



Transit Implementation Plan (2006 - 2012)

INTRODUCTION

Following the analysis of the alternatives presented in the previous chapters, LSC has prepared the following Transit Implementation Plan. The Transit Implementation Plan identifies the steps to be taken within the next five years, as well as the long-term actions to meet the future transportation needs. Chapter IX includes a time line and illustrates the projects and programs that could be implemented over the planning horizon (next five years) and long term (10 to 15 years).

ORGANIZATIONAL PLAN

Lake Havasu Transit Remains Primary Provider

Lake Havasu Transit, under the direction of Lake Havasu City Council, should remain the primary general public transportation provider in the short term (next five years). The City of Lake Havasu has the legal and financial capabilities to ensure the stability of public transportation services within the community.

SERVICE PLAN

The proposed service changes for Lake Havasu Transit include restructuring the current system to a hub-and-spoke system with flex routes and demand-response service, decreasing headways, and creating transfer stations and bus stops. The financial details are discussed later in this chapter.

Hub-and-Spoke with Flex Routes and Demand-Response Service

The first service recommendation is for Lake Havasu Transit to restructure the existing service into a route-deviation hub-and-spoke system with demand-response service. In this system, as detailed in Chapter VII, the routes interconnect at a major point. For Lake Havasu Transit, this would be the new transit transfer station which needs to be developed. The critical element of a hub-and-spoke system is that the system operates on a pulse. The buses all come together at the

transfer point at the same time. The buses arrive and depart from this transfer location. This allow the transit users to easily transfer between routes.

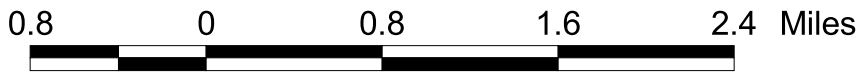
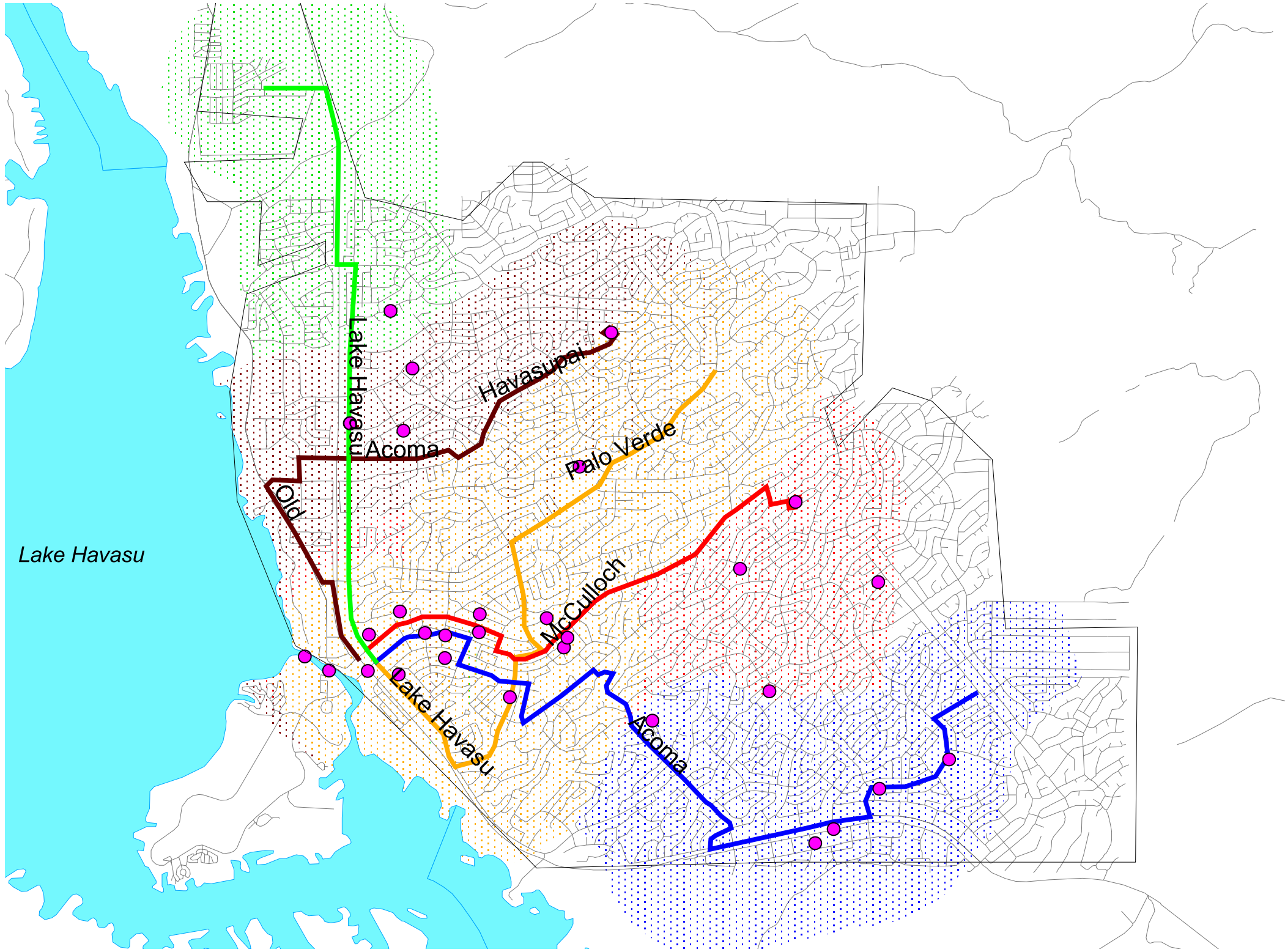
The route structure is presented in Figure IX-1. The routes in the hub-and-spoke system would deviate, depending upon time allowances, up to three-fourths of a mile from the fixed route.

Lake Havasu Transit should also operate a demand-response service that would serve the entire City of Lake Havasu. The demand-response service would be by appointment and on a first-come/first-served basis.

The city should also operate demand-response service on Sunday. The Sunday service will not include fixed-route service—only demand-response.

Table IX-1 presents the final schedules for each route in the recommended alternative. Table IX-2 presents the summary of the recommended system (including the number of annual revenue-hours, annual costs, and headways on each route).

Figure IX-1
Hub-and-Spoke System



- Transit Destinations
- Green Line
- Blue Line
- Red Line
- Orange Line
- Brown Line
- Water body
- Roads
- Buffer 1 of Orange Line
- Buffer 1 of Red Line
- Buffer 1 of Brown Line
- Buffer 1 of Blue Line
- Buffer 1 of Green Line

**Table IX-1
Draft Schedules**

Brown Line									
Run	Downtown Transfer Station	London Bridge Rd / Palo Verde	Acoma / Lake Havasu	Acoma / Havasupai	Havasupai / Elem. School	Acoma / Havasupai	Acoma / Lake Havasu	London Bridge Rd / Palo Verde	Downtown Transfer Station
1	06:00 AM	06:04 AM	06:13 AM	06:18 AM	06:28 AM	06:38 AM	06:43 AM	06:52 AM	06:56 AM
2	07:00 AM	07:04 AM	07:13 AM	07:18 AM	07:28 AM	07:38 AM	07:43 AM	07:52 AM	07:56 AM
3	07:30 AM	07:34 AM	07:43 AM	07:48 AM	07:58 AM	08:08 AM	08:13 AM	08:22 AM	08:26 AM
4	08:00 AM	08:04 AM	08:13 AM	08:18 AM	08:28 AM	08:38 AM	08:43 AM	08:52 AM	08:56 AM
5	08:30 AM	08:34 AM	08:43 AM	08:48 AM	08:58 AM	09:08 AM	09:13 AM	09:22 AM	09:26 AM
6	09:00 AM	09:04 AM	09:13 AM	09:18 AM	09:28 AM	09:38 AM	09:43 AM	09:52 AM	09:56 AM
7	10:00 AM	10:04 AM	10:13 AM	10:18 AM	10:28 AM	10:38 AM	10:43 AM	10:52 AM	10:56 AM
8	11:00 AM	11:04 AM	11:13 AM	11:18 AM	11:28 AM	11:38 AM	11:43 AM	11:52 AM	11:56 AM
9	12:00 PM	12:04 PM	12:13 PM	12:18 PM	12:28 PM	12:38 PM	12:43 PM	12:52 PM	12:56 PM
10	01:00 PM	01:04 PM	01:13 PM	01:18 PM	01:28 PM	01:38 PM	01:43 PM	01:52 PM	01:56 PM
11	02:00 PM	02:04 PM	02:13 PM	02:18 PM	02:28 PM	02:38 PM	02:43 PM	02:52 PM	02:56 PM
12	03:00 PM	03:04 PM	03:13 PM	03:18 PM	03:28 PM	03:38 PM	03:43 PM	03:52 PM	03:56 PM
13	04:00 PM	04:04 PM	04:13 PM	04:18 PM	04:28 PM	04:38 PM	04:43 PM	04:52 PM	04:56 PM
14	04:30 PM	04:34 PM	04:43 PM	04:48 PM	04:58 PM	05:08 PM	05:13 PM	05:22 PM	05:26 PM
15	05:00 PM	05:04 PM	05:13 PM	05:18 PM	05:28 PM	05:38 PM	05:43 PM	05:52 PM	05:56 PM
16	05:30 PM	05:34 PM	05:43 PM	05:48 PM	05:58 PM	06:08 PM	06:13 PM	06:22 PM	06:26 PM
17	06:00 PM	06:04 PM	06:13 PM	06:18 PM	06:28 PM	06:38 PM	06:43 PM	06:52 PM	06:56 PM
18	07:00 PM	07:04 PM	07:13 PM	07:18 PM	07:28 PM	07:38 PM	07:43 PM	07:52 PM	07:56 PM
19	08:00 PM	08:04 PM	08:13 PM	08:18 PM	08:28 PM	08:38 PM	08:43 PM	08:52 PM	08:56 PM

