

partners that were identified during this study were Community House, The Mission, City Lights, Community Partnerships, Living Independently Forever (LIFE), and the West YMCA. All options that could result in less demand on the paratransit program should be explored, as they are likely to result in significant cost savings.

Some ideas that have been successfully adopted in other locations include:

- Provide vehicles to social service agencies at no cost on condition that they serve at least a specified number of ADA-eligible trips during the course of a month. These could either be retired vehicles or new purchases. If the number of trips that would otherwise have been provided on ValleyRide's service would be significant, the agency could also consider providing a partial operating budget per vehicle.
- Provide services to social service agencies and cover costs that are already part of the regular operating system at ValleyRide, such as maintenance, fuel, insurance and driver training. Many of these can be provided at lower cost through ValleyRide due to economies of scale.
- ValleyRide could provide bulk mailings of tokens/tickets for use on the fixed-route system to social service agencies to encourage their clients to use the bus. These can be provided at discounts to provide further incentive for bus usage.
- Negotiate with the dialysis clinics to provide a ten percent discount on fares on condition that the clinics agree to modify the schedule to coordinate with paratransit service needs.
- Explore the possibility of free fixed-route fares for all those who are ADA paratransit eligible. This should only be implemented once the agency is confident in the accuracy of the eligibility screening process in order to avoid fraudulent use of the fixed-route system.

Establish a paratransit taxi contract to complement the ADA paratransit program: A supplemental taxi service provider would provide service back up (support for breakdowns or late service) and provide additional capacity to handle any open booking list trips that cannot be accommodated on the regular runs, as well as provide additional capacity during off peak, low demand evening, early morning and weekends. This could save putting an additional hourly paid bus out for short demand spikes and eliminate the need for a floater.

- Since the majority of ADA paratransit passengers do not use a wheelchair, there would be no requirement for a wheelchair accessible taxi service.
- Only ambulatory trip requests would be assigned or reassigned to the supplemental taxi service, while passengers using a wheelchair would be assigned to the accessible van service.
- The supplemental taxi service should be operated under a contract between ValleyRide and the taxi firm(s). If at a later date, Access is contracted out, a subcontract with Access' prime service contractor would not be recommended.

ValleyRide would have more control over contractual compliance and service quality through direct contracting.

- A flat rate/passenger trip fee structure is recommended rather than a contract based on metered charges. A flat rate structure is easier to audit and budget for. Separate flat rate charges could be established for single and multiple-passenger trips and trips within Boise and Caldwell/Nampa, and between the two counties. The flat rate structure could be established from actual test trips using a meter, or through estimated meter charges.
- ValleyRide would assign ADA trips to the taxi firm based on:
 - A calculation of cost (cost less than using an ADA paratransit vehicle, for example, an inter-county trip tying up a vehicle);
 - A lack of vehicle availability (not being able to accommodate a trip from the open booking list - backup); or
 - As backup for an ADA paratransit vehicle falling behind schedule (maintaining on time performance), or taken out of service because of a breakdown, accident or onboard incident.

Guidelines would have to be established for the dispatcher's discretionary use of the taxis. Budget ceilings would have to be established to control use.

APPENDIX A

PROJECTED OPERATING COSTS AND CAPITAL NEEDS (2005 – 2012)

Projected Operating Costs and Capital Needs (2005 – 2012)

	2005	2006	2007	2008	2009	2010	2011	2012
Projected Operating Costs – Access	\$821,000	\$903,100	\$1,011,472	\$1,193,537	\$1,312,891	\$1,444,180	\$1,588,598	\$1,747,457
Projected Operating Costs – Canyon County	\$121,000	\$135,520	\$151,782	\$182,139	\$209,460	\$240,879	\$277,010	\$318,562
Total Costs	\$942,000	\$1,038,620	\$1,163,254	\$1,375,676	\$1,522,350	\$1,685,058	\$1,865,608	\$2,066,020
Capital – Access Vehicles	58,000		58,000	116,000	260,000	260,000	195,000	130,000
Capital – Canyon County vehicles	58,000			58,000		130,000		65,000
Capital – Other	25000	5000	5000	5000	45000	8000	8000	10000

Assumptions: Access Operating costs increase by 10% in 2006, 12% in 2007, 18% in 2008 (following expansion of service area), and 10% in subsequent years. Canyon County costs increase by 12% in 2006 and 2007, rising to 20% with expansion in 2008, leveling off at 15% in subsequent years
 Access vehicle costs remain stable at \$58K for the first four years, rising to \$65K for second four years. Expansion vehicles until 2008, expansion plus replacement in last four years. Canyon County vehicles smaller expansion due to limited fleet size
 Non-vehicle capital costs assume computer assisted software package in 2005, and more advanced package in 2009, in addition to incidentals such as radios, based on previous budgets

APPENDIX B

AUTOMATED SCHEDULING SYSTEMS

Automated Scheduling System

A number of automated scheduling systems have been developed and are available to both large and small paratransit service operators. Systems considered in this review include:

