FILE

DATE: **January 14, 1997**

TO: **All Departments**

FROM: **City Clerk**

RE: **PLEASE POST FOR THE INFORMATION OF ALL EMPLOYEES**

SUMMARY OF DECISIONS

****

FOR THE REGULAR MEETING OF RED DEER CITY COUNCIL

HELD IN THE COUNCIL CHAMBERS, CITY HALL

MONDAY, JANUARY 13, 1997

COMMENCING AT ***4:30 P.M.***

****

(1) Confirmation of the Minutes of the Regular Meeting of December 16, 1996

DECISION - Confirmed as transcribed

PAGE #

(2) **UNFINISHED BUSINESS**

1. City Clerk - Re: 1997 Towne Centre Association Budget . . 1

DECISION - Approved the 1997 Towne Centre Association Budget, as presented

2. Land and Economic Development Manager - Re: Former C P Rail Lands- Downtown Area . . 8

DECISION - Agreed to a second proposal call and to offer a 3% commission to Realtors. Proposal call to be extended to June 30, 1997

3. Engineering Department Manager - Re: Handicap Zone Signing and Marking . . 11

DECISION - Agreed to relocate the handicap stall on 50 Avenue south of 47 Street, to the north end of the block and that the handicap stall on 50 Avenue south of 49 Street be widened. Further agreed that all handicap curbs are to be painted blue with any costs being charged to the 1997 Budget

(3) **PUBLIC HEARINGS**

1. City Clerk - Re: Land Use Bylaw Amendment 3156/P-96 / Upholstery Business at 5824 & 5826 - 51 Avenue / Lots 21 & 22, Block 25, Plan 7604 S / (See Bylaw Section for Readings) . . 18

(4) **REPORTS**

1. Director of Community Services - Re: Red Deer College C.F.E.P. Application / Request for Municipal Support . . 21

DECISION - Agreed to provide a letter of municipal support to the Red Deer College C.F.E.P. Application for funding of its fitness facilities

2. Parkland Community Planning Services - Re: Land Use Bylaw Amendment 3156/A-97, Portions of the NW ¼ Sec. 30-38-27-4, Edgar Industrial Park / Request to Redesignate Portion of Land West of CPR Right of Way to P1 (Parks and Recreation) District and I1 (Industrial Business Service) District / (See Bylaw Section for Readings) . . 29

   DECISION - Report received as information

3. Personnel Manager - Re: 1997 Salary Treatment for Exempt Staff . . 31

   DECISION - agreed to a one time payment of 2% of annual base salary to Exempt Staff in 1997. Further agreed to suspend adjustments to Section B of Council Policy No. 5203 dealing with remuneration for Council Members, until the review of Honorariums to Council Members is completed late in 1997

4. Social Planning Manager - Re: Day Care Management Audit for 1995 . . 40

   DECISION - Audit received by Council as information

5. Director of Community Services - Re: Transit Transfer Station: Conceptual Design Report . . 48

   DECISION - the Conceptual Design Report for a Transit Transfer Station was received by Council as information

6. Public Works Manager - Re: Wastewater Treatment Master Plan . . 51

   DECISION - Approved the Wastewater Treatment Master Plan

7. Land and Economic Development Manager - Re: Industrial Land Prices / Request to Increase . . 65

DECISION - agreed to a base price increase for industrial land to $68,500.00 per acre and further agreed to table for 60 days the 5% premium on lot prices of land adjacent to Highway 11A and Highway 2

(5) **CORRESPONDENCE**

1. Snell & Oslund Surveys (1979) Ltd. - Re: Request to Amend Road Closure Bylaw 3175/96 (3175/A-97) / Partial Disposal of Lot R, Plan 1030 NY (Lower Fairview) - Request to Amend Resolution of August 26, 1996 / (See Bylaw Section for Readings) . . 68

DECISION - agreed to amend the Council Resolution of August 26, 1996 to correct the legal description of the Reserve Lands

2. Al-Terra Engineering Ltd. - Re: Deer Park Outline Plan - Phase 7A / Request to Reconsider Change in Lot Size and Number of Lots in Phase 7A / Request to Remove Lot Lines in Remainder of Outline Plan . . 76

DECISION - approved the requests of AL-Terra Engineering Ltd. for amendments to the Deer Park/Melcor Outline Plan as agreed to by residents at the January 9, 1997 Public Meeting

(6) **PETITIONS AND DELEGATIONS**

(7) **NOTICES OF MOTION**

(8) **WRITTEN INQUIRIES**

1. Councillor Bill Hull - Re: Summary of Costs and Benefits of Implementing a Commission System with Real Estate Agents . . 108

DECISION - Item was discussed and it was agreed to file

(9) **BYLAWS**

1. 3156/P-96 - Amendment to Land Use Bylaw / Upholstery Business at 5824 & 5826 - 51 Avenue / Lots 21 & 22, Block 25, Plan 7604 S - 2nd and 3rd Readings . . 18

DECISION - Bylaw given 2nd and 3rd Readings

2. 3156/A-97 - Land Use Bylaw Amendment / Portions of the NW ¼ Sec. 30-38-27-4, Edgar Industrial Park - 1st Reading . . 111
. . 29

DECISION - Bylaw given 1st Reading

3. 3175/A-97 - Road Closure Bylaw / Amendment to Road Closure Bylaw 3175/96 - 3 Readings . . 113
. . 68

DECISION - Bylaw given 3 Readings

A G E N D A

****

FOR THE REGULAR MEETING OF RED DEER CITY COUNCIL

TO BE HELD IN THE COUNCIL CHAMBERS, CITY HALL

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3. 3175/A-97 - Road Closure Bylaw / Amendment to Road Closure Bylaw 3175/96 - 3 Readings . . 113
   . . 68

DATE: **January 2, 1997**

TO: **City Council**

FROM: **City Clerk**

RE: ***1997 TOWNE CENTRE ASSOCIATION BUDGET***

At the Council Meeting of November 4, 1996, it was agreed that the proposed 1997 Towne Centre Association Budget would be considered by Council at its meeting of January 13, 1997, commencing at 7:00 p.m. or as soon thereafter as Council may determine.

Individual notices have been mailed out to every person assessed for business purposes in the Business Revitalization Zone, advising of the date and place of the Council Meeting at which the budget will be considered.

Following hereafter is the 1997 Towne Centre Association budget.

Recommendation:

That, following any presentations, Council may approve the 1997 Towne Centre Association Budget.

KELLY KLOSS
City Clerk

KK/lb
Attach.

FILE No.

THE CITY OF RED DEER
P. O. BOX 5008, RED DEER, ALBERTA T4N 3T4 FAX: (403) 346-6195

City Clerk's Department
(403) 342-8132 FAX (403) 346-6195

January 2, 1997

Dear Sir/Madam:

RE: BUSINESS REVITALIZATION ZONE / 1997 TOWNE CENTRE BUDGET

In accordance with the provision of the Downtown Business Revitalization Zone Bylaw No. 2827/83, you are hereby advised that the 1997 Budget, as presented by the Towne Centre Association of Red Deer, will be considered by Red Deer City Council on Monday, January 13, 1997, in the Council Chambers at City Hall, commencing at 7:00 p.m. or as soon thereafter as Council may determine.

A copy of the budget submitted by your Association is enclosed herewith for your review. Any member of the association wishing to address Council concerning this matter, may do so at the above noted Council Meeting.

If you have any questions, please do not hesitate to contact the undersigned (342-8132) or Mr. John Ferguson, Towne Centre Association Manager (340-8696).

Sincerely,

KELLY KLOSS
City Clerk

KK/lb
Encl.

cc. City Assessor
Towne Centre Association Manager

TOWNE CENTRE • RED DEER'S • ORIGINAL • BUSINESS DISTRICT •

• TOWNE CENTRE ASSOCIATION • B3. 4901 - 48 ST. • RED DEER, ALTA. • T4N 6M4 • (403) 340-TOWN (8696) • FAX (403) 340-8699 •

October 1st, 1996
Mayor G. Surkan and
City Council
City of Red Deer

RE: 1997 BRZ Budget Proposal

Dear Mayor and Council,

The Board of Directors of the Towne Centre Association are pleased to submit our 1997 budget proposal for your approval. Once again, the budget contains no increases in fees for service, BRZ tax levy, or other contract fees. This hold the line approach to funding continues to make planning difficult, and we anticipate new financial needs to be covered by growth in the business community.

In addition, with purchase of the new computer system, we have been able to realize significant savings in printing products and data base resource materials. This combined with the new committee approach to managing the BRZ program, allows us to progress for one more year without additional funding. The Towne Centre Association remains the lowest funded BRZ in the province, as compared to equally sized BRZ districts.

A significant change to operations in '97 is management of the community Christmas Decorations. Working closely with Mr.Hodgson, we are initiating a new direction for the Christmas decorations with '97 being the real test year. We will monitor public reaction to the changes and are reasonably confident that the new approach will not only reduce the need for additional funding, but improve the style of community decoration being presented.

At Mr.Hodgson's request the $5,400.00 grant for service remains part of our budget request for '97.

As we continue in the challenge of revitalization without additional funding, it continues to be difficult to meet the growing expectations placed on the Association , however, through new surveys of the business membership, new priorities are surfacing allowing us to better target our spending priorities. The **Ghost** project remains a primary focus and as the firefighter wagon and team continues its construction, more and more people are comprehending the potential impacts of this major undertaking.

We are looking forward to a renewed sense of partnership between the City and our Association in '97. It is our intention to find the areas of common interest and priority so that together we can accomplish more and better progress in the Downtown Concept Plan and the revitalization program. The need for this partnership has never been greater. The Bay block remains a substantial and difficult problem, but not an insurmountable one. Following is the breakdown of the BRZ budget for 1997.

(cont'd)

(Cont'd from page one)

Towne Centre Budget for 1997

REVENUE:

Item:	'97 request	'96 amount
Brz Levy	$94,000.00	$94,000.00
Provincial Grant in Lieu	$17,000.00	$17,000.00
Litter Contract	$43,500.00	$43,500.00
Christmas Decoration Grant	$5,400.00	$5,400.00
Project Revenues	$4,000.00	$3,900.00
TOTAL REVENUES	$163,900.00	$163,800.00

NOTES:

The levy portion requested will provide no change to individual business members and any new assessments will increase the amount noted. If a net reduction in assessment occurs, the revenue requested remains the same, and individual levies would increase to meet the requested figure. However, we believe that the overal assessment in the downtown has increased.

'97 Expenses by category:

Organization: (includes; Adminstration, rental, cost of overhead, insurance, printing costs, benefits, etc.)

$12,300.00 ('96 was $11,790.00)

Promotion, Advertising & Design: (includes; Ghosts, events, media, facade progran, committees as appropriate.)
$100,000.00 ('96 was $98,010.00)

Economic Development: (includes; staff, printing, and expense)
$10,500.00 ('96 was $10,500.00)

Litter Control Contract:
$43,500.00 ('96 was $43,500.00)

TOTAL EXPENSES: $166,300.00

NOTE: The shortfall of $2,400.00 is being covered by a '96 surplus.

As always, the BRZ budget remains a balanced budget, and will be modified as needed during the course of the year to ensure it is balanced. We are maintaining a contingency fund since 1995 and in fiscal '97 this account will stand at $24,000.00 (please see page three).
(cont'd)

(cont'd from page two)

Each category in the expense statement contains percentages recommended by the accountant, for salaries and overhead, to reflect the true cost of the category items.

In 1997, the contingency fund will be at $24,000.00, reflecting a policy of banking $6,000.00 per year so that a sum can be accumulated to fund major projects in the future. Some of the projects discussed for this fund include;

- Facade improvement loan pool
- Festival development
- Equipment replacement allowances
- GHOST development
- Plaza Development
- Plaza operating
- Economic Development projects
- Architectural design grants

None of the projects indicated have been finalized at this point in time, but priorities will be assigned when the board feels adequate funds exist to proceed.

In '97, the value of the **Ghost** project is estimated at $370,000.00, and we are beginning negotiations for two additional bronze figures with various corporate sponsors at present. We are maintaining our goal of developing Canada's largest collection of heritage bronze figures by the turn of the century and while the task is challenging, we are confident we will meet that goal. We are also continuing towards our goal of achieving the world's largest such collection by 2005, the Provinces 100th anniversary year.

We have moved slowly but surely into the electronic age with the purchase of a new computer system in '96, and we will have a WEB site for Downtown Red Deer in '97. Although we could not place our web site with the City's site, we hope to establish a direct link to the City site as well as the Alberta Network site.

Sincerely yours,
Towne Centre Association

Tim MacNeill, Chairman.

DATE: **October 16, 1996**

TO: **City Clerk**

FROM: **Director of Corporate Services**

RE: **TOWNE CENTRE ASSOCIATION - 1997 BRZ BUDGET PROPOSAL**

There are three parts to the budget that require approval from City Council:

Description	Amount
BRZ Tax Levy	$ 111,000
Litter Contract	43,500
Christmas Decoration Grant	5,400

The BRZ tax levy is normally considered at a regular Council meeting in January after the Downtown BRZ businesses have been advised by advertisement and given an opportunity to be present when Council considers the BRZ levy. The BRZ levy is unchanged from 1996.

The litter contract and the Christmas decoration grant will be considered by Council as part of the1997 budget in January.

A. Wilcock, B. Comm., C.A.
Director of Corporate Services

c. Director of Community Services
Director of Development Services

a\m\clk towne centre 97 brz bgt proposal oct16 96

Comments:

We recommend Council approve the 1997 Towne Centre Association Budget. Notices were sent out to every person assessed for business purposes in the Business Revitalization Zone. We have not received any responses to the budget request to date.

"G. D. SURKAN"
Mayor

"H. M. C. DAY"
City Manager

FILE

Office of the City Clerk

Box 5008
Red Deer, Alberta
T4N 3T4

The City of Red Deer

January 14, 1997

Mr. Tim MacNeill, Chairman
Towne Centre Association
B3, 4901 - 48 Street
Red Deer, AB T4N 6M4

Dear Sir:

RE: 1997 BRZ BUDGET PROPOSAL

At The City of Red Deer's Council Meeting held January 13, 1997, consideration was given to the above. At that meeting the following resolution was introduced and passed:

> "RESOLVED that Council of The City of Red Deer, having considered correspondence from the Towne Centre Association dated October 1, 1996, re: 1997 Towne Centre Association Budget, hereby approves the 1997 Towne Centre Association Budget as presented to Council January 13, 1997."

On behalf of Council, I wish you a successful year and look forward to working with you in 1997.

Sincerely,

Kelly Kloss
City Clerk

/clr

c Director of Corporate Services

John Ferguson, General Manager
Towne Centre Association

4914 - 48th Avenue, Red Deer, AB Canada T4N 3T4
Tel (403) 342-8132 Fax: (403) 346-6195 E-mail: cityclerk@city.red-deer.ab.ca Web: http://www.city.red-deer.ab.ca

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KK/clr
Encls.

c City Assessor
Towne Centre Association Manager

RED·DEER a delight to discover!

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= 415

TOTAL 412

+ ASSESSOR, FERGUSON - COPY FILE

BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
ALBERTA PUBLIC WORKS	SUPPLY & SERVICE 19TH FLR 8215 112 STREET EDMONTON ALBERTA T6G 5A9	90-00001	440	959,430
ALBERTA PUBLIC WORKS	SUPPLY SERVICE REALTY DIV. 19TH FLR 8215 112 STREET EDMONTON ALBERTA T6G 5A9	90-00002	440	2,536,520
TELUS ~~A.G.T.~~ LIMITED	P.O. BOX 1552 TAXATION DEPT. EDMONTON, AB T5J 2N7	90-00008	840	199,040
THE SUPERINTENDENT OF	TREASURY BRANCHES 100 4911 51 STREET RED DEER ALBERTA T4N 5G1	90-00015	440	245,490
DEB MACAULEY	KNOWN AND OPERATING AS A D'S CAFE CORRAL 5114 48 ST RED DEER AB T4N 1T2	90-00050	840	8,070
ACCESS DENTURE	ACCU DENTURE LTD 301 4820 50 AVE RED DEER ALTA T4N 4A4	90-00095	840	11,070
ANDREA HAWIUK	KNOWN AND OPERATING AS ACADEMY OF PROFESSIONAL HAIR DESIGN 4929 49 ST RED DEER AB T4N 1V1	90-00108	840	42,430
ACCURATE BUSINESS SYSTEMS LTD	4606 50 AV RED DEER AB T4N 3Z8	90-00113	840	20,230
BRIAN A ADAIR BARRISTER &	SOLICITOR- SOLE PROP STE 3 4909 48 ST 2ND FLR RED DEER ALBERTA T4N 1S8	90-00435	840	10,460
GARY BRESEE	KNOWN AND OPERATING AS AGPRO CONSULTING & APPRAISALS 201 4909 48 ST RED DEER AB T4N 1S8	90-00731	940	6,420
AGRINET MANAGEMENT &	EMPLOYMENT SERVICE LTD 204 4711 51 AV RED DEER AB T4N 6H8	90-00736	940	6,860
ALBERTA ART & DRAFTING	SUPPLIES LTD 4709 49 AVE RED DEER ALTA T4N 3W9	90-00910	840	4,890
LAWRENCE BALLA	KNOWN AND OPERATING AS ALBERTA BARBERS 103 4929 50 ST RED DEER AB T4N 1X9	90-00926	840	6,210

FILE

BACKUP INFORMATION NOT SUBMITTED TO COUNCIL

13

13

BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
ROCKY VANDERHOEK	KNOWN AND OPERATING AS ALBERTA ROCKYVIEW THERAPEUTIC MASSAGE CLINIC 5015 50 ST RED DEER AB T4N 4B2	90-01606	840	20,400
AL-TERRA ENGINEERING LTD	502 5000 50 AVENUE RED DEER ALBERTA T4N 6C2	90-02200	840	11,730
LIZ MUNRO AKA ALL IN 1	4831 53 STREET RED DEER ALTA T4N 2E7	90-02240	840	4,590
ALLIED COMMUNICATIONS LIMITED	10548 82 AVENUE EDMONTON ALBERTA T6E 2A4	90-02271	840	21,410
SUSAN K ALLISON	4919 48 ST RED DEER AB T4N 1S8	90-02276	940	7,830
WINNIE STREIT AKA ALLURE	COSMETICS A3 4805 48 STREET RED DEER ALTA T4N 1S6	90-02340	840	11,670
MICHELLE PIERIK & INEZ PIERIK	KNOWN AND OPERATING AS ALLEY KATZ 7 4921 49 ST RED DEER AB T4N 1V1	90-02350	940	5,290
ALTVATER & COMPANY	1 5000 51 AV RED DEER AB T4N 4H5	90-02535	940	26,860
BARBARA CONNELL AKA AMOS &	ANDES IMPORTS 4911 50 AVE RED DEER ALTA T4N 4A6	90-02675	840	12,960
RICHARD ANDRUSIAK	KNOWN AND OPERATING AS ANDRUSIAK FINANCIAL SERVICE 203 4711 51 AV RED DEER AB T4N 6H8	90-03121	940	2,750
MONICA CHMIDT	KNOWN AND OPERATING AS SCHATZIE'S COIFFURES 4929 50 ST. RED DEER ALBERTA T4N 1X8	90-03182	840	5,600
ARLINGTON HOTEL RED DEER LTD	4905 51 AVE RED DEER ALTA. T4N 4H4	90-03400	840	53,710
FAS GAS REALTY LTD	KNOWN AND OPERATING AS AROUND THE CLOCK GAS 236 4919 59 ST RED DEER AB T4N 6C9	90-03525	840	5,040

13

BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
ARTISTRY IN GOLD DESIGN STUDIO	LTD 4926 49 STREET RED DEER ALTA T4N 1V3	90-03630	840	9,270
ASSOCIATED CHIROPRACTIC CLINIC	DR G DIDRIKSON SOLE PROP 6812 52 AVE RED DEER ALBERTA T4N 4L1	90-03890	840	9,790
406952 ALBERTA LTD	KNOWN AND OPERATING AS ASSOCIATE CLINIC 4705 48 AV RED DEER AB T4N 3T1	90-04001	840	150,230
AUDIO WEST	RED DEER AUDIO SALES LTD 4715 49 STREET RED DEER ALBERTA T4N 1T6	90-04335	840	42,170
CAROL ANTONY AKA BACK DOOR	HAIR STORE 4407 48 AVE RED DEER ALTA T4N 3S4	90-04650	840	2,960
BANK OF MONTREAL	55 BLOOR STREET WEST P.O. BOX 1417 TORONTO ONTARIO M4W 3N5	90-04800	840	201,760
BANK OF NOVA SCOTIA	BOX 696 RED DEER AB T4N 3Z5	90-05102	840	99,620
SHAMA KHALID (Moved)	KNOWN AND OPERATING AS BANO FASHIONS 5007 50 AV RED DEER AB T4N 4B2	90-05220	840	2,590
BARGAIN KASH & KARRY AKA	DIAMOND THAWER & AMIR HASSAM 5009 50 AVE RED DEER ALBERTA T4N 2B4	90-05425	840	31,530
PETER & JOHN BARTHEL AKA	BARTHEL 1 HR PHOTO 4910 50 AVE RED DEER ALTA T4N 4A8	90-05471	840	8,480
L L BAWTINHEIMER AKA LES &	NEILS CYLINDER HEAD REPAIRS 4925 48 STREET RED DEER ALBERTA T4N 1S8	90-06000	840	13,780
TERESA BAUMAN	KNOWN AND OPERATING AS BEACHES 102 4912 50 ST RED DEER AB T4N 1X7	90-06075	840	5,140
17 AVE DENTURE CLINIC LTD	AKA BEAUMONT DENTURE & REPAIR CLINIC 4940 51 ST RED DEER AB T4N 2A7	90-06205	840	3,240

BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS		ROLL #	BUS.TYPE	ASSESSMENT
BETTENSON'S CARTAGE CO. LTD	4320 52 AVE RED DEER ALTA	T4N 4J9	90-07702	840	59,860
HUSSEIN BOGA	KNOWN AND OPERATING AS BETTER BARGINS 5205 50 AV RED DEER AB	T4N 5Y1	90-07750	940	18,220
DR G N BHADRESA PROF CORP	4801 54 ST RED DEER ALBERTA	T4N 2G5	90-08200	840	15,840
BILL'S AUTO BODY RED DEER LTD	5015 51 AVE RED DEER ALTA	T4N 4H6	90-08390	840	14,450
BILL RANFORD	KNOWN AND OPERATING AS BILL SR'S SPORTSCARDS 106 4785 49 ST RED DEER AD	T4N 1T6	90-08395	840	4,120
CHERI PURPUR, SHARYNE FRASER &	TRINDA GAJEK AKA THE BIRTH PLACE 5415 49 AV UPPER RED DEER AB	T4G 1G8	90-08480	940	6,850
BISHOPS WESTERN DRUGS MART #1	DRUGS BY BISHOP LTD 4810 ROSS ST RED DEER ALBERTA	T4N 1X5	90-08500	840	42,840
DRUGS BY BISHOP LTD	4810 ROSS STREET RED DEER ALBERTA	T4N 1X5	90-08505	840	19,420
BISON BALIFF SERVICES LTD	440 1509 CENTRE ST S W CALGARY AB	T2G 2E6	90-08600	940	12,600
BLINDS PLUS DESIGN	335760 ALBERTA LTD 5011 51 AVENUE RED DEER ALBERTA	T4N 4H6	90-09090	840	12,540
BLOCKBUSTER VIDEO	ALBERTA VIDEO LIMITED 140 6064 12 STREET S E CALGARY ALBERTA	PART.	90-09250	840	130,000
BOB THOMPSON KNOWN & OPERATING	AS BOB'S BARBER SHOP 5024 49 STREET RED DEER ALBERTA	T2H 2X2	90-09480	840	990
LKR HOLDINGS LTD	KNOWN AND OPERATING AS BONDING EDUCATION CENTRE 11 4836 51 ST RED DEER AB	T4N 1V5	90-09900	840	5,950

T4N 2A5

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
MADELINE RAYNARD	KNOWN AND OPERATING AS BOOKS ETC 2 4931 49 ST RED DEER AB T4N 1V2	90-10059	840	11,360
DAVE HERMARY	KNOWN AND OPERATING AS BOOKWORMS DEN 5003 50 ST RED DEER AB T4N 1Y2	90-10061	940	7,000
ALAN J BOWERS CMA	204 4805 48 ST RED DEER AB T4N 1S6	90-10438	840	5,880
592712 ALBERTA LTD	KNOWN AND OPERATING AS BRANDON COUNTY SALOON 4608 50 AV RED DEER AB T4N 3S8	90-10467	840	91,730
DR. W T BRATTLEY PROF CORP	302 4822 ROSS STREET RED DEER ALBERTA T4N 1X4	90-10480	840	23,230
WAYNE LYNN & EUNICE MUNRO	KNOWN AND OPERATING AS BREWED AWAKENINGS 102 4911 51 ST RED DEER AB T4N 2A8	90-10520	840	36,580
BROWN SMITH & OWEN C/A	4921 47 ST. RED DEER ALBERTA T4N 1R4	90-11131	840	64,400
T MAXWELL BROWN PROFESSIONAL	CORP 4924 52 STREET RED DEER ALTA T4N 2C8	90-11150	840	29,710
W BROWN CONSTRUCTION LTD	504 4901 48 ST RED DEER AB T4N 6M4	90-11160	940	10,690
BUFFALO HOTEL 1973 LTD.	5031-50 ST. RED DEER ALTA. T4N 1Y2	90-11400	840	74,120
SUE YEE KNOWN & OPERATING AS	BUFFALO HOTEL DINING LOUNGE 5031 ROSS STREET RED DEER ALBERTA T4N 1Y2	90-11500	840	9,350
HEYWOOD HOLMES & PARTNERS	500 4911 51 STREET RED DEER ALTA T4N 2A8	90-11901	840	128,760
SUNWAPTA BROADCASTING LTD	KNOWN AND OPERATING AS CFRN 1260 BROADCAST HOUSE BOX 5030 STN E EDMONTON AB T5P 4C2	91-12466	840	1,850