Green Line									
Run	Downtown Transfer Station	Lake Havasu S. / Palo Verde S.	Lake Havasu N. / Acoma	Lake Havasu N. / Palo Verde N.	Mobile Home Park	Lake Havasu N. / Palo Verde N.	Lake Havasu N. / Acoma	Lake Havasu S. / Palo Verde S.	Downtown Transfer Station
1	06:00 AM	06:04 AM	06:09 AM	06:17 AM	06:27 AM	06:37 AM	06:45 AM	06:50 AM	06:54 AM
2	07:00 AM	07:04 AM	07:09 AM	07:17 AM	07:27 AM	07:37 AM	07:45 AM	07:50 AM	07:54 AM
3	07:30 AM	07:34 AM	07:39 AM	07:47 AM	07:57 AM	08:07 AM	08:15 AM	08:20 AM	08:24 AM
4	08:00 AM	08:04 AM	08:09 AM	08:17 AM	08:27 AM	08:37 AM	08:45 AM	08:50 AM	08:54 AM
5	08:30 AM	08:34 AM	08:39 AM	08:47 AM	08:57 AM	09:07 AM	09:15 AM	09:20 AM	09:24 AM
6	09:00 AM	09:04 AM	09:09 AM	09:17 AM	09:27 AM	09:37 AM	09:45 AM	09:50 AM	09:54 AM
7	10:00 AM	10:04 AM	10:09 AM	10:17 AM	10:27 AM	10:37 AM	10:45 AM	10:50 AM	10:54 AM
8	11:00 AM	11:04 AM	11:09 AM	11:17 AM	11:27 AM	11:37 AM	11:45 AM	11:50 AM	11:54 AM
9	12:00 PM	12:04 PM	12:09 PM	12:17 PM	12:27 PM	12:37 PM	12:45 PM	12:50 PM	12:54 PM
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11	02:00 PM	02:04 PM	02:09 PM	02:17 PM	02:27 PM	02:37 PM	02:45 PM	02:50 PM	02:54 PM
12	03:00 PM	03:04 PM	03:09 PM	03:17 PM	03:27 PM	03:37 PM	03:45 PM	03:50 PM	03:54 PM
13	04:00 PM	04:04 PM	04:09 PM	04:17 PM	04:27 PM	04:37 PM	04:45 PM	04:50 PM	04:54 PM
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17	06:00 PM	06:04 PM	06:09 PM	06:17 PM	06:27 PM	06:37 PM	06:45 PM	06:50 PM	06:54 PM
18	07:00 PM	07:04 PM	07:09 PM	07:17 PM	07:27 PM	07:37 PM	07:45 PM	07:50 PM	07:54 PM
19	08:00 PM	08:04 PM	08:09 PM	08:17 PM	08:27 PM	08:37 PM	08:45 PM	08:50 PM	08:54 PM

Orange Line									
Run	Downtown Transfer Station	Lake Havasu S. / Mulberry	Mulberry / Acoma	Palo Verde / Kiowa	Palo Verde / Amberwood	Palo Verde / Kiowa	Mulberry / Acoma	Lake Havasu S. / Mulberry	Downtown Transfer Station
1	06:00 AM	06:05 AM	06:12 AM	06:21 AM	06:28 AM	06:35 AM	06:44 AM	06:51 AM	06:56 AM
2	07:00 AM	07:05 AM	07:12 AM	07:21 AM	07:28 AM	07:35 AM	07:44 AM	07:51 AM	07:56 AM
3	07:30 AM	07:35 AM	07:42 AM	07:51 AM	07:58 AM	08:05 AM	08:14 AM	08:21 AM	08:26 AM
4	08:00 AM	08:05 AM	08:12 AM	08:21 AM	08:28 AM	08:35 AM	08:44 AM	08:51 AM	08:56 AM
5	08:30 AM	08:35 AM	08:42 AM	08:51 AM	08:58 AM	09:05 AM	09:14 AM	09:21 AM	09:26 AM
6	09:00 AM	09:05 AM	09:12 AM	09:21 AM	09:28 AM	09:35 AM	09:44 AM	09:51 AM	09:56 AM
7	10:00 AM	10:05 AM	10:12 AM	10:21 AM	10:28 AM	10:35 AM	10:44 AM	10:51 AM	10:56 AM
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18	07:00 PM	07:05 PM	07:12 PM	07:21 PM	07:28 PM	07:35 PM	07:44 PM	07:51 PM	07:56 PM
19	08:00 PM	08:05 PM	08:12 PM	08:21 PM	08:28 PM	08:35 PM	08:44 PM	08:51 PM	08:56 PM

**Table IX-1, continued
Draft Schedules**

Red Line									
Run	Downtown Transfer Station	Lake Havasu S. / Mulberry	Mulberry / Acoma	Palo Verde / Kiowa	Palo Verde / Amberwood	Palo Verde / Kiowa	Mulberry / Acoma	Lake Havasu S. / Mulberry	Downtown Transfer Station
1	06:00 AM	06:02 AM	06:05 AM	06:08 AM	06:13 AM	06:18 AM	06:21 AM	06:24 AM	06:26 AM
2	06:30 AM	06:32 AM	06:35 AM	06:38 AM	06:43 AM	06:48 AM	06:51 AM	06:54 AM	06:56 AM
3	07:00 AM	07:02 AM	07:05 AM	07:08 AM	07:13 AM	07:18 AM	07:21 AM	07:24 AM	07:26 AM
4	07:30 AM	07:32 AM	07:35 AM	07:38 AM	07:43 AM	07:48 AM	07:51 AM	07:54 AM	07:56 AM
5	08:00 AM	08:02 AM	08:05 AM	08:08 AM	08:13 AM	08:18 AM	08:21 AM	08:24 AM	08:26 AM
6	08:30 AM	08:32 AM	08:35 AM	08:38 AM	08:43 AM	08:48 AM	08:51 AM	08:54 AM	08:56 AM
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9	10:00 AM	10:02 AM	10:05 AM	10:08 AM	10:13 AM	10:18 AM	10:21 AM	10:24 AM	10:26 AM
10	10:30 AM	10:32 AM	10:35 AM	10:38 AM	10:43 AM	10:48 AM	10:51 AM	10:54 AM	10:56 AM
11	11:00 AM	11:02 AM	11:05 AM	11:08 AM	11:13 AM	11:18 AM	11:21 AM	11:24 AM	11:26 AM
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15	01:00 PM	01:02 PM	01:05 PM	01:08 PM	01:13 PM	01:18 PM	01:21 PM	01:24 PM	01:26 PM
16	01:30 PM	01:32 PM	01:35 PM	01:38 PM	01:43 PM	01:48 PM	01:51 PM	01:54 PM	01:56 PM
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21	04:00 PM	04:02 PM	04:05 PM	04:08 PM	04:13 PM	04:18 PM	04:21 PM	04:24 PM	04:26 PM
22	04:30 PM	04:32 PM	04:35 PM	04:38 PM	04:43 PM	04:48 PM	04:51 PM	04:54 PM	04:56 PM
23	05:00 PM	05:02 PM	05:05 PM	05:08 PM	05:13 PM	05:18 PM	05:21 PM	05:24 PM	05:26 PM
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25	06:00 PM	06:02 PM	06:05 PM	06:08 PM	06:13 PM	06:18 PM	06:21 PM	06:24 PM	06:26 PM
26	06:30 PM	06:32 PM	06:35 PM	06:38 PM	06:43 PM	06:48 PM	06:51 PM	06:54 PM	06:56 PM
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28	07:30 PM	07:32 PM	07:35 PM	07:38 PM	07:43 PM	07:48 PM	07:51 PM	07:54 PM	07:56 PM
29	08:00 PM	08:02 PM	08:05 PM	08:08 PM	08:13 PM	08:18 PM	08:21 PM	08:24 PM	08:26 PM
30	08:30 PM	08:32 PM	08:35 PM	08:38 PM	08:43 PM	08:48 PM	08:51 PM	08:54 PM	08:56 PM

