reporting

Cost sharing, billing, and reporting software allows human services agencies and transportation providers to calculate shared costs and automate billing and reporting functions. The software uses data from the other ITS technologies - such as scheduling routing, dispatching software, automatic vehicle location systems, and electronic payment systems - to generate invoices and a variety of reports.

6.2.5 Reservation, Cancellation, and Confirmation Systems

These systems allow customers to automatically book, confirm, or cancel trips with a transportation provider via an IVR or voice recognition telephone system and/or via the Internet. The system software (e.g. 2-1-1 telephony system for a telephone based system) is typically integrated with the scheduling, routing, and dispatching software and wireless communications system. It may be integrated with the customer management and eligibility system.

6.2.6 OUTREACH'S Intelligent Transportation System (ITS)

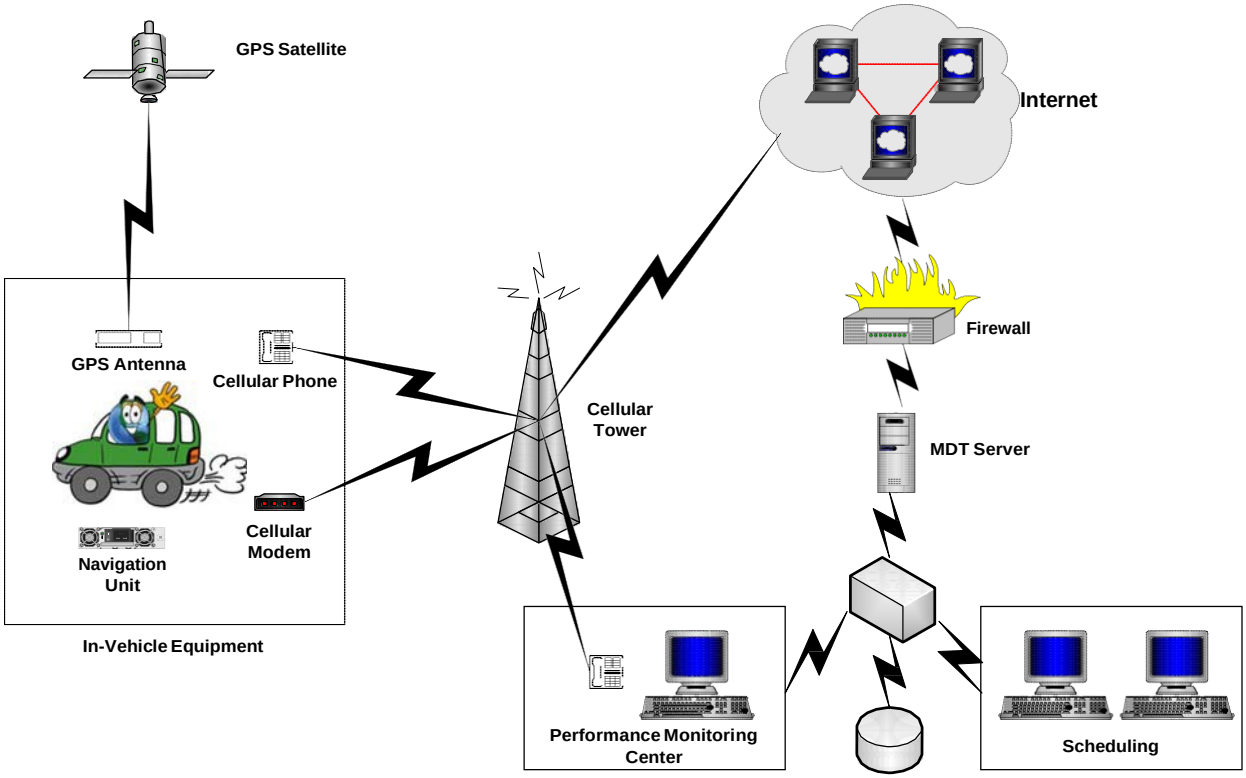
OUTREACH's Intelligent Transportation System (ITS) represents the technology that processes customer calls, schedules ride requests, assigns rides to specific vehicles, routes vehicles and monitors the travel of vehicles during the day of service. The system also maintains client accounts, assigns trip costs to specific funding source accounts and maintains detailed records of each trip.

OUTREACH's Intelligent Transportation System, including AVL/GPS (Automated Vehicle Location/Global Positioning System), was first developed in the 1990s as part of a project that was jointly funded by Caltrans and the Federal Transit Administration (FTA). The software that serves as the basis for the system is a product of Trapeze Software Inc.[42] OUTREACH has worked with partners and volunteers over the year to keep the system state-of-the-art by seeking technological solutions that create an excellent return on the initial investment approach. The system is supplemented by numerous custom designed applications that provide additional control and accountability over OUTREACH's operations. This system represents an excellent return on public investment with improvements that include the Day of Service Operations Center and updated in-vehicle equipment with touch-screen Mobile Data Terminals (MDT's), and voice and text turn-by-turn navigation, mapping, data and voice communication linked to the Day of Service Operations Center.

The figure on the following page illustrates an overview of OUTREACH's ITS system connectivity of between vehicles, monitoring and scheduling components.

[42] Website: www.trapezegroup.com

Figure 19: Connectivity Overview Using ITS



OUTREACH's Intelligent Transportation System (ITS) is comprised of equipment and software that includes:

- Over 150 workstations and servers;
- 50 software applications;
- A GIS Database that enables mapping, routing and navigation;
- Automated scheduling, dispatching and vehicle routing;
- Real-time automated vehicle location using GPS and in-vehicle mobile data terminals; and
- Integrated daily data transfer between business applications and operational software system for scheduling and dispatching, enrollment, client accounting, etc.

Scheduling

Trip scheduling is available through OUTREACH's Enhanced Call Center 365 days per year, from 8am to 5pm, by calling OUTREACH's staff of trained Reservationists/Mobility Managers. In addition to scheduling rides through OUTREACH's many direct transportation service programs, Mobility Managers are also able to simultaneously look-up online information from the 2-1-1 or 511 websites through the use of a dual-

computer monitor system that allows for one monitor to be dedicated to 2-1-1 and 511 information systems. Additionally, riders may also use the ITS automated Interactive Voice Response (IVR) system to schedule trips, confirm scheduled trips or cancel trips.

Scheduling tasks performed by ITS include:

- Automatic rider eligibility check;
- Trip eligibility check for ADA and non-ADA trips;
- On-line address verification;
- Real-time trip pick-up and drop-off time estimates;
- Special service notes to accommodate customer challenges linked to unique customer ID and created with each reservation (e.g. wheelchair ramp in rear of building, use gate code XXXX to enter grounds, etc.);
- Automatic vehicle selection for passenger special needs;
- Pop-up menus and multiple windows;
- Redundant Reservation Warning;
- Name recognition of common locations;
- Partial name/address entry;
- Unique ID entry;
- Immediate real-time, same day reservations and scheduling as well as up to 7 days into the future;
- On-line “Help” via internal intranet;
- Frequent destination lists;
- Tracks recent ride history;
- Name recognition of common places;
- Partial name/address entry; unit ID entry;
- Interactive Voice Recognition (IVR) provides automated trip scheduling; canceling and confirmation features; and
- System enables simulation training and testing.

Routing

Routing involves the assignment of a client trip to a specific vehicle and establishes the order riders are served based on the locations where riders will be picked-up and dropped-off. ITS automates this process by utilizing an algorithm that looks at a number of factors to determine the most cost-effective route. Schedule analyst staff review the ITS generated routes to determine whether any adjustments are required in order to ensure timeliness of service.

Routing tasks performed by ITS include:

- Automatic vehicle selection for passenger’s special needs;

- Integrated daily data transfer between business applications and operational software system for scheduling and dispatching, enrollment, client accounting, etc.;
- Special service notes to accommodate customer challenges linked to unique customer ID and created with each reservation (e.g. wheelchair ramp in real of building and use gate code XXXX to enter grounds);
- Flagging of costly or excessively long trips;
- Performance data calculations;
- Variable vehicle parameters;
- Geo-coded addresses;
- Manual override of computer generated schedules;
- Support for brokering multiple vendors and multi-program;
- Support for on-line client balances for pre-paid accounts with sponsoring codes for third party payment;
- Batch scheduling and optimization; and
- Automatic retrieval of passenger data.

Day of Service Operations

Day of Service operations consists of the daily monitoring of passenger pickups and drop-offs and vehicle travel between destinations. Day of Service staff responds to customer inquiries of estimated time of arrival (ETA) of OUTREACH vehicles and advises drivers of any trip cancellations that may affect their schedules.

Day of Service tasks performed by ITS include:

- Vehicle locations identified on layered maps in real-time;
- Advanced notice if vehicle may be delayed for next pick up/drop off;
- System allows simulation training and testing;
- System displays a choice of performance criteria;
- Vehicle direction and speed as a function of traffic, time, geography both planned and in real-time as scheduled is performed and adjusted;
- Ability to view taxi fleet via AVL in real-time;
- Trips displayed on layered maps; and
- Interactive Voice Recognition (IVR) system linked to scheduling software database for automatic trip cancellations and trip confirmations.

Customer Service

Customer Service call center staff are also connected to ITS and are able to use the system's "Integrated Customer Service" component which allows real-time creation of an "incident" (complement or complaint) with a unique tracking number that can be accessed by management staff.

Reporting

ITS reporting functions are used as a management tool to analyze system performance, provide customer service information and to prepare data for reporting to funders and other third-parties. The system enables the import/export of data to spreadsheets and other applications and can collect data in a number of user-defined reports.

Client Accounts/Virtual Fare Cards

ITS maintains all client accounts and their ride histories. OUTREACH ITS provides for a fraud-free, pre-paid client account system where each client has their own account tied to a unique ID number. Clients or their families make payments into their account through cash, check or credit card deposits, and their account is debited each time they take a ride. Client account balances are integrated with the system's scheduling software so that clients can monitor their account balance each time they take a trip.

Client account benefits of ITS include:

- Riders do not have to buy tickets or carry tokens or have script;
- Automated distribution of client fares to client or authorized third parties to pay in full or to subsidize rider's fares; $250,000+ is raised each year in subsidies to assist low-income riders with cost of rider fares; and
- Automated distribution of actual trip costs, in whole or part, to multiple third party funders (public agencies, area on aging organization, community agencies, donors, etc.).

In-Vehicle Technologies

OUTREACH's fleet is equipped with wireless, hands-free, two-way voice and data communication integrated with automated scheduling, dispatching, vehicle routing and tracking systems. Touch-screen mobile data terminals (MDT) display information relayed from the Day of Service operations center and complement the separate in-vehicle GPS navigation systems (i.e. graphic and voice turn-by-turn directions). All vehicles have Automated Vehicle Location (AVL) installed so that the vehicle's location, direction of travel, rate of speed and other factors can be monitored by the Day of Service Operations Center. In-vehicle video camera systems are installed to enhance rider safety and security.

6.2.7 National ITS Model

The National ITS Architecture provides a common framework for planning, defining, and integrating intelligent transportation systems. It is a mature product that reflects the contributions of a broad cross-section of the ITS community (transportation practitioners, systems engineers, system developers, technology specialists, consultants, etc.). The architecture defines:

- The functions (e.g. gather traffic information or request a route) that are required for ITS;
- The physical entities or subsystems where these functions reside (e.g. the field or the vehicle);
- The information flows and data flows that connect these functions and physical subsystems together into an integrated system; and
- A common, established framework for developing integrated transportation systems.

The National ITS Architecture is comprised of the logical architecture and the physical architecture, which satisfy a defined set of user service requirements. The National ITS Architecture is maintained by the United States Department of Transportation (USDOT).

For more information on the National ITS Model: http://www.iteris.com/itsarch/

6.2.8 Rural ITS Model[43]

In order to meet the needs of travelers in rural areas as well as of the agencies responsible for the operation and maintenance of rural transportation systems, the U.S. Department of Transportation implemented the Advanced Rural Transportation System (ARTS) program. The rural ITS model is a fairly recent development; however, rural areas have comprised a significant portion of the nation's transportation system. Rural area roads "have a unique set of priorities and needs associated with the characteristics of the types of travel upon them and their maintenance and operations."[44] The following are a few examples of these needs:

- Mix of users (rural and urban travelers)
- Secondary roads with less frequent maintenance
- Steep grades/blind corners/curves/few passing lanes
- Large variance in travel speeds (frequent passing)
- Long distance travel
- Fewer convenient detour options

[43] All information in this section provided by the Institute of Transportation Studies at the University of California at Berkeley and Caltrans. A detailed explanation of Rural ITS Models is available in Appendix E.
[44] www.ruralits.org

- Adverse road surfaces and weather conditions
- Few navigational signs
- Less existing infrastructure (per square mile)
- Light usage/large geographical areas impeding rapid emergency detection and response
- More motor vehicle deaths with higher frequency of accidents/vehicle mile traveled and more severe accidents than found in urban areas
- Recreational travelers needing traveler information services
- Limited or non-existent public transportation services
- Many [often uncoordinated] providers of transportation mobility services to meet health and human services needs
- Very dispersed systems with high costs for service delivery, maintenance, and operations

In section 2.2.1 Integration and Enhancement of Existing Services, examples of select rural ITS efforts were highlighted. Specifically, a reference to CALNECTIONS, MTC's 511 system available in the rural area in this project, and OUTREACH's web based programs for health and human service transportations.

6.3 OUTREACH's Mobility Options Suite - Web Portal

The transformation of OUTREACH from a transportation brokerage with ITS to an MMC resulted in the realization that new tools were required in order to meet the new roles and responsibilities associated with being a MMC.

To this end, OUTREACH brought together a group of volunteers to develop a set of web-based software tools that would support the activities of the MMC. The values that guided this funded OUTREACH effort was that the tools developed would have to be readily accessible to users, easy to use and be designed to address the needs of mobility management. The design and initial development of these tools was the work of volunteers and friends of OUTREACH. Their work was later supplemented by contractors funded through OUTREACH's discretionary funds so that these products could be quickly brought to a functional state.

The suite of web-based tools developed by this collaboration consists of:

- **FIRM** Fleet Inventory Resource Management (FIRM) system
- **GIS Mapping Portal** Disaster Response Mapping Tool
- **TripNET** Trip Reservation, Costing and Data Management System

FIRM – Fleet Inventory Resource Management

FIRM catalogs an organization's fleet of vehicles using a number of standards (i.e., FEMA, NAFA-National Association of Fleet Administrators, FTA section 5310) to identify different types of vehicles and equipment for quick reference by First Responders.

While this information is confidential, secure and observable by only the organization inputting data, the entire database will become fully available to emergency response personnel upon the declaration of a disaster or emergency. FIRM can also be used to create an inventory of durable medical equipment that includes wheelchairs, walkers and other assistive devices that could be distributed if individuals are forced to relinquish their personal equipment during an evacuation.

Additional uses include:

- Allows County OES/OEC Logistics and Transit Agency EOC access in emergencies and to request resources and view with authorizations;
- View fleet or "geo-tag" the fleet location; and
- View records of fleet maintenance.

GIS Mapping Portal

OUTREACH's GIS Mapping Portal allows the mapping of staging areas, emergency shelters, hospitals, licensed care facilities, and other key locations for ease of organization during an emergency. This mapping tool also provides easy access to the locations of at-risk populations, viewable by category, to efficiently assist those in need of transportation during a disastrous event.

TripNET

Developed by OUTREACH volunteers and funded by OUTREACH's discretionary funds,this web-based software application provides Mobility Managers with a tool that enables scheduling of client trips and provides for:

- Secured client/member registration;
- On-line trip reservation for real-time and future rides;
- Google Maps – used to optimize routing and fare calculations;
- Instant provider/driver notification;
- Trip authorization;
- Cost assignment; and
- Invoicing and reporting.

Table 3 presents a sampling of baseline technologies/activities. This table is one of the deliverables of this rural planning project. To that end, provides points of reference to the baseline technologies and activities before project (ITS Brokerage) and after project (MMC). While some enhancements were made in the enhanced call center, the ITS systems, the gains were really made in the new web based IT tools. The content in this table must be viewed in light of the content presented in Table 2's Emergency Operations Plan.

Table 3

OUTREACH Technology Plan

Baseline Technologies/Activities	Before MMC Project	After MMC Project	Status, Activity, Related Efforts
MMC Technology Plan (coupled with Emergency Operations Plan)	Brokerage with ITS	MMC with ITS	Caltrans MMC grant provided for planning activities and small capital equipment; OUTREACH supplemented with alternative funds and volunteers for software development activities
Technology Plan			
Automated Scheduling and Vehicle Routing System (GIS-based)			MMC now scheduling ARRA funded employment transportation services in addition to paratransit, senior, JARC and CalWORKS, low-income, etc.; new MMC web portals provides trip scheduling, vehicle routing, fare calculation using Google Maps for new customers (beta testing by MediCal Managed Care provider).
Wireless Communications/Radio Systems			Obtained grant dollars to test and purchase two-way analog/digital radio system for fleet, to connect public and private stakeholders including social service agencies in rural areas.
In-Vehicle Mobile Data Computers.			Enhanced for evacuation routing; Emergency Shelter location routing; as well as other GIS applications.
Electronic Fare Collection System/Smart Cards.			MMC uses a virtual card that can distribute fares or trip costs across third parties. Expanded access to other populations groups.

Technology Plan (continued)			
Customer Services Center/Support.			Dual monitors for mobility managers direct linkage with 2-1-1 and 511 systems.
Real-Time Vehicle Tracking (AVL/GPS).			Data used for routine real-time fleet monitoring now being integrated into Emergency Planning GIS and mapping products.
Web-Based and Telephone Based Travel Planners.			Since 1998 Mobility Managers have prepared individualized transportation plans for fixed route and other resources (vanpools, etc.) now expanded to assist others.
Fully integrated Accounting/Billing software and integrated business and transportation services.			Long standing feature of the ITS Brokerage; Functionality incorporated into MMC web portal TripNET.
Automated Rider Subsidies and Cost Accounting.			Long standing feature of the ITS Brokerage; Functionality incorporated into MMC web portal TripNET.
Electronic Routes/Schedules.			Direct linkages with 511 and VTA websites for routes and schedules; electronic routes for ITS brokerage for transportation providers; electronic schedules in MMC TripNET for health and human service agencies and transportation providers.
Interactive Voice Response (IVR) System for call routing, cancellations, trip confirmations and trip bookings			Enhanced call center routing to Mobility Managers.
Automatic Client Eligibility Verification			Long standing integrated business system creates unique identifier (ID number) for automatic client eligibility verification; similar feature in MMC web portal TripNET.
Computerized Complaint Management System			Long standing feature of ITS Brokerage; new feature in MMC TripNET.