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
MACDONALD BYCHOWSKI & SHERBACK	KNOWN AND OPERATING AS CMB INSURANCE BROKERS 204 4922 53 ST RED DEER AB T4N 2E9	91-12550	840	21,750
CANADA LIFE ASSURANCE CO	300 UNIVERSITY AVENUE TORONTO ONTARIO M5G 1R8	91-13401	840	37,410
CANADIAN COMPUTER TRAINING	CENTRE INC 4901 48 ST LOWER RED DEER AB T4N 6M4	91-14054	840	12,580
CANADIAN IMP BANK OF COMMERCE	MUNICIPAL TAXATION DEPT BOX 122 COMM CRT PSTL STATION TORONTO ONTARIO M5L 1A2	91-14201	840	104,610
CANADIAN IMP BANK OF COMMERCE	MUNICIPAL TAXATION DEPT P.O. BOX 122 COMM CRT STATION TORONTO ONTARIO M5L 1A2	91-14205	840	39,020
CANADIAN WESTERN BANK	5013 49 AV RED DEER AB T4N 3X1	91-15050	840	42,470
JOANNE WALKOFF & RICHARD ROTH	KNOWN AND OPERATING AS CANWEST TRAVEL COMPANY 5229 49 AV RED DEER AB T4N 6G5	91-15140	940	14,400
CANYON SPORTSWEAR LTD	4927 48 STREET RED DEER ALTA T4N 1S8	91-15155	840	3,240
NORMAN CAVANAGH & ROBERT OXMAN	PROF CORP. 5202 48 AVE RED DEER ALTA T4N 3T9	91-16655	840	8,160
694987 ALBERTA LTD	KNOWN AND OPERATING AS CENTER CITY HUSKY SERVICE 4505 49 AV RED DEER AB T4N 3W7	91-17075	940	28,610
TRUDY SEVKORA	KNOWN AND OPERATING AS CENTRAL ALBERTA REPORTING 505 4808 50 ST RED DEER AB T4N 1X5	91-18600	840	9,650
CENTURY 21 ADVANTAGE CORP	4728 50 ST RED DEER AB T4N 1X2	91-19278	840	33,790
CHAFEKAR VINAY PROF CORP DR	302 4822 50TH STREET RED DEER ALTA. T4N 1X4	91-19300	840	16,150

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
KEN BAKER	KNOWN AND OPERATING AS CHAMELEONS 4942 50 ST RED DEER AB T4N 1X7	91-19350	940	11,260
CHAPMAN RIEBEEK SIMPSON	CHAPMAN WANLESS 208 4808 50 ST RED DEER ALTA T4N 1X5	91-19405	840	57,340
CHARLIE'S AKA	123908 ALBERTA LTD 4819 48 AVENUE RED DEER ALTA T4N 3T2	91-19416	840	13,760
K B WAINCKO	KNOWN AND OPERATING AS PHEONIX CHELATION CLINIC 206 9509 156 ST EDMONTON AB T5P 4J5	91-19470	840	17,410
JAMES & ROSE-MARIE SHERMAN	KNOWN AND OPERATING AS CITY CENTRE VACUME 5317 50 AV RED DEER AB T4N 6G3	91-20281	840	8,030
GORDON & CHARLENE PEEL	KNOWN AND OPERATING AS CITY ROAST COFFEE 4940 50 ST RED DEER AB T4N 1X7	91-20295	840	13,200
LORNE'S SUPERIOR PRODUCTIONS	INC AKA CITY WIDE VACUUM SALES & SERVICE 5101 50 AVE RED DEER ALTA T4N 4B3	91-20311	840	15,790
TERRI NICOLAYCHUK & LAURIE ROB	KNOWN AND OPERATING AS CLASSICUTS 9 4836 51 ST RED DEER AB T4N 2A5	91-20771	940	7,390
CLEAN CITY LTD	303 4824 50 AV RED DEER AB T4N 4A3	91-20780	940	2,460
DRUGS BY BISHOP LTD	KNOWN AND OPERATING AS CLINIC PHARMACY 4705 48 AV RED DEER AB T4N 3T1	91-20790	840	27,780
CLUB CAFE RED DEER LTD.	5019-50 ST. RED DEER ALTA. T4N 1Y2	91-21000	840	109,900

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
DON HOGENSON (Moved)	KNOWN AND OPERATING AS THE COLOR OF MONEY 4919 51 ST RED DEER AB	91-21601	940	45,390
COMCARE (CANADA) LTD	T4N 2A8 502 4808 50 ST RED DEER AB	91-21770	840	6,490
LORNA WATKINSON-ZIMMER	T4N 1X5 KNOWN AND OPERATING AS COMFORTS THE SOLE 4812 50 AV RED DEER AB	91-21775	840	12,070
SUSAN UTTERWIJK	T4N 4A3 KNOWN AND OPERATING AS COMPLEXIONS BY SUSAN 4813 54 ST RED DEER AB	91-21846	840	2,310
WILL KEATON	T4N 2G5 KNOWN AND OPERATING AS COMPUSOFT 4909 48 ST RED DEER AB	91-21865	840	14,680
COMPUTER TRAINING CENTRE INC	T4N 1S8 #34 4917 48 STREET RED DEER ALBERTA	91-21930	840	20,160
CO-OPERATIVE INSURANCE	T4N 1S8 SERVICE LTD 201 4901 48 ST RED DEER AB	91-22601	940	111,440
CO OPERATIVE INSURANCE	T4N 6M4 SERVICE LTD AKA CO OPERATORS 4901 48 ST RED DEER AB	91-22602	940	23,620
NORTHCOTT MANAGEMENT LTD	T4N 1S8 KNOWN AND OPERATING AS COPIES NOW 7 4801 51 AV RED DEER AB	91-22650	840	29,680
R TED STINSON AKA	T4N 4H2 CORNER STONE MANAGEMENT & REAL ESTATE SERVICES 4813 47 STREET 3RD FLOOR RED DEER ALTA	91-22850	840	8,800
ANDREW & JOAN SCHREIBER O/A	T4N 1R3 COUNTRY CUPBOARD 5020 50 AVE. RED DEER, AB	91-23330	840	11,970
	T4N 4A9			

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
ANDREW & JOAN SCHREIBER AKA	COUNTRY CUPBOARD 5022 50 AVE RED DEER ALTA T4N 4A9	91-23331	840	24,970
CRAWFORD COUNSELLING	SERVICES INC 305 4901 48 ST RED DEER AB T4N 6M4	91-23827	840	18,490
FRANCES LOWE	KNOWN AND OPERATING AS CREATIVE ARTS & FRAMES 201 4734 50 ST RED DEER AB T4N 1X2	91-23861	940	5,730
DUHAMEL MANNING FEEHAN	WARRENDER GLASS 2ND FLOOR, 5233 49 AVE RED DEER, AB T4N 6G5	91-24505	840	64,630
CUTHBERTSON SANDALL & PARTNERS	4817 48 STREET RED DEER ALTA T4N 1S6	91-25501	840	70,960
PATERSON AXELSON ETAL AKA (Moved)	D L ASSOCIATES 303 4805 48 STREET RED DEER ALTA T4N 1S6	92-25612	840	15,790
D-V MASSEY & ASSOCIATES LTD	316 KINGSWAY GARDEN MALL 109 ST & PRINCESS ELIZABETH AV EDMONTON AB T5G 3A6	92-25645	840	9,920
SHUN W CHAN AKA DADS	HAMBURGERS 4840 51 STREET RED DEER ALTA T4N 2A5	92-25665	840	23,240
DAIRYWORLD FOODS - NU-MAID DIV	P O BAG 550 RED DEER ALTA T4N 5G4	92-25910	840	203,200
MARION VERHESEN	KNOWN AND OPERATING AS DANCE OF LIFE EQUALIZER 203 5002 50 AV RED DEER AB T4N 6C2	92-25931	940	9,350
BOB GRAVERSON	KNOWN AND OPERATING AS DANSING DRAGON TATTOOS 5425 50 AV RED DEER AB T4N 4B7	92-26065	840	2,620
KEN MORGAN KNOWN	& OPERATING AS E & M PAWN SHOP 4920 50 ST. RED DEER AB T4N 1X7	92-26930	840	11,550

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
DR. EDWARD L DEMCHUK	4922 53 STREET #100 RED DEER ALTA T4N 2E9	92-26950	840	20,900
626372 ALBERTA LTD	KNOWN AND OPERATING AS DENTACARE GROUP 101 5018 45 ST RED DEER T4N 5E4	92-26995	940	32,290
WENDY MESSNER	KNOWN AND OPERATING AS DESIGN TO FIT 101 4781 49 ST RED DEER AB T4N 1T6	92-27040	840	2,700
MARTIN DEVEAU	KNOWN AND OPERATING AS DEVOE'S NEW & USED 5018 50 ST RED DEER AB T4N 1Y3	92-27150	940	16,900
DIAGNOSTIC IMAGING ASSOCIATES	4705 48 AV RED DEER AB T4N 3T1	92-27240	840	9,190
DINO'S FAMILY RESTAURANT	336723 ALBERTA LTD 4617 50 AVENUE RED DEER ALBERTA T4N 3Z9	92-27520	840	39,310
DR EUGENE V DOLINSKY PROP CORP	4615 48 AVE RED DEER ALTA T4N 3S8	92-27901	840	9,970
LANG-HODGE HOLDINGS INC	KNOWN AND OPERATING AS DOMINO'S PIZZA 103 5018 45 ST RED DEER AB T4N 1K9	92-28081	840	16,650
P.J. DONNELLY PROF CORP	REGINA DONNELLY PROF CORP 4917 46 STREET RED DEER ALBERTA T4N 1N2	92-28160	840	9,350
DON SORDAHL KNOWN & OPERATING	AS DON'S APPLIANCE REPAIRS 5417 50 AVENUE RED DEER ALBERTA T4N 4B7	92-28181	840	10,570
595028 ALBERTA LTD	KNOWN AND OPERATING AS DOTS DESIGNER DISCOUNT 10235 112 ST EDMONTON AB T5K 1M	92-28340	840	26,010
C NEIL DOWNEY PROF CORP	KENNETH L SWAINSON PROF CORP 200 4708 50TH AVENUE RED DEER ALBERTA T4N 4A1	92-28511	840	34,420

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
DOWNTOWN ESSO & MR LUBE	M & N LUBE LTD 4619 49 AVENUE RED DEER ALBERTA T4N 3W8	92-28525	840	51,260
DOWNTOWN IGA STORE	MAYFAIR FOODS RED DEER LTD 4719 49 AVE RED DEER ALBERTA T4N 3W9	92-28530	840	126,380
602598 ALBERTA LTD	KNOWN AND OPERATING AS DOWNTOWN LIQUOR STORE 4610 50 AV RED DEER AB T4N 3S9	92-28535	840	9,520
CHRIS HELMER AKA	ELECTROLYSIS CENTRE 4781 49 STREET RED DEER ALTA T4N 1T6	92-30015	840	2,830
CLAIRE DESGAGNE / SOLE PROP.	ELITE SECRETARIAL SERVICE 4902 53 STREET RED DEER ALTA T4N 2E9	92-30065	840	1,420
EZZEDINE MUFTI	KNOWN AND OPERATING AS EMO COMPUTING 4834 51 ST LOWER RED DEER AB T4N 2A5	92-30204	840	6,010
GORDON JOHNSON	KNOWN AND OPERATING AS ESKIMO BILLIARDS 5129 50 AV RED DEER AB T4N 4B3	92-30406	840	38,350
FELICIA SZKURA - SOLE PROP.	KNOWN & OPERATING AS EURO MODE CLOTHING STORE 4806 50 AVE. RED DEER AB T4N 1X7	92-30590	840	21,000
EVENTIDE FUNERAL CHAPELS RED	DEER LTD 4820 45 STREET RED DEER ALTA T4N 1K5	92-30600	840	122,300
G TESKE CARRYING ON BUSINESS	UNDER FAMILY SHOE REPAIR 5018-49 ST. RED DEER ALBERTA T4N 1V5	92-31400	840	2,970
FARGEY'S FLOORS AND INTERIORS	LTD 4705 50 AVENUE RED DEER ALBERTA T4N 4A2	92-31490	840	40,470
H FIELDING AND COMPANY	4811 48 ST UPPER FLOOR RED DEER ALBERTA T4N 1S6	92-32000	840	16,370

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
FIELDS STORES	A DIV OF ZELLERS INC 3751 VIKING WAY RICHMOND B C V6V 1W1	92-32050	840	96,600
RICHARD LEMAIRE RANDY PREDIGER	AKA 1ST CLASS PROFESSIONAL EDUCATION SERVICES 4836 51 ST RED DEER AB T4N 2A5	92-32213	840	9,660
GOLD BAR DEVELOPMENT LTD	C/O JACK ENGLE 300 4808 50 ST RED DEER AB Y4N 1X5	92-32225	940	32,680
STAN VANDENBROEK	KNOWN AND OPERATING AS FISH OVER THE MOON 4903 54 ST RED DEER AB T4N 4B8	92-32251	840	7,570
LARRY PROCYSHEN	KNOWN AND OPERATING AS FIXERS FURNITURE REFINISHING 5010 48 AV RED DEER AB T4N 3T6	92-32323	840	10,220
FLANAGAN SULLY & SURKAN	PARTNERSHIP 200 PARK PLACE 4825 47 ST RED DEER ALBERTA T4N 1R3	92-32375	840	30,520
FLETCHER PRINTING LTD	4838 52 ST RED DEER ALBERTA T4N 2C5	92-32500	840	32,230
KAREN JACOBS	KNOWN AND OPERATING AS A FLORAL AFFAIR 4928 50 ST RED DEER AB T4N 1X7	92-32751	840	15,150
PHOEBE WEISENBERGER	KNOWN AND OPERATING AS 49 TH STREET CAFE 4917 49 ST RED DEER AB T4N 1V1	92-33391	940	16,380
JIM FREEMAN (PSYCHOL THERAPIST	LTD 4805 48 AVE RED DEER ALTA T4N 3T2	92-33655	840	5,530
TANIS WRIGHT	KNOWN AND OPERATING AS FULL MOON DELIVERIES 1 5425 50 AV RED DEER AB T4N 4B7	92-34152	940	1,800

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
DAVID GLADUE IN BUSINESS AS	FUN & VIDEO GAMES LTD 4909 50 AVE E RED DEER ALBERTA T4N 4A7	92-34186	840	8,340
AL KRAUSE & PAT MULLIN (moved)	KNOWN AND OPERATING AS FUTURE CHOICE 300 4814 50 ST RED DEER AB	92-34205	840	4,860
G & H HARLEY- DAVIDSON	AUTUMN ENTERPRISES INC AKA 5129 48 STREET RED DEER ALTA T4N 1X4	92-34460	840	15,370
THE GALLERY ON ROSS INC.	4919 50 ST. RED DEER AB T4N 1T1	92-35540	840	32,810
DEREK MCNANELY AKA	MR. GEORGE'S 4309 37 STREET RED DEER ALTA T4N 1X8	92-36355	840	16,950
GERIG NEUFELD HAMILTON	GLENAL MANAGEMENT LTD 501 4901 48 STREET RED DEER ALBERTA T4N 0T9	92-36425	840	51,950
661875 ALBERTA LTD	KNOWN AND OPERATING AS GOLDEN DRAGON RESTAURANT 4916 50 ST RED DEER AB T4N 6M4	92-36655	840	23,130
PAMELA & BRETT GINTER AKA THE	GOOD FOOD COMPANY 5001 50 STREET RED DEER ALTA T4N 1X7	92-36895	840	13,880
GOSPEL BOOK N MUSIC 1983 LTD	4909 48 STREET RED DEER ALBERTA T4N 1Y2	92-37004	840	58,500
630871 ALBERTA LTD	KNOWN AND OPERATING AS GRABBAJABBA 4814 49 ST RED DEER AB T4N 1S8	92-37200	840	2,700
GRE-AM MARKETING LTD	8211 238 FAIRMONT DR SASKATOON AB T4R 2G4	92-37726	940	4,550
GROUP 2 ARCHITECTS	200 4706 48 AVE RED DEER ALTA S7M 4P5	92-37961	840	27,500
GUNDYS TIRE SERVICE 1971 LTD.	5122 48 ST RED DEER ALBERTA T4N 6J4	92-38100	840	39,730
H & R BLOCK CANADA INC	107 4711 51 AV RED DEER AB T4N 1T2	93-38224	840	27,910
	T4N 6H8			

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
VIRGINIA MCKENZIE KNOWN &	OPERATING AS HAIR HEAVEN 4814 51 STREET RED DEER ALBERTA T4N 2A5	93-38380	840	9,470
LAURA HUGHES	KNOWN AND OPERATING AS HAIR WORLD 2 4820 47 ST RED DEER AB T4N 6B9	93-38412	840	7,670
HALDANE APPRAISALS AND	ASSOCIATES CO LTD 4920 GAETZ AVE RED DEER ALBERTA T4N 4A8	93-38426	840	8,450
701503 ALBERTA LTD	KNOWN AND OPERATING AS HAPPY HARRYS USED BUILDING MATERIALS 5044 45 ST RED DEER AB T4N 1K9	93-38777	940	22,900
HAYHOE ROOFING 1991 LTD	5016 50 AVE RED DEER ALTA T4N 4B1	93-39801	840	21,770
MARTIN D HERBERT - ACCOUNTANT	304 4805 48 STREET RED DEER ALTA T4N 1S6	93-39921	840	7,260
HIGH AND MIGHTY MENS WEAR	(RED DEER) LTD KNOWN AND OPERATING AS HIGH AND MIGHTY 3 4910 45 ST RED DEER AB T4N 1K6	93-40196	840	47,420
HOEDEL HOLDINGS LTD	70 ARMITAGE CL RED DEER AB T4R 2K6	93-40751	940	21,400
DR NORMAN H HOFFMAN PROF CORP	& DR TERESA HOFFMAN AKA HOFFMAN CHIROPRACTIC CLINIC 4702 50 AV RED DEER AB T4N 4A1	93-40775	840	22,380
MURRAY CLAPSON	KNOWN AND OPERATING AS HOME IMPROVEMENT GALLERY 4712 51 AV RED DEER AB T4N 4H1	93-41390	940	19,220
J.C. RATHWELL	KNOWN AND OPERATING AS HOMEFINDERS 24 4917 48 ST RED DEER AB T4N 1S8	93-41460	840	3,670
HONGKONG BANK OF CANADA	REAL ESTATE SERVICES DEPART. 885 WEST GEORGIA STREET VANCOUVER B.C. V6C 3E9	93-41550	840	102,000

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
HOUSE OF CLOCKS LTD	4901 46 ST RED DEER AB T4N 1N2	93-42226	840	7,510
HR RECRUITING & EMPLOYMENT	SERVICE INC 3 5000 51 AV RED DEER AB T4N 4H6	93-42350	940	12,020
DENIS R HUOT	4919 48 ST RED DEER AB T4N 1S8	93-42640	940	6,150
I B M CANADA LTD	C/O RE LEASING H2/633 3600 STEELES AVENUE EAST MARKHAM ONTARIO L3R 9Z7	93-43000	840	5,560
IAN P MACKIN & ASSOC. INC.	405 4901 48 ST. RED DEER, AB T4N 6M4	93-43023	840	25,600
INDEPENDENT BUSINESS PRODUCTS	DIV OF 249406 & 289988 AB LTD 5201 GAETZ AVE RED DEER ALBERTA T4N 4B4	93-43700	840	21,080
ING & MCKEE INSURANCE LTD	P O BOX 698 RED DEER AB T4N 5G9	93-43802	840	81,610
VAL GRABILL	KNOWN AND OPERATING AS INJURED WORKERS CONSULTING SERVICE 4902 53 ST RED DEER AB T4N 2E9	93-43820	940	610
GLADYS HARRISON & DOROTHY	ASMUNDSON AKA J CHOCOLATE & COMPANY & WEDDING BELLS 4715 49 AVE RED DEER ALTA T4N 3W9	93-44057	840	24,060
JULIE DIONNE	KNOWN AND OPERATING AS J D'S FABULOUS FEET 132 4752 50 ST RED DEER AB T4N 1X2	93-44084	940	12,620
GERALD E DANHAUER	KNOWN AND OPERATING AS THE JERRY CAN 5005 50 AV RED DEER AB T4N 4B2	93-44738	840	7,780
JOHNSTON MING MANNING	4943 50 STREET ROYAL BANK BLDG RED DEER ALTA T4N 1Y1	93-45170	840	115,020
JULIUS TAILOR SHOP LTD	4932 50 ST UPPER FLOOR RED DEER ALBERTA T4N 1X7	93-45700	840	6,930

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
SUZIE NELSON & BETTY	DESCHIFFART AKA JUST CUTS 4901 48 STREET LOWER MALL RED DEER ALBERTA T4N 6M4	93-45725	840	7,800
MARGO DYCK	KNOWN AND OPERATING AS JUST NAILS 4902 53 ST RED DEER AB T4N 2E9	93-45745	940	1,760
VELMA KARPA AKA KARPA	PSYCHOTHERAPY SERVICES 4805 48 AVENUE RED DEER ALTA T4N 3T2	93-45990	840	4,580
MICHELLE PROSPERO	KNOWN AND OPERATING AS KIDS KASTLE 4815 48 AV RED DEER AB T4N 1T8	93-46685	940	37,710
LEN NEPHINE	KNOWN AND OPERATING AS KNIGHT & GAYLES HEALTH & FITNE 27 ABBOTT CLOSE RED DEER AB T4P 1P4	93-48152	840	23,820
STEVE KOVAC KNOWN & OPERATING	AS KOVAC'S SHOE CLINIC 5009 49 STREET RED DEER ALBERTA T4N 1V2	93-48300	840	18,010
LADY FITNESS & HEALTH	DIV OF 361419 ALBERTA LTD 102 4701 19TH AVENUE RED DEER ALBERTA T4N 6L5	93-49006	840	38,000
BONNIE SLACK & VICKIE VAJDA	IN BUSINESS AS LA MANE PLACE # 1 4801 51 AVENUE RED DEER ALBERTA T4N 4H2	93-49092	840	16,730
DRS. LAMPARD RUDYK & LUND	4817 48 ST. RED DEER ALBERTA T4N 1S6	93-49101	840	34,720
LEE AND SHORT	BARRISTERS AND SOLICITORS 402 4901 48 STREET RED DEER ALBERTA T4N 6M4	93-49635	840	39,640
LILA KUZINA	KNOWN AND OPERATING AS LETS DANCE 1 4836 50 ST RED DEER AB T4N 3T4	93-49860	840	6,370
LIFEVEST FINANCIAL SERVICES	LIMITED PARTNERSHIP 104 4826 47 ST RED DEER AB T4N 1R2	93-50255	940	5,280

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
GERALD NEUFELD - LAWYER &	GARRY M BORIS - LAWYER 4921 49 STREET # 201 RED DEER ALBERTA T4N 1V2	93-50500	840	9,160
MS R HAHN IN BUSINESS AS	LODGE GIFT SHOPPE 4311 49 AVE RED DEER ALBERTA T4N 5Y7	93-50530	840	2,600
HAROLD LONEY PROF CORP	507 4808 50 STREET RED DEER ALTA T4N 1X5	93-50575	840	8,100
TANZANITE HOLDINGS LTD. O/A	THE LOONIE SHOPPE 5009 50 ST RED DEER AB T4N 2B4	93-50808	840	20,160
BILL VANSON KNOWN & OPERATING	AS LORMIT PROCESS SERVICES 204 4909 50 AVE RED DEER ALBERTA T4N 4A7	93-50820	840	3,000
LORNE'S SUPERIOR PRODUCTIONS I	4806 51 AV RED DEER AB T4N 4H3	93-50825	840	41,070
PEOPLES JEWELLERS CORPORATION	KNOWN AND OPERATING AS MAPPINS 1440 DON MILLS RD DON MILLS ON M3B 3M1	94-51805	840	2,590
GARY PORTER	KNOWN AND OPERATING AS MACKAY & PARTNERS 201 5018 45 ST RED DEER AB T4N 1K9	94-52351	940	18,250
PATRICIA E B MACSWEEN	4824 51 ST RED DEER AB T4N 2A5	94-52371	940	10,270
EZZYZ LTD	KNOWN AND OPERATING AS MADD MOTORS 5425 50 AV RED DEER AB T4N 4B7	94-52377	940	6,760
CRYSTAL GLASS CANADA LTD	BOX 4100 SO EDMONTON ALBERTA T6E 4S8	94-52406	840	27,020
MANUFACTURERS LIFE INSUR CO	900 926 5 AVENUE S.W. CALGARY ALBERTA T2P 0N7	94-52415	840	16,320
622572 ALBERTA LTD	KNOWN AND OPERATING AS MANHATTAN CLOTHING CO 130 4900 MOLLY BANISTER DR RED DEER AB T4N 1X9	94-52421	940	11,040

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
MANOR MANAGEMENT LTD	303 4706 49 AV RED DEER AB T4N 6L5	94-52425	840	17,480
MANPOWER TEMPORARY SERVICE	MANPOWER SERV (CALG) LIMITED #201 4943 ROSS STREET RED DEER ALBERTA T4N 1Y1	94-52428	840	6,340
662380 ALBERTA LTD	KNOWN AND OPERATING AS MANZZINI'S PASTA HOUSE 107 5018 45 ST RED DEER AB T4N 1K9	94-52434	840	65,050
FRANK CAIRO ENTERPRISES LTD	KNOWN AND OPERATING AS MARVEL HAIR STYLING 10018 106 ST EDMONTON AB T4N 1Y3	94-52456	940	46,710
SHARON VENEMA & PETE SWALES	KNOWN AND OPERATING AS MASSAGE ABOVE ALL 4704 50 AV RED DEER AB T4N 4A1	94-52467	840	5,710
ERIC BUCHFINK	KNOWN AND OPERATING AS MATTRESS BAD BOYS 5114 48 ST RED DEER AB T4N 1T2	94-52478	840	32,150
MCAULEY ELECTRIC MOTOR LTD	5301-50 AVE. RED DEER ALBERTA T4N 4B6	94-52535	840	52,050
MAX PASLEY ENTERPRISES LTD	KNOWN AND OPERATING AS MCDONALDS 400 ROCKWOOD SQ 1032 17 AV SW CALGARY AB T4T 0A5	94-52704	840	52,930
MELCOR DEVELOPMENTS LTD	900 10310 JASPER AVE EDMONTON ALTA T5J 1Y8	94-55820	840	10,460
MEYERS NORRIS PENNY & CO	102 4922 53 ST RED DEER AB T4N 2E9	94-56220	840	56,870
MIDLAND-DOHERTY LTD.	401 4911 51 STREET RED DEER ALBERTA T4N 2A8	94-56600	840	28,320
DAVE KOLISNYK	KNOWN AND OPERATING AS MIDNIGHT FANTASY VIDEO 4928A 50 ST RED DEER AB T4N 1X7	94-56630	940	6,610

