



CHAPTER IX

Service Alternatives

INTRODUCTION

The basis for any short-range transit plan is the careful consideration of the realistic transit service alternatives. Capital requirements, financial plans, and management options can then be developed to support the planned transit services. Each transit service alternative must be evaluated using locally-established goals and objectives. Any alternative which does not support the mission statement of public transportation or the corresponding goals and objectives should not be considered for implementation.

The following discussion evaluates the various transit service alternatives, with each made up of several different types of transit services. The alternatives were based on information and input gathered from various meetings, and were based on possible coordination activities in order to link local transportation services to the regional transportation services. The ridership estimates for the alternatives were based on the TCRP modeling process and existing service levels.

TRANSIT SERVICE ALTERNATIVES

Maintain Status Quo

Services

A good starting point for the evaluation of transit service alternatives is the consideration of the “status quo.” This alternative involves no change in the transit service provided within the region. The status quo alternative is a viable option which may be appropriate when the current service meets the community’s needs and satisfies the goals and objectives for public transportation services. The largest single factor that can be expected to impact the region over the next 10-year planning period is the aging of the population, which will result in an increase in the demand for transit services.

Service Alternatives

Due to the fact that many different non-transit agencies are providing transportation, the number of trips provided and the effectiveness (costs and coverage) of the transit services are not being tracked in the traditional manner. Therefore, the existing ridership and financial information are incomplete. The known existing operational cost of the current transit service is from the gaming system alone. The existing transit service needs to be changed in order to allow for an economy of scale and operational improvements. The gaming system is currently experiencing over-capacity issues during various shift times and is designed solely to serve the needs of access to employment for residents. While some trips can be scheduled for a variety of reasons, employees are given priority over medical, shopping, and access to human services. For this reason, a variety of local human service providers, such as community health representatives, tribal veterans, and other departments are providing myriad services, using a combination of personal vehicles, gas vouchers, tribal fleet vehicles, etcetera.

There is currently no major coordination among the Reservation programs that provide transportation to their clients. Based on the various needs and issues, maintaining the status quo over the next six years would not meet the minimum transportation needs of the residents within the Reservation.

Advantages

The major advantage of maintaining the existing transit service and transportation providers is that there will be no additional cost.

