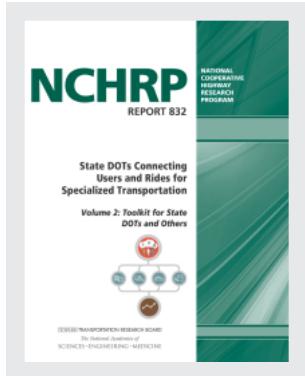


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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

NCHRP REPORT 832

**State DOTs Connecting
Users and Rides for
Specialized Transportation**

**Volume 2: Toolkit for State
DOTs and Others**

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WASHINGTON, D.C.
2016
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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Systematic, well-designed research is the most effective way to solve many problems facing highway administrators and engineers. Often, highway problems are of local interest and can best be studied by highway departments individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation results in increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

Recognizing this need, the leadership of the American Association of State Highway and Transportation Officials (AASHTO) in 1962 initiated an objective national highway research program using modern scientific techniques—the National Cooperative Highway Research Program (NCHRP). NCHRP is supported on a continuing basis by funds from participating member states of AASHTO and receives the full cooperation and support of the Federal Highway Administration, United States Department of Transportation.

The Transportation Research Board (TRB) of the National Academies of Sciences, Engineering, and Medicine was requested by AASHTO to administer the research program because of TRB's recognized objectivity and understanding of modern research practices. TRB is uniquely suited for this purpose for many reasons: TRB maintains an extensive committee structure from which authorities on any highway transportation subject may be drawn; TRB possesses avenues of communications and cooperation with federal, state, and local governmental agencies, universities, and industry; TRB's relationship to the Academies is an insurance of objectivity; and TRB maintains a full-time staff of specialists in highway transportation matters to bring the findings of research directly to those in a position to use them.

The program is developed on the basis of research needs identified by chief administrators and other staff of the highway and transportation departments and by committees of AASHTO. Topics of the highest merit are selected by the AASHTO Standing Committee on Research (SCOR), and each year SCOR's recommendations are proposed to the AASHTO Board of Directors and the Academies. Research projects to address these topics are defined by NCHRP, and qualified research agencies are selected from submitted proposals. Administration and surveillance of research contracts are the responsibilities of the Academies and TRB.

The needs for highway research are many, and NCHRP can make significant contributions to solving highway transportation problems of mutual concern to many responsible groups. The program, however, is intended to complement, rather than to substitute for or duplicate, other highway research programs.

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FOREWORD

By Gwen Chisholm Smith
Staff Officer
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NCHRP Report 832: State DOTs Connecting Users and Rides for Specialized Transportation, which is published as a two-volume set, provides information and a toolkit on designing, developing, implementing, and evaluating linkages that connect customers with specialized transportation services and programs that address their travel needs. The report also provides seven steps to planning a new linkage service. The results of this research will provide valuable information for state, regional, and local planning practitioners and transit and human service agency communities.

Specialized transportation services such as paratransit, community volunteer drivers, and transportation voucher programs provide much needed mobility options for seniors, people with disabilities, individuals with low incomes, and veterans. Significant public investment through a broad range of federal and state funding programs, complemented with major efforts by non-profit organizations and community groups, have created numerous services in communities across the country. These services improve mobility, employment and education opportunities, and access to healthcare and community services for the transportation disadvantaged. Most systems consist of numerous providers servicing patchworks of geographic areas during limited hours of service making it difficult for many users to navigate. In addition, inconsistent networks of public operator and private contractor programs can be both inefficient and insufficient for meeting traveler's needs.

Tools are needed to assist state DOTs with connecting customers with the best mobility options. *Volume 1: Research Report* discusses the main components of connecting specialized transportation users and rides and describes the concepts, planning considerations, key issues, the development process, and general planning principles associated with making that linkage. In addition, *Volume 1* includes findings from a literature review; interviews with employees overseeing existing linkage programs; as well as research into the coordination, marketing, and evaluation of current programs. *Volume 1* also contains an analysis of the strengths, weaknesses, and opportunities presented by each type of linkage program and provides best practices for connecting specialized transportation users with the rides they need to access daily services. *Volume 2: Toolkit for State DOTs and Others* provides a seven-step toolkit for planning and implementing a range of linkage services, from identifying target geographies, users, and modes to determining effective evaluation and marketing strategies.

This report was prepared by Nelson\Nygaard Consulting Associates with assistance from ICF International. Both volumes can be found on the TRB website at <http://www.trb.org/Publications/PubsNCHRPPProjectReports.aspx>.



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Note: Photographs, figures, and tables in this report may have been converted from color to grayscale for printing.
The electronic version of the report (posted on the web at www.trb.org) retains the color versions.



Introduction

Finding travel information can be daunting for specialized transportation customers. In response, a number of states, regions, and counties have implemented services and systems that help these customers and others identify—and in some cases access—transportation services and programs that match a specific trip they wish to take or their general travel needs. These services and systems are often simply referred to as *linkages*. This toolkit is the second volume of *NCHRP Report 832* and is designed to assist state departments of transportation (DOTs)—and other state, regional, and local entities in the planning, transit, and human service agency communities—with the process of designing, developing, implementing, and evaluating linkages that (at a minimum) connect customers with specialized transportation services and programs that address their travel needs. (Volume 1 includes many design details of example linkages at the different levels of functionality.)

At a minimum, such linkages typically provide a centralized repository of specialized transportation services and programs, often including one or more of the following:

- Americans with Disabilities Act (ADA) or coordinated paratransit services
- Senior transportation services
- Veterans transportation services
- Medicaid-sponsored non-emergency medical transportation
- Other human service agency transportation services and programs
- Mobility management programs and additional mobility options aimed at customers who use or can't access some of the above services; these programs might include volunteer driver programs, voucher/subsidy programs, vehicle sharing programs, and mileage reimbursement programs, to name a few

Some organizations have taken a broader view, developing linkages that also include information about public transit services (including general public dial-a-ride services), carpool ride-matching programs, taxis, livery and private chair car services, and even the relatively new real-time “ride-hailing app” services provided by transportation network companies (TNCs) such as Uber and Lyft.

Some lead organizations have made these centralized repositories of transportation service information into hard-copy directories, while others have also or instead put these directories on a website. Many of these linkages are commonly called **One Call/One Click services** because they allow the customer—either interactively on the website or with the help of mobility specialists available by phone—to make only one call or one website visit to identify relevant information or services. One Call/One Click services allow customers to learn about local transportation services and programs and to find contact information for resources that match the specifics of their specific trip needs in terms of client and trip eligibility, as well as desired pickup and drop-off times, and preferred locations.

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The more advanced systems provide trip planning services and in some cases offer customers the option to book their reservation with a local transportation provider. Some systems are even planning to offer actual payment of services, as can be done with a system similar to Orbitz, Travelocity, Kayak, etc.

Thus, there is a wide continuum of linkages that offer an ascending level of assistance to the customer. Whether these repositories are available in hard-copy directories, or interactively by telephone, computer, or mobile phone, the common concept and purpose underlying these linkages is to connect users with available resources and to improve access and mobility. Table 1 provides an overview of the linkage continuum of services. Case studies of implemented linkage services by level are included in the appendix.

There are also differences in the platforms upon which these linkages are built. For example, simpler directories have been typically put together as Microsoft® Word™ or Excel™ documents. For those services that allow customer searching, such directories are typically put together in a database format, such as Microsoft Access.

Some of the more advanced linkages have connected with 211 or 511 systems, or on proprietary paratransit scheduling software systems, while other advanced linkages have been built from scratch. Other entities have opted to build around or link with paratransit scheduling software as the focus because of their capability to book trips. Some of the feedback on this decision included an organization's desire to use trip booking data and unresolved requests to better understand how transportation needs are being met and *not* being met.

This toolkit details the following seven-step process for planning, implementing, marketing, and evaluating transportation linkages:

- Step 1: Identifying **Geographic Scope**: Linkage programs can connect users to transportation services in a wide range of geographic areas. Each potential geographic scope provides different benefits to transportation users, while presenting varying challenges for linkage developers.
- Step 2: Selecting **Target Users, Trips, and Modes**: Linkage programs can seek to serve all potential transportation customers or focus more narrowly on subsets of users, trip types, or transportation modes, services, and programs.

Table 1. Continuum of services linking specialized transportation users and rides.

Level	Name	Functionality	Description
1	Central Repository	Creation of, or linkage with, existing centralized repository of transportation resources	Static, hard-copy listing of services and programs distributed or accessed via phone or website
1A	Provider Portal	+ provider portal	Service providers can update their information at any time
2	Matching Assistance	+ ways to narrow down service and program options	Customers supply search criteria or answer "triage questions" asked by mobility specialist (call-taker) or prompted by an online system to reduce providers to viable options
3	Trip Planning Assistance	+ trip planning assistance	Customers use online system or call mobility specialist to get detailed ways to make a particular trip
4	Trip Booking Assistance	+ trip booking by mobility specialists	Mobility specialist call provider to book trip on behalf of customer
5	Direct Trip Booking	+ trip booking by customer	Trip booking via links to paratransit systems (one system allows a scheduler from one partnering organization to schedule trips onto another partner's vehicle runs)

- Step 3: Analyzing **Existing Linkage Functionality**: To determine what linkage services will best benefit target users, linkage developers must understand how customers currently access, or fail to access, transportation services. As part of this process, linkage developers will also inventory the primary transportation providers that serve their selected geographic scope, target users, trips, and modes.
- Step 4: Determining **Desired Linkage Functionality**: Linkage developers must next select a linkage functionality goal. The implementation plan to reach this goal is in part based on existing linkage functionality, as well as the capabilities of partner providers.
- Step 5: Developing **Evaluation Criteria and an Evaluation Process**: To determine how linkage services are meeting customer needs, linkage developers should create a set of evaluation criteria. By determining the variables needed to evaluate these criteria before implementation, linkage developers can build in data collection and evaluation at every level of the linkage process, including bi-annual—or more frequent—evaluations to answer (1) Is the linkage service a success (and if not how can it be modified)? and (2) Is the network of services successfully accommodating the demand (and if not, where and when are the gaps that need to be addressed)?
- Step 6: Evaluating **Sources of Funding**: Linkage programs require both an initial capital outlay and ongoing financial support. Available funding sources may have specific requirements that mandate the inclusion or exclusion of certain mobility management strategies, target markets, and functionality.
- Step 7: Creating a **Marketing Plan**: Potential customers and transportation providers must be aware of and understand how to use linkage services in order for them to be successful. A robust marketing plan is therefore essential for promoting the ongoing use of linkage services.