- ADEPT & ADEPT-LT by StrataGen
- Midas-PT by Trapeze
- Mobility Master by intellitrans
- ParaLogic by RouteLogic
- PASS and PASS-LITE by Trapeze

Each system utilizes a scheduling algorithm to automatically assign a trip request to a particular vehicle run. Each system uses a spatial database and mapping capabilities to perform scheduling tasks based on local street networks and geographic constraints. Each has the capability to build-in local service parameters such as:

- Peak vs. non-peak commute speeds
- Dwell time (time to assist passengers on/off vehicle)
- Vehicle speed limits and/or ramp up times (time it takes to reach traveling speed)
- Vehicle occupancy
- Vehicle hours of operation (when first and last pick up can be made)

The typical scheduling algorithm uses distance traveled and a typical vehicle speed as a basis for route optimization. Unique spatial information can further optimize the scheduling process. Midas-PT users can enter specific travel times between zones as a parameter. PASS and ParaLogic users can enter obstructions or street segment specific travel times to account for construction and similar expected delays.

All of the systems reviewed use the information in the spatial database to create electronic maps. These maps assist the dispatcher by:

- visually validating computer scheduling solutions;
- aiding in evaluation of route alternatives; and
- providing parameter input for computer scheduling.

Each of the products is a modern application that allows the user access to multiple windows at the same time. Mapped routes, driver manifests and client information can be viewed on the same computer screen. Except for Trapeze, each vendor interfaces with a standard Geographic Information System (GIS) to provide the spatial database and mapping capability. The spatial information is available from local planning agencies and/or federal agencies. Each vendor assists the user in obtaining and installing the data.

Users can modify the data and maps if needed when new streets or points of interest are added in a community.

Each of the products interfaces with other technologies to provide more features and productivity improvements if needed. Automated telephone and Internet reservation systems and AVL systems are offered by most of the vendors. Third party manufacturers often supply these other features and the scheduling software needs to interface with the complimentary software. Each of the identified vendors works with specific third party manufactures but may be willing to customize their interfaces to work with others. The look and feel of an integrated system is important, as the operator does not want drastically different user screens for each feature. Trapeze promotes a high degree of integration between the features it offers.

Appendix C provides a summary of the major features for each system and provides some cost estimates. The features cited provide a brief overview of each system and should not be considered as the definitive offering for that vendor.

Automated scheduling capabilities would allow Access staff to continue the practice of scheduling and confirming a pick up time with the registrant when the trip request is made. An automated trip assignment would facilitate the processing of increased trip request volumes and free up staff time to focus on dispatch duties. There would still be a requirement for the ongoing staff review of runs as they are being built to ensure that the unique travel requirements of specific registrants are being met and that all vehicle runs are productive.

A fully automated scheduling system may be overkill for a paratransit operation the size of Access. With a cost range of \$20,000 to \$60,000 it would also be difficult to justify the procurement and implementation of an automated scheduling system in Boise. Based on service levels presented in the ROCIP Long-Range Plan, a fully automated system would be justified. Two alternative long-range growth scenarios, based on voter approval of a regional options revenue source, envision a transit network providing 250% to 400% more service than the current system.

Alternative Computer-Aided System

A lower cost alternative to a fully automated computer scheduling system would be a new computer-aided system that would separate out the booking and scheduling process. The separation of scheduling from trip booking and dispatching would facilitate a more focused optimization of trip requests to the in-service runs. A revised computer-aided scheduling system would use existing PC technology and database software.

This approach would require the hiring of an additional part time scheduler to assign trips each weeknight after 4:00 PM for the next service day. An additional one to two hours may be required on Friday evenings to assign weekend trips as well as the Monday trips.

The general scheduling and dispatch process would include the following steps:

<p>Trip booking and the production of a daily trip request list</p>	<ul style="list-style-type: none"> ● when calling for a trip the registrant provides a registration number or name in order to prompt a custom trip booking screen with individual name, home address, mobility aids info, frequent destinations and a list of confirmed trip bookings. ● if space is available, the trip is booked directly on the custom booking screen ● based on pre-set capacity ceilings established for each service hour, booking staff confirm or deny trip request ● capacity ceilings are based on the number of trips the service can accommodate per service hour- based on operational experience and historical trip cancellation trends ● an ongoing update of space availability would be maintained by service hour by day and available to the booking staff so that service can not be overbooked. ● a daily trip list organized by service hour is maintained and updated by the system
<p>Trips assignment to runs</p>	<ul style="list-style-type: none"> ● scheduler prints out daily trip request list at end of booking hours (4:00 PM) the day before service is required ● scheduler reviews trip requests and assigns to most appropriate Dial-a-Ride run depending on capacity and routing predetermined by permanent bookings ● based on individual trip assignments, driver manifests are created and printed for next day
<p>Assignment of Permanent Requests</p>	<ul style="list-style-type: none"> ● lead scheduler/dispatcher approves and assigns permanent trip requests to appropriate runs and records on specific driver manifests ● lead scheduler/dispatcher updates space availability matrix
<p>Dispatch</p>	<ul style="list-style-type: none"> ● booking staff continue to provide dispatch coverage as required - assign "will-calls" and notify of cancellations or other changes

Given available software, a revised computer-aided scheduling system could be developed for approximately \$6,000. There would be additional costs for training and the initial entry of existing registrant data.