Disadvantages

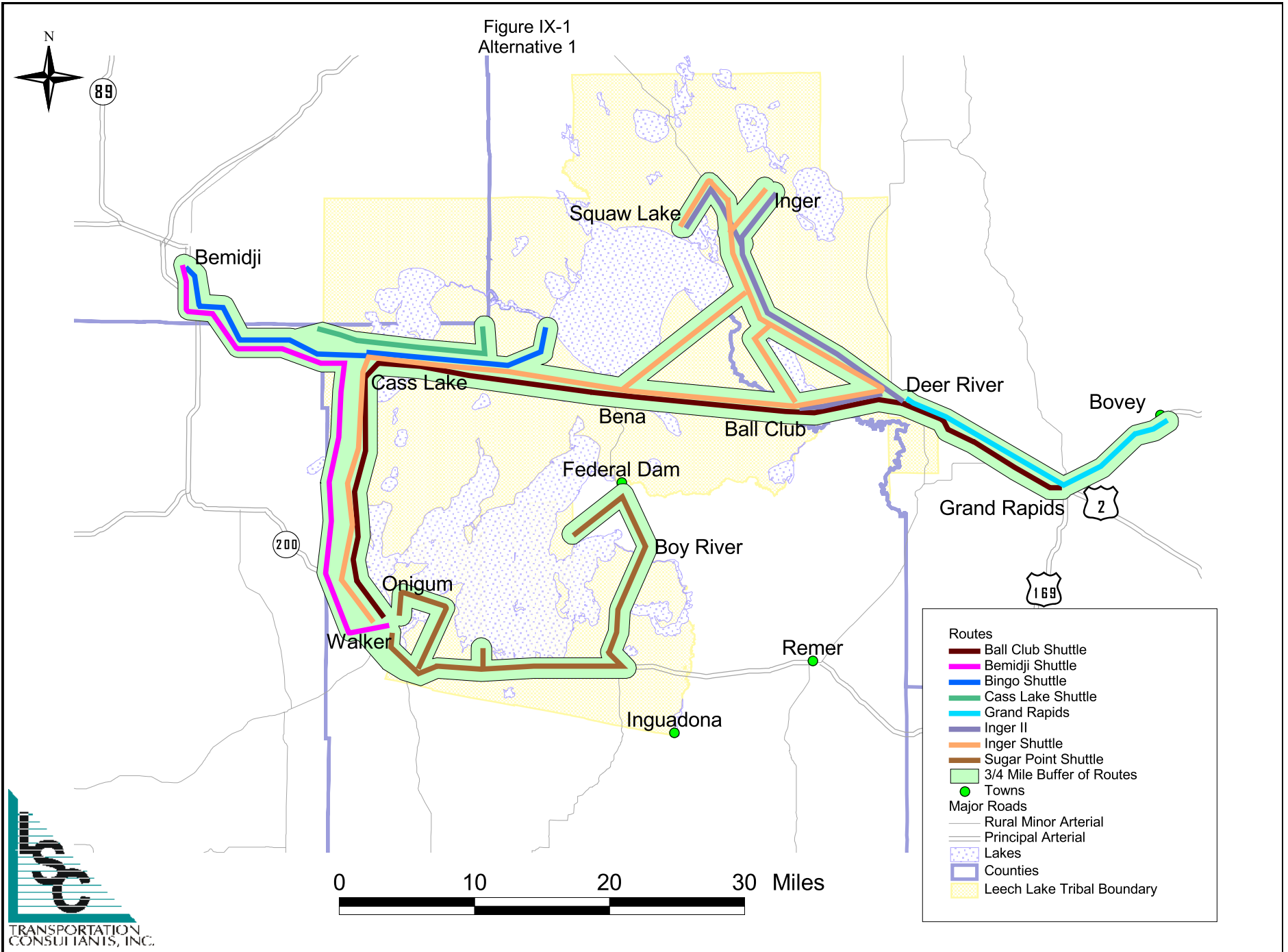
The major disadvantage to maintaining the status quo is that the transit needs analysis estimated that 90 percent of the potential transit trips within the area will continue to go unserved. The unmet need reduces the mobility and access to services, medical assistance, and employment destinations for the residents. This, in effect, reduces the quality of life for the residents within the study area.

Alternative I

Services

Alternative I is the most costly of the transit service alternatives for the Reservation. This alternative builds upon the existing gaming transportation system by converting the system which is mainly based upon employment access to one that is open to all residents and is accessible. This alternative does not attempt to change the current route structure or schedule of services; however, the main change would be to provide these services using accessible small buses and to add the addition of local dial-a-ride paratransit services. Two options exist—providing on-demand flexible routes to schedule rides up to three-quarters of a mile from the gaming system routes or providing these routes as fixed routes and providing additional services. Likely, given the fact that many of the vehicles are responding to on-demand curb-to-curb requests for many employees, it may be able to be operated if the three-quarter-mile flexible area can be achieved. If this is not possible, then additional on-demand services would need to provide this. As shown in Figure IX-1, Alternative I includes the eight gaming routes. These routes would operate much the same as they do today, with the main difference being:

- They would flex to meet on demand up to three-quarters of a mile from the route.
- Additional paratransit service would need to be provided under FTA rules.
- New accessible vehicles would need to be purchased and used on all routes.



The system will operate on a schedule similar to what the current gaming transportation operates. Additional drop-off points would need to be in place in each of the communities and no priority can be given for passenger-trips. That means that the system would, in effect, be a general public system, not solely for gaming. The estimated annual operating cost of this alternative is estimated at \$1.8 million annually, with an estimated annual ridership of 145,000 passengers. This equates to 1.9 passengers per hour and an average cost per passenger of \$13. The total cost assumes current gaming operations costs as well as the additional paratransit services, scheduled to run 22 hours per day. It was assumed that four vehicles would be required during the peak hours of the day— 7:00 a.m. to 5:00 p.m.—and that one vehicle may be needed for sporadic paratransit trips after 5:00 p.m.

Advantages

The major advantage of Alternative I is that it increases mobility and access for the residents and the general public throughout the Reservation. The largest advantage is that very little needs to be done to convert the current gaming system into one which serves all residents of the Reservation. Additionally, very little additional funding will be required. Currently, gaming provides 100 percent of the cost of the gaming routes. Additional costs would be provided using gaming funds to leverage federal funds to support this Reservation-wide system of fixed/flex routes and paratransit. The largest expense will be capital acquisition of appropriate vehicles and additional staff to provide for services.