Before embarking on this process, linkage developers should draft broad goals for their program. These goals will be redefined during each step of the linkage process until the developer has a full implementation plan. Also, between each step, it is important to add in a feedback loop. That is, in a sequential fashion, the results of each step may suggest a path for the ensuing step different than originally envisioned. For example, in the Step 3 process of inventorying transportation services and programs that serve selected geographic scope, target users, trips, and modes, a developer may discover that there may already be a 211 system that already has an inventory, albeit an incomplete one, but is already assisting customers with locating transportation services and programs that address their specific travel needs. This “discovery” may then alter many of the decisions in Step 4 regarding functionality, and whether to develop a more robust database and linkage from scratch or whether to piggy-back on the 211 system or database.



S T E P 1

Geographic Scope

Specialized transportation linkage programs can be developed for a wide range of geographies. Before planning a new linkage service, linkage developers must first identify a target geography that best fits their broad program goals. Linkage services are typically developed within the following geographic scopes:

- Statewide
- Regional (multicounty)
- Countywide
- Municipality

Each potential geographic scope includes unique benefits and costs for both linkage developers and the customers who will eventually use the linkage service. These potential costs and benefits include the following:

- Implementation costs
 - Initial coordination costs
 - Technology development costs
- Ongoing coordination costs
- Evaluation capability
- Ease of use

The costs and benefits of each potential geographic scope are described in detail in Table 2.

Statewide Linkage Programs

Statewide linkage programs provide the most comprehensive service coverage to specialized transportation customers, but also have significant implementation and ongoing coordination costs. There are two alternative methods for implementing statewide linkage services:

- **Top-Down Management:** A linkage program that is fully planned, implemented, and maintained at the state level. Linkage services are coordinated with regional and local government agencies, but the state acts as the development lead and provider of linkage services. A statewide catchment area and this top-down approach is most applicable to states with high rates of long-distance intrastate travel, or where few local government agencies provide or are equipped to provide mobility management services.
- **Framework Program:** The state develops a framework for establishing linkage services and then provides support for regional or local governments seeking to implement a program. The framework may include development assistance, training support, software, mandated evaluation criteria, and funding support. Regional/local catchment areas and this framework

Table 2. Costs and benefits of geographic scope.

Geographic Scope	Implementation Costs	Ongoing Coordination Costs	Evaluation Capability	Ease of Use
Statewide: Top-Down	High	High	High	High
Statewide: Framework	High	Medium/High*	High	High
Regional (Multicounty)	Medium	High	Medium	Medium
County	Medium	High	Medium	Medium
Municipality	Low	Medium	Low	Low

Note: Ratings compare costs/capabilities relative to linkage service with similar functionality at each geographic level.

*Depending on the level of ongoing state assistance, costs will be either medium for state and high for partner regional/local government, or the opposite.

approach are most applicable to states where a large number of regional/local governments are interested and equipped to provide linkage services.

States may also choose to implement a hybrid of these methods by both developing a framework for regional/local governments and implementing a top-down management program. For example, a state with several large metropolitan regions and a substantial rural population may decide to develop a framework for its primary cities and a statewide program for rural travel.

Implementation Costs

Both statewide top-down management and framework programs have substantial, but highly variable, initial implementation costs. Top-down management programs require cataloging and creating relationships with a wide range of transportation providers. States must also work to identify specific transportation needs in a variety of geographic areas. Top-down programs provide cost-saving economies of scale that primarily benefit the state. States, for example, may see cost savings from developing a single linkage call center or customer-facing website.

Framework programs require state agencies to determine potential regional/local partners and evaluate differences between existing mobility management services. Unlike top-down programs, however, states will not be directly involved in identifying local transportation needs and providers. Framework programs provide cost-saving economies of scale that primarily benefit participating regional and local governments. Depending on the level of state investment, these regional/local actors will receive development frameworks and pre-built software that they otherwise would have to develop independently.

Under both the top-down and framework model, the development costs for more advanced linkage services vary widely on existing scheduling systems. Specialized transportation providers utilize a wide range of scheduling software programs and practices. As the geographic scope of a linkage service increases, the likelihood that providers rely on incompatible scheduling methods also increases. If a state wishes to develop direct trip booking services, it is likely that they will also have to develop specialized software that interacts with several different software packages, or facilitate the transition to a unified scheduling practice across a wide range of providers.

Ongoing Costs

Under a top-down management program, the state will likely assume the vast majority of ongoing costs. Programs with online services or call centers have ongoing labor and maintenance costs. There are also significant ongoing costs related to maintaining updated and accurate transportation information across a wide geographic area. States may be able to offload some of

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these costs to a local partner by having local staff update service information for region-specific transportation services. Maintaining centralized updating of statewide transportation services may result in more consistently accurate information, as providers will only have to submit updates to one agency.

Under a framework program, regional or local governments assume much of the ongoing costs to maintain linkage services. Local staff members are responsible for providing call center services and maintaining transportation services information. State staff members provide only ongoing technical support, unless the state chooses to maintain a single web portal for all participating regional and local agencies.

Evaluation Capability

Statewide linkage programs provide the most significant opportunities for comprehensive evaluation. Under both top-down management and framework programs, states can develop both standardized evaluation criteria and a standardized or centralized evaluation process. Having standardized criteria allows for comparisons across geographic regions, users groups, trip types, transportation modes, and linkage services. States, for example, can more easily determine why a certain user group is unable to find an applicable service for their trip in one city, even though that user group and trip type is easily served in another.

Ease of Use

A coordinated statewide system provides standardization for both specialized transportation users and providers. Specialized transportation customers will only need training on a single linkage process, regardless of where they are traveling in a state. States can also provide better assistance booking trips across multiple services. These benefits both significantly reduce the barrier to access transportation services and also increase the likelihood that customers will rely on linkage services. Transportation providers will only need to understand and maintain a relationship with a single linkage service, which should increase the likelihood that they provide regularly updated service information. This lower burden is especially important for transportation services that operate across multiple geographies and that would otherwise have to maintain and update information on several different linkage portals.

Regional (Multicounty) Linkage Programs

Many metropolitan or rural areas have multicounty agencies—such as a metropolitan planning organization, council of governments, or area association on aging—that are responsible for coordinating transportation services. These agencies are often optimal linkage service developers, as they already have relationships with specialized transportation providers across a wide geographic area. Transportation providers are also more likely to operate throughout a multi-county area than statewide. Regional (multicounty) linkage programs can provide most of the benefits of a statewide effort, while more heavily relying on existing structures.

Implementation Costs

Like statewide linkage programs, regional programs have substantial, but varying, implementation costs. Many regional linkage developers already provide some level of specialized transportation coordination in their area. Therefore, it is more likely that the lead coordinating agency has previously developed a transportation services database or inventory, or at least has some staff knowledge of providers in the area. Developing linkage services at the regional level also provides some cost

savings from economies of scale. For example, most call centers can provide high-quality transportation assistance at the regional level. There is also a greater likelihood that the coordinating agency can form partnerships with existing regional social services, such as 211 or the United Way.

Ongoing Costs

Like statewide programs, regional linkage programs connect a high volume of diverse customers to a substantial number of transportation services. Regional linkage agencies will have significant ongoing costs related to maintaining an accurate transportation services database, likely requiring dedicated staff. However, compared to more localized linkages, regional programs can achieve cost savings through economies of scale, including maintaining a centralized call center and eliminating duplicative database entries for regional services. Additionally, unlike a state framework program, regional linkages are unlikely to be subdivided at a more local level, reducing overhead costs.

Evaluation Capability

Like statewide linkages, regional linkage programs provide opportunities for comprehensive evaluation, including comparative analysis between localized areas in a broad geographic area. For example, similar to the statewide program, a regional program will be able to determine why a certain user group is unable to find an applicable service for a trip in one city (within that region), even though that user group and trip type is easily served in another. On the other hand, however, there will be less opportunity for a broader comparison between metropolitan areas, which reduces the ability to understand why certain populations are unable to complete trips.

Ease of Use

A regional linkage program will provide slightly less standardization than a statewide program; however, it will still provide information for the vast majority of trips that a customer needs to take. Customers taking a long-distance trip within the region [such as a veteran needing access to a specialized service that is only available at one Veterans Affairs (VA) hospital in a region] will still be able to use this one portal to plan their trip. Specialized transportation customers will still need training only on this one linkage process, because they are likely not traveling to other parts of the state on a regular basis. Coordination between transportation providers is recommended, as very few trips will exit the geographic region.

County Linkage Programs

County linkage programs provide a much narrower scope than both statewide and regional (multicounty) programs. They are only advisable for regions where most trips are contained within one county. In locations where residents frequently take intercounty trips, lack of regional coordination may cause customer confusion, likely limiting the usefulness and usage of linkage services.

Implementation Costs

In cases where a county-level program is preferred, such a program could be developed, implemented, and managed by a county-level planning department, human service agency, or transit agency. There are usually many specialized transportation providers that operate at a county level, which should make identification and the initial coordination process easier. For this type of program, there will be minimal economies of scale, as all providers, regardless of whether they provide intercounty services, will have to be cataloged. County-based services also usually

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have to develop similar distribution methods, such as a call center or website, as linkages serving a large geographic area. Implementation costs could also increase if the lead agency attempts to establish reciprocal agreements between services outside of the primary county.

Ongoing Costs

Ongoing costs for county-based linkages are similar to that of multicounty linkage programs. In most instances, county linkage services must maintain and staff distribution systems, such as a call center or website. While some county-based linkages will serve fewer customers than a regional service, the fixed cost of operating these distribution methods is similar regardless of geographic scope. County-level linkages may see cost savings in terms of the ongoing maintenance of transportation service database entries. However, counties with a high level of inter-county trip requests will see increased costs in facilitating transfers between services.

Evaluation Capability

The evaluation capabilities of a county-level linkage are highly dependent on the extent of intercounty travel, as well as the lead agencies' relationships with other neighboring linkage services in their region. County linkages can conduct comparative analysis of municipalities or other geographic areas within the county to identify service strengths and gaps. County linkages should establish relationships with other linkage services, including developing shared evaluation criteria, in order to conduct comparative evaluations with other counties and regions. Additionally, if there is a high volume of intercounty travel, county linkages will likely have to conduct manual outreach with customers in order to understand the dynamics of their trips.

Ease of Use

For a user whose trips are primarily intracounty, a countywide linkage service will be very easy to use and will likely result in good matches, as many county transit and human service agency transportation services and programs have a countywide reach. They will also have less of a need to visit the linkage resource on an ongoing basis after receiving the initial information about which provider will offer the best trip option. For a user who needs to travel to other counties, however, the resource will not be as useful.

The geographic area of a county system will be small enough that telephone operators will likely have familiarity with most of the services that are generated through the search feature and will be able to provide more information to a caller.

Municipal Linkage Program

Linkage programs serving individual sub-county municipalities are not recommended, especially if specialized transportation customers regularly make trips that cross municipal lines. If customers continually find that linkage services cannot meet their trip planning needs, they simply will not use them. Any linkage program developed at the municipal level should expect to coordinate transportation services in neighboring municipalities. Therefore, municipalities seeking to sponsor linkage services should develop partnerships with regional social service organizations or government agencies.



