

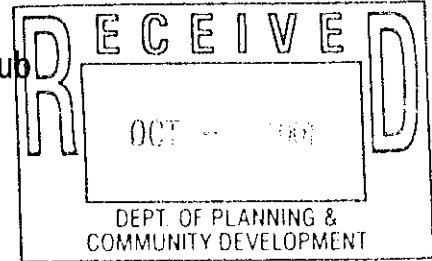
MEMORANDUM

Date: September 10, 2001

To: Ted Eisenhardt, Bainbridge Island Racquet Club

From: Laura Van Dyke, P.E. *LDV*

Subject: Bainbridge Island Racquet Club Expansion -
Transportation Analysis



Bainbridge Island Racquet Club (BIRC) is proposing to expand its existing facility to include water-related facilities, fitness space, and additional locker rooms. This memorandum summarizes the transportation analysis performed for the proposed project. The memorandum is organized to include a description of the proposal, followed by descriptions of trip generation, roadway impacts, and peak parking demand.

Project Description

BIRC is located at 8520 Renny Lane NE in the Meadowmeer neighborhood on Bainbridge Island. The existing facility is approximately 38,970 square feet in size and includes three indoor tennis courts, two indoor racquetball courts, two outdoor tennis courts enclosed under a "bubble" air structure, locker rooms, and office space. Vehicles access the existing facility via a private access road that connects south to Koura Road. The private access road also serves several homes and the Meadowmeer Golf and Country Club. The racquet club currently has approximately 50 on-site parking spaces.

BIRC is proposing to expand its existing building in the future in two phases. Phase I would include:

- two new swimming pools (a lap pool and warm-water therapeutic/exercise pool),
- a hot tub,
- weight and cardiovascular equipment,
- aerobic exercise area,
- climbing wall,
- sauna,
- steam room,
- additional locker space.

The Phase 1 expansion would total 23,320 sf and would include constructing one new building (a 8,520-sf pool building) and renovating the existing building (a 14,800-sf two-story fitness center). Phase 1 would also remove 8,150 sf of BIRC's existing tennis court building. This would result in the loss of one existing tennis court and one racquetball court. In addition, BIRC is considering a future building addition (Phase 2) that would add a third floor to the proposed fitness building. This would increase the amount of fitness space by approximately 2,700 sf. Table 1 summarizes the net increase in building size proposed with the BIRC expansion.

Table 1. Net Increase in Building Size - BIRC Expansion

Building Areas	Existing BIRC	Future BIRC with Expansion	Net Increase (sf)
Indoor Tennis Court Building	21,660 sf	13,510 sf	(-8,150 sf)
Outdoor Tennis Court "Bubble"	14,650 sf	14,650 sf	0 sf
First Floor	1,330 sf	9,470 sf	8,140 sf
Second Floor	1,330 sf	7,990 sf	6,660 sf
Third Floor (Phase 2)	n/a	2,700 sf	2,700 sf
Pool Building	n/a	8,520 sf	8,520 sf
Total Size	38,870 sf	56,840 sf	17,870 sf

Source: BIRC and Eberharter Architects, 2001

Vehicles would continue to use the private access road to access BIRC in the future with the proposed expansion. Current plans show that the existing on-site parking area would be expanded to include an additional 45 parking spaces with Phase 1, for a total of 95 on-site parking spaces.

Trip Generation

Trip generation was estimated for BIRC's proposed expansion based on information gathered from the Island Athletic Club (IAC) located on Whidbey Island. The proposed BIRC expansion is modeled after the existing IAC and has very similar amenities, as shown in Table 2. Because the proposed BIRC expansion will be larger than IAC, trip rates were developed for IAC as a function of its size (per 1,000 sf) and were applied to BIRC's proposed expansion. The methodology used to develop the daily, AM peak hour, and PM peak hour trip rates is described in the following section.