Capital

As shown in Table IX-2 (at the end of Chapter IX), the capital required by each of the different transit service alternatives ranges from \$130,000 to over \$780,000. The capital requirement for Alternative I is \$780,000. This includes 12 transit vehicles at a cost of \$65,000 each, if not all current gaming vehicles are suitable to provide general public service—i.e., are lift-equipped and of body-on-chassis design. If there are suitable vehicles to use, the capital cost could be greatly reduced. Additional capital requirements would be for office equipment, a communications system, and computer hardware/software (for a total of \$40,000).

Alternative II

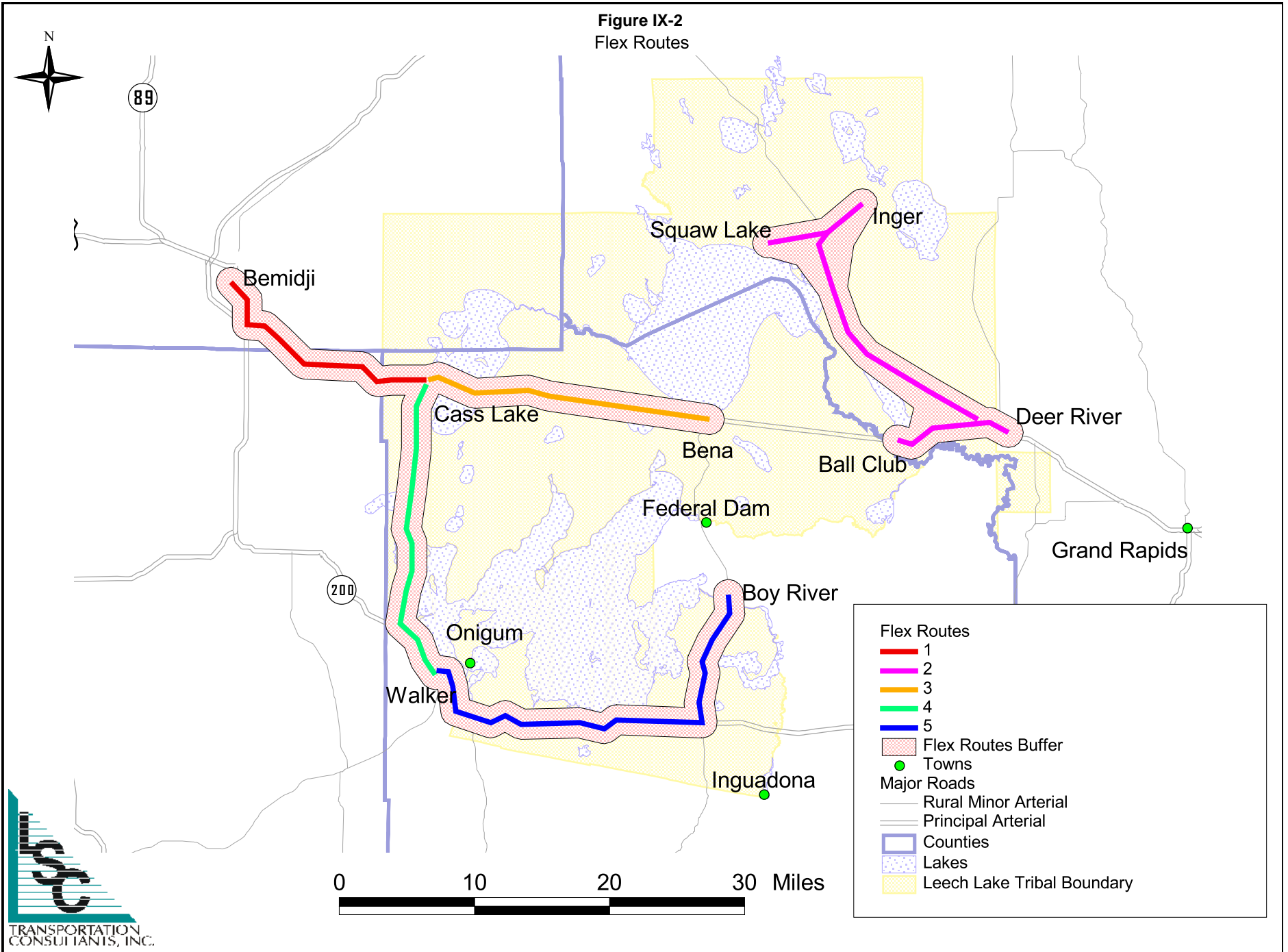
Services

Alternative II envisions a stand-alone general public system separate from the gaming transportation services. This option includes four flexible routes throughout the Reservation. The primary purpose of this service will be for employment, medical, and shopping trips. The estimated annual operating cost of the additional routes is \$187,000 with an estimated annual ridership of 11,300 passengers, an average cost per passenger of \$16.50, and a total trip rate of 1.4 passengers per revenue-hour. This would supplement the current employment gaming system, but would only operate during core hours of the day—from 7:00 a.m. to 6:00 p.m. Monday through Friday. Flexible routes would be established so complementary ADA service would not need to be provided. Accessible vehicles would be used, and the service would be open to anyone. As shown in Figure IX-2, Alternative II routes cover a large portion of the Reservation. The ridership estimates for Alternative II were based on the TCRP rural non-program transit demand model and