S T E P 2

Target Users, Trips, and Modes

Many linkage programs are designed to connect specialized transportation user groups (people with disabilities, seniors, persons with low income, and veterans) and others to transportation providers that can serve a specific trip type. Some transportation services, for example, only serve ADA paratransit trips. Some municipal-based dial-a-ride (DAR) services only serve senior and/or disabled residents of the municipality. Most human service agency transportation options are only available for agency clients and certain trip purposes. Most veterans' services exclusively focus on transporting veterans to/from VA medical facilities. And even with coordinated services, the individual sponsoring organizations set the ground rules of eligible customers and trips. That said, most *linkage* services seek to connect a wide range of customers, if not the general public, to all available transportation services in a given area.

There are many types of target users who use a linkage service. If a linkage service is working correctly, it will connect users to specific trip types and to specific transportation modes that are applicable to their needs. In other words, the linkage program will be able to connect target users and trip types to a target mode (for example: people with disabilities searching for transportation to a medical appointment usually require paratransit service) and screen out other services in the database that are not appropriate for one reason or another. Ideally, the linkage service will connect a target user group to one or more modes that best serve the trips they most often take as well as the trips they most often have trouble taking.

Below is a description of the target users, trip types, and modes that are typically included in a linkage program.

Target Users

Potential target user groups include the following:

- **Mobility impaired** users are individuals who are unable to use one or more of their extremities and/or lack the strength to walk, grasp, or lift objects usually due to a physical, developmental, or cognitive disability. These individuals may use a wheelchair, crutches, or a walker to aid in mobility.
- **Seniors** are defined as persons over a specific age—55, 60, or 65 years depending on the program's or region's definition.
- **Veterans** are individuals who have served in the active military, naval, or air service and who were discharged or released from service.
- **Medicaid recipients** are individuals of all ages whose income and resources are insufficient to pay for non-emergency transportation to covered medical appointments. These individuals may be eligible for non-emergency medical transportation paid for by Medicaid programs.

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- **Public transit users** are members of the general public who regularly utilize public transit including fixed-route service and paratransit service (defined in the Target Modes section).
- **General population** refers to all other individuals without reference to any specific characteristic mentioned previously.

Target Trip Types

Potential target trip types include the following:

- **Non-emergency medical transportation (NEMT)** trips refer to medical-related trips that are planned in advance, such as trips to doctor's appointments, dialysis appointments, cancer treatments, and trips to the medical supply store or pharmacy to purchase equipment or prescriptions. Examples include Medicaid, hospital, and insurance NEMT trips. NEMT trips to VA hospitals are often considered a separate trip category.
- **Dialysis** trips are recurring trips for dialysis (a treatment for kidney failure) that typically occur three times per week. Dialysis is a life-support treatment that uses a special machine to filter wastes from blood, performing the duties of a normal kidney. The process can be painful for patients leaving them weak and frail post appointment.
- **Human service/social services** trips include those to adult day centers, senior centers, and other human service facilities that are either government sponsored or a non-profit service provided for the benefit of the community. Many of these services are provided to low-income residents who qualify for subsidies and assistance. These services can also be aimed at specific populations such as seniors, people with disabilities, and/or veterans.
- **Work/training** trips refer to employment-related trips such as those to a daily job, temporary employment, or employment training opportunity.
- **Shopping/recreation** trips are non-medical trips that are essential to quality of life. These trips include grocery shopping, religious services, visits to friends and family, non-medical appointments, and many others.
- **All trip purposes** include all of the previously mentioned trips, plus any other trips that are not defined previously.

Target Modes

Potential target modes include the following:

- **Fixed-route transit** is a shared passenger transport service available to the general public that operates along an established path at preset times. Modes of fixed-route transit include city buses, trolley buses, trams (or light rail), trains, subway trains, bus rapid transit, intercity bus and rail, and ferries.
- **ADA complementary paratransit** is a specialized transportation service required by the Americans with Disabilities Act. The ADA requires public transit agencies that provide fixed-route service to provide complementary paratransit service to people who cannot use or access the fixed-route bus or rail service because of a disability. The ADA regulations stipulate the population who is eligible for this service and also regulate the minimum service characteristics that must be met for this service. In general, ADA paratransit must be provided within 0.75 mile of a bus route or rail station, at the same hours and days, and for no more than twice the regular fixed-route fare. ADA paratransit services that do not provide door-to-door assistance for all trips, and opt instead to provide curb-to-curb service as a default, must accommodate requests for door-to-door assistance.
- **Dial-a-ride/public paratransit** is typically a demand-response, shared-ride passenger transport service available to a specific population group and typically all residents or senior and/or disabled residents of a municipality or transit agency catchment area. For

example, a public paratransit program may determine that persons over the age of 60 are eligible for the service. Service can be offered curb-to-curb or door-to-door. It is not uncommon for such services to be consolidated with ADA paratransit services to form a “coordinated” service. Most such services are by advance request, although a number of DAR services are now providing same-day if not immediate service. More and more transit agencies are using these demand-responsive services, as a key component to its family of services, to provide first mile/last mile (FMLM) connections to its fixed-route services and to provide such services in communities and/or at times for which fixed-route service is not appropriate (due to low-demand, grade issues, etc.).

- **Human services transportation (HST)** is a specialized transportation service funded by human service organizations and agencies to transport customers to and from organization facilities and for programmatic events and field trips. Depending on the organization or agency, human service transportation may also transport customers for other purposes, such as to the grocery store, medical appointments, or recreational events. By far, the largest program that falls under this category is Medicaid NEMT trips. The organization of Medicaid trips varies by state. Lead entities responsible for Medicaid NEMT can include (1) the state or county Medicaid office; (2) statewide or regional Medicaid NEMT brokers; (3) managed care organizations (or their transportation brokers or providers); or (4) statewide, regional, or county-based coordinated transportation systems, often led by a transit agency or broker.
- **Senior transportation** is a specialized transportation service offered by municipal or county-sponsored senior programs to transport seniors to and from senior centers and programming. Similar to HST, depending on the organization, some programs will offer additional trips to customers outside of those related to the program; most common are trips to medical appointments and shopping trips.
- **Veterans transportation** is specialized transportation targeted to serve veterans and funded by the VA. This type of transportation is typically operated by VA staff, or a contractor or contractors, and often is operated with accessible vehicles in the locale of the VA medical center or facility. Some of these services are fixed-route shuttles, while others provide demand-response door-to-door service, or both. Another veterans service is operated by volunteer drivers (often veterans themselves) with non-accessible vans obtained and maintained through Disabled American Veterans (DAV) and typically provides long-distance trips.
- **Taxicab and livery services** are private, for-hire services typically operated with a car, sport utility vehicle, or minivan licensed to transport passengers in return for payment of a fare that is usually based on distance traveled. Taxicab programs are usually regulated by a municipality or county. Some cities have programs that require or encourage taxicab companies to purchase wheelchair-accessible vehicles; however, the typical taxicab vehicle and the typical livery vehicle are not wheelchair accessible. The primary difference between taxis and livery services are that taxis have meters and can be hailed. Livery vehicles do not have meters and are requested in advance.
- **Chair car services** are livery services operating wheelchair-accessible vehicles. While most of the services provide services for Medicaid NEMT and other human service agencies, many have private for-hire rates to non-sponsored individuals; unfortunately such rates are often prohibitively expensive for many individuals who require accessible vehicles (also see vouchers and subsidies below).
- **Transportation network companies** are private companies that use an online-enabled platform to connect passengers with drivers using their personal, non-commercial vehicles. Popular examples include Lyft, UberX, and Sidecar. Most of the current TNCs use vehicles that are not wheelchair accessible, although some cities are creating programs to increase the number of wheelchair-accessible vehicles available. For example, TNCs are beginning to pilot specific services for customers who require accessible vehicles and/or who require special assistance. TNCs are also beginning to partner with transit agencies to provide an alternative approach

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to addressing FMLM needs, suburban mobility needs, and guaranteed-ride-home programs. Some TNCs in certain venues are also piloting “micro-transit” and “smart transit services” where they provide fixed- or flex-route services in areas—or at times—when public bus service is not provided.

- **Carpooling** is when two or more people make an arrangement to make a regular journey in a single vehicle, sharing the cost of the ride and taking turns to drive the others. A **vanpool** is similar to a carpool, but typically involves four or more commuters who travel together to work in a van, the cost of which is usually subsidized by a government or non-profit program.
- **Voucher/subsidy** programs work as a way of lowering the cost of the trip, so that riders are able to receive existing transportation services at a reduced cost. Many voucher programs are used to pay for taxicab service, but multiple-mode vouchers (commonly termed “flex” vouchers or “travel” vouchers) can also be used for other types of transportation providers such as private companies, volunteer drivers, and friends and family members. Many programs providing user-side subsidies are now experimenting with paperless subsidy programs.
- **Volunteer driver** programs typically provide mileage reimbursement to individuals that operate their own vehicles and transport individuals to medical appointments or other services, thereby negating the need for additional labor and capital costs. These programs can also utilize agency vehicles with volunteer drivers. Volunteer driver programs are a key strategy used by human service programs to provide much-needed trips in a cost-effective manner and aid in filling transportation gaps in the community, often providing services where no others exist. Many volunteer driver programs are oriented for seniors and/or human service agency clients. Probably the next most common volunteer programs are provided by faith-based organizations.



S T E P 3

Existing Linkage Functionality

Prior to deciding the form that that new linkage service will take, it is recommended that managing agencies first understand how people are currently accessing transportation services. Information regarding the different types of transportation providers and the type of trips they provide (and to whom) likely already exists in some form. In fact, many agencies will find that they, or another local organization or agency, already provide some level of linkage or trip planning service to the community.

When attempting to develop a statewide or regional/multicounty linkage, the first step is to reach out to governmental agencies or social service organizations with a substantial geographic footprint, such as a metropolitan planning organization, area association on aging, or United Way, to identify if transportation services information is already available. These organizations often maintain basic information about local transportation options and can provide a baseline of information on which to build the initial foundation of the linkage system. Additionally, statewide and regional 211 telephone and online referral services can also be extremely valuable resources, as they often have a list of local transportation options for broad geographies.

When forming a linkage service for a smaller geographic area (region or county), the first step is reaching out to regional and county agencies to identify existing lists of transportation resources and providers.

In any case, the amount and quality of information currently available can impact the upfront time and cost needed to implement a new linkage service. These initial steps may also help identify potential linkage partners and funders, as well as potential user groups and stakeholders for marketing and promoting the service once it is implemented.

No Directory or Cataloged Information

In some rare cases, it may be more difficult to find an existing catalog of transportation providers. However, if the managing agency cannot find this information in-house, it is very likely that a transportation service directory exists in some form at another organization or agency. Senior centers, human service providers, transportation authorities, community organizations, and other groups are likely to have cataloged or at least have employee knowledge about local transportation options.