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
ELIZABETH MACDONALD, PATRICIA	WELSH, JOANNA BACON ET AL MIDWIVES COLLECTIVE OF ALBERTA SUITE 405 4 6320 50 AV RED DEER AB T4N 4C6	94-56720	840	4,430
MIKE DANDURAND REALTY INC	300 4808 50 ST RED DEER AB T4N 1X5	94-56800	940	7,390
MILESTONE MUSIC LTD	4732 ROSS STREET RED DEER ALBERTA T4N 1X2	94-57311	840	23,080
MILLS TRAVEL LTD	4620 48 AVE RED DEER ALTA T4N 3S9	94-57621	840	40,490
MINIT LUBE LTD	5420 49 AVE RED DEER ALTA T4N 5Z7	94-57625	840	36,070
MINUTE MUFFLER SERVICE LTD	5034 ROSS STREET RED DEER ALBERTA T4N 1Y3	94-57636	840	23,040
MITCHELL & JEWELL LTD	BOX 27010 DOWNTOWN BOX RED DEER AB T4N 6X8	94-58002	840	42,320
MOHAWK RED DEER SERVICE	MOHAWK OIL CO LTD 325 6400 ROBERTS ST BURNABY B C V5G 4G2	94-58500	840	55,130
632758 ALBERTA LTD	KNOWN AND OPERATING AS MONEY MART 5018 45 ST RED DEER AB T4N 1K9	94-58545	840	20,200
ELVINE SKORETZ KNOWN &	OPERATING AS MONEYSTRAT INC 211 4801 51 AVENUE RED DEER ALBERTA T4N 4H2	94-58550	840	6,260
MONSIEUR WONGS	225358 ALBERTA LTD 5004 48 STREET RED DEER ALBERTA T4N 5K4	94-58580	840	86,800
MOONEY INSURANCE AGENCY LTD	1 4910 45 ST RED DEER AB T4N 1K6	94-58615	840	42,000
MOORES THE SUIT PEOPLE INC	4720 GAETZ AVENUE RED DEER ALBERTA T4N 4A1	94-58650	840	51,910
FRANK E MURPHY QC	201 5008 ROSS STREET RED DEER ALBERTA T4N 1Y3	94-59441	840	17,950
JOHN MURRAY ARCHITECT LTD	2 5000 51 AV RED DEER AB T4N 4H6	94-59526	940	27,250

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
MUTUAL LIFE ASSURANCE CO.	BRANCH PREMISES DEPT BOX/CP 1601 WATERLOO ONTARIO N2J 4C5	94-59650	840	47,850
NALCO/EXXON ENERGY	CHEMICALS CANADA INC 201 4825 47 ST RED DEER AB T4N 1R3	94-59760	940	10,390
NEARBANK FINANCIAL CENTRES LTD	4908 B ROSS STREET RED DEER ALBERTA T4N 1X7	94-60095	840	15,750
NEW DIMENSIONS FAMILY DAY CARE	HOME PROGRAMS INC 4815 54 STREET RED DEER ALBERTA T4N 2G5	94-60195	840	9,350
NEW YORK LIFE INS COMPANY	J MCPHERSON & G L'HIRONDELLE 4821 54TH STREET RED DEER ALBERTA T4N 2G5	94-60350	840	13,170
JAMES MCINTOSH AKA THE NIGHT	SHADOWS 4914 50 AVE RED DEER ALTA T4N 4A8	94-60455	840	6,210
ROBERT HUYNH	KNOWN AND OPERATING AS NOODLE HOUSE 4923 51 ST RED DEER AB T4N 2A8	94-60485	840	5,100
RON COURTE FINANCIAL	SERVICE INC AKA NORTH AMERICAN LIFE 4601 50 AV RED DEER AB T4N 3Z9	94-60540	840	7,270
JIMMY WONG	KNOWN AND OPERATING AS NORTH GARDEN RESTAURANT 4808 51 AV RED DEER AB T4N 4H3	94-60676	840	29,000
NORTHSTAR SPORTS RED DEER LTD	4913 GAETZ AVE RED DEER ALBERTA T4N 4A6	94-61160	840	58,950
ROXANNE WHITFORD-NUMAN AKA	NUWAY CONSULTING 200 4826 47 STREET RED DEER ALTA T4N 1R2	94-61850	840	6,270
KWAN CHAK TONG IN BUSINESS AS	O K TAILOR 4916 GAETZ AVENUE RED DEER ALBERTA T4N 4A8	94-62230	840	3,900
BRENDA ARB	KNOWN AND OPERATING AS OKIE CARDS & CONFECTIONARY 48 BOYCE ST RED DEER AB T4R 1L3	94-62251	840	9,100

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
665820 ALBERTA LTD	KNOWN AND OPERATING AS O L CONTACT LENS 2 4929 50 ST RED DEER AB T4N 1X9	94-62259	840	9,860
377697 ALBERTA LTD	KNOWN AND OPERATING AS O L OPTICAL 3 4929 50 ST RED DEER AB T4N 1X9	94-62261	840	9,860
OLSEN & JOLY CHARTERED	ACCOUNTANTS 2ND FLR. 4620 48 AVE RED DEER ALTA T4N 3S9	94-62285	840	38,620
DR. J.A. ORDMAN	BONE & JOINT SPECIALIST 4914 46 STREET RED DEER ALBERTA T4N 1N3	94-62600	840	6,130
PATRICIA MORASCH	KNOWN AND OPERATING AS OVATION CATERING LOWER MALL 4901 48 ST RED DEER AB T4N 6M4	94-63201	840	16,450
PCS PUBLISHING INC	4820 53 STREET RED DEER ALBERTA T4N 2E8	94-63280	840	8,160
ANDREW HENDRYCK	KNOWN AND OPERATING AS PACK & POST 4752 50 ST RED DEER AB T4N 1X2	94-63477	840	9,760
HENY GAUVEAU (Moved)	KNOWN AND OPERATING AS PANDORAS HIDEAWAY 4611 50 AV RED DEER T4N 3X9	94-63680	940	8,780
PARAMOUNT INSURANCE &	INVESTMENT SERVICE LTD 4920 54 ST RED DEER AB T4N 2G8	94-64001	940	9,620
JCW CHOMYC ENTERPRISES LTD	KNOWN AND OPERATING AS PARK HOTEL 4916 50 ST RED DEER AB T4N 1X7	94-64201	840	94,860
PARKLAND AQUARIUM AND	HOBBIES LTD 4709 GAETZ AVENUE RED DEER ALBERTA T4N 4A9	94-64850	840	28,900

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
PARKLAND DENTURE CLINIC LTD	5011 ROSS ST RED DEER ALBERTA T4N 1Y2	94-65100	840	5,400
GORDON ARTHUR & DWIGHT ARTHUR	KNOWN AND OPERATING AS PARKLAND ILLUSTRATORS 11 4730 50 ST RED DEER AB	94-65151	940	6,170
PARKLAND PHYSIOTHERAPY CENTRE	T4N 1X2 1978 LTD 405 4808 ROSS STREET RED DEER ALBERTA	94-65350	840	22,730
PARKLAND REAL ESTATE	T4N 1X5 AGENCY INC 102 4826 47 ST RED DEER AB	94-65370	840	7,610
PARKLAND SAVINGS &	T4N 1R2 CREDIT UNION LTD 601 4901 48TH ST RED DEER ALBERTA	94-65416	840	77,130
PARKLAND SAVINGS & CREDIT	T4N 6M4 UNION CO. LTD 6TH FLOOR 4901 48 STREET RED DEER ALTA	94-65419	840	160,000
PARKLAND TRANSMISSION	T4N 6M4 AKA JAKERY INVESTMENTS LTD 4702 51 AVE RED DEER ALTA	94-65430	840	25,520
PARKLAND REPORTING LTD	T4N 4H1 2ND FLR 4909 48 STREET RED DEER ALBERTA	94-65480	840	12,000
PARSONS CLINIC	T4N 1S5 4822 ROSS STREET RED DEER ALBERTA	94-65900	840	189,090
COLLEEN DICK (Moved)	T4N 1X4 KNOWN AND OPERATING AS PATTI FALCONER 4 4805 48 ST RED DEER AB	94-66140	840	5,260
PEACOCK TAKE OUT STORE	T4N 1S6 PEACOCK INN LTD 3421B 50 AVENUE RED DEER ALBERTA	94-66310	840	35,720
534396 ALBERTA LTD AKA	T4N 4V9 PEGASUS 2 FOR 1 PIZZA 4914 52 STREET RED DEER ALBERTA	94-66670	840	13,290
RBC DOMINION SECURTIES PEMBRTN	T4N 2C8 403 4901 48 STREET RED DEER ALBERTA	94-66681	840	55,130
PENNCORP LIFE INSURANCE CO LTD	T4N 6M4 16B 6120 2 ST SE CALGARY AB T2H 2L8	94-66682	840	2,940

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
PERSONAL DIMENSIONS LTD	108 4711 51 AVE RED DEER ALTA T4N 6H8	94-66981	840	10,940
PERSONAL TAX SERVICE LIMITED	BASIC ACCOUNTING RESOURCES LTD 4809 48 AVENUE RED DEER ALBERTA T4N 3T2	94-66991	840	12,390
PARKER STYNER AKA PHYSICAL	EFFECTS 4601 50 AVE RED DEER ALTA T4N 1M7	94-67300	840	7,990
PIX-A-COLOR RED DEER LTD.	5127-48 ST. RED DEER ALTA. T4N 1T1	94-67750	840	9,300
PRAIRIE OFFICE PRODUCTS-DIV OF	PRAIRIE BUSINESS MACH CO LTD 5032 GAETZ AVE RED DEER ALBERTA T4N 4B1	94-68900	840	139,510
GERALD AXELSEN	KNOWN AND OPERATING AS PRIMERICA FINANCIAL SERVICES 103 4825 47 ST RED DEER AB T4N 1R3	94-69282	840	3,350
SCOTT POOL	KNOWN AND OPERATING AS PRIMERICA FINANCIAL SERVICES 504 4808 50 ST RED DEER AB T4N 1X4	94-69283	840	8,100
D L ASSOCIATES	KNOWN AND OPERATING AS PRIMERICA FINANCIAL SERVICES 4811 48 AV RED DEER AB T4N 3T2	94-69284	940	12,440
PRO FUND DISTRIBUTORS LTD	200 4840 51 STREET RED DEER ALTA T4N 2A5	94-69449	840	13,500
PROPERTY CLAIMS SERVICE (RED D (Moved)	B 4920 52 ST RED DEER AB T4R 1T1	94-69475	840	7,370
LYNN DUNNING - SOLE PROP (Moved)	AKA PROPOSALS 4929 50 STREET RED DEER ALTA T4N 1X8	94-69495	840	2,100
LUCILLE DELISLE KNOWN AS	PURE ENERGY WHOLE FOODS & SUPPLEMENTS 9 4929 50 ST RED DEER ALBERTA T4N 1X8	94-69566	840	36,580
DES HENRY KNOWN & OPERATING	AS PYRAMID REFINISHERS 5125 48 STREET RED DEER ALBERTA T4N 1T1	94-69572	840	4,500

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
QUALITY CLEANING LTD.	5020 49 ST RED DEER ALBERTA T4N 1V5	95-69575	840	1,650
RENTOWN A DIV OF RTO ASSET	MANAGEMENT INC 10239 178 STREET EDMONTON ALTA T5S 1M3	95-69775	840	47,250
MIKE HODGINS IN BUSINESS AS	RAINBOW PRODUCTIONS 410 10036 JASPER AVE EDMONTON ALBERTA T5J 2W2	95-69838	840	5,770
THE REAL CANADIAN SUPERSTORE	WESTFAIR FOODS LTD 5016 51 AVE RED DEER ALTA T4N 4H5	95-70208	840	1,056,240
BILL CREIGHTON AKA RECORDS	TO THE RAFTERS 4921 48 STREET RED DEER ALTA T4N 1S8	95-70230	840	18,470
RED-ALTA UTILITY LOCATION LTD	4507 48 AV RED DEER AB T4N 3S6	95-70240	840	5,030
RED CAL INDUSTRIES LTD.	603 4911 51 STREET RED DEER ALBERTA T4N 2A8	95-70255	840	29,160
STUART BEACH KNOWN & OPERATING	AS RED DEER BARBER SHOP 4921 49 STREET RED DEER ALBERTA T4N 1V2	95-70710	840	3,530
RED DEER CENTRAL T V LTD	5130 47 ST RED DEER ALBERTA T4N 1R8	95-71228	840	21,760
MARK DIMIRSKY, JAN CHANDLER &	HARVEY BRINK AKA RED DEER COUNSELLING SERVICE 508 4808 50 ST RED DEER AB T4N 1X5	95-71430	940	14,910
THE CENTRE FOR BUSINESS	DEVELOPMENT RED DEER & DISTRICT BUSINESS DEV. CORP 502 4901 48 STREET RED DEER ALTA T4N 6M4	95-71530	840	27,200
DEFNSVE DRIVNG SCHOOL OF CAN	INC AKA RED DEER DRIVNG SCHOOL P.O. BOX 302 RED DEER ALBERTA T4N 5E9	95-71543	840	8,550
RED DEER GOLDSMITH LTD	4822 GAETZ AVENUE RED DEER ALBERTA T4N 4A4	95-71901	840	15,750
RED DEER LODGE (COURTYARD	INNS) R VOLLMAN ALBERTA LTD INN ON 7TH 10001 107 STREET EDMONTON ALTA T5J 1J1	95-72900	840	526,330

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
RED DEER MONUMENTAL LD	4802 51 AVENUE RED DEER ALBERTA T4N 4H3	95-73151	840	27,200
CRAIG MCPHEE	KNOWN AND OPERATING AS RED DEER RAPID PRINTING 102 4706 48 AV RED DEER AB T4N 6J4	95-73784	840	18,120
JOHN ELVES	KNOWN AND OPERATING AS RED DEER STAMP & COIN 111 4929 50 ST RED DEER AB T4N 1X9	95-74350	840	4,250
RED DEER WELDING SUPPLIES	(1989) LTD 5121 47 STREET RED DEER ALBERTA T4N 1R8	95-74950	840	48,350
RED FALLS CLEANERS LTD.	4833-46 ST. RED DEER ALBERTA T4N 1M9	95-75100	840	16,020
M E LAWRENCE KNOWN & OPERATING	AS REEVES BUSINESS COLLEGE 101 4915 54 STREET RED DEER ALBERTA T4N 2G7	95-75600	840	60,990
KINRAT CORPORATION LTD	KNOWN AND OPERATING AS RENT A WRECK 4705 49 AV RED DEER AB T4N 3W9	95-75950	940	20,620
RENTOWN A DIV OF RTO ASSET	MANAGEMENT INC 10239 178 STREET EDMONTON ALTA T5S 1M3	95-75955	840	69,140
RICHARDSON GREENSHIELDS OF	CANADA LIMITED 101 4808 ROSS STREET RED DEER ALBERTA T4N 1X5	95-76420	840	21,960
RIVER CITY CYCLE LTD.	4912 52 ST RED DEER ALBERTA T4N 2C8	95-76975	840	17,210
ROSSANDER FOODS LTD	KNOWN AND OPERATING AS ROASTMASTIRS 102 4808 50 ST RED DEER AB T4N 1X5	95-77600	840	24,020
ROB-RAE CLOTHIERS - VELLNER	LEASEHOLD LTD 4930 50 STREET RED DEER ALTA T4N 1X7	95-77655	840	31,720
DOUG ROBINSON & CINDY CANNING	AKA ROBINSON MASSAGE THERAPY CLINIC 4924A 52 STREET RED DEER ALTA T4N 2C8	95-77710	840	8,740

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS		ROLL #	BUS.TYPE	ASSESSMENT
RHONDA CURRIE AKA RHODAS PLACE	175 OVERDOWN DRIVE RED DEER ALTA	T4P 1W6	95-77900	840	11,750
ROLLAND PROVENCAL & ROLLANDS	BARBER SHOP 5020 50 AVE RED DEER ALTA	T4N 4B1	95-78000	840	1,920
ROSS STREET PHARMACY LTD	4814 50 STREET RED DEER ALTA	T4N 1X4	95-78185	840	49,550
DR JYTTE ROY-POULSEN	4907 48 ST RED DEER AB	T4N 1S8	95-78300	940	20,910
ROYAL BANK OF CANADA	4943 50 ST RED DEER AB	T4N 1Y1	95-78310	840	233,510
ROYAL LEPAGE REAL ESTATE	SERVICES LTD 39 WYNFORD DRIVE DON MILLS ONTARIO	M3C 3K5	95-78705	840	49,720
BEV MCINTOSH	KNOWN AND OPERATING AS ROY'S ENTERPRISE 1995 5305 50 AV RED DEER AB	T4N 4B6	95-78949	940	8,710
DR. GORDON J ROZNIK	PERIODONTIST 301 4822 50 STREET RED DEER ALTA	T4N 1X4	95-78960	840	12,240
JOYCE ROW	KNOWN AND OPERATING AS SAGIT ARIES COSTUMES 200 4806 51 AV RED DEER AB	T4N 4H3	95-79705	840	19,230
SAMBUCA SAMS AKA 225358	ALBERTA LTD 5004 48 STREET RED DEER ALTA	T4N 5K4	95-79875	840	48,900
SANTO PROPERTY MANAGEMENT INC.	204 4929 50 ST. RED DEER, AB	T4N 1X9	95-80113	840	7,260
SARANTOS GIANNIOUDIS	KNOWN AND OPERATING AS SAROS RESTAURANT 4914 52 ST RED DEER AB	T4N 2C2	95-80131	940	34,270
J E SCALZO PROFESSIONAL CORP	4619 48 AVE RED DEER ALTA	T4N 3S8	95-80405	840	26,290
SCHNELL MACSWEEN HARDY	PARTNERSHIP 601 4808-50 ST. RED DEER ALTA.	T4N 1X5	95-80600	840	44,980

BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
SCOTTSVILLE AGENCIES LTD.	2A 4720 50 AVE. RED DEER, AB T4N 4A1	95-80928	840	12,830
SCOTTSVILLE TRAVEL INC	404 5002 50 AVE RED DEER ALTA T4N 6C2	95-80929	840	14,330
SECRETARIAL SERVICES OF RED	DEER LTD BOX 605 RED DEER ALTA T4N 5G6	95-80959	840	10,560
SUSAN BARBERREE	KNOWN AND OPERATING AS SEEKERS 206 4921 49 ST RED DEER AB T4N 1X9	95-80966	840	3,400
SAHJANI & CO PROFESSIONAL	CORPORATION 5007 50 STREET LOWER RED DEER ALTA T4N 1Y2	95-81121	840	3,670
YUI HOLDINGS LTD	KNOWN AND OPERATING AS SHANGRI-LA RESTAURANT 5121 50 AV RED DEER AB T4N 4B3	95-81172	840	51,820
692143 ALBERTA LTD	KNOWN AND OPERATING AS SHAUNEY'S DINING & LOUNGE 4909 48 ST RED DEER AB T4N 1S8	95-81196	940	49,120
SHUMKA, CRAIG & MOORE ADJUSTER	2B 4720 50 AV RED DEER AB T4N 4A1	95-81668	840	22,170
SIEWERT BOTHWELL LAWYERS	PARTNERSHIP 204 5002 GAETZ AVENUE RED DEER ALBERTA T4N 6C2	95-81730	840	17,160
SIM & THORNE PROPERTY	MANAGEMENT LTD 4936 51 ST RED DEER AB T4N 2A7	95-81891	940	7,670
SIMCO DEVELOPMENTS LTD	4775 49 ST RED DEER AB T4N 1T6	95-81920	940	8,410
SISSON FURS LTD. (Moved) Faxed to: 309-2623	BOX 344 RED DEER ALBERTA T4N 5E9	95-82800	840	19,210
SISSON WARREN SINCLAIR	600 4911 51 STREET RED DEER ALTA T4N 2A8	95-82850	840	136,240
SLAWINSKY FRIESEN	BARRISTERS & SOLICITORS 404 4814 50 ST RED DEER AB T4N 1X4	95-82927	840	14,820

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
DR LYLE SMITH CHIRPTR	105 4929 ROSS STREET LOWER MALL RED DEER ALBERTA T4N 1X9	95-83000	840	16,150
DR SCOTT L SMITH	201 4820 50 AV RED DEER AB T4N 4A4	95-83002	840	15,870
JUAY TIEDEMAN IN BUSINESS AS	SNIP & CLIP # 5 4820 47TH AVENUE RED DEER ALBERTA T4N 6B9	95-83156	840	5,770
M.R. SODERQUIST APPRAISALS LTD	303 4901 48 ST RED DEER AB T4N 1S8	95-83301	840	16,000
JEAN KENNEDY	KNOWN AND OPERATING AS SPECIALIZED READING SERVICE 24 4917 48 ST RED DEER AB T4N 3T1	95-83670	840	2,420
RON SPAFFORD	KNOWN AND OPERATING AS SPEEDPRO SIGNS PLUS 4717 49 AV RED DEER AB T4N 3W9	95-83780	940	10,260
SPEEDY RECOVERIES LTD	401 4814 50 ST RED DEER AB T4N 1X4	95-83795	840	7,780
KEVIN M SPROULE & PAMELA S	MACNAUGHTON (LAWYERS) 4706 48 AVE RED DEER ALTA T4N 6J4	95-84185	840	17,050
CARMELA CHAN & LORRAINE CHAN	KNOWN AND OPERATING AS STAMPERS DELIGHT 5 4801 51 AV RED DEER AB T4N 4H2	95-84350	940	14,560
STANLEY ASSOCIATES ENGINEERING	LTD. 605 4808 50 ST. RED DEER, AB T4N 1X5	95-84455	840	8,780
STERLING CLEANERS LTD	BOX 28 RED DEER ALBERTA T4N 5E7	95-84700	840	25,700
DR D J STEWART	4926 45TH STREET RED DEER ALBERTA T4N 1K6	95-84821	840	8,160
STEVE ROSS	KNOWN AND OPERATING AS THE STRAW PALADIN 4909 50 AV LOWER RED DEER AB T4N 4A6	95-85125	940	8,720

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
TERESA POLSON & JOHN ELTON/	PARTNERS - STUDIO 47 SALON 4813 47 STREET #201 RED DEER ALTA T4N 1R3	95-85191	840	24,640
JAN SULTANA OPERATING AS	SULTANA'S BEAUTY CLINIC 4713 50 AVENUE RED DEER ALTA. T4N 4A2	95-85381	840	10,650
380602 ALBERTA LTD IN BUSINESS	AS SUBWAY SANDWICHES P.O. BOX 460 THREE HILLS ALBERTA TOM 2A0	95-85481	840	13,000
DON SAUNDERS - SOLE PROP.	AKA SUN COUNTRY MANAGEMENT 4 6320 50 AVE UNIT 446 RED DEER ALTA T4N 4C6	95-85500	840	7,420
SUN LIFE ASSURANCE	COMPANY OF CANADA BOX 4150 STATION A TORONTO ON M5W 2C9	95-85601	840	28,950
SUPERIOR ACCEPTANCE CORP. LTD.	403 4808 50 ST. RED DEER, AB T4N 1X5	95-85896	840	12,480
SUPER TAN SALONS	391116 ALBERTA LTD 102A 4805 48 STREET RED DEER ALTA T4N 1S6	95-85951	840	13,470
THE SUTTER CLUB INC	4733 49 ST RED DEER AB T4N 1T6	95-85985	840	76,240
SUTTON GROUP RED DEER LTD	4819 48 AVE RED DEER ALTA T4N 3T2	95-86000	840	25,870
SWELL INVESTMENTS LTD	4815 48 AV REAR RED DEER AB T4N 1T8	95-86126	940	5,190
618076 ALBERTA LTD (Moved)	KNOWN AND OPERATING AS TCI HOME ENTERTAINMENT 302 4702 49 AV RED DEER AB T4P 5L6	96-86480	840	51,970
SHANNON PENNER & NYRNA EITZEN	KNOWN AND OPERATING AS TANGLES HAIR STUDIO 4311 49 AV RED DEER AB T4N 5Y7	96-86695	940	12,960
ROSE BERKELAAR	KNOWN AND OPERATING AS TATOOS 115 4818 50 AV RED DEER AB T4N 4A3	96-86810	840	1,980

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
JAMES TAYLOR CO (RED DEER) LTD	100 4825 47 ST RED DEER AB Y4N 1R3	96-86905	840	32,430
674985 ALBERTA LTD	KNOWN AND OPERATING AS TEMPTATIONS 4713 50 AV RED DEER AB	96-87206	840	13,100
NORMAN L THACKERAY	4922 52 ST RED DEER AB T4N 4A2	96-87401	940	65,350
OLD MILL CUSTOM T SHIRT LTD	5028 50 AV REAR RED DEER AB T4N 2C8	96-87627	840	16,000
DR'S TITELY AND CARVELL	ACTIVE OPTICAL LTD P.O. BOX 459 4912 GAETZ AVE RED DEER ALBERTA T4N 4B1	96-88075	840	9,730
TOGETHER DEVELOPMENT CORP	201 4706 48 AV RED DEER AB T4N 5G1	96-88085	940	11,740
347492 ALBERTA LTD	KNOWN AND OPERATING AS TOMMY CHU'S FOOD UNLIMITED 4605 50 AV RED DEER AB T4N 6J4	96-88101	840	115,120
TORONTO DOMINION BANK	4902 GAETZ AVE RED DEER ALBERTA T4N 3Z9	96-88300	840	181,470
TOWN CENTRE DAY CARE	401808 ALBERTA LTD 4813 47 STREET RED DEER ALBERTA T4N 4A8	96-88335	840	25,200
GLEN REDELBACK	KNOWN AND OPERATING AS THE TOY SHOP 76 WIGMORE CL RED DEER AB T4N 1R3	96-88356	940	22,770
TRUE NORTH REALTY CORP	1 4910 45 ST RED DEER AB T4N 5Y1	96-89236	840	11,700
TURPLE BROS LTD	5307 GAETZ AVE RED DEER ALBERTA T4N 1K6	96-89401	840	114,650
U.F.A. CO-OP LTD	ATTN KURT MEGLEY 1016 68 AV SW CALGARY AB T4N 4B6	96-89505	840	3,690
TAOIST TAI CHI SOC	15740 STONEY PLAIN ROAD EDMONTON ALTA T2V 4J2	96-89700	840	12,150

