

ITEM	13
MANAGER'S REPORT NO.	19
COUNCIL MEETING	1982 03 22

RE: REQUEST BY THE BURNABY TENNIS CLUB TO INSTALL AN AIR-SUPPORT
STRUCTURE FOR SIX MONTHS EACH YEAR AT THE BURNABY LAKE SPORTS
COMPLEX FOR THE PURPOSE OF INDOOR WINTER TENNIS PLAY

The Municipal Manager has prepared a separate report on this matter, and it is recommended that this report be considered at the same time as Item 11 is considered.

MUNICIPAL MANAGER'S RECOMMENDATION:

1. THAT this report item be considered when Item 11 is considered.

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TO: MUNICIPAL MANAGER PLANNING DEPARTMENT

FROM: DIRECTOR PLANNING & BUILDING INSPECTION 1982 MARCH 16

SUBJECT: APPLICABILITY OF AIR-SUPPORT STRUCTURES (BUBBLES) IN BURNABY REQUEST OF BURNABY TENNIS CLUB TO ERECT AN AIR-SUPPORT STRUCTURE OVER SIX TENNIS COURTS - BURNABY LAKE SPORTS COMPLEX

RECOMMENDATION:

1. THAT, in line with the conclusions of this report, Council direct the Planning Department not to approve any development application for the erection of air-supported structures by either private or public applicants as it is not in the public interest.

REPORT

1.0 SUMMARY

In accordance with the established policy of Council, the Planning Department has been charged with the responsibility of administering the Municipal Development Control Process on both a policy level and a development application level. Important development matters are brought forward for the consideration of Council in the form of policy or specific proposal reports, or in the form of rezoning applications. The goal is to develop and maintain on behalf of the Municipality a high quality built environment of lasting social and economic benefit to present and future citizens of Burnaby.

The request of the Burnaby Tennis Club to obtain approval to erect a bubble over six tennis courts at the Burnaby Lake Sports Complex cannot be supported. It is concluded that:

- a) The proposal conflicts with the long term Municipal goals for this area and is not in the public interest. 182

b) The huge, scaleless, obtrusive bubble form is aesthetically unacceptable.

c) The bubble is incompatible with the development of a unique, high quality sports complex of both community-wide and regional pride and appeal, and is inappropriate on the suggested high-profile site.

d) The proposal is an ad hoc development which would create an undesirable precedent for similar lower quality shelter and building solutions in this and other areas of the Municipality.

It is desirable to determine an overall Municipal policy with respect to air-supported bubble structures on a deliberate, well-considered basis rather than as an ad hoc reaction to individual proposals which are brought forward from time to time. The Planning Department report dated 1979 September 21, Appendix "D", originally submitted to the Parks and Recreation Commission but not previously considered by Council, outlined a number of low profile locations where a 3 or 4 court tennis bubble could possibly be erected. However, we would not be surprised by considerable opposition to a bubble on even these low profile sites and, in view of a potential for an undesirable precedent to be set, we would be reluctant to promote the use of these low profile sites.

It is recommended that, in line with the conclusions of this report, Council direct the Planning Department not to approve any development application for the erection of air-supported structures at this time by either private or public applicants as it is not in the public interest. This Council policy direction would include the rejection of the subject request to erect an air-supported tennis structure at the Burnaby Lake Sports Complex.

2.0 PREVIOUS RELEVANT REPORTS

The previous reports which in our view are relevant to the current deliberations are attached in the form of five (5) Appendices, "A" to "E", briefly described as follows:

2.1 Appendix "A" - Planning report to the Municipal Manager dated 77 04 19.

A background report on air-supported structures within the context of the Cameron Library and Recreation Centre (North-East Burnaby Library/Recreation Complex). Reference is made to a Council discussion of air-inflated structures on 1976 May 31 when Mr. Victor Lipp, President of the Burnaby Tennis Club, presented a brief on a cover for and management of six tennis courts in the Burnaby Lake Sports Complex.

2.2 Appendix "B" - Planning report to the Municipal Manager dated 77 11 09.

Point form summary report concluding that an air-supported structure should not be constructed on the Cameron Library and Recreation Centre site.

2.3 Appendix "C" - Municipal Manager's compendium of staff reports and summary statement to the Municipal Council related to the Cameron Library and Recreation Centre dated 77 11 21.

Due to its length, only the Municipal Manager's summary of the staff reports is attached to this report. Copies of the complete submission will be made available to each Council member.

The submission is comprised of:

- a) Parks and Recreation Administrator's report dated 1977 November 15.
- b) Director of Planning's report dated 1977 November 09.
- c) Chief Building Inspector's letter dated 1977 November 15.
- d) Project Architect's letter dated 1977 November 09.

In considering all the reports, the Municipal Manager concluded that he could not recommend the construction of an air-support structure in the Cameron Library and Recreation Centre.

- 2.4 Appendix "D" - Planning report to Parks and Recreation Administrator dated 1979 September 21 (updated to 1981 July 30).

Overall policy guidelines with respect to seasonal tennis bubbles including a listing of potential low profile sites appropriate for more detailed consideration.

- 2.5 Appendix "E" - Planning report to Director Recreation and Cultural Services dated 1981 November 13.

Report concludes that the request of the Burnaby Tennis Club to erect a bubble over 6 tennis courts at the Burnaby Lake Sports Complex is not in the public interest.

3.0 CONCLUSIONS

The following point form conclusions taken together clearly support the position that the request to erect a tennis bubble in the Burnaby Lake Sports Complex is not in the public interest. Reference is made to the sections of previous reports (attached appendices) in which various points had been discussed. Council is directed to these appendices for a fuller understanding of the indicated conclusions.

3.1 Development Control Process

- 3.1.1 Long-Term Municipal Goals Bubble at variance with these goals. Reference Appendix "B" Section 2.1

- 3.1.2 Municipal Responsibilities vis-a-vis the Municipal Act. Erection of a bubble cannot be supported relative to the intent of the Municipal Act. Reference Appendix "B" Section 2.7

- 3.1.3 Low Cost Rationale of Bubbles The trade-off argument of cost versus quality could be used by any developer in Burnaby of industrial, retail, office, public, religious, educational, or residential developments - some of these uses being as germane to the social and economic needs of Burnaby as the subject recreational use. Reference Appendix "A" Section 4.2 Appendix "D" Section 2.0

- 3.1.4 High Quality Development Promoted Developments are supported which benefit the long term health of the community rather than emphasizing transitory short term gains. The goal is a high quality, urban environment of benefit to all present and future citizens of Burnaby.

3.1.5 Ad Hoc Decisions Undesirable
Due to their unique shape, size and appearance at variance with standard building practice, tennis bubbles require consideration on a well-thought out policy basis rather than strictly as an ad hoc reaction to a specific proposal.

3.1.6 Not A Temporary Structure
The subject bubble cannot be classed as a temporary building since it is intended to be re-erected year by year.

3.1.7 Annual Application for Approval Required
An application for Preliminary Plan Approval, Building Permit and Certificate of Occupancy must be made each time the structure is to be erected, in part to assure that all safety requirements are met by the structural and operating systems. New available information or negative reactions and questions regarding the actual appearance, stability, safety and function of an erected bubble would affect further approvals beyond the initial one.

3.1.8 Alternatives to the Bubble
Alternatives to the bubble are available varying from covered outdoor forms to permanent enclosure forms; or a retractable roof form if open air tennis is desired in the summer. Permanent roof forms can also be designed to permit natural lighting if desired. It is acknowledged that these solutions would likely be of higher cost than a bubble.

3.1.9 Interest Groups
There are many interest groups - non-profit or profit oriented; institutional or corporate; social or economic; private or quasi-public - laudable in their particular benefits to the Municipality. It is desirable that all interest groups be treated even handedly. It does not appear reasonable to permit a private club to do what the Municipality itself would probably not do and has not done in the past.

3.1.10 Administration of Development Controls
The erection of a bubble is a community planning and land-use matter. Stress has been placed on the fact that all agencies are required to adhere to established Municipal development standards and procedures; for example, whether for a recreation structure, a university campus, or a provincial housing area.

3.2 Burnaby Lake Sports Complex

Reference

3.2.1 Guide Plans and Policy Reports
The Planning Department policy report "Burnaby Lake Sports Complex - Development Plan Concept", dated 1976 August and adopted by Council on 1976 September 27, and the Rhone and Iredale - Architects and Planners consultant's report "Burnaby Lake Sports Centre" dated 1978 November 06, are utilized as guidelines in evaluating individual development proposals in this area.

Appendix "E"
Section 2.0(a)

3.2.2 Campus Form
The success of this Burnaby Lakes Sports Complex depends in great part on the grouping of compatible uses and complementary building forms thereby creating a cohesive image to which people can relate.

Appendix "D"
Section 5.0(b)

- 3.2.3 Community- Wide Significance of Burnaby Lake Sports Complex
The complex is a first order, high quality recreational and sports resource for all citizens of Burnaby.
- 3.2.4 Regional Significance of Burnaby Lake Sports Complex
The complex also attracts residents of the region and visitors from farther afield as a major unique sports centre.
- 3.2.5 Potential Major Tennis Centre
A major tennis centre with 18 or more courts with a potential to host provincial, national or international tournaments is worthy of ultimate high quality facilities which would include open air and permanent covered courts. Even in summer, our wet, westcoast climate makes outdoor courts unusable for significant periods that would otherwise be usable if covered.
- 3.2.6 Structures Built To Date
All structures built to date have been permanent ones.
- 3.2.7 Proximate Laudable Building Designs
The Norwegian Seamen's Recreation Centre, C.G. Brown Pool, the Canada Games Burnaby Lake Rowing Pavilion, the new expanded fieldhouse/rugby facility, and the Burnaby Tennis Club clubhouse are laudable permanent buildings.
- 3.2.8 Bubble Anomaly
A bubble form would be foreign to the Burnaby Lake Sports Complex.
- 3.3 Locational Aspects of Proposed Bubble Site
- 3.3.1 High Profile Location
The proposed site is a high profile location of central importance to the Municipality and is unsuitable for a bubble.
- 3.3.2 Bounded by Arterial Streets
The site is abutting Kensington Avenue and its intersection with Sprout Street, both primary arterials.
- 3.3.3 Busy Area
Many people pass closely by the site destined for the other recreational and sports facilities in the area.
- 3.3.4 Restricted Proposed Site
The site is too restricted to accommodate the contemplated 6 court bubble if appropriate setbacks and screening are to be achieved. The length of the bubble is approximately 302 feet long compared to the corresponding site dimension of 364.5 feet.
- 3.3.5 Lack of Sufficient Existing Vegetation
The site is very open and bare except for a few scattered small conifers and a thin growth of deciduous trees bare in winter along the Kensington Avenue frontage. The deciduous tree growth to the south is more extensive.

Reference

Appendix "D"
Section 5.0(c)
Appendix "E"
Section 2.0(b)

Appendix "E"
Section 2.0(b)

Appendix "E"
Section 2.0(b)

3.3.6 Special Screening Can Only Be Limited Success
The attached sketch indicates the form-
idable and probably expensive task of
screening such a huge bubble either by
trees and/or berms. Extreme landscape
solutions would in themselves appear
artificial. Due to the high water table
in the area, the proposed bubble could
not readily be depressed into the ground.

Attached
Schematic
Profile
Sketch

3.3.7 Even Low Profile Locations May Be Question-able
Potential low profile sites where a bubble
would have a minimal detrimental effect on
surrounding uses and areas were identified.
However, it would not be surprising to find
significant opposition to a bubble even on
these low profile sites.