Hard-copy Transportation Services Directory

If a hard-copy transportation service directory is discovered, it is important to complete an inquiry into the accuracy of its contents. If the managing agency is the author of this directory, then its quality and accuracy is easier to identify. If another organization or agency authored

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the directory, it will be important to reach out to them to develop a clear understanding of its accuracy and completeness. Hard-copy directories are rarely 100% accurate and can be out of date before they are even published, especially if the directory covers a large geographic area and a large number of transportation providers.

211 Referral Systems

Regional or statewide 211 telephone and online referral systems are available for almost every state in the country. Sponsored by United Way and the Alliance for Information and Referral Systems, 211 systems typically focus on providing information for human services/social services; however, many of them also provide limited information about transportation options. Accessing this information will require downloading transportation provider lists from the 211 website or calling the 211 phone number and requesting that a 211 employee email the list.

Some linkage developers have found that 211 providers are ideal partners, or even lead agencies, for connecting specialized transportation customers with rides. 211 employees are trained in many of the skills, such as using triage questions to narrow down service options, which are typically utilized in linkage call centers. Moreover, 211 systems have built-in follow-up procedures to frequently update service provider information and to determine whether assistance provided resulted in the caller securing transportation for the needed trip or trips. Additionally, 211 services, while often provided at the regional or county level, are typically designed to be coordinated at the statewide level. Thus, partnerships with 211 services would likely fit within the state-level framework model of linkage development.

S T E P 4

Desired Linkage Functionality

Linkage services can provide a wide range of functionality for transportation customers and providers. Some linkage programs may seek to only provide a hard-copy directory of local specialized transportation services. Other linkage programs provide more advanced features, such as online trip planning or even direct booking with partner services. This continuum of functionality can be separated in five levels (plus one sub-level). Table 3 provides a basic overview of each functionality level.

A background sheet for each potential linkage functionality level is provided in Figure 1. Each background sheet includes an overview of functionality level applicability, project costs, benefits, and obstacles.

Table 3. Continuum of services linking specialized transportation users and rides.

Level	Name	Functionality	Description
1	Central Repository	Creation of, or linkage with, existing centralized repository of transportation resources	Static, hard-copy listing of services and programs distributed or accessed via phone or website
1A	Provider Portal	+ provider portal	Service providers can update their information at any time
2	Matching Assistance	+ ways to narrow down service and program options	Customers supply search criteria or answer “triage questions” asked by mobility specialist (call-taker) or prompted by an online system to reduce providers to viable options
3	Trip Planning Assistance	+ trip planning assistance	Customers use online system or call mobility specialist to get detailed ways to make a particular trip
4	Trip Booking Assistance	+ trip booking by mobility specialists	Mobility specialist call provider to book trip on behalf of customer
5	Direct Trip Booking	+ trip booking by customer	Trip booking via links to paratransit systems (one system allows a scheduler from one partnering organization to schedule trips onto another partner’s vehicle runs)

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LEVEL 1: CENTRAL REPOSITORY

Static transportation inventory containing basic contact and eligibility information for available local services and programs. Generally distributed as a hard-copy or online PDF directory to be used by linkage specialists and specialized transportation customers.

APPLICABILITY

Most applicable to regions with limited resources that are primarily interested in enhancing the awareness of specialized transportation customers to locally available services and programs.

PROJECT COSTS

Implementation/ Infrastructure

Can be implemented directly by agency staff without the assistance of an outside contractor. Does not require any additional infrastructure, unless the agency does not have a website and wishes to post an online version of the directory.

Initial		Ongoing	
In House	Outside	In House	Outside
<ul style="list-style-type: none"> Staff must catalog each transportation service and program Hard-copy directory distribution 	<ul style="list-style-type: none"> Some agencies have used outside contractors to help design initial directory format 	<ul style="list-style-type: none"> Staff must regularly verify the accuracy of directory entries Updated hard-copy directories must be regularly distributed 	<ul style="list-style-type: none"> Some agencies have used outside contractors to help design initial directory format
BENEFITS			
<ul style="list-style-type: none"> Can often be developed exclusively by existing agency staff. Does not require customers to be computer literate. Can be designed to mimic the usability of a website without requiring significant expenditures for IT staff or outside consultants. 			
OBSTACLES			
<ul style="list-style-type: none"> Specialists and customers must contact individual providers to confirm that a service or program meets their needs for a given trip. Directory cannot be easily updated as services change. Staff must frequently contact listed providers in order to ensure accuracy. Hard-copy directories must be reprinted frequently in order to ensure accuracy. Customers will likely stop relying on consistently inaccurate directories. 			

BEST PRACTICE:

Community Transportation Services Directory, Will County (Will County, Illinois)

Will County and Nelson\Nygaard developed a hard-copy transportation services directory cataloging both publicly funded and client-only human services agency transportation services. The directory is based around a easy-to-follow matrix system that essentially mimics the functionality of a web-based directory. The matrices allow prospective specialized transportation customers to quickly identify a service that fits their needs, rather than having to analyze dozens of individual providers.

◇ High ▲ Moderate ○ None/Minimal

Figure 1. Background sheets for linkage functionality levels.

LEVEL 1A: PROVIDER PORTAL

Basic transportation inventory containing contact and eligibility information for available local services and programs. Providers can directly update service and program information through an online portal. Generally distributed as an online directory, though some agencies also publish hard-copy editions.

APPLICABILITY

Applicable to agencies that are primarily interested in enhancing the awareness of specialized transportation customers to locally available services and programs. Requires a greater initial capital outlay than a central repository, but has lower ongoing costs.

PROJECT COSTS

Implementation/ Infrastructure

Online portal implementation requires specialized IT staff. As a result, most agencies will likely need to hire an outside contractor to build a website and database. The online portal can typically be hosted by an existing agency website or through a low cost cloud server.

Initial		Ongoing	
In House	Outside	In House	Outside
<ul style="list-style-type: none"> Staff must identify available services, contact providers to request portal participation, and train Hard-copy directory distribution, if desired 	<ul style="list-style-type: none"> Outside contract is likely required to build initial website and database portal 	<ul style="list-style-type: none"> Staff must conduct audits to ensure portal accuracy, contact providers with out-of-date information Cloud hosting and storage fee Updated hard-copy directory distribution, if desired 	<ul style="list-style-type: none"> Occasional website maintenance

BENEFITS

- Service and program information is updated on a more regular basis, increasing inventory accuracy.
- Reduces ongoing costs by allowing providers to update service information, rather than relying on agency staff.

OBSTACLES

- Operators may not consistently update service and program information, reducing inventory accuracy. Staff may need to update inventory entries if operators fail to regularly update service information.
- Specialists and customers must contact individual providers to confirm that a service or program meets their needs for a given trip
- Hard-copy directories, if published, will not match updated portal information. Agencies who publish hard-copy directories will have to print regular updates to ensure continued accuracy.



Figure 1. (Continued).

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LEVEL 2: MATCHING ASSISTANCE

Linkage service, provided either online or by phone, that utilizes a series of triage questions designed to narrow down potential transportation options.

APPLICABILITY

Applicable to agencies that are interested in a moderate-cost method to link transportation customers to applicable services and programs.

PROJECT COSTS

Implementation/ Infrastructure

Online portal and customer interface implementation requires specialized IT staff. As a result, most agencies will likely need to hire an outside contractor to build a website and database. The online portal can typically be hosted by an existing agency website or through a low-cost cloud server.

Initial		Ongoing	
In House	Outside	In House	Outside
<ul style="list-style-type: none"> Staff must identify available services, contact providers to request portal participation, and train provider staff 	<ul style="list-style-type: none"> Outside contract is likely required to build initial website and database portal 	<ul style="list-style-type: none"> Staff must conduct audits to ensure portal accuracy, contact providers with out-of-date information Cloud hosting and storage fee 	<ul style="list-style-type: none"> Occasional website maintenance
BENEFITS		OBSTACLES	
<ul style="list-style-type: none"> Specialists and customers can narrow down transportation options and find a service or program that best fits their current needs 		<ul style="list-style-type: none"> Customers must still contact individual operators to confirm that they are eligible to use a service and confirm that the service can fulfill a specific trip request 	

BEST PRACTICE:

211 LA County, 211 LA, Los Angeles County, California

211 LA County maintains a database of over 5,000 social service providers and programs, including several hundred transportation resources, organized using the Alliance of Information Referral Systems (AIRS) taxonomy. 211 referral specialists identify applicable transportation services by using triage questions and key words associated with each service entry. Customers can also complete this same process online independent of a referral specialist.

◆ High ▲ Moderate ○ Low

Figure 1. (Continued).

LEVEL 3: TRIP PLANNING ASSISTANCE

Online trip planner, similar to Google® Maps, that utilizes triage questions to identify operators that can serve a specific trip request.

APPLICABILITY

Applicable to agencies that are interested in connecting customers with specific trip information tailored to their eligibility and needed accommodations, as well as introducing customers to previously unknown services that meet their needs.

PROJECT COSTS

Implementation/ Infrastructure

Online portal and customer interface implementation typically requires specialized consulting staff. The online trip planner is typically a customized website hosted on a low cost cloud server.

Initial		Ongoing	
In House	Outside	In House	Outside
<ul style="list-style-type: none"> Staff must identify available services, contact providers to request portal participation, and train provider staff 	<ul style="list-style-type: none"> Outside contractors are required to design and build online trip planner 	<ul style="list-style-type: none"> Marketing and training for customers, providers, and specialists Staff must conduct audits to ensure portal accuracy, contact providers with out-of-date information Cloud hosting and storage fee 	<ul style="list-style-type: none"> Ongoing website maintenance
BENEFITS			
<ul style="list-style-type: none"> Customers and specialists can identify transportation providers that can service a specific trip, rather than just identifying a provider that can serve a broad type of trip. Customers can identify new services that fit their specific trip needs, rather than just relying on the same services for every trip. Many public transit agencies freely publish GTFS data that can be easily integrated into an online trip planner. 			
OBSTACLES			
<ul style="list-style-type: none"> Many customers may require training before they are comfortable using an online trip planner independently. Difficult to coordinate trips that include transfers between services that require advanced booking. 			

BEST PRACTICE:

211 VetLink, Inland Empire United Way, San Bernardino and Riverside Counties, California

The Inland Empire United Way (IEUW) and Cambridge Systematics (CS) utilized a VTCLI grant to develop 211 VetLink, an online one-click transportation services portal. The portal allows veterans and the general public to plan demand response and fixed-route public transportation trips either online or with the assistance of a mobility management specialist. IEUW is also working to develop specialized transportation services for veterans that will also be accessible through 211 VetLink.

◆ High ▲ Moderate

Figure 1. (Continued).

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LEVEL 4: TRIP BOOKING ASSISTANCE

Mobility management specialists assist customers in booking trips after identifying an applicable service.