T5P 3Z5

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BUSINESSES IN THE BUSINESS RE VITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT
UNDER PRESSURE INC	5 4814 50 ST RED DEER AB T4N 1X4	96-89737	940	4,370
U M A ENGINEERING LTD	4920 54TH STREET RED DEER ALTA T4N 2G8	96-89780	840	30,000
DOUG & YVONNE WAINES	KNOWN AND OPERATING AS UNIGLOBE WAINES TRAVEL 4824 50 AV RED DEER AB T4N 4A3	96-89800	840	22,110
SHIRLEY DIANE HANSEN AKA	UPPER CUTS HAIR FASHIONS 4 4907 48 STREET RED DEER ALTA T4N 1S8	96-90461	840	4,460
TOWN CINEMA THEATRES (1975)LTD	LANDMARK CINEMAS OF CANADA LTD 522 11 AVE S.W. CALGARY ALTA T2R 0C8	96-90550	840	159,660
TOM MCNICHOL & ROSE HUE	KNOWN AND OPERATING AS VALLEY HOTEL 5017 49 ST RED DEER AB T4N 1V4	96-91001	840	51,800
VANDEN BRINK & WINSON ELGERSMA	INDIVIDUAL PROF CORPS 402 4808 50 STREET RED DEER AB T4N 1X5	96-91250	840	15,700
HAELEY GINTER & FAY PORTER -	AKA VICTORIA LANE BRIDES 4736 50 STREET RED DEER ALTA T4N 1X2	96-91750	840	25,540
CHARLENE D WAINES	BARRISTER & SOLICITOR 302 4820 50 AV RED DEER AB T4N 4A4	96-92460	840	7,850
THE WARDROBE (1994) LTD	4909 48 ST RED DEER AB 4TN 1S8	96-93251	840	31,970
WAWANESA MUTUAL INSURANCE CO	100 4711 51 AVE RED DEER ALTA T4N 6H8	96-93800	840	44,500
DIANE ZEMLAK	KNOWN AND OPERATING AS WE CARE HOME HEALTH 103 4785 49 ST RED DEER AB T4N 1T6	96-94015	840	2,400
WEDDELL MEHLING PANDER &	ASSOCIATES REALTY LTD 202 4708 50 AVE RED DEER ALTA T4N 4A1	96-94031	840	17,590

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS		ROLL #	BUS.TYPE	ASSESSMENT
ROBERT WIEBE & ASSOCIATES INC	4730 50 ST RED DEER AB	T4N 1X2	96-94111	840	13,780
WEI'S WESTERN WEAR LTD	5115 50 AVE RED DEER ALTA	T4N 4B3	96-94170	840	106,210
WESTERN UNION INSURANCE CO	401 4808 ROSS ST RED DEER ALBERTA	T4N 1X5	96-94930	840	29,470
WESTON BAKERIES LTD	203 58 AVENUE S E P.O. BOX 5190 STATION A CALGARY ALTA	T2H 1X3	96-95395	840	19,030
WESTWOOD PHYSIOTHERAPY LTD	4705 48 AV RED DEER AB	T4N 3T1	96-95555	840	15,600
BARRY BERGH	KNOWN AND OPERATING AS WHITE EAGLE BARGAIN CENTRE 4717 50 AV RED DEER AB	T4N 1X8	96-95595	840	20,800
MIKE MOSHENKO CARRYING ON	BUSINESS UNDER WHITE ELNA SEWING CENTER RED DEER 5017 GAETZ AVENUE RED DEER ALBERTA	T4N 4B3	96-95600	840	41,240
WHOLLY BAGEL INC	4750 50 ST RED DEER AB	T4N 1X2	96-95775	840	14,280
ED HEYWOOD	KNOWN AND OPERATING AS WICKED WORKS TATTOO 263 OVERDOWN DRIVE RED DEER AB	T4P 1W7	96-95825	840	9,000
WILD ROSE ASSESSMENT	SERVICES INC 205 4711 51 AVE RED DEER AB	T4N 6H8	96-95900	840	11,000
DR DEAN WILLOUGHBY (Moved)	5004 50 ST SYLVAN LAKE AB	T0M 1Z0	96-96211	840	11,300
WINNERS CIRCLE CASINO LTD	300 4406 50 AVE RED DEER ALTA	T4N 2Z8	96-96635	840	70,960
WISEMAN COUPLAND INS LTD	4932 51 ST RED DEER ALTA	T4N 2A7	96-96750	840	16,830
YEAGER LEBLANC PELLEGRINI LTD (Moved)	4929 50 STREET 201 RED DEER ALTA	T4N 1X8	96-97255	840	10,500
MARLENE FAIRBROTHER & RHONDA M	KNOWN AND OPERATING AS YE OLD COURTHOUSE CAFE 4836 50 ST RED DEER AB	T4N 1X4	96-97258	940	9,880

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BUSINESSES IN THE BUSINESS REVITALIZATION ZONE

NAME	BUSINESS ADDRESS	ROLL #	BUS.TYPE	ASSESSMENT

SENT out = 412 Businesses
1 City Assessor
1 John Ferguson, Downtown Centre Association
1 File copy

415 Total PRINTED

Submitted To City Council
Date: Jan 13/97

DATE: **January 13, 1997**

TO: **City Clerk**

FROM: **Director of Corporate Services**

RE: **TOWNE CENTRE 1997 BUDGET**

The 1997 Towne Centre budget is based on the recovery of $111,000 by a levy on the business assessment in the downtown BRZ.

It has been determined that due to business moves and revaluations of existing business assessments, the assessment value for recovery of the BRZ tax is declining. In 1996 only $107,527 was recovered. This is approximately 3% less than the $111,000 budgeted.

The reports before Council assume the 1996 BRZ levy rate on the downtown business assessment would be used for 1997. This would mean each business would pay the same as in 1996 assuming no change in assessment. The total $111,000 would probably not, however, be recovered.

The possible shortfall has been discussed with Mr. Ferguson, the Towne Centre Association Manager. He has indicated the Towne Centre Association will need the full $111,000 even if an increase in the levy rate is required.

An appropriate increase required has not been finalized but could be in the order of 4% to 5%. A report with a recommendation would be brought to a future Council meeting.

This information is brought to Council's attention at this time because the 1996 Towne Centre Association budget, which includes the budgeted $111,000 levy, is being considered.

A. Wilcock, B. Comm., C.A.
Director of Corporate Services

c. City Manager
City Assessor

a\m\clk towne centre budget jan13 97

DATE: January 6, 1997

TO: Kelly Kloss, City Clerk

FROM: Alan Scott, Land and Economic Development Manager

RE: **FORMER CP RAIL LANDS - DOWNTOWN AREA**

In May 1996, after a lengthy public process, City Council agreed to advertise the former CP rail yard lands for development. Strict guidelines, covering such things as architectural treatment, a variety of uses, above average landscaping, etc. were imposed. The site was offered as one parcel at a fixed price of $8.50 per sq. ft., with the qualifier that the City would act as a facilitator to try and bring developers interested in less than the entire site together.

The proposal call was advertised throughout Alberta and British Columbia in daily newspapers and real estate publications. The proposal call carried a deadline of November 30, 1996.

Although a number of packages were mailed out and numerous calls from interested parties were received, no proposals were submitted by the deadline. While we are disappointed in the outcome of the proposal call, perhaps it is not surprising, given some of the circumstances.

- The site was advertised as one parcel of 11 acres, which, in spite of our offer to facilitate several developers, is an intimidating project.

- A highly qualified appraiser established a value on the site of $8.50 per sq. ft. While we have a great deal of respect for the appraiser's opinion, several developers who considered the site stated it was not economically viable for residential development at that price.

- Because we had undertaken the role of marketing, in preparing the brochures and advertising the site, a decision was made early on that we would not offer a real estate commission. There had been indications from some realtors that they have clients interested in the site and would be willing to work with the City, provided a real estate commission was available.

- Limitations for development of the site exist due to restrictive covenants in place to protect the Super Store development.

We feel there are several options which Council may wish to consider, in view of the lack of interest in the original proposal call:

1. Go for a second proposal call, retaining all conditions contained in the original call, but offer a 3% commission to realtors. We would continue to insist on the same high development standards, including architectural controls, but would offer realtors the opportunity of bringing together developers who might be interested in a portion or all of the site.

2/...

We would again facilitate developments to try and coordinate a complete development. The option for innovative ideas such as condominiumizing the site, multi uses or subdivision could still be achieved. The only difference from the original proposal call would be the opportunity for professional realtors to perform.

2. Proceed with a subdivision and internal servicing of the site. This would then make available a variety of smaller lots within the overall parcel, which could then be acquired by individual developers or business owners. We would continue to maintain the high standards which were contemplated under the original proposal call. There are some draw backs to proceeding in this way. The cost of internal servicing is estimated at about $500,000, and the loss of land for internal roads would be approximately 1.9 acres. In order to achieve the same net return from the sale of the land, we would have to scale our prices up by approximately $3/sq. ft. Once a decision is made to extend services within the site, including roadways, you are somewhat limited in the shape of sites which can be made available.

3. The City assume the role of developer and condominiumize the site. This would provide the opportunity to retain strict control of development, while giving smaller business people the chance to develop and own their own building and be a partner in the project.

4. Do nothing. Certainly an option worth considering is to leave the site as it is and retain it for future development. In the interim, perhaps the site could be maintained in some form which could be used by the citizens. However, we know from past experience that we would run the risk of resistance in the future to the removal of an area which may by then, be seen as a park area.

RECOMMENDATION

We favour option 1 - extending the proposal call for a somewhat limited time, under the same terms and conditions as the original offering, but making available a real estate commission of 3%, should a deal or deals be accepted and approved. We think that three months would be sufficient time for this second proposal call, which would take it through to March 31, 1997.

Respectfully submitted

Alan V. Scott

AVS/mm

Comments:

We concur with the recommendations of the Land and Economic Development Manager.

"G. D. SURKAN"
Mayor

"H. M. C. DAY"
City Manager

FILE

Council Decision - January 13, 1997 Meeting

DATE: January 14, 1997

TO: Land and Economic Development Manager

FROM: City Clerk

RE: FORMER C P RAIL LANDS - DOWNTOWN AREA

Reference Report: Land and Economic Development Manager, dated January 6, 1997

Resolution Passed:

"RESOLVED that Council of The City of Red Deer, having considered report from the Land and Economic Development Manager dated January 6, 1997, re: Former C P Rail Lands - Downtown Area, hereby agrees to Option No. 1 as outlined in the above report and further to extend the proposal call to June 30, 1997, and as presented to Council January 13, 1997."

Report Back to Council Required: Yes, relative to outcome of Proposal Call.

Comments/Further Action: Council informally agreed to extend beyond Alberta and B.C. in the marketing of this land.

Kelly Kloss
City Clerk

KK/clr

c Director of Corporate Services
Director of Development Services

Item No. 3

620-015 H

DATE: December 31, 1996

TO: City Clerk

FROM: Engineering Department Manager

RE: HANDICAP ZONE SIGNING AND MARKING

This report is in response to the November 4, 1996 Council resolution, which directed the Administration to investigate

- feasibility and cost to change signing, curb painting, and sign post colour to blue for all handicap parking stalls on City roadways, and
- relocation of the existing handicap parking stall on Gaetz Avenue, north of 46 Street, to the end of the block and widen stall.

There are approximately 21 handicap parking stalls designated and marked with the appropriate signage and pavement marking as stipulated in the Canadian Manual of Uniform Traffic Control Devices. For the most part, Canadian cities strive to follow the manual as close as possible not only for legal reasons but for uniformity reasons. We have checked with the Cities of Edmonton and Calgary, and with Alberta Transportation. They all confirm that they are following the recommendations in the Manual which is identical to our current method of signage. In the case of Handicap stall designation, there is no control over how private parking lots are marked and as many private lots have been marked in blue, the driving public appears to be associating the restricted use of this stall with the blue colour scheme.

Notwithstanding the above comments, we believe that the City can adopt a different stall marking scheme. We have worked with the Public Works Department to arrive at the cost of options to convert to the "blue" marking scheme.

1. Paint Handicap Stall Curbs Blue - The estimated cost to paint handicap stall curbs blue is **$700 per year.**

Note: This device is not functional during the winter.

2. Painting the Sign Posts Blue - The estimated cost to paint the existing sign posts blue is **$500 per year.**

Note: All but one handicap stall is signed on the same post containing other traffic or parking control signs or parking meters. The sign posts are located at the dividing line between a handicap stall and a non-handicapped stall with other regulations. If the handicap sign posts are painted blue, some may think that both sides of the post are for handicaps.

3. Repaint the White Wheelchair Symbol Annually - The estimated cost for this work is **$1,000 per year.**

Note: This device is not functional during the winter.

4. Increase the Size of Handicap Parking Control Signs - The cost for replacing existing Handicap Parking Control Signs with oversized 60 cm x 90 cm (RB-71, see attachment) is estimated at **$1,800 as a one-time expenditure**.

Note: The Sign Manual warns that "the excessive use of oversized signs will de-emphasize the importance of the standard size signs". Nearly all other parking control signs in the City are of the same size as the Handicap Parking Controls Signs. If the City accepts the argument that the Handicap Control Signs are not visible due to their small size, then it could be argued that all the other 2700 parking control signs of the same size are too small to be noticed by motorists. The cost for enlarging 2700 parking control signs is estimated at $272,000.

5. Remove the No Parking Symbol and Enlarge the Handicap Symbol

The cost to do this work would be **$1,800 as a one-time expenditure**.

Note: If the no parking symbol is removed from the existing Handicap Parking Control Sign, it could be argued that the sign did not indicate a parking prohibition for non-handicaps. The handicap symbol could not be enlarged unless the Parking Control Sign is widened; therefore, requiring a complete new sign.

6. Replace/Add the Handicap Parking Sign

a. The cost for replacing the white "*Handicap Parking Control Signs*" (RB-71) with the blue "*Access for the Handicapped Signs*" (IC-14) is estimated at **$1,300 as a one-time expenditure.**

b. The cost for adding to the blue "*Access for the Handicapped Signs*" (IC-14) to the existing white "*Handicap Parking Control Signs*" (RB-71) is estimated at **$1,300 as a one-time expenditure.**

7. Why Alberta Transportation is using the blue IC-14 Symbol for Permits

The blue IC-14 symbol is the "*International Symbol for Access for the Handicapped*". It is not a parking control sign by itself. The actual control sign is the white "*Handicap Parking Sign*" (RB-71) as stipulated in the MUTCD and is used by all highway authorities. The MUTCD incorporates the "*International Symbol of Access for the Handicapped*" into the parking control sign manual to form a basis for using the symbol on the Parking Control Sign.

It logically follows that the blue IC-14 sign, which is the "*Access for the Handicapped Sign*", is only an information sign used to identify off-road facilities and buildings that have for example, ramps for wheelchairs or wheelchair accommodating washrooms and elevators.

Alberta Transportation has adopted the blue symbol on their permits in an effort to advise others that this vehicle is entitled to access the restricted facilities. It is not intended to control or provide enforcement of the use of a particular parking stall.

8. Widen and/or Move the Existing Handicap Stalls to End of Block

We have checked all handicap stalls in the field and believe that the following changes would be an improvement:

a. Relocate the handicap stall on 50 Avenue, south of 47 Street, to the north end of the block. This new location is wide enough for wheelchair use and is more accessible to the whole block (cost is approximately $400).

b. Widen the handicap stall on 50 Avenue, south of 49 Street, by eliminating the adjacent metered parking stall. The existing handicap stall is not wide enough for wheelchair access (cost is approximately $400).

c. Construct para-ramps for seven handicap parking stalls. This would allow easier and safer access from vehicles to the sidewalk by not having to ride a wheelchair on the roadway to the end of the block where para-ramps exist (cost is approximately $3,700).

City Clerk
Page 4
December 31, 1996

SUMMARY

It is the opinion of the Engineering Department that implementation of Items 1, 3, 4, and 6b or any combination thereof, would not set any undesirable legal or operational problems and would perhaps be of benefit to the motorist as well as the handicapped.

We would recommend against the use of Items 2, 5, and 6a. Item 6a, we believe, would require a By-law amendment to establish the authority of the sign. However, this should be confirmed by the City Solicitor if Council wishes to pursue this option.

We believe the improvements identified in item 8 above would be appreciated by the those who are handicapped.

This report is respectfully submitted for the consideration and direction of Council.

Ken G. Haslop, P. Eng.
Engineering Department Manager

KGH/emr
Att.

c. Public Works Manager
c. Traffic Engineer
c. RCMP Inspector

A2.73 **Urban Parking Control Signs. (RB-51 — RB-54, RB-60, RB-71)**

A variety of individual signs may be used to make known to drivers the parking regulations which apply to a section of street. They shall be reflectorized or illuminated to show the same colour and shape by night as by day. Under most conditions, normal street lighting shall be deemed to satisfy this condition. (For use in combination see Section A2.76.)

RB-51
30 x 30 cm

a) Parking Control sign RB-51 shall indicate that parking is prohibited at all times on all days, in the direction(s) indicated by the arrow head(s) thereon.

RB-52
30 x 45 cm

b) Part-Time Parking Control sign RB-52 shall indicate that parking is prohibited during the time period on the days prescribed in the direction(s) indicated by the arrow head(s), thereon.

c) Parking Limit Control sign RB-53 shall indicate that parking is permitted to a maximum of thirty minutes duration, during the time period on the days prescribed, in the direction(s) indicated by the arrow head(s), thereon.

d) Parking Limit Control sign RB-54 shall indicate that parking is permitted to a maximum of one hour duration, during the time period on the days prescribed, in the direction(s) indicated by the arrow head(s) thereon. Note that the figure "1" may be replaced with any suitable value of more than one (1) hour.

RB-53
30 x 45 cm

RB-54
30 x 45 cm

e) Parking Control Except Buses sign RB-60 shall indicate that parking is prohibited at all times, buses excepted, on all days, in the direction(s) indicated by the arrow head(s) thereon.

f) The International Symbol of Access for the Handicapped may be shown on Parking Control signs to make known to drivers that reserved parking spaces are provided for the handicapped.

RB-60
30 x 45 cm

RB-71
30 x 45 cm

A2.74 **Urban No Stopping Signs. (RB-55 — RB-58, RB-72)**

RB-55
30 x 30 cm

a) Stopping Control sign RB-55 shall indicate that stopping is prohibited at all times on all days, in the direction(s) indicated by the arrow head(s) thereon. It shall be reflectorized or illuminated to show the same colour and shape by night as by day.

b) Rush Period Stopping Control sign RB-56 shall indicate that stopping is prohibited during the time period(s) on the days prescribed, in the direction(s) indicated by the arrow head(s), thereon. It shall be reflectorized or illuminated to

IC-8
60 x 60 cm

A4.31.08 **Travel Information Sign (IC-8)**

The Travel Information Sign may be used to direct motorists to a location which provides travel services. It shall be reflectorized or illuminated to show the same colour and shape by night as by day.

IC-9
60 x 60 cm

A4.31.09 **Viewpoint Sign (IC-9)**

The Viewpoint Sign may be used to indicate lookout and observation points from which scenic areas can be seen. It shall be reflectorized or illuminated to show the same colour and shape by night as by day.

IC-15
60 x 60 cm

A4.31.10 **Boat Launch Ramp Sign (IC-15)**

The Boat Launch Ramp Sign shall indicte the availability of a boat launch ramp. It shall be reflectorized or illuminated to show the same color and shape by night as by day.

IC-14
VARIABLE
DIMENSIONS

A4.32 **Access for the Handicapped Sign (IC-14)**

The International Symbol of Access for the Handicapped Sign may be used above any off road facilities signs erected on the highway for facilities that meet the requirements of the handicapped as outlined in the supplement to the National Building Code of Canada entitled "Building Standards For The Handicapped".

The size of the handicapped symbol will vary in accordance with the size of the sign to which it is being attached.

Comments:

I recommend we undertake only Recommendations No. 4, 8(a) and 8(b).

"H. M. C. DAY"
City Manager

I concur that we undertake Recommendations No. 4, 8(a) and 8(b). I have a remaining concern that without the visual clue of "blue" which has now become standard on private parking spaces, that some members of the community may still overlook the handicap signage. However, I am prepared to accept this first stage recommendation and wait to see if it satisfies the need, based on complaints received.

"G. D. SURKAN'
Mayor

Council Decision - January 13, 1997 Meeting

FILE

DATE: January 14, 1997

TO: Engineering Department Manager

FROM: City Clerk

RE: ***HANDICAP ZONE SIGNING AND MARKING***

Reference Report: Engineering Department Manager, dated December 31, 1996

Resolution Passed:

"RESOLVED that Council of The City of Red Deer, having considered report from the Engineering Department Manager dated December 31, 1996, re: Handicap Zone Signing and Marking, hereby agrees as follows:

1. That the handicap stall on 50 Avenue, south of 47 Street be relocated to the north end of the block at an estimated cost of $400.00;

2. That the handicap stall on 50 Avenue, south of 49 Street be widened by eliminating the adjacent metered parking stall at an estimated cost of $400.00;

3. That handicap stall curbs be painted blue at an estimated cost of $700.00 per year; and

4. That the above costs be charged to the 1997 Budget,

and as presented to Council January 13, 1997."

Report Back to Council Required: No

Comments/Further Action: For your information and action.

Kelly Kloss
City Clerk

KK/clr
c Director of Corporate Services
Director of Development Services
Public Works Manager
R.C.M.P. Inspector

Item No. 1
Public Hearings

DATE: **January 3, 1997**

TO: **City Council**

FROM: **City Clerk**

RE: ***LAND USE BYLAW AMENDMENT 3156/P-96: UPHOLSTERY BUSINESS AT 5824 & 5826 - 51 AVENUE (LOTS 21 & 22, BLOCK 25, PLAN 7604 S)***

A Public Hearing has been advertised for the above noted Land Use Bylaw Amendment to be held on Monday, January 13, 1997, in the Council Chambers at 7:00 p.m.

Land Use Bylaw Amendment 3156/P-96 states that the existing R2 (Residential) District be retained, however, a land use exception within this district be allowed to accommodate an upholstery business.

RECOMMENDATION

That following the Public Hearing, Land Use Bylaw Amendment 3156/P-96 may be given 2nd and 3rd readings.

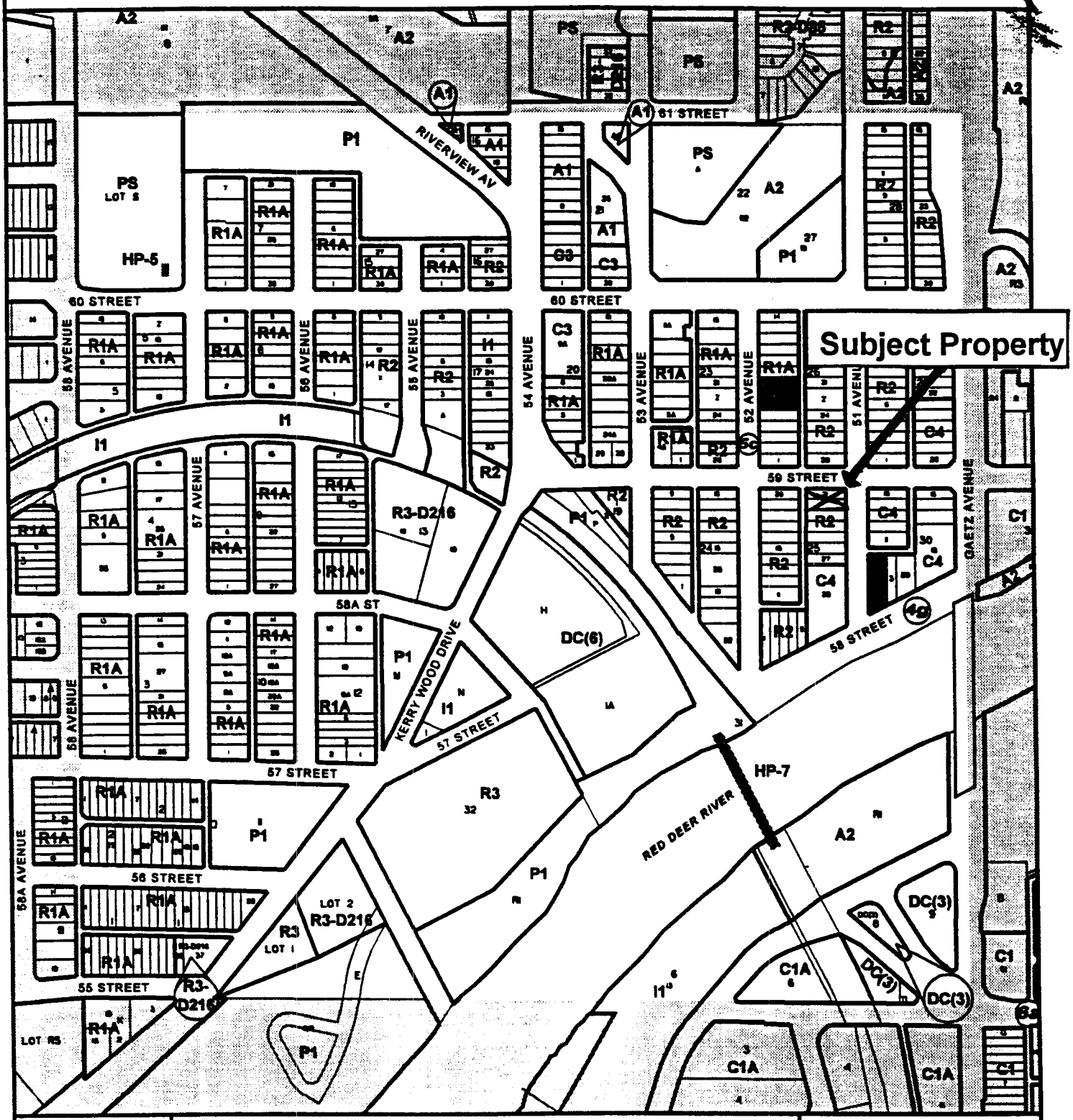
Kelly Kloss
City Clerk

KK/clr
attchs.