Table 2. Comparison of Existing IAC and the proposed BIRC Expansion

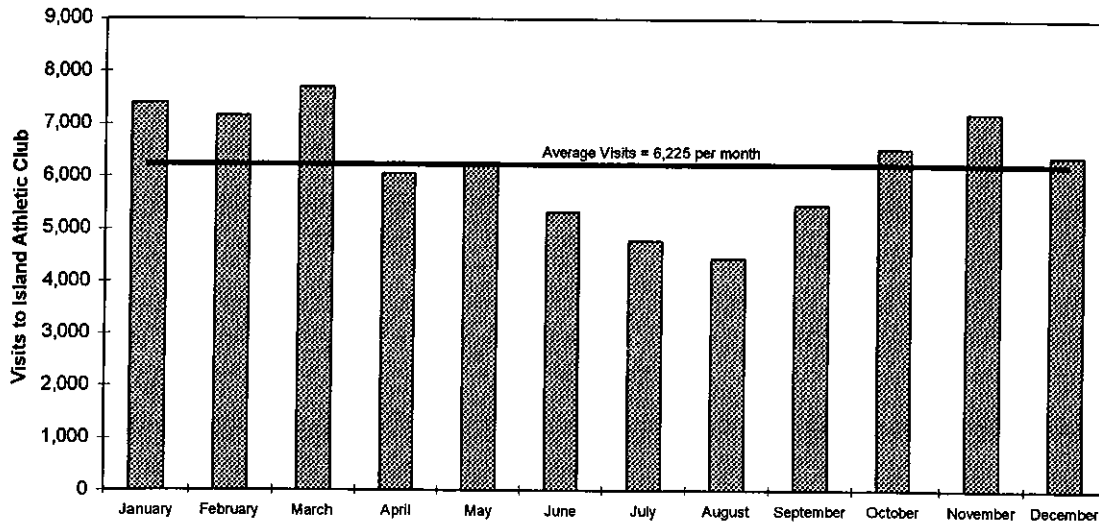
Amenities	Existing Whidbey Island Athletic Club	Proposed BIRC Expansion
Lap Pool	Yes	Yes
Therapeutic Pool	No	Yes
Hot Tub	Yes	Yes
Weight Equipment	Yes	Yes
Cardiovascular Equipment	Yes	Yes
Aerobic Exercise Area	Yes	Yes
Sauna	Yes	Yes
Steam Room	Yes	Yes
Climbing Wall	No	Yes
Lockers	Yes	Yes
Offices	Yes	Yes

Source: BIRC and IAC, 2001

Trip Rates

The existing IAC is a 17,000-sf facility, has approximately 2,300 members, and had approximately 74,700 member visits in 2000. Figure 1 shows IAC's member visits per month. As shown, there are an average of approximately 6,225 member visits per month, with the peak number of visits (7,705) occurring in March.

Figure 1. Year 2000 IAC Member Visits per Month



Daily member visit information was obtained from IAC for March 2000. This information represents member visits that are approximately 24% higher than the average month. Because the number of member visits is higher on weekdays than weekends, weekday member visit information was compiled separately and then averaged. This information showed that IAC had an average of 282 weekday member visits in March 2000.

To estimate the number of daily vehicle trips generated by IAC, each member visiting the site was assumed to make two vehicle trips (one trip to enter the site and one trip to exit the site) and each vehicle arriving at the site was assumed to have an average of 1.3 persons per vehicle. This occupancy rate, which was provided by IAC, assumes that for every three vehicles arriving at the site, two vehicles would each have one person and one vehicle would have two persons. Based on this information, the existing IAC generates approximately 434 vehicle trips on an average weekday during the peak month.

To estimate the number of vehicle trips generated by IAC during the AM and PM peak hours, hourly member arrival information was obtained from IAC. This information indicated that approximately 9% of the members arrive during the AM peak hour (8:00 A.M. to 9:00 A.M.), and approximately 7% arrive during the PM peak hour (5:00 P.M. to 6:00 P.M.). IAC staff also noted that the average member remained at the facility between one and two hours. To be conservative, this analysis is based on an average member stay of two hours. Using this information, the existing IAC generates approximately 44 vehicle trips during the AM peak hour (22 trips in, 22 trips out) and approximately 29 trips during the PM peak hour (16 trips in, 13 trips out).