Appendix "D"
Section 4.0

3.4 Appearance Aspects of a Bubble

Reference

3.4.1 Not Aesthetically
The Planning Department is of the opinion
that on a common sense basis the huge
proposed tennis bubble is clearly unattrac-
tive. Even supporters of the bubble do not
particularly emphasize aspects of exterior
attractiveness.

Appendix "A"
Section 4.6

3.4.2 Gigantic Proposed Size
The word "gigantic" is not used lightly but
correctly describes a scaleless, bubble
form approximately 40 feet high, 118 feet
wide and 302 feet long. The bubble is prop-
osed to cover 6 tennis courts as compared
to large existing bubbles which cover 3 or
4 tennis courts.

Attached
Schematic
Profile
Sketch
Appendix "E"
Section 2.0(d)

3.4.3 Industrial Greenhouse Effect
The probable translucent skin of a large
bubble would make it highly noticeable at
night.

Appendix "E"
Section 2.0(c)

3.4.4 Vandalism
A bubble is easy to vandalize and slashes
in the material would require immediate
attention and repair.

Appendix "A"
Section 4.4

3.4.5 Wear and Tear
A bubble, due to its thin membrane, its
yearly dismantling and re-erection, and
extensive potential quasi-public use is
subject to substantial wear and tear

Appendix "A"
Section 4.3
Appendix "B"
Section 2.14

3.4.6 Unsight-
liness
Bubbles are susceptible to highly notice-
able heavy soiling in an urban environment.
Patchwork repairs are also unsightly.

Appendix "B"
Section 2.13

3.4.7 Energy
Efficiency
Bubbles are intrinsically wasteful of energy
due to the thin membrane enclosure which
requires continuous running of inflation
equipment to maintain it in place and
heating to prevent build-up of snow and ice
which could cause the bubble to collapse.

Appendix "D"
Section 6.0

3.5 Precedent

Reference

3.5.1 Municipal
Tour of
Examples
It is our opinion that no particular
enthusiasm for bubbles was generated by
the tour by Municipal officials and staff.
Many questions were raised.

Appendix "A"
Sections 1.0
& 3.0

3.5.2 Oak Bay
Example
The Oak Bay bubble is not sympathetic to
its surroundings and is poorly sited. The
Mayor of Oak Bay indicated his desire for
a permanent structure in time.

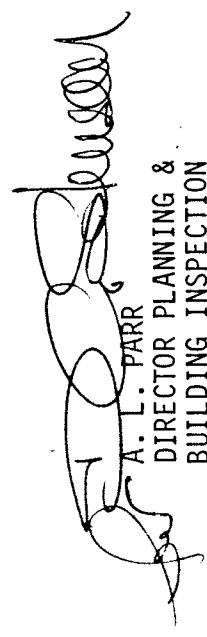
Appendix "A"
Section 3.1

- 3.5.3 MaIaspina College (Nanaimo) Failure
The MaIaspina bubble was touted as an innovative and cost-effective solution. Patchwork repair was particularly noticeable. This bubble failed in 1980 January, to our understanding, from a combination of power failure and a heavy snow load. A permanent cover is now proposed and the bubble will be scrapped.
- 3.5.4 Conclusion of Staff Committee - Cameron Library/ Recreation Centre
The majority of the staff committee could not support a bubble for the centre. The Municipal Manager recommended that a bubble not be constructed in this centre.
- 3.5.5 Council Recommendation for the Cameron Library/ Recreation Centre
On 1977 December 12, Council adopted the recommendation that a bubble not be constructed in the centre. This finished centre with its permanent sports hall has been highly praised by Burnaby residents.
- 3.5.6 Eastbrook Executive Park Tennis Racquetball Facility
The one other covered tennis facility in Burnaby was built by private interests and is housed in a quality permanent structure.
- 3.5.7 Precedent For Other Poorly-Designed Structures
Approval of a bubble would create an expectation for approval of other undesirable poorly-designed, lower quality structures of either a seasonal or permanent nature - which, if the Municipality were to reject, may open the door to charges of partiality.
- 3.5.8 Long-Term Tax Situation
Any consideration for approval of the bubble form or other forms of minimal shelter should recognize the ramifications in terms of the reduced tax base that would result as other public or private developers pursue similar inappropriate low cost solutions to land development.

KI:1f

Attachments: Schematic Profile Sketch
Appendices "A", "B", "C",
"D" and "E".

cc: Director Recreation and Cultural Services
Chief Building Inspector

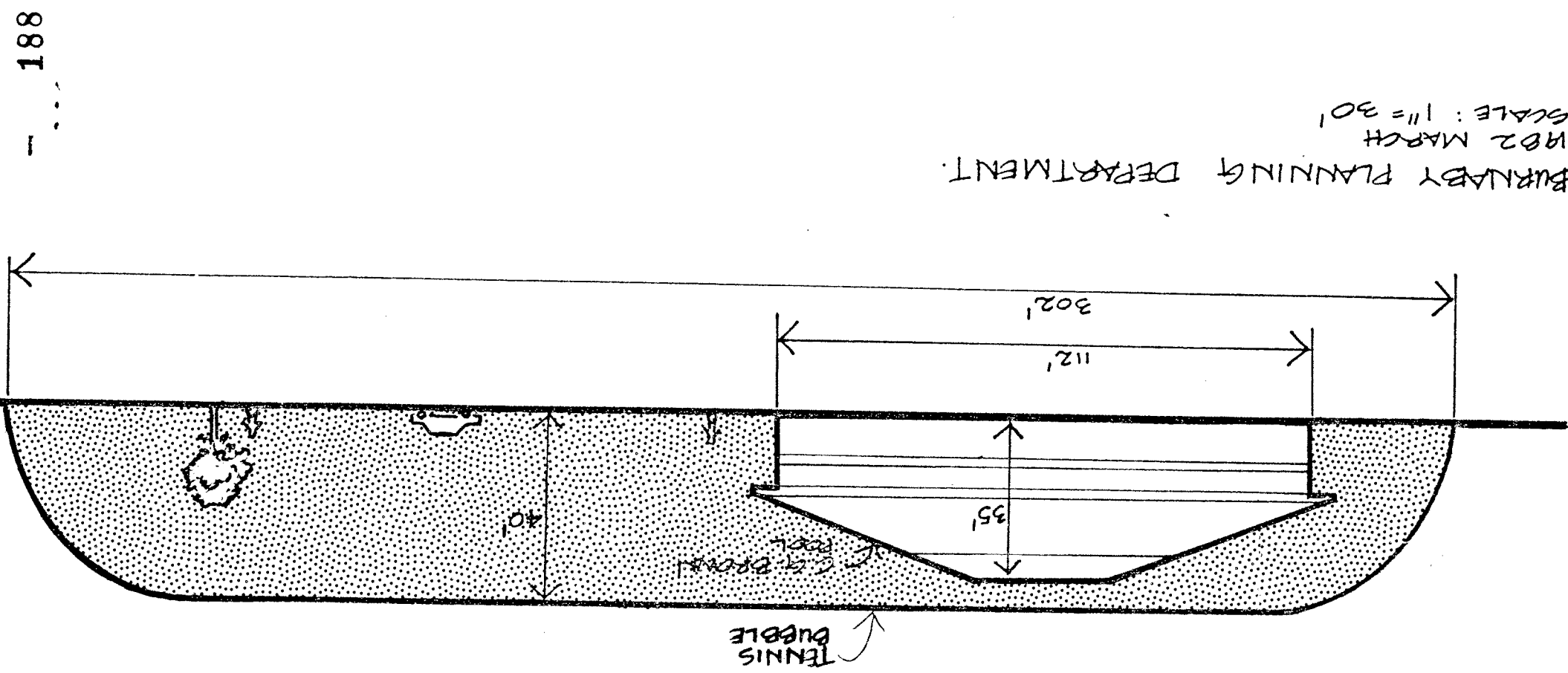


A. L. PARR
DIRECTOR PLANNING &
BUILDING INSPECTION

SCHEMATIC PROFILE

EAST-WEST LONGITUDINAL PROFILE OF
 A TENNIS BUBBLE TO COVER 6 COURTS.
 302' LONG, 118' WIDE & 40' HIGH APPROX.
 EAST-WEST PROFILE OF C.G. BROWN POOL
 SUPERIMPOSED AS AN EXAMPLE COMPARISON.
 ALSO SUPERIMPOSED AS A SCALE REFERENCE
 - 6' PERSON.
 - AUTOMOBILE
 - 20' HIGH TREE

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BURNABY PLANNING DEPARTMENT.
 1982 MARCH
 SCALE: 1" = 30'

Appendix "A"

Re: DISCUSSION OF AIR-SUPPORTED STRUCTURES WITHIN THE
CONTEXT OF THE NORTH-EAST BURNABY LIBRARY/RECREATION SITE
LOUGHEED TOWN CENTRE - COMMUNITY PLAN AREA "G"

ITEM
MANAGER'S REPORT NO. 31
COUNCIL MEETING Apr. 25/77

ITEM
MANAGER'S REPORT NO. 19
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The following is a report of the Planning Director dated April 19, 1977 regarding the above.

Since this subject is of major concern to the Parks and Recreation Commission it would be appropriate to refer this report to the Commission for its consideration and comment prior to any action being taken by the Municipal Council. On the other hand, this is clearly a question that the Municipal Council is going to have to make a final decision on, and it will affect our Capital Budget. Because of the budgetary impact, a decision should be made very quickly so that any changes can be made to the Capital Budget (if indeed, there are going to be any made) prior to the adoption of the Capital Budget, a by-law for which this year must be finally adopted by May 9.

RECOMMENDATION:

1. THAT the Parks and Recreation Commission be asked for comment on this report item by April 28; and
2. THAT a copy of this report item be forwarded to the Parks and Recreation Commission and the Library Board.

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TO: MUNICIPAL MANAGER

APRIL 19, 1977

FROM: DIRECTOR OF PLANNING

SUBJECT: DISCUSSION OF AIR-SUPPORTED STRUCTURES
WITHIN THE CONTEXT OF THE
NORTH-EAST BURNABY LIBRARY/RECREATION SITE
LOUGHEED TOWN CENTRE - COMMUNITY PLAN AREA "G"

1.0 BACKGROUND

The subject of air-supported structures was discussed briefly by Council on May 31, 1976 when Mr. Victor Lipp, President of the Burnaby Tennis Club presented a brief on a cover for and management of six tennis courts in the Burnaby Lake Sports Complex. The subject matter was also under consideration by the Parks and Recreation Commission at that time. The Planning Department has had a number of discussions with the Parks and Recreation Department on the subject of air-supported structures since the spring of 1976 within the context of the Burnaby Lake Sports Complex and the North-East Burnaby Library/Recreation Site. A number of concerns and objections have been raised by the Planning Department to the use of such structures for a number of reasons.

The Parks and Recreation Administrator submitted a report to Council on April 4, 1977 which included a recommendation to approve the construction of an air-supported gymnasium in conjunction with the establishment of the North-East Burnaby Community Centre on Cameron Street. The Planning Department had requested an opportunity to give additional consideration to such structures with the understanding that this further assessment would be based on information obtained from a tour of existing facilities in the other municipalities that are referred to in the Administrator's report, overall environmental and municipal development control criteria, and other appropriately related research that would be done on the matter.