needs assessment as well as existing ridership. The service is planned so that Route 1 - Cass Lake would operate throughout the year; however, all other routes would operate only on select days. Routes could operate Monday and Tuesday in some areas and Wednesday and Thursday in other areas so as to keep operating and capital costs down. The other option is to operate all routes Monday through Friday. Total cost—including gaming transportation—is \$1.5 million.

Advantages

The major advantage of Alternative II is that it does not require complementary paratransit service as in Alternative I. The service can be tailored to meet specific demands in each area of service. Additionally, hours of service can be adjusted to meet those needs. The routes are structured around a fixed corridor of travel, typically between an origin and destination; however, the vehicles are able to be flexible to accommodate passenger needs by flexing, up to at least three-quarters of a mile, to meet special demands such as the elderly and disabled persons who are unable to make it to a fixed stop. Flexible pick-ups and drop-offs would allow greater flexibility in the system as a whole.

Figure IX-2
Flex Routes



Disadvantages

The major disadvantage of Alternative II is that it provides redundant services in many areas of the Reservation. There are currently already gaming transportation routes throughout the area and these additional services would constitute overlap in geographic service. Additionally, there is an increase in operating and capital costs for the Reservation. With an estimated \$1.5 million annual operating cost, the Reservation will need to cover about half of the costs if the region applied for and received FTA 5311 or state funding.