Technology Plan (continued)			
Vehicle Maintenance Information Systems			Access to on-line vehicle maintenance records to link with fleet inventory system
Remote taxi tracking (AVL/GPS)			Developed for ITS brokerage usage, this feature allows an additional resource during emergencies as taxis are a good resource for ambulatory riders.
Fixed Route Connections			Previously integrated into the ITS brokerage, MMC web portal allows health and human service agencies to make these connections and to provide bus passes.
Coordinated Ride Sharing and Vehicle Utilization.			Expanded collaboration via shared vehicle utilization of Adult day care and developmentally disabled riders reducing duplication of services and significantly lowering cost per trip for all parties.
Call Center Enhancement - Integration with 2-1-1 and call tracking and accounting.			Researched 2-1-1 infrastructure and altered and enhanced OUTREACH telecom infrastructure to accept and account for 2-1-1 calls.
Call Center Enhancement - Integration with 511 and call tracking and accounting.			The current 511 system directs/transfers paratransit calls direct; Ongoing discussion with 511 for direct transfer of other health and human service transportation call types.
Call Center uses Enhanced Call Processing with full call accounting and reporting capabilities.			Enhanced to include mobility management calls, call accounting and tracking.
Operates multiple queues to process all phone calls.			Enhanced to include more mobility management functions.

Technology Plan (continued)			
Vendor Response contracts to ensure prompt reaction to any downed equipment. 24/7/365 with a 2 hour response time to on site with spares in hand.			Completed.
Call Center/Help Lines			Call center takes over 160,000 calls monthly and enhanced to take volume from 2-1-1 and 511 as needed.
In-vehicle video monitoring system			Fleet wide and expanded to new green vehicles.
Green Vehicles – Energy Efficient Vehicles			Over 100 hybrid sedans currently in fleet for fuel efficiency; Grant award to demonstrate use of plug-in vehicles and chargers, SMART grid project.
MMC: Cloud Computing			For day-to-day operations/Strategies from Coordinated Plan/and usage during emergencies/disasters
TripNET Partner uses for:			Developed by OUTREACH volunteers and OUTREACH nonprofit funds
Secured Client/member registration			Pre-release version in usage.
On-line Trip Reservation Real-time and Future Rides			Pre-release version in usage.

TripNET – Social Service Agency Partner uses for: (continued)			
Client / Agency Trip Booking Vendor/Volunteer dashboard			Pre-release version in usage.
Google Maps - Optimize Routing & Fare Calculations			Pre-release version in usage.
Instant Provider/Driver Notification			Pre-release version in usage.
Multiple Providers - Competition			Pre-release version in usage.
Built in business rules			Pre-release version in usage.
Trip Authorization			Pre-release version in usage.
Cost Assignment			Pre-release version in usage.
Invoicing & Reporting			Pre-release version in usage.
Mobility Options Suite – Social Service Agency Partner can customize for:			Ongoing development by OUTREACH volunteers and community partners. Activated with Rural Senior Center Partner
Volunteer driver program			Pre-release version in usage.

Mobility Options Suite – Social Service Agency Partner can customize for: (continued)			
Gas Cards for volunteers			Pre-release version in usage.
Fixed route pass management			Pre-release version in usage.
Virtual voucher program taxi/vans			Pre-release version in usage.
FIRM – Fleet Inventory Resource Management			Launched by OUTREACH and volunteer IT professionals
Combines paratransit fleet with vehicles from other health and human service agencies in standardized format for coordination.			Pre-release version in usage. Currently has paratransit vehicles as external fleet use for developmental disability services, and transportation providers external to the county in order to build a reserve.
Query by vehicle type, capacity, location, etc.			Pre-release version in usage.
Allows County OES/OEC Logistics and Transit Agency EOC access in emergencies and request resources; enables OUTREACH to coordinate vehicles from health and human service agencies.			Pre-release version in usage. Allows MMC to coordinate with transportation providers in addition to public agencies.
View Fleet/Geo-tagging of fleet location.			Pre-release version in usage.

FIRM – Fleet Inventory Resource Management (continued)			
Use FEMA and NAFA codes for uniformity.			Pre-release version in usage.
Fleet maintenance records			Pre-release version in usage.
Inventory of equipment and assistive mobility devices (e.g. manual wheelchairs).			Pre-release version in usage.
GIS Mapping, Routing, Evacuations and other tools			Data exchanges between OUTREACH and various County divisions (social services, planning, fleet and logistics, emergency services)
GIS mapping of staging areas, emergency shelters, key locations such as hospitals, licensed care facilities, and at-risk populations by categories, etc.			Pre-release version in usage.
RFID technology for identifying individuals delivered to shelters.			Under development with volunteer graduate student from Texas Tech.
Polygon-based querying and arterial traffic			Pre-release version in usage.

Chapter 7 – Summary and Recommendations

7.1 Summary

In the fall of 2008, OUTREACH received FTA rural planning grant funds from Caltrans DMT to conduct this planning study using mobility management concepts for the coordination of human services transportation and emergency preparedness planning in rural areas. This planning study was guided by the need to develop technical assistance principles and guidance to assist rural areas in developing mobility management concepts. To this end, the following principles were identified as the framework for this study:

1) The use of mobility management concepts to coordinate human services transportation and emergency preparedness planning consistent with the needs and strategies identified in rural area Public Transit-Human Services Transportation Coordination Plans;

2) A focus on coordinated mobility management in rural areas as an integral element of the development of a statewide technology and emergency operations plan as outlined in the "2-1-1 California State Business Plan" (2-1-1 CSBP) and the "2-1-1 California Rural Mobility Management Planning Study" CRMMPS);

3) Mobility management concepts that include information technologies that interface with 2-1-1 call centers and County Emergency Services departments for improved coordination of service calls and transportation for vulnerable populations in response to an emergency;

4) A focus on the non-urban/rural areas of Santa Clara County;

5) A focus on creating employment services transportation options;

6) A focus on strategies that reduce carbon emissions to help mitigate climate change; and

7) A focus on strategies that promote vehicle sharing as promoted under "United We Ride."

The rural planning project has several deliverables which are provided within this report:

1) Transformation of ITS Brokerage into MMC (Chapter 4); Impacts and Outcomes (Chapter 4, Table 1); Project-Specific Case Study of OUTREACH experience in

Appendix B);

2) OUTREACH MMC Technology Plan (Chapter 6, Table 3); and

3) OUTREACH Emergency Operations Plan (Chapter 5, Table 2) and Assessment of Alternative Communications Equipment (Appendix H).

It is the synergy of the guiding principles and the combined deliverables into one MMC vision that results in system change based upon mobility management concepts.

This planning project acknowledges that rural areas may vary in many ways, and may have different visions, approaches, stakeholders, and resources, among many other varied characteristics. However, given the unifying principles of "United We Ride," mobility management concepts, and the common challenge of meeting the mobility needs of vulnerable populations day-to-day and during times of disaster and emergencies, this report attempted to share generic guidance on:

1) Steps to forming a MMC (Chapter 2);

2) Steps to formulating a MMC Emergency Operations Plan (Chapter 5); and

3) Training, funding, integration with 2-1-1 and 511 as feasible, integration with ITS and IT tools, and multiple resources.

7.2 Recommendations

California has the opportunity to think boldly about creating a network of MMCs throughout the state that:

- Focus on individual needs;

- Serve customers traditionally in health and human services programs, ADA paratransit programs, those supported by community services, and so forth, but also any member of the public;

- Utilize trained Mobility Managers who are competent in the application of mobility management concepts and coordination for day-to-day operations and during times of disasters and emergencies;

- Provide initial and sustainable educational opportunities for the training of personnel and volunteers and other groups/entities to create a network of Mobility Managers to work with the MMC on a regular basis;

- Provide the Information Technology (IT) tools and resources to the network of Mobility Managers to allow them to participate in a seamless and easy manner

for day-to-day operations and in times of disasters and emergencies. These IT tools could offer many features including but not limited to:

  - Web-based trip planning and reservations, GIS mapping, cost-accounting, billing, invoicing, reporting, access to multiple transportation providers, trip authorizations, member/customer management;

  - Standardized resource inventories for fleet and equipment;

  - Access to an array of other mobility options and strategies such as volunteer programs, virtual voucher programs, fixed route passes, etc.;

  - Tools and functionalities to be used for coordinating mobility into emergency planning during and after emergencies;

  - Integrate with information and referral information (2-1-1 or similar entity if one exists in your rural community); and

  - Integrate with automated transit, transportation and traffic information; (511 or similar entity is one exists in your rural community).

- Utilize ITS and IT;

- Cultivate partnerships, traditional and non-traditional;

- Provide a single point of access;

- Provide automatic eligibility verification;

- Provide enhanced call center and web access;

- Provide services/resources with a basis in the Coordinated Plan and additional local plans; Through coordination collect information on all aspects of local health and human service transportation that can be shared with interested parties for continued planning;

- Provide mobility services using traditional and non-traditional transportation services;

- Coordinate both large and small transportation providers;

- Focus on innovation, flexibility and advanced technologies;

- Have training, tools, strategies, and resources, including accessible vehicles inventoried in order to coordinate mobility during disasters and emergencies with

health and humans service organization partners, with public agency partners and other stakeholders;

- Coordinated database exchanges for multi-purpose GIS mapping for planning, operations and emergency planning/response;

- Coordinate funding, cost-allocations, fares/fees, payment options, etc.;

- Coordinate resource inventories including vehicles and equipment;

- Match riders to services;

- Serve vulnerable populations;

- Seek energy-efficient and green mobility strategies that reduce carbon emission to help mitigate climate change;

- Implement shared ride and shared vehicle scenarios to reduce duplication, reduce trip costs;

- Give priority to local workers who are familiar with social services and all transportation modes; and

- Operate a center for shared:

    - Vision
    - Mission
    - Planning
    - Funding
    - Resources
    - Marketing
    - Responsibility
    - Cooperation/Influence
    - Communications Network
    - Customer
    - Billing
    - Technology
    - Maintenance and Fuel
    - Rides
    - Training
    - Information
    - Service Provision
    - Liability
    - Dispatch/Scheduling
    - Vehicles

This project recommends that California consider the above characteristics as essential elements in one of the more robust approaches to a Mobility Management Center. This project understands that there are several viable approaches that are scalable and can be adapted to the unique needs, resources, and vision of rural communities.

This project recommends that California recognize established MMCs and build a statewide network to accomplish the state's mobility management concept goals.

The project recommends that California reestablish CTSA's in areas where they no longer exist, support their development into Mobility Management Centers and provide them with procurement and other rights and privileges consistent with the broader role that they organizations will play in their communities.

This project recommends that California create a mechanism to transfer knowledge and access to technology tools from successful MMC projects to interested communities.

This project recommends that California invest in disaster preparedness through MMCs.

This project recommends that California, public and private sources, invest in:

- MMCs with 2-1-1 and 511 linkages;
- 2-1-1 and 511 systems that may also function as the MMCs; and
- The overall expansion of 2-1-1 and 511 systems statewide.

Caltrans Division of Mass Transportation (DMT) can lead in the implementation of these recommendations by working with federal, regional and local agencies in utilizing Coordinated Plans for data collection and statewide needs assessment in support of MMCs. In addition, DMT can continue to partner with stakeholders such as OUTREACH through the Mobility Action Plan (MAP) Project Advisory Committee to address statewide mobility management integration in partnership with regional agencies. Also, DMT can facilitate statewide efforts to implement MMCs in conjunction with CTSAs (where appropriate). It is also essential to continue to partner with the Office of Emergency Services (now Cal. Emergency Management Agency) to Disseminate "Guidance for Emergency Preparedness for Access with Functional Needs" document.

APPENDIX A

Definition of Vulnerable Populations

There is a challenge in the common understanding of what constitutes “special needs” and/or “vulnerable populations.” Whether one is reviewing the literature from federal, state, or regional public agencies; service or advocacy groups of all types; or emergency response publications, it is clear that there is no unified definition of terms like “special needs” or “vulnerable populations.” For a local community involved in emergency preparedness planning, it is important to reach a general consensus on the definition of this topic to clarify the understanding of the populations served.

In Santa Clara County, one sees a shift towards guidance coming from the California Office of Emergency Services (OES) and the Office for Access and Functional Needs (OAFN). OAFN has taken the position that terms like “special needs” have fallen away and been replaced by “functional needs” and “vulnerable populations” has been replaced by “persons with disabilities or persons with varying abilities and/or persons with activity limitations.” However, these tend to come from the disability paradigm and are consistent with many views associated with Americans with Disabilities Act (ADA) public paratransit programs. There are many other categories of individuals who may comprise “vulnerable populations” in the event of an emergency or disaster. There are also federal and state regulations and guidelines that apply a civil rights dimension to the inclusion of “vulnerable populations” in the planning and implementation of emergency planning and programs.

“Vulnerable populations” include a broad scope of people who would need additional assistance and community support to successfully respond and recover from the event of a disaster. Were an emergency to occur, this broad scope of people may include some ADA public paratransit riders/persons; other persons with disabilities or varying functional abilities; some elderly/seniors; and others who are homeless, veterans, refugees or immigrants; non and/or limited English speaking; low-income individuals and CalWORKS families and participants; transportation-disadvantaged; transit-dependent; youth; and persons with chronic or acute illness who may or may not be institutionalized. OUTREACH, as a social service and multi-program transportation non-profit, already serves the vast majority of these individual groups, including those with all types of disabilities, mobility devices and service animals; older adults; non/limited English speakers; children and youth; low-income participants and the unemployed; the homeless; and residents of institutionalized settings. As an MMC which includes a full scale ADA Paratransit Brokerage operated in partnership with the Valley Transportation Authority (VTA), OUTREACH provides ADA public paratransit and also coordinates health and human service transportation for vulnerable populations and other users of community transportation. This coordination focuses on both routine day-to-day operations as well as planning with other health and human service agencies so that

each can be better prepared as an individual entity and/or support other health and human service agencies in the event of a disaster or emergency.

For references on vulnerable populations and their definitions, please see the following resources (and respective excerpts):

Devyler, Richard. “The Changing Paradigm in Emergency Management: Preparing for People with Disabilities” (2007). pp. 1-4.

- “According to the U.S. Census of 2000 there are over 49 million people five-years of age or over in the United States and almost 6 million in California who identify as having a disability. The Census estimates that by 2010 the number of individuals with disabilities will exceed 11 million, in California.” (para 1)
- Language shift:
    - “Special Needs” = “Functional Needs”
    - “Vulnerable Populations” = “People with Disabilities and Activity Limitations”
- Previous views involved people with disabilities being “collateral”… now, “people with disabilities and activity limitations recognized as a significant part of the population and valued as a person”
- Creation of the Office for Access and Functional Needs (OAFN) in January 2008 intended to identify the needs of people with disabilities before, during, and after a disaster, and integrate disability needs and resources into all aspects of emergency management systems.

Interagency Coordinating Council on Emergency Preparedness and Individuals with Disabilities. “Preparing The Workplace For Everyone: Accounting for the Needs of People with Disabilities” (2005). p. iii.

- “In disaster management activities it is important to think about disability broadly. Traditional narrow definitions of disability are not appropriate. The term disability does not apply just to people whose disabilities are noticeable (wheelchair users, blind, deaf) but also to people with heart disease, emotional or psychiatric conditions, arthritis, significant allergies, asthma, multiple chemical sensitivities, respiratory conditions, and some visual, hearing, and cognitive disabilities.”

Kailes, June I. “Emergency Evacuation Preparedness: Taking Responsibility for Your Safety: A Guide For People with Disabilities and Other Activity Limitations” (2002). pp. 6-9.

- People who need assistance in an emergency evacuation:
    - Limitations that interfere with walking or using stairs
    - Reduced stamina, fatigue, tire easily
    - Respiratory or cardiac conditions, asthma, emphysema

    - Emotional or cognitive disabilities
    - Vision loss
    - Hearing loss
    - Temporary limitations, such as surgery or pregnancy
    - Technological limitations (such as hearing aids, gas mask, elevator, wheelchair)
- Recommends that disabled persons keep an emergency health information card with them at all times in the event of an emergency in which you cannot tell personnel imperative information

Parsons, Brian S. & Fulmer, Debra. "The Paradigm Shift in Planning for Special-Needs Populations" (2007). pp. 1-8.

- "Special-needs populations are populations whose members may have additional needs before, during, and after an incident in functional areas, including but not limited to maintaining independence, communication, transportation, supervision, and medical care."
- Important for emergency planners and responders to understand the civil rights provisions that apply to special-needs populations during emergencies:
    - No "one size fits all": people with special needs do not all require the same assistance or have the same needs
    - Inclusion: people with special needs have the right to participate in and receive the benefits of all services available in the event of an emergency
    - Accessibility: wheelchairs, etc.
    - Effective communication: people with special needs must be given information that is accessible, understandable, and timely

U.S. Department of Homeland Security: Office for Civil Rights and Civil Liberties. "The Paradigm Shift in Planning for Special Needs Populations" pp. 4-5, 15-25.

- Executive Order #13347: Individuals with Disabilities in Emergency Preparedness
- Consider the needs of agency employees with disabilities and those the agency serves
- Encourage the consideration of the needs of individuals with disabilities served by governmental and private sector organizations; and
- Facilitate cooperation among government and private entities and individuals with disabilities
- Applicable Statues for Disability Populations:
    - Rehabilitation Act
    - Americans with Disabilities Act
    - Fair Housing Act
    - Architectural Barriers Act
    - Communications Act
    - Individuals with Disabilities Education Act

- "…The situation section may include relative probability and impact of the hazards, geographic areas likely to be affected by particular hazards, vulnerable critical facilities, population distribution, characteristics and locations of special population distribution, characteristics and locations of special populations (institutionalized persons, the elderly and disabled, those who speak languages other than English, etc.), critical resource dependencies on other jurisdictions, and more."
- "In practice, the term 'transportation disadvantaged' also includes people who live in poverty or on public assistance; people without private transportation or who rely on public transportation; and people who rely on caregivers for assistance in daily living and would need similar assistance in an emergency and those who live independently or with the caregiver(s) in their homes, assisted living housing, nursing homes, supervised group homes, hospitals, and other care facilities."