THE CITY OF RED DEER - LAND USE BYLAW

LAND USE DISTRICTS

F10



BYLAW NUMBER - 3156/96

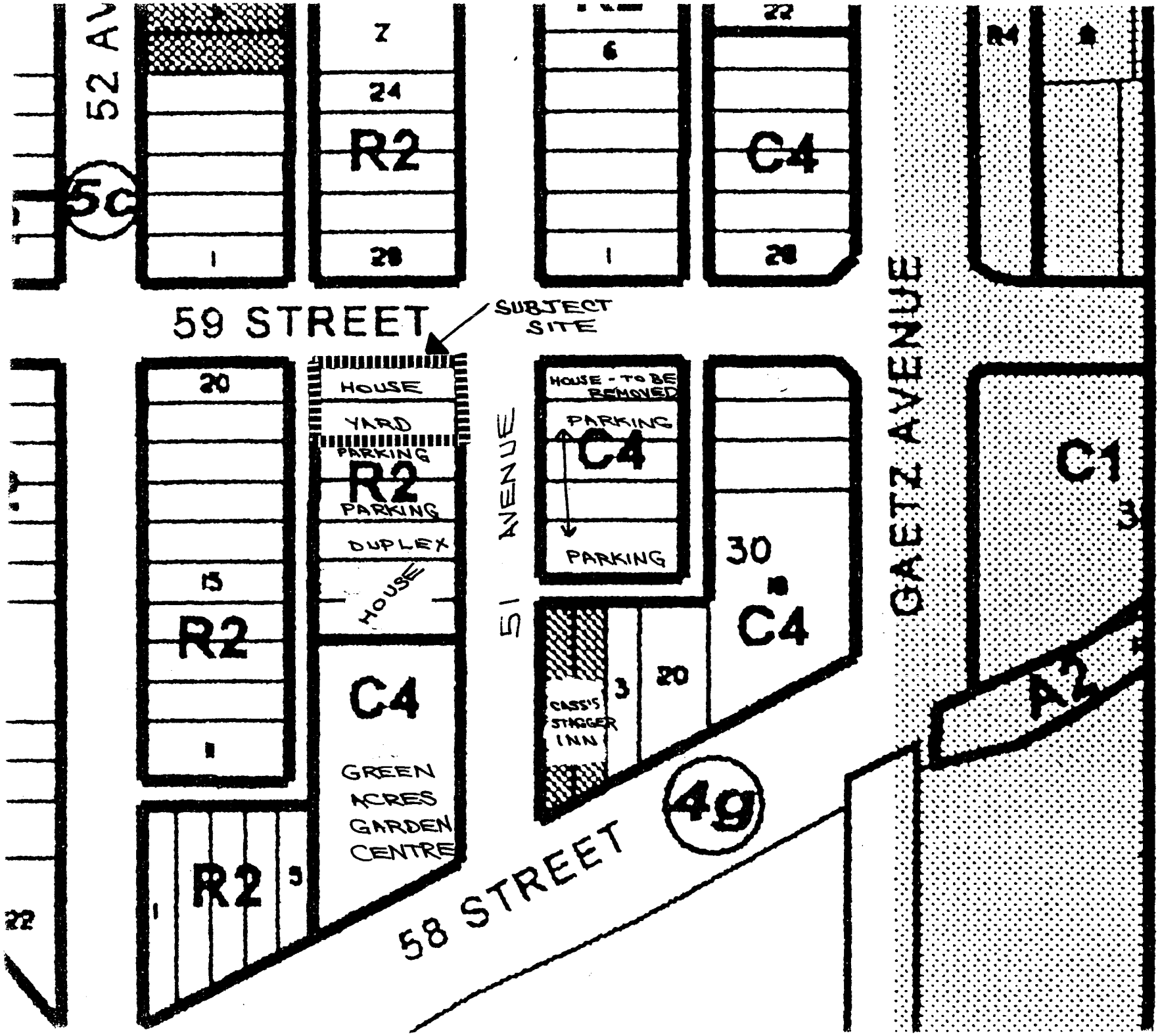
AMENDMENTS:

SCALE 1:5000
04-SEP-1996 11:45

SEE SECTION SIX FOR LANDUSE DISTRICT DEFINITIONS

E11	F11	G11
E10	F10	G10
E9	F9	G9

S.E.¼ -20-38-27-4


52 AV
5c
59 STREET
SUBJECT SITE
R2
C4
C1
A2
HOUSE
YARD
PARKING
DUPLEX
HOUSE - TO BE REMOVED
51 AVENUE
GAETZ AVENUE
CASS'S STAGGER INN
GREEN ACRES GARDEN CENTRE
58 STREET
4g

Box 5008
Red Deer, Alberta
T4N 3T4

The City of Red Deer

FILE

Office of the City Clerk

January 14, 1997

Mr. Darryl Sim
Simco Developments Ltd.
4775 - 49 Street
Red Deer, AB T4N 1T6

Faxed January 14, 1997
Fax No. 341-4498

Dear Sir:

RE: LAND USE BYLAW AMENDMENT 3156/P-96, UPHOLSTERY BUSINESS AT 5824 & 5826 - 51 AVENUE, RED DEER, AB (Lots 21 & 22, Block 25, Plan 7604 S)

At the City of Red Deer's Council Meeting held Monday, January 13, 1997, a Public Hearing was held with respect to Land Use Bylaw Amendment 3156/P-96. Following the Public Hearing, second and third readings were given to the noted bylaw, a copy of which is attached hereto.

If you have any questions or require additional information, please do not hesitate to contact the undersigned.

Sincerely,

Kelly Kloss
City Clerk

KK/clr
attchs.

c Director of Development Services
Director of Community Services
E. L. & P. Manager
Fire Chief
City Assessor
Principal Planner
Tony Woods, Engineering
Council and Committee Secretary, S. Ladwig
Charlaine Rausch, Land Use Bylaw

4914 - 48th Avenue, Red Deer, AB Canada T4N 3T4
Tel: (403) 342-8132 Fax: (403) 346-6195 E-mail: cityclerk@city.red-deer.ab.ca Web: http://www.city.red-deer.ab.ca

FILE No.

THE CITY OF RED DEER

P. O. BOX 5008, RED DEER, ALBERTA T4N 3T4 FAX: (403) 346-6195

City Clerk's Department
(403) 342-8132 FAX (403) 346-6195

December 16, 1996

BACKUP INFORMATION NOT SUBMITTED TO COUNCIL

Simco Realty Services
4775 - 49 Street
Red Deer, AB T4N 1T6

Attention: Mr. Darryl Sim

Dear Sir:

RE: LAND USE BYLAW AMENDMENT 3156/P-96
TO ALLOW FOR AN UPHOLSTERY BUSINESS AT 5824-5826 - 51 AVENUE, LOTS 21-22, BLOCK 25, PLAN 7604 S.

This will confirm that you wish to proceed with the above amendment to The City of Red Deer Land Use Bylaw. I acknowledge receipt of your deposit of $600.00 toward the actual cost of advertising this amendment.

Please be advised that the Public Hearing of this bylaw amendment will be heard on **Monday, January 13, 1997 at 7:00 p.m.** or as soon thereafter as Council may determine.

If you have any questions, please do not hesitate to contact the writer.

Yours truly,

KELLY KLOSS
City Clerk

RED·DEER a delight to discover!

SIMCO REALTY SERVICES

4775 49 ST RED DEER AB T4N 1T6

PHONE:(304)340-0065 FAX:(403) 341-4498

E-MAIL simco@agt.net

BACKUP INFORMATION NOT SUBMITTED TO COUNCIL

FACSIMILE TRANSMISSION SHEET

Jan 13/97 Council

DATE: Nov 19/96

TO: 346-6195

ATTENTION: Kelly Kloss

FROM: Darryl Sim

NUMBER OF PAGES (including cover page) 1

COMMENTS: Re: 5824 + 5826 51 Ave Rosalen

WE ARE IN PROCESS TO FINALIZE A LEASE IN ORDER TO PROCEED WITH REZONING. PLEASE PLACE THIS ON HOLD UNTIL EARLY DECEMBER. I WILL CALL YOU THEN

THANKS

dl

Item No. 1
Reports

CS-6.168

DATE: **December 19, 1996**

TO: **KELLY KLOSS**
City Clerk

FROM: **LOWELL R. HODGSON**
Community Services Director

RE: **RED DEER COLLEGE: C.F.E.P. APPLICATION**

The Recreation, Parks & Culture Board is supportive of a letter of municipal support for Red Deer College's C.F.E.P. application for development of its "Train Station" as a fitness and training facility at the college. Red Deer College and The City of Red Deer have had a very long and positive working relationship in the area of fitness testing and programming through the Kevin Sirois Fitness Centre. This Train Station significantly enhances the facility and is there to serve not only students and faculty, but, indeed, all of the community.

City Council supported 15 applications in July 1996 for projects undertaken in City of Red Deer facilities and the provincial government requires municipal comment on all applications. Thus, this request.

RECOMMENDATION

THAT Council of The City of Red Deer support the recommendation of the Recreation, Parks & Culture Board to offer a letter of municipal support to the Red Deer College C.F.E.P. application for funding of its fitness facility.

LOWELL R. HODGSON

:dmg

c Don Batchelor, Recreation, Parks & Culture Manager
Recreation, Parks & Culture Board

RPC - 6.404

DATE: **December 12, 1996**

TO: **KELLY KLOSS**
City Clerk

FROM: **NATALIE SCHNELL, Vice Chair**
Recreation, Parks & Culture Board

RE: **RED DEER COLLEGE C.F.E.P. APPLICATION**

The Recreation, Parks & Culture Board considered a request from the Red Deer College to provide a letter of municipal support for the fitness and training facility above the main gymnasium at the College.

The Board passed the following resolution in support of this facility, its continued development and the College's application for financial assistance through the provincial C.F.E.P. program:

> "That the Recreation Parks & Culture Board support and make a recommendation to City Council to provide a letter of municipal support to the Red Deer College application for C.F.E.P. funding for its fitness facility."

for NATALIE SCHNELL

DB\ad

Atts.

c. Lowell R. Hodgson, Director of Community Services
Gord Inglis, Kinesiology & Sport Studies, Red Deer College

RPC-6.394

DATE: **December 5, 1996**

TO: **RECREATION, PARKS & CULTURE BOARD**

FROM: **DON BATCHELOR**
Recreation, Parks & Culture Manager

RE: **RED DEER COLLEGE: C.F.E.P. APPLICATION**

Attached is a letter from Gord Inglis, Chairperson of the Department of Kinesiology and Sport Studies of Red Deer College, requesting a letter of municipal support for their application to the Province of Alberta for a Community Facility Enhancement Program (CFEP) Grant. The application is for the *Train Station*, the fitness and training facility that was just renovated over the main gymnasium at the College. A CFEP grant would provide funding for some of the work completed in 1996 and enable an elevator to be installed in 1997 for handicapped and better public access to the facility. Red Deer College would like to submit a request for the maximum entitlement, which is $125,000.00.

The provincial regulations and direction from City Council require that any letters of municipal support be referred to the Recreation, Parks & Culture Board for recommendation to City Council. On July 29th, 1996, City Council endorsed the 1996 grant applications as outlined in Appendix 1. The request from Red Deer College is subsequent to this list of approved projects.

With the commitment of Red Deer College to serve the Red Deer community and provide access to this facility by the general public, this application should be supported. The City of Red Deer has partnered with Red Deer College in the past on fitness centre facilities and programs. Support of this application provides for a continuance of this partnership.

RECOMMENDATION

THAT the Recreation, Parks & Culture Board support and make a recommendation to City Council to provide a letter of municipal support to the Red Deer College application for CFEP funding for its fitness facility.

DON BATCHELOR

:dmg

Enc.

c. Lowell Hodgson, Community Services Director
Gord Inglis, Kinesiology and Sport Studies, Red Deer College

RED DEER COLLEGE

December 3, 1996

Mr. Don Batchelor
Recreation, Parks and Culture Manager
City of Red Deer
Box 5008
Red Deer, Alberta
T4N 3T4

Dear Don,

I am writing on behalf of Red Deer College seeking municipal support for the recently renovated Train Station fitness facility. We, as a College, are applying for funding under the provincial Community Facility Enhancement Program and as part of the application process we are asked to submit a statement of municipal opinion.

The Train Station is the newly opened 3200 sq. ft. fitness testing and training facility located overlooking the Main Gymnasium at Red Deer College. The facility is operated by the Kevin Sirois Fitness Resource Center, which is the regional center of the Alberta Be Fit For Life fitness network. The Kevin Sirois Fitness Resource Center and the new Train Station offer fitness testing, counseling and training programming to Red Deer College students and staff as well as being a strong community resource for schools, community teams and athletes, individual community users and community outreach programs such as the K.S.F.R.C. Cardiac Rehabilitation Program.

Phase I of this capital facility development project was the renovation of the gymnasium mezzanine area to house the new Train Station. This phase was completed in October, 1996. Phase II of the project will include an elevator and a new outside entrance for more direct handicapped and public access to the facility.

In the first month of operation the new facility has already realized an increase in community use and it is the intent that the Train Station will continue to provide greater testing and training programming to the Red Deer community.

Thank you for your consideration of this request for municipal support of this project.

Sincerely,

Gord Inglis
Chairperson
Department of Kinesiology and Sport Studies
Red Deer College
Box 5005
Red Deer, Alberta
T4N 5H5

COMMUNITY SERVICES DIVISION
C.F.E.P. III Grant Applications

Applicant and Project	Total Project Budget ($)	Grant Request ($)	Matching Funds & Source ($)	COMMENTS
1. **Recreation, Parks & Culture** - CPR Trail extension to Kerry Wood Drive	30,000	12,000	18,000 Rec. Levy	Completion of a trail link in N. Red Deer.
2. **Recreation, Parks & Culture** - Arena elevator	34,000	16,000	18,000 Sponsor	Provide handicapped access to second floor mezzanine and meeting rooms.
3. **Recreation, Parks & Culture** - Insulate roof of arena	66,000	22,000	44,000 1996 IMP	Give better comfort in building, reduce operating costs, improve aesthetics.
4. **Recreation, Parks & Culture** - Waskasoo Park trail repairs	10,000	5,000	5,000 1996 IMP	Repairs to trails made necessary by heavy spring flooding.
5. **Recreation, Parks & Culture** - Dawe Centre Pool salt system	40,000	20,000	20,000 IMP	Improved safety and swimmer comfort.
6. **Recreation, Parks & Culture** - Dawe Centre Zamboni room	90,000	30,000	60,000 IMP	Safety issue to remove Zamboni to a separate room.
7. **Recreation, Parks & Culture** - Arena, curling rink and Kinex parking lots	80,000	40,000	40,000 IMP	Parking lot asphalt overlay and improved drainage.
8. **Red Deer Child Care Society** - Normandeau Day Care: Kitchen cabinets, door replacements, heating upgrade	32,600	16,300	16,300 1996 IMP + Operating	A high priority need to repair and/or replace components due to wear & tear resulting from heavy use.

Applicant and Project	Total Project Budget ($)	Grant Request ($)	Matching Funds & Source ($)	COMMENTS
9. **Red Deer Child Care Society** - Red Deer Day Care: Repairs made necessary by water damage and wear & tear.	22,400	11,200	11,200 1996 IMP + Operating	A priority to bring facility to code, i.e., vapor barrier & electrical and to make door repairs and replace lino.
10. **Golden Circle Seniors' Society** - Equipment and furniture replacement	41,000	20,500	20,500 1996 IMP + Operating	Need to replace some exterior doors, repair windows and some floor tile replacement.
11. **Family Service Bureau** - Community Services Centre: Building repairs	4,600	2,300	2,300 '96 Operating	Very high priority need for the air conditioner condenser, air vent and heating coil repairs.
12. **Normandeau Cultural & Natural History Society** - Collections storage floor renovations, art storage	20,945	6,225	14,720 Donated material & labour + cash from '96 Op.	Floor renovations in storage room to accommodate custom built cabinets on tracks to hold textiles and art work.
13. **Normandeau Cultural & Natural History Society** - Gallery wall panel repairs	5,993	2,000	3,993 Donated labour & materials	Repairing water damaged gallery wall panels.
14. **Normandeau Cultural & Natural History Society** - Interpretive signs	24,000	12,000	12,000 '96 Operating + donated labour	Additions of 12 new interpretive signs on Historical Walking Tour.

Applicant and Project	Total Project Budget ($)	Grant Request ($)	Matching Funds & Source ($)	COMMENTS
15. **Kerry Wood Nature Centre Association** - Extension of Centre for education and storage space	160,000	80,000	80,000 Fundraising	Critical shortage of space to accommodate expanding programming and storage needs.
SUB-TOTALS	**661,538**	**295,525**	**366,013**	
The following are expected from Community Organizations				
1. **Eastview Estates Comm. Assn.** - Community shelter	300,000	150,000	150,000 Rec. Levy + fundraising	
2. **Camille J. Lerouge School** - Elementary playground	44,000	22,000	22,000 Fundraising	
3. **Glendale School Parents Assn.** - Sportsfield/park development	65,000	32,500	25,000 Rec. Levy $7,500 fundraising	
4. **Eastview School Parents Assn.** - Outdoor basketball court	12,000	6,000	6,000 Fundraising	
5. **Rosedale Community Assn.** - Playground development	8,000	4,000	4,000	

Comments:

We concur with the recommendation of the Recreation, Parks and Culture Board.

"G. D. SURKAN"
Mayor

"H. M. C. DAY"
City Manager

FILE

Council Decision - January 13, 1997 Meeting

DATE: **January 14, 1997**

TO: **Director of Community Services**

FROM: **City Clerk**

RE: ***RED DEER COLLEGE: C.F.E.P. APPLICATION***

Reference Report: Director of Community Services, dated December 19, 1996

Resolution Passed:

"RESOLVED that Council of The City of Red Deer, having considered report from the Director of Community Services dated December 19, 1996, re: Red Deer College: C.F.E.P. Application, hereby agrees to provide a letter of municipal support to the Red Deer College C.F.E.P. application for funding of its fitness facility, and as presented to Council January 13, 1997."

Report Back to Council Required: No

Comments/Further Action: This office will provide a letter of support to the Red Deer College

Kelly Kloss
City Clerk

KK/clr

c Recreation, Parks and Culture Manager
Recreation, Parks and Culture Board

FILE

Office of the City Clerk

Box 5008
Red Deer, Alberta
T4N 3T4

The City of Red Deer

January 15, 1997

Mr. Gord Inglis
Chairperson
Department of Kinesiology and Sport Studies
Red Deer College
Box 5005
Red Deer, AB T4N 5H5

Dear Gord:

RE: LETTER OF MUNICIPAL SUPPORT - RED DEER COLLEGE "TRAIN STATION"

At the Council Meeting of January 13, 1997, consideration was given to your letter of December 3, 1996 concerning the above. At that meeting, the following resolution was passed:

> "RESOLVED that Council of The City of Red Deer, having considered report from the Director of Community Services dated December 19, 1996, re: Red Deer College: C.F.E.P. Application, hereby agrees to provide a letter of municipal support to the Red Deer College C.F.E.P. application for funding of its fitness facility, and as presented to Council January 13, 1997."

Council is pleased to offer this letter of support and wish you every success for this facility.

If you have any questions, please call me.

Sincerely,

Kelly Kloss
City Clerk

KK/clr

c Director of Community Services
Recreation, Parks and Culture Board

4914 - 48th Avenue, Red Deer, AB Canada T4N 3T4
Tel: (403) 342-8132 Fax: (403) 346-6195 E-mail: cityclerk@city.red-deer.ab.ca Web: http://www.city.red-deer.ab.ca

PARKLAND
COMMUNITY
PLANNING
SERVICES

Suite 500, 4808 Ross Street
Red Deer, Alberta T4N 1X5
Phone: (403) 343-3394
FAX: (403) 346-1570

Date: December 23, 1996

To: Kelly Kloss, City Clerk

From: Frank Wong, Planning Assistant

Re: Land Use Bylaw Amendment 3156/A-97
Potions of the N.W. 1/4 Sec. 30-38-27-4
Edgar Industrial Park
The City of Red Deer

The City of Red Deer presently have title to the remaining land in the N.W. 1/4 Sec. 30-38-27-4 and which is designated A1 Future Urban Development District. They wish to redesignate the portion of land west of the Canadian Pacific Railway right-of-way to P1 Parks and Recreation District and I1 Industrial (Business Service) District. The P1 District is to accommodate landscaping along Highway No. 2 and the I1 District will accommodate future industrial uses such as a government weigh scale which is presently being proposed.

Recommendation

Planning staff recommend that City Council proceed with first reading of the Land Use Bylaw Amendment 3156/A-97.

Sincerely,

Frank Wong

Frank Wong.
Planning Assistant

Attachment

Comments:

We concur with the recommendations of Parkland Community Planning Services.

"G. D. SURKAN"
Mayor

"H. M. C. DAY"
City Manager

FILE

Council Decision - January 13, 1997 Meeting

DATE: **January 14, 1997**

TO: **Parkland Community Planning Services**

FROM: **City Clerk**

RE: **LAND USE BYLAW AMENDMENT 3156/A-97, PORTIONS OF N.W. ¼ SECTION 30-38-27-4 - EDGAR INDUSTRIAL PARK**

Reference Report: Parkland Community Planning Services, December 23, 1996

Bylaw Passed: Land Use Bylaw Amendment 3156/A-97 given 1st Reading

Report Back to Council Required: Yes, Public Hearing to be held February 10, 1997 at 7:00 p.m.

Comments/Further Action:

Land Use Bylaw Amendment 3156/A-97 provides for the redesignation of land west of the Canadian Pacific Railway right -of-way (NW ¼ 30-38-27-4) from A1 (Future Urban Development) District to P1 (Parks and Recreation) District and I1 (Industrial Business Service) District.

This office will now proceed with the advertising for a Public Hearing.

Kelly Kloss
City Clerk

KK/clr

c Director of Development Services
Director of Community Services
E. L. & P. Manager
Fire Chief
City Assessor
Principal Planner
Council and Committee Secretary, S. Ladwig

Item No. 3

DATE: January 6, 1997

TO: City Council

FROM: Grant Howell
Personnel Manager

RE: 1997 Salary Treatment for Exempt Staff

It is once again time to look at our compensation program and make decisions about wage and salary treatment for the coming year. This year we must deal with three of our employee groups - IAFF, ATU and Exempt. This recommendation deals with the Exempt staff.

1. **History**

It is important to note where our employee groups stand with respect to each other, with other comparators and with inflation over the longer term. Attachment 1 gives a summary of salary treatment and inflation over a 21 year period. Attachment 2 provides a graphical representation of how The City's employee groups have fared compared to inflation over that period. Below is Table 1, which gives a summary of the comparative treatment of the 5 groups since 1992.

GROUP / YEAR	EXEMPT	FIRE	IBEW	CUPE	ATU
1992	+4.5%	+4%	+3%	+5%	+5%
1993	0	+2%	+1.5%	+3%	+1%
1994	-3.6% total (-1.25% to wage rate)	0	-3.62% total (no change to wage rate)	-3.6% total (-1.25% to wage rate) (further -10% to temp rate)	0
1995	0%	-3.77% total (no change to wage rate)	0 (expired July '96)	0	-4.8% total (-3.3% to wage rate)
1996	+4 % total (-2% to wage rate)	0	+3.62% total (no change to wage rate)	+3.6% total (+1.65% to wage rate)	0
1997	to be determined	to be negotiated	+2%	1% lump sum (no change to wage rate)	to be negotiated

2. **Productivity**

Over the past 10 years the population of our city has increased by approximately 12 percent. At the same time the number of permanent staff has decreased by approximately 8 percent. Indeed there are fewer employees with The City now than there were in 1982 when there were 20 percent fewer people living here. Attachment 3 shows the growing divergence between the size of population being served and the number of employees providing the service.

If you make the assumption that the overall level of service is about the same as it was in 1986 (there have been some reductions and several significant increases in level of service), a striking point becomes evident:

- The number of Red Deer citizens per employee serving them was 101 in 1986. In 1996 that number is 123. That means that employees have contributed to an organization that is **better than 20 percent more productive** than it was 10 years ago.

It is also important to remember that, **since 1993**, The City has absorbed losses in operating grants from the Province of **more than 3 million dollars per annum,** as well as **inflation that has totaled 5.77%** over that period, **without any increase in taxes**. Without significant productivity gains that would not have been possible without deep cuts to service levels and deeper cuts to wages.

3. **Current Environment**

In 1996, after the first of the employee groups received increases that offset the rollbacks of the previous two years, buying power was still diminished by inflation to the tune of more than 5 ½ %. If all industries were experiencing the same retrenchment this would be unfortunate but not problematic for our corporation. This, however, has not been the case. While some other sectors have experienced more difficult times than us, the overall picture with larger organizations who would find our employees attractive, has been modestly positive for the past three years, with average increases keeping pace with inflation or slightly better.

This trend will likely accelerate over the next 3 to 5 years, as the pace of construction of major facilities in Alberta increases dramatically.

The City of Red Deer is very fortunate in having long service employees who don't want to leave the community or our employ. It's the "Red Deer advantage." However, because they have long service they are beginning to retire in greater numbers each year (see attach. 4). As the differential increases between our rates and those of the organizations with whom we compete for employees, recruitment becomes more difficult, particularly where we have to recruit from out of town and therefore can't use "the Red Deer advantage." We have begun to experience problems in recruiting staff in certain key skill areas, such as engineering and computing systems and this trend will accelerate as economic activity increases and job seekers have more options. When activity picks up in our area we are likely to face some retention problems in our own ranks also.

4. **Dealing With the Exempt Staff**

1997 will be a year of transition for the Exempt Compensation system. Phase one of our Exempt system redesign has begun and the firm Ernst and Young has been retained to complete a Salary survey and review of "best practices" in compensation. Work on this system will continue for 12 to 18 months and will help us as a corporation to make some critical decisions about how we want to pay our exempt staff. It is against that backdrop we must look at salary treatment in 1997.