Capital

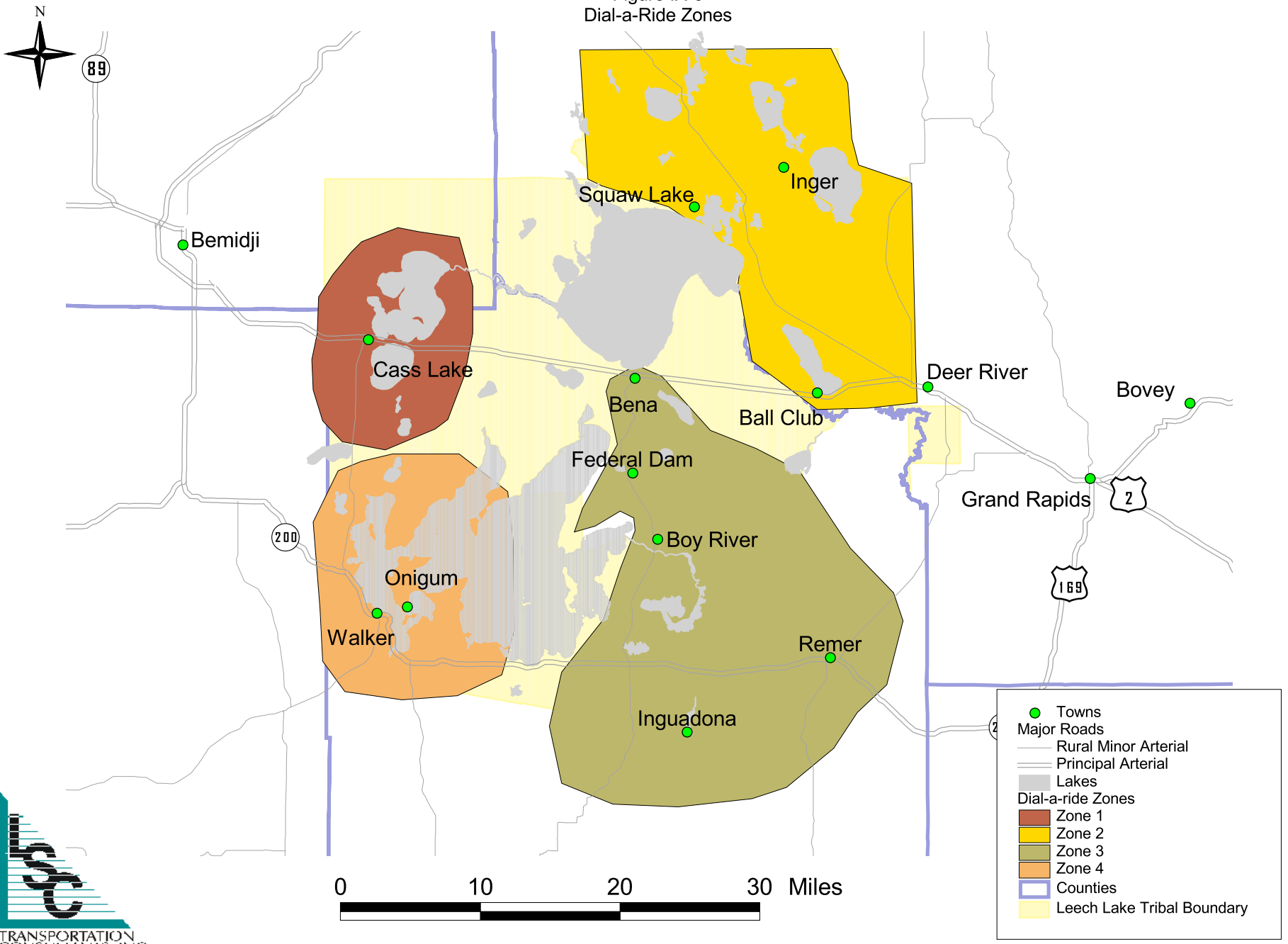
As shown in Table IX-2 (at the end of Chapter IX), the capital required for Alternative II is \$195,000. This includes three transit vehicles at a cost of \$65,000 each and the office equipment, communications system, and computer hardware/software (for a total of \$40,000).

Alternative III

Services

Alternative III attempts to provide on-demand services across the Reservation. This alternative is to provide call ahead scheduled rides in four areas of the Reservation, as shown in Figure IX-3. The main requirement of this type of service alternative is to put into place a dispatch center to handle the reservations and scheduling of trips. On-demand, or dial-a-ride, services are quite common in many rural areas. Similar to providing paratransit services under Alternative I, riders would need to schedule trips well in advance, such as 24- or 48-hour notice for trips. This alternative is shown with four routes operating 11 hours per day. Additionally, if the Reservation is not willing to provide the full operating cost of the services, the service could be operated using a scaled down approach, such as service in one zone one day, service in another zone another day, and so on. Accessible vehicles would need to be used to provide for this service, as well as additional staffing for scheduling and reservations, drivers, etcetera, if operated by the Reservation.

Figure IX-3
Dial-a-Ride Zones



Service Alternatives

In order to estimate ridership, LSC adjusted the TCRP model based upon assumed vehicle miles of service by zone. The estimated annual operating cost of the alternative is \$1.6 million based on 65,000 revenue-hours per year. Cost per mile, hour, and fixed cost taken from the existing gaming system were used to estimate the new dial-a-ride costs. The estimated trip rate is 2.1 passengers per revenue-hour based on an annual ridership of 134,000 passengers, which equates to an average cost per passenger of \$12.

Advantages

The major advantage of Alternative III is that it provides an increase in mobility and access for the Reservation's residents and the general public for all trip purposes. The system can grow and shrink, and be tailored to specific travel needs of residents. This system is quite flexible to meet needs and can provide a baseline of demand for service enhancements in the future.

Disadvantages

The major disadvantage of Alternative III is that the service again duplicates many of the same service areas as the existing system. Additionally, given the trip distances, cost-effectiveness may suffer due lower ridership levels. One rider per hour may be seen in many areas, given the level of density of the Reservation.

Capital

As shown in Table IX-2, the capital requirement for Alternative III is estimated at approximately \$260,000. This includes four buses at a cost of \$65,000 each and the office equipment, communications system, and computer hardware / software (for a total of \$40,000).