APPENDIX B

Mobility Management Center
OUTREACH Experience – A Case Study

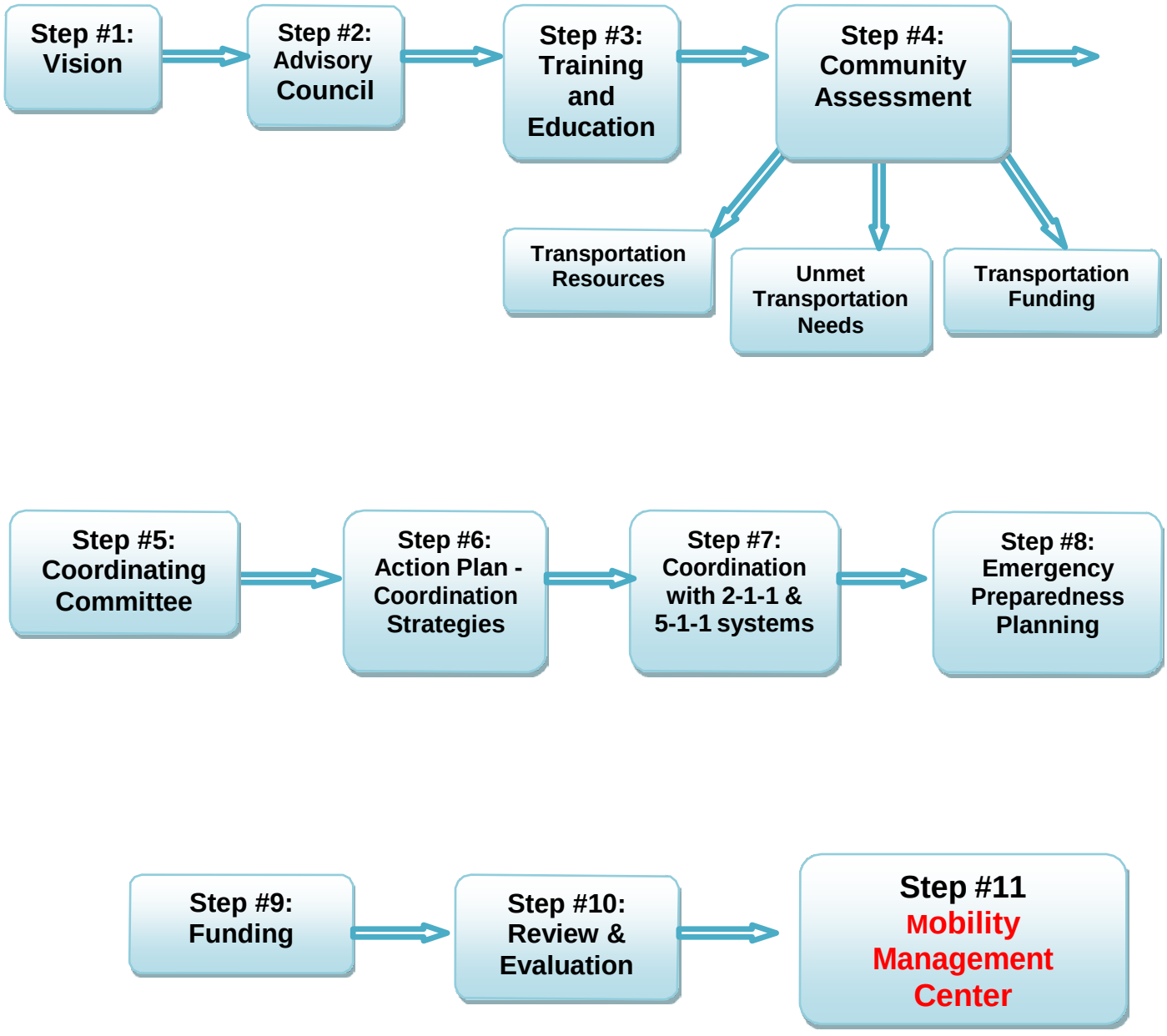
Background

The practice of mobility management requires breaking down the barriers that have limited past practices and, rather than focusing energy on the systems that currently exist, look to the future for possibilities. In order to create a successful MMC, the team must look at new ways of conducting business and providing transportation-related services with the understanding that coordination is essentially a political process.

As noted earlier, OUTREACH has engaged in the practice of transportation coordination and mobility management for over 30 years. This has been accomplished through the process of addressing the transportation and travel-related needs of a range of transportation-disadvantaged populations including: persons with disabilities, seniors, Welfare-to-Work/CalWORKS participants, school children, homeless individuals, veterans, refugees/immigrants and other low-income individuals and families.

As a major element of the grant received from Caltrans, OUTREACH has been able to further develop the organization's transportation coordination activities and test new tools and strategies to deal with the increasingly important need for emergency preparedness planning.

Figure 1: Mobility Management Center – Development Path



Step #1: Vision

OUTREACH Vision

As with any MMC, this project began with the shared vision of a core group of individuals who were committed to the project's success. The vision that sustained this project was a community willing to:

> "Expand the action-oriented partnerships between local entities in Santa Clara County, in collaboration with local, regional, state and federal entities, in the areas of workforce development, disability services, senior, social services, and coordinated, cost-effective, affordable and accessible transportation through applied mobility management concepts."

This vision was a product of OUTREACH's 30 years' experience as the primary provider of human service transportation services for Santa Clara County's transportation-disadvantaged populations. Such longevity reflects the long-term working relationships the organization has maintained.

Step #2: Advisory Council

OUTREACH Advisory Council

United We Ride's "Framework for Action: A Four Step Model for Change" provides some useful guidance during this developmental phase of the MMC:

> "Effective Process Planning ensures you have the right people together in a meeting friendly room with a clear agenda to do the work. During this stage, the foundation for action is laid. Therefore, clear thought as to who will move efforts forward is essential."[45]

Crucial to the initial progress and success of the project was the establishment of a core Advisory Council, whose members shared the project's vision and who were committed to its realization and success.

Members of the Advisory Council, led by Kathryn Heatley (President/CEO of OUTREACH), consisted of:

- Kimberly Gayle, Office Chief, Federal Transit Grants Program, California Department of Transportation
- Alette Lundeberg, Santa Clara County Social Services Agency, Advisory Committee Member – Council on Aging Silicon Valley
- Yvette Phillips, Emergency Coordinator, City of Gilroy Fire Department, and
- Dave Snow, Manager, Fleet and Facilities Division, County of Santa Clara.

As the project progressed in development, other individuals representing project stakeholders were recruited to participate on the project's Coordination Committee.

The success of this project is due in large measure to the partnership that was established between the Caltrans Division of Mass Transportation (DMT), the Santa Clara County Office of Emergency Services and OUTREACH. This core partnership provided the project with both a local and statewide perspective to emergency-preparedness planning that proved to be invaluable in determining the essential requirements of such planning efforts and their broader applicability to regions beyond Santa Clara County.

Because there are no enforceable requirements of federal, state or local funding that compels organizations to work together to achieve the goals of mobility management, organizers must find issues of common interest and benefit that will lead to establishing successful collaborative relationships. Some communities may avoid these conflicts altogether because of existing, long-standing collaborations between organizations.

[45] United We Ride, "Framework for Action, A Four-Step Model for Change".

However, for those service areas that are not so fortunate, organizers should recognize the nature of the campaign that they may have to wage in order to establish an effective MMC. Key to the development of the MMC is the selection of the initial group of individuals and/or organizations that that will determine the vision for the MMC and will establish the goals and objectives for the MMC to achieve.

The supportive bond shared by these organizations was further strengthened as a result of their participation at the Community Transportation Association of America's Institute (CTAA) for Transportation Coordination - an intensive three-day training and planning forum to enhance the capacity of communities to provide cost-effective and customer-focused transportation services by coordinating funding, information, services and equipment - in November 2008.

The Advisory Council's participation at the Institute enabled the team to articulate a clear vision for the future of the MMC for Santa Clara County. Upon completion of this report, OUTREACH will embark on the second phase of the MMC model with a time frame originally envisioned at the Institute.

Step #3: Training and Education

OUTREACH Training and Education

OUTREACH has served as the MMC for Santa Clara County long before the term entered the common transportation vocabulary. The organization's roots were first established over 30 years ago while providing coordinated transportation for the County's aged and disabled communities. During the past 10+ years, OUTREACH has improved the coordination of transportation to the Santa Clara County's senior, Welfare-to-Work/CalWORKS, and unemployed populations.

While it has been OUTREACH's daily practice to coordinate transportation resources, management staff became actively engaged two years ago in pursuing additional opportunities to enhance the organization's coordination practices.

During these past two years, OUTREACH staff has led local teams to the East Coast to attend mobility management training through the Easter Seals Project Actions – Mobility Planning Institute, as well as the Community Transportation Agency of Americas (CTAA) - "2008 Institute for Transportation Coordination." Additionally, in 2008, OUTREACH was awarded a special grant from the National Center for Senior Transportation to support the organization's efforts to improve transportation alternatives for the Santa Clara County's older adults.

OUTREACH staff have also benefitted greatly from online training sessions available as NCST webinars. These online seminars have included subjects such as:

- "Transportation by the Numbers: Getting the Most Out of Human Services Transportation – Understanding Costs, Benefits, and Opportunities" - Richard Garrity, RLS & Associates
- "Trip Planning" - Donna Smith, Easter Seals Project Action Training Manager

Many of these webinars continue to be available at the Easter Seals Project Action and National Center for Senior Transportation websites.

In addition, in March 2008, through the auspices of Cal-Act, several agency staff attended a free, two-day Mobility Management training course conducted by Jim McLeary, the United We Ride Ambassador for FTA Region II.

Step #4: Community Assessment

OUTREACH Community Assessment

Given the short duration of this project and the fact that the Santa Clara County has been the subject of several detailed transportation studies conducted in recent years,[46] the community assessment phase of this project consisted of a review of existing transportation studies and a phone survey of stakeholders to update the findings of the studies with current needs and/or concerns. A particular challenge in conducting a thorough community assessment is the social and economic uncertainties that currently exist in our state. With decreasing revenues for public transit, reductions in public transit services and increases in rider fares, each month brings about new challenges and emerging needs.

The Community-Based Transportation Plan (CBTP) focuses on the specific needs of a major part of the rural area of Santa Clara County. The results of this plan are further supported by the community assessments conducted during this project, all of which are consistent with United We Ride model. OUTREACH used this model to survey a total of 28 organizations. We followed up these surveys in July to measure the affects of the statewide and local budget cuts.

Tables 1 through 5 (in Appendix C) illustrate a summary of the transportation needs that have been identified by these three principle transportation studies related to the project's service area, Santa Clara County's rural cities: Morgan Hill, San Martin, and Gilroy. Preceding each table is a summary of each plan and its relationship to the project's assessment of human service transportation needs. OUTREACH has played an active leadership role in the development of these plans with a wide range of stakeholders and has worked with others in response to these identified needs.

[46] See Appendix C for a list of transportation studies

Step #5: Coordinating Committee

OUTREACH Coordinating Council/Stakeholders

As noted in the **Background** section of this case study, the development of a successful MMC is frequently a political process that requires the mutual cooperation of a wide range of organizations and communities in order to achieve the goals of the United We Ride model. The OUTREACH MMC Coordinating Council expanded its membership beyond the initial Advisory Council's membership to include representatives of local volunteer driver programs, senior centers, groups serving the homeless, faith-based groups and other community-based organizations. This informal group has worked collaboratively to address emerging transportation issues that initially focused on access to health-related and other services available through local service providers.

The stakeholders for the project represent the populations that require transportation assistance, transportation providers, and funders of services for the target populations.

Service Groups The scope of the project has taken the most expansive interpretation of the populations that the MMC should serve (as seen in the section defining "vulnerable populations" in Appendix A). Applying the most inclusive interpretation of vulnerable populations is based on reasoning that due to the size of our service area, the scale of operation required to achieve the most efficient delivery of coordinated transportation services would benefit from having a large pool of potential riders to create shared ride opportunities.

Certainly, the idea of volume to improve efficiency and create more shared ride opportunities is contingent on funding or other resources to support the increased level of transportation services.

Funders: The model is to improve efficiency through economies of scale by combining the service of multiple target groups and funding sources. Funders included in the project include: County Social Services Agency, Area Agency on Aging (Council on Aging Silicon Valley), Community Development Block Grant Programs (cities of Cupertino, Campbell, San Jose, Santa Clara, and Sunnyvale), Tobacco Settlement Agreement funds, and the Metropolitan Planning Organization for the region (Metropolitan Transportation Commission).

Transportation Providers: Transportation providers include public transit (Valley Transportation Authority), ADA paratransit services, local taxi companies, volunteer driver programs and community based transportation providers.

Step #6: Action Plan – Coordination Strategies

OUTREACH Coordination Strategies

Table 1

Coordination Strategies

Subject Area	Strategies
Technology	• Call Center Phone System and Database • Intelligent Transportation System (ITS): Trip Scheduling System, Trip Routing, Fare Calculations, Client Accounts, Cost Assignment System, Trip Data Management, GIS Mapping of Trips, Automated Vehicle Location (AVL), etc. • Day of Service Operations • Trip Cost Accounting, maintaining detailed trip information • Communications Systems
Mobility Managers	Training: • Phone etiquette • Customer services best practices • Use of searchable transportation databases • Transportation resources • Program eligibility requirements and benefit limits • Emergency preparedness planning resources • Regional transportation resources
Searchable Transportation Database	Searchable database of transportation resources by service area, beneficiary type, transportation mode, etc.: • Service providers • Service/benefit type • Eligibility requirements • Benefit limits • Service Areas • Days and hours of operation • Coordination of multiple services and/or service providers
Transportation Coordination	Coordination Activities: • Information resource for multiple providers and/or programs • Enrollment of prospective clients for one or more programs • Trip scheduling for one or more programs • Multi-modal transportation scheduling • Coordination of vehicle use/assignment

	• Assistance in the development of MOU's and other agreements between transportation providers Transportation Alternatives: • Demand-response transportation • Ride Share programs • Volunteer Driver programs (community and faith-based organizations) • Multi-modal transportation (connections to public transit) • Paratransit services • Subsidized Public Transit Rider's Fares (public transit passes, ADA rider's fare subsidies) • Grocery shopping shuttles • Escorted transportation • Taxi: Virtual-Voucher programs
Public Transit: Individualized Transportation Plan	Preparation and distribution of detailed transportation plans for individuals interested in using public transit options. Plans include: • Detailed information regarding walking distances to transit pickup locations Service times/schedules • Travel times • Transit fares • Fare discounts.
Travel Training	• Specialized training on the use of public transit alternatives for individuals with mobility or sensory limitations • Bus buddies, Travel Ambassadors, etc.; programs that utilize experienced public transit users as volunteers to train peers on the use of public transit.
Emergency-Preparedness Planning	• Emergency Action Plans (ESP) • Continuity of Operations Plans (COOP) • Databases of vulnerable clients in common formats that can be shared during an emergency event to assist evacuation and rescue efforts by First Responders • Mapping of vulnerable populations • Mapping of critical emergency response locations (e.g., staging areas, accessible shelters, hospitals/health care facilities, etc.) • Alternate emergency communication systems and communications plans. e fleets and assistive equipment that may be available for deployment during an emergency event
Other Mobility Solutions	• Vehicle purchase programs • Vehicle repair and maintenance services • Low-cost vehicle insurance programs • Low-cost gas/fuel programs • Bicycle loan or purchase programs

Step #7: Coordination with 2-1-1 & 5-1-1 Systems

OUTREACH 2-1-1 & 511

The role of 2-1-1 as an MMC and transportation service coordinator within small-urban and rural areas may vary based on the transportation providers operating in the service area and will become apparent through the process of the community transportation assessment.

In Santa Clara County, OUTREACH had been serving as the county's MMC before the term was even coined. As the paratransit broker and provider of a wide range of transportation services to the county's transportation disadvantaged populations, OUTREACH has developed into the County's primary provider of human service transportation. This development has been possible because of OUTREACH's robust call center and sophisticated technology systems that have enabled the organization to consistently maintain efficient and cost effective transportation services in a large scale operation.

Recognizing our roles in the community, OUTREACH and United Way Silicon Valley's 2-1-1 Santa Clara County have taken steps to enhance our partnership and work collaborative to achieve the goals of mobility management.

The steps taken to support the collaborative relationship between OUTREACH and 2-1-1 Santa Clara County include:

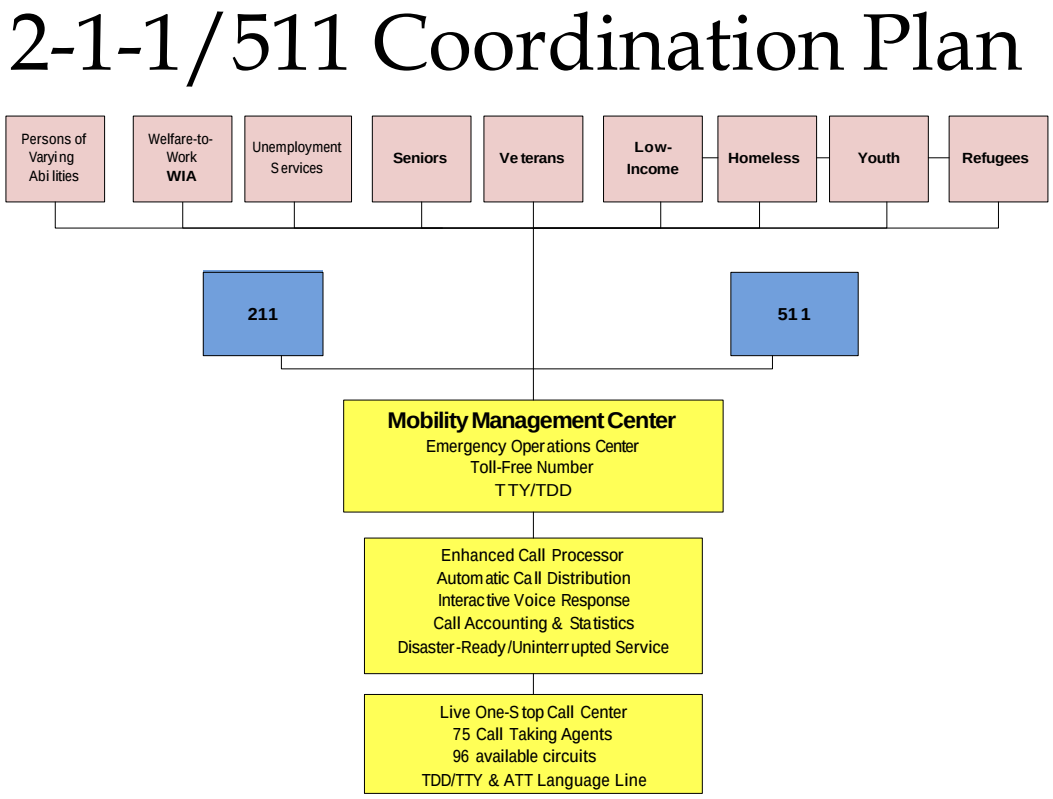
- OUTREACH telecom staff met with United Way 2-1-1 staff to better understand the infrastructure of the 2-1-1 system serving Santa Clara County and invited United Way 2-1-1 staff to tour the call center at OUTREACH as an exchange of information on resources on how best to link in terms of call centers and web linkages, including plans to stay operational during emergencies
- OUTREACH changed the language in its 2-1-1 profile to incorporate mobility management concepts
- OUTREACH added additional inbound phone line capacity into our call center dedicated to inbound calls from 2-1-1 (or 511) and re-designed our call center phone queues to better process any mobility management calls referred from 2-1-1 (or 511) to allow for separate call accounting features including but not limited to tracking the number of agents, time variables for answering, processing calls, post processing wait times for calls, abandoned calls, and numerous other standard automated quantifiable data elements) as desired in the statewide 2-1-1 plan
- OUTREACH call center staff members were given dual monitors for their computers so one screen could be dedicated for use with the 2-1-1 and/or 511 websites in order to better coordinate the MMC information with resources and information available through those websites

- OUTREACH trained staff on Mobility Management concepts, whether transportation staff or social workers were to personally receive calls or refer calls to 2-1-1. Providing a ride is often not the only need of a client and a professional social worker is needed to address the other needs a caller may have like food assistance, housing, issues with social security and other benefit programs, energy assistance, and so forth.