It is recommended that the alternative of granting no salary increase and making a one-time payment to exempt staff for 1997, incorporating an equal amount to that in the base 1998 budget would be best for the organization. By utilizing this approach, flexibility in implementing a new system can be maintained, while not prejudicing our ability to attract and retain staff. If we find that our rates are above target upon implementing the new system, the excess can simply be removed from the base budget.

If we adopt this approach it raises the question "what is appropriate for a one-time payment?"

We know the following:

- CUPE employees will receive a one-time payment of 1 % of wages in January 1997 (negotiated early in 1996).
- Exempt employees have experienced more negative monetary treatment than the unions since 1993.
- We are beginning to experience more difficulty in recruiting staff due to competitive position.
- IBEW will receive a 2 % wage increase in the second year of their contract (July '97)

RECOMMENDATION:

At its last meeting, the Personnel Committee passed the following resolution:

Moved by Councillor Volk, seconded by City Manager Day, that the Personnel Committee recommend to Council the payment of a one-time payment of 2 % of annual base salary to exempt staff, payable as soon as administratively feasible in 1997, with that amount being incorporated into the base budget for 1998, to be used as part of the implementation of the new evaluation system.

CARRIED

4. **Conclusion**

It will be a challenge to arrive at decisions that:

- maintain our rates at "reasonable" levels in the market place
- acknowledge the achievement of our employees in helping to achieve significant productivity gains while absorbing reduced earnings
- are acceptable to the taxpayers that foot the bill.

/rg

ATTACHMENT 1

COMPARISON OF SALARY INCREASES

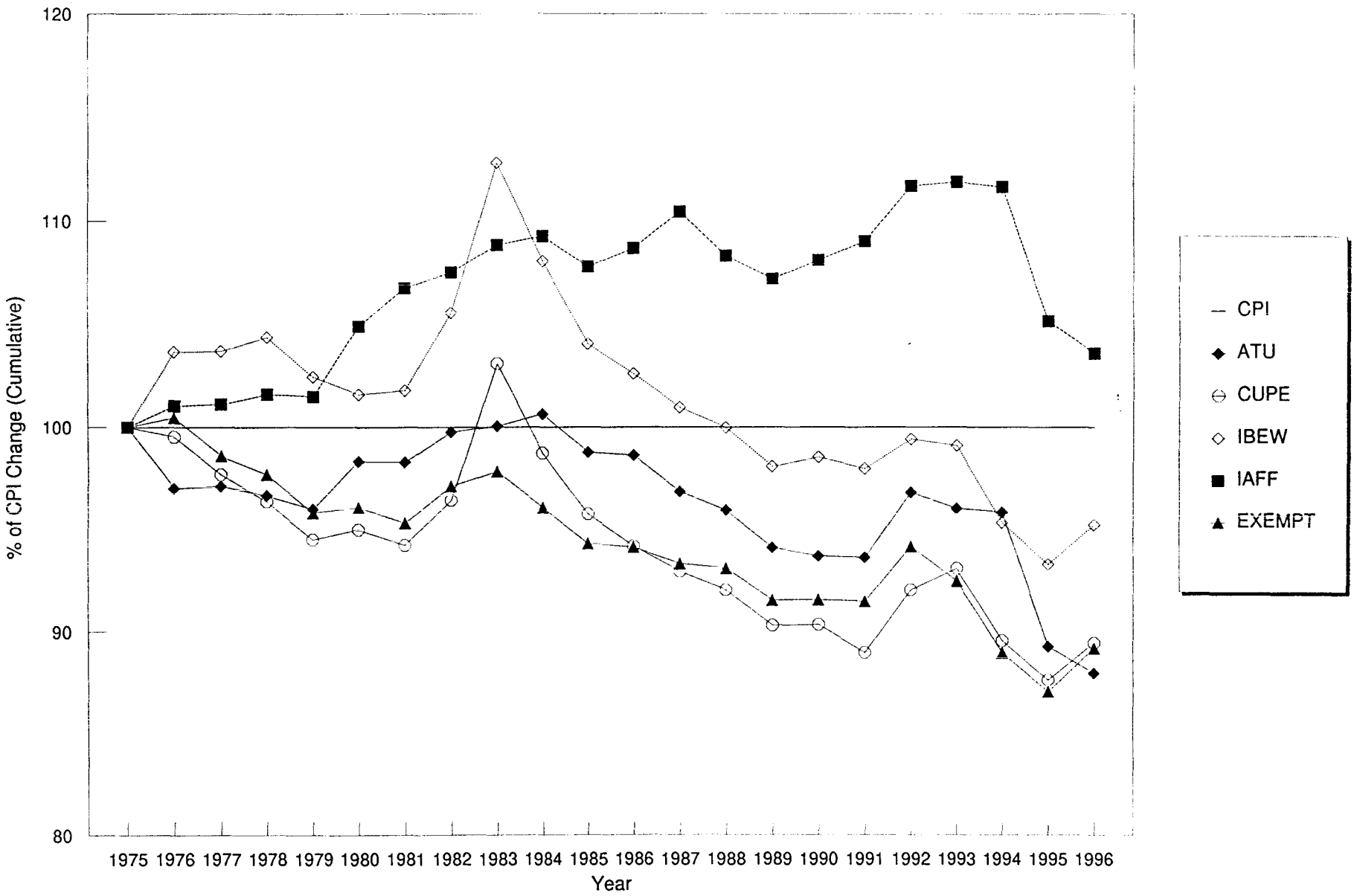
Revised 96/12/06

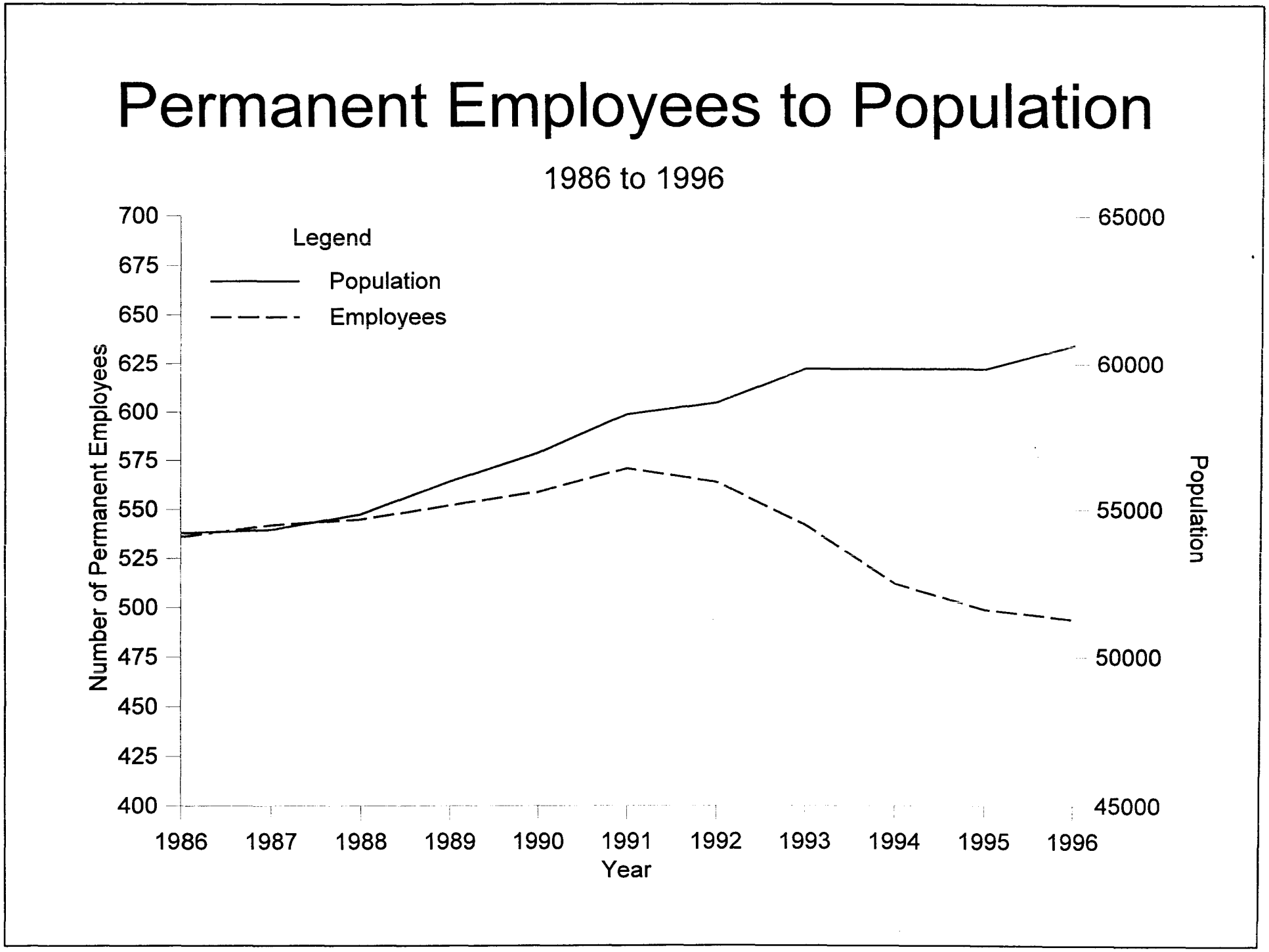
YEAR	CANADIAN CPI		EDM/CAL CPI		ATU			CUPE			IBEW			IAFF		EXEMPT	
	ANNUAL INCREASE	COMPOUND INCREASE	ANNUAL INCREASE	COMPOUND INCREASE		ANNUAL INCREASE	COMPOUND INCREASE		ANNUAL INCREASE	COMPOUND INCREASE		ANNUAL INCREASE	COMPOUND INCREASE	ANNUAL INCREASE	COMPOUND INCREASE	ANNUAL INCREASE	COMPOUND INCREASE
1976	7.50	7.50	8.10	8.10		4.30	4.30		7.00	7.00		11.40	11.40	8.60	8.60	8.00	8.00
1977	8.00	16.10	8.85	17.67		8.10	12.75		6.00	13.42		8.05	20.37	8.10	17.40	6.00	14.48
1978	9.00	26.55	8.70	27.91		8.50	22.33		7.50	21.93		9.70	32.05	9.50	28.55	8.00	23.64
1979	9.10	38.07	8.75	39.10		8.35	32.54		7.00	30.47		7.10	41.43	9.00	40.12	7.00	32.29
1980	10.20	52.15	10.30	53.43		12.88	49.61		10.75	44.50		9.29	54.57	13.90	59.60	10.50	46.18
1981	12.40	71.02	12.95	73.30		12.35	68.09		11.50	61.12		12.60	74.05	14.40	82.58	11.50	62.99
1982	10.90	89.66	11.40	93.06		12.57	89.22		13.50	82.87		15.00	100.16	11.70	103.94	13.00	84.18
1983	5.70	100.47	5.10	102.91		6.00	100.57		13.00	106.64		13.00	126.18	7.00	118.22	6.50	96.15
1984	4.40	109.29	2.60	108.19		5.00	110.60		0.00	106.64		0.00	126.18	4.80	128.69	2.50	101.05
1985	3.90	117.45	3.00	114.44		2.00	114.81		0.75	108.19		0.00	126.18	2.50	134.41	2.00	105.07
1986	4.20	126.58	3.40	121.73		2.00	119.11		2.50	113.39		2.75	132.40	2.50	140.27	4.00	113.27
						2.00	123.49							2.50	146.28		
1987	4.40	136.55	4.00	130.60		2.50	129.08		3.00	119.79		2.75	138.79	3.00	153.67	3.50	120.73
														3.00	161.28		
1988	4.00	146.01	2.75	136.94		3.00	135.95		3.00	126.38		3.00	145.95	1.00	163.89	3.75	129.01
														1.00	166.53		
1989	5.00	158.31	4.10	146.65		3.00	143.03		3.00	133.17		3.00	153.33	2.00	171.86	3.25	136.45
														1.85	176.89		
1990	5.00	171.23	5.80	160.96	01/06	3.00	150.32	01/07	3.00	140.17		5.50	167.26	5.90	193.23	5.00	148.27
					06/24	1.00	152.82	09/30	2.00	144.97							
					11/24	0.50	154.08										
1991	5.60	186.42	5.80	176.10		5.50	168.05	04/28	4.00	154.77		5.00	180.62	6.50	212.29	5.50	161.92
1992	1.50	190.72	1.60	180.52		5.00	181.45		5.00	167.51	07/10	3.00	189.04	4.00	224.78	4.50	173.71
1993	1.84	196.07	1.07	183.52		1.00	184.26		3.00	175.54	07/10	1.50	193.38	2.00	231.28	0.00	173.71
1994	0.20	196.66	1.80	188.62		0.00	184.26		-3.60	165.62	07/10	-3.62	182.76	0.00	231.28	-3.60	163.86
1995	2.20	203.19	2.20	194.97		-4.80	170.62		0.00	165.62	07/10	0.00	182.76	-3.77	218.79	0.00	163.86
1996	Est 1.50	207.74	Est 2.10	201.16		0.00	170.62		3.60	175.18	07/10	3.62	193.00	0.00	218.79	4.00	174.41
1997								1% one time payout	0.00	175.18	07/01	1.75	198.13				
											12/01	0.25	198.88				
1998																	

ATTACHMENT 2

Comparison of Salary Increases to Consumer Price Index (CPI)

1976 - 1996

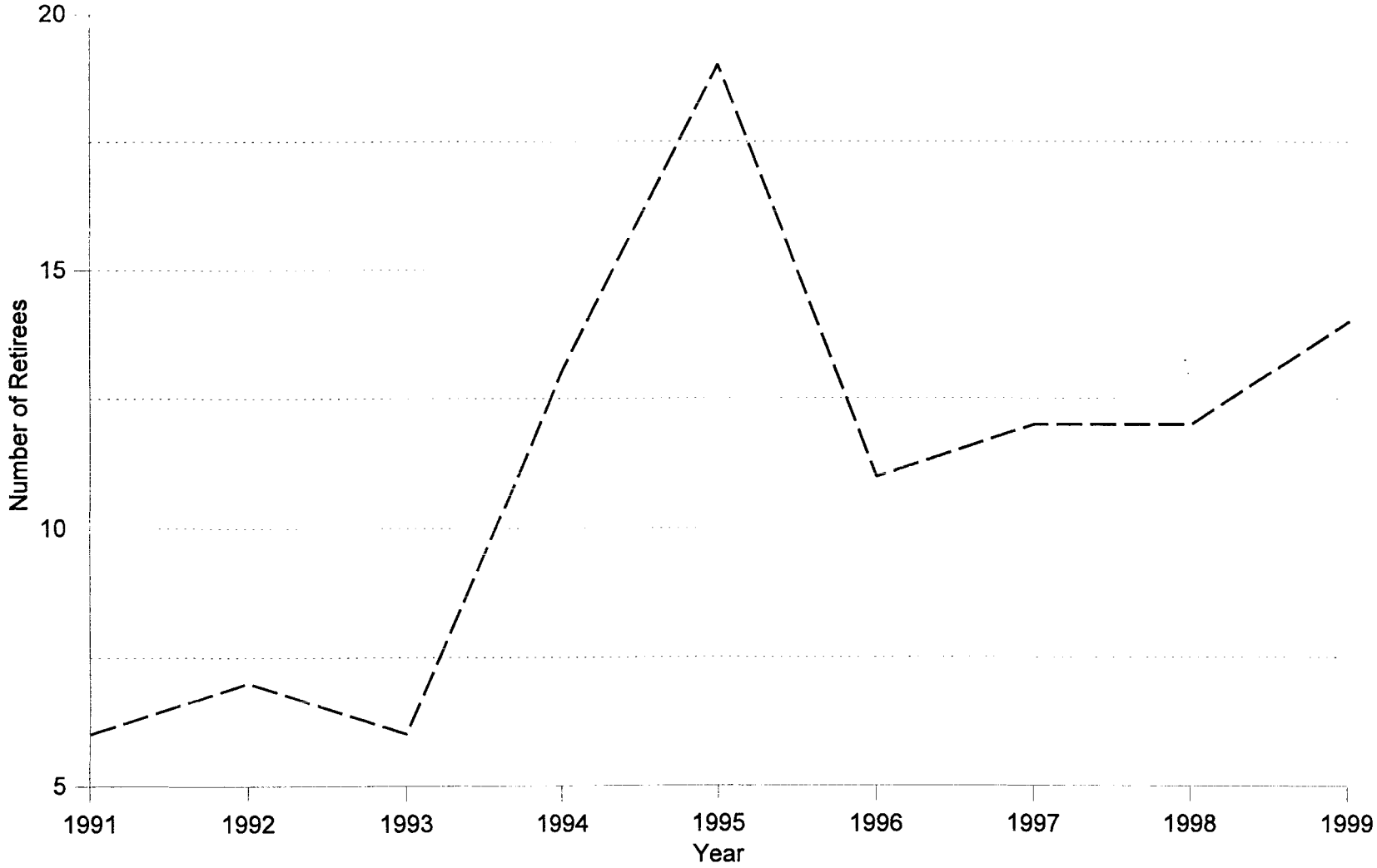



Permanent Employees to Population
1986 to 1996
Legend
Population
Employees
Number of Permanent Employees
700
675
650
625
600
575
550
525
500
475
450
425
400
Population
65000
60000
55000
50000
45000
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
Year

ATTACHMENT 4

Retirements Per Year

1991-1996 Actual; 1997-1999 Projected



CANADIAN HR Reporter

THE NATIONAL JOURNAL OF HUMAN RESOURCE MANAGEMENT DECEMBER 2, 1996

Real wage gains for 1997

Compensation surveys reveal 2.5 per cent wage increases for most employee groups; use of incentive and alternative pay growing slowly

BY CHRIS KNIGHT

A COMBINATION of rock-bottom inflation and a brighter business climate meant many employees saw their first real wage gains of the decade this year and can expect continued moderate growth in 1997.

The news comes from two recent compensation surveys, one from Sobeco Ernst & Young, the other from the Conference Board of Canada. Both predict average wage gains of about 2.5 per cent for Canadian workers next year.

Ernst & Young estimates an average salary increase of 2.7 per cent for management staff next year, and 2.5 per cent for non-management staff. Both figures are one-tenth of a per cent lower than actual 1996 salary gains. The Conference Board predicts an average salary hike of 2.4 per cent for non-union employees. Inflation averaged 1.7 per cent in 1996 and is expected to run at 1.9 per cent in 1997, resulting in real wage gains in both years.

Both organizations surveyed several hundred employers of all sizes, and both predict slightly higher wage gains for workers at smaller firms. The Conference Board says wages at companies with less than 500 employees will rise by 2.6 per cent next year while those at firms with 5,000 workers of more will rise by 2.1 per cent.

"Smaller companies have to compete more than big companies do," said John Johnston, a principal with Ernst & Young. "They're competing for talent and they recognize that they have to buy it." He added that larger organizations "are recognizing that they were market leaders (in salary levels) and they're starting to hold back a little to bring themselves in line."

He also noted that a perception of job security and low turnover at large firms may be a reason why wage gains are less than in small businesses.

Finally, he said, larger companies are more likely to offer variable compensation in lieu of across-the-board salary hikes — although he pointed out that it is at smaller companies where variable compensation can have the biggest effect. A senior manager can "have much greater impact on a small company than any given vice-president will have on a bank," he said.

The Conference Board report notes that innovative compensation strategies are growing slowly, but it also found a significant

See Page 2...Compensation

WHAT'S INSIDE

N.B. examines employer-

Courts more 'employer-friendly' in dismissal cases, authors say

tion initiatives

Competency-based pay	Team-based pay
10	7
13	7
1	<1
36	57
39	29

Source: The Conference Board of Canada

Compensation

Continued From Page 1

number of employers who have examined alternative compensation schemes and then decided not to go ahead with them.

Between seven and 14 per cent of employers said they had considered broadbanding, competency-based pay or team-based pay and then decided against it—roughly the same number which had implemented each program. A few employers had earlier implemented one of these schemes but then disbanded it (see chart).

Nathalie Carlyle, the author of the Conference Board report, said integration is the key to any new compensation plan and that many companies "have found that...some of the other components weren't in place...that could support these programs. At the outset it looks a little bit simpler than it actually is."

She said performance management systems, workplace culture and training and development must all link to new compensation programs if they are to work properly. Senior management buy-in is also vital.

The Conference Board also asked respondents to list the top HR priorities for 1997. Performance management, training and career development and rewards and recognition topped the list as they have for the past three years.

Methods of performance appraisal show a gradual move to it being a multi-input activity. Team input, upward feedback, peer review and customer feedback were used by between 29 and 42 per cent of companies in 1994, but last year they were used by between 41 and 55 per cent of respondents.

Carlyle noted that a small number of organizations (eight per cent) are using economic value added (EVA) as part of their performance management system. Also known as creating shareholder value, economic profit or residual profit, EVA attempts to determine whether a company is creating economic value over and above the cost of capital assets. Carlyle said EVA was used as part of performance management "mostly at the executive level," and that even there the link between individual performance and corporate profit can be difficult to draw.

The Ernst & Young survey found more than a third of respondents looking to improve their performance management systems, as well as an increase in the level of dissatisfaction with current job evaluation systems.

"Job evaluation as it's traditionally been done just doesn't fit our new organizations," said Johnston. "As an organization starts to look at the way it values jobs, the value system has to match the way the organization is designed....I can't think of any area of the business that still operates the way it did in 1950—except for job evaluation."

Competency-based pay is one area of interest among HR professionals, although he said few companies have fully implemented such a system.

"There's an interest in using competencies as part of an integrated HR system," he said, but management reaction to the cost of change may be: "Yes, I know this is a problem but it's not a problem I'm going to lavish this much money on."

•For more compensation news, see page 12.

Top HR priorities for 1997

- Performance management
- Training and career development
- Rewards and recognition
- HR information systems
- Variable compensation
- Restructuring
- Pension and benefits
- Labour relations
- Quality and customer service
- Job evaluation/classification
- Managing health costs
- Managing diversity
- Global HR issues
- Outsourcing HR activities

Source: The Conference Board of Canada

FILE

Council Decision - January 13, 1997 Meeting

DATE: **January 14, 1997**

TO: **Personnel Manager**

FROM: **City Clerk**

RE: ***1997 SALARY TREATMENT FOR EXEMPT STAFF***

Reference Report: Personnel Manager, dated January 6, 1997

Resolution Passed:

"RESOLVED that Council of The City of Red Deer, having considered report from the Personnel Manager dated January 6, 1997, re: 1997 Salary Treatment of Exempt Staff, hereby agrees to a one time payment of 2% of annual base salary to Exempt Staff, payable as soon as administratively feasible in 1997, with that amount being incorporated into the base budget for 1998, to be used as part of the implementation of the new Exempt Evaluation System, and as presented to Council January 13, 1997."

"RESOLVED that Council of The City of Red Deer hereby agrees that amendments to Section B of Council Policy No. 5203 (Council Remuneration) be suspended until such time as the review of Honorariums for Council Members is completed and presented to City Council."

Report Back to Council Required: Yes, upon completion of report regarding the review of honorariums for Council Members scheduled to be done in 1997

Comments/Further Action:

Kelly Kloss
City Clerk

KK/clr

Item No. 4

SP - 5.251

DATE: **January 2, 1997**

TO: **KELLY KLOSS**
City Clerk

FROM: **COLLEEN JENSEN**
Social Planning Manager

RE: **DAY CARE MANAGEMENT AUDIT**

City Council, during the 1995 budget deliberations, recommended to the Social Planning Department that a review of The City's involvement in day care should be undertaken. Specific direction from the January 23, 1995 meeting was "that a review be conducted in 1995 of how day care should be funded and how the service should be provided".

This review was completed and presented to Council in September, 1995. Fourteen recommendations were approved as put forward. Recommendation #10 was:

> "That a management audit of the Red Deer Child Care Society be done in 1996, related to the funding provided by The City".

This recommendation was carried forward and became a strategy in the Social Planning Department's 1996 Business Plan.

Cuthbertson Sandall was contracted to complete the audit, with Mark Beavington from their firm undertaking the work. Mr. Beavington was asked to:

- track the money allocated to the Red Deer Child Care Society by The City to ensure that funding was only being used to subsidize low-income families and families who have children with special needs.
- track money allocated by The City for maintenance of the two day care facilities to ensure money was spent as specified in the budget.

This was done for the calendar year of 1995.

.../2

The findings are contained in the attached audit report. The following chart provides a summary.

	Paid to Red Deer Child Care	**Allocated by Red Deer Child Care**
Low-income Subsidy Allocation	$106,105[1]	$108,707[2]
Maintenance Funding Allocation	$26,700[3]	$32,248

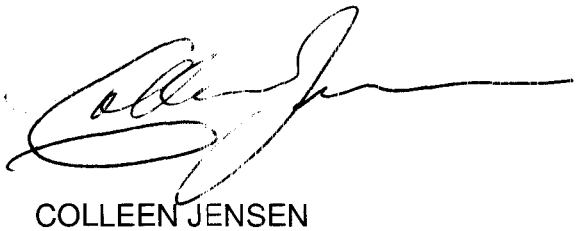
1. As per Day Care Management Agreement for 1995.
2. Funding used for subsidy on behalf of low-income and special needs families.
3. Includes $14,800 from City and $11,900 from C.F.E.P.

As is apparent, the Red Deer Child Care Society is using City funding as it is intended and goes beyond those allocations with additional funding generated by the Society. Mr. Beavington also indicated that in reviewing a random sample of files, he found excellent substantiation of the need for funding to the respective families. He also indicated that staff at Red Deer Child Care Society were very knowledgeable and that their recording systems were effective and efficient.

With the above noted audit and information, the Social Planning Department is satisfied that the funding allocated to the Red Deer Child Care Society for low-income subsidy and for maintenance on the two City-owned centres is being used as intended by Council.

RECOMMENDATION

That Council for The City of Red Deer accept the management audit for the Red Deer Child Care Society, as prepared by Cuthbertson Sandall, for information.