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On April 14, 1977 a tour of existing air-supported structures in Oak Bay and in Nanaimo (Malaspina College) was undertaken by a municipal group composed of 5 members of the Parks and Recreation Commission including the 2 Aldermen on the Commission, the Municipal Manager, and representatives of the Parks and Recreation and Planning Departments. An existing air-supported structure at the Airport Inn, Richmond was also visited on another occasion by the Planning Department.

2.0 AIR-SUPPORTED STRUCTURES

2.1 Historical Use of Air-Supported Structures

It is only since 1946 that air-supported structures have become practical. Through a research contract, the Cornell Aeronautical Laboratory initially developed them as spherical radomes for the U.S. Armed Forces. Their architectural use has remained limited and experimental in nature. Notable structures have included Pan-Am Building, Brussels Exhibition (1958), "Atoms for Peace" travelling exhibition (1960), New York World Fair restaurant (1963), Krupp Pavilion, Hannover Fair (1966), and various projects for Osaka Expo 70 such as the U.S. Pavilion.

On a commercial basis, it would appear that the low cost of these structures have been their most attractive feature. Over the years, they have been utilized as construction shelters, portable buildings, small sports facilities particularly to cover swimming pools and tennis courts on a seasonal basis, and temporary industrial warehouses. Recently a few larger assembly type structures have been constructed.

In the southern British Columbia area, air-supported structures are most commonly used for back-yard swimming pools and on a larger scale, for a few tennis court enclosures. West Vancouver and Richmond have air-supported structures over tennis courts which are utilized on a seasonal basis. The Airport Inn has a structure covering 3 tennis courts. The largest and most complex air-supported structures to date would appear to be the ones in Oak Bay and Nanaimo (Malaspina College) which were visited on April 14, 1977.

In summary, the historical development of air-supported structures could be evaluated in two paradoxical ways - a) that the state of the art which has been substantially developed only since 1946 is still in flux and b) that even though it has been developing for over 30 years, air-supported structures have not yet been embraced on a broad permanent basis by architects and North American urban society.

2.2 Type of Air-Supported Structure Under Consideration

In general air-supported structures are subdivided into two categories:

- a) The single membrane unit is the basic type of air-supported structure and is the one most commonly seen today. The membrane or skin, serving as the enclosure, is made from a durable, high strength fabric or film, or any other flexible material having uniform structural properties.
- b) The reinforced membrane structure is appropriate for larger enclosures over 120 feet in width. Its main design feature is that loads in the fabric are reduced by having cable reinforcements carry the major share of structural stress. These reinforcing cables also serve to reshape and stabilize the envelope.

There are a wide variety of related types of structures including air-inflated structures, air cushion structures, frame stabilized air structures, and tent-type structures; but these further types will not be discussed within the context of this report.

The essential components of large air-supported structures are:

- a) Membrane Enclosure - a structural fabric coated on both sides with resin. Fabric technology is changing from year to year as manufacturers experiment in creating more durable and longer lasting membranes. Reinforcing cables may also be introduced.
- b) Inflation Machinery - essentially a properly sized fan device fully automated on a 24 hour basis and keyed to the desired interior air pressure. In larger structures a back-up system would also be required including an emergency power source and standby blowers.
- c) Anchoring Devices - an essentially air-tight seal is required at the grade line. Appropriate structural foundations are required to withstand building stresses.
- d) Entry Facilities - these may be conventional doors which minimize air leakage, air-lock doors, or revolving doors.
- e) Mechanical Support Systems - lighting is usually provided. A heating system can also be integrated into the inflation machinery.

3.0 EXISTING AIR-SUPPORTED STRUCTURES

Air-supported structures are found in a number of British Columbia communities. Other than small private swimming pool enclosures which would be classed as accessory buildings, the main air-supported examples are tennis court enclosures. All of the tennis court structures are virtually off-the-shelf packages which are essentially temporary, in that they can be readily deflated permitting open air tennis use. The municipal permit for the West Vancouver Tennis Club structure which is located on leased municipal land stipulates that the air-supported structure can only remain inflated from October 1 to March 31, a maximum 6 month period. A tennis structure in Minoru Park, Richmond has also been taken down for the summer. A tennis structure covering three courts at the Airport Inn was also visited. It is a simple stock removable air-supported structure (non-ribbed) located behind the hotel tower and a restaurant pavilion. In comparison with more complex ribbed structures, a greater amount of echoing was discernible. The exit facilities and hardware are not designed to accommodate assembly uses.

The air-supported structures at Oak Bay and at Malaspina College near Nanaimo are described in greater detail in the following Sections 3.1 and 3.2.

3.1 Oak Bay Air-Supported Tennis Structure

The Oak Bay recreation centre is a major multi-use facility. The centre is a well-designed permanent structure which opened in October of 1975 and accommodates a curling rink (roller skating during the summer), swimming pool, a skating rink, and a social lounge. The air-supported tennis bubble is a freestanding structure which is located at the back of the recreation centre. It provides a cover for 4 tennis courts, covers an area of approximately 23,953 sq. ft., and is limited to a maximum occupancy of 200 people.

It is 40 feet high, 201 feet long, and 120 feet wide. It has a double opaque vinyl coated dacron membrane with insulating properties and has steel cable reinforcing, giving the structure a ribbed appearance. The inner thermal liner has a wrinkled appearance which together with the ribbing assists in reducing echoing effects. The Recreation Director felt that the heating and maintenance costs were comparable to a permanent structure. Indirect high intensity lighting has been provided. It is difficult to estimate the life expectancy of the fabric itself although a figure of up to 16 years was mentioned. A special all-weather porous concrete floor has been provided which permits the use of the tennis courts when the structure is not up. The opinion was expressed that a permanent structure would cost 2½ to 3 times that of an air-supported structure. The fee for the use of tennis courts is \$5.00 per court per hour. The School Board uses the facility for 4 hours a day. The Recreation Director is pleased with its operation based on the first 5 months of use and a profit is expected on its operation.

The primary reason given for going to an air-supported structure was due to the lower cost which was noted as approximately \$220,000. Mayor Smith of Oak Bay stated that sufficient capital was not available for a permanent structure but that in time he wanted to have a permanent structure constructed.

The opinion of the Planning Department is that the air-supported structure at Oak Bay is not sympathetic to its surroundings and is clearly a temporary appearing building. It is noted that the interior has a spacious tent-like feeling and the structure is able to cover a large area at low cost. It is poorly sited in that its relationship to the main centre is not well considered, although it is placed in back of the main centre which essentially shields it from view from the street; and there is no discernable landscaping. The air-supported structure suffers in comparison with the main permanent recreation centre which is crisply and economically detailed and would be a credit to any municipality.

3.2 Malaspina College Air-Supported Gymnasium

The Malaspina College complex is located just outside of Nanaimo and is newly constructed. It occupies an open setting on the slope of a hill. The main complex can be described as simple wood sheathed rectilinear forms with strip fenestration and bright awnings arranged in a tight village grouping.

The air-supported gymnasium is located a distance down the hill from the main complex, dug into the hill somewhat and appears relatively isolated although it is adjacent to temporary wartime-type buildings utilized by the vocational section of the college. The gymnasium is considered the only air-supported structure in Canada designed as a permanent assembly facility. It is a custom designed facility. It covers an area of approximately 25,000 sq. ft. It is 125 feet wide, 200 feet long, and 40 feet high. It is a multi-purpose gymnasium accommodating a variety of court games and a jogging track on its periphery. It has a single translucent membrane with steel cables giving a ribbed appearance and rigid anchored end wall frames permitting greater vertical height at the ends of the structure. The synthetic bonded membrane is combustible under direct flaming but will not burn on its own once the flame source is removed. The membrane is only guaranteed for 4 years but statements as to the life expectancy ranged from

10 to 15 years. The change rooms and showers are provided in a 40' x 80' mezzanine structure within the overall enclosure to eliminate the need for air locks. The main entries to the enclosure are provided by two revolving doors. The air-handling blowers are directed from the floor. A synthetic indoor all-purpose tartan floor is to be provided. Indirect lighting standards are provided. It was acknowledged that the single membrane structure may be more costly to heat. On the other hand, lighting during the day may not be required due to the translucent nature of the membrane. It is estimated that the operating costs will be comparable to a conventional permanent building.

The general impression of the Malaspina air-supported structure is negative, due in large part to the observable deficiencies of the delivered membrane. The membrane of coated polyester which was made to order was delivered in a discoloured state ranging from a white to a light orange-yellow colour. It was delivered with a multiplicity of small patched pin-prick holes. There are also a few larger patches, a few caused by vandalism - the membrane can be cut easily. The patches appear objectionable since they are opaque against the general translucent background. The membrane was also delivered without the requested high green border around the base of the enclosure. The revolving doors in particular did not appear to be particularly durable for a public assembly building. However, it is noted that construction of the structure is not yet complete and much of the disorder may not be apparent in the finished product when all construction damage is repaired.

The total cost is approximately \$640,000. A comparable permanent building was estimated at \$1.2 million one or two years ago. Originally a permanent building was proposed and preliminary designs prepared but due to the cost, the air-supported structure substitute was considered. It was noted that the procedures to obtain building permit approval from the approving agency were complicated and prolonged.

The hanger-like design of the air-supported structure is not compatible with the architecture of the main Malaspina College buildings but its location some distance away from the main buildings and down the slope of the hill may be of benefit. In its present state it is exposed but comprehensive landscape provisions may assist in screening the structure from view.

4.0 DISCUSSION OF AIR-SUPPORTED STRUCTURES

4.1 Structural Aspects

The typical air-supported structure is expected to withstand substantial wind loads although failures have been known. Snow is usually melted on the membrane by internal heat or may slide off of its steeper slopes. A double insulating membrane solution such as that in Oak Bay requires a special heater to heat the air between the two membranes into order to melt exterior snow. An air-supported structure has been noted as failing under the concentrated load of a sudden very heavy fall of wet snow. It is also noted that on a very bright day a standard air-supported structure will experience some "thermal lift" as the contained air is heated by the sun. Thermal lift is also a function of internal inflation pressures.

Pre-engineered and factory built air-supported structures are available in Canada. However, currently, no air-supported structures of a large scale are being manufactured in Canada. The range of quality and performance of the available, essentially temporary, structures is quite wide.

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4.2 Costs

The chief reason given for the use of air-supported structures is to span large spaces at a low cost. It is acknowledged that a stock air-supported structure can be inexpensive, say \$3.50 to \$5.50 per sq. ft. for a basic skeleton model, which is exclusive of major labour and installation, anchoring, foundation, site drainage, floor, lighting, services, etc. costs. However, it would not be correct to state flatly that air-supported structures are by nature inexpensive. Cost is a function of quality. The Malaspina membrane is custom made and cost in the order of \$70,000 for only the fabric. However, it did suffer from poor quality control. A higher quality membrane would be costlier. The revolving doors at Malaspina which have been damaged by vandalism, cost in the range of \$2,500 each while a top quality revolving door can cost in the range of \$15,000 each.

However, it is acknowledged that the quality question is applicable as well to permanent structures. A poorly designed inexpensive permanent structure is as objectionable as any other type of poorly designed structure.

The costs of air-supported structures can vary widely and in their most sophisticated permanent manifestations can approach the cost of quality permanent "hard" buildings. In the line of approach of the Malaspina example, it would be expected that the cost of a permanent air-supported structure would be less than that of a permanent hard structure, but well above that of a stock temporary "tennis bubble".