Currently, the 511.org system only provides direct links to the ADA paratransit providers in the San Francisco Bay Area counties served by MTC. There is no information at the 511.org website regarding human service transportation resources nor are there links from their website to local providers.

In July 2009, we spoke to the staff at 511.org and learned that they are interested in improving the transportation information available through their system and that they recognized the limitations of their system. MTC staff indicated an interest in discussing this matter further to improve future collaborations.

Figure 2: OUTREACH & 2-1-1/511 – Coordination Plan



Step #9: Funding

OUTREACH Funding

While OUTREACH had been providing coordinated transportation solutions for agency riders for more than 10 years, the development into a full-featured MMC could not have occurred without the support from the California Department of Transportation (Caltrans) in the form of FTA Section 5316 and 5317 grants for the Small Urbanized Areas of Santa Clara County.

Essential to the successful development of OUTREACH's MMC is broad and diverse funding that supports the MMC's activities and the crucial local funding support that serves as a "match" for federal transportation dollars.

For over 10 years, OUTREACH has partnered with the County's Social Services Agency to provide transportation-related services to the County's Welfare-to-Work (CalWORKS) participants. As one of the originally selected federal Job Access-Reverse Commute (JARC) Program grantees, OUTREACH's efforts to address the wide-range of transportation needs experienced by families transitioning from welfare to self-supporting employment resulted in some of the first local attempts at transportation coordination for non-elderly or disabled populations. Early efforts to encourage use of public transit through travel training and individualized transportation planning were coupled with demand-response transportation for both CalWORKS participants and their children. Employment-related transportation for CalWORKS participants was also combined with afterschool transportation for their children and these services were extended to other low-income households as vehicle capacity permitted.

As noted earlier, these services were made possible through federal JARC grants combined with local CalWORKS funding through the County's Social Services Agency. In recent years, continued JARC financial support for the program's services and benefits has been obtained through a competitive process administered by the regional MPO (Metropolitan Transportation Commission) for the JARC Large Urbanized Area funds and Caltrans for the JARC Small Urbanized/Rural funds.

In addition to funding from Caltrans, the provision of transportation and transportation-related benefits by OUTREACH's many programs are supported financially through the following combination of federal, state and local resources,

- Metropolitan Transportation Commission/Santa Clara Valley Transportation Authority/County of Santa Clara Lifeline Program
    - State Transit Assistance Program,
    - Job Access/Reverse Commute Program (FTA Section 5316) and

    - New Freedom Program (FTA Section 5317)
- City of San Jose
    - Community Development Block Grant Program
    - Healthy Neighborhoods Venture Fund
- City of Sunnyvale
    - Community Development Block Grant Program
- County of Santa Clara, Social Services Agency
    - CalWORKS Incentive Funds
    - ARRA/TANF
- City of Campbell
    - Community Development Block Grant Program
- City of Cupertino
    - Community Development Block Grant Program
- City of Santa Clara
    - Community Development Block Grant Program
- Caltrans
    - Job Access/Reverse Commute Program (FTA Section 5316)
- Private Donations

In the fall of 2005, OUTREACH took its next step in the development of a full-service MMC, through successful funding proposals to establish the Senior Transportation Program. This program was developed out of the need for transportation options for older adults who were not eligible for ADA paratransit services.

Step #10: Review and Evaluation

OUTREACH Review and Evaluation

Periodically the MMC should conduct a review and evaluation of the progress made toward achieving the vision of the MMC, progress on addressing the needs and gaps in services identified in the community assessment and the effectiveness of the MMC's coordination strategies.

The tools used to conduct this review and evaluation will be subject to the MMC's stage of development and the priorities of each rural service area and can vary from informal focus group discussions to printed or on-line surveys of customer groups.

The review of OUTREACH's MMC is represented by this report which provides a detailed summary of the activities performed by the MMC and the products that have resulted from this planning project.

APPENDIX C

Transportation Assessments

The transportation gaps and needs of residents in the rural areas of Santa Clara County have been extensively documented by a number of studies over the past three years. The following tables contain summaries of the primary needs, as well as the proposed strategies to address those needs, that have been identified for persons with disabilities, seniors, welfare-to-work program participants and other transportation-disadvantaged populations. These studies were used as the basis for the development of the action plan for the MMC.

Community –Based Transportation Plan for the City of Gilroy, July 2006

South County consists of 30 square miles of rural and semi-rural geography with a population of 85,000 persons that is approximately 20 miles from the urban center of San Jose, the nation's 10th largest city. Gilroy alone contains approximately 47,000 people. Completed in July 2006, the Community-Based Transportation Plan for Gilroy represents the most thorough community assessment of this subject area's transportation needs. Located at the southernmost point of Santa Clara County, Gilroy represents an area that is historically rural and agricultural. During the past twenty years, development has started to change the face of this area; however, the predominant landscape remains at least semi-rural. The Community-Based Transportation Plan represents a collaborative effort that includes the participation of the Metropolitan Transportation Commission (MTC, the regional municipal planning organization), the Valley Transportation Agency (VTA, public transit agency), the City of Gilroy, OUTREACH and a wide range of local community-based organizations. As this is VTA's first effort to develop a Community-Based Plan for a targeted low-income, transportation-disadvantaged area, an enormous effort went into ensuring that the public's voices were heard and incorporated into the final report.

Table 1

Community-Based Transportation Plan for Gilroy: Transportation Needs - Projects

1.	Express Transit Service between Gilroy & San Jose: Direct transit service to key destinations between Gilroy and San Jose.
2.	Community Bus Services: Flexibility routed transit service utilizing small buses and routes developed through a community-driven process.
3.	Shuttle Services: Typically a van or small passenger bus that operates along a fixed or deviated route to connect critical activity centers. Shuttles differ from traditional fixed routes because they provide "curb-to-curb" convenience.
4.	Enhanced Transportation Information Services: Comprehensive program to support new transportation options, including providing written materials in various language.
5.	Farm Worker Vanpool Program: Shared use of a vehicle, with a seating capacity of 7 to 15 individuals, for transportation to and from homes (or some designated locations) and their work sites. Vans can be purchased or leased.
6.	Low-Cost Transit Pass: Program by which authorized community-based organizations or non-profit organizations sell transit fare media to qualifying low-income persons at a discounted price.
7.	Taxi Voucher Program: Discounts on taxicab rates for senior and disabled passengers (subsidy level to be determined).
8.	Bus Shelters & Amenities: Install bus shelters at bus stop locations to provide weather protection and improve safety. Amenities include lighting, benches, and trashcans.
9.	Bicycle & Pedestrian Infrastructure Improvements: A broad-based category including upgrades and infrastructure projects for pedestrians and bicyclists.
10.	Safe Routes Program: Education program to promote safe walking and bicycle usage. Programs can include physical infrastructure improvements and designated "safe routes" to increase awareness of bicyclists and pedestrians who may share travel paths with vehicles.
11.	Express Transit Service between Monterey & San Jose: Direct transit service to key destinations between Monterey and San Jose.
12.	Volunteer Driver Program: Program that provides volunteer drivers to transport persons with special needs through a curb-to-curb, demand-responsive service.
13.	Low-Cost Auto Ownership Program: Comprehensive program to facilitate car ownership for low-income drivers. May include allowances for gas, maintenance, insurance as well as repair and maintenance training programs

Santa Clara County Welfare to Work/CalWORKs – Transportation Planning Project, February 2006

In 1997-98, the County of Santa Clara's Social Services Agency and a broad coalition of stakeholders conducted a comprehensive study of the transportation needs of CalWORKs (Welfare-to-Work) participants. The study identified a number of strategies designed to address the transportation barriers faced by individuals making the transition from public welfare to unsubsidized, financially self-sustaining employment.

The "Key Findings"[47] of the County study identified the following "needs and barriers to transportation" for welfare-to-work participants:

General

- Some CalWorks participants must juggle and coordinate many different trips including drop-off and pick up at childcare, educational institutions and job training activities, adding to the complexity of transportation requirements.
- While many of the CalWORKs participants live in the eastern part of Santa Clara County, a large number of jobs being created are in the northern part of the County, meaning relatively long travel distances are required.
- Work opportunities are often present in inconvenient areas for public transit access, making ridesharing difficult.

Automobile

- The costs associated with owning and operating an automobile – including registration, licensing, insurance, smog certification, preventive and corrective maintenance, fuel and parking – are prohibitive for many lower-income people.
- Mechanical breakdowns are a frequent problem, resulting in tardiness and absences from work.

Transit/Ridesharing/Bicycling

- Some job opportunities for CalWORKs participants involve swing, night and weekend shifts, periods when public transportation is limited or not currently available.
- Home-to-work trips for transit-dependent CalWORKs participants can often be time-consuming and/or require multiple transfers.
- Transit delays have caused some CalWORKs participants to be late for work.

[47] Santa Clara County Social Services Agency, Valley Transportation Authority, Metropolitan Transportation Commission, Santa Clara County Welfare to Work/CalWORKs Transportation Planning Project, February 2006, pg.2-3.

- Rail and bus services are helpful to many CalWORKs participants, but rail stations (and to a lesser degree, bus stops) are often some distance from work and home locations.

Information

- Much of transportation service information is available only in English, and only 51% of CalWORKs heads-of-households speak English as their primary language.
- CalWORKs participants and support programs have difficulty getting comprehensive information on the range of transportation options available to them.

Table 2

Santa Clara County Welfare-to-Work Transportation Planning Project: Strategic Action Plan

Ride Sharing, Trip Planning & Information Strategies	
1.	Comprehensive trip planning and information service
2.	Guaranteed Ride Home Program to cover all CalWORKS participants
3.	Increase carpooling among CalWORKs participants
4.	Increase vanpooling among CalWORKs participants through new, innovative strategies

Transit Strategies	
1.	Transportation Program Direction Position at SSA to serve as liaison with transportation providers
2.	Improve transit stops (security improvement and amenities)
3.	Transportation allowances extended beyond replacement
4.	Increase knowledge/information/skills related to transit services
5.	Improve access to existing system
6.	Encourage childcare centers to locate in transportation corridors

Automobile Strategies	
1.	Expanded lending capacity of family loan program (provides loans for car purchases and repair)
2.	Fleet car purchase program for CalWORKS participants
3.	Partnerships between CalWORKS participants and existing car repair programs
4.	Auto Repair Program (auto mechanics provide low-cost car repairs for CalWORKS participants)
5.	Information and skills necessary to handle emergency situations
6.	General information on the processes of buying and maintaining a car (licenses, insurance, and maintenance)

Taxis, Bicycle, Paratransit, and Kids' Shuttle Strategies	
1.	Brokered transportation systems
2.	Trade marketing services for private transportation services (an exchange system whereby taxi/van companies would pay for trips for CalWORKS employees [to and from employment center] in exchange for employers providing marketing and advertising services for taxi/van companies)
3.	Shuttle system for school age children to and from school and afterschool programs
4.	Develop a bike program (give donated bikes to CalWORKS participants)

Coordinated Public Transit/Human Services Transportation Plan - Elderly and Disabled Component

In December 2007, the Metropolitan Transportation Commission (MTC), the Regional Transportation Planning Agency (RTPA) and Metropolitan Planning Organization (MPO) for the nine counties in the San Francisco Bay Area published the Elderly and Disabled Component of the Coordinated Public Transit/Human Services Transportation Plan, which includes the previously published Low-Income Component (November 2006).

The publication of the Coordinated Public Transit/Human Services Transportation Plan was an important date for human service transportation providers in the San Francisco Bay Area because its contents established the eligibility of transportation projects competing for federal transportation funding (e.g., JARC, New Freedom programs, etc.).

The Coordinated Plan has also served as a reminder of the importance of coordination in the provision of transportation-related services. In reviewing the contents of the plan, it is clear that the targeted service groups - low-income individuals and families, as well as individuals with disabilities and older adults - share many of the same transportation problems or barriers, including:

- Transportation that isn't affordable or available when they need to travel
- Lack of service to their destination or from their home
- The inability to afford public transportation, private taxi services or the operation of their personal vehicle
- Lack of transportation information in a language or form that is readily available to a potential public transit rider
- Complex travel requirements that are not well suited for public transit travel (i.e., multiple stops to drop off children at school and daycare before traveling to work or training, etc.).

Table 3

Metropolitan Transportation Commission: San Francisco Bay Area Coordinated Public Transit/Human Services Transportation Plan: Elderly and Disabled Component

Additions or Improvements to Paratransit that Exceed ADA Requirements	
1.	Premium services on ADA paratransit: Service beyond ADA-required areas and hours of operation; service pending eligibility determination; same-day requests; inter-county service; shorter trip times; intermediate stops; and time-certain arrivals
2.	Feeder service connecting to fixed-route transit: Excessive trip times for certain trips if offered as an optional service (distinct from a required mode as permitted by ADA for some customers and trips)
3.	Escorted travel on paratransit: Need for assistance by some riders who do not have attendants. Also includes issues with pick up/drop off locations, such as picking up at large complexes
4.	Transfer assistance to help with multi-operation paratransit trips and transfers between paratransit and fixed-route service: Coordination problems making inter-operator trips
5.	Discounted paratransit fares: Affordability of service for people with limited incomes, high medical expenses, and/or need for frequent trips

Additions or Improvements to Demand-Responsive Services (Other than Paratransit)	
1.	Demand-responsive group shopping service: Non-ADA eligible people who cannot use transit if they need to carry packages
2.	Volunteer driver programs, including training and recruitment of drivers: Need for assistance, assistance with carrying packages, intermediate stops such as waiting for a rider at a pharmacy or bank, shorter travel times
3.	Taxi discount and voucher programs, including the possible purchase of a guaranteed level of taxi service by transit agencies: Same-day service, service pending ADA eligibility, service when ADA paratransit does not operate, travel times, and travel needs of non-ADA riders.
4.	Incentives or assistance to improve quality of taxi services: Service issues limit usefulness of taxis to older people and people with disabilities
5.	Help for community organizations to expand services: Lack of alternative services, financial difficulties of community organizations, insufficient vehicles, and insurance issues
6.	Non-emergency medical transportation for MediCal patients: Lack of appropriate, affordable service, especially for dialysis trips

Additions or Improvements to Transit Services	
1.	Senior-friendly shuttles, jitneys, or circulators: Difficulty using transit for local trips, trips with packages, shopping carts, etc. Stops that are far from facilities or with long walks to the door
2.	Discounted transit fares or other subsidies beyond those already provided for seniors and people with disabilities: Affordability of some long trips, multi-operator trips
3.	Expanded fixed route transit services: Limited or non-existing public transit services in some areas. Limited schedules on nights and weekends
4.	Better connections between transit systems: Issues with physical access, scheduled coordination, multi-operator trips to important destinations
5.	Additional wheelchair spaces on transit vehicles: Long waits if all wheelchair spaces are taken
6.	Additional driver training on accessibility issues and features: Issues with securing wheelchairs and passing-up wheelchair users at bus stops with no explanation

Improved Access to Transit Services	
1.	Targeted law enforcement: Traffic and parking violations near stops, which create dangerous conditions and limit access to transit
2.	Infrastructure improvements: Limited access due to sidewalk conditions, crossings, curb cuts, lack of sidewalk extensions, waiting areas, etc.
3.	Targeted transit route and stop adjustments: Lack of stops and routes that are convenient to destinations important to seniors and people with disabilities
4.	Pedestrian safety planning in the vicinity of transit stops: Short crossing times and “right turn on red” limit access in some locations. Infrastructure improvements and law enforcement need targeting
5.	Courtesy of flag stops for people with disabilities: Long distances between stops

Information and Assistance	
1.	Transit information in accessible formats, including real-time information
2.	Improved signage at bus stops and stations: Orient senior and disabled passengers to where they are and how to get where they want to go
3.	Enhanced regional information (using 511 or other means) about public transportation for paratransit users, people with disabilities and speakers of language other than English
4.	Enhanced local information and referrals systems: Lack of comprehensive mobility information that includes resources other than conventional transit and ADA paratransit

5.	Travel training, including orientation and mobility training and training for individuals and groups: Fear of using transit, lack of knowledge and familiarity with transit options
6.	“Buddy” Programs where experienced transit riders accompany and support new riders: Fear of using transit, lack of knowledge and familiarity with transit options
7.	Training for older drivers: Limited knowledge of alternatives among long-time drivers. Need for help planning for driver retirement
8.	Partnership with DMV to assist people who have just lost their licenses: Limited knowledge of alternatives among long-time drivers
9.	Targeted marketing to encourage seniors and people with disabilities to ride transit: Lack of knowledge; unrealistically negative perceptions that deter people from using transit
10.	Comprehensive mobility guides: Lack of comprehensive mobility information that includes resources other than conventional transit and ADA paratransit
11.	Increase awareness of wheelchair security issues among transit and paratransit riders: Mobility devices that cannot be safely secured, while safe alternatives exist
12.	Transit safety education: Fear of crime on transit

Miscellaneous (Including Solutions that Fall into Multiple Categories)	
1.	Improved service quality measurement with rider participation: Gaps or limits of service quality measurements by contractors
2.	Sharing of provider training and methods: Inconsistent quality regarding passenger assistance, transfers, etc.
3.	Funding assistance for items such as fuel purchases: Lack of funding to specifically address fluctuations in fuel prices and alternative fuel solution
4.	Funding for the development of emergency evacuation training programs: Lack of specifically designated funds for evacuation of people with disabilities
5.	Increased funding flexibility to allow for more energy efficient vehicle purchases (ex. as part of the 5310 program): Current Federal and State contracts provide a limited range of vehicles for volume purchasing at discounted rates
6.	Funding for specific technological improvements such as cell phones with GPS devices: Current funding parameters do not accommodate technology that could be useful for improved service delivery and to address problems such as locating riders at large complexes
7.	Intelligent Transportation Systems (ITS) Improvements: Service quality issues; problems waiting for vehicle arrivals; limited booking hours; and inability to co-mingle passengers on the same vehicle
8.	County-wide mobility management, including public/private partnerships: Insurance, audit and report issues for small agencies, uncoordinated information, and underutilized equipment

9.	Wheelchair breakdown service: No service is available in most areas, or is extremely expensive. Lack of such service may limit willingness to use transit

Coordinated Public Transit/Human Services Transportation Plan – Low Income Component

The low income component of MTC's Coordinated Public Transit/Human Services Transportation Plan is the product of MTC's extensive planning efforts related to this population.