COLLEEN JENSEN

:ad
Att.

c. Lowell R. Hodgson, Director of Community Services
Howard Mix, Chair, Red Deer Child Care Society
Noreen Spencer, Contract Administrative Support

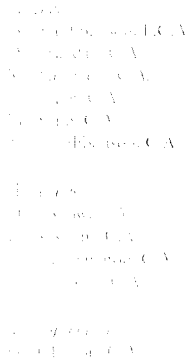
RED DEER CHILD CARE SOCIETY

SCHEDULE OF LOW INCOME SUBSIDIES
SCHEDULE OF REPAIRS AND MAINTENANCE EXPENSES

YEAR ENDED DECEMBER 31, 1995

and

AUDITORS' REPORT



AUDITORS' REPORT

TO THE COUNCIL
THE CITY OF RED DEER

At the request of the City of Red Deer we have audited the schedules of low income subsidies and repairs and maintenance expenses for Red Deer Child Care Society for the year ended December 31, 1995. These schedules are the responsibility of the society's management. Our responsibility is to express an opinion on this financial information based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether these schedules are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial information.

In our opinion, these schedules present fairly, in all material respects, the low income subsidies and repairs and maintenance expenses of the society for the year ended December 31, 1995 in accordance with generally accepted accounting principles.

Cuthbertson Sandall

December 20, 1996
Red Deer, Alberta

Chartered Accountants

In touch with business
4817 - 49 Street, Red Deer, Alberta T4N 1S6 Telephone (403) 342-2500 Fax (403) 346-7033

RED DEER CHILD CARE SOCIETY

SCHEDULE OF LOW INCOME SUBSIDIES

YEAR ENDED DECEMBER 31, 1995

PROGRAM	
Preschool Family Day Home	$ 63,800
Normandeau Day Care	22,351
Red Deer Day Care	20,014
Infant Care	2,542
	$108,707

RED DEER CHILD CARE SOCIETY

SCHEDULE OF REPAIRS AND MAINTENANCE EXPENSES

YEAR ENDED DECEMBER 31, 1995

FACILITY	1995
Normandeau Day Care	$ 18,732
Red Deer Day Care	$ 13,516

RED DEER CHILD CARE SOCIETY

NOTES TO SCHEDULES

YEAR ENDED DECEMBER 31, 1995

1. LOW INCOME SUBSIDIES

The society offers low income subsidies to parents based on their level of income. These subsidies are offered in addition to any provincial subsidies available to these parents.

2. REPAIRS AND MAINTENANCE EXPENSES

The schedule indicates the gross amount of repairs and maintenance expenses before the receipt of any funding which may be available to the society from other sources.

Comments:

This is submitted for Council's information and as indicated, The Red Deer Child Care Society has done an excellent job of allocating the City funding as intended.

"G. D. SURKAN"
Mayor

"H. M. C. DAY"
City Manager

FILE

Council Decision - January 13, 1997 Meeting

DATE: **January 14, 1997**

TO: **Social Planning Manager**

FROM: **City Clerk**

RE: ***DAY CARE MANAGEMENT AUDIT***

Reference Report: Social Planning Manager, dated January 2, 1997

Resolution Passed: N/A

Report Back to Council Required: No

Comments/Further Action: Council accepted the above as information. Thank you for providing Council with this informative report and audit.

Kelly Kloss
City Clerk

KK/clr

c Director of Community Services
Director of Corporate Services

Howard Mix, Chair
Red Deer Child Care Society

Noreen Spencer, Contract Administrative Support
Red Deer Child Care Society
5216 - 48 Avenue
Red Deer, AB T4N 3T9

Item No. 5

CS-6.167

DATE: **December 19, 1996**

TO: **KELLY KLOSS**
City Clerk

FROM: **LOWELL R. HODGSON**
Community Services Director

RE: **TRANSIT TRANSFER STATION:**
CONCEPTUAL DESIGN REPORT

On July 2nd, 1996, City Council granted $6,000 in order that we might undertake more detailed planning information and more accurate budget estimates for an Off-Street Transit Transfer Station, with this information to be brought back to City Council prior to the consideration of the 1997 budget. These funds were to be used to develop presentation plans, an artist's rendition, and to undertake soil analyses to help us more accurately forecast costs for such a development.

Enclosed with this memo is the Conceptual Design Report, as prepared by our own Engineering Department. At the January 13th, 1997 Council Meeting, I would appreciate an opportunity to present this plan for the information of City Council, not asking for any decision or approvals at this time, but rather simply informing them of the work undertaken.

This report was presented to the Transportation Advisory Board on Thursday, December 19th, 1996, and a memo from their chairman will also be available for the information of Council.

LOWELL R. HODGSON

:dmg

Encl.

SP-5.247

DATE: **December 20, 1996**

TO: **KELLY KLOSS**
City Clerk

FROM: **RAY CONGDON, Chairman**
Transportation Advisory Board

RE: **OFF STREET TRANSIT TRANSFER STATION**

At the December 19, 1996, Transportation Advisory Board meeting, the Board considered the proposal for an Off Street Transit Transfer Station in downtown Red Deer, as presented by the Community Services Director, Lowell Hodgson.

Board members were enthusiastic about the site plan for the additional safety features offered to transit riders and for the attractive layout provided for the facility. The Board particularly commented on the retail space available to the City, space which would help defray operating costs of the Transfer Site. The Board is also mindful of the fact that the site is fully wheelchair accessible to allow easy access to low floor buses.

The Transportation Advisory Board voted unanimously to support the submission of the Transit Transfer Station Report to City Council.

RECOMMENDATION:

That City Council approve the Concept Plan for an Off Street Transit Transfer Station in downtown Red Deer and proceed with construction in 1997.

RAY CONGDON, Chairman
Transportation Advisory Board

:kt

Comments:

The attached is presented for the information of Council. There is no decision required at this time. Council will be considering this item when they deal with the 1997 Budget later this month. For Council's information, this facility is included in the 1997 Budget for construction in the Year 2001. The "Transit Transfer Station: Conceptual Design Report" is included as an attachment to the agenda. We ask that Council Members retain this report and bring same to the upcoming Budget meetings as additional copies will not be provided.

"G. D. SURKAN"
Mayor

"H. M. C. DAY"
City Manager

FILE

Council Decision - January 13, 1997 Meeting

DATE: **January 14, 1997**

TO: **Director of Community Services**

FROM: **City Clerk**

RE: ***TRANSIT TRANSFER STATION: CONCEPTUAL DESIGN REPORT***

Reference Report: Director of Community Services, dated December 19, 1996

Resolution Passed: N/A

Report Back to Council Required:

Comments/Further Action: Thank you for your informative presentation to Council. This item will be discussed further during the upcoming 1997 Budget deliberations.

Kelly Kloss
City Clerk

/clr

c Director of Corporate Services
Director of Development Services
Transit Manager

COUNCIL MEETING OF JANUARY 13, 1997

ATTACHMENT TO REPORT ON OPEN AGENDA

RE:

Transit Transfer Station Conceptual Design Report

TRANSIT TRANSFER STATION

CONCEPTUAL DESIGN REPORT

THE CITY OF RED DEER
ENGINEERING DEPARTMENT
TRANSIT DEPARTMENT
GROUP 2 ARCHITECTS
TOWNE CENTRE ASSOCIATION

DECEMBER 1996

TRANSIT TRANSFER STATION
CONCEPTUAL DESIGN REPORT

INTRODUCTION

This report was initiated by the Community Services Division of The City of Red Deer to develop a conceptual design and preliminary budget for construction of a Transit Transfer Station (TTS) on the block of land currently occupied by a City parking lot between 48 and 49 Streets, east of 49 Avenue (existing site illustrated on Figure 1). This site is commonly referred to as the Old Sports World Parking Lot. Some of the objectives of this report are to

- consolidate information from past studies,
- update the conceptual design to incorporate current technologies, requirements, and operating practices, and
- update the project budget for presentation to Council during the 1997 Budget debate.

Although input was received from many staff and outside agencies during the course of this study, the main design team consisted of

Lowell Hodgson	Director of Community Services
Ken Haslop	Engineering Department Manager
Kevin Joll	Transit Manager
Tom Warder	Streets and Utilities Engineer
Vaughan Bechthold	Project Designer
John Hull	Group 2 Architects
John Ferguson	Towne Centre Association

BACKGROUND

A central Transit transfer area is currently operated on-street along 49 Street (between 48 and 49 Avenues) and 48 Avenue (between 48 and 49 Streets). This results in several operational and safety concerns. An off-street Transit Transfer Station has been considered for many years as a solution to these concerns. The 1986 Red Deer Transit Study included a review of a number of possible sites for such a facility and concluded that the preferred location is on the subject site. This site was confirmed as the best location for an off-street transfer station in the 1989 Transit Study.

In 1991, Delcan Western Ltd. completed a study to determine the feasibility of developing an off-street Transit Transfer Station on the subject site as well as a parkade extending into the RCMP and City Hall staff parking areas. The study's Terms of Reference included the accommodation of 16 buses on the site. Figure 2 illustrates the layout of the Transit Transfer Station recommended by Delcan. The budget estimate for constructing the facility was approximately $900,000 plus land costs. This includes the municipal portion of the GST but does not include the cost of developing a parkade.

Since this time informal studies and reviews have been done by City staff and others which explored various design concepts, but the off-street Transit Transfer Station on the subject site was concluded to be the best solution.

The off-street station has not developed to date because of lack of funding approval. However, the need for such a facility is becoming more urgent with growing ridership and growing concern for the safety of patrons and pedestrians along the congested sidewalks adjacent to the existing transfer area during peak transfer periods. The recently completed draft 1996 Transportation Study identifies this project as being needed in the short term to improve rider safety and reduce vehicular congestion in the area. There is also growing concern for traffic safety due to the close proximity of vehicles driving adjacent to the buses in the area and the congestion and conflicts resulting from the buses exiting and entering the mainstream of traffic along the lengths of the two blocks. From an operational point of view, an off-street Transit Transfer Station will improve efficiencies and create opportunities for improving route structures to meet the needs of its patrons as the City grows and ridership increases.

OPERATIONAL ISSUES

The current Transit system uses 10 buses on a radial route structure focusing on a hub or central transfer point. The route structure and central transfer point would be the same for an off-street transfer station as with the current on-street station. The current routing system uses a 30 minute trip time with a common terminal departure time for all routes.

The last overall Transit Study in 1989 indicated that the radial route structure and central transfer facility should be maintained and that it should serve the City to a population of 100,000 or greater. As the City grows outward, various techniques can be used to alter routing without increasing the number of buses in the core area at the determined departure times. Some of these techniques are outlined below along with some of the problems that may be associated with them:

- Increase trip times to routes serving outlying areas, but also increase the number of buses on these routes so that the terminal departure times still match the remaining routes. This will result in an increase in trip time for riders on longer routes.

- Establish satellite transfer areas and feed outlining routes to them. This will result in an increase in the number of transfers required on some routes to complete the riders journey.

- Increase trip times to routes serving outlying areas and offset departure times at the central transfer point as compared to some of the other routes. The offset departure time will cause a non-timed transfer (i.e. riders will have to wait at the transfer station for a short period of time before completing their transfer).

Overload buses will still be required to meet peak load demands, but the transfer station need not provide permanent spaces for them. The departure times for the overload buses can be slightly offset from the regular route buses so that they don't arrive at the station at the same time. Alternatively, the overload buses can be parked on-street adjacent to the off-street facility.

In summary, the Transit Transfer Station should provide for at least 10 buses off-street and two additional peak load buses on-street adjacent to the facility. This should meet the needs of the City in the foreseeable future.

DESIGN ALTERNATIVES

Initially, the two island design concept developed by Delcan in the 1991 study was thought to be the only alternative that would meet the needs of the facility. However, there are significant pedestrian safety concerns related to the two island concept (i.e. riders walking or running between buses from one island to the other) and after discussions with consultants and investigation of other transit systems, the Transit Department has indicated that a 16 bus facility may not ever be needed in the City. The design team, therefore, decided to work toward the development of a single island concept that would meet the City's needs. Several alternatives were considered, but the best was considered to be an oval shape (see Figure 3). Some of the advantages of this shape are listed below.

- Curb length is increased enough to fit 10 buses along the two sides of the island (straight curb alignment used on the two island concept will only accommodate eight buses per island).

- Angle of access/egress is improved for buses turning onto or off of the adjacent streets.

- Two additional on-street bus stops can be provided adjacent to the site for peak period use (sidewalk access from these bus stops to the main facility).

- Concept provides more area for landscaping to break up the hard surface components and enhance the appearance of the facility.

◊ Concept provides more room for development of private retail outlets.

An option that could be further investigated is to shift the Transfer Station approximately 14 m east as illustrated in Figure 4. This would require that the Smith Building (Old Sports World building; currently leased to Cooperators, Red Deer Registries, and Reform Party) be purchased and demolished. It would also occupy additional City parking space located south of the Smith Building. The main advantage of this option would be to create a commercial parcel along the west side of the facility adjacent to 49 Avenue. This is considered to be a prime location for commercial development in the Downtown because of its exposure to the high traffic volumes along 49 Avenue and 49 Street. Of course, the only way this option would be considered viable is if the revenue created from the sale of the newly created parcel would off-set the cost of purchasing and demolishing the Smith Building and replacing the City parking.

For the purposes of this assignment, we have set aside the optional siting of the station until we receive further direction from Council whether or not to pursue same. It should be noted that the conceptual design of the facility need not change significantly under the optional siting.

ARCHITECTURAL DESIGN CONCEPT

The basic requirements of the Transit Transfer Station include parking for 10 buses on-site and two buses on the adjacent streets, an office for a dispatcher, public washrooms, heated waiting area, shelters and waiting areas for the patrons, and sidewalk access between buses. In addition, depending on private sector interest, this is an opportunity to provide leaseable space for businesses that would compliment and serve the Transit patrons.

An architectural concept for the Transit Transfer Station is illustrated on Figures 5 (Plan View) and 6 (Elevations). The following commentary from the architect is intended to walk the reader through the facility:

Low, decorative wrought iron fences around the perimeter of the bus zone guide pedestrians to two site entries on the north and south sides of the property. Major gateway signage and lighting arches identify these entry points and their design defines both the pedestrian and the bus scale of the site.

Once onto the island, one enters a strong north-south pedestrian axis established by a regular structural bay (20 x 16 ft) being repeated the length of the site. This structure becomes increasingly protective and solid towards the centre, progressing from only columns and beams, to joists overhead, to full roof, and finally to a fully serviced core facility. This core is comprised of public washrooms, a driver facility, coffee concession and heated shelter for bus patrons during severe weather.

The roof extensions at each end of the core provide additional rain protection. More importantly, they invite and facilitate future infill development (some possibilities include a one-hour photo, key cutter, newsstand, community health office, etc.) which could eventually grow to extend the full length of the site.

Because of the size of the single island, there are four satellite shelters providing basic wind and rain protection closer to the actual bus drop-offs.

Bright, painted steel, masonry, and aluminum framing screens make up the exterior components of the structures.

The Transit facility is designed to be a cheerful, vibrant, and flexible addition to the urban fabric of Downtown in Red Deer.

A copy of a letter from the Towne Centre Association endorsing this concept is appended hereto.

ENGINEERING CONSIDERATIONS

The site can easily be serviced with water, sanitary, and storm by extending mains from 48 Street adjacent to the site. Power, gas, and telephone lines are also in close proximity and can easily be extended to the site. Some existing utility lines crossing the site will have to be relocated.

Soil testing on the site was completed by AGRA Earth & Environmental to confirm that the soil conditions were suitable for this type of development and provide recommendations for pavement and foundation design. A concrete pavement is considered most suitable for the bus stall areas as asphalt pavements tend to rut over time under the weight of heavy, stationary loads and deteriorate from dripping fuel or oil. Asphalt pavements can be used in other driving areas.

A saw tooth configuration of bus stops, similar to that recommended in the 1991 Delcan report, has been used in the Transit Transfer Station to allow buses to move independently of one another. This will give greater flexibility in routing structure and will allow each bus to stop in a consistent location making it easier for patrons to find the bus they want (i.e. Bus 1 Southbound will always stop in the same stall).

RCMP parking can be relocated from the Old Sports World Parking Lot to 49 Street (i.e. on-street parking). Parking for the Smith Building will remain at the back of the building, but be accessed from the south through the City parking lot.

COST ESTIMATES AND FUNDING

The following table outlines the estimated cost to construct the proposed Transit Transfer Station as described above:

Component Description	Budget Estimate
Shallow Utilities (power, gas, telephone)	$55,000
Water , Sanitary, and Storm Services	$30,000
Site Work (grading, pavement, curbing, sidewalks, traffic signage)	$210,000
Landscaping (trees, shrubs, sod, retaining walls, fencing)	$50,000
Street Furniture (benches, picnic tables, waste containers, information kiosks)	$60,000
Main Building including dispatch office, public washrooms, heated shelter, and concession room (improvements by tenant)	$160,000
Gateways and Structural Framework for future retail	$170,000
Satellite Shelters	$60,000
Architectural and Engineering Fees	$80,000
TOTAL:	**$875,000**

Although the facility is to be built on City owned land, the parking lot that will be eliminated on this site must be replaced elsewhere. In order to do this, fair market value for the land would be paid to the Parking Fund. Fair market value for this property is estimated to range from $15 to $17 per square foot. This equates to roughly $680,000 to $770,000. Based on an average land value of $725,000, the total project budget is **$1,600,000.** A possible funding source for this project is from prior years capital surpluses.

LONG-TERM MAINTENANCE COSTS

As with any new building, there is a cost to operate and maintain it. Functions that would have to be performed for this type of facility include:

- Power, gas, water, sewer, telephone costs
- Snow clearing and garbage collection
- Mowing grass and pruning trees
- Building cleaning and supplies
- Mechanical repairs, painting, vandalism

Annual maintenance costs are estimated to be in the order of $30,000 to $40,000. This cost would have to be included in the Transit Department's Operating Budget.

SUMMARY

* An off-street Transit Transfer Station is needed to improve the safety of pedestrians, Transit patrons, and motorists, reduce vehicular congestion along 48 Avenue and 49 Street, improve the level of service to Transit patrons, and to improve Transit operations.

* The Old Sports World Parking Lot is still considered to be the best site for an off-street Transit Transfer Station.

* The Transit Transfer Station must accommodate at least 10 buses on-site and two peak period buses off-street.

* An oval shaped, single island concept is preferred to the dual island concept originally proposed, as it will improve pedestrian safety, accommodate the required number of buses, improve bus turning movements, be more attractive, and provide an opportunity for private development of compatible retail space.

* If Council wishes to provide commercial space between 49 Avenue and the Transit Transfer Station, an alternative siting can be further investigated.

* The concept proposed for the Transit Transfer Station includes a dispatch office, public washrooms, heated waiting area, a concession, several spaces for private development, park-like landscaping, and four satellite shelters.

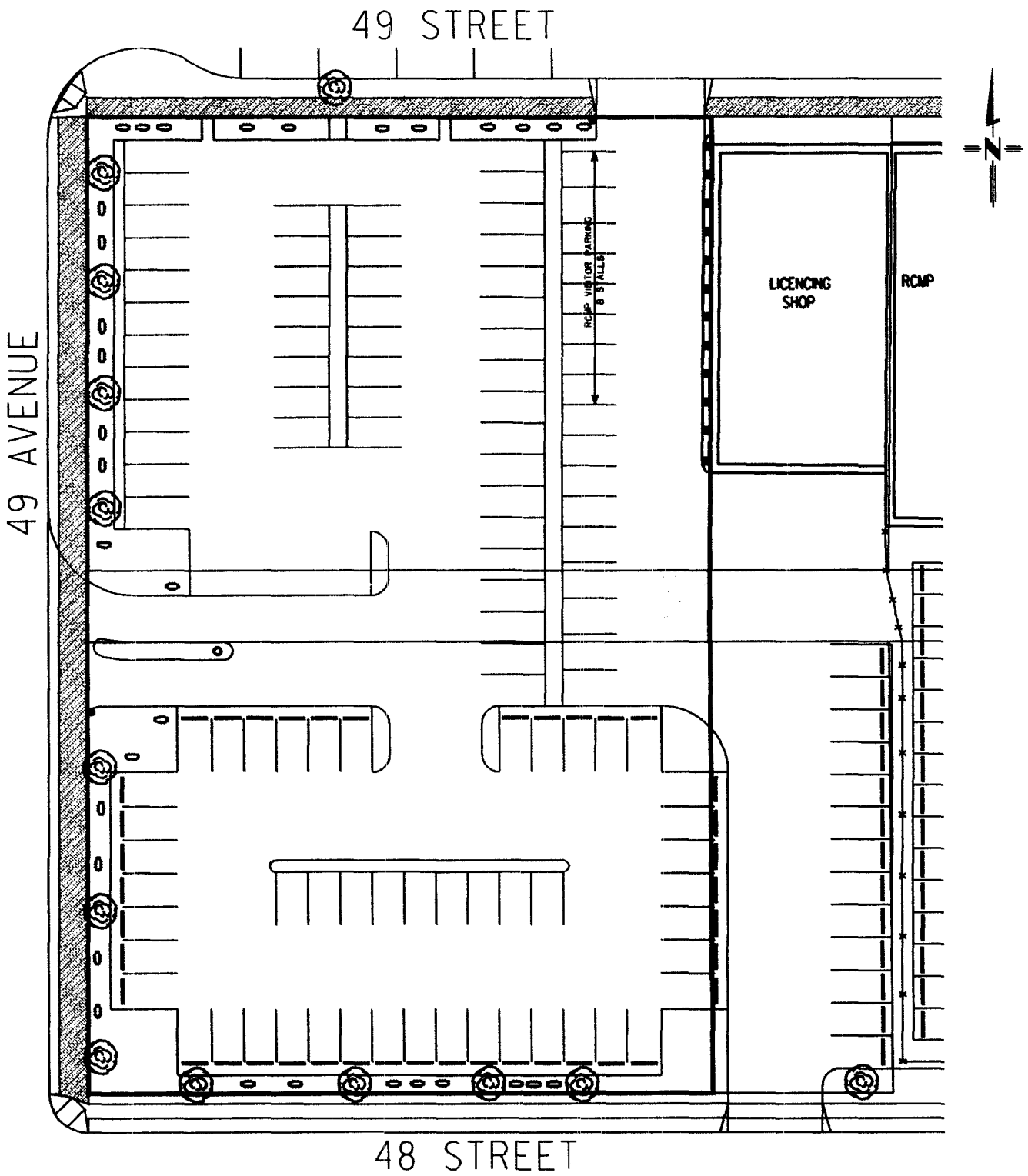
* The cost to construct the Transit Transfer Station is estimated to be approximately $875,000.

* The cost of purchasing the land for the complex is estimated to be approximately $725,000.

* The annual cost of maintaining the Transit Transfer Station is estimated to be $30,000 to $40,000.

RECOMMENDATION

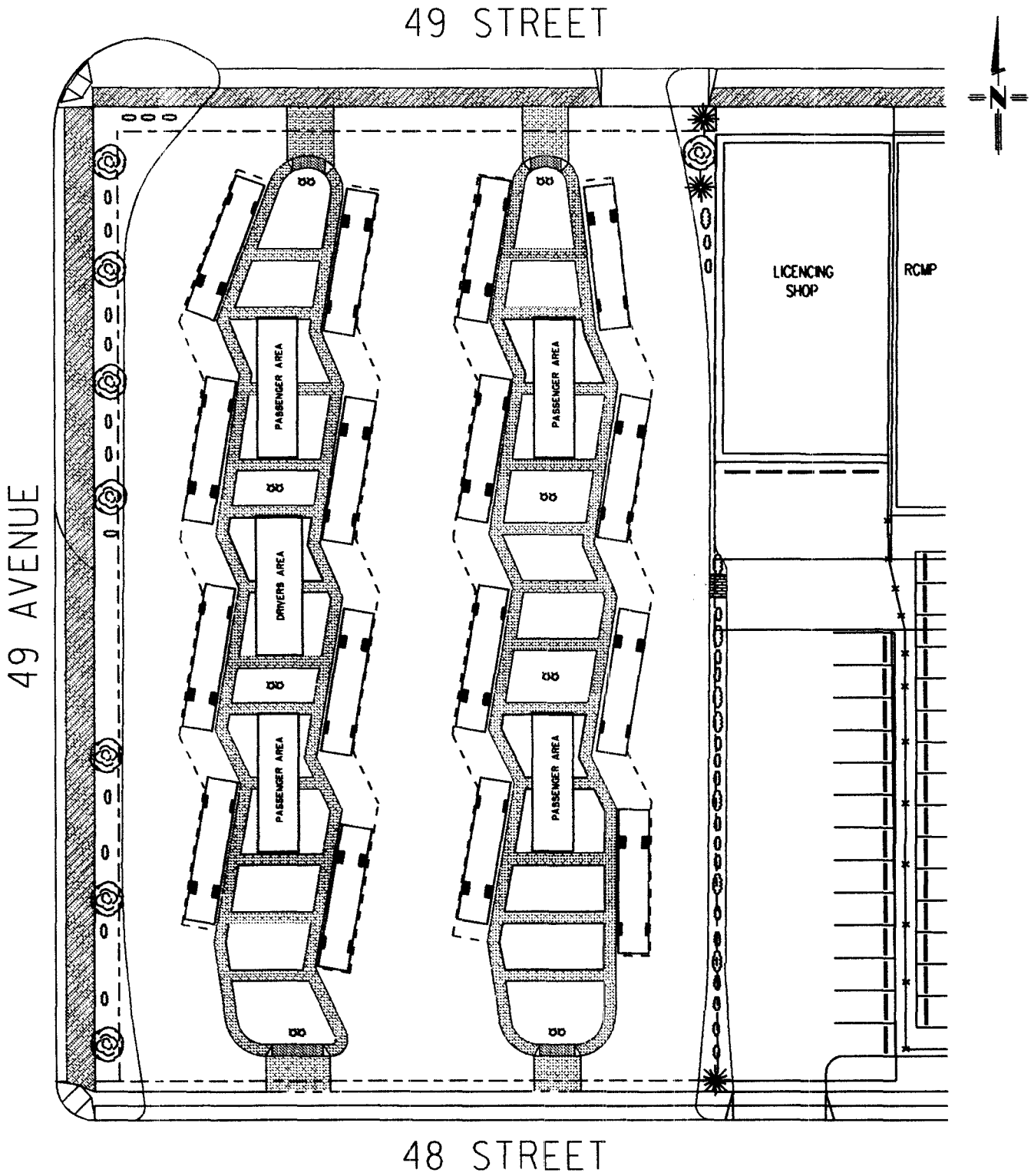
The Design Team recommends that City Council approve the construction of a Transit Transfer Station on the Old Sports World Parking Lot according to the concept proposed herein as soon as funding can be made available. Total funding required for this project would be approximately $1,600,000, including land costs. Consideration should be given to funding this project from prior years' capital surpluses. An increase in the Transit Department's annual operating budget to include the cost of maintaining the Transit Transfer Station should also be considered once it is built.