As mentioned previously, the existing size of the IAC facility is approximately 17,000 sf. Trip rates for IAC were estimated by dividing the number of trips described above by the size of the existing facility. Daily, AM peak hour, and PM peak hour trip rates for the IAC are shown below:

Daily Trip Rate = 25.5 trips/1,000 sf

AM Peak Hour Rate = 2.6 trips/1,000 sf (50% in, 50% out)

PM Peak Hour Rate = 1.7 trips/1,000 sf (55% in, 45% out)

The IAC trip rates were compared to national trip rates published in *Trip Generation* (Institute of Transportation Engineers, 1997) for a "Racquet Club" (Land Use 492). The IAC trip rates were similar to the national rates, but were higher for each time period. Therefore, the trip rates derived from data provided by IAC are conservatively high and represent a worst-case analysis for this land use type.

Proposed BIRC Expansion

As shown previously in Table 1, the proposed BIRC expansion would remove some of the existing uses on the site and construct several new uses. The proposed uses included in the Phase 1 expansion would total 23,320 sf, but would remove 8,150 sf of existing tennis court space, resulting in an increased floor area of 15,170 sf. Phase 2 would add another 2,700 sf. The net increase in trip generation for both Phases 1 and 2 is shown in Table 3. Because the proposed fitness facility would generate more trips than the existing tennis court use, the trip generation estimates for the proposed expansion are based on the total expansion size, not the net increase in floor area. No reduction was assumed for the removal of the existing tennis court and racquetball court with the proposed expansion. This provides for a conservatively high estimate of trips generated by the proposed expansion.

Table 3. Net Increase in Trip Generation - BIRC Expansion

Proposed Expansion	Project Size	Daily Trips ¹	AM Peak Hour Trips ¹			PM Peak Hour Trips ¹		
			In	Out	Total	In	Out	Total
Phase 1	23,320 sf	590	31	29	60	22	18	40
Phase 2	2,700 sf	78	3	4	7	2	2	4
Total	26,020 sf	668	34	33	67	24	20	44

Source: Heffron Transportation, Inc., 2001.

1. Daily, AM peak hour, and PM peak hour trips were estimated using trip rates derived from the existing Whidbey Island Athletic Club. Rates reflect an average day during the peak month.

Roadway Impacts

City of Bainbridge Island staff (Jeff Jensen) requested that impacts to Koura Road be evaluated with the proposed BIRC expansion; however, additional intersection operational analysis would not be required. According to City staff, this is because Washington State Department of Transportation (WSDOT) controls the SR-305/Koura Road intersection and typically reviews operations on SR-305 every three to five years, not on a project-by-project basis. Additionally, because the project's main access is a private driveway, the City would not require operational analysis at the private access roadway's intersection with Koura Road. Therefore, this analysis focuses on trips that would be added to Koura Road with the proposed BIRC expansion.

As shown in Table 3, the proposed BIRC expansion is expected to generate an additional 668 trips on an average weekday during the peak month with 67 trips occurring in the AM peak hour (8:00 A.M. – 9:00 A.M.) and 44 trips (5:00 P.M. – 6:00 P.M.) occurring in the PM peak hour. Although some of the additional trips could come from the north on the private access road (from the adjacent neighborhood), most trips are expected to be destined to and from Koura Road. Because BIRC is centrally located on the island, trips are expected to split evenly at the private access road/Koura Road intersection. Approximately half of the trips would travel on Koura Road east of the private access road, and half would travel west.