In the mid-1990s, as a result of state and federal welfare reform, MTC sponsored Welfare- to-Work planning efforts in each of the nine San Francisco Bay Area counties covering MTC's service area. This was a comprehensive planning effort that brought together stakeholders ranging from public transit, human service transportation providers, social services providers and welfare recipients. The product of this effort was a Welfare-to-Work transportation plan that identified mobility strategies that address the needs of individuals and families transitioning from welfare to financial self-sufficiency.

In addition to the individual, county-based transportation plans, MTC also completed a regional Welfare-to-Work transportation plan. Through this process, MTC collected common barriers to mobility that were identified in the separate county-based transportation plans and developed a "set of policy-level strategies that would help overcome these obstacles and facilitate the implementation of many of the county solutions"[48].

In 2002, MTC began a planning effort that embraced transportation planning on the community level. These Community-Based Transportation Plans further identified barriers and strategies to overcome barriers faced by low income, public transit-dependent riders.

[48] MTC, "Coordinated Public Transit/Human Services Transportation Plan – Low Income Component" (November 2006), page 1.

Table 4

Metropolitan Transportation Commission: San Francisco Bay Area Coordinated Public Transit/Human Services Transportation Plan – Low Income Component

Transportation Improvement Strategy/Solution		County Welfare to Work Transportation Plans	Regional Welfare to Work Transportation Plan	Community-Based Transportation Plans
1	Improve transportation service/amenities			
2	Improve public information			
3	Address children's transportation			
4	Provide auto-based solutions			
5	Provide pedestrian solutions			
6	Provide bicycle solutions			
7	Institute transportation/land use solutions			
8	Address transportation affordability			
9	Develop employer-sponsored transportation solutions			
10	Increase car pooling and vanpooling options			
11	Increase overall funding for transportation services			
12	Address jurisdictional barriers for better coordination			
13	Implement pilot programs to test new strategies			
14	Advocate for regulatory change to improve mobility options			
15	Improve transportation conditions for persons with disabilities accessing jobs or training.			

Summary of Transportation Solutions: Low Income Component

Table 5

Proposed Solutions

Proposed Solutions: Transportation Services/Amenities	
1.	Make fixed-route bus improvements (frequency, hours of operation, routing)
2.	Install bus shelters
3.	Install bus seats or benches
4.	Initiate subsidized taxi service
5.	Initiate shuttle service (late-night and weekends)
6.	Initiate medical shuttle service

In the absence of comprehensive research on the transportation needs and barriers for transportation disadvantage populations, the project would have employed the United We Ride Framework for Action – Community Assessment to guide the development of the MMC for Santa Clara County. Without the network of consumers, transportation and human service providers that exist in Santa Clara County, the United We Ride model would have served as an essential tool for local parties to move from our shared vision to a practical entity.

In addition to the previously identified resources, OUTREACH also referenced the following documents in the development of the MMC's action plan:

- Lifeline Transportation Network Report: 2001 Regional Transportation Plan for the San Francisco Bay Area, MTC, December 2001; and
- Equity Analysis Report, Change in Motion – Transportation 2035 Plan for the San Francisco Bay Area, MTC, February 2009.

Community Assessment – Update: July 2009 Surveys

During the month of July 2009, staff conducted follow-up telephone surveys of human service providers in South County in order to update information regarding available transportation services/resources based on the budget impact of the new fiscal year and their current state of emergency preparedness planning. Repeated attempts were made to survey 22 key South County human service provider organizations and staff was successful in interviewing 15 of these groups. The organizations ranged in size from 2 to 440 employees with many of them utilizing from 50 to 600 volunteers annually to support their public benefit activities. The surveyed organizations serve a wide range of populations including mental health care users, seniors, persons with disabilities, kids, students and the general public.

The findings of these surveys consisted of the following:

Table 6

Survey Findings

July 2009 Survey Findings	
1.	Three groups offered transportation services. A senior program provided transportation through a volunteer driver program and the other two respondents provided public transit tokens. Six of the other respondents indicated that they referred transportation inquiries to OUTREACH.
2.	Eligibility for transportation benefits were based on needs (e.g. MediCal, low-income, etc.) and none of the providers charged any fees for their transportation benefits.
3.	None of the organizations that indicated they provided transportation benefits could cite a budget for the transportation benefits. In most cases, transportation services were funded by donations.
4.	Seven of the fifteen organizations surveyed indicated that they provided travel training services to encourage use of public transit.
5.	Eleven of the 15 respondents indicated that there are transportation needs that are not being met by the existing programs. Many indicated the need for more options and more affordable transportation alternatives.
6.	All fifteen respondents indicated that they have been involved in Emergency Preparedness planning.
7.	Thirteen of the fifteen respondents indicated that they had completed a Continuity of Operations Plan and fourteen of the respondents indicated that they had completed an Emergency Action Plan.
8.	Eight of the respondents indicated that they would be interested in obtaining assistance with emergency planning and two individuals indicated that they did not know if their organization would be interested.

The organizations that were successfully surveyed include:

- Catholic Charities Senior Respite Program;
- CalWORKs-Employment Connection;
- Chamberlain's Mental Health Services;
- Community Solutions;
- Community Solutions-Homeless Youth Program;
- Community Solutions – Transitional Housing Program;
- Gilroy Senior Center;
- Santa Clara County Regional Occupational Programs – South;
- Centennial Recreation Center;
- St. Joseph's Family Center;
- Hope Rehabilitation;
- Live Oak Adult Day Services;
- Mt. Madonna Sports and Fitness Program;
- Salvation Army-South County; and
- Beth-El Baptist Church Outreach Program.

APPENDIX D

Federal Emergency Management Agency
Emergency Preparedness On-Line Training

On-line sources of emergency preparedness training courtesy of FEMA: Emergency Management Institute. FEMA's other Incident Command System's training opportunities can be viewed at http://training.fema.gov

IS-100.a Introduction to Incident Command System, ICS-100

http://training.fema.gov/EMIWeb/IS/IS100A.asp

Course Overview: ICS 100, Introduction to the Incident Command System, introduces the Incident Command System (ICS) and provides the foundation for higher level ICS training. This course describes the history, features and principles, and organizational structure of the Incident Command System. It also explains the relationship between ICS and the National Incident Management System (NIMS).

The Emergency Management Institute developed its ICS courses collaboratively with:

- National Wildfire Coordinating Group (NWCG)
- U.S. Department of Agriculture
- United States Fire Administration's National Fire Programs Branch

Primary Audience: Persons involved with emergency planning, response or recovery efforts.

NIMS Compliance: This course is NIMS compliant and meets the NIMS Baseline Training requirements for I-100.

Prerequisites: N/A.

Course length: Approximately 3 hours.

IS-546.a Continuity of Operations Awareness Course

IS-546.a - Continuity of Operations Awareness Course New 8/21/2009
http://training.fema.gov/EMIWeb/IS/IS546A.asp

Course Overview: This course introduces students to the concept of continuity planning. The course provides a brief overview of continuity, including it definition, the legal basis for continuity planning, the Continuity Program Management Cycle, and essential elements of a viable continuity program. Although this course directly

addresses continuity requirements for Federal Executive branch organizations, the course also useful to State, local, territorial, and tribal governments.

Course Objectives: At the end of this course, students will be able to-

- Define continuity of operations.
- Identify the legal basis for continuity of operations.
- Explain the Continuity Program Management Cycle.
- Describe the elements of a viable continuity program.

Primary Audience: The primary audiences for this course are personnel at any level of government, representatives from Non-Governmental Organizations (NGOs), or representatives from private industry who may have a need for a basic understanding of continuity of operations.

Prerequisites: none

Course length: 1 hour.

IS-806 - ESF #6: Mass Care, Emergency Assistance, Housing, and Human Services

IS-806 - ESF #6: Mass Care, Emergency Assistance, Housing, and Human Services
http://training.fema.gov/EMIWeb/IS/IS806.asp

Course Overview: The National Response Framework (NRF) presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies – from the smallest incident to the largest catastrophe. As part of the NRF, Emergency Support Functions (ESFs) are primary mechanisms at the operational level used to organize and provide assistance. This series of courses provides an overview of each of the 15 ESFs. This course introduces Emergency Support Function (ESF) #6 – Mass Care, Emergency Assistance, Housing, and Human Services.

Course Objectives: At the end of this course, students will be able to-

- Describe the overall purpose and scope of ESF #6.
- Identify the types of supplemental assistance ESF #6 provides to individuals and State, tribal, and local governments.
- Identify typical activities accomplished by ESF #6 resources and teams.
- Describe the types of partnerships formed between ESF #6 and other response agencies and organizations.

Primary Audience: This course is intended for government executives, private-sector and nongovernmental organization (NGO) leaders, and emergency management

practitioners. This includes senior elected and appointed leaders, such as Federal department or agency heads, State Governors, mayors, tribal leaders, and city or county officials – those who have a responsibility to provide for effective response.

Prerequisites: IS-800, National Response Framework, An Introduction (note: IS-800, IS-800a or IS-800b are acceptable).

Course length: The overall length of the course will vary for each individual. IS-806 takes approximately 30 minutes.

IS-548 Continuity of Operations (COOP) Program Manager

IS-548 Continuity of Operations (COOP) Program Manager New 6/2/2009
http://training.fema.gov/EMIWeb/IS/IS548.asp

Course Description: This course describes the requirements for developing a continuity program as prescribed in Federal Continuity Directive (FCD) 1, Federal Executive Branch National Continuity Program and Requirements. The course covers program requirements and elements and support requirements and describes the roles and responsibilities of the Continuity Program Manager and other key players in developing a viable continuity program.

Although this course directly addresses continuity requirements for Federal Executive branch organizations, the course also useful to State, local, territorial, and tribal governments.

Course Objectives: At the end of this course, students will be able to -

- Define continuity of operations.
- Explain the benefits of developing a viable continuity program.
- Identify the elements of a viable continuity program.
- Identify processes, resources, and tasks necessary to implement and manage a successful continuity program.

Primary Audience: The primary audience for this course is personnel who may serve as Continuity Program Managers in their organizations**.**

Prerequisites:

- IS-546, Continuity of Operations (COOP) Awareness Course
- IS-547, Introduction to Continuity of Operations (COOP)

Course length: 4 hours.

IS-197.EM Special Needs Planning Considerations for Emergency Management

IS-197.EM Special Needs Planning Considerations for Emergency Management
http://training.fema.gov/EMIWeb/IS/IS197EM.asp New 3/20/2009

Course Overview

This course is designed for emergency management and first responder personnel to enable them to better understand the special needs population and teach how to partner with persons with special needs as well as their support providers and organizations.

Course Objectives:

At the end of this course, students will be able to:

1. To better understand the impact of different types of hazards on the special needs population.
2. To be made aware of the challenges faced by emergency managers during the different phases of the disaster.
3. To learn how to develop emergency plans for the special needs populations and plan with special needs persons and their organizations during the planning process for your local community.

Primary Audience: Emergency managers, emergency response personnel, and members of organizations dealing with the special needs populations.

Prerequisites: None.

CEUs: 0.4

Course length: 4 ½ hours.

APPENDIX E

Intelligent Transportation Systems: Rural ITS

What is it?

The U.S. DOT implemented the Advanced Rural Transportation System (ARTS) program to meet the needs of travelers in and through rural areas as well as of the agencies responsible for the operation and maintenance of rural transportation systems. "Rural" is defined as those areas that do not have the same access to resources and infrastructure elements as major metropolitan areas. Rural areas can include farm/ranch land, national parks, isolated small communities, suburbs outlying urban centers that do not have access to some of the urban-based services such as regular transit, dedicated emergency services, full coverage communications networks, abundant power supplies, etc.

U.S. Rural Area Statistics[49]
78.5% mileage traveled is rural
39.4% of vehicle miles traveled is in rural areas
68.4% crash fatalities occur on rural highways

Although many agencies in rural areas have not implemented ITS technologies (partly because they believe they are too expensive), the need for ITS in these regions of limited resources is significant. Rural accident fatality rates are much higher than in urban areas; fatal crashes are more prevalent in rural areas, and mile-for-mile rural travelers are roughly 2.5 times more likely to be in a fatal crash. Lack of mobility is also a major problem; 38% of the rural population has no access to public transportation, and 1 in 14 rural households are without a private vehicle. Additionally, there are limited telecommunications systems in rural areas, making incident management and traveler information dissemination difficult. The ARTS program is designed to meet such information, mobility, and safety needs and to promote the application of ITS technologies in rural areas.

Key Results

Rural ITS Services and Technologies

Listed below are the primary ITS applications used in rural settings. Many of these technologies can be found elsewhere in this website. Please follow the links provided for more information on individual services and technologies.

[49] Source: FHWA Highway Statistics, 1998, Rural versus Urban Highway Statistics.

- **Emergency Services** - include services provided by law enforcement, fire departments, emergency medical services, and related organizations. For instance, law enforcement vehicles are equipped with laptop computers and in-car portable printers to automate accident-related reports and traffic citations; GPS is also integrated into to the system to geo-code each incident into a central database.
- **Tourism and Travel Information** - provides traveler information such as weather information, route advisories, and information on road closures. Technologies include highway advisory radio (HAR), in-vehicle route guidance, smart card payment systems, and variable message signs (VMS).

Projects:

- SAFE Passage in Bozeman, MT provides en-route traveler information via VMS, HAR, and cell phone.
- Greater Yellowstone provides info to tourists through information kiosks and variable message sign.

- **Traffic Management** - uses traffic control, traveler information, and road maintenance to improve operations on roadways. Technologies include highway advisory radio (HAR), in-vehicle route guidance, variable message signs, and road weather information systems.

Project:

- Oregon's Trip Check: Travel information website that provides incident maps that show where incidents occur and the expected delays; a custom cam page that allows the user to view particular segments of the roadway; a mileage calculator for trip estimations; and localized weather information.

- **Rural Transit and Mobility** – provides services that improve transportation access services (i.e. paratransit) to rural customers.

Project:

- The Cape Cod Advanced Public Transportation System is an application of Intelligent Transportation Systems (ITS) to fixed-route and paratransit operations in a rural transit setting. The purpose of the project is to apply ITS technologies that will improve transportation services for the residents of rural Cape Cod as well as for visitors to the region. The Cape Cod Regional Transit Authority (CCRTA) fleet includes approximately 85 vehicles, and the service area covers 400 square miles. CCRTA's operations include an extensive dial-a-ride paratransit service, regional fixed routes, several community bus services, and seasonal village trolleys.

- **Crash Prevention and Security** - helps drivers avoid crashes and reduces crash severity by implementing mayday systems, road weather information

systems, highway advisory radio, emergency vehicle preemption, and animal detection/deterrence.

Projects:

- Animal Detection/Deterrence: There are 726,000 animal/vehicle crashes every year (Conover, M.R., Wildlife Society Bulletin, 1997). Animal detection/deterrence systems include fencing off areas to deter animal presence and controlling the feeding of animals within an area to minimize their population growth.
- California Dynamic Speed Warning System uses an LED variable message sign to display current driver speed.
- The Dynamic Downhill Warning System in Denver, a city that has about twenty runaway trucks and fifteen truck-related crashed each year, includes sensors that detect truck presence and a variable message sign that displays an advisory message before a steep grade.

- **Operations and Maintenance** - includes monitoring of roadway conditions, public fleet management, etc. Projects include computer-aided dispatch, collision warning devices, automated deicing system, lane positioning devices, and intelligent snow plows.

- **Surface Transportation and Weather** - provides en-route advisory information about road weather conditions.

Projects:

- Nevada Wind Warning System includes a road weather information system (RWIS) that monitors sustained wind and wind gusts and broadcasts warnings to travelers on variable message signs.
- FORETELL is a multi-state initiative covering the Upper Mississippi Valley region that collects, forecasts, and distributes highly specific road weather information that is pertinent to highway and trucking professionals, transit operators, long-distance travelers, and all other road users.
- Frontier Fog Warning System - This automated system consists of nine permanent Variable Message Signs (VMS), nine weather stations, and thirty-six speed monitor locations. It automatically advises travelers, via the VMS, of speeds that would be safe for conditions ahead.

Benefits

Safety

- Road weather maintenance helps prevent weather-related incidents.
- Fewer crashes result when drivers are aware of delays or incidents upstream.
- Emergency services can more easily locate and manage accidents.

Mobility

- Residents of rural districts can travel more easily due to improved public transit services.
- Tourists can more easily locate and access points of interest.

Costs

Costs vary depending upon the application. For more information, please see http://www.benefitcost.its.dot.gov.

Implementation Challenges

- Rural agencies may be resistant to implementing ITS in their districts due to perceived high costs.
- New telecommunication systems need to be installed in less populated rural areas.
- Maintenance of ITS technologies located in more isolated areas may be difficult.

Where is it Implemented?

In rural areas across the U.S.