4.3 Maintenance

The maintenance costs of air-supported structures would appear to be variable and dependent on a number of conditions including the type of membrane, the degree of air leakage, the type of heating and/or cooling equipment, lighting, and its geographical location. For example, the heating costs will probably be lower for the Oak Bay example which has a double membrane as compared to the Malaspina example with its single membrane. On the other hand, the lighting costs of the Malaspina example may be less due to its translucent single membrane. Oak Bay generally has a milder climate than, say, the Loughheed Town Centre area, and this temperature differential would probably affect maintenance costs.

One study of operating data compiled in the summer of 1975 indicated that the total maintenance, heating, lighting, and blower operation costs of 15 United States' tennis/recreational type installations averaged \$0.85 per sq.ft./year for a 6-7 month season. It was noted that the use of membrane liners could reduce the heating costs to a point where it would be close to or equal to the cost of heating a conventional building. Dehumidification may also be required in colder climates.

There does not appear to be any broadly based hard evidence on the subject of maintenance costs. Our general evaluation of available information to date indicates that the costs of maintaining an air-supported structure will be either equal to or perhaps somewhat more than that of a conventional building bearing in mind that the costs will vary according

to a number of site specific and project specific variables. The lowering of maintenance costs is held back by such generic factors as the small mass and basic thinness of membranes.

It is apparent that membrane manufacturers up to a year ago would only guarantee the membrane for 4 to 5 years, although it was expected by some that the material would last up to 15 years. In a 1971 source membrane materials included vinyl coated nylon or dacron with a life expectancy of 5 to 7 years and neoprene or hypalon coated dacron with a life expectancy above 10 years with maintenance. The hypalon material is noted as 2½ to 3 times the cost of vinyl coated nylon. Expectations are that further improvements will be made with respect to membrane life expectancies. It is noted that 4 ply built-up tar and gravel roofing normally has a life expectancy in this area of 20 to 25 years.

4.4 Vandalism

Many concerns have been expressed as to vandalism in that the membrane is very thin and easily cut by, say, a pen knife. The response to date indicates that major vandalism has not been a problem. Minor cuts can be easily patched although the patches themselves are obvious as in the Malaspina example. One conjecture is that air-supported structures have tended to be special interest facilities utilized by coherent responsible groups (i.e. tennis) or to be in relatively isolated locations. It has also been pointed out that vandalism may be forestalled by the fact that a cut in the membrane results in the silent release of air and creates no particular noise or effect such as the breaking of glass. Some air-supported structures have been fenced to keep the membrane out of the reach of vandals but in the opinion of some, this preventative solution may only encourage them.

However, the continuing vulnerability of the membrane indicates that vandalism should remain a real concern particularly within the context of the desirable socially oriented drop-in type activities associated with a community centre in the developing higher density Loughheed Town Centre and environs.

4.5 Building Regulations

Air-supported structures must conform to various aspects of the National Building Code such as spatial separation requirements, flame test criteria, provision of failsafe power systems, and fire safety and exit requirements. Of particular note is that air-supported structures require a certificate of occupancy which must be renewed every 12 months.

As noted previously extensive work was carried out in the Malaspina example to satisfy the building authorities as to the appropriateness of air-supported structures for permanent assembly purposes, essentially the only one of its kind in Canada.

4.6 Appearance

The most common air-supported structures range from a smooth membrane "blimp-like" shape to a ribbed "cocoon-like" shape. The main examples of these structures have a height of 4 storeys (40 feet) and are extremely large. Their large size and simple shape tend to create a dominating scaleless presence. Attempts have been made to camouflage these structures with berms and dense planting but their enormous size and significant height make them difficult to hide. The extent of landscaping required would be considered very costly.

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The use of typical air-supported structures appears to be 196 generally avoided by architects for use as permanent buildings in urban settings over the years. The structures lack a lower scaled modulated form, definition of floor lines, definition of fenestration, the use of appropriately scaled building materials such as cedar siding, brick, blocks that is, the multiplicity of traditional building elements which define and reflect the human scale in an urban environment, say, from a house to a high rise apartment building or office building. The most successful experimental use of air-supported structures has been in the exhibition context where the awe-inspiring effects of large air-supported structures can be much appreciated.

A recent promising direction is the use of flatter shaped air-supported roofs as part of permanent hard walled building. In some instances, the wall is part of a very high earth berm. A few examples of this type of hybrid structure are the University of Santa Clara student centre and pool; a major stadium in Pontiac, Michigan; and the Milligan College fieldhouse. These low-profile roof hybrid buildings can take advantage of some of the cost savings of membrane roofs while appearing in elevation as a typical permanent hard building which may be designed to fit into any urban context.

It is the considered conclusion of the Planning Department that typical air-supported structures are not appropriate in urban areas of this municipality, areas where new structures should be responsive to the quality and textures of existing buildings, and areas of high imaginability.

5.0 RECREATION CENTRES

In order to give some assessment of the use of air-supported structures within a community multi-use centre it was considered useful to examine a few other community centres completed in recent years. Two examples of note are the West End Community Centre and the Britannia Community Centre (East Vancouver west of Commercial).

The West End Community Centre is a tightly compacted urban centre fronting onto the commercially oriented Denman Street. It includes an ice rink, court games, lounges, meeting rooms, a library, a restaurant, and a rooftop tennis court. A direct building connection is provided to an adjacent school facility. The scale, and siting of the complex is handled well and the building has a pleasing quality.

The Britannia Community Centre is located one short block back from the commercial development along Commercial Street. The area is an older part of Vancouver which requires some impetus towards rehabilitation and the maintenance of existing standards. A sloped roof lower scaled village environment is established with major pavilion facilities including court games, ice rink, swimming pool, and public library arranged in close proximity to each other. A school is also adjacent to this centre.

The design and environmental approach of both of these recent centres, although different in character from each other, is to create a permanent, quality facility which is carefully integrated into its urban setting with particular attention being given to the use of materials and achievement of a lower friendlier scale.

It is also noted that the participants on the tour to Oak Bay all appear to agree that the main permanent integrated community centre is a high quality and admirable development.

If an air-supported facility is not appropriate for the Loughheed Town Centre, other facility combinations may benefit from further examination. For example, points brought up in previous discussions mentioned the provision of outdoor tennis courts requiring a lower capital outlay and the provision of smaller gymnasium facilities for this smaller population sector of Burnaby rather than a large double gym which does not appear to be provided in any of the other major Burnaby recreational centres to date or even in few senior high schools. The initial recreation centre development was indicated as being staged which was reflected in the site acquisition procedures and directives. It has also been suggested that the architect who has been retained to design the first phase library/community centre could explore a number of facility combinations based on permanent structural methods.

6.0 LOUGHEED TOWN CENTRE

6.1 General Context

The community focus of the North-East Burnaby sector is the developing Loughheed Town Centre. The population of this sector is currently approximately 12,765 with a projected population of 26,610 by 1986. This town centre accommodates the major Loughheed Mall shopping centre, other commercial development, Cameron School directly to the west, and the designated Library/Recreation site to the north. Higher density residential development exists or is proposed in the vicinity of the town centre. This town centre area as it develops in intensity and complexity of use, will develop into a social and cultural centre serving as a meeting place and transactional centre for the people of North-east Burnaby be they families, young people, single persons, or senior citizens. As this town centre develops it is important that the scale of all town centre components be directed towards compatibility with a pedestrian oriented environment in which all components become interlocked and which allows for the long-range establishment of specialized public amenities such as public squares, fountains, urban promenades, etc. Within this context, the library/recreation centre, the main municipal contribution to the town centre area, should maintain an appropriate scale and quality. A large air-supported structure would be aesthetically objectionable, and an anomaly within the context of the town centre.

It is also noted that the North-east sector of Burnaby is one of the growing population centres. This growth pattern is consistent with municipal policies which are geared to the accommodation of reasonable population growth, the preservation of unique major natural amenities such as Burnaby Mountain and Burnaby Lake, and the protection of existing stable single-family dwelling areas. However, rapid growth in any given area is usually accompanied by some social strain and this is true of the Loughheed Town Centre area. The point is that the self-image of both recent and long time residents in this area of Burnaby is a function of the image of and pride in the surrounding physical environment - be it residential design, landscaping, commercial development, public buildings, and public walkways and parks. The library/recreation centre which will be one of the main foci for this distinct community area should convey a stable, permanent, and quality image.

6.2 Specific Site

The designated North-East Burnaby Library/Recreation site is of sufficient size to accommodate a library and a comprehensive recreation complex. The 1.75 acre library site has been acquired. The initial proposals were for a staged

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recreation complex which could ultimately accommodate a **198**

community centre (physical and social), a small public pool, and an indoor ice rink. The first phase development is to be a community centre and procedures are underway to acquire a site to accommodate this first stage. A minimum 4 to 5 acre site for the overall recreation complex was indicated and previously considered desirable. Thus far the first stage site will comprise 1.97 acres. The extent of land acquisition has always been subject to site planning consideration of the buildings themselves. However, the suggestion of an air-supported structure of very large dimensions say 120' by 200', which is a $\frac{1}{2}$ acre building, raises the question of the need for more extensive land acquisitions at the initial stage. As with the library site and other public buildings the site area is calculated to provide suitable area for buildings, setbacks, landscaping features and screening, screened parking, and pedestrian accesses. The larger the building mass the greater the setback required to provide suitable landscaping and intervening transitional lower scaled elements.

It would also appear that the permanent recreation centre component contemplated would not be of any scale to hide an air-supported structure. The structure would be clearly visible from Cameron Street. The scale of the proposed library/recreation complex should also be compatible with the existing Sullivan Heights single-family dwelling neighbourhood to the north and to probable lower scaled multiple-family housing developments to the west. An air-supported structure would not appear to be compatible in this regard.

7.0 MUNICIPAL DEVELOPMENT PROCESS

It is our opinion that allowing the Municipality to construct large air-supported structures inconsistent with the degree of permanence and quality expected of private developers would be unfair. The matter of permanence and quality, as a basic principle, has far reaching effects and is not only applicable to, say, other private tennis clubs but also to the approval of other types of buildings from residential to office, industrial park, commercial, and institutional buildings. The quality of permanent development within a municipality ensures the livability of the urban environment in the long term. It is important that environments "mellow" rather than "run down" over time. There are many quality projects in Burnaby which are a source of pride not only to its citizens but also to their owners. If new developers are to be encouraged to consider Burnaby as a good location to construct high quality buildings, the quality of existing development would be most relevant. The leadership of the municipality in establishing reasonable permanent standards for its public buildings and facilities would also promote appropriate standards in the private sector.

As detailed in this report under Section 4.6, the Planning Department is of the opinion that the appearance of large air-supported structures, "the bubble", is not appropriate. There are obvious design limitations in accommodating large air-supported structures due to its restrictive technology. In permanent buildings, although cost is still a major factor, the design limitations are more those of the architect rather than of the technology.

A point on the temporary nature of stock air-supported structures is that just by being left up they can in operation become permanent. Wartime temporary buildings are good examples of de facto permanency.

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8.0 SUMMARY

The Planning Department has assessed air-supported structures in the light of:

- a) the tour of Oak Bay and Malaspina College facilities,
- b) a discussion of various aspects of air-supported structures including physical structure, costs, maintenance, vandalism, building regulations, and appearance,
- c) a brief commentary on two existing permanent community centres
- d) its setting relative to the Lougheed Town Centre and the specific designated site, and
- e) the overall environmental and municipal development control criteria.