Blue Line									
Run	Downtown Transfer Station	McCulloch / Dayton Ave	Acoma South / Jamaica Blvd So.	Jasmine Assisted Living	Ora Grand Blvd / Mohican Dr.	Jasmine Assisted Living	Acoma South / Jamaica Blvd So.	McCulloch / Dayton Ave	Downtown Transfer Station
1	06:00 AM	06:07 AM	06:14 AM	06:21 AM	06:28 AM	06:35 AM	06:42 AM	06:49 AM	06:56 AM
2	07:00 AM	07:07 AM	07:14 AM	07:21 AM	07:28 AM	07:35 AM	07:42 AM	07:49 AM	07:56 AM
3	07:30 AM	07:37 AM	07:44 AM	07:51 AM	07:58 AM	08:05 AM	08:12 AM	08:19 AM	08:26 AM
4	08:00 AM	08:07 AM	08:14 AM	08:21 AM	08:28 AM	08:35 AM	08:42 AM	08:49 AM	08:56 AM
5	08:30 AM	08:37 AM	08:44 AM	08:51 AM	08:58 AM	09:05 AM	09:12 AM	09:19 AM	09:26 AM
6	09:00 AM	09:07 AM	09:14 AM	09:21 AM	09:28 AM	09:35 AM	09:42 AM	09:49 AM	09:56 AM
7	10:00 AM	10:07 AM	10:14 AM	10:21 AM	10:28 AM	10:35 AM	10:42 AM	10:49 AM	10:56 AM
8	11:00 AM	11:07 AM	11:14 AM	11:21 AM	11:28 AM	11:35 AM	11:42 AM	11:49 AM	11:56 AM
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18	07:00 PM	07:07 PM	07:14 PM	07:21 PM	07:28 PM	07:35 PM	07:42 PM	07:49 PM	07:56 PM
19	08:00 PM	08:07 PM	08:14 PM	08:21 PM	08:28 PM	08:35 PM	08:42 PM	08:49 PM	08:56 PM

Source: LSC, 2006.

Table IX-2
Hub-and-Spoke

Route	Buses Peak Time	Buses Off-Peak	One-Way Distance	Two-Way Distance	Speed	Travel Time (min)	Peak Headways (min)	Off-Peak/Weekend Headways (min)	Peak Revenue-Hours	Off-Peak Revenue-Hours	Hourly Cost	Peak Time (4hrs)	Off-Peak Time (11hrs)	Daily Cost	Weekends (day)	Annual Cost	
Green Line (interline w/Red)	2	1	5	10	10	60	30	60	8	11	\$31	\$248	\$341	\$589	\$372	\$169,539	
Brown Line (interline w/Orange)	2	1	5	10	10	60	30	60	8	11	\$31	\$248	\$341	\$589	\$372	\$169,539	
Orange Line (interline w/ Brown)	2	1	5	10	10	60	30	60	8	11	\$31	\$248	\$341	\$589	\$372	\$169,539	
Red Line (Interline w/Green)	1	1	4	8	17	30	30	30	4	11	\$31	\$124	\$341	\$465	\$372	\$137,919	
Blue Line	2	1	7	15	15	60	30	60	8	11	\$31	\$248	\$341	\$589	\$372	\$169,539	
Paratransit	2	2			10				8	22	\$31	\$248	\$682	\$930	\$744	\$275,838	
Sunday Services (Demand Response)		4			10					48	\$31	\$0	\$1,488	\$0	\$1,488	\$77,376	
Total														\$3,875	\$3,751	\$4,092	\$1,169,289

Lake Havasu Transit should continue to focus on stable transit-user markets, such as the elderly and disabled. It would be difficult for transit to become a competitor of the automobile in the near future since the automobile continues to play a key role in the City of Lake Havasu (particularly in developments with low density).

The annual cost for the existing transit service in 2006 is approximately \$1.9 million. With the restructuring of the service with Sunday service, the annual cost would be approximately \$1.7 million. By using federal transit funding, the local annual cost would only be 31 percent of the total in 2006 and 40 percent of the total cost in 2007 through 2012. Local funding could be generated from contracts and local business agreements.

If additional dedicated funding becomes available, Lake Havasu Transit should implement the expanded version of the hub-and-spoke system recommendation. The expanded system would be the second phase of implementation. The expansion of the fixed-route service would increase the number of revenue-hours for weekday service by adding about 22 additional revenue-hours per day for a total of 5,600 annual hours. These additional revenue-hours could be utilized during midday to create a midday peak service from 12 Noon to 2:00 p.m. Alternately, the additional revenue-hours could be utilized to create additional off-peak service in the morning or evening hours, depending on demand. The total cost of this service expansion is estimated at \$1.3 million (in 2006 dollars) which is about a \$173,000 additional cost annually. The additional cost of the expanded service in the implementation year (2011) would be \$206,000 due to inflation. Since only the operational hours would be increased, there would be no need for the purchase of additional vehicles for the expanded service.

The total cost of the expanded service (including the additional weekday service hours and Sunday service) is estimated at \$1.8 million in 2012 with inflation, which is less than the estimated cost of operating the existing service.

Benefits

- The residents of Lake Havasu City would obtain increased connectivity and mobility.

Timing

- The restructured service should be implemented in fiscal year 2006 to 2007, depending upon the availability of local match funding and the marketing of the new service. Additional expansions would be implemented in years 2011 and 2012.

Responsibility

- The Lake Havasu Transit staff would be responsible for planning and implementing the restructured service-hours for Lake Havasu City.

Implementation Steps

- Lake Havasu Transit staff should educate the public about the new hub-and-spoke system and how to use the new service.
- Lake Havasu Transit staff should work with the Lake Havasu City Council, City Budget Office, and Arizona Department of Transportation (ADOT) to secure existing and additional funding for capital and operations for years 2011 and 2012.
- Copies of the new schedules should be printed and distributed throughout the service area.
- Lake Havasu Transit staff should advertise the new hub-and-spoke system with the local newspaper, radio, and television stations.
- Lake Havasu Transit staff should apply for the appropriate Federal Transit Administration (FTA) operational funding for the service.
- Lake Havasu Transit staff should continue to collect passenger ridership data and evaluate service on a monthly basis.

CAPITAL PLAN

Bus Stops

In order to improve the Lake Havasu Transit fixed-route service, bus stops and shelters should be installed at key locations. The bus stops would allow the public to easily identify the transit pick-up locations and the routes that serve that location. Bus stops would reduce the barriers to using the system and increase the public profile of the service. Based on the recommended fixed-route service, LSC

has estimated a bus stop every 2,200 feet (on average). Those routes that are bi-directional would need a bus stop on each side of the roadway. The total number of bus stops that should be implemented is estimated at 126 for the entire service area.

Of these bus stops, LSC recommends that 25 to 30 shelters be installed at key locations. The shelters are normally placed at major employment, shopping, and medical destinations. Shelters should also be placed at locations where there is an identified high number of riders with no building or shelter near the bus stop. The following is a short list of the major locations where shelters should be installed:

- Albertsons Food & Drug Store
- Basha's Supermarket
- Food City
- Havasu Regional Medical Center
- Home Depot
- Kmart
- Lake Havasu High School
- Library
- London Bridge Resort
- Mohave Community College
- New Horizon Center
- Safeway
- Smith's Food and Drug
- Southside Basha's Supermarket
- Walgreens
- Wal-Mart



Each bus stop should include a sign on a pole. On the pole, there should be a sign that displays the schedule and route that serves that location. Each bus stop should also have a concrete pad for the transit users to stand on. A bench is optional depending upon if Lake Havasu Transit can obtain an agreement with an outdoor advertising firm to share the cost of the benches.