Links:

- Slideshow about ITS applications in rural settings: http://www.its.dot.gov/rural/module1/index.htm
- National Rural ITS Activities Update 2003: http://www.itsa.org/subject.nsf/Files/ruralits~8901769/$file/ruralits~8901769.doc
- ITS America Rural ITS Page: http://www.itsa.org/rural.html
- US DOT ITS Rural Applications: http://www.its.dot.gov/rural_its.htm
- Current Rural ITS Projects in California: http://www.ruralits.org/projects/index.html
- ITS Best Practices: http://www.itsdocs.fhwa.dot.gov//JPODOCS/REPTS_TE//13784.html

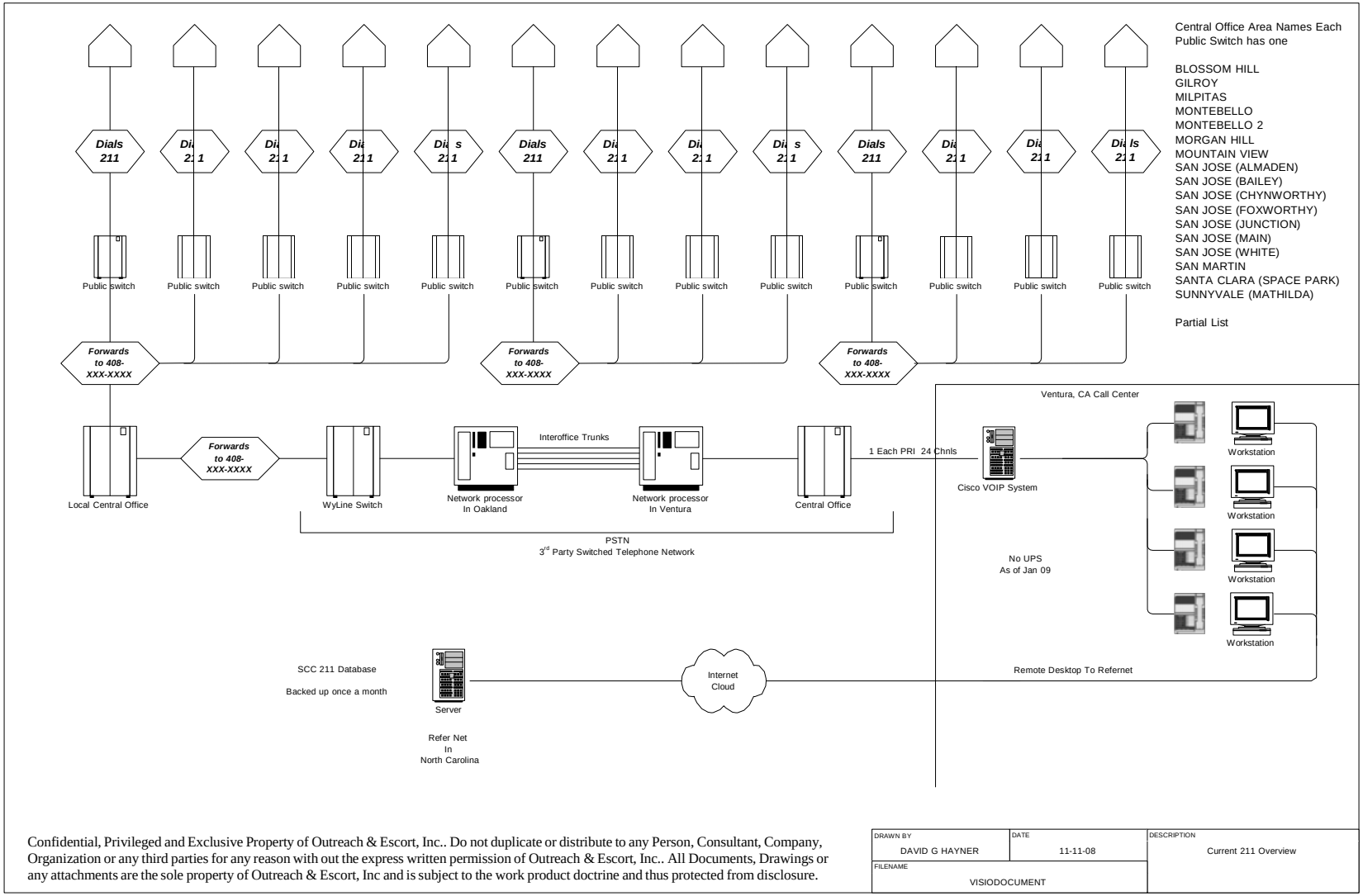
Source:

Lauren Smith
Institute of Transportation Studies at the University of California at Berkeley and Caltrans

http://www.calccit.org/itsdecision/serv_and_tech/rural_its/ruralits_sum.htm

APPENDIX G

Figure 3: 2-1-1 System Overview



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APPENDIX H

Equipment Purchased

Note: The equipment selected to enhance communications, particularly among health and human service agencies, transportation providers, emergency services, transit and the MMC will vary from rural area to rural. Understanding what systems are in place by public agencies like emergency service, paratransit providers/transportation providers including in-vehicle communications, 2-1-1 and 5-1-1 systems, and so forth, allows the MMC to plan for robust linkages without duplication and to consider communications and equipment gaps. The latter focuses on health and human service agencies and transportation providers who may be a step or two removed from the existing command structures and communications systems in any rural area but who will be vital in the solution to provide transportation during and after disasters and emergencies.

Amateur Radio:

Amateur radio, often called ham radio, is both a hobby and a service in which participants, called "hams," use various types of radio communications equipment to communicate with other radio amateurs for public service, recreation and self-training.

Amateur Radio During and After Disasters
Amateur Radio operators set up and operate organized communication networks locally for governmental and emergency officials, as well as non-commercial communication for private citizens affected by the disaster. Amateur Radio operators are most likely to be active after disasters that damage regular lines of communications due to power outages and destruction of telephone, cellular and other infrastructure-dependent systems.

Amateur Radio Operators Help Local Officials
Many radio amateurs are active as communications volunteers with local public safety organizations. In addition, in some disasters, radio frequencies are not coordinated among relief officials and Amateur Radio operators step in to coordinate communication when radio towers and other elements in the communications infrastructure are damaged.

Major Amateur Radio Emergency Organizations
Amateur Radio operators have informal and formal groups to coordinate communication during emergencies. At the local level, hams may participate in local emergency organizations, or organize local "traffic nets."At the state level, hams are often involved with state emergency management operations. In addition, hams operate at the national level through the Radio Amateur Civil Emergency Service (RACES), which is

coordinated through the Federal Emergency Management Agency, and through the Amateur Radio Emergency Service (ARES), which is coordinated through the American Radio Relay League and its field volunteers.

- ARES | http://www.arrl.org/FandES/field/pubservice.html
- RACES | http://www.usraces.org/
- SATERN | http://www.satern.org/
- MARS - Army | http://www.netcom.army.mil/mars/
- MARS - Air Force | http://www.afnic.af.mil/
- MARS - Navy | http://www.navymars.org/
- SKYWARN | http://www.skywarn.org/

Amateur Radio: Recognized as a Resource by National Relief Organizations

Many national organizations have formal agreements with the Amateur Radio Emergency Service (ARES) and other Amateur Radio groups including:

- Citizen Corps - Department of Homeland Security
- Federal Emergency Management Agency
- National Communications System
- American Red Cross
- Salvation Army
- National Traffic System
- National Weather Service
- National Oceanic & Atmospheric Administration
- Association of Public Safety Communications Officials

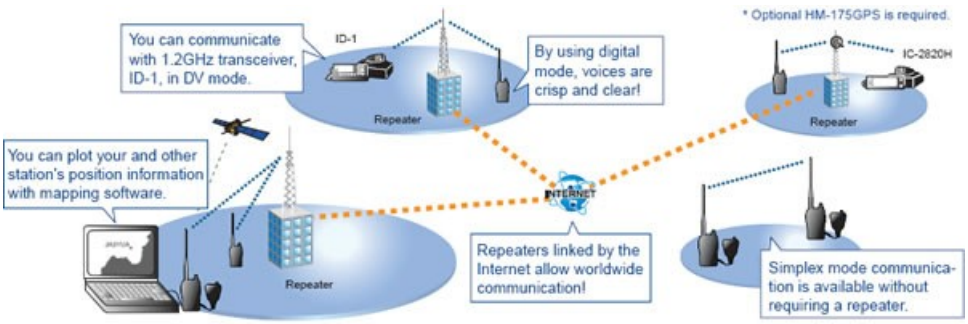
After analyzing various specifications of HAM Radios, we purchased 2 models of Radios for testing.

1. **KENWOOD TH-F6A**
   (Compact 144/220/440MHz Transceiver/Receiver)

   The TH-F6A is a 144/220/440 MHz transceiver/receiver with dual-channel RX capability in a compact and powerful design. The first Tri-Band HT with 3 bands you can operate.

2. **ICOM IC-92AD** VHF/UHF Dual Band Transceiver D Star Ready

   The IC-92AD has dual-watch receiver capability, allowing you to receive on two bands simultaneously (including the same band). By pushing and holding the [Main/Dual] button, you can easily turn dual watch on and off, while a single press toggles the active VFO channels (A band/B band).



Digital Radio:

Digital radio describes radio technologies which carry information as a digital signal, by means of a digital modulation method.

We tested 2 brands of digital radios for a period of over 4 months. Both the radios performed exceptionally well.

- KENWOOD NX-700(H)/800(H) NEXEDGE™ VHF/UHF Digital & FM Mobile Radios.
- Motorola XPR digital two-way radio with display has an integrated GPS modem for advanced location tracking. The radio delivers reliable communication by combining two-way radio functionality with digital technology

We decided to purchase Motorola because of the following factors:

- Low cost implementation
- Better support
- Easy expansion
- API support: custom programs can be run to transmit and receive data from the central office.

Motorola's first digital two-way radio system specifically designed to meet the requirements of professional organizations that need a customizable, business-critical communication solution using licensed spectrum. In addition, MOTOTRBO is built to the globally recognized Digital Mobile Radio (DMR) standard; DMR is widely backed by major manufacturers of digital professional two-way radio communication equipment. MOTOTRBO Capacity Plus Single-Site Trunking.

Capacity Plus is the newest capability of the MOTOTRBO Professional Digital Two-way Radio System. As a scalable, single-site trunking solution, Capacity Plus enables over a

thousand radio users to quickly and efficiently share a large amount of business-critical voice and data communication on the same system – resulting in increased productivity for your business.

Sat Phones:

Iridium is the world's only truly global mobile satellite communications company, with voice and data solutions covering the Earth's surface.

The **Iridium satellite constellation** is a large group of satellites used to provide voice and data coverage to satellite phones, pagers and integrated transceivers over Earth's entire surface. Iridium Satellite LLC owns and operates the constellation and sells equipment and access to its services.

The constellation requires 66 active satellites in orbit to complete its constellation and additional spare satellites are kept in-orbit to serve in case of failure.[1] Satellites are in low Earth orbit at a height of approximately 485 mi (781 km) and inclination of 86.4°. Orbital velocity of the satellites is approximately 17,000 mph (27,000 km/h). Satellites communicate with neighboring satellites via Ka band intersatellite links. Each satellite can have four intersatellite links: two to neighbors fore and aft in the same orbital plane, and two to satellites in neighboring planes to either side.

When land based communication is disrupted (e.g. cell towers and traditional landlines), Iridium 9555 satellite phones can be used to make phones calls and reach out to clients in need. Similarly incoming calls can be routed to the Sat phones.

APPENDIX I

Glossary of Transportation Terms

Access: The opportunity to reach a given destination within a certain time frame or without being impeded by physical, social, or economic barriers.

Access Board: Common name for" the Architectural and Transportation Barriers Compliance Board, an independent Federal agency whose mission is to develop guidelines for accessible facilities and services and to provide technical assistance to help public and private entities understand and comply with the Americans with Disabilities Act (ADA).

Accessibility: The extent to which facilities, including transit vehicles, are free of barriers and can be used by people who have disabilities, including wheelchair users.

Advanced Reservation Scheduling: Passengers call ahead and reserve, in advance, for a ride on a particular date and time. This is used in demand-response transportation systems. Transit systems may set limits on the minimum and maximum advance reservation times before the requested trip. Advance registration of trip requests allows the scheduler/dispatcher to identify ridesharing opportunities and assign rides to vehicles for the most efficient service delivery. A drawback to allowing requests far in advance of the desired trip is that no-shows may be more frequent than with real-time scheduling.

Administration on Aging (AoA): An agency of the U.S. Department of Health and Human Services. It is headed by an Assistant Secretary for Aging. It is the federal focal point and advocacy agency for older persons, as mandated by OAA, and administers most OAA programs at the federal level. AoA funds six core services: supportive services (among which is transportation); nutrition; preventive health services; National Family Caregiver Support Program; services that protect the rights of vulnerable older persons; and service to Native Americans. AoA provides leadership, technical assistance, and support to the national aging network. (See National Aging Network)

Alternative Fuels: Vehicle engine fuels other than standard gasoline or diesel. Typically, alternative fuels burn cleaner than gasoline or diesel and produce reduced emissions. Common alternative fuels include methanol ethanol; compressed natural gas, liquefied natural gas, clean diesel fuels and reformulated gasoline.

Alternative Methods of Transportation: Any way of getting from point “A” to point “B” other than driving alone in a car, van, or truck. Alternative modes include carpooling, vanpooling, bicycling, walking, or riding transit.

American Public Transit Association: An organization that represents the interests of public transit agencies in the U.S., primarily those in large urbanized areas.

Americans with Disabilities Act (ADA): Passed by Congress in 1990, this Act mandates equal opportunities for people with disabilities in the areas of employment, transportation, communications and public accommodations. Under this Act, most transportation providers are obliged to purchase lift-equipped vehicles for their fixed-route services and must ensure system-wide accessibility of their demand-responsive services to people with disabilities. Public transit providers also must supplement their fixed-route services with paratransit services for those people unable to use fixed-route service because of their disability.

Americans with Disabilities Act (ADA) Complementary Paratranslt Service: The Americans with Disabilities Act (ADA) Requires public transit agencies that provide fixed-route service to provide "complementary paratransit" services to people with disabilities who cannot use the fixed-route bus or rail service because of a disability. The ADA regulations specifically define a population of customers who are entitled to this service as a civil right.
The regulations also define minimum service characteristics that must be met for this service to be considered equivalent to the fixed-route service it is intended to complement. In general, ADA complementary paratransit service must be provided within 3/4 of a mile of a bus route or rail station, at the same hours and days, for no more than twice the regular fixed route fare.

Area Agency on Aging (AAA or Triple A): A public or private non-profit agency, designated by the state to address the needs and concerns of all older Americans at the regional and local levels. The term "area agency on aging" is a generic term specific names of local AAAs [IRS designation of 501(c) (3)] may vary. Triple A's are primarily responsible for a geographic area that is a city, county, or a multi-county district. Triple As may be characterized as: county, city, regional planning council, council of governments, or private, non-profit. All Triple As perform three important functions: Creating multi-year plans; providing information and referral on available services and programs; and Coordinating OAA and other funds that support their service area.

Block Grant: Categorical funds that are distributed to a recipient without specific spending requirements.

Boards of Cooperative Educational Services (BOCES): Cooperative boards consisting of local school boards, community colleges, and other educational institutions. These agencies combine to provide services that are most effectively provided by several districts, such as services for students with disabilities, rather than be each individual school district.

Bond: A three-party agreement providing legal assurance of contract. A transit provider may request/require prospective contractors to provide a bid bond-a guarantee that the

bidding party will fulfill the terms of the bid, and, if not, that a third party (usually an insurance company) will pay any cost difference bond that ensures restitution should the winning contractor fail to perform in accordance with specific contract terms.

Brokerage: A method of providing transportation where riders are matched with appropriate transportation providers through a central trip-request and administrative facility. The transportation broker may centralize vehicle dispatch, record keeping, vehicle maintenance and other functions under contractual arrangements with agencies, municipalities and other organizations. Actual trips are provided by a number of different vendors.

Bus Testing: Originally drafted in 1989, the Federal Transit Administration (FTA) Bus Testing regulations mandate that all transit vehicle models purchased with FTA money must undergo testing at FTA's Altoona, PA bus testing site.

Bus-way: A roadway reserved for buses only, also known as a "bus lane".

Buy America: Federal transportation law which requires that all purchases of vehicles, equipment or any other manufactured item be of U.S.-made and assembled components, unless the purchase price is less than $100,000 or the U.S. Department of Transportation has given the purchaser a Buy America waiver.

Capital Costs: Refers to the costs of long-term assets of a public transit system such as property, buildings and vehicles. It can include bus overhauls, preventive maintenance, mobility management, and even a share of transit providers' ADA paratransit expenses.

Central Transfer Points: A central meeting place where routes or zonal demand-responsive buses intersect so that passengers may transfer. Routes are often times to facilitate transferring.

Charter Service: Transportation service offered to the public on an exclusive basis (either as individuals or as groups). It is provided with a vehicle that is licensed to render charter service and engaged at a specific price for the trip or period of time, usually on a reservation or contractual basis.

Circulars: Program management guidelines issued by federal agencies. The Federal Transit Administration (FTA) publishes and updates its circulars to communicate funding program requirements. In May 2007, the FTA published circulars concerning the FTA's Section 5310, 5316, and 5317 programs.

Circulator Bus: A bus that makes frequent trips around a small geographic area with numerous stops along the route. It is typically operated in a downtown area or an area that attracts tourists or large crowds and has limited parking and congested roads. It

may be operated all day or only at times of peak demand, such as rush hour or lunch time.

Clean Air Act: Federal legislation that details acceptable levels of airborne pollution and spells out the role of state and local governments in maintaining clean air.

Community Centered Boards: Twenty non-profit agencies, established by statute, that are responsible for providing comprehensive services, including transportation, to people with developmental disabilities at the regional level.

Commercial Driver's license (CDL): The standardized driver's license required of bus and heavy truck drivers in every state. It covers drivers of any vehicle manufactured to seat 15 or more passengers (plus driver) or over 13 tons gross vehicle weight. The CDL is mandated by the Federal government in the Commercial Motor Vehicle Safety Act of 1986.

Community Routes: Community routes are transit routes that are tailored to meet the needs of a specific market segment (such as persons with a disability or older adults) in a community. Community routes often evolve out of a pattern of demand-responsive travel within a community.

Community Service: Service in which a transfer to or from another transit system or mode is the focal point. An example of this is a service provided under the Greyhound Rural Connector program: local transit providers operate service that brings people to and from the Greyhound station. This type of connector is also known as a feeder service.

Community Transportation: The family of transportation services in a community, including public and private sources that are available to respond to the mobility needs of all community members.

Community Transportation Association of America (CTAA): A national professional association of community transportation providers and supporters, including operators, vendors, consultants, and federal, state and local officials.

Congestion Mitigation and Air Quality Project (CMAQ): A flexible funding program administered by the Federal Highway Administration that funds projects and programs to reduce harmful vehicle emissions and improve traffic conditions. CMAQ funds may be used for transit projects, rideshare projects, high-occupancy vehicle lanes or other similar purposes.