Although acknowledging that a large air-supported structure can span a large space at a lower capital cost than that for a permanent building, our view is that there are many negative aspects to the establishment of an air-supported structure in the Lougheed Town Centre particularly from a long term environmental viewpoint. No reliable broadly based figures are available to enable a true comparative analysis of costs and suitability of air-supported structures for major permanent assembly use, relative to a permanent "hard" structure due to the changing and experimental nature of air-support technology. As noted in the report the one approach of merit but still somewhat experimental is in the low-profile air-supported roof with permanent walls.

However, sufficient analysis of air-supported structures and their environmental effects has been pursued to indicate that the establishment of a large air-supported structure similar to those provided at Oak Bay or at Malaspina College is clearly not appropriate in the Lougheed Town Centre within the designated library/recreation centre site.

9.0 RECOMMENDATION

It is recommended THAT Council not approve the construction of an air-supported gymnasium on the North-East Burnaby library/recreation centre site.

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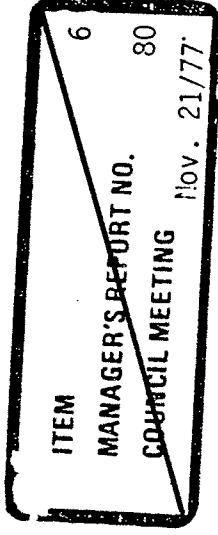
c.c. Parks and Recreation Administrator
Chief Librarian
Chief Building Inspector



A. L. Parr,
DIRECTOR OF PLANNING.

Appendix "B"

Re: NORTHEAST BURNABY RECREATION/LIBRARY COMPLEX
DIRECTOR OF PLANNING'S REPORT

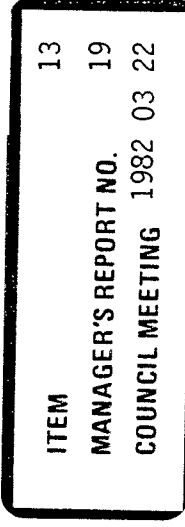


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Following is a report dated November 9, 1977 from the Director of Planning regarding the above and which is referred to in Item 4 on page 112.

This is for the information of Council.

* * * * *



TO: MUNICIPAL MANAGER

FROM: DIRECTOR OF PLANNING

SUBJECT: NORTH-EAST BURNABY LIBRARY/RECREATION SITE
LOUGHEED TOWN CENTRE
DISCUSSION OF SPORTS HALL COMPONENT

ALTERNATIVES: a) AIR SUPPORTED STRUCTURE
b) PERMANENT FIELDHOUSE

PLANNING DEPARTMENT
NOVEMBER 9 , 1977

1.0 BACKGROUND

On the subject of air-supported structures and specifically on the question of whether an air-supported structure or a conventional permanent fieldhouse should be established on the North-East Burnaby Library/Recreation Site, the Planning Department has prepared two major reports and attended various meetings which are noted as follows:

- a) On April 14, 1977 a tour of existing air-supported structures in Oak Bay and in Nanaimo (Malaspina College) was undertaken by a municipal group.
- b) Research Report on Air-Supported Structures dated April 19, 1977, received by Council on April 25, 1977, and referred to the Parks and Recreation Commission for comment.
- c) A number of interdepartmental committee meetings were held over July to October of this year with representation from the following departments: Municipal Manager, Library, Building (Project Coordinator), Parks and Recreation, and Planning. Mr. R. Howard the project architect, was also engaged in these discussions. Various studies were carried out by the Planning Department relative to these discussions.
- d) Report on the Sports Hall Component dated October 21, 1977 submitted to the Parks and Recreation Administrator for consideration by the Parks and Recreation Commission (attached). It is noted that since the submission to Council of the original recommendation of the Parks and Recreation Commission

to approve the construction of an air-supported gymnasium in a report dated March 28, 1977, extensive research and discussions have been pursued which have served to increase rather than decrease the uncertainties and disadvantages associated with the use of air-supported structures.

2.0 CONCLUSIONS

The research undertaken in the preparation of these reports and studies and detailed discussions at numerous meetings have therefore led us firmly to the conclusion that

- a) It would not be in the public interest,
- b) It would not be a good expenditure of public funds

to construct an air-supported structure on the North-East Burnaby Library/Recreation Centre site.

In reaching this conclusion the following overall planning concerns were identified as confirming the unacceptability of an air-supported structure for the use proposed in the selected location:

1. Long Term Municipal Goals
The establishment of an air-supported structure would be at variance with the long term livability goals of the municipality which are based in great part on the construction of well-designed quality permanent structures. Leadership by the Municipality is needed to achieve these long term goals.
2. Quality Development
Relative to Municipal efforts to maintain high quality standards for townhouse, apartment, industrial, office or retail commercial projects, private developers would be justified in objecting to the double standard implied by the creation of a substandard public building by the municipality in the name of financial expediency. Private developers should be confident that there are not different rules for public development as opposed to private development.
3. Character of Town Centre
The development of the Lougheed Town Centre which is now solidly established should be continued on the basis of compatible permanent quality building elements.
4. Precedent
A precedent will be created for other air-supported structures by private recreation centre interests who have heretofore proposed quality conventional buildings, on the basis of a stated municipal policy to encourage quality development, and who rely on the Municipality to protect property values and investment as provided for under the zoning powers of the Municipal Act.
5. Aesthetic Impact
An air-supported structure for this location and use will create a precedent for other air-supported structures for Parks and Recreation purposes in other inappropriate locations and for inappropriate uses.
6. The inappropriateness of a large (120 x 200), scale-less (blimp-like shape), high (up to 40 feet) air-supported structure is indicated in a location where new structures should be responsive to the quality and textures of existing buildings and areas of high imageability. A permanent well-designed fieldhouse in the opinion of the Planning Department would be superior both functionally and aesthetically to an air-supported structure.

Use of Public Funds

6. As the municipality is committed to a capital cost for the Phase I library/recreation centre complex (buildings and land - not including equipment and furniture costs and design fees) - of approximately \$2,600,000, the difference of approximately \$300,000 for a permanent fieldhouse over an air-supported structure is warranted in the face of the listed concerns and in fact becomes a necessary expenditure of funds if the municipality is to act responsibly in the public interest.

Considerations Relevant to Zoning

7. Under the Zoning Division of the Municipal Act the Municipality possesses delegated powers to appropriately guide and approve development in the municipality. The subject site requires rezoning from Residential District (R2) to the Park and Public Use District (P3). The Municipality in carrying out this responsibility is required to have due regard to a number of considerations listed in the Act. In order to comply with the intent of the Act, a rezoning by-law which proposes the erection of an air-supported structure on this site cannot be supported.

The relevant considerations listed in the Act are as follows:

- "The preservation of amenities peculiar to any zone."
- "The value of the land and the nature of its present and prospective use and occupancy."
- "The character of each zone, the character of buildings already erected, and the peculiar suitability of the zone for the particular uses."
- "The conservation of property values."
- "The development of areas to promote greater efficiency and quality."
- "The impact of development on present and future public costs."
- "The betterment of the environment."
- "The fulfillment of community goals."

In addition, the following concerns related to the maintenance, occupancy, function, and operation of an air-supported structure have been identified:

Existing Examples

8. With respect to existing examined air-supported structures:
- a) There is a consensus that the multi-use Malaspina College specially designed permanent bubble is unacceptable.
 - b) The multi-use specially designed Charles Wright Academy permanent air-supported structure received a negative evaluation.
 - c) The stock air-supported structure examples for examined are essentially temporary covers for tennis use only.
 - d) An air-supported structure for permanent, public, multi-sports use is still experimental.

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Sports Hall
Programming

9. The Parks and Recreation Department from a program viewpoint, have indicated that the isolated aspect of the North-East Burnaby sector and the projected sector population of over 25,000 would justify the establishment of a recreation centre of the size planned. This justified programming for the Sports Hall can be accommodated by a permanent fieldhouse.

Life and
Cost of
Fabric

10. Uncertainty as to the life of the fabric compared to the more familiar approximately 20-year life span of conventional built-up tar and gravel roofing; and uncertainty as to the cost and availability of future replacement of the basic fabric are concerns. The shortness of fabric guarantee terms by manufacturers of 2 to 5 years is noted.

Heating and
Air
Conditioning

11. Heating in cold weather and the need for air-conditioning in warmer weather have been identified as matters of concern relative to air-supported structures. The inherent lower thermal resistance of the thin fabric runs counter to the public goal of conserving energy which would be achieved in part by constructing new buildings with higher insulation qualities which will be more efficient in conserving energy.

Integration
and
Flexibility

12. The air-supported structure is a separate structure from the main building. The permanent fieldhouse results in a more efficient site plan; offers greater integration; and with the possibility of an overview lounge and overview from the recreational centre's main control desk offers more efficient and continuous supervision capability. Improved storage relationships and capacity are possible with a permanent fieldhouse relative to an air-supported structure.

A permanent conventional fieldhouse offers greater flexibility for community and functional use and programming such as occasional large community gatherings, fall fairs, and integral practice walls.

Un sightli-
ness

13. Unsightliness was evident in:

- a) repairs to the fabric and indelibility of malicious defacement, as exhibited in existing facilities which were examined.
- b) soiling of the exterior by urban air pollutants as exhibited in marked fashion in the Charles Wright Academy, Tacoma example.

Vandalism
and
Wear and Tear

14. Vandalism by slashing and defacement of the fabric; and the day-to-day wear and tear on an air-supported structure as a result of extensive public use by users of all ages are major concerns.

2.1 The Planning Department therefore concludes that an air-supported structure should not be constructed on the North-East Burnaby Library/Recreation Centre complex site.

3.0 SUBSEQUENT OPTIONS

Once the conclusion is reached not to construct an air-supported structure, the following Phase I options are possible. The construction of the branch library is understood to be part of the Phase I complex for all of the following options.

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Option A - Core and Fieldhouse Sports Hall

- The allocation of sufficient additional funds to permit the construction of a permanent fieldhouse sports hall in conjunction with the Phase I Recreation Centre building.

Option B - Core Only

- The acknowledgement of a lower building expectation for the Phase I recreation centre and the consequent construction of a smaller recreation centre project composed of the 16,412 sq. ft. core facility consistent with the initial concept program.

Option C - Core and Smaller Gymnasium/Sports Hall

- The construction of a lower scaled Phase I recreation centre which will be composed of the 16,412 sq. ft. core facility and a multi-purpose permanent gymnasium/sports hall facility significantly smaller than the proposed 24,000 sq. ft. sports hall.

Option D - Core and Future Fieldhouse Sports Hall

- Formal acknowledgement of the construction of the overall recreation centre complex in stages such that the Phase I building will consist of the 16,412 sq. ft. core building and future stages, constructed as sufficient funds become available, will consist of a permanent fieldhouse sports hall, an indoor skating rink, and an indoor swimming pool.

3.1 Option A and Option D will both achieve the overall recreation centre program for the North-East Sector of Burnaby as justified by the Parks and Recreation Department, and are the best alternatives. Whether this program is achieved through the adoption of Option A or Option B will be contingent on the amount of funds available for the Phase I recreation centre.

4.0 RECOMMENDATIONS

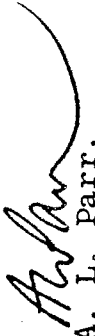
To summarize, our conclusion is that it would not be in the public interest and it would not be a good expenditure of public funds to construct an air-supported structure on the North-East Burnaby Library/Recreation Centre site. Therefore, it is recommended THAT:

4.1 An air-supported structure not be constructed on the North-East Burnaby Library/Recreation Centre complex site for the reasons listed in Section 2.0 of this report.