APPLICABILITY

Applicable to agencies seeking to streamline the trip booking process, but that do not have the capability (either financially or due to providers relying on a wide range of booking methods or products) to develop direct trip booking.

PROJECT COSTS

Implementation/ Infrastructure

Highly dependent on what method customers will use to identify and select a transportation service. Agencies seeking to develop an online trip planner will likely have to rely on specialized consulting staff. Agencies could also choose to only provide a phone-based linkage service.

Initial		Ongoing	
In House	Outside	In House	Outside
<ul style="list-style-type: none"> Staff must identify available services, contact providers to request portal participation, and train provider staff 	<ul style="list-style-type: none"> Outside contractors are required to design and build online trip planner, if applicable. 	<ul style="list-style-type: none"> Call center maintenance and labor costs Marketing and training for customers, providers, and specialists Staff must conduct audits to ensure portal accuracy, contact providers with out-of-date information Cloud hosting and storage fee, if applicable 	<ul style="list-style-type: none"> Ongoing website maintenance
BENEFITS		OBSTACLES	
<ul style="list-style-type: none"> Customers can contact a single call center to plan and book most of their trip requests. Mobility specialists directly contact service providers to book trips on customer's behalf, including conducting three-way calls to facilitate transfer trips. 		<ul style="list-style-type: none"> Customers cannot complete the trip booking process without assistance from a mobility manager. Mobility specialists do not know if a service has a directly applicable trip before contacting the provider. If implementing both an online and phone-based linkage service, customers may be inclined to plan most of their trips through the call center, as they cannot book trips through the online trip planner. This could increase call center operations cost. 	

BEST PRACTICE:

MyRide2, Area Agency on Aging 1-B, Southeast Michigan

Area Agency on Aging 1-B operates a one-call center serving specialized transportation customers in Southeast Michigan, outside of Detroit. MyRide2's services include transportation service information and referral, trip planning, and trip booking. Customers may also identify an applicable transportation service through an online portal, and then contact a MyRide2 representative additional information and trip booking service.

◆ High ▲ Moderate

Figure 1. (Continued).

LEVEL 5: DIRECT TRIP BOOKING

Customers and mobility management specialists can directly book trips on partner services from within an online trip planner.

APPLICABILITY

Applicable to agencies seeking to allow customers to independently plan and book services online, without the assistance of mobility managers, and have active partnerships with participating transportation services providers.

PROJECT COSTS

Implementation/ Infrastructure

Requires outside development of specialized online trip planner with direct links to the software packages utilized by participating transportation services providers.

Initial		Ongoing	
In House	Outside	In House	Outside
<ul style="list-style-type: none"> Staff must identify available services, contact providers to request portal participation, and train provider staff 	<ul style="list-style-type: none"> Outside contractors are required to design and build online trip planner and associated API links to scheduling software 	<ul style="list-style-type: none"> Marketing and training for customers, providers, and specialists Staff must conduct audits to ensure portal accuracy, contact providers with out-of-date information Maintain active relationships with transportation providers that allow direct trip booking, in order to ensure that booking services are meeting customer and provider needs 	<ul style="list-style-type: none"> Ongoing website maintenance, including maintenance of API links to scheduling software
BENEFITS			
<ul style="list-style-type: none"> Customers and/or mobility specialists can view scheduled runs and directly book and/or schedule a trip without contacting the provider. Customers can complete the entire trip planning process independently, without the assistance of a mobility manager. 			
OBSTACLES			
<ul style="list-style-type: none"> Service providers with a given region often use different scheduling software/practices, requiring development of new APIs or acquisition of new software. 			

BEST PRACTICE:

TransPortal, Jacksonville Transportation Authority, Jacksonville, Florida

Jacksonville Transportation Authority (JTA) and Cambridge Systematics (CS) developed a one-click application, known as TransPortal. The application allows users to identify transportation options, create step-by-step trip itineraries, and determine pricing based on a set of triage questions. TransPortal also allows eligible paratransit customers to book trips online through a direct connection with Trapeze scheduling software. JTA plans to also integrate trip booking for flex-route transit services, enhancing travel options for some paratransit customers and the general public.

◆ High ▲ Moderate

Figure 1. (Continued).

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Infrastructure

Most linkage services allow customers to either call a mobility specialist or use an online portal to access information about transportation services. For many smaller scale programs, especially Level 1 linkages, customers will either access information through an existing agency website or an existing phone line. More substantial programs will require dedicated staff, as well as a call center and/or custom-built website.

Call Center Infrastructure

Agencies managing a linkage service can develop a call center internally, outsource the call center to a private contractor, or rely on a partner, such as 211, who operates a professionally staffed call center.

Agencies developing an internal call center must allocate or lease a dedicated space for call center staff, purchase telephony and computer equipment, and hire and train staff. As a new group or function is added, it is possible that the agency's existing phone system may not be robust enough to handle the new set of calls. The additional load of calls may require more lines, so that average hold times are kept to a minimum (e.g., averaging under 2 minutes for any given hour); such expansion may require that an additional group be established with a telephone system's automatic call distribution functionality, not only so that customers can access the linkage service more easily, but also so that separate group telephone statistics can be tracked and reported.

Agencies that outsource their call center to a call center management firm must develop a training and evaluation process for contracted staff, as well as a scope of work, expectations, and performance standards related to metrics like average and maximum hold times, follow-ups, etc. Contractors typically supply the call center equipment, though many contracts reserve the right for the managing agency to retain leased office space and equipment if the contractor fails to comply with stated contractual agreements.

Certainly one of the major advantages of piggy-backing on a 211 system is that the infrastructure is already provided, leaving the expansion of the 211 database to include more service providers as the primary focus.

Online Portal

Most online portals must be custom built by an outside contractor, especially if the linkage includes direct connections to third-party scheduling software, such as Ecolane, RouteMatch, or Trapeze. The agency planning and managing the linkage must determine intended functionality, including specific evaluation criteria. Agencies connecting to third-party software packages may have to enter a contractual licensing agreement and pay to develop a custom application program interface (API). Most websites are hosted on a shared cloud webhosting server, thus eliminating the need for expensive private server infrastructure.



S T E P 5

Evaluation Criteria

Developing a system of recurring and regular evaluation is essential to understanding how and if customers are using the linkage service, as well as the benefits they are receiving and the challenges they face. Moreover, managing agencies can use the evaluation process to determine whether customers' transportation needs are being met, and where there are gaps in service coverage (geographic, user groups, and/or trip type). Evaluation can also be used to see how providers are interacting with the service, such as the frequency of updates and accuracy of service information.

Evaluation criteria should be established during the initial development of the linkage service. Creating criteria at this stage, rather than after a linkage is complete, allows developers to build evaluation capabilities into the transportation directory and associated distribution methods. For example, an online trip planning tool could be designed to track the types of trips customers attempt to plan and whether they are able to successfully find a transportation service that can serve that trip. If the managing agency fails to include these collection methods in the initial development process, it is unlikely they will be able to truly evaluate the success of the linkage.

Managing agencies should develop a regularized evaluation schedule, ideally at least once every 6 months. Each evaluation should focus on overall system usage, the accuracy of transportation services information, and most importantly on gaps in service. Identifying service gaps, including geographic, temporal, and trip eligibility gaps or services that are under or over capacity, allows managing agencies to identify potential service needs. Both managing agencies and partner providers can also use evaluation information to inform funding needs and as support in grant or other funding applications.

Table 4 shows the most relevant evaluation criteria and questions for each level of linkage service on the continuum. As described in Step 4, the continuum of functionality can be separated into five levels (plus one sub-level). Each linkage level enables the manual or automatic collection of evaluation data. Based on the data collected, managing agencies can then answer a range of evaluation questions that provide insight into the linkage service.

Table 4. Evaluation criteria and evaluation questions.

Topic	Level	Evaluation Criteria	Evaluation Questions
Total usage and frequency of usage by customers	1 – Central Repository	<ul style="list-style-type: none"> ▪ Number of hard-copy directories requested or distributed ▪ Number of website hits/directory downloads ▪ Google Analytics/web activity tracker 	<ul style="list-style-type: none"> ▪ Are hard-copy/online directories accessible at locations where targeted users most frequently congregate? ▪ How often are users accessing/downloading the transportation directory?
	1A – Provider Portal	<ul style="list-style-type: none"> ▪ Number of registered clients ▪ Number of general requests ▪ Number of specific trip requests 	<ul style="list-style-type: none"> ▪ How often are users accessing the linkage service to find information about providers that serve a specific trip type?
	2 – Matching Assistance	<ul style="list-style-type: none"> ▪ Number of registered clients ▪ Number of general requests ▪ Number of specific trip requests 	<ul style="list-style-type: none"> ▪ How often are users accessing the linkage service to find information about providers that serve a specific trip type?
	3 – Trip Planning Assistance	<ul style="list-style-type: none"> ▪ Number of specific trip requests for trip planning ▪ Selection of an option for further trip planning 	<ul style="list-style-type: none"> ▪ How many customers are planning trips using the online planner? ▪ How many customers select a service option after completing the trip request/triage question process?
	4 – Trip Booking Assistance	<ul style="list-style-type: none"> ▪ Number of trips booked ▪ Number of booked trips made (needs follow-up) 	<ul style="list-style-type: none"> ▪ How many customers make a booking request through the linkage service? ▪ How many trips booked through the linkage service are completed?
	5 – Direct Trip Booking	<ul style="list-style-type: none"> ▪ Numbers of trips scheduled onto partner providers ▪ Number of providers that allow direct scheduling ▪ Number of trips served 	<ul style="list-style-type: none"> ▪ How many trips are directly booked through the linkage service? ▪ How many trips directly booked through the linkage service are completed?
Accuracy of transportation services information	1 – Central Repository	<ul style="list-style-type: none"> ▪ Frequency of entry verification ▪ Percentage of entries with correct information (when being verified) 	<ul style="list-style-type: none"> ▪ When service information is verified, how often does the existing entry contain invalid information? ▪ How often should service information be verified?
	1A – Provider Portal	<ul style="list-style-type: none"> ▪ Number of direct updates by service providers 	<ul style="list-style-type: none"> ▪ How often are service providers updating service information? ▪ How often does service information change?
	2 – Matching Assistance	<ul style="list-style-type: none"> ▪ Accuracy of automatically updated service information (General Transit Feed Specification, taxi database; when being verified). ▪ Continued functionality of linked services (TNCs, etc.) 	<ul style="list-style-type: none"> ▪ Do automatically updated data sources provide accurate service information? ▪ Are customers able to successfully find service information from linked service providers?
	3 – Trip Planning Assistance	<ul style="list-style-type: none"> ▪ Accuracy of automatically updated service information (General Transit Feed Specification, taxi database; when being verified). ▪ Continued functionality of linked services (TNCs, etc.) 	<ul style="list-style-type: none"> ▪ Do automatically updated data sources provide accurate service information? ▪ Are customers able to successfully find service information from linked service providers?
	4 – Trip Booking Assistance	<ul style="list-style-type: none"> ▪ Continued functionality of linked scheduling software 	<ul style="list-style-type: none"> ▪ Does schedule information in the online planner accurately reflect actual provider schedules?
	5 – Direct Trip Booking	<ul style="list-style-type: none"> ▪ Continued functionality of linked scheduling software 	<ul style="list-style-type: none"> ▪ Does schedule information in the online planner accurately reflect actual provider schedules?
Types of trips planned (successfully and unsuccessfully)	1 – Central Repository	<ul style="list-style-type: none"> ▪ Satisfaction with transportation services directory (collected via manual customer survey) 	<ul style="list-style-type: none"> ▪ Are customers satisfied with their experience using the directory? Are they able to successfully use the directory to plan trips? ▪ What types of trips are customers who have not had success using the directory taking?
	1A – Provider Portal	<ul style="list-style-type: none"> ▪ Satisfaction with transportation services directory (collected online/by phone at time of trip request) 	<ul style="list-style-type: none"> ▪ Are customers satisfied with matched transportation services? ▪ What types of trips are customers who are not matched to a transportation service making?
	2 – Matching Assistance	<ul style="list-style-type: none"> ▪ Satisfaction with transportation services directory (collected online/by phone at time of trip request) 	<ul style="list-style-type: none"> ▪ Are customers satisfied with matched transportation services? ▪ What types of trips are customers who are not matched to a transportation service making?
	3 – Trip Planning Assistance	<ul style="list-style-type: none"> ▪ Number of trip options selected ▪ Percentage of trip searches that cannot be fulfilled with existing services 	<ul style="list-style-type: none"> ▪ Are customers selecting trip options that meet their specific travel need? ▪ What are the characteristics (time, geographic area, rider demographic, trip type) of trips requests that cannot be served?
	4 – Trip Booking Assistance	<ul style="list-style-type: none"> ▪ Number of trips that cannot be successfully booked 	<ul style="list-style-type: none"> ▪ What are the characteristics of trips that qualify for a particular transit service, but the provider is unable to fulfill a specific trip request?
	5 – Direct Trip Booking	<ul style="list-style-type: none"> ▪ Number of trips that cannot be successfully booked 	<ul style="list-style-type: none"> ▪ What are the characteristics of trips that qualify for a particular transit service, but the provider is unable to fulfill a specific trip request?