Coordinated Public Transit-Human Services Transportation Plan: A locally developed plan for coordinating local public transportation and human service agency transportation services that aims to maximize the programs' collective coverage by minimizing duplication of services. The coordinated plan should be developed through a

process that includes representatives of public, private and non-profit transportation and human services providers, and participation by the public, Under SAFETEA-LU, any public agency applying for funding of a new or expanded service under Sections 5310,5316, or 5317 must show that they be derived from a .locally developed, coordinated public transit-human services transportation plan developed through a process that consists of representatives of public, private, and non-profit transportation and human services providers with participation by the public.

Coordination: A cooperative arrangement among public and private transportation agencies and human service organizations that provide transportation services. Coordination models can range in scope from shared use of facilities, training or maintenance to integrated brokerages or consolidated transportation service providers.

Council of Governments (COG): A voluntary association of local governments that operates as a planning body. COGs collect and disseminate information, review applications for funding, and provide services common to its member agencies.

Curb-to-Curb Service: A common designation for paratransit services. The transit vehicle picks up and discharges passengers at the curb or driveway in front of their home or destination. In curb-to-curb service the driver does not assist the passenger along walks or steps to the door of the home or other destination.

Cost Allocation: The act of allocating costs among entities. In cost allocation the objective is typically to allocate a known cost among several entities based on the cost per unit of resource.

Demand-Response Service: The type of transit service where individual passengers can request transportation from a specific location to another specific location at a certain time. Transit vehicles providing demand-response service do not follow a fixed route, but travel throughout the community transporting passengers according to their specific requests. It can also be called "dial-a-ride." These services usually, but not always, require advance reservations.

Designated Recipient: A public body designated in each urbanized area to have the legal authority to receive and dispense federal funds, such as from the Federal Transit Administration program.

Destination: A place where a passenger ultimately disembarks from a transit vehicle; the point at which a trip terminates.

Deviated Fixed Route: A hybrid of fixed-route and demand-response services. With this type of service, a bus or van stops at fixed points and keeps to a timetable but can deviate its course between two stops to go to a specific location for a pre-scheduled request. Deviated fix route service is often used to provide accessibility to people with disabilities.

Dial-a-Ride Service: Another term for demand-response service (see above) where the rider telephones (or "dials") to request service.

Disabled: Any person who by reason of illness, injury, age, congenital malfunction or other permanent or temporary incapacity or disability is unable, without special facilities, to use local transit facilities and services as effectively as people who are not so affected.

Door-through-Door Service: A service that may involve assisting the passenger through the door at their place of origin and delivering them through the door of their destination. The driver or escort may provide substantial hands-on physical assistance for the passenger if needed.

Door-to-Door Service: A form of paratransit service that includes passenger assistance between the vehicle and the door of the passenger's home or other destination. A higher level of service than curb-to-curb, yet not as specialized as "door-through-door" service, where the driver actually provides assistance within the origin or destination.

Drug and Alcohol Testing Regulations: The U.S. Department of Transportation implemented the Omnibus Transportation Employee Testing Act in December 1992. The Federal Transit Administration's drug and alcohol rules address testing of "safety sensitive" employees in its Section 5307, 5309, 5311, 5316, and 5317 programs. Federal Motor Carrier Safety Administration rules address testing of all other employees required to having a Commercial Driver's License (see *above),* including many employees of Section 5310- assisted transportation operations.

Easter Seals Project Action (ESPA): Funded through a cooperative agreement with the Federal Transit Administration, Easter Seals· Project ACTION promotes cooperation between the transportation industry and the disability community to increase mobility for people with disabilities under the ADA and beyond. It offers resources as we" as training and technical assistance in an effort to make the ADA work for everyone, everyday.

Employment Transportation: Transportation specifically designed to take passengers to and from work or work-related activities.

Empowerment Zones (EZs)/Enterprise Communities (ECs): These areas, so designated by the U.S. Department of Housing and Urban Development and the U.S. Department of Agriculture, are eligible for preferences and flexibility in many federal grant programs. In the 1990s, EZs/ECs were chosen competitively based on community poverty characteristics and local strategic planning processes.

Fare Box Revenue: A public transportation term for the money or tickets collected as payment for rides. Can be cash, tickets, tokens, transfers or pass receipts. Fare box revenues rarely cover even half of a transit system's operating expenses.

Fare Structure: The basis for determining how fares are charged. Common types of fare structures are *distance-based* (the longer the trip is, the higher the fare will be), *time-based* (higher fares for trips made during peak hour service than during the "off peak") or *quality-based* (demand-responsive trips are typically charged a higher fare than fixed route trips) or flat fares (the same fare is charged for all trips). In addition to these four methods, a fare structure may differentiate among passengers based on age, income, or disability; for example, often lower fares are charged for older adults, children and youth, Medicaid recipients, people with limited income and people with disabilities).

Federal Highway Administration (FHWA): A component of the U.S. Department of Transportation that is responsible for ensuring that America's roads and highways are safe and technologically up-to-date. Although State, local, and tribal governments own most of the Nation's highways, the FHWA provides financial and technical support to them for constructing, improving, and preserving America's highway system. The FHWA's annual budget of more than $30 billion is funded by fuel and motor vehicle excise taxes. FWHA is the lead agency in federal intelligent transportation (ITS) activities and regulated interstate transportation. In addition to ITS, funds under FHWA's Congestion Mitigation and Air Quality Improvement (CMAQ) Program, Surface Transportation Program (STP), and Federal Lands Highways Program can be used for a variety of transit activities.

Federal Transit Administration (FTA): A component of the U.S. Department of Transportation that administers federal funding to support a variety of locally planned, constructed, and operated public transportation systems throughout the U.S., including buses, subways, light rail, commuter rail, streetcars, monorail, passenger ferry boats, inclined railways, and people movers. FTA provides financial assistance for capital, operating and planning costs of these public transportation systems. It also sponsors research, training, technical assistance and demonstration programs. Up to 1991 the FTA was known as the Urban Mass Transportation Administration.

Fixed-Route Service: Typically, fixed-route service is characterized by printed schedules or timetables, designated bus stops where passengers board and alight and the use of larger transit vehicles. Transit services where vehicles run on a regular scheduled route with fixed stops and no deviation.

Fixed Schedule: Predetermined times at which a vehicle is to arrive at a certain location. The actual bus route may be fixed or flexible. A flexible route combines fixed scheduled stops with demand-response stops.

Flexible Routing and Schedules: Flexible route service follows a direction of travel but allows for deviation or rerouting along the way to accommodate specific trip requests. Examples of flexible route systems are route deviation and point deviation. The schedule may be fixed or flexible.

Grant: The award of government funds to an entity. Federal funds are typically awarded either as formula (or "block") grants, where a predetermined legislative process establishes the level of funding available to an entity, or discretionary grants, where the funding agency is free to determine how much {if any} funding an entity will be given based on the relative merits of the proposal. Private foundations also give grants based on their own criteria.

Guaranteed Ride Home: A program that encourages employees to carpool, use transit, bike or walk to work by guaranteeing them a ride home in case they cannot take the same mode home (e.g., if they need to work late or if an emergency occurs).

Head Start: A program of comprehensive services for economically disadvantaged preschool-age children. Services, including transportation, are provided by local Head Start agencies and are funded by the Administration for Children and Families, part of U.S. Department of Health and Human Services.

Headway: The length of time at a stop between buses following the same route. If buses operating' along Route A arrive at Stop 1 at 9:00, 9:30, 10:00, 10:30, and 11:00, it is operating on half-hour headways during the period between 9:00 and 11:00. When headways are short the service is said to be operating at a high frequency, whereas if headways are long, service is operating at a low frequency;

Human Services Transportation: Transportation for clients to a specific human or social service agency that is usually limited to a specific trip purpose. Human service agency trips are often provided under contract to a human service agency and may be provided exclusively or rideshared with other human service agencies or general public service.

Individual with a Disability: Any person who by any reason of illness, injury, age, congenital malfunction, or other permanent or temporary disability or incapacity is unable, without special facilities, to use local transit facilities and services as effectively as persons who are not so affected. This definition is part of the Americans with Disabilities Act (ADA).

Intelligent Transportation Systems: Refers to a broad range of wireless and wire line communications-based information and electronic technologies. When integrated into the transportation system's infrastructure and into vehicles themselves, these technologies relieve congestion, improve safety and enhance productivity: It is made up of 16 types of technology based systems, divided into intelligent infrastructure systems and intelligent vehicle systems.

Intercity Transportation: Long distance service provided between cities, often as part of a large network of intercity bus operators. Both express and local bus service may be provided. The Greyhound and Trail-ways systems are examples national intercity bus networks: Under the Federal Transit Administration's Section 5311 (f) program, intercity transportation service must receive no less than 15 percent of each state's total Section 5311 funding, unless a state's governor certifies that these needs are already being met.

Jitney: A privately owned, small vehicle that is operated on a fixed route but not on a fixed schedule.

Joblinks: An initiative funded through the Federal Transit Administration and the U.S. Department of Labor and implemented by the Community Transportation Association of America. The Job-links team works with communities to improve employment transportation opportunities through many types of activities, ranging from demonstration projects to direct, and short-term technical assistance to employment transportation-related conferences.

Live Dispatch or Real-Time Scheduling: Passengers call and request demand-responsive trips a short time before the trips are needed and the dispatcher is responsible for assigning vehicles and drivers to meet passengers' requests. This type of scheduling is most convenient for passengers but most costly for a transit system to implement as a large fleet of vehicles and drivers is needed to ensure all trip requests are met. This type of scheduling is most frequently used by taxi services.

Local Bus Service: Local bus service is a term used to describe a route along which many stops are made, allowing passengers to board and disembark. It is typically used in contrast to express bus, a bus that makes a limited number of stops and is targeted more at long distance riders. Local bus service is important to rural areas unless feeder or connector service is available to bring people to the station.

Match: State or local funds required by various federal or state programs to complement funds provided by a state or federal agency for a project. A match may also be required by states in funding projects that are joint state/local efforts. Some funding sources allow services, such as the work of volunteers, to be counted as an in-kind funding match. Federal programs normally require that match funds come from other than federal sources.

Medicaid: Also known as Medical Assistance, this is a health care program for low-income and other "medically needy" individuals. It is jointly funded by state and federal governments. The Medicaid program pays for transportation to non-emergency medical appointments if the recipient has no other means to travel to the appointment. More information is available at www.cms.hhs.gov for more information.

Medicare: The national health insurance program for eligible people 65 and older and some disabled individuals. Medicare covers hospital costs. Medicaid B covers doctor bills and other medical costs. At this time, Medicare covers only emergency transportation services.

Medical Review Officer (MRO): An accredited physician who can review the results of drug and alcohol tests for transit employees. An MRO is mandatory for certain transit agencies under the Department of Transportation, Drug and Alcohol Regulations. The definition and qualifications for an MRQ are included in 49 C.F.R. Part 40.

Metropolitan Planning Organization (MPO): The organizational entity designated by law with lead responsibility for developing transportation plans and programs for urbanized areas of 50,000 or more in population. MPOs are established by agreement of the governor and units of general purpose local government that together represent 75 percent of the affected population of an urbanized area.

Mobility: The ability to move or be moved from place to place.

Mode, Intermodal, Multimodal: “Mode” refers to a form of transportation, such as automobile, transit, bicycle, and walking. “Intermodal” refers to the connections between modes, and “multi modal” refers to the availability of transportation options within a system or corridor.

National Center for Senior Transportation (NeST): A resource arid technical assistance center funded by the FTA (Federal Transit Administration) and administered by Easter Seals Inc., in partnership with the National Association of Area Agencies on Aging. Additional team members are the National Association of State Units on Aging (NASUA), the Community Transportation Association of America (CTAA), the American Society on Aging (ASA) and the Beverly Foundation. Also guiding NeST work is a national steering committee of experts in senior transportation issues.

National Network on Aging: the network of federal, state, and local agencies (U.S. Administration on Aging, state units on aging, and area agencies on aging) created by the Older Americans Act.

National Resource Center for Human Service Transportation Coordination (NRC): Established in 2007 as a result of SAFETEA-LU and operated by the Community Transportation Association of America (CTAA) through a cooperative agreement with the Federal Transit Administration (FTA). The fundamental purpose of the NRC is to support states and communities in better integrating public transportation services with the services and demands of their human services networks.

National Transit Database Reports: Annual reports (formerly known as "Section 15" reports) that provide financial and operating data that are required of almost all recipients of transportation funds under Section 5307.

No-show: A passenger scheduled for a demand-response trip that does not appear at the designated pick-up place and time and does not cancel the trip in advance. Frequent no-shows can hurt the efficiency and effectiveness of the demand-response transportation service. In addition, passengers who repeatedly fail to show for scheduled service may have their right to service suspended, subject to an appeals process.

Older Americans Act (OAA): Federal law first passed in 1965. The act established a National network of federal, state, and local agencies to plan and provide services to enable older persons to maintain their independence in their homes and communities. The Act created the infrastructure for organizing, coordinating, and providing community-based services and opportunities for older Americans and their families.

Operating Costs: The sum of all recurring expenses (e.g., labor, fuel, administration) associated with the operation and maintenance of a transit system; excludes capital equipment purchases, loans, depreciation, or leases.

Paratransit: Types of passenger transportation that is more flexible than conventional fixed-route transit but more structured than the use of private automobiles. Paratransit is a broad term that may be used to describe any means of shared ride transportation other than fixed route mass transit services. Paratransit services usually use smaller vehicles (less than 25 passengers) and provide advance-reservation, demand-responsive service that is either curb-to-curb or door-to-door. Paratransit services that are provided to accommodate passengers with disabilities who are unable to use fixed route service and that meet specific service equivalency tests are called “ADA complementary paratransit services.”

Person-Trip/Passenger-Trip: A trip made by one person from one origin to one destination. Many transit statistics are based on "unlinked passenger trips," which refer to individual one-way trips made by individual riders in individual vehicles. A person who leaves home on one vehicle, transfers to a second vehicle to arrive at a destination, leaves the destination on a third vehicle and has to transfer to yet another vehicle to complete the journey home has made four unlinked passenger trips.

Point Deviation Service: A type of flexible-route transit service in which fixed, scheduled stops (points) are established but the vehicle may follow any route needed to pick up individuals along the way if the vehicle can make it to the fixed points on the schedule. This type of service usually provides access to a broader geographic area than fixed-route service but is not as flexible in scheduling options as demand-responsive service. It is most appropriate when riders change from day to day but the same destinations are consistently in demand.

Pre-Award 'Post-Delivery Audit Requirements: Since 1991, FTA has required recipients of Sections 5307, 5309, 5310 and 5311 funds to carry out audits of vehicles

and other rolling stock purchased with FTA money, These audits are to ensure that vehicles are manufactured according to specification and comply with applicable Buy America and Federal Motor Vehicle Safety Standards.

Provider of Transportation (Transportation Provider): An agency that offers or facilitates (purchases, contractors for, or otherwise obtains) transportation, as opposed to an agency whose role is limited to funding programs.

Public Transit: Transportation services for all people, not limited to a certain group of clients or specific trip purpose.

Pulse System: A type of fixed-route transit system (usually involving a radial network) in which all routes arrive at and depart from the central transfer point at the same times. This timing facilitates transferring but necessitates a transfer facility where simultaneously all buses can safely drop off passengers and wait. Passengers can easily and safely get to the bus to which they are transferring.

Radial Network: A public transit route service pattern in which most routes converge into and diverge from a central transfer point or hub, like the spokes of a wheel. Arterial or loop routes may be used. If the routes are timed to arrive and depart at the same time, it is called a pulse system.

Rapid Transit: Rail or bus transit service operating completely separate from all modes of transportation on an exclusive right-of-way. Often operates as an express service with a minimal number of stops.

Regional Service Centers: Three state-operated centers serve people with the most severe developmental disabilities. These are located in Grand Junction, Pueblo, and Jefferson County.

Reverse Commute: Commuting against the main directions of traffic. Often refers to travel from the central city to suburbs during peak period commuting times.

Rideshare/Ridematch Program: A program that facilitates the formation of carpools and vanpools, usually for work trips. A database is maintained for the ride times, origins, destinations and driver/rider preferences of users and potential users. Those requesting to join an existing pool or looking for riders are matched by program staff with other appropriate people. .

Risk Management: An element of a transit system's safety management program. This includes identification and evaluation of potential safety hazards for employees, passengers and the public.

Route Deviation Service: Transit buses travel along a prescribed route at schedule times and maintain schedule or unscheduled checkpoint stops. This vehicle may leave

and return to the route to pick up persons who have requested demand-responsive trips near the route. Passengers may call in advance for route deviations or may access the system at predetermined route stops.

Safe, Accountable, Flexible, Efficient Transportation Act-A Legacy for Users (SAFETEA-LU): An Act passed by Congress in 2005 that authorizes federal surface transportation programs, including highways, highway safety, and transit for the years 2005-2009. SAFETEA-LU provided $286.4 billion for transportation, including $52.6 billion for transit, through fiscal year 2009.

Section 5307: The section of the Federal Transit Act that authorizes grants to public transit systems in all urban areas. Funds authorized through Section 5307 are awarded to states to provide capital and operating assistance to transit systems in urban areas with populations between 50,000 and 200,000.Transit systems in urban areas with populations greater than 200,000 receive their funds directly from the Federal Transit Administration. For more information, go to www.fta.dot.gov/funding/grants/grantsfinancing3561.html

Section 5309: The section of the Federal Transit Act that authorizes discretionary grants to public transit agencies for capital projects such as buses, bus facilities and rail projects. See www.tta.dot.gov/funding/grants/grantsfinancing35S7.html for more information.

Section 5310: A formula program that provides capital assistance to states for transportation programs that serve the elderly and people with disabilities. States distribute Section 5310 funds to local operators in rural and urban settings who are either nonprofit organizations or the lead agencies in coordinated transportation programs. Allocation of funding to states is made on the basis of the number of elderly and persons with disabilities in that state. See www.tta.dot.gov/funding/grants/grantsfinancing3556.html for more information.

Section 5311: The formula program that provides capital and operating assistance grants to public transit systems in rural and small urban areas with populations of less than 50,OOO. Funding is apportioned by a statutory formula that is based on the latest U.S. Census figures of areas with a population less than 50,000. The amount that the state may use for state administration, planning, and technical assistance activities is limited to 15 percent of the annual apportionment. States must spend 15 percent of the apportionment to support rural intercity bus service unless the Governor certifies that the intercity bus needs of the state are adequately met See www.fta.dot.gov/funding/grants/grantsfinancing3555.html for more information.