Zone/Flex Route Requirements

Scheduling and dispatch requirements could be reduced through the introduction of a zone/flex route service framework. Several Flex areas are proposed in the Long-Range Service Scenarios presented in the Regional Operations and Capital Improvement Plan. The level of scheduling and dispatch effort would be influenced by the number of established service “anchors” or time points established within each service zone. Passengers could meet the specific zone route vehicles at these time points without having to telephone in a request.

Trip booking and pre-scheduling would still be required to establish daily routing between the established time points and for any supplemental dial-a-ride service that may be provided for those who cannot use a zone/flex route service. The actual degree of trip scheduling and dispatch effort and process would be dependent on the service characteristics of the zone/flex route system implemented.

At this point it would appear that, with a few minor modifications, the proposed computer-aided system could support a zone/flex route service framework. With specific zone routes, staff would be more focused on the specific routes and runs that are available to the customer. The zones covered and key attractions served would limit trip origins and destinations by the different routes. This would reduce the amount of time necessary to process a trip request. Staff could continue to handle trip booking, scheduling and dispatch simultaneously.

Maximum capacity ceilings would be pre-established for each zone for each run. These would be based on the time available in each zone and an understanding of traffic conditions and the roadway network in each zone. If space was not available on the run at the time requested, the scheduler/dispatcher would check the subsequent run sheets for the particular zone route.

APPENDIX C

DIAL-A-RIDE SCHEDULING PACKAGES

Dial-A-Ride Scheduling Packages

	Mobilitat Easy Rides System 2	Engraph ParaPlan Lite	CTS Trip Master	RouteMatch RouteMatch XP	StrataGen ADEPT-LT	RouteLogic ParaLogic	Trapeze PASS-LITE
Paratransit Management	Client database, Reservations	Client database, Reservations, Create manifests	Client database, Reservations, Create manifests	Client database, Reservations, Create manifests	Client database, Reservations	Client database, Reservations	Client database, Reservations
Scheduling	Semi-automatic	Semi-automatic	Semi-automatic	Semi-automatic	Automatic with override	Automatic with override	Manual Slot Scheduling for zones
Full-featured Products	System 4 is enhanced version with fully automated dispatch using GIS & real-time vehicle data	ParaPlan is an enhanced version with fully automated dispatch		RouteMatch PM and RouteMatch TS are enhanced versions with automated scheduling and GIS capabilities		Full-features product Interfaces with Co. offered AVL system.	PASS is enhanced version with fully automated dispatch using GIS & real-time vehicle data
Reports	Standard reports including client and performance reports. System is Microsoft Access based and user can customize reports.	Base price includes 15 standard reports and three custom reports. User can also use report query builder to pull additional data from system.	Standard reports plus many state specific reports.	Standard reports plus user created custom reports. RouteMatch also provides custom report generation services.	Over 30 reports available to user. User using Microsoft Access may also generate custom reports.	Typical reports are preconfigured in system. User can customize reports based on fields incorporated in system.	Standard reports including client and performance reports.
Current Installations	33, primarily in Western United States	8 (5 additional ones about to be installed), one on the west coast	60, focus on rural agencies in eastern states	Over 35 with a number in western states, has sales office in California	15, 1 on west coast.	34, 3 on west coast	
Pricing	\$7,000 for System 2 (includes three simultaneous users –only one dispatcher)	\$3,000 for ParaPlan Lite	Lease only \$400 per month plus \$15/mo for additional seats Includes tech support and updates	XP Product is \$10,000 for 3 users and 10 vehicles—higher for additional users or larger system. TS package ranges from \$25,000 to \$78,000	Typical multi-user (one at a time) for 500 or less trips per day costs around \$20,000	\$13,500 for one user, \$2,500 each for additional users.	
Training pricing (charge for services excluding expenses)	\$1,000 per day plus expenses	\$2,000 for one-day training and installation		Three levels of training provided (based on operator needs). Complete install support for 20% of license fee	\$3,000 plus costs. Typically runs two weeks	\$3,000 per week. Two weeks of training typical.	Typical small system including software and training quoted around \$20,000.
Vendor main office	Green River, WY	Lawrence, KS	North Carolina	Atlanta, GA	Woodinville, WA	Florida	Mississauga, Ontario, Canada
Web Address	www.aboutmobilitat.com	www.engraph.com	www.cts-software.com	www.routematch.com	www.stratagen.com	www.routelogic.com	www.trapezesoftware.com

* Please note: The information contained in this matrix was collected in 2003. In order to obtain the most current information on each of these products, the manufacturers should be contacted directly.