S T E P 6

Sources of Funding for the Design, Implementation, and Operation of New Linkages

Federal Transit Administration Funding

In the past, the design, implementation, and initial operation of many linkages were funded as a mobility management effort with Federal Transit Administration (FTA) Job Access and Reverse Commute (JARC) and New Freedom (NF) funding (formerly, 49 U.S.C. § 5316 and § 5317, respectively). As the FTA has designated mobility management efforts to be capital projects, the federal funding through these programs was available at an 80% federal funding level, i.e., requiring only a 20% local match.

However, with the advent of the Moving Ahead for Progress in the 21st Century Act (MAP-21; Pub. L. 112-141), signed into law in 2012, these two formula grant programs were eliminated. Under MAP-21, projects previously funded under the JARC program are now expressly eligible under the Urban Formula Program (49 U.S.C. § 5307) in urbanized areas and the Rural Formula Program (49 U.S.C. § 5311) in non-urbanized areas, while projects previously funded under the NF program are now eligible under the Enhanced Mobility of Seniors and Individuals with Disabilities Formula Program (49 U.S.C. § 5310).

As an example, when the AAA 1-B office in Southfield Michigan first established its MyRide2 service, it was funded with JARC/NF funds that it received from the Suburban Mobility Authority for Regional Transportation (SMART), the regional transit authority. SMART continues to support the operation of this service through a 5310 funding.

Unfortunately, the FTA did not necessarily combine funding when these funding programs were merged. Consequently, projects previously authorized under separate sections of the Federal Mass Transit Act must now compete for funding with traditional Sections 5307, 5311, and 5310 projects. As a result, securing grants for linkage-type projects has been made more challenging for designated recipients of funds and state DOTs. The only good news is that the 80%/20% for capital projects is still in place under MAP-21 and that mobility management efforts are still being identified as capital projects.

Veterans Transportation and Community Living Initiative

The \$64 million in Veterans Transportation and Community Living Initiative (VTCLI) grants that were distributed by FTA in 2011 and 2012 provided a boon and a great incentive for those states, regions, and counties interested in linking veterans and other individuals who had unmet transportation needs with sources of transportation. However, there is nothing to indicate that this grant program will be continued in the near future.

The VTCLI program distributed 119 funding grants with an average allocation of \$534,287. While over one-third of the grants were distributed to state DOTs, they primarily functioned as

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a funding administrator, rather than the linkage program coordinator. The 15 DOT-coordinated grants were an average of \$736,432. Grants coordinated by public transit agencies (35 total) had somewhat higher average allocation (\$776,474). Non-profit organizations coordinated more grants than state DOTs did but received an average allocation of \$205,322.

While there are other federal sources—notably from the human services arena—that can be tapped to finance the design, implementation, and ongoing management of these types of linkages, the FTA funding programs mentioned in the previous paragraphs continue to be the main source of federal funding.

Local Financial Support

Amassing local financial support—and supplying the 20% local match—proves to be a challenge for many. Indeed, there are numerous examples across the United States of counties that have been unable to provide the local match for 5310-funded vehicles. Of the VTCLI grant recipients, most used a combination of state and local “general revenue” funding or funding from regional/local transit and human service agency funding to amass the local match. A truism that transcended many of these efforts: the more broad-based the coalition of financial sponsors, the more sustainable the linkage is likely to be in the long run.



STEP 7

Marketing Plan

Users, service providers, and partners must be aware of available linkage services and understand how to use them in order for the services to be successful. Developing a full-scale marketing plan during the development phase of the linkage program allows the managing agency to account for all target audiences and identify and implement strategies to ensure that each target audience is reached.

Therefore, prior to—and after—launching the linkage program, there is a need to introduce prospective users to it, convey information about it—when it will be available, how to access it, what it does, etc.—and to recruit for and establish an ongoing user group. Additionally, while the managing agency has likely made an effort to include a comprehensive set of transportation resources in the linkage’s initial database, there is an ongoing need to ensure that providers already in the database periodically update their information and that new providers know about the service and know how to be added to the database. Another goal is to nurture and expand the current set of linkage partners to help fund the next phase(s) of its evolution.

Additionally, in some cases, there is also the need to communicate how the linkage provides a synergistic centerpiece to a range of mobility management strategies also initiated in the state, region, or county. Finally, a more peripheral goal for marketing the linkage resource is to help it gain national attention, which may ultimately help to draw additional funders and inspire other cities to adopt the linkage model.

Primary goals of a marketing plan:

- Inform and educate specialized transportation customers about the linkage program
- Inform and educate mobility managers and HST employees about the linkage program
- Build support and a user group among specialized transportation customers and the general public

Secondary goals of a marketing plan:

- Nurture and expand the current set of partners to fund the next phases
- Ensure that providers know about the resource and update their information
- Begin to build support for the other mobility management strategies

Target Audiences

An effective marketing plan will promote the resource to *three* different target audiences:

1. **Customers** who will be using the linkage to find transportation services:
 - Specialized transportation customers
 - The general public

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- The wide range of individuals who are already linking customers to riders (mobility managers, human services staff, family, and friends)
- 2. **Transportation providers** whose services will form the baseline information for the resource
- 3. **Potential funders** who could provide sustaining funding for the linkage

Each of these entities is explained further in the following subsections.

Customers

Specialized Transportation Customers

The specialized transportation customers are one group of individuals who will be using the service. The linkage can help these customers identify new services that better meet their needs or allow them to plan their own trips without the assistance of a mobility manager or human service employee. Many of these customers are not tech savvy and will need assistance in figuring out how to use the linkage; therefore, training will be especially important for these individuals. Getting the word out that the linkage exists and would be useful to these individuals should be focused on word-of-mouth advertising, posted information at day centers and senior centers, and presentations at community gathering places.

General Public

The other type of individuals who will be using the linkage service are the general public who will use it to find new transportation options and plan their own trips. Having a large user base made up of members of the public is important for generating additional support among potential funders. The linkage will need to be marketed to the general public on a specially designed linkage-focused informational website and social media; on provider websites and social media; and on municipal, county, and regional planning websites and social media. Members of the general public will also be invited to participate in informational meetings and training sessions.

Mobility Managers/Human Resource Agency Staff

Mobility managers and human resource agency staff are often the primary link between specialized transportation customers and services. These employees will be using the service as they assist customers in planning their daily, weekly, and monthly trips. In some cases, these employees will plan every trip for a customer who is not able to plan the trip on their own. In other cases, these employees will serve as trainers themselves, providing linkage training to customers who are able to use the service on their own. These employees must be trained to use the service and must be willing to use it in place of their current transportation resources in order for the service to be successful. Getting these employees on-board with the new service will accelerate the usage of linkage services, and can be helpful in identifying missing links.

Transportation Providers

To fill the linkage service with a baseline of transportation options, transportation providers first need to be approached, agree to list their services on the linkage service, and provide a plan for maintaining this information, which is why it is important for transportation providers to understand how the linkage will benefit them and their customers. The marketing plan must specify the best way to approach transportation providers, ask them to list their services, set up a plan to update services on a timely and recurring basis, and market the service to their existing customers. In cases where scheduling is a function of the linkage, the transportation providers

must also change their scheduling software, which is a more difficult proposition, so the marketing plan should specify the benefits of embarking on this effort.

Moreover, in the simplest sense, transportation providers are essentially free sources of marketing because they have the ability to steer a significant portion of their customers to the linkage; however, it is important to effectively train provider staff on how to market the service and how often to provide marketing materials to their customers.

Potential Funders

It is essential that existing and potential funders are aware of the benefits of the linkage service because the initial funding for it is usually through one-time grants. To sustain the service and ensure that operation continues, linkage service providers must attract long-term funding partners. Funders will likely be more interested in results in the program than actually understanding how to use the program, which means that marketing to current and potential funders requires program evaluation and data stories to show how the service is providing lifeline support to users. Included in the potential funders category are also state, county, and municipal government officials who act as gatekeepers to funding. It is vital that these entities are aware of the linkage programs so they can advocate keeping the service funded and fully operational.

Marketing Strategies

The 10 marketing strategies discussed in this section apply to the target audiences as shown in Table 5.

Informational Website

An informational website is a key tool for promoting linkage services before launch and can serve as a gateway for new customers after implementation. The website should be developed

Table 5. Marketing strategy and target audience.