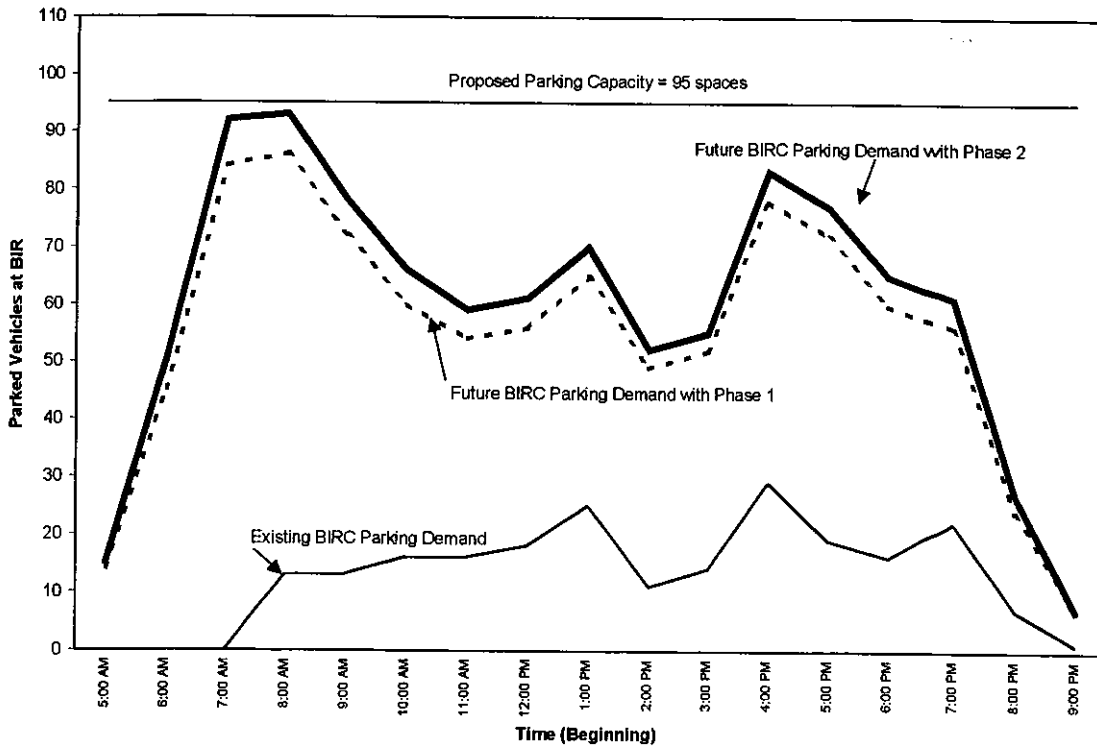
To determine how the proposed BIRC expansion could impact the adjacent roadways, a recent 24-hour count on Koura Road was obtained from the City of Bainbridge Island. The count was performed on Wednesday, May 3, 2000 and showed that approximately 1,500 vehicles currently travel on Koura Road, west of the private access road. The proposed expansion (Phase 1 and 2) is expected to add approximately 330 vehicles per day along this roadway segment or a daily trip increase of approximately 22%. According to the traffic count, approximately 137 and 146 vehicles currently travel on this section of Koura Road during the AM and PM peak hours, respectively. The proposed expansion is expected to add approximately 33 trips to Koura Road, west of the private access road, during the AM peak hour, and 22 trips during the PM peak hour. This translates to a 24% increase in AM peak hour traffic volumes and a 15% increase in PM peak hour traffic volumes along this segment. Traffic volume increases on Koura Road east of the private access road are expected to be similar.

According to City of Bainbridge Island staff, Koura Road is currently operating a LOS A based on speed surveys performed in May 2000. This corresponds to roadway segment level of service information for two lane roadways developed by JHK and Associates (Table 6-3. *Roadway Segment Level of Service Ranges*). According to this table, a two-lane roadway would operate at LOS A with average daily traffic volumes in the range of 4,000 vehicles per day and peak directional volumes around 240 vehicles per hour. In the future with the proposed expansion (Phases 1 and 2), daily traffic volumes on Koura Road, west of the private access road, would be approximately 1,830 with approximately 94 peak direction trips occurring in the AM peak hour and 90 peak direction trips occurring in the PM peak hour. These volumes are well below the thresholds described above. Therefore, Koura Road is expected to continue to operate at LOS A in the future with the proposed expansion. No roadway impacts are expected on Koura Road in the future with the proposed BIRC expansion.

Peak Parking Demand

The peak parking demand was estimated for BIRC with the proposed expansion and is shown in Figure 2. The peak parking demand was estimated based on the number of vehicles entering and exiting the site over the course of the day (during the peak month) and a two-hour length of stay. To be conservative, peak parking demand was estimated by adding the future expected parking demand to the existing parking demand. No reductions were assumed for the removal of the existing tennis court and racquetball court. In addition, because the new facility would be open earlier than the existing facility, it was assumed that tennis activities could occur earlier in the day (between 5:00 A.M. and 8:00 A.M.) and could generate parking demand equal to its current parking generation between 8:00 A.M. and 9:00 A.M.

Figure 2. Peak Parking Demand - BIRC Expansion



As shown, the proposed on-site parking supply of 95 on-site parking spaces for the expanded BIRC would accommodate the expected peak parking demand, and no off-site parking impacts are expected.

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