4.2 Additional funds be allocated to permit the construction of a permanent fieldhouse sports hall in conjunction with the Phase I Recreation Centre building (Option A).

4.3 If sufficient funds are not available at this time, the current Phase I program should include the core recreation building only, with the construction of the permanent fieldhouse at a later stage, followed in due course by an indoor skating rink, and indoor swimming pool, as funds permit (Option D).

KI:cm
Attach.
c.c. Chief Building Inspector
Parks and Recreation Administrator
Chief Librarian


A. L. Parr,
DIRECTOR OF PLANNING.

Appendix "C" *

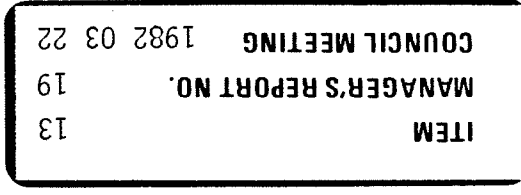
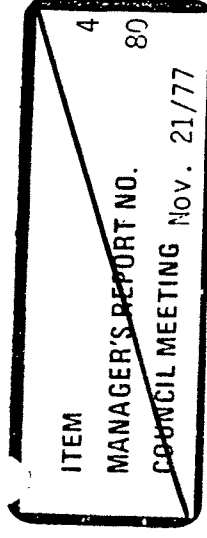
Re: NORTHEAST BURNABY RECREATION/LIBRARY COMPLEX
(Item 4, Report No. 79 In Camera, December 6, 1976)
(Item 9, Report No. 19, March 14, 1977)
(Item 15, Report No. 25, April 4, 1977)
(Item 14, Report No. 31, April 25, 1977)
(Item 18, Report No. 69, October 11, 1977)
(Item 1, Report No. 78 In Camera, November 7, 1977)

Appearing on this agenda are a series of reports from the following regarding the above:

1. Report dated November 15, 1977 from the Parks and Recreation Administrator recommending that Council approve the construction of an air-support structure as part of the Northeast Burnaby Recreation/Library Complex, and requesting an increase in the Temporary Borrowing Bylaw in the amount of \$307,450 to accomplish this. (See Item 5, page 115).
2. Report dated November 9, 1977 from the Director of Planning recommending against the construction of an air-supported structure as it would not be in the public interest and it would not be a good expenditure of public funds. The Planner's report concludes by recommending the allocation of additional funds to permit the construction of a permanent fieldhouse sports hall in conjunction with the Phase I Recreation Centre building. If additional funds are not available at this time, the Director of Planning recommends that the current Phase I program should include the core recreation building only, with the construction of the permanent fieldhouse to follow at a later stage. (See Item 6, page 153).
3. Letter dated November 15, 1977, from the Chief Building Inspector to the Municipal Manager stating he has concluded that, in his opinion, an air-support structure is definitely inappropriate for the permanent public multi-use recreation facility being proposed by the Parks and Recreation Department for the joint complex in Northeast Burnaby. (See Item 7, page 158).
4. Letter dated November 9, 1977 from Mr. Ron Howard, Architect for the project, addressed to the Chief Building Inspector recommending that a fieldhouse-type structure be designed and constructed as the most effective permanent method of providing 12 month use multi-purpose recreational space compatible with present community design standards and possible activity demands. After listing the disadvantages of the air-support structure, and summarizing his concern with its limitations, he does point out that should the limitations of finance be critical, then a carefully design controlled and upgraded air-support structure could be designed and constructed as an experimental endeavour provided there is full cognizance of its construction and program limitations. (See Item 8, page 164).

The question of the use of an air-support structure in the Northeast Burnaby Complex has been under review since the early part of this year. The Municipal Manager realized fairly early in the discussions, that there was going to be conflict and strong differences of opinion amongst the staff on this question, and ultimately he appointed an ad hoc staff committee consisting of the Parks and Recreation Administrator, Chief Building Inspector, Director of Planning, Chief Librarian, Architect and himself to review this question in depth. The staff have viewed existing installations, and the Architect has on his own looked at other installations in the United States.

* Due to the lengthy nature of this Appendix, only the Manager's summary is provided within the context of this report. Copies of the complete compendium of reports comprising this appendix will be made available to each Council member.



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The subject is a complex one, with conflicting points of view being presented in some cases. The staff have worked hard to try to reach a consensus on this question and during the course of the in-depth review there have been changes of position. In the final analysis, although there was not unanimity, the majority of the committee could not recommend the air-support structure. Perhaps this is understandable, because in the end, the Municipal Manager felt that the only way a conclusion could be reached, would be for each department to look at the question firstly with the concerns of its department's area of jurisdiction in mind, and secondly with the concern of the entire municipal scene in mind.

Among the major issues raised is the one of capital cost, and the benefits to the public to be realized by the expenditure of \$731,100 for the fieldhouse, as compared to the expenditure of \$448,100 for the air-support structure. These figures result in the need for authorization for an additional \$590,400 for the permanent fieldhouse, as compared with an additional \$307,450 for the air-support structure (a difference of \$282,950). The operational costs appear to be much the same for both alternatives, although they may be slightly less for the air-support structure.

The views of the various departments can be summarized as follows:

1. The Parks and Recreation Administrator's position is basically that the air-support structure will accomplish the goal that his department has for this facility, and it will accomplish it at a lower cost than by using a fieldhouse type of structure. If he had sufficient funds to construct a permanent type of fieldhouse, he would still rather build the air-support structure, and use the additional funds to meet another recreational need elsewhere in the community. The Parks and Recreation Commission views appear to be the same, and there are even some members on the Commission that feel if they would not be allowed to build the air-support structure, no fieldhouse should be built at this time, as the priority of need for facilities is greater in other areas of the Municipality than this one.
2. The Chief Building Inspector who is responsible for the standard of construction in Municipal buildings and for the maintenance of same has expressed concerns for a long term picture, and it is his considered opinion that we do not have the flexibility of use for the future if we construct an air-support structure that we would otherwise have if we constructed a permanent fieldhouse sports building. He is dedicated to good quality facilities that are economical to maintain, and at the same time can be used for many purposes. Experience has taught us that we should construct any facility with flexibility in mind for the future.
3. The Planning Director has several major concerns; among which are those of maintaining a high standard of quality for municipal structures in order to set an example for the private sector; and ensuring that municipal actions comply with the community development goals of the Municipal Act. He goes beyond the question of aesthetics and he too has examined very carefully the long term worth of the investment in arriving at his conclusion to recommend against the air-support structure. Experience has taught us that whenever we have through expediency, cut back on a project, we have ended up with a less than satisfactory construction. If an air-support structure is to be used in our recreation program, and the Municipal Manager feels that there may indeed be a location for it; it should be a very simple bubble, and it should be placed in the Municipality in a location that is not detrimental to the long term goals that we might have.

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4. The Architect's position is basically to recommend the permanent structure because of its flexibility of use as far as the future is concerned, and because the technology field is more secure when it comes to the "hard" type of construction. He feels that if we proceed with the construction of an air-support structure, we should do so with the clear thought in mind that it is somewhat experimental in nature, and it will have limitations on the use of the facility. The Parks and Recreation Administrator fully recognizes these restraints, and has, not withstanding them, made the recommendation to proceed with the air-support structure.

The details and more elaborate explanations for each of the views of the respective staff members including the Architect, can be seen in the following reports. In putting these various views together and examining them in considerable detail, the Municipal Manager has reached the conclusion that the extra expenditure required for the more permanent fieldhouse type construction, would be worth the extra investment. This decision has been based primarily on the fact that any facility that we construct should have maximum flexibility in order to respond to future needs.

The Manager does not feel that the expenditure for an air-support structure, would be a sound one in the long term, and that we therefore should proceed to find the additional funds required for the fieldhouse, as the Parks and Recreation Commission does not wish to build a staged project.

This has been a very difficult question to conclude, as the conclusion involved not only an objective assessment of tangible factors but also a subjective assessment of intangible factors. Nevertheless, the position taken by the Municipal Manager is that he cannot recommend the construction of an air-support structure. The Parks and Recreation Commission has been advised of the position being taken by the Municipal Manager, and the Commission has asked that its recommendation still be placed before the Municipal Council.

RECOMMENDATIONS:

1. THAT an air-support structure not be constructed in the Northeast Burnaby Recreation/Library Complex; and
2. THAT an additional authorization in the Temporary Borrowing Bylaw for the Complex of \$590,450 be authorized for the purpose of constructing a permanent fieldhouse sports hall facility in this Complex; and
3. THAT an application be made to the Public Recreational Facilities Fund Act for a grant for construction of this facility; and
4. THAT a copy of Item 5 on page 115, Item 6 on page 153, Item 7 on page 158 and Item 8 on page 164 be sent to the Parks and Recreation Commission.

* * * * *

Appendix "D"

THE CORPORATION OF THE DISTRICT OF BURNABY

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PLANNING DEPARTMENT
1979 SEPTEMBER 21
(UPDATED TO 1981 JULY 30)

TO: PARKS AND RECREATION ADMINISTRATOR

FROM: DIRECTOR OF PLANNING

SUBJECT: STUDY OF POSSIBLE LOCATIONS FOR
SEASONAL AIR-SUPPORTED TENNIS ENCLOSURE (BUBBLE) IN BURNABY

RECOMMENDATIONS

1. THAT this report serve as a policy framework in determining appropriate locations for the installation of seasonal air-supported tennis enclosures in Burnaby; and
2. THAT Section 4.0 of the report be used as an operational guideline in considering the installation of seasonal air-supported tennis enclosures on a number of identified potential sites.

1.0 BACKGROUND

The Planning Department has been requested to provide a report with respect to the determination of possible locations for seasonal air-supported tennis enclosures (bubbles) in Burnaby.

Extensive reports have been prepared in the past on the subject of permanent bubbles within the context of the development of the Northeast Burnaby Library/Recreation Centre complex. The interdepartmental discussions on this matter included representation from the following Departments: Municipal Manager, Library, Building, Parks and Recreation, and Planning. The conclusions reached in the planning reports on this subject would continue to apply in general to any proposal to establish a permanent tennis bubble in Burnaby. The use of a bubble in an urban, high profile setting would not be in the public interest. Two major aims relative to new Municipal structures are to maintain a high standard of quality for Municipal structures which are an example for the private sector and to ensure that Municipal actions comply with the community development goals of the Municipal Act. The Municipal Council determined that a permanent fieldhouse be included in the Library/Recreation Centre complex rather than a bubble.

Subsequently, the Parks and Recreation Commission had asked staff to identify those areas within Burnaby where bubbles might be acceptable. In response to this request, a planning study of possible locations for a seasonal tennis bubble indicated that the Riverway Sports Complex was a location in which a seasonal bubble would have a minimal detrimental effect on surrounding uses and areas and was the best of the examined possible locations. Further staff discussions indicated that a single possible site in Burnaby for a seasonal tennis bubble was unduly restrictive. The Planning Department has therefore endeavoured to determine a number of other locations for a seasonal tennis bubble.

2.0 SUMMARY OF THE REPORT

The primary reason for the installation of a tennis bubble rather than construction of a permanent fieldhouse is the acknowledged lower initial capital cost of a bubble. However, in considering overall Municipal goals and community planning concerns, there are only certain locations which are appropriate for tennis bubbles. On the other hand, this report does not preclude the construction of permanent well-designed fieldhouses for indoor tennis use on a wide variety of

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TO: PARKS AND RECREATION
ADMINISTRATOR
RE: STUDY OF POSSIBLE LOCATIONS
FOR SEASONAL AIR-SUPPORTED
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potential sites which may be considered desirable on the basis of recreational needs.