Target Audiences	Strategies						
	Kickoff Event	Learning Sessions	Info Packages	Informational Meetings/ Funder Meetings	E-blasts and Mailings	Social Media	Press Releases
Specialized Transportation Clients		✓	✓		✓	✓	✓
General Public				✓	✓	✓	✓
Mobility Managers and HST Staff			✓		✓	✓	✓
Transportation Providers				✓	✓		
Current and Potential Funders	✓			✓	✓	✓	✓

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several months in advance of the linkage going online. The managing agency should regularly update the website, providing details on events and progress with linkage development. After a linkage has been launched, the website can become the portal for one-click services, providing continuity for users.

Kickoff Event

Kickoff events can be used to generate excitement about new linkages, attract media attention to product launches, and introduce partners and stakeholders to new software and services. Kickoff events typically include staff from partner organizations, transportation services providers, current and potential funders, other local partners, and members of the press. Kickoff events can also be open to the public. The event should include a speech or presentation by managing agency staff that introduces the linkage service and provides context to its place within the broader mobility management landscape. If possible, event participants should be allowed to explore the linkage software using laptops or tablets. This demonstration period also allows agency staff to provide quick walkthroughs and answer questions face to face.

Kickoff events can be large gatherings that include all program participant staff or smaller events at the offices of each program participant. Large events attract greater media attention and allow program participant staff to meet each other but require more planning and financial resources. Smaller events allow for more one-on-one time with agency staff but are unlikely to attract media attention and build community among participating organizations.

The following is an example of an agenda for a kickoff event:

- 4:30–5:00: Mingling and light snacks
- 5:00–5:15: Speech by managing agency staff introducing linkage service
- 5:15–5:20: Ceremonial “ribbon cutting”
- 5:20–5:30: Announcement of other mobility management strategies and timelines
- 5:30–5:45: Short tour of the linkage service
- 5:45–7:00: Break-out exploration/demonstration sessions on laptops or tablets

Partner Learning Sessions

For linkage services to be successful, customers must understand how to use them. Learning sessions can be an ideal setting to teach transportation customers how to use linkage services. At these sessions, managing agency staff provides step-by-step tutorials on how to use linkage services and allows customers to interact with new software. By conducting in-person sessions, staff can better answer questions and lay a strong framework for continued usage of linkage services.

Partner learning sessions are typically held onsite at human service organizations, especially those that provided funding or substantial support to the linkage service or have a high volume of customers. Tutorials can be tailored towards specialized transportation customers or the mobility assistants, staff, or friends and family that assist them in planning rides. Managing agencies should work with partners to develop tutorials that are tailored to the specific target populations.

Information Packages

Information packages will contain basic information on the linkage service and will be tailored for two audiences: the general public and the specialized transportation community. The packages for the general public can be distributed to area grocery stores, libraries, community centers, and government buildings. The packages for the specialized transportation community

can be distributed to area day centers, senior centers, and other facilities with large groups of specialized transportation customers. Employees of these facilities can be asked to distribute information to the clients who are most likely to utilize the service.

The informational packages can include several items:

- Comprehensive brochure on using the one-click service
 - What it is
 - Partners
 - When to use it
 - How to use it
 - Contact numbers/addresses for more information
- Business cards to hand out quickly
 - Link to the website
 - Brief information and contact
- Posters—Informational posters to hang in the aforementioned locations

Informational Meetings

Following the kickoff meeting and official launch, informational meetings will provide additional opportunities to inform people on the benefits of using the linkage service and to provide basic training on how to use it. These meetings can be held at community gathering places, such as senior centers, libraries, municipal offices, and adult day centers. These meetings can be targeted at specific population groups or can be open to the public (or both). Although basic training can be offered to participants via mobile computers, training will not be as detailed as the partner learning sessions.

Social Media

Promotion of the linkage service on social media is essential to notifying the general public of the linkage's availability and benefits; therefore, the marketing plan should include a detailed plan for ongoing promotion on Facebook, Twitter, and LinkedIn. Promotion on social media should include the following content:

- Basic information about the linkage and its usage
- Benefits of using it for different population groups for different types of trips
- Promotion of upcoming informational events
- Answers to frequently asked questions (FAQs) for using the linkage
- Evaluation data showing how the linkage is benefiting the community

All partner agencies, organizations, and transportation providers should also promote the service on their social media pages. Managing staff can develop social media content for wide promotion across many partner and stakeholder social media pages.

Email Blasts and Mailings

Promoting the linkage service through a series of both emails and paper mailings will ensure that both computer savvy and non-computer savvy individuals will be notified about its availability.

Email blast (e-blast) recipient lists can be gathered through the partner, stakeholder, and provider customer lists, with their permission and assistance. E-blasts should be sent on three different occasions within a 6-month period: (1) a week prior to the launch to introduce the linkage

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and promote training events; (2) a week or two after launch to remind people to attend training programs and test the linkage; and (3) a month or two after the launch to provide FAQs, tips, and tricks and to remind people to test the linkage.

A large-scale paper mailing to potential users should be tailored and targeted to avoid excessive costs. Mailing lists of individuals at partner and stakeholder organizations can be sorted to only include individuals who do not have access to a computer or are not able to use a computer. These individuals will be targeted for the mailing, which will provide information about the linkage and the training opportunities in an ADA-accessible format.

Press Releases

Additionally, a press release can be sent to local news sources (municipal, county, online, etc.) to announce the launch of the linkage and provide information about training sessions and informational meetings. Members of the press will need to be contacted a few weeks prior to the launch of the linkage to build interest. Management staff will be responsible for drafting informational documents with background information about the project and anecdotal stories of how the linkage will benefit the community. Members of the press should also be invited to the kickoff meeting.

Partner Check-Ins/Audits

Agencies administering linkage services that allow transportation providers to update service information directly must maintain an active relationship with partner staff. A major part of this relationship will be conducting regular audits of service information to ensure that providers are keeping their entries up-to-date. The audit process also provides a prime opportunity to collect feedback and information from partner providers, as well as to market new linkage features.

Managing agency staff should ideally check in with partner providers approximately 3 months after the initial linkage service launch. During this first check-in, agency staff should determine whether customers are accessing partner services through the linkage and whether service information is up-to-date. Staff could also work to understand how often each partner agency modifies services, which will help determine how frequently audits are needed.

After initial check-ins, managing agency staff should conduct regular partner provider audits and check-ins. The regularity of these audits will likely be determined by available resources, as well as feedback from customers regarding portal information accuracy. Most managing agencies will audit their partner providers at least once per year. Partner providers that frequently change services and have regularly failed to update their portal profile should be audited more frequently.

Audits should not be a time-intensive activity. In many cases, managing agency staff will simply call a partner, verify with partner staff that they have maintained their portal entry, and have a quick conversation to gain feedback or relay information.

Potential Funder Meetings

Successful linkage programs require ongoing funding sources to maintain and expand their available services. While managing agencies may be the primary funder in some situations, most linkage programs are funded through grants, by partner services, or by local or national non-profits. Many of these funding sources provide one-time or term-limited cash infusions. As a result, new funding sources should be regularly explored and relationships with sponsoring agencies developed.

Marketing meetings with potential funders is one strategy to assist in the development of new funding sources. These meetings should provide information about available linkage services, while also highlighting their benefit to specialized transportation customers and the community at large.

Marketing and Promotion Schedule

The marketing plan should also dictate the timing of each marketing strategy in relation to the linkage service launch (see Figure 2). Prior to launch, most of the training and promotional efforts will be in the planning stages; however, the informational website should be live several months prior to launch to ramp up awareness of the implementation process, launch date, and future events. Implementation of social media, e-blasts and mailings, and the press releases should begin 1 month prior to launch, to ensure that the community is aware of the imminent availability of the new resource. Learning sessions and other opportunities for training and information dissemination should be implemented within a month of launch with ongoing opportunities lasting 3 or more months after launch.

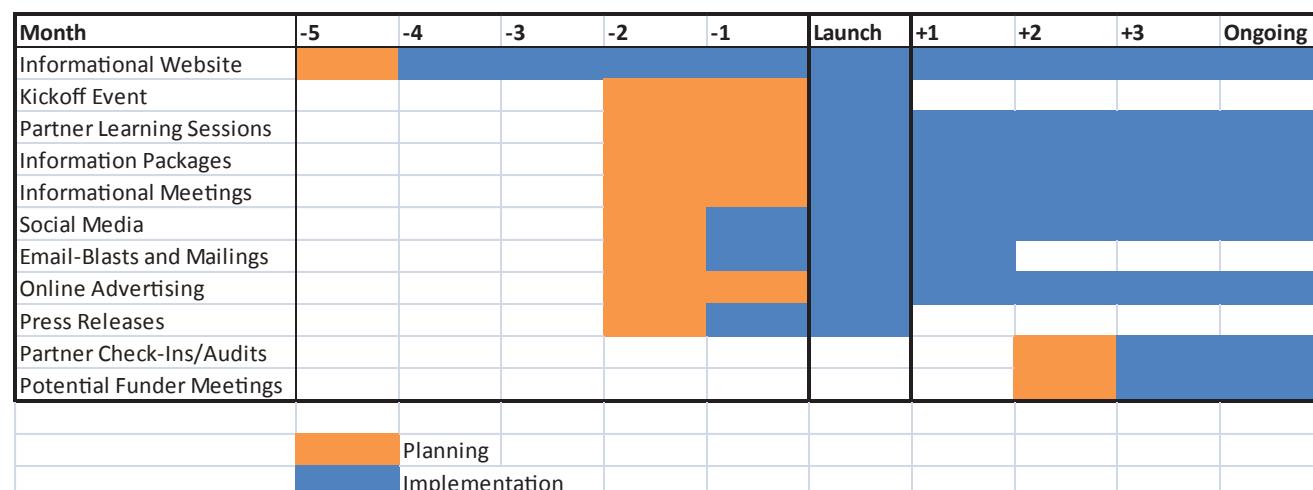


Figure 2. Schedule for marketing strategies.



APPENDIX

Linkage Case Studies

Level 1: Central Repository

Will County

Will County, Illinois

Community Transportation Services Directory

As part of a coordinated paratransit study in 2009, Nelson\Nygaard and Will County, part of the Chicago metropolitan area, created the *Community Transportation Services Directory* (included in *Volume 1: Research Report* as Appendix C). The hard-copy directory was based around an easy-to-follow matrix system, essentially mimicking the functionality of a web-based directory. The Will County directory included information about both publicly funded and client-only human services agency transportation services. All publicly funded services were organized in a matrix based on trip origin and rider type (general public, older adults, and persons with disabilities). Human service agency transportation services were organized in a similar matrix, based on provider and eligible clients (older adults, persons with developmental disabilities, persons with low income, veterans). The matrices allow prospective specialized transportation customers to quickly identify a service that fits their needs, rather than having to analyze dozens of individual providers. Both matrices include page numbers for each service, directing the user to a provider page with program details and contact information.