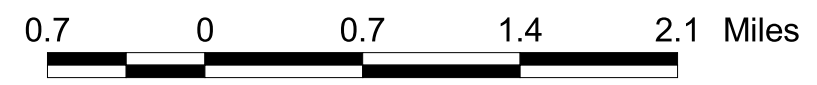
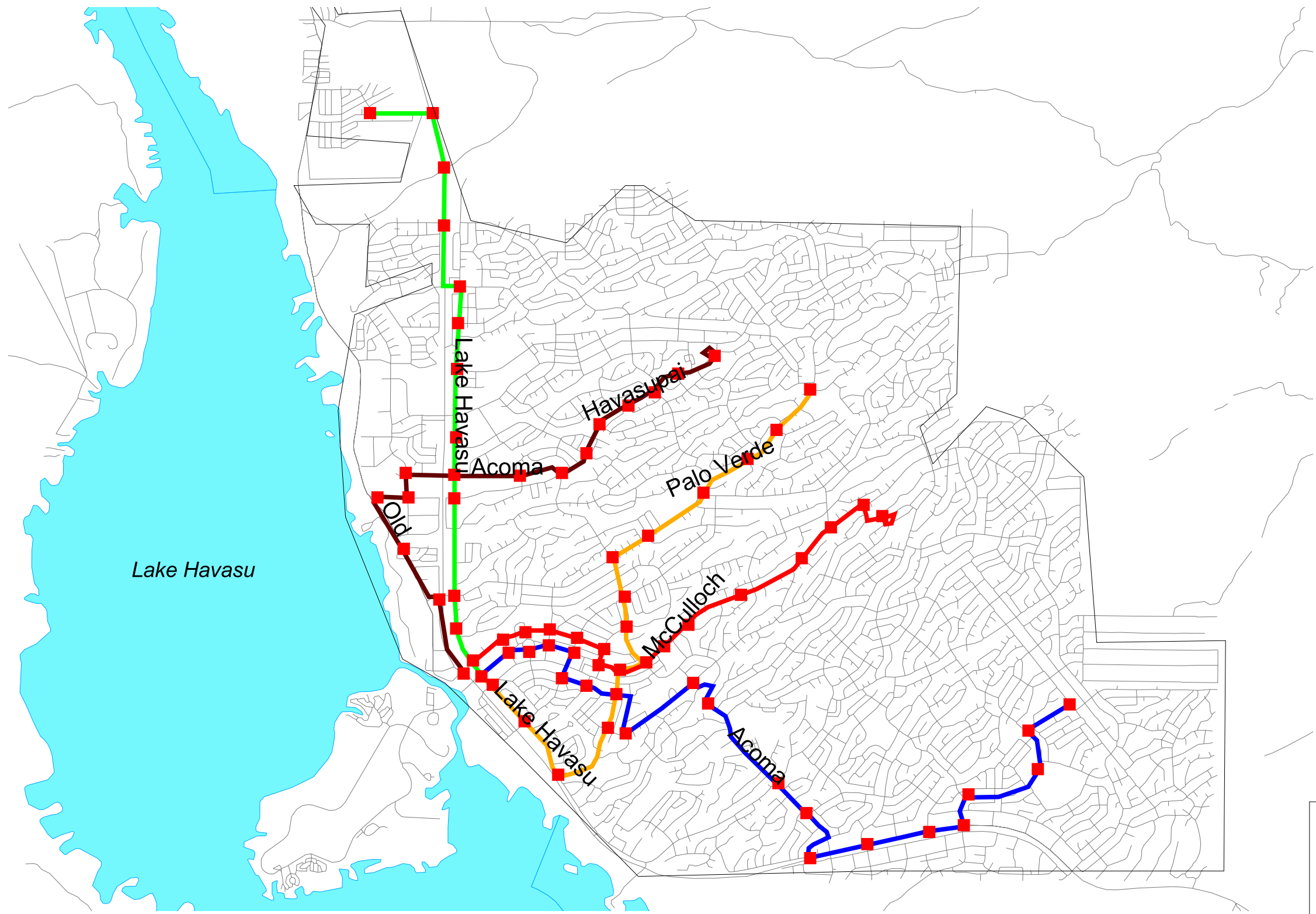
The cost is estimated at \$700 to \$1,000 for each standard bus stop. The bus stops with shelters would have all of the amenities that the standard bus stop has, but would include a shelter and a larger concrete pad. The average cost for the imple-

mentation of a shelter ranges from \$10,000 to \$15,000 depending upon the level of amenities at the bus stop. The bus stop diagrams are presented in Appendix F.

The total estimated cost for the bus stops and shelters is \$406,000. LSC has estimated that Lake Havasu Transit could implement about \$95,000 to \$100,000 worth of bus stops and shelters per year. This would complete the installation in about five to six years. Figure IX-2 present the locations of the recommended transit stops for each of the routes.

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Figure IX-2
Transit Stops



- Transit Stops
- ↗ Green Line
- ↘ Blue Line
- ↗ Red Line
- ↘ Orange Line
- ↗ Brown Line
- Water body
- Roads



Vehicle Replacement

LSC recommends that Lake Havasu Transit purchase 13 vehicles over the short term and 34 vehicles over the long term (years 2013 to 2030). In the short term, the total cost is estimated at about \$1.2 million. The funding breakdown is \$985,600 in federal transit funding and \$278,000 million in local funding. Details on the recommendations for replacement vehicle purchases are shown in Tables IX-3 and IX-4.

Table IX-3 Vehicle Replacement (6-Year Plan)							
	2006	2007	2008	2009	2010	2011	2012
Replacement Buses							
Replacement Body-on-Chassis			2		2		
New Buses		5	3	1			
New Body-on-Chassis							
<i>Source: LSC, 2006.</i>							

Table IX-4 Vehicle Replacement (25-Year Plan)					
	Replacement Buses 20"	Replacement Body-on-Chassis	New Buses 20"	New Body-on-Chassis	Total
2006					0
2007			5		5
2008		2	3		5
2009			1		1
2010		2			2
2011					0
2012					0
2013		2			2
2014	3				3
2015	4	2			6
2016	1				1
2017	1				1
2018		2			2
2019					0
2020		2			2
2021					0
2022	1				1
2023	1	2			3
2024	2				2
2025	3	2			5
2026	1				1
2027	1				1
2028		2			2
2029					0
2030		2			2
Total	18	20	9	0	47
Source: LSC, 2006.					

Fleet Expansion

Based on the recommendations, Lake Havasu Transit would need to purchase nine larger vehicles over the next six years. The new vehicles would include small transit buses (20- to 25-foot). It is estimated that the peak passenger volume would be seven to ten passengers on each bus per revenue-hour. The existing eight-passenger cut-aways would be unable to carry the peak passenger volumes. The small transit buses would also need to be replaced less often than the cut-away vehicles over the long term, thereby reducing the overall capital requirements on an annual basis. This would reduce the number of vehicle purchases from 65 to 47 over the next 25 years, and equates to a savings of \$200,000 over the planning horizon.

Bicycle Racks

LSC recommends that Lake Havasu Transit install bicycle racks on all of the buses in the fleet. Each bicycle rack should have enough room for two bicycles. The bicycle rack should be installed on the front of the bus for safety reasons, so that the bus driver can see the individual loading or off-loading the bicycle.

The cost of a bicycle rack ranges from \$500 to \$1,000. LSC has included the bicycle rack implementation costs for all Lake Havasu Transit vehicles in the five-year financial plan presented in Table IX-5. LSC has estimated \$13,000 for the purchase and installation of the 13 bicycle racks over the years 2006 to 2010. The bicycle rack costs are eligible for FTA funding at an 80/20 split. Therefore, the local share equates to about \$2,600 over the next five years.

Administrative and Maintenance

The administrative and maintenance capital includes the purchase of office equipment, hardware, software, dispatching software, and maintenance equipment. LSC has estimated a total of \$38,000 to \$40,000 over the next six years. The FTA would cover 90 percent of the cost (\$34,000). The local share is estimated at \$3,800 to \$4,000 over the next six years. The annual cost is estimated at about \$700.

FUNDING PLAN

The following section presents the proposed budget for the next five years. Table IX-5 presents the expenditures and revenues for Lake Havasu Transit for the years 2006 through 2012 with the assumption of a three percent inflation rate.