If a tennis bubble is to be used in Burnaby's recreational program, it should be a very simple bubble strictly limited to seasonal use, and it should be placed in a low profile location that is not detrimental to the long term goals of the Municipality.

This report outlines six park areas broadly covering the Municipality which have merit in accomodating a seasonal tennis bubble. These six areas are:

- a) Riverway Sports Complex
- b) Robert Burnaby Park
- c) Burnaby 200 - GVWD Park Site
- d) Charles Rummel Park
- e) Confederation Park
- f) Squid Lake Park

It must be realized that there are only one or two specific low profile optimum locations within each of these park areas. Further detailed site design and refinement would be appropriate should a decision be made to install a seasonal tennis bubble on one of the six possible sites listed.

In response to the report requested by the Parks and Recreation Commission, it is desirable to pursue an overall Municipal policy with respect to seasonal tennis bubbles on a deliberate well considered basis rather than as a reaction on an ad hoc basis to individual proposals which are brought forward from time to time. This report would provide a clear policy for seasonal tennis bubbles, and would guide staff in handling inquiries with respect to the installation of a seasonal tennis bubble in Burnaby.

3.0 REFERENCE TO PERMANENT TENNIS BUBBLES

A permanent bubble would be subject to all the concerns and reservations expressed in previous Planning reports. For example, in considering an urban site within the Loughheed Town Centre, the conclusion was that it would not be in the public interest and not be a good expenditure of public funds to construct a permanent bubble. Various concerns identified at that time included and related to:

- a) Long term Municipal goals
- b) encouragement of quality development
- c) character of town centres
- d) precedent to be followed by other public and private interests
- e) aesthetic impact
- f) vandalism and wear and tear
- g) use of public funds
- h) consideration relative to zoning as outlined in the Municipal Act
- i) reservations concerning existing examples
- j) life and cost of fabric

Of two permanent tennis/sports hall facilities considered recently in Burnaby and now constructed, one by Canadian Freehold Limited to cover four tennis courts for a private racquet club at its Eastbrook Executive Park, and the other by the Municipality for a four tennis court sized sports hall in the Northeast Burnaby Library/Recreation Centre complex, both are designed as high quality permanent fieldhouse structures.

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RE: STUDY OF POSSIBLE LOCATIONS
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4.0 POTENTIAL SITES
FOR SEASONAL TENNIS BUBBLES

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4.1 Sites throughout the Municipality were reviewed with a view to whether any could accommodate a seasonal tennis bubble. This review included an examination of the setting, use characteristics, existing site development, natural features and foliage, land forms and surrounding land uses. The sites examined ranged from major park and recreation/sports complex areas down to district park and large neighbourhood park areas.

It would also have to be determined that the expenditure of funds to cover the cost of bubbles and related facilities on any of the potential sites are justified by an analysis of the estimated use of the seasonal tennis bubble and the general allocation of funding priorities for the various constituent parts of the overall recreation/sports/social program.

This study also presumes that each of the outlined sites would accommodate a single seasonal tennis bubble covering at most three or four courts. Covering six, eight, or more tennis courts in an area by a single extra large bubble or a series of bubbles would result in an extreme and obtrusive situation and should be precluded from the outset. A tennis bubble to cover four courts would be approximately 40 feet high, 120 feet wide, and 200 feet long, encompassing an area of approximately 24,000 square feet.

4.2 Criteria for
Seasonal Tennis Bubbles

A seasonal three or four court tennis bubble would be considered in accordance with the following conditions:

- a) Low profile sites which due to a more remote casual setting, good surrounding existing green vegetation, and/or a beneficial enclosing topography permit a seasonal tennis bubble to be reasonably hidden from prime views. Although any tennis bubble will be seen from or overlooked by some residential or other development, the identified appropriate sites appear to minimize this aspect. A seasonal winter tennis bubble is also more appropriate from the view that there would be much less and in some cases negligible use of park, fields, playgrounds, etc. in the winter --that is the visual obtrusiveness of bubbles would affect fewer persons.
- b) Due in part to its relative high capital cost and specialized and intensive use a seasonal bubble would be most appropriately related to some other related recreational/sports/social facilities on the same overall site. Most neighbourhood type park areas would not meet this criteria due in part to their usual small size. However, in order to generate additional appropriate sites, the point that a seasonal tennis bubble be only included within a major specialist sports facility area has been relaxed.

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ADMINISTRATOR
RE: STUDY OF POSSIBLE LOCATIONS
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Care should also be taken to ensure that the installation of a seasonal tennis bubble does not under cut the viability of any proximate high quality permanent recreation/sports building proposals by either the public or private sector.

- c) Lower scaled but reasonable street or major lane access is required. Any specific tennis bubble site should be screened from any proximate major collector or arterial street.
- d) Supplemental landscaping in the direction of evergreen screening would be required on all considered sites. Although many of the considered sites have abundant deciduous trees, these are generally inadequate to properly screen a seasonal tennis bubble in the winter.
- e) Although a number of park sites are named, there are only specific locations within these parks which are suitable to permit a seasonal tennis bubble.

4.3 Potential Sites

The following sites have merit in accommodating tennis bubbles.

a) Riverway Sports Complex

This developing specialist sports facility could accommodate a seasonal tennis bubble to cover future tennis courts proposed in the north-eastern corner of the site.

b) Robert Burnaby Park

The most appropriate location within this site would be generally in the centre of the park just north of the main internal access road. The sloping topography indicates that more detailed study would be warranted.

c) Burnaby 200 GVWD/Park Site

This is a low profile site owned by the Greater Vancouver Water District which, under a lease agreement, would accommodate a Municipal playing field and tennis courts.

d) Charles Rummel Park

A seasonal tennis bubble could be considered in the area of existing tennis courts just north of the small community centre building.

e) Confederation Park

The area of the existing tennis courts or perhaps a location in the trees just north of Penzance Drive are conditionally appropriate sites within this Park. This site is back from Hastings Street but is clearly visible from surrounding residential development. Of benefit to the installation of a bubble is the fact that this park is well treed and is large in size and caters to a scattered development of various open field/open air uses.

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ADMINISTRATOR
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f) Squid Lake Park

The north-east corner of the tennis court area outlined in the master plan sketch (Dwg. No. 11-6-4) for Squid Lake Park would be appropriate to accommodate a seasonal tennis bubble. Care should be taken to ensure a minimum buffer strip (50 feet wide) of existing trees, with supplemental conifer planting around the bubble area to buffer views of a bubble from the adjacent tee No. 5 area, the playing field areas and future building/parking area.

5.0 AREAS INAPPROPRIATE FOR SEASONAL TENNIS BUBBLES

In order to make this report complete, it is considered relevant to outline the following criteria with respect to inappropriate locations.

Seasonal tennis bubbles should not be considered relative to:

a) Urbanized locations such as:

i) The precincts of a regional town centre, Municipal town centres, and district centres. These centres include the Metrotown, Lougheed Town Centre, Brentwood Town Centre, and the Eastburn and Hastings Street district centres. Each of these areas has a growing infrastructure of intensive commercial and high density apartment development.

ii) The designated apartment study areas, most of which are covered by designated centres, and the detailed community plan areas which evolved from the apartment study areas.

iii) Certain high profile urbanized development corridors such as along Hastings, Kingsway and Willingdon.

b) Areas proposed for major high quality integrated sport/recreational/social complexes such as the Northeast Burnaby Library/Recreation Centre complex, Bonsor Park, and the Burnaby Lake Sports Complex. These areas contain or will contain quality permanent buildings in a homogeneous relationship utilizing compatible forms and materials.

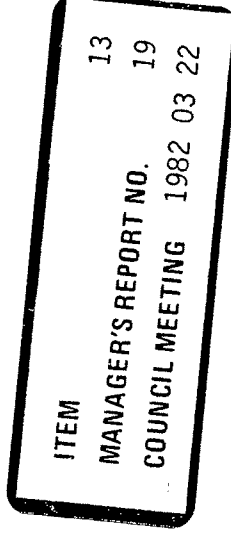
This point would also encompass campus forms promoted by either private or the public sector which depend for their image and their environmental and even commercial success in great part on the grouping of compatible uses and complementary building forms. The campus form includes such examples as Eastbrook Executive Park, BCIT, the Municipal Hall Complex, and the Burnaby Lake Sports Complex.

c) High profile areas which are directly adjacent to and can be seen from highly used highways, arterials, or Municipal streets or overlooked by a large number of residences. Areas which, due to peculiar land forms, difficult configuration, small size, or lack of existing foliage would be considered exposed areas. The examples cited under the previous point (b) would also fall within this high profile criterion.

d) A significant potential high use regional resource which is of benefit not only to the residents of Burnaby, but also to others in the Lower Mainland such as Stanley Park or Queen Elizabeth Park which are of benefit to those other than residents of Vancouver. Central Park and the developing Burnaby Lake Sports Complex come to mind as resources of this type. Municipal pride is engendered by the development of these unique quality projects which are a source of wider regional appeal.

TO: PARKS AND RECREATION
ADMINISTRATOR

RE: STUDY OF POSSIBLE LOCATIONS
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6.0 Malaspina College Bubble Failure

A significant failure has occurred at a major air-supported sports structure in this area, which is indicative of the potential for problems of this sort.

The Vancouver Sun on 1980 January 16 reported the collapse of the bubble roof at Malaspina College in Nanaimo. It is our understanding that this failure resulted from a combination of power failure and snow load as a result of a winter storm.

Fortunately, the facility was unoccupied at the time of the failure, as the complete collapse took place within a span of only two minutes.

As a result of the experience, the Nanaimo Chief Building Inspector was not prepared to issue a further occupancy permit for public use of the repaired structure. Although the splits in the membrane have been repaired and the structure is now inflated, any use is prohibited; the purpose of the bubble at this time is simply to protect the floor surfaces and internal facilities from the elements until a permanent replacement structure is erected.

A representative of the College states that they would definitely not consider the air-support structure system again for this type of application. In addition to the collapse experience, reasons cited include the excessive cost of energy, (annual Hydro bills for heating amounted to over \$50,000.00 per), excessive heat build-up in summer (inside temperatures over 100°F rendered the facility unusable for extended periods of the year), the poor acoustic environment inside the bubble, and the fact that despite an excellent maintenance program, no one could give any guarantees that there would not be future problems of the sort that gave rise to the 1980 collapse.

Consequently, Malaspina College made application to the Ministry of Education for funding for a conventional gymnasium structure over the existing gym floor to replace the air-supported membrane. Although the original application was rejected, upon presentation of detailed facts on the performance of the air-support system and its liabilities, the Ministry has now approved the expenditure of \$1.275 million to allow the replacement with a conventional gymnasium structure. The bubble will be scrapped.

KI/ds
cc Municipal Manager
Chief Building
Inspector


A. L. Parr
DIRECTOR OF PLANNING

Appendix "E"

THE CORPORATION OF THE DISTRICT
OF BURNABY.

SUPPLEMENTARY

PLANNING DEPARTMENT
1981 NOVEMBER 13

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TO: DIRECTOR RECREATION AND CULTURAL
SERVICES

ITEM 13

FROM: DIRECTOR PLANNING &
BUILDING INSPECTION

MANAGER'S REPORT NO. 19

COUNCIL MEETING 1982 03 22

SUBJECT: REQUEST BY THE BURNABY TENNIS CLUB TO ERECT AN AIR-SUPPORT
STRUCTURE (BUBBLE) OVER SIX TENNIS COURTS AT THE BURNABY
LAKE SPORTS COMPLEX.