TRANSIT TRANSFER STATION

EXISTING SITE CONDITIONS

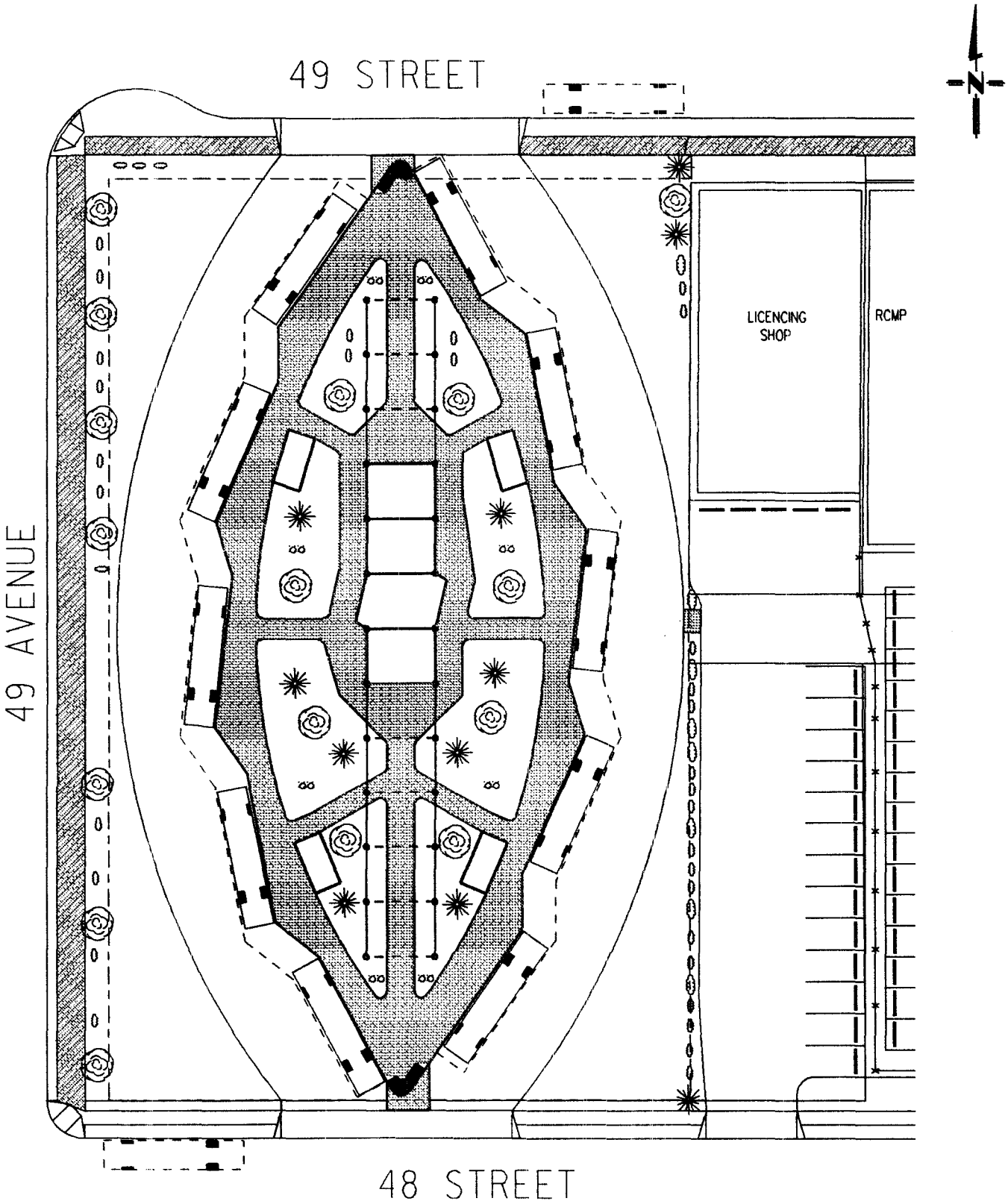
FIGURE 1



TRANSIT TRANSFER STATION

TWO ISLAND CONCEPT

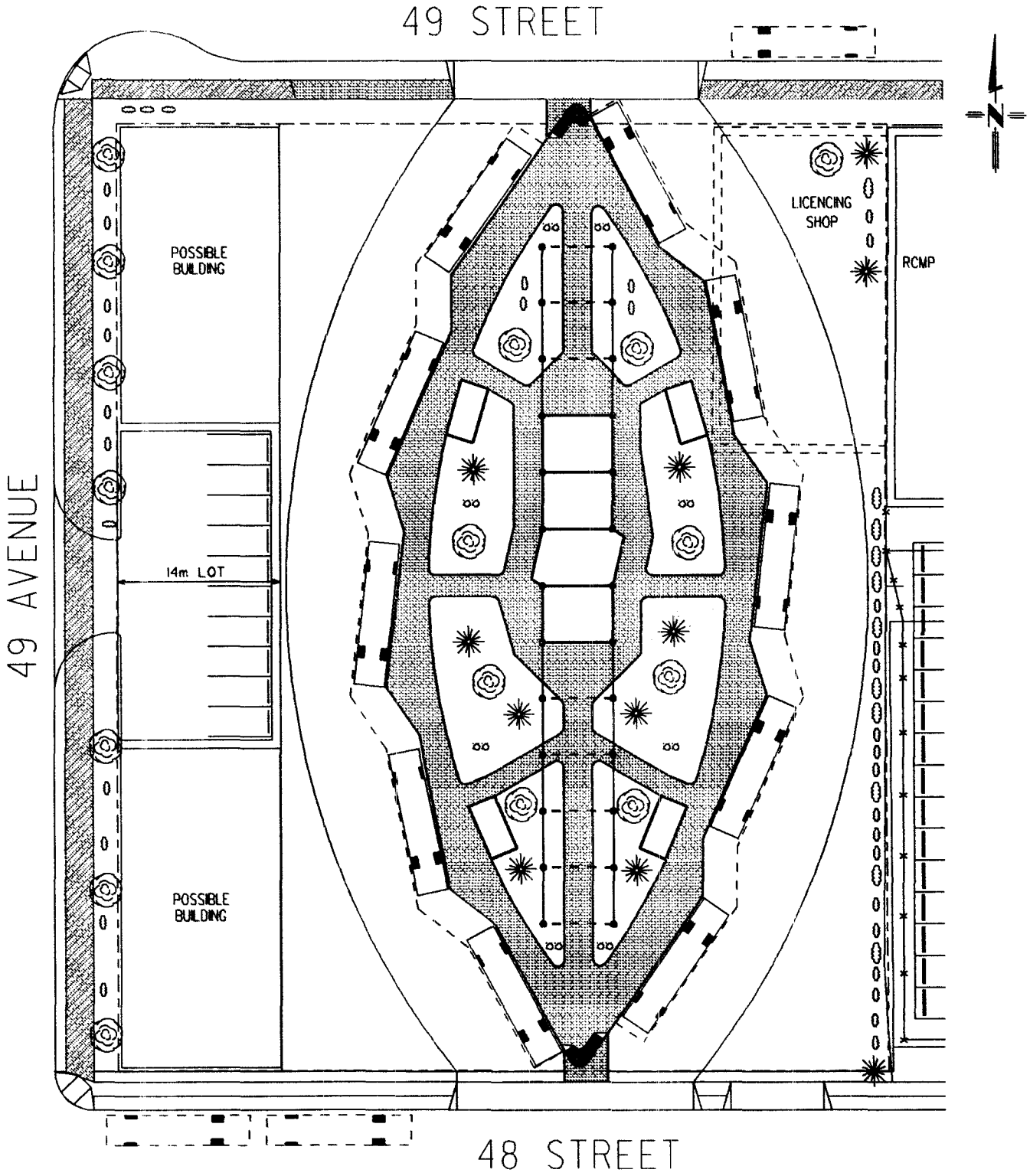
FIGURE 2



TRANSIT TRANSFER STATION

SINGLE OVAL-SHAPED ISLAND CONCEPT

FIGURE 3



TRANSIT TRANSFER STATION

OPTIONAL SITING OF OVAL ISLAND CONCEPT

FIGURE 4

• RED DEER'S • ORIGINAL • BUSINESS DISTRICT •

TOWNE CENTRE ASSOCIATION • B3, 4901 - 48 ST. • RED DEER, ALTA. • T4N 6M4 • (403) 340-TOWN (8696) • FAX (403) 340-8699 •

DEC 2 1996

December 10, 1996

Downtown Planning Committee
c/c: Transit Study Committee
City of Red Deer

RE: Off Street Transit Transfer Terminal Concept

Dear Mr.Chairman,

The Board of Directors of the TCA reviewed the terminal concept on December 3rd, at the regular TCA Board Meeting. The concept reviewed is described as a single island terminal holding 10 buses, with two on street overload stops, for a total of 12 bus storage. The concept includes the potential for commercial development within the terminal site. In addition, a second option exists that would involve the trade of land with the Smith Building allowing further commercial development to occur adjacent to 49 Ave.

After discussion the board passed a motion endorsing the concept, with or without the land trade option. They further passed a motion requesting the DPC begin immediate review of the replacement parking in the immediate area.

The board was not prepared to specifically endorse or not endorse the involvement of the private sector in the terminal. This is provided for your information.

Moved That: The board of directors of the Towne Centre Association having reviewed the terminal concept of December 3rd, 1996, endorse the concept as presented.

Moved That: The board of directors of the Towne Centre Association recommends that the Downtown Planning Committee address the timing and location of replacement parking required from development of the transit terminal and as approved by the DPC, immediately.

Sincerely yours,
Towne Centre Association

John P.Ferguson, General Manager.

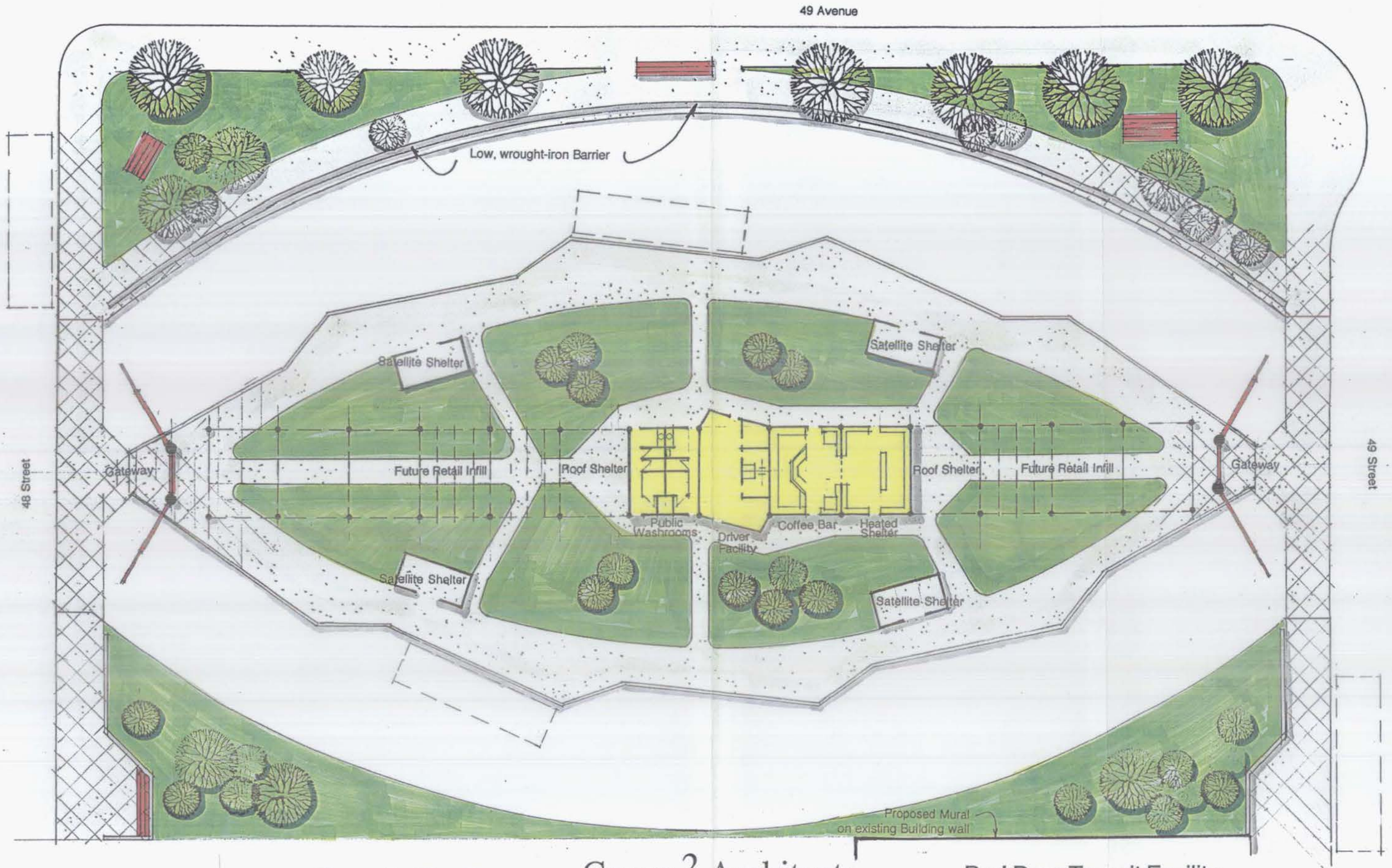
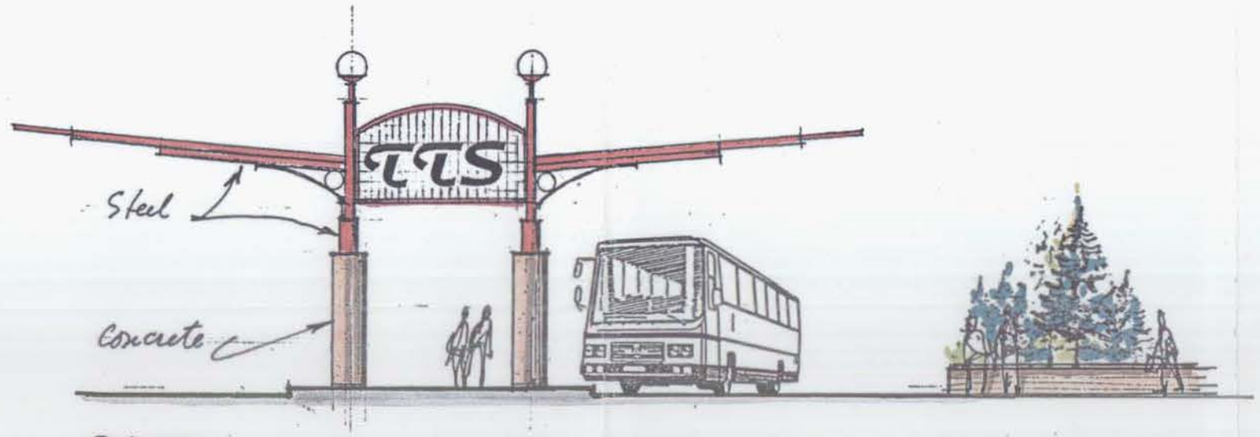


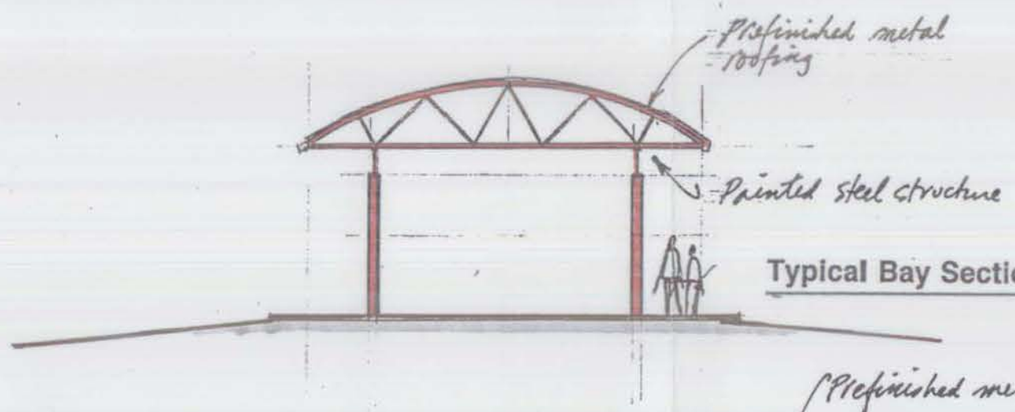
Figure 5 Site Plan

Group 2 Architects

Red Deer Transit Facility
December 7, 1996



Gateway



Typical Bay Section

East Elevation

Figure 6 Elevations

Group 2 Architects

Red Deer Transit Facility
December 7, 1996

Item No. 6

PATH: paul\memos
MASTERFILE: 2355.875

DATE: January 7, 1997

TO: City Clerk

FROM: Public Works Manager

RE: WASTEWATER TREATMENT MASTER PLAN

In June, 1996 we reported to Council that we were commencing a Wastewater Master Plan to establish a short and long-term strategy for the development of the City's wastewater treatment facilities. Primarily the report focuses on the short term strategies to address immediate process "bottlenecks" within the Wastewater Treatment Plant and long-term strategies to address changes to our Operating License issued by Alberta Environmental Protection (AEP) (attached is correspondence from AEP relating to this issue). The Master Plan was completed in October, 1996.

Attached is a copy of the executive summary plus some applicable excerpts from the study. The summary includes the recommendations that were developed from the Plan. We will be using these recommendations to form the basis of numerous major capital expenditure requests in our operating budgets in 1997, 1998, 1999 and over the next ten years.

The Wastewater Treatment Master Plan was prepared for the City by a consulting engineering team made up of representatives from Reid Crowther and Partners Ltd. and Stanley Associates Engineering Ltd. Direction and review of the Plan was provided by a Steering Committee which included representation from the City Environmental Advisory Board, Novacor Chemicals Ltd., Alberta Environmental Protection, the Waskasoo Regional Services Board and The City of Red Deer.

Preparation of the Master Plan also involved public consultation which included an open house and process option presentation.

The key recommendations coming out of the Master Plan that may be of immediate concern of Council are as follows:

- the existing sewer utility bylaw should be reviewed and updated to reflect changing Alberta Environmental Protection regulations
- storm water flows and snow storage sites are becoming a more significant environmental concern and are beginning to be monitored in the United States and in parts of Canada
- the preferred wastewater treatment strategy includes upgrades to the operation system, construction of selector reactors and eventual biological nutrient removal and disinfection
- the recommended expenditures needed in order to meet our current process problems and future Alberta Environmental Protection's regulatory changes will require a 2.7% annual increase in the sewer utility rates for the next ten years

. . . 2

We have identified each of these recommendations in our Business Plan and will be addressing them over the next three years.

Copies of the Wastewater Treatment Master Plan document are available at City Clerk's for review, if desired.

RECOMMENDATION

We respectfully recommend that Council adopt the recommendations as specified in the Wastewater Treatment Master Plan. Any recommended expenditures will be presented to council during Budget deliberations.

Paul A. Goranson, P.Eng.
Public Works Manager

/blm

Att.

c Mechanical Services Superintendent
Director of Development Services

CITY OF RED DEER
WASTEWATER TREATMENT
MASTER PLAN
FINAL REPORT

Prepared by:

REID CROWTHER & PARTNERS LTD.
Consulting Engineering Worldwide
#300, Atrium VII, 340 Midpark Way SE
Calgary, AB T2X 1P1

Phone: (403) 254-3301
Fax: (403) 254-3333

In Association with:

STANLEY ASSOCIATES ENGINEERING LTD.
#300, 1122 - 4th Street SW
Calgary, AB T2R 1M1

Phone: (403) 269-9922
Fax: (403) 269-1526

OCTOBER, 1996

Project No. 24824.00

Reid Crowther

Please refer to file 24824-4(a)
G:\24824.00\1114\WPR\1-008JWS.DOC\SAJ

October 30, 1996

City of Red Deer
Department of Public Works
Box 5008, 5420 - 47 Street
Red Deer AB, T4N 3T4

Attention: Mr. Paul Goranson, P.Eng
Acting Public Works Manager

Dear Sir:

RE: Wastewater Treatment Master Plan
Final Report

Enclosed are ten (10) copies of the City of Red Deer Wastewater Treatment Master Plan Final Report.

We have enjoyed working with the City and this assignment and have appreciated the assistance and input provided by all City staff. We trust that the Master Plan meets your current and future requirements.

Please contact J.W. Switzer should you require further information or clarification.

Sincerely,

PROFESSIONAL ENGINEER J.W. SWITZER ALBERTA

J. Warren Switzer, P.Eng.
Reid Crowther & Partners Ltd.
(Sections 1.0, 2.0, 3.0, 4.0, 7.0, Appendices A & B)

George McGeachie, M.Sc., P.Eng.
Stanley Associates Engineering Ltd.
(Sections 5.0 and 6.0)

PROFESSIONAL ENGINEER GEORGE McGEACHIE ALBERTA

JWS/GM/TM

Enclosures

Reid Crowther & Partners Ltd.
☐ Consulting Engineers
☐ #300, Atrium VII, 340 Midpark Way S.E., Calgary Alberta T2X 1P1, Phone: (403) 254-3301, Fax: (403) 254-3333

EXECUTIVE SUMMARY

Overview

The Wastewater Treatment Master Plan establishes a short-term and a long-term strategy for the development of Red Deer's wastewater treatment facilities through to year 2050. The Master Plan incorporates as much flexibility as possible to allow the City to react to changing development patterns, effluent quality requirements and evolving wastewater treatment technologies. It includes a plan of action in some detail for the next ten years and in conceptual detail through to year 2050. The Master Plan provides recommendations regarding construction staging along with conceptual level cost estimates for the recommended facilitates.

Master Plan Development

Ultimate responsibility for development of the Master Plan rests, as it should, with the City's consultants. However, it was developed as a cooperative effort involving the City of Red Deer, the Master Plan Steering Committee and interested members of the public.

The Steering Committee included representatives from the Environmental Advisory Board, Nova Corporation, Alberta Environmental Protection, the Waskasoo Regional Sewer Authority and the City of Red Deer. Each member of the Steering Committee provided valuable input to the Master Plan.

Public consultation was considered to be a key element in developing the Master Plan. Details of the public consultation process are described in Appendix B, as is a list of issues raised and the manner in which they are proposed to be addressed by the Master Plan.

Conclusions and Recommendations

The major conclusions and recommendations which are identified in the Master Plan are listed below.

- The City of Red Deer has traditionally been proactive and has exercised diligence in its efforts to protect the environment. This has been demonstrated by the City's commitment to meet or exceed all environmental requirements set by Alberta Environmental Protection. It has also been demonstrated by the City's initiative to develop this Wastewater Treatment Master Plan.

- The City's Utilities Bylaw should be critically reviewed. The objective of the review should be to have the Bylaw consistent with current standards, as required to allow the City to meet increasingly stringent effluent criteria. In comparison, the City of Calgary Sewer Service

Bylaw contains a more comprehensive list of prohibited substances and a much higher surcharge rate for dischargers whose wastewater exceeds specified contaminant concentrations. It also provides for fines of up to $10,000 and jail terms of up to one year for dischargers who contravene the Bylaw. In reviewing the Utilities Bylaw, it may be advantageous for the City to join forces with other municipalities of similar size to achieve efficiency of effort and uniformity in the end-product.

- Stormwater flows which enter the sanitary sewer system through infiltration, inflow and foundation drainage systems have generally minimal impact on plant operations due to the presence of equalization lagoons at the plant site. However, the City should identify and quantify extraneous flows to the sanitary sewer system, and should undertake a cost-benefit analysis of the options available for reducing these flows. The long-term result of any initiatives which lead to the reduction of extraneous flows will be to extend the capacity of the sewer system and the wastewater treatment plant.

- Consideration should be given to producing a Stormwater Master Plan to evaluate the impact of stormwater discharges to the Red Deer River and to recommend mitigative measures where warranted. Stormwater flows which enter the storm sewer system through surface runoff are usually high in biochemical oxygen demand (BOD_5) and total suspended solids (TSS), and can contribute significant concentrations of metals, salts, nutrients, oil and grease, bacteria and other contaminants. Stormwater discharges can thus have a substantial impact on potable water supplies, recreational uses and aesthetics. The location and impact of snow storage sites should be included in the scope of work for the Stormwater Master Plan.

- The preferred wastewater treatment strategy incorporates an upgrade of the plant aeration system, as recommended in the City of Red Deer Plant Aeration Study (Reid Crowther and Stanley Associates, 1996). The aeration system upgrade should be implemented at the earliest possible time to avoid low dissolved oxygen concentrations and the consequent growth of filamentous organisms, poor sludge settleability and potential non-compliance with the current operating licence. The driving force behind this recommendation is the marginal capability of the existing aeration system to supply the current oxygen demand experienced during peak summer loading periods, plus our understanding that the Fletchers plant will increase production by approximately 50 percent by summer 1997 and by approximately 100 percent by late 1997 or early 1998.

- The preferred wastewater treatment strategy incorporates construction of selector reactors, as recommended in the City of Red Deer Selector Reactor Study (Reid Crowther and Stanley Associates, 1996), for the purpose of improving sludge settleability and solids management at the plant.

- The preferred wastewater treatment strategy to meet Alberta Environmental Protection's nutrient removal criteria for year 2007 comprises biological phosphorus removal with return activated sludge (RAS) denitrification (to provide phosphorus and ammonia removal) with provisions to upgrade to modified three-stage Bardenpho (to allow for total nitrogen removal in the future).

The preferred strategy also includes ultra-violet disinfection for effluent disinfection, dissolved air flotation for waste activated sludge thickening, conversion of the existing waste activated sludge thickeners to primary sludge fermenters (provided that the need is demonstrated), and continuation of the current sludge management practices which include anaerobic digestion followed by lagoon dewatering and agricultural land application. Further evaluation is warranted to consider the merits of sludge disposal to forested lands as an alternative to agricultural land