**Table IX-5
Transit Plan, 2006-2012 (assumed 3% inflation)**

	2006	2007	2008	2009	2010	2011	2012	Total
EXPENSES								
Existing Service	\$950,000	\$0	\$0	\$0	\$0	\$0	\$0	\$950,000
OPERATING								
Green Line	\$78,632	\$161,981	\$166,840	\$171,846	\$177,001	\$182,311	\$187,780	\$1,126,390
Brown Line	\$94,442	\$194,549	\$200,386	\$206,398	\$212,589	\$218,967	\$225,536	\$1,352,867
Orange Line	\$94,442	\$194,549	\$200,386	\$206,398	\$212,589	\$218,967	\$225,536	\$1,352,867
Red Line	\$78,632	\$161,981	\$166,840	\$171,846	\$177,001	\$182,311	\$187,780	\$1,126,390
Blue Line	\$94,442	\$194,549	\$200,386	\$206,398	\$212,589	\$218,967	\$225,536	\$1,352,867
Paratransit	\$157,263	\$323,962	\$333,681	\$343,691	\$354,002	\$364,622	\$375,560	\$2,252,781
Expanded Week Day Service						\$206,000	\$212,180	\$418,180
Sunday Service (Demand Response)	\$85,114	\$87,667	\$90,297	\$93,006	\$95,796	\$98,670	\$101,630	\$652,180
Marketing Program	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$36,000	\$252,000
Subtotal	\$1,668,964	\$1,355,239	\$1,394,816	\$1,435,581	\$1,477,568	\$1,726,815	\$1,777,540	\$10,836,523
CAPITAL								
Transit cut-a-way (12-passenger)	\$0	\$0	\$142,055	\$0	\$150,706	\$0	\$0	\$292,760
Transit Buses (20-passenger)	\$0	\$530,450	\$327,818	\$112,551	\$0	\$0	\$0	\$970,819
Bus Bike Racks	\$0	\$4,000	\$7,000	\$0	\$2,000	\$0	\$0	\$13,000
Transit Stop Improvements (over 5 years)	\$95,000	\$0	\$100,786	\$103,809	\$106,923	\$0	\$0	\$406,518
Downtown Transfer Station	\$75,000	\$75,000	\$0	\$0	\$0	\$0	\$0	\$150,000
Intelligent Transportation Systems	\$150,150	\$0	\$0	\$0	\$0	\$0	\$0	\$150,150
Office / Administration / Maintenance Eq.	\$5,000	\$5,150	\$5,305	\$5,464	\$5,628	\$5,796	\$5,970	\$38,312
							\$0	\$0
Subtotal	\$325,150	\$614,600	\$582,963	\$221,824	\$265,257	\$5,796	\$5,970	\$2,021,559
TOTAL EXPENSES	\$1,994,114	\$1,969,839	\$1,977,779	\$1,657,404	\$1,742,825	\$1,732,612	\$1,783,510	\$12,858,082
REVENUES								
FTA 5307 Program (operating)	\$0	\$0	\$0	\$0	\$0	\$686,126	\$674,004	\$1,360,130
FTA 5310 Program (operating)								
FTA 5311 Program (operating)	\$517,379	\$490,096	\$504,366	\$519,065	\$534,205	\$0	\$0	\$2,565,112
Subtotal	\$517,379	\$490,096	\$504,366	\$519,065	\$534,205	\$686,126	\$674,004	\$3,925,242
FTA 5307 Program (capital 78%)	\$0	\$0	\$0	\$0	\$0	\$2,261	\$2,328	\$4,589
FTA 5309 Program (capital 78%)	\$0	\$0	\$0	\$0	\$0	\$2,261	\$2,328	\$4,589
FTA 5310 Program (capital 78%)	\$68,250	\$239,694	\$227,355	\$86,511	\$103,450	\$0	\$0	\$725,261
FTA 5311 Program (capital 78%)	\$68,250	\$239,694	\$227,355	\$86,511	\$103,450	\$0	\$0	\$725,261
State (Grant 78%)	\$117,117	\$0	\$0	\$0	\$0	\$0	\$0	\$117,117
Subtotal	\$253,617	\$479,388	\$454,711	\$173,022	\$206,900	\$4,521	\$4,657	\$1,576,816
Local Revenues								
Local Match for Capital (22% local share)	\$71,533	\$135,212	\$128,252	\$48,801	\$58,356	\$1,275	\$1,313	\$444,743
Local Match for Operating	\$784,954	\$583,643	\$605,050	\$627,098	\$649,808	\$742,873	\$818,136	\$4,811,562
Advertising	\$11,500	\$11,500	\$11,500	\$11,500	\$11,500	\$11,500	\$11,500	\$80,500
Lottery	\$140,000	\$140,000	\$140,000	\$140,000	\$140,000	\$140,000	\$140,000	\$980,000
Fares	\$229,813	\$130,000	\$133,900	\$137,917	\$142,055	\$146,316	\$133,900	\$1,053,901
Subtotal	\$1,237,800	\$1,000,355	\$1,018,701	\$965,316	\$1,001,719	\$1,041,964	\$1,104,849	\$7,370,706
TOTAL REVENUES	\$2,008,796	\$1,969,839	\$1,977,779	\$1,657,404	\$1,742,825	\$1,732,612	\$1,783,510	\$12,872,764

Source: LSC, 2006.

Federal Funding

LSC recommends that Lake Havasu Transit continue to apply for federal funding in order to support public transportation services in the City of Lake Havasu. Federal funding is expected to remain relatively stable over the next few years. Lake Havasu Transit should also continue to work toward establishing new revenue sources. Additional funds may be generated by pursuing grants from agencies and foundations other than the ADOT or FTA.

Lake Havasu Transit Funding

LSC also recommends that, in the short term, the City of Lake Havasu contribute revenue to cover the local match costs of general public transportation services. Federal funding is available for 50 to 76 percent of the operating costs for general public service.

The 2006 to 2012 Transit Plan anticipates \$1.7 million in fiscal year 2006, with a decrease in the year 2007 to \$1.4 million as the restructure of the new service is implemented. Depending on demand for Sunday service, the total cost may increase by about \$100,000 to operate additional service. After the year 2007, the cost of the service would increase at the rate of inflation, until the years 2011 and 2012 when additional service is implemented. The additional costs could be covered by FTA funding at 50 to 70 percent, with the remainder from local match. In 2011 and 2012 LSC staff estimated that, due to population growth, Lake Havasu will be using FTA 5307 and 5309 funding and not 5311/5310 funding for operating and capital.

In the long term (2012 to 2020), the Lake Havasu Transit Board should examine the possibility of developing a more sustainable revenue source. At this time, the Lake Havasu City Council does not feel that a dedicated funding source (tax) for transit is possible. The transit improvements over the next five years will aid in marketing the transit system to the region's voters, thereby improving the chances that a dedicated funding source for transportation could be implemented in the long term. A dedicated funding source would provide more stability for the continuation of transit services.

Benefits

- Local funding displays a level of commitment on the part of the local governments and citizens.
- The local match funds are needed to help secure matching federal funds.
- The funding helps to provide a service needed by the local citizens.

Timing

- The Transit Manager and the Lake Havasu City Council should begin the process of acquiring the needed capital in 2006 for the restructuring of the service. This includes building a downtown transit transfer station, purchasing nine 20-passenger transit vehicles, and implementing 126 bus stops.
- The community's budgetary offices should be prepared to incorporate local transit funding when the transit budget is presented in the fiscal year 2006 to 2007 budget cycle.
- In 2010 and 2011, the Transit Manager would need to work with the Lake Havasu City Council to obtain additional funding for the implementation of the expanded weekday service hours in 2011.

Responsibilities

- The Transit Manager would be responsible for presenting the initial information to the Lake Havasu City Council in order to build support for local transit funding.
- The Transit Manager would be responsible for developing the transit budget and presenting the budget to the local governments.
- The Transit Manager and Lake Havasu City Council members should educate the public on the benefits of the Lake Havasu Transit services in order to obtain political support for the development of dedicated transit funding in the future.



Implementation Steps

- The Transit Manager should meet with the Lake Havasu City Management and City Council to present the need for local funding.
- The Transit Manager should prepare the detailed transit operating budget for approval.
- The Transit Manager and the Lake Havasu City Management should present the approved transit budget to the City Council, which would be asked to financially support the transit service.
- A grassroots group should be created and should meet every month. The grassroots group should develop the public education programs regarding the benefits of supporting the intergovernmental agreements and local commitment to transit service.

MARKETING AND PERFORMANCE MEASURES PLAN

This chapter outlines several effective preliminary marketing strategies which could be used by City Transit. These strategies represent “Best Practices” from across the nation. They are taken from the *Transit Cooperative Research Program, Report 50: A Handbook of Proven Marketing Strategies for Public Transit*, sponsored by the Federal Transit Administration and the Transportation Research Board. This TCRP report discusses national examples of effective marketing campaigns along with program results and a time line for implementation.

Marketing in the broadest context should be viewed as a management philosophy focusing on identifying and satisfying customers’ wants and needs. The basic premise of successful marketing is providing the right product (or service), offering it at the right price, and adequately promoting or communicating the existence and appropriateness of the product or service to potential customers. Unfortunately, for too many persons the word “marketing” is associated only with advertising and promotional efforts that accompany “selling” the product or service to a customer. Instead, such promotional efforts are only a part of an overall marketing process. Without a properly designed and developed product or service offered at the right price, the expenditure of promotional funds is often ill-advised.