Alternative IV

Services

Alternative IV is second smallest of the proposed transit service alternatives for the area. Alternative IV includes regional connectivity—both through the Reservation, as well as to regional destinations such as Bemidji and Grand Rapids—using two routes, as shown in Figure IX-4. One approach would be to provide trips only when demand warrants such trips. For example, a policy could be established that

this service would only be provided if five or more passengers requested service. However, this can create operational problems, such as inconsistent service. The recommended approach would be to provide 12 hours of service daily to meet commuter demand, regional demands, and even local demand from town to town.

The estimated annual operating cost of the regional routes is \$156,000. The estimated annual ridership is 30,000 passengers with an average cost per passenger of \$5.10. Ridership was based upon an average of five passengers per hour. Including gaming, this option would cost approximately \$1.5 million.

Advantages

The major advantage of Alternative IV is that it provides mobility and access for the Reservation's residents and the general public into Bemidji, Walker, and Grand Rapids for all trip purposes.

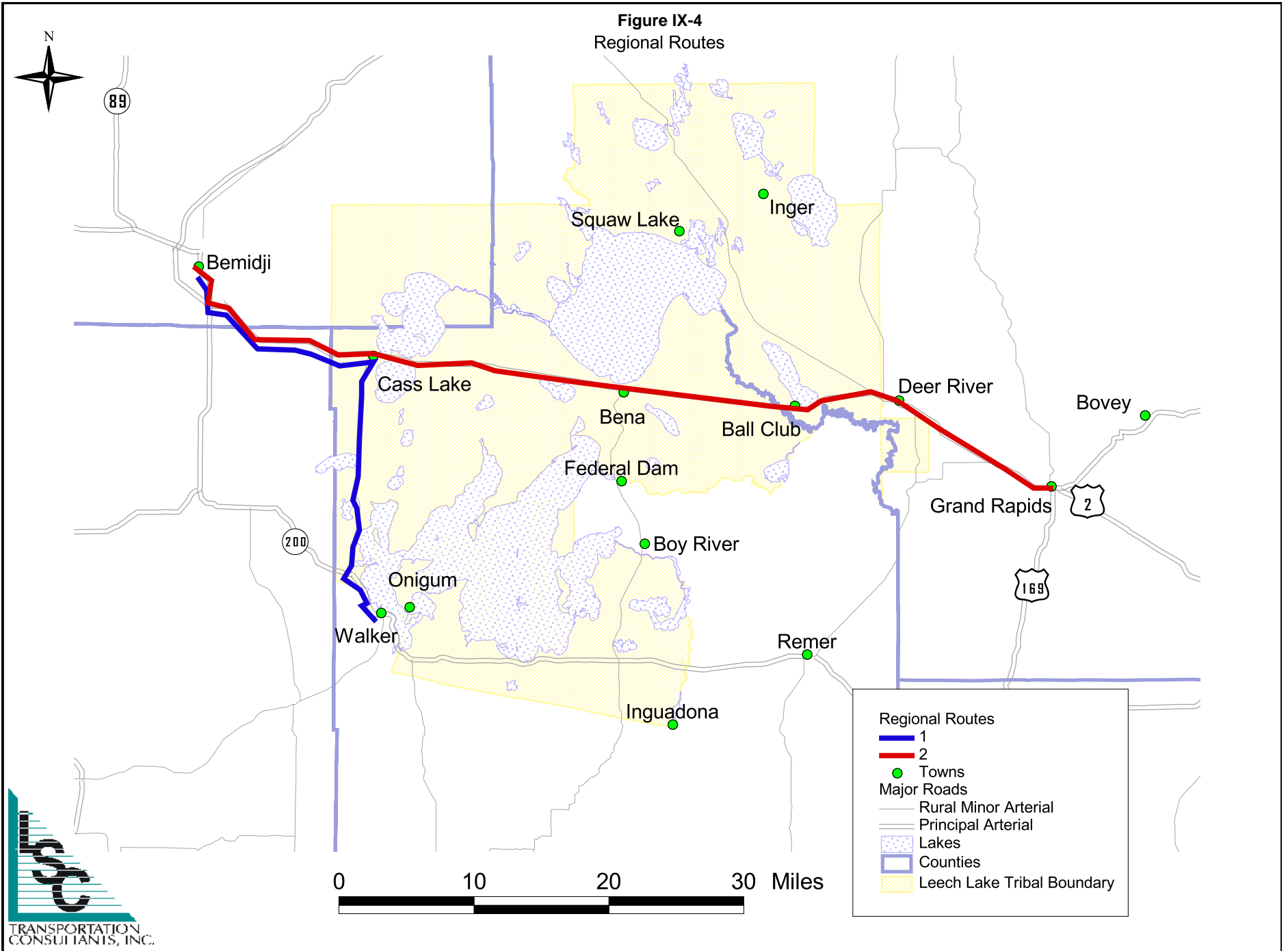
Disadvantages

The major disadvantage of Alternative IV is that these routes provide duplicate services on several of the major corridors in the area. Another disadvantage is the increase in operating and capital costs for the region.

Capital

As shown on Table IX-2, the capital requirement for Alternative IV is \$130,000. This includes two transit vehicles at a cost of \$65,000 each and the office equipment, communications system, and computer hardware/software (for a total of \$7,000).

Figure IX-4
Regional Routes



COORDINATION APPROACH

One final approach to providing service is to coordinate services with the various departments and organizations across the Leech Lake Reservation. Coordination under the increased service approach would be to look at providing departmental pooling of funds to the new transportation system. This would involve departments scheduling trips for clients rather than self-transporting using personal vehicles or fleet vehicles. Departments would need to work with the transit planners to schedule trips or to train clients to use the new system, no matter which system is selected as the preferred alternative. Additionally, regional services into Bemidji and Grand Rapids should be coordinated with those local providers so a seamless transfer to those systems can be made—i.e., timed transfers.

SUMMARY

Chapter IX has provided information on various transit service alternatives for the study area. The alternatives included maintaining the status quo, regional routes, flexible routes, dial-a-ride service, and building upon the existing network.

Table IX-1 provides a comparison of the transit service alternatives. Table IX-2 provides a comparison of the estimated capital costs for each transit service alternative.

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**Table IX-1
Service Alternatives - Cost Estimates**