RECOMMENDATION:

1. THAT, as the request of the Burnaby Tennis Club to erect an air-support structure over six tennis courts at the Burnaby Lake Sports Complex is not in the public interest, it be recommended to Council that this request not be approved.

REPORT

1.0 BACKGROUND

Extensive reports have been prepared in the past on the subject of permanent bubbles within the context of the development of the Cameron Library and Recreation Centre complex. The interdepartmental discussions on this matter included representation from the following Departments: Municipal Manager, Library, Building, Parks and Recreation and Planning. The conclusion was that the use of a permanent bubble in that urban, high profile setting would not be in the public interest. Two major identified aims were to maintain a high standard of quality for Municipal structures which are an example for the private sector and to ensure that Municipal actions comply with the community development goals of the Municipal Act. The Municipal Council determined that a four tennis court sized permanent sport hall be included in the Cameron Library and Recreation Centre complex rather than a bubble. It is noted that the one other covered tennis facility in Burnaby is a private racquet club at the Eastbrook Executive Park in which four tennis courts are enclosed by a permanent structure.

The Planning Department on 1981 November 04 submitted a report which was co-ordinated with the Parks & Recreation Department with a view to providing a policy guideline for determining locational criteria for the establishment of seasonal tennis bubbles. The Parks and Recreation Commission did not adopt the policy guideline and generally indicated its inclination to evaluate applications for the establishment of a seasonal tennis bubble on an individual basis related to a specific site.

The Burnaby Tennis Club is seeking approval to install an air-supported structure to cover six tennis courts at the Burnaby Lake Sports Complex. The following report is related to this specific initial submission.

2.0 SEASONAL TENNIS BUBBLE PROPOSAL FOR THE BURNABY LAKE SPORTS COMPLEX

The same concerns and reservations outlined in the Planning Department reports related to permanent tennis bubbles would also apply to seasonal tennis bubbles. Although a site south of the existing courts within the Burnaby Lake Sports Complex has been mentioned, no site plans are available related to the specific location and setting for a tennis bubble. The following comments are therefore made without the benefit of site plans.

Based on the preliminary submission of the Burnaby Tennis Club, the conclusion of this report is that the erection of a seasonal bubble to cover six tennis courts within the Burnaby Lake Sports Complex would not be in the municipal interest.

The comments are:

a) A large tennis bubble is not compatible with the Burnaby Lake Sports Complex. The Burnaby Lake Sports Complex is envisioned as a unique centre for fitness training, recreation and athletics. A policy report prepared by the Planning Department entitled "Burnaby Lake Sports Complex - Development Plan Concept" dated 1976 August and a further report prepared by Rhone & Iredale - Architects and Planners entitled "Burnaby Lake Sports Centre" dated 1978 November 06 have reiterated the significance of the subject area on a community wide and regional basis. These documents have been utilized as guidelines in evaluating individual development proposals within and in the vicinity of the Burnaby Lake Sports Complex.

It is a sports complex of regional significance. Two private recreational developments have been built to date: the Norwegian Seamens Recreation Centre and the large Columbian Four Rinks building. The Burnaby Lake Rowing Pavilion and course constructed for the Canada Games is a unique community and regional resource. B. C. Sport had also expressed interest in developing a regional training facility for a key site in the Sports Complex which could include any or all of, for example, a sports medicine centre, a weight training facility, various gyms and exercise facilities, administration and commercial space, a hotel for visiting athletes, and possibly the B. C. Sports Hall of Fame. Our most recent discussions have related to interested private parties considering the provision of racquet facilities (racquetball, squash, handball) in a permanent building within the sports complex. It is expected that these and other significant sports/recreation oriented initiatives will continue to be discussed and that over time a number of these will be fulfilled. This regional significance will not detract from the community aspects of the site but will in fact enhance it by providing a wider range, greater number and higher quality sports/recreational facilities to benefit the residents of Burnaby than might otherwise have been provided. In addition, its centrality within the Greater Vancouver area, the availability of land for sports/recreation purposes, and its accessibility to major highways and arterial roads add to its regional significance.

It is also a sports complex of community wide significance with an extensive array of soccer, grass hockey and rugby fields, and tennis courts; the fieldhouse/rugby facility with its expansion nearing completion; the Burnaby Tennis Club pavilion; the C. G. Brown Swimming Pool; Burnaby Lake Ice Rink; and the Rowing Pavilion and course previously mentioned. The current proposal to provide a significant expansion to the C. G. Brown Pool reinforces the importance of this area as the prime sports centre for the municipality. The Sports Complex is central to the municipality as a whole and acts in part as a unifying element for the physically separated North Burnaby and South Burnaby areas.

The intent of this preceding description is to emphasize the importance of the Burnaby Lake Sports Complex from both a community and a regional perspective. Municipal pride is engendered by the development of this unique quality sports complex which is a source of wider regional appeal. Vancouver's Stanley Park or Queen Elizabeth Park come to mind as resources which are of benefit to those other than residents of that city.

However, if the Burnaby Lake Sports Complex is to be maintained as a first order resource, a high standard of development and an integrated homogeneous building design and planning approach is necessary. Ad hoc decisions related to the development of new facilities without maintenance of a longer view perspective of the development potential of the Burnaby Lake Sports Complex would not be in the best interest of Burnaby. All structures developed thus far in the Burnaby Lake Sports Complex have been permanent buildings.

A tennis bubble in this area would be a step in the direction of lowering the quality of the sports complex and might be seen as a precedent for other ad hoc incompatible forms. The very form and material of a bubble is foreign to the permanent buildings in the vicinity. The wear and tear and not unexpected vandalism of a bubble over the years could further emphasize its makeshift appearance. The Burnaby Tennis Club in a written submission mentioned that "A permanent structure (for tennis) in the Central Valley area is unnecessary, at this time, whereas a "bubble" provides maximum utilization of existing facilities". It is contended that a permanent structure is not "unnecessary". The Burnaby Tennis Club submission acknowledges that the sports complex "has been carefully planned to serve the community and will be a model recreational centre for the Lower Mainland". This acknowledgment reinforces the contention that the development of the Burnaby Lake Sports Complex would not be well served if a bubble were permitted.

b) The general area which has been mentioned for a tennis bubble is in the vicinity of the existing tennis courts, probably just south of these courts. This location would place a bubble directly adjacent to the designated Kensington Ave. arterial route which is second in importance only to Willingdon Ave. as an intra-municipal north-south connector. The intersection of Kensington Ave. with Sprott Street, also a designated east-west arterial, is located at this point. The high traffic volumes expected along Kensington Ave. can also be appreciated in the context that this street is directly connected to and in close proximity to Canada Way, the Trans-Canada Highway, and Lougheed Highway - all prime thoroughfares. The bubble site can also be closely viewed by motorists and others destined for the playing field areas, fitness course, the fieldhouse/rugby clubhouse, the rear parking lot to C. G. Brown Pool, and the Burnaby Lake Pavilion. The area in the vicinity of the existing tennis courts is a high profile site not suited for a tennis bubble.

c) At night, the translucent skin of a large tennis bubble would create a highly noticeable industrial greenhouse effect especially during the winter months when deciduous trees and shrubs are bare.

d) The standard size of bubble to cover four tennis courts is in the range of 40 feet high, 120 feet wide, and 200 feet long, encompassing an area of approximately 24,000 sq. ft. - a large and potentially obtrusive form. The Burnaby Tennis Club mentions three existing seasonal tennis bubbles in the Greater Vancouver area to support their submission. However, in checking with these other bubble facilities, we have been informed that the Richmond bubble covers 3 tennis courts, the West Vancouver bubble covers 3 tennis courts, and the Vancouver bubble covers 4 tennis courts. The Burnaby Tennis Club wishes to erect a bubble covering 6 tennis courts, which would be of a much larger scale than these other cited examples. A proliferation of smaller bubbles would be equally undesirable. A bubble with its large bulbous form tends to be intrinsically an alien design element within a high quality building and natural treed environment. It is contended that a larger bubble on the scale of that proposed by the Burnaby Tennis Club would be even more objectionable.

In addition to the preceding points indicating the inappropriateness of a tennis bubble, the following operational comments would also apply.

i) Any seasonal tennis bubble would be restricted to a period of erection from October 01 to March 31 of each year. This corresponds to time limits established for other seasonal examples.

ii) Any tennis bubble should have expansive surrounding buffer landscaped areas heavily planted with coniferous trees and shrubs. In the absence of any site plans it is difficult to evaluate the quality and effectiveness of any needed screening.

iii) It has been proposed that the Burnaby Tennis Club would be responsible for the annual costs associated with the operation, assembly, disassembly and storage of the air support structure. It is presumed that this responsibility would include the day-to-day maintenance and running of the inflation equipment. All requirements of the Chief Building Inspector and the National Building Code must be adhered to. Preliminary Plan Approval would be required for any structure which requires erection each year.

The Burnaby Tennis Club estimates the cost of a 6 court bubble to be \$215,450.00. We do not know if this indicated cost to be met by the tennis club would also include the cost of lighting within the bubble which we are given to understand may be a separate system (presumably shorter and moveable lighting standards) than that provided for typical open air outdoor courts.

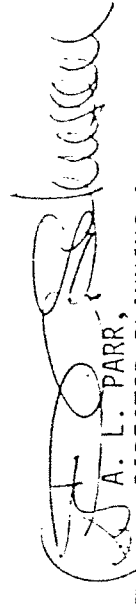
It is also noted that the 1981 C. I. P. includes \$165,000 for the construction of six courts at the Burnaby Lake Sports Complex. It would be relevant to ascertain whether there would be any extra costs in the specific layout of tennis courts to be covered by a bubble with respect to the quality of playing surface which is to be covered by a bubble during the winter months; and with regard to any special foundation work, fencing, or fastening provisions.

3.0 CONCLUSION

In summary, the erection of a seasonal tennis bubble within the Burnaby Lake Sports Complex conflicts with the long term municipal goals for this area related to the maintenance and further development by both the public and private sectors of a unique high quality sports complex - a development of pride and appeal to the entire Burnaby Community and to others on a regional basis. It is inappropriate to place a tennis bubble with its scaleless obtrusive form incompatible with surrounding permanent buildings in such a high profile location as this one and at an unusual extra large size to cover 6 tennis courts. The seasonal tennis bubble is vulnerable to wear and tear and vandalism of the thin fabric skin and subject to possible as yet unidentified public costs related, for example, to special lighting, construction or maintenance. A tennis bubble in this area would create an expectation for approval of other undesirable poorly designed structures of either a seasonal or permanent nature - which if the municipality were to reject may open the door to charges of partiality. It is noted that the erection of a seasonal tennis bubble since it is a recurring year by year procedure would be subject to a standard Preliminary Plan Approval and Building Permit applications. It is not possible to comment further on the specifics of the proposal without the benefit of site, landscape, and structure drawings.

However, the points brought out in this report are sufficient to conclude that this proposal is not in the public interest and that a seasonal tennis bubble as proposed by the Burnaby Tennis Club should not be approved for use within the Burnaby Lake Sports Complex.

KI/mdw



A. L. PARR,
DIRECTOR PLANNING &
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C. C. Municipal Manager.
Chief Building Inspector.
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