Section 5316 (Job Access and Reverse Commute [JARC]): The section of the Federal Transit Act that authorizes Job Access grants to provide new transportation services to welfare recipients and other low income individuals for the purposes of attaining jobs, training and childcare. JARC grants help provide transit systems to

transport workers to suburban job sites. See www.fta.dot.gov/funding/grants/grantsfinancing3550.html for more information.

Section 5317 (New Freedom): A new program created in 2005 under SAFETEA-LU designed to support improvements to services and facilities for the transportation needs of people with disabilities that exceed those required by the Americans with Disabilities Act. The governor of each State or an official designee must designate a public entity to be the recipient for New Freedom funds. In urbanized areas with populations less than 200,000 and in non-urbanized areas, the State is the designated recipient. Funds are provided to each state using a formula based on upon population of persons with disabilities. See www.fta.dotgov/funding/grants/grantsfinancing3549.html for more information.

Senior Center: Considered a vital link in the service delivery network for older persons. Senior centers function as meal sites, screening clinics, recreational centers, social service agency branch offices, etc.

Service Route: Transit routes that are tailored to meet the needs of a specific market segment (such as older adults or people with disabilities) in a community. Service routes often evolve out of a pattern of demand-response travel within a community. Characteristics of a service route include stops at high-density residential complexes or group homes, shopping areas, medical facilities, and destinations specific to the target population such as senior centers or sheltered work sites. Stops are usually positioned near an accessible entrance of a building instead of on the street, and the ride times are typically longer than on a "conventional" fixed route covering the same general area. Vehicles tend to be smaller and accessible to people with disabilities, and drivers usually offer a relatively high level of personal assistance.

Shared Ride Taxi: A shared ride taxi service provides taxi transportation in which more than one passenger is in the vehicle at the same time, usually at a reduced rate for each of the passengers, where the driver may pick up a passenger without the permission of a riding passenger (“shared ride ordinance”). Shared ride taxis are a way of using taxicabs for paratransit service.

Shuttle Service: Shuttle service refers to fixed-route that connects only a small number of fixed stop and operates at a high frequency (or short headways). The vehicle follows a repetitive back-and-forth route. This type of service is related to a circulator service but connotes a more linear route structure.

Specialized Transit: Refers to transit services that support particular populations, frequently consisting of older adults, person with disabilities, and/or individuals with low incomes.

State Units on Aging (SUA’s): Agencies of state and territorial governments designated by governors and state legislatures to administer, manage; design and

advocate for benefits programs and services for the elderly and their families and, in many states, for adults with physical disabilities. The term "state unit on aging" is a general term: the specific title and organization of the governmental unit will vary from state to state and may be called a Department, Office, Bureau, Commission, Councilor Board for the elderly, seniors, aging, older adults and/or adults with physical disabilities. Since 1965 all State Units on Aging have administered the Older Americans Act (OM) in their respective states. Through a state, network of area agencies on aging and service providers, a range of services is provided to older persons including home-care, congregate and home delivered meals, transportation, information and assistance and advocacy on behalf of individual older citizens. SUA's also have significant policy, planning and advocacy roles in leveraging other federal, state and local public and private funds to support programs on aging.

Subscription Service: When a passenger or group of passengers requests a repetitive ride (such as on a daily or weekly service on an ongoing basis), trips are often scheduled on a subscription or "standing order" basis. The passenger makes a single initial trip request, and the transit system automatically schedules them for their trip(s) each day or week. This type of service is frequently used in transporting human service agency clients to regular agency programs.

Taxi: Demand-responsive transportation vehicle offered to individual members of the public on an exclusive basis, in a vehicle licensed to render that service, usually operated by a private, for-profit company. Fares are usually charged on a per-mile or per-minute (or both) basis on top of a base fare charged for all trips. Passengers may call the dispatcher to request a trip (live dispatch) or hailing a passing unoccupied taxi.

Telecommuting: The substitution, either partially or completely, of the use of computer and telecommunications technologies (e.g., telephones, personal computers, modems, facsimile machines, electronic mail) for transportation to a conventional place of work. Implies either working at home or at a satellite work center that is closer to an employee's home than the conventional place of work.

Temporary Aid to Needy Families (TANF): Created by the 1996 welfare reform law, TANF is a program of block grants to states to help them meet the needs of families with limited income. It replaced a selection of federal public assistance programs, including Aid to Families with Dependent Children. Because of TANF-imposed time limits, states try to place TANF recipients in jobs as quickly as possible, often using program funds to pay for transportation, child care, and other activities related to workforce participation.

Title III: A title of the Older Americans Act that authorizes expenditures for nutrition and transportation programs that serve older persons.

Title VI: A title of the Civil Rights Act of 1964 that ensures that no person in the United States will be discriminated against on the basis of race, color, or national origin. The

transportation planning regulations, issued in October 1993, require that metropolitan transportation planning processes be consistent with Title VI. Transportation control measures (TCMs): Local actions to adjust traffic patterns or reduce vehicle use to reduce air pollutant emissions. These may include HOV lanes, provision of bicycle facilities, ridesharing, telecommuting, etc.

Transit Dependent: Persons who must rely on public transit or paratransit services for most of their transportation. Typically refers to individuals without access to personal vehicles.

Transportation Disadvantaged: A term used to describe those people who have little or no access to meaningful jobs, services, and recreation because a transportation system does not meet their needs. Often refers to those individuals who cannot drive a private automobile because of age, disability, or lack of resources. Florida law defines transportation disadvantaged as "those persons who, because of a physical or mental disability, income status, or age, are unable to transport themselves or to purchase transportation and are, therefore, dependent on others to obtain access to health care, employment, education, shopping, social activities, or other life-sustaining activities, or children who are handicapped, high-risk, or at-risk."[50]

Transportation Improvement Program (TIP): A document prepared by states and planning commissions that describes projects to be funded under Federal transportation programs for a full-year period. Without TIP inclusion, a project is ineligible for Federal funding.

Transportation Management Area (TMA): Defined as all urbanized areas over 200,000 in population. Within a TMA, all transportation plans and programs must be based on a continuing and comprehensive planning process carried out by the Metropolitan Planning Organization (MPO) in cooperation with states and transit operators. The TMA boundary affects the responsibility for the selection of transportation projects that receive Federal funds.

Transportation Management Association (TMA): A voluntary association of public and private agencies and firms joined to cooperatively develop transportation-enhancing programs in a given area. TMA's are appropriate organizations to better manage transportation demand in congested suburban communities.

Transportation Planning Region: Fifteen regions used by Colorado Department of Transportation for transportation planning activities. These planning activities are mandated by state law and cover both urban and rural areas of the state.

Trip Generator: A place that generates a demand for frequent travel is called a trip generator. Trip generators may be origins or destinations. For example, a high-density

[50] Florida Statues §411.202

residential area generates a need for all kinds of trips outside of the residential area into commercial areas; a medical center generates trips for medical purposes; and a downtown area may generate trips for retail, recreational or personal business purposes.

United We Ride: Housed within the Federal Transit Administration, an initiative that supports the federal Interagency Transportation Coordination Council on Access and Mobility (CCAM), implements coordination grants to states and communities, develops tools (such as the Framework for Action community self-assessment guide) to facilitate the transportation coordination process, recognizes exemplary work in transportation coordination by states and communities, and provides technical assistance to states and communities through the United We Ride Ambassador program, a website of best practices, and other resources.

U.S. Department of Agriculture (USDA): The primary agency with oversight for federal agricultural programs, nutrition programs, and economic and community development in rural areas.

U.S. Department of Health and Human Services (HHS): The federal agency that funds a variety of human services transportation through the Administration on Aging, Head Start, Medicaid, Temporary Aid to Needy Families, and other federal programs.

U.S. Department of Transportation (DOT): The federal department responsible for the funding, efficiency, and safety of the nation's highway, aviation, transit, pipeline and maritime transportation infrastructure.

U.S. Environmental Protection Agency (EPA): A Federal agency whose responsibilities include development and enforcement of national air quality standards and support of antipollution activities by state and local governments.

Urbanized Area (UZA): An area that contains a city of 50,000 or more population, plus incorporated surrounding areas, and meets size or density criteria established by the Census Bureau.

User-side Subsidy: A transportation funding structure in which qualified users (usually people with limited income) are able to purchase vouchers for transportation services at a portion of their worth. The users then may use the vouchers to purchase transportation from any participating provider. The vouchers are redeemed by the provider at full value and the provider is reimbursed by the funding agency for the full value.

Vanpool: A prearranged ridesharing service in which a number of people travel together on a regular basis in a van. Van pools may be publicly operated, employer operated, individually owned or leased.

Workforce Investment Act: 1998 legislation that consolidated the former Job Training Partnership Act and many other federal job training programs into state-managed block grants. This law also replaced Private Industry Councils with Workforce Investment Boards.

Workforce Investment Boards: Formerly known as Private Industry Councils (PIC). Workforce Investment Boards (WIBs) are concerned with training and developing workers to meet the needs of local business. They are responsible for most local job training programs and related welfare-to-work efforts.

United We Ride: A federal initiative to improve coordination among the various human-service transportation and transit programs funded through federal legislation.

Urbanized Area: Area with contiguous population of over 50,000.

Urban area: Area with contiguous population of over 5,000.

Volunteer Driver Network: A volunteer driver network matches requests for transportation *with* a volunteer driver who *is* typically reimbursed on a per-mile basis for providing the trip. Persons requesting service call the network; the network calls the driver and schedules the trip. Volunteer networks are frequently used in rural areas where resources are scarce, persons needing transportation may live in remote areas, and a sense of community is not uncommon.

Volunteer Escort Network: A volunteer escort service maintains a network of volunteers who will travel with a person needing mobility assistance on the transportation service. Volunteer escorts typically accompany individuals on longer distance trips and/or trips with multiple passengers.

APPENDIX J

Resources

Mobility Management Resources

- American Public Transportation Association. http://www.apta.com
- California Association for Coordinated Transportation. http://www.calact.org
- California Department of Transportation – Division of Mass Transit. http://www.caltrans.ca.gov/hq/MassTrans/
- California Rural Transportation Assistance Program. http://www.nationalrtap.org/
- California Transit Association. http://www.caltransit.org/cgi-bin/default.asp
- Caltrans. http://www.dot.ca.gov
- Colorado Interagency Coordinating Council for Transportation Access and Mobility. “Handbook for Creating Local Transportation Coordinating Councils in Colorado” (April 2009).
- Community Transportation Association of America. http://www.ctaa.org
- Easter Seals Project ACTION. http://www.projectaction.org
- National Resource Center for Human Service Transportation Coordination. http://web1.ctaa.org/webmodules/webarticles/anmviewer.asp?a=8&z=62
- Interagency Coordinating Committee on Transportation. “Coordination Primer: A Guide to Help Your Community Navigate Transportation Coordination” (August 2006).
- Transit Cooperative Research Program. http://www.tcrponline.org
- United We Ride. http://www.unitedweride.gov
- Wisconsin Department of Transportation. “Coordination Strategy Handbook” (May 2008).

Planning and Coordinating Transportation Services for Emergency Situations

- Federal Transit Administration. “Disaster Response and Recovery Manual for Transit Agencies” (August 2006). http://transit-safety.volpe.dot.gov/Publications

- Federal Highway Administration (FHWA). “Routes to Effective Evaluation Planning Primer Series” (publication ongoing). http://ops.fhwa.dot.gov/opssecurity

- Federal Highway Administration (FHWA). “Primer on Evacuation of Populations with Special Mobility Needs” (Fall 2008). http://ops.fhwa.dot.gov/opssecurity

- Federal Highway Administration (FHWA). “Common Issues and Best Practices in Emergency Transportation Operations Preparedness and Response” (2005). http://ops.fhwa.dot.gov/opssecurity

- U.S. Department of Transportation. “Emergency Preparedness and Individuals with Disabilities Website” (publication ongoing). http://www.emergencyprep.dot.gov

Training Opportunities

- Community Transportation Association of America. “Transportation Solutions Coordination Training.” http://web1.ctaa.org/webmodules/webarticles/anmviewer.asp?a=813&z=5

- Easter Seals Project ACTION. “Mobility Planning Services Institutes” (annual opportunities). http://projectaction.easterseals.com/site/PageServer?pagename=ESPA_mobility_planning

- Federal Transit Administration/National Transit Institute. “Connecting Communities Public Transportation Emergency Preparedness Workshops” (courses ongoing).

- National Center on Senior Transportation. “Mobility Management Distance Learning.” http://seniortransportation.easterseals.com/site/PageServer?pagename=NCST2_aging_training_dl_MobilityManagementWhatIsIt

- National Transit Institute. “Transit Trainers’ Workshop.” http://www.ntionline.com/

Research Products for Transportation Agencies

- Community Transportation Association of America. “Making a Transit Service Accessible” (Brief No. 9). http://www.ctaa.org/ntrc/rtap/pubs/ta/accessible.asp

- Coordinated Transportation Contracting Instructions. “Commission for the Transportation Disadvantaged” (July 2002). http://www11.myflorida.com/ctd

- Coordinating Transportation Services. “Local Collaboration and Decision-Making: A ‘How-To’ Manual for Planning and Implementation, Project Action, Washington, D.C.” http://www.projectaction.easterseals.org/site/PageService?pagename=ESPA_doclibe_coordandoutreach

- Economic Benefits of Coordinating Human Service Transportation and Transit Service, TCRP, Report 91, prepared for the Transportation Research Board by Westate (March 2003). http://www.guilliver.trb.org/publications/tcrp/tcrp_rpt_91.pdf

- Milligan & Company. “Transportation Equity in Emergencies: A Review of the Practices of State Departments of Transportation, Metropolitan Planning Organizations, and Transit Agencies in 20 Metropolitan Areas” (May 2007).

- The National Cooperative Highway Research Program: Research Results Digest #326. “State Public Transportation Division Involvement in State Emergency Planning, Response, and Recovery” (May 2008). http://www.trb.org/news/blurb_detail.asp?ID=9047.

- Ohio Department of Transportation, Office of Public Transportation. “A Guide for Implementing Coordinating Transportation Systems” (1997). http://www.dot.state.oh.us/ptrans/default.htm.

- Ohio Department of Transportation, Office of Public Transportation.”A Handbook for Coordinating Transportation Services” (1997). http://www.dot.state.oh.us/ptrans/default.htm

- Peer exchange series on state and metropolitan transportation planning issues, Meeting 3. “Disaster Response and Transportation Planning” (September 2007).

- The Transportation Research Board (TRB) Special Report #294. “The Role of Public Transportation in Emergency Evacuation” (July 2008). http://www.connectingcommunities.net.

Mutual Aid Programs

- American Public Transportation Association (APTA). “Emergency Response Preparedness Program.” http://www.apta.com/services/emergency

Reference on Vulnerable Populations Definitions

- Devyler, Richard. “The Changing Paradigm in Emergency Management: Preparing for People with Disabilities” (2007). pp. 1-4.

- Interagency Coordinating Council on Emergency Preparedness and Individuals with Disabilities. “Preparing The Workplace For Everyone: Accounting for the Needs of People with Disabilities” (2005). p. iii.

- Kailes, June I. “Emergency Evacuation Preparedness: Taking Responsibility for Your Safety: A Guide For People with Disabilities and Other Activity Limitations” (2002). pp. 6-9.

- Parsons, Brian S. & Fulmer, Debra. “The Paradigm Shift in Planning for Special-Needs Populations” (2007). pp. 1-8.

- U.S. Department of Homeland Security: Office for Civil Rights and Civil Liberties. “The Paradigm Shift in Planning for Special Needs Populations” pp. 4-5, 15-25.

ITS Joint Program Office Electronic Document Library

- A major repository of ITS documents is the ITS Joint Program Office (JPO) Electronic Document Library (EDL). The following is a link to the EDL website: http://www.its.dot.gov/itsweb/welcome.htm

- Advanced Public Transportation Systems Deployments in the United States, Year 2002 Update. http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/13846.html

- Advanced Public Transportation Systems: State of the Art Update 2000. http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/13583.pdf

- Advanced Vehicle Location Successful Transit Applications: A Cross-Cutting Study. http://www.itsdocs.fhwa.dot.gov/index.htm

- Benefits Assessment of Advanced Public Transportation System Technologies, Year 2000 Update. http://itsdocs.fhwa.dot.gov/index.htm

- Northeast Florida Rural Transit Intelligent Transportation System. http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/13848.html

- Rural ITS Toolbox http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/13477.html

- Rural Transit ITS Best Practices. http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/13784.html

- SMART Operational Field Test Evaluation: Customer Survey Report. http://www.itsdocs.fhwa.dot.gov/index.htm

- SMART Operational Field Test Evaluation: Operations Database Report. http://www.itsdocs.fhwa.dot.gov/index.htm

- Ventura County Fare Integration, A Case Study: Promoting Seamless Regional Fare Coordination. http://www.itsdocs.fhwa.dot.gov/JPODOCS/REPTS_TE/13479.html

- What Have We Learned About ITS?: Advanced Public Transportation Systems. http://www.itsdocs.fhwa.dot.gov/index.htm

Transit Cooperative Research Program

The Transit Cooperative Research Program (TCRP), which is administered by the Transportation Research Board (TRB), produces a number of research reports on transit topics, including ITS transit. TCRP documents may be obtained from the following locations: http://www4.nas.edu/trb/onlinepubs.nsf/web/crp and http://www.tcrponline.org/index.cgi

Selected TCRP documents include the following:

- TCRP Report 43: Understanding and Applying Advanced On-Board Bus Electronics. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_43.pdf

- TCRP Report 76: Guidebook for Selecting Appropriate Technology Systems for Small Urban and Rural Public Transportation Operators. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_76.pdf

- TCRP Report 84: e-Transit: Electronic Business Strategies for Public Transportation, Volume 4: Advanced Features of Transit Websites. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_84v4.pdf

- TCRP Report 92: Strategies for Improved Traveler Information. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_92.pdf

- TCRP Report 94: Fare Policies, Structures, and Technologies: Update. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_94.pdf

- TCRP Research Results Digest 5: Electronic On-Vehicle Passenger Information Displays (Visual and Audible). http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rrd_05.pdf

- TCRP Synthesis 38: Electronic Surveillance Technology on Transit Vehicles. http://onlinepubs.trb.org/onlinepubs/tcrp/tsyn38.pdf

- TCRP Synthesis 43: Effective Use of Transit Websites. http://onlinepubs.trb.org/onlinepubs/tcrp/tsyn43.pdf

- TCRP Synthesis 48: Real-Time Bus Arrival Information Systems. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_syn_48.pdf

- TCRP Synthesis 55: Geographic Information Systems Applications in Transit. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_syn_55.pdf