Options	Hours of Service	Vehicle Type	# of Veh.	Total Daily Revenue		Total Annual Revenue		Operating Days	Annual Ridership	Pass. per Hour	Operating Cost Annual	Cost (\$) per Hour	Cost (\$) per Pass.
				Vehicle-Miles	Vehicle-Hours	Vehicle-Miles	Vehicle-Hours						
Alternative 1 - Expanded Gaming System													
Route 1 - Bemidji	5:00 a.m. to 3:00 a.m.	Bus	1	467	24	170,424	8,736	365	33,129	3.8	\$220,589	\$25.25	\$6.66
Route 2 - Cass Lake	5:00 a.m. to 3:00 a.m.	Bus	1	367	24	133,824	8,736	365	26,227	3.0	\$206,849	\$23.68	\$7.89
Route 3 - Bingo Shuttle (Palace)	5:00 a.m. to 3:00 a.m.	Bus	1	92	5	33,408	1,664	365	6,000	3.6	\$42,372	\$25.46	\$7.06
Route 4 - Inger	5:00 a.m. to 3:00 a.m.	Bus	1	407	17	148,488	6,279	365	15,216	2.4	\$168,307	\$26.80	\$11.06
Route 5 - Ball Club	5:00 a.m. to 3:00 a.m.	Bus	1	523	18	190,860	6,552	365	12,248	1.9	\$189,108	\$28.86	\$15.44
Route 6 - Sugar Point (Northern Light) Shuttle	5:00 a.m. to 3:00 a.m.	Bus	1	483	24	176,268	8,736	365	10,102	1.2	\$222,783	\$25.50	\$22.05
Route 7 - Inger II (White Oak) Shuttle	5:00 a.m. to 3:00 a.m.	Bus	1	367	17	133,980	6,279	365	10,064	1.6	\$162,861	\$25.94	\$16.18
Route 8 - Grand Rapids (White Oak) Shuttle	5:00 a.m. to 3:00 a.m.	Bus	1	279	17	101,892	6,279	365	9,203	1.5	\$150,815	\$24.02	\$16.39
Dial-a-Ride Paratransit Service	5:00 a.m. to 3:00 a.m.	Bus	4	600	52	219,000	18,980	365	18,660	1.0	\$422,469	\$22.26	\$22.64
Total/Avg			12	3,584	198	677,004	72,241		140,849	1.9	\$1,786,154		\$12.68
Alternative 2 - Stand-Alone Flex-Route System													
Existing Gaming Service	5:00 a.m. to 3:00 a.m.	Bus/Van	8	2,984	146	1,089,144	53,261	365	122,189	2.4	\$1,363,685	\$25.69	\$12.84
Flex-Route 1 - Cass Lake to Bemidji	7:00 a.m. to 6:00 p.m.	Bus	1	132	11.0	33,660	2,805	255	1,295	0.5	\$62,922	\$22.43	\$48.59
Flex-Route 2 - Inger to Deer River	7:00 a.m. to 6:00 p.m.	Bus	1	132	11.0	16,500	1,375	125	2,730	2.0	\$30,844	\$22.43	\$11.30
Flex-Route 3 - Bena to Cass Lake	7:00 a.m. to 6:00 p.m.	Bus	1	132	11.0	16,500	1,375	125	1,165	0.8	\$30,844	\$22.43	\$26.48