The following sections outline some of these strategies appropriate for investigation for City Transit.

What constitutes an effective strategy?

One of the first questions to ask when designing a marketing strategy or plan is “what is an effective marketing strategy?” While there may not be one correct answer to this question, it at least can lead to a discussion on effective strategies.

An effective marketing strategy ***should at a minimum:***

1. Become a strategy under the transit agency’s Goals and Objectives for service;

2. Be clearly and concisely presented and implementable in the sense that something is produced or attained through the strategy;
3. Be able to be measured by some performance measure or data element;
4. Cost-effective in the sense that there is a benefit from the strategy and it is not implemented just for the sake of having a marketing campaign, one which may not even work;
5. Be flexible in respect to service changes and market segment changes, but be focused enough to convey a message about specific information; and finally,
6. It should accurately represent the transit service as a whole.

Although there are many other definitions of what a marketing strategy *should be*, it should be something that is a comprehensive part of the agency's overall goal of providing safe and efficient transit service. It *should not be* something that is forgotten or discarded, even if there are no funding dollars available to support a comprehensive marketing strategy. Many strategies only take some initiative, foresight, and dedication to make and implement the strategy. The strategies should support the goals and objectives in a clear and concise way.

How do you measure the success?

It can be very easy to measure the success of a transit agencies performance. Many times it comes down to two points:

- ✓ Operating Effectiveness
- ✓ Operating Efficiency

Measures of effectiveness can be tested with performance factors such as:

- Passenger-trips per mile
- Passenger-trips per hour
- Passenger-trips per capita

Measures of efficiency can be tested using the following measures:

- Cost per passenger-trip
- Cost per hour
- Cost per mile
- Cost per capita



LSC recommends that City Transit work with its Transit Advisory Committee (TAC) to develop performance standards using the measures stated above that will be used to “grade” the service. Performance standards should be realistic and obtainable. City Transit staff could provide current data to the TAC as a reference point.

Measures of marketing success can be measured using performance measures as the ones discussed above, as well as through measures from passenger perceptions. Many times, **the** measure of marketing success is an increase in ridership. Other such measures of success include the following:

- Revenue generation
- Farebox recovery
- Ongoing passenger perception surveys from onboard surveys, telephone surveys, focus groups, or mailings. This should be done on a regular basis.

Preliminary Marketing Steps

One of the primary steps in determining how to tailor a marketing program to your agency is to determine how City Transit is perceived. One of the best ways to determine public perceptions is to ask questions of users, non-users, and your agency as a whole. Ask yourself the following questions:

- Do you have a marketing team of business leaders, customers, key representatives, government officials, etc. who meet regularly to discuss marketing efforts, or service efforts?
- Do you talk to your customers on a regular basis?
- Do have an open submission policy or openly accept new service ideas from persons outside your direct organization?
- Do you regularly survey passengers to determine if their needs are being met?
- Do you regularly meet with drivers to discuss how to better improve the overall service to patrons?
- Do drivers discuss feedback they get from customers with each other or with supervisors and key leadership?
- If you asked customers what they would change about the system, do you have any idea what they would say?

- If you asked customers how they heard about the service for the first time, do you think they could tell you?
- If you sampled the general community population, would they be able to tell you anything about City Transit service—how much it costs, where it goes, how to use it?
- Would local businesses, clubs, organizations, etc. donate to your organization?
- How would customers rank service on a scale of 1 to 10? Would you be surprised by their responses?

These are the key questions which need to be addressed as you continue to improve and market City Transit as **the** public transportation provider in the region. Many agencies are shocked when they evaluate themselves in regard to the above questions. Marketing often is a key to raising the perceptions about a service.

Effective Strategies

National Examples

The following presents marketing examples from across the United States, along with the strategy's effectiveness at meeting the respective agency's goals. The strategies are not categorized or presented in any certain order. They are presented as a basis for discussion and to present how "others" campaign for transit ridership.

Transit Brochure Distribution – Rural Transit

Rural Transit in Bloomington, Indiana informs customers and potential riders of services through brochure distribution, as does City Transit. The brochures are easy to read and informative. They are distributed to businesses and agencies along the rural transit routes. The implementation time for this program was one year with the objective of increasing awareness of Rural Transit's services. The agency reported the successes of the program were an increased public awareness of transit services in the area, increased working relationships with local businesses and agencies, and increased ridership.

The RRTA Senior Game – Red Rose Transit Authority

Red Rose Transit Authority (RRTA) in Lancaster, Pennsylvania conducted a six-week-long frequent rider promotion for senior citizens age 65 and over. The RRTA Senior Game cards were distributed by operators and punched each time a senior used the system. A card was entered into drawings for prizes after four rides. Weekly drawings were held with small prizes awarded. The agency advertised with a mailing to the local senior citizen groups, ads in senior citizen publications, and interior bus ads. The objective of the “game” is to get new seniors to try the bus system as well as to reward current patrons. Implementation time is two to three weeks per year. Ridership for the RRTA was noted as increasing, and feedback from seniors was very positive.

Flyers Distributed on the Virginia Tech Campus

Blacksburg Transit in Blacksburg, Virginia posts single-page flyers throughout the college campus promoting its paratransit service. The flyers are placed in and around major buildings. The objective is to increase awareness of the agency’s paratransit service on campus. The strategy was implemented in two months with calls to the agency increasing for information and applications for service increase by 350 percent.

The Transit Connection – Connecting the Worker to the Workplace

The Triangle Transit Authority in Research Triangle Park, North Carolina held job fairs that focused on the importance of public transit options for the workplace. The objective of the job fairs was to bring employers and potential employees together for mutual benefit. Education of both segments was another objective. While this project took considerable funding and time spent organizing the job fair, the TTA sees this strategy as a huge success and is now asked to make presentations to different groups on welfare-to-work issues, and is represented on several area agency boards for work-related transportation issues.

Get On Board – Erie Metropolitan Transit Authority

The Erie Metropolitan Transit Authority (EMTA) conducts a transit awareness program called “Get On Board.” The agency holds awareness assemblies in each of the local elementary schools. Coloring books and other materials are distributed

to the children, and education lessons are given to teachers. The main objective is to educate schoolchildren on the value and use of the transit system. EMTA spends money primarily on copying and stickers. Free advertisement is garnered on a local radio station with other prizes donated from local advertisers on the station. In the first year of implementation, 10 of 14 schools were involved, and working relationships with sponsors continues to grow.

Other Approaches

Recent research has cataloged marketing efforts that have helped transit systems around the country increase their public exposure and their ridership, and some of these successful initiatives may be useful for Lake Havasu City Transit. Many systems have found print advertising (e.g., newspapers, flyers, and direct mail) to be the most effective use of advertising dollars. Examples of successful marketing strategies are listed below.

- *Volunteers to Assist Potential Riders.* Under this program, a volunteer is used to explain the working of the transit system to the potential patron and to accompany the person on a round-trip ride. Such programs have resulted in a newfound independence for residents, particularly elderly persons and persons with disabilities, who are now able to travel throughout the community without relying on friends and family to provide them with mobility.
- *Publish transit schedules and service hours in the newspaper.* Publication of the transit schedule and basic information about the system in the local newspaper twice a year would be a cost-effective way to ensure that the residents of the communities are familiar with the transit service. The newspaper may agree to print the schedule as a public service; alternatively, some systems have covered the cost of such an initiative through a reciprocal agreement to carry advertising for the newspaper on the buses.
- *Direct Mail Program.* If new areas or services are added to the transit system, it may be advantageous to institute a direct mail campaign to households in the new areas. Such a campaign will ensure that residents of the neighborhoods know about the service. It would be useful to include coupons in the mailing to encourage residents to make their first transit trip.
- *Shopping Center Underwriting.* Some transit systems have developed arrangements with shopping centers that provide coupons for riders. These coupons would provide an incentive for riders and would be beneficial to the transit system and the shopping center.



While each of the listed marketing strategies may or not be effective, they can all be modified in some way to fit City Transit's needs. The goal of marketing is to increase awareness, support, and ultimately, ridership for the system.

Marketing to Business

Marketing techniques to reach business should receive its own attention. An excellent resource is the *TCRP – Report 51: A Guidebook for Marketing Transit Services to Business*, sponsored by the Federal Transit Administration and Transportation Research Board. Much of what is documented in this section is taken from that report as well as LSC's varied experience in other areas across the United States. This guidebook states a very important point worth mentioning right away: "No matter who makes up the target market, understanding what the customer wants is the first step toward meeting those needs." This statement translates into every aspect of a transit system, not just the marketing program.

Many times, local businesses are unaware that general public transit service even exists. In many cases, local businesses do not know about tax benefits and other incentives available through the use of employee transportation. Likely, it can be provided through a brief summary of those benefits to the employers by a spokesman for City Transit. It is then up to City Transit to respond to those business needs, such as getting employees to and from work. For example, subscription employee routes could provide a needed service to businesses. This could be in the form of vanpools, buspools, fixed-route intercity service, etc.



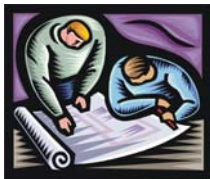
Once a service is proposed to be offered, support for that service must come in terms of commitment and support. This is not only financial support, but may require the business participating to promote the service to employees. Effective programs across the United States have employed such innovative ideas as public-private profit sharing, where revenues are shared with the business after operating costs have been recouped. How do you begin such a daunting task?

There are many ways to approach a business to determine if a market exists and what form of transportation is appropriate for that business:

1. Direct Mailings – inform businesses of existing service and benefits.
2. Site-Based Sales – informal visits with employers and employees to determine needs and possible solutions.
3. Chamber of Commerce – an excellent means to communicate with businesses, especially with the President/CEO of the Lake Havasu Chamber of Commerce as a member of City Transit’s Technical Advisory Committee.
4. Telemarketing – businesses can be contacted during business hours and be “pitched” information.
5. Word of Mouth – it is possible that an existing employee uses transit and can spread the benefits of transportation to fellow employees and employers.
6. Decision Makers – obviously having the ear of local decision-makers and business leaders is an effective way to promote the service.

There are a variety of ways to market transit to businesses in a community. The first thing you have to do, or be willing to do, is offer a **convenient, cost-effective service**. Cost, convenience, and reliability are the important things to remember in any transit system and must be the priority of the transit agency. If this is concentrated on, marketing will come much more easily.

City Transit Preliminary Transit Marketing Strategies



The best marketing that can be done is to provide services that the people want. Enhancing service is an element of marketing because it provides a desirable service to those who will use it. In order to provide good service, it is essential to have information which may be used by management for evaluation of the service and continuous improvement of that service. City Transit must maintain a customer orientation in every part of the plan. Promotion activities have been identified which could enhance the overall implementation and marketing efforts. The following represent realistic efforts which could be done under a limited budget.

Human Interest Stories

City Transit should work with the local newspaper to provide periodic human interest stories. Human interest stories can be used to reinforce the benefit of transit service for the community.



Examples of good stories would be individuals who are able to work or attend school because of the availability of public transportation. Another example is someone with a disability who is able to make a contribution in the community because of the public transportation or who is able to obtain medical treatment because of the coordinated efforts between the City Transit and social service agencies.

City Transit should also make use of news advisories for any significant event or accomplishment of any employee. The most cost-effective way to reach large groups of the general population is via the news media. A system should be developed to disseminate news advisories to the media announcing new schedules, fares, services, community involvement activities, outstanding employees, safety record, major management changes, awards, etc. It is important to keep in mind, however, that the media should not be overwhelmed with too much information that is not meaningful and which might otherwise dilute the attention paid to other more important communications. City Transit should use the media in the beginning to talk about the new service change.

Vehicle Logo Design/Bus Wrap

A vehicle logo should be designed that is both distinctive and attractive. The logo should convey the message that this is a transit bus or a transit stop. It should be colorful, easy to read, and reproducible. Additionally, bus wraps offer an attractive alternative to paint schemes. Many times the cost of a bus wrap can be offset by advertising a local business or the community college. Additionally, a “Design a Bus Wrap” contest could be sponsored throughout the region. Recently, a high school student in Tempe, Arizona won the 2004 Valley Metro “Design a Bus Wrap” contest.



City Transit should contact a local business or agency who may be willing to pay for the bus wrap. Bus wraps have a wide range of price depending on the design, amount of the vehicle to wrap, geographical location,



and type of vehicle. Vendors have stated that a three-year wrap for a body-on-chassis vehicle can run between \$7,000 and \$15,000. Many smaller agencies are just not financially capable of having this done to vehicles. However, there may be a local business or other agency who may be willing to cover the cost of design, materials, and installation.

Passenger Information

Passenger information is a broad topic of discussion. One main element of passenger information appropriate for City Transit is a new brochure and flyer program. Passenger brochures should describe the services and include detailed information on the transit system without providing irrelevant information. The brochures should include service hours, destinations/service area, phone numbers, fare information, etc. The brochure should also describe how to request a pick-up and drop-off. The brochure should be attractive, informative and bi-lingual (English and Spanish).

Another element of passenger information should include posters and signs. Posters and signs should be prepared which may be displayed in businesses, at places of employment, hospitals, and community bulletin boards.

Local Advertisement

Local advertising in media is a very effective means of advertising and promoting transit services. Local television time is usually cost-prohibitive for most agencies. Radio, newspaper, Internet, and others usually provide a cost-effective means of communicating with the public. Many times a local paper or radio station will donate ad costs for the agency.

Local advertisement also means working with local businesses and agencies to advertise on the buses, bus stops, etc. Many times this can be a revenue generating initiative.

Guidelines for Preparing Radio and Newspaper Stories or Releases

It is important to remember that local people read local papers. Several written communication strategies may be used to “sell” the transit system. These should

be considered if not already being used—yellow pages, directories, classified ads, newspaper, event flyers, referral flyers, and promotional flyers. What follows are brief guidelines for preparing news advertisement or releases. These guides are general “rules of thumb” for news releases and advertisement.

- **Determine the goal:** Why are we releasing this news story? Does it help to promote service? Does it reach our markets effectively? What market are we trying to reach with the advertisement or story? Determination of the overall goal of a news release or advertisement may help to assess if it is worth the cost to place the advertisement versus what the return may be. Overall, will we gain anything from the release or advertisement?
- **What do we need?** A determination of the objectives is necessary to assess how much is needed to convey the message. It is unlikely that one or two lines of text will suffice for releasing information about service changes or improvements in local papers. Having several “eyes” read and critique the piece will help to know if the message is being conveyed as intended.
- **When you do write a release follow this simple strategy:** *Don't* forget about the primary goals, *don't* go overboard, *don't* use empty useless statements, and *don't* forget to be accurate.
- **Read, re-read, and then read it again.** Have someone else read and check the advertisement and/or release.

Appendix G presents a number of ad slicks which could be used by City Transit in local papers. A number of simple, but effective radio ads are also presented.

Public Relations and Service Announcements

Public relations and service announcements are activities by which City Transit can be “sold,” without having to incur the costs associated with paid advertisement. Public relations are vitally important to any company, but especially to transit systems because of the dependence of the system upon the public to sustain it financially. The fact that the system must provide dependable, convenient, and timely service to the public is fundamental. Without this element of efficiency, no amount of public relations, advertising, or other marketing strategies will be effective. City Transit staff should develop service announcements describing the new service change. This is a cost-effective way of spreading the word over the airwaves.

Monitoring Program

Monitoring of service should begin immediately. Data collection is essential to evaluate the service performance and to determine if changes should be made in the service delivery. This section provides information on data collection, databases, and standard reports which should be prepared. While City Transit staff currently collect some of this information, detailed information such as passenger boardings and alightings by stop would greatly enhance the amount of analysis which could be performed for future service changes.

Data to Be Collected

Data to be collected fall into three basic categories—ridership data, on-time performance, and financial.

Ridership

Passenger boarding data should be collected continually. There is a trade-off between data collection efforts and the value of information. It is just as easy to collect too much data as it is to collect insufficient data.

Passenger boardings should be recorded daily by route, fare category, and by trip. One goal all transit agencies should strive for is the implementation of Intelligent Transportation Systems, such as Mobile Data Terminals (MDT). Mobile Data Terminals include features such as recording each passenger by fare category as they board. This capability should be programmed into the capability of the software as it is implemented. Mobile Data Terminals also allow both data and voice communication between operator and dispatcher. It is similar to having an alphanumeric pager on the dashboard. Several successful agencies across the United States implementing MDTs include Central Ohio Transit Authority, Colorado Springs Transit, Tri-Met - Oregon, Milwaukee County Transit System, Ann Arbor Transportation Authority, and Montgomery County Transportation Authority.

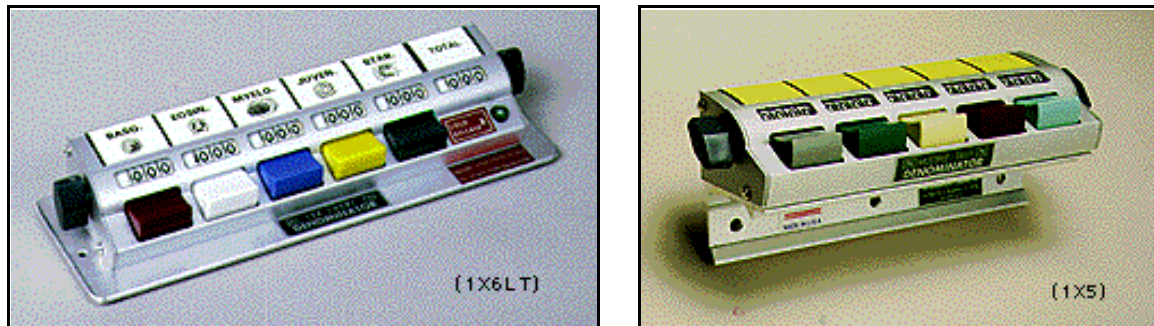


MDTs in use

Passenger boarding data can also be collected using tally boards on the buses. Two sample counters are shown in Figure IX-3. Sufficient buttons are required to

record passengers in each fare category. A driver's log sheet should then be used to record the passenger counts at the end of each trip. The drivers do not need to calculate the number of passengers for that trip, but record the running total by fare category. As data are entered, the calculation of passengers on each trip can be made. An effective approach is to prepare the driver's log sheet for each of the drivers' runs. This will provide preprinted route and trip information, and the driver will need only to record the date and the passenger count data.

Figure IX-3
Manual Passenger Boarding Counters



Twice each year, a full boarding and alighting count should be completed. If passenger boardings are counted using the MDTs and integrated with Automatic Vehicle Location (AVL), the data can be recorded automatically. If it must be done manually, this is a more intense effort and will require the use of additional personnel. Passenger counts are recorded for passengers boarding and alighting by stop for a full day. This information records the passenger activity at individual stops and is useful to determine if stops are appropriately placed and what amenities should be provided. If a stop has little or no activity, it would not warrant a bench or shelter, and may not even be appropriate as a designated stop. Data collection forms should be prepared for each route showing the stops and providing space to record the passenger counts. An example used for an existing system is provided. Similar sheets should be prepared in advance for the boarding and alighting data collection.

Time: _____ am / pm

Breckenridge Route

of carryover passengers: _____

ID	Bus Stop	ON	OFF	W/CH ON	W/CH OFF
34	Frisco Station				
46	Summit Boulevard @ School Road				
89	Main St @ 6th				
94	Granite Street				
50	Ophir Mountain Village				
21	County Commons				
95	Hwy 9 @ Farmer's Korner				
74	Hwy 9 @ Tiger Run				
97	Hwy 9 @ Vienna Townhomes				
13	Hwy 9 @ Breckenridge Rec. Ctr				
18	Park Ave. @ City Market				
6	Park Ave. @ 4 O'Clock Road				
110	Breckenridge Station				
110	Breckenridge Station				
108	Park Ave. @ River Mountain Lodge				
18	Park Ave. @ City Market				
98	Hwy 9 @ Breck Inn				
97	Hwy 9 @ Vienna Townhomes				
74	Hwy 9 @ Tiger Run				
95	Hwy 9 @ Farmer's Korner				
50	Ophir Mountain Village				
21	County Commons				
109	Summit Co Comm. Ctr				
94	Granite Street				
89	Main St @ 6th				
46	Summit Boulevard @ School Road				
34	Frisco Station				

EXTRAS

Finally, an onboard passenger survey should be conducted periodically. We recommend that a survey be conducted six months after service changes have been implemented. Following that, passenger surveys should be conducted at least every two years. Survey instruments with questions appropriate for City Transit should collect information about passenger demographics, trip characteristics, and perceptions of the transit service.

ACTION STEPS

Listed below are a series of action steps which City Transit needs to implement for the new service changes.

Management Action Steps

LSC recommends that City Transit implement the management changes described in Chapter VI. These changes will ensure that adequate management resources are on hand to implement the new service changes. The Transit Manager position could take the lead in making sure that there is a some transition from the current general demand-response system to the new flexible fixed-route service. This will be no easy undertaking and will demand 90 percent of the Transit Manager's time. This position needs to be in the forefront of handling the implementation of the new service as well as conducting an aggressive public information campaign to make sure the general public is well aware of the new service to be provided. The Transit Manager will also be busy developing funding grant requests and preparing requests for professional services such as obtaining bus shelters and stops, new buses, and Intelligent Transportation Systems. The Transit Supervisor will need to oversee day-to-day operations during this time.

Operational Action Steps

The primary action needed for the transit operation is making substantial changes to current dispatch system. This system is extremely labor intensive, inefficient, and places excessive stress on the dispatcher. This is evident in the large turnover in the dispatcher position at City Transit.

Several years ago, City Transit obtained funding from the Arizona Department of Transportation to purchase a computer software and hardware system for scheduling and dispatching paratransit trips. This computerized system would replace the existing manual system currently in place and would make scheduling and dispatching much easier, as well as more efficient and effective. LSC recommends that this grant be activated and a Request for Proposals (RFP) be issued to obtain this needed system immediately. City Transit staff can work with the Arizona Department of Transportation to develop this RFP.

In the interim, LSC recommends that City Transit implement a new manual system whereby the dispatcher develops trip route manifests. The first proposed change is in scheduling of trips. Currently all pre-arranged trips are scheduled concurrently with real-time requests. There is no advance grouping or scheduling of trips. The recommended change is to begin grouping trips around the pre-arranged requests. At the beginning of the day, the scheduler should group trips according to the requested time, pick-up zone, and destination zone. These groups may be adjusted throughout the day, but should form the core schedule to which new requests are added. The groups should be well-defined about two hours before the actual travel time and assigned to specific vehicles. New requests should then be added to the appropriate vehicle based on the schedule for that vehicle. This approach provides the advantage of using the maximum information to optimize the schedule. As trips are grouped, the potential for improved productivity is increased.

The second major change is to reduce the amount of information that drivers must record. Manual tally count boards (as discussed previously in this chapter) should be placed on the vehicles with at least eight buttons. Instead of recording the number of passengers by fare category at each stop, the driver could record the boardings by pressing the appropriate button and then record the totals at the end of the shift. There is no need for the driver to record the pick-up and drop-off addresses as these are on the trip tickets maintained by the dispatcher. The information that the driver would record would be the pre-trip inspection and any dead-head miles. At the end of the shift, the driver would record the total boardings by fare category and would count the fare receipts. This will result in a significant

reduction in the amount of time drivers spend recording information and has the potential to improve productivity slightly as drivers will be available for providing service rather than recording information.

At the end of the drivers' shifts, the driver would turn in the drivers' log with passenger totals, deadhead miles, and total fare receipts. The dispatcher should count the fare revenues in the presence of the driver and reconcile the driver's passenger counts with the dispatch records. Fare receipts should also be reconciled with the passenger counts.

Rural transit systems receiving formula funds, such as City Transit, will be required to report data to the National Transit Database (NTD) which before was only required of urban transit systems. States now will have to report the following:

- Total Annual Revenue
- Sources of Revenue
- Total Annual Operating Costs
- Total Annual Capital Costs
- Fleet Size, Type, and Facilities
- Revenue Vehicle Mileage
- Ridership

Most of these data can be collected using the computerized dispatching software, thereby eliminating time-consuming manual input of data. The software can also be programmed to place these data into report formats. As an urbanized system, City Transit will be required to report more detailed information directly to the FTA.

IMPLEMENTATION TIME LINE

Figure IX-4 presents a time line of the information from Table IX-5. LSC has also included the planning phase for each recommended project and program in order to aid in the development of the projects and programs. The planning phase is conducted the year before implementation. LSC recommends that Lake Havasu City Transit evaluate each project or program after implementation.

Transit Implementation Plan (2006 - 2012)

In the time line, the existing system is restructured to the hub-and-spoke system with demand-response service in 2006 (also includes Sunday demand-response service). During this same time, the City of Lake Havasu would need to begin construction of a downtown transit transfer station. The transfer station should be completed in 2007. The expanded weekday service hours would begin in 2011.

The implementation of the 126 bus stops should start in 2006 and be completed in 2011. In 2007, no bus stops would be constructed due to the level of other capital expenditures.

In the first two or three years, Lake Havasu Transit should be able to operate the hub-and-spoke service with the existing fleet. As the service matures, there would be a need to move to more fixed-route vehicles (20-passenger transit buses). The purchase of these vehicles is estimated to start in 2007 and be completed by 2009. During this same time period, there would be a need to purchase replacement cut-away vehicles.

Figure IX-4 Short-Term Plan Time Line



LEGEND

- Planning Phase/ Intergovernmental Agreements
- Implementation/ Construction Year
- Full Year of Operations
- Feedback
- P Purchase Vehicles