Level 2: Matching Assistance

211 LA County

Los Angeles County, California

211 LA County

211 LA County is the primary provider of social service information and referrals in Los Angeles County, California. The organization maintains a database of over 5,000 social service providers and programs, including several hundred transportation resources. Customers can access this database by either contacting a community resource advisor by phone or searching the database online. When customers contact 211 LA County by phone, community resource advisors ask a series of triage questions designed to narrow down a selection of potential keywords. These keywords are then entered into a taxonomy database, which generates a list of potential services and programs that match the search parameters. Advisors then validate the matches and provide applicable service and contact information to the customer. 211 LA County advisors follow up with a selection of customers in order to ensure that they were able to access a recommended service or program (David Serby, Mobility Manager, 211 LA County, telephone interview, August 3, 2015).

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Customers can also directly search the taxonomy database using the 211 LA County website. The database has two search functions: guided search and keyword search. The guided search function asks customers to provide their zip code and then presents a list of transportation sub-categories, such as “Senior Transportation” or “Non-Emergency Medical Transportation.” After the customer selects a sub-category, they are presented with a list of service providers that operate within their identified location. Customers can also search the database using keywords and taxonomy codes in a way similar to how a community resource advisor would use the system.

211 LA County, through a partnership with the Antelope Valley Transit Authority, also operates a JARC-funded mobility management program for low-income individuals seeking employment. The program offers in-person mobility management services, including travel training and trip planning assistance. As of July 2014, 211 LA County is assisting the Antelope Valley Transit Authority in screening clients and scheduling around 400 DAR trips monthly (David Serby, Mobility Manager, 211 LA County, telephone interview, August 3, 2015).

Denver Regional Mobility & Access Council
Denver, Colorado
Getting There Guide

In the mid-2000s, several community organizations and transportation providers in the Denver area, led by the Colorado Health Foundation and Rose Community Foundation, formed a collaborative designed to provide information and access to transportation services for older adults. The collaborative, known as *Getting There*, created a specialized transportation services directory for the Denver metropolitan area with assistance from Nelson\Nygaard. In addition to a more traditional hard-copy directory, the collaborative uniquely developed laminated placemats with information about available transportation services (see Appendix A in *Volume 1: Research Report*). The placemats were distributed to locations where seniors congregate for meals, including senior centers and independent living facilities.

In more recent years, the services provided by the *Getting There* collaborative have been assumed by a newly formed organization known as the Denver Regional Mobility & Access Council, which itself is a project of the Colorado Nonprofit Development Center. The council has continued to update and distribute the hard-copy directory on an annual basis, with irregular mid-year updates based on major service changes. The council has also worked to develop an online matching assistance portal known as Transit Options. The portal asks a series of triage questions that help determine user and trip eligibility for various services. After completing the questions, the portal generates a list of recommended providers, as well as contact and fare information for each service.¹

Level 3: Trip Planning Assistance
Inland Empire United Way
San Bernardino and Riverside Counties, California
211 VetLink

In Riverside and San Bernardino counties, the Inland Empire United Way (IEUW) received a VTCLI grant to implement 211 VetLink, a one-click portal based on 1-Click|CS software. The IEUW linkage allows veterans to receive information about local public transit

¹ “Transportation Coordination Systems Advisor—Technical Memo #4: Models for the Denver Region.” Report. Nelson\Nygaard Consulting Associates, September 9, 2012.

and demand-response services by contacting a mobility specialist through 211 or using the online portal. The portal also enables both veterans and mobility specialists to generate directions and instructions for a specific trip.

Since implementing the linkage service, IEUW has played an active role in enhancing mobility options for veterans. Five out of eight local public transit agencies have agreed to provide fare-free bus service for all veterans regardless of disability status. The organization is also working with the VA to establish a Veterans Transportation Service to improve mobility in rural Riverside and San Bernardino counties. The planned program would include rural feeder services to departure points for long-haul services to VA medical centers. IEUW will integrate schedule information, and eventually trip booking, for these services directly into the 211 VetLink system (Osvaldo Maysonet, 211 Access & Mobility Coordinator, IEUW, telephone interview, August 5, 2015).

Level 4: Trip Booking Assistance

Ann Arbor Area Transportation Authority

Washtenaw County, Michigan

MyRide

Ann Arbor Area Transportation Authority's MyRide mobility management service provides information and assistance to transit-dependent individuals in Ann Arbor and Washtenaw County and select areas in Jackson, Lenawee, Livingston, Monroe, Oakland, and Wayne counties.

Ann Arbor Area Transportation Authority has amassed a centralized repository of transportation resources, which includes information on public transportation services, non-profit human service agency transportation providers, and private carriers. To date, nine private taxi and limousine licensed transportation providers are included in the MyRide system. Customers may call MyRide to find out information about how to access these services. MyRide's information specialists/call takers provide information and referral service, trip planning assistance, and scheduling assistance for advance requests and same-day trips on one of the nine providers. In FY 2014, MyRide's staff scheduled close to 19,000 trips.

With JARC and NF funding, the MyRide program also provides trip fare assistance and travel training services for individuals who are unable to access or use existing public transportation services (Chris White, Manager of Service Development, and Bill DeGroot, Financial Analyst and Planner, AAATA, interview, June 17, 2015).

Area Agency on Aging 1-B

Southeast Michigan

MyRide2

Launched in May 2012, MyRide2 was developed and is managed by the Area Agency on Aging in AAA Region 1-B in the suburban Detroit area. MyRide2 provides a linkage service for seniors and persons with disabilities in the six-county area of Southeast Michigan (Livingston, Macomb, Monroe, Oakland, St. Clair, and Washtenaw). The service was recently expanded to AAA Region 1-C (The Senior Alliance) serving the 34 communities of southern and western Wayne County. MyRide2's services include information and referral, trip planning and booking services utilizing a centralized database of community, public, and private transportation services that may be accessed by seniors or adults with disabilities. AAA 1-B staff work closely with SMART, the regional suburban transit agency outside

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Detroit, and with all the community-based transportation services (funded by SMART's Community Partnership Program). The listings are researched and vetted by MyRide2 staff and the database is updated on an ongoing basis. MyRide2 can be accessed by telephone or over the internet. MyRide2 mobility specialists are available to assist users over the phone and help book a trip on their behalf, or customers can find services via the website and call that service to get a ride.

In FY 2014, almost 1,200 information and referral calls were handled, of which six involved an AAA 1-B mobility specialist scheduling the trip on the caller's behalf. Indeed, of all the calls that came to MyRide2, 85% involve a caller seeking a ride (Tina Abbate Marzolf, Executive Director, and Roberta Habowski, Project Manager, AAA 1-B, interview, June 16, 2015).

Partnering with SMART, AAA 1-B was also awarded a VTCLI grant in 2012, which will be used to purchase paratransit scheduling software in order to schedule rides for more callers, starting with one or two community transportation providers, and eventually growing to include public and private transportation providers in the area.

Level 5: Direct Trip Booking

Jacksonville Transportation Authority

Jacksonville, Florida

TransPortal

The Jacksonville Transportation Authority (JTA) has developed a one-click application known as TransPortal. The application allows users to identify transportation options, create step-by-step itineraries, and determine pricing based on a set of triage questions. As of July 2015, 28 transit agencies and service providers are included within TransPortal. The software is connected with GTFS-based transit scheduling information, an open source taxi fare database, and Amtrak's dynamic pricing system. These connections automatically update schedule and fare information, reducing the staff time needed to update service data.

JTA uniquely marketed the service as a tool to understand how mobility options would change after major changes to their local bus system in December 2014. The associated advertising campaign for this effort dramatically increased usage among traditional users of public transit services. As of July 2015, over 26,000 trip itineraries had been generated using TransPortal, with around 83% of itineraries including only public transit services.

JTA is integrating paratransit trip booking directly into the TransPortal software package. To facilitate trip booking, TransPortal accesses trip information through Trapeze, a software program used by paratransit operators in the Jacksonville region. Paratransit customers are able to input trip information, identify a paratransit service, and book a trip without having to speak directly with the operator. To ensure that TransPortal users qualify for paratransit services, JTA will send usernames and passwords to each rider that has successfully completed the eligibility application process. After implementation, paratransit customers will be required to initiate trip booking through TransPortal.

JTA is also integrating scheduling for its flex-route transit services. Paratransit-eligible customers are not charged a fare on flex-routes in the Jacksonville area. With full integration of both paratransit and flex-route trip scheduling, eligible riders will be able to better understand when flex-route or fixed-route service may provide a comparable alternative to paratransit. In some cases, riders may opt to use a free flex or fixed-route service, rather than a paratransit service that is more heavily subsidized by JTA (Liz Peak, Regional and Flexible Services Coordinator, JTA, telephone interview, August 5, 2015).

Pennsylvania Department of Transportation**South Central Pennsylvania****FindMyRidePA**

The Pennsylvania Department of Transportation (PennDOT) developed a one-click application known as FindMyRidePA. The software enables veterans and other transportation disadvantaged populations to obtain accurate and timely information about a wide range of available transportation services. PennDOT initially placed kiosks that could be used to access FindMyRidePA in locations with high transit usage, such as VA centers. More recently, based on data collected in the initial stages of the program, the agency has focused on enhancing access from mobile devices.

FindMyRidePA is also integrated with Ecolane paratransit scheduling software to enable direct trip booking on several paratransit operators in south central Pennsylvania. Paratransit customers are given a unique user ID that allows them to access trip booking services on the FindMyRidePA website and mobile application. Phase 1 of the project has covered a six-county region in south central Pennsylvania in conjunction with the York Area Transit Authority. Phase 2 will expand the program to a larger geographic area and eventually statewide (John Taylor, PennDOT, telephone interview, August 5, 2015).

Utah Transit Authority**Salt Lake City, Utah****1-Click|UTA**

The Utah Transit Authority (UTA) developed a one-click portal in support of the Wasatch regional mobility one-click website initiative. Once implemented, the system will provide a unified multimodal trip planning tool designed to meet the transportation needs of human service transportation clients such as veterans, military families, elderly individuals, and disabled individuals.

A primary goal of the UTA one-click program is increasing awareness of transportation services operated by local human service providers. UTA is working to integrate RidePilot, an open source scheduling software package, with the agency's one-click software. As part of this integration process, UTA will be supplying RidePilot software for a low cost to human service providers that currently use paper or Excel-based scheduling. By increasing the number of providers using RidePilot, UTA hopes to enhance the range of direct booking options available on its portal and streamline the process of utilizing specialized transportation services (Ryan Taylor, UTA, telephone interview, August 5, 2015).

Abbreviations and acronyms used without definitions in TRB publications:

A4A	Airlines for America
AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI-NA	Airports Council International—North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FAST	Fixing America's Surface Transportation Act (2015)
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
MAP-21	Moving Ahead for Progress in the 21st Century Act (2012)
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TDC	Transit Development Corporation
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation

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