Flex-Route 4 - Walker to Cass Lake	7:00 a.m. to 6:00 p.m.	Bus	1	132	11.0	16,500	1,375	125	4,160	3.0	\$30,844	\$22.43	\$7.41
Flex-Route 5 - Boy River to Walker	7:00 a.m. to 6:00 p.m.	Bus	1	132	11.0	16,500	1,375	125	2,130	1.5	\$30,844	\$22.43	\$14.48
Total/Avg			13	3,644	201	1,188,804	61,566		133,669	2.2	\$1,549,982		\$11.60
Alternative 3 - New Dial-a-Ride System													
Existing Gaming Service	5:00 a.m. to 3:00 a.m.	Bus/Van	8	2,984	146	1,089,144	53,261	365	122,189	2.4	\$1,363,685	\$25.69	\$12.84
Zone 1 - Cass Lake	7:00 a.m. to 6:00 p.m.	Bus	1	110	11.0	28,050	2,805	255	3,540	1.3	\$60,815	\$21.68	\$17.18
Zone 2 - Squaw Lake/Inger/Bena to Cass Lake	7:00 a.m. to 6:00 p.m.	Bus	1	110	11.0	28,050	2,805	255	2,540	0.9	\$60,815	\$21.68	\$23.94
Zone 3 - Boy River to Walker	7:00 a.m. to 6:00 p.m.	Bus	1	110	11.0	28,050	2,805	255	1,980	0.7	\$60,815	\$21.68	\$30.71
Zone 4 - Ball Club/Deer River to Grand Rapids	7:00 a.m. to 6:00 p.m.	Bus	1	110	11.0	28,160	2,816	256	3,960	1.4	\$61,054	\$21.68	\$15.42
Total/Avg			12	3,424	190	1,201,454	64,492		134,209	2.1	\$1,607,185		\$11.98
Alternative 4 - Regional Service Routes													
Existing Gaming Service	5:00 a.m. to 3:00 a.m.	Bus/Van	8	2,984	146	1,089,144	53,261	365	122,189	2.4	\$1,363,685	\$25.69	\$12.84
Route 1 - Bemidji to Grand Rapids	6:00 a.m. to 6:00 p.m.	Bus	1	240	12.0	61,200	3,060	255	15,300	5.0	\$77,832	\$25.44	\$5.09
Route 2 - Walker to Bemidji	6:00 a.m. to 6:00 p.m.	Bus	1	240	12.0	61,200	3,060	255	15,300	5.0	\$77,832	\$25.44	\$5.09
Total/Avg			10	3,464	170	1,211,544	59,381		152,789	2.6	\$1,519,348		\$9.94

Note: Costs based on LSC analysis, 2007.

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<p align="center">Table IX-2 Alternate Service Concepts - Capital Requirements</p>					
Option	Number of Vehicles	Type of Vehicles	Vehicle Cost	Hardware/Software Costs	Communication Equipment
1 Expanded Gaming System	12	Bus	\$780,000	\$20,000	\$20,000
2 Stand-Alone Flex-Route System	3	Bus	\$195,000	\$20,000	\$20,000
3 Dial-a-Ride System	12	Bus	\$780,000	\$20,000	\$20,000
4 Regional Service Routes	10	Bus	\$650,000	\$5,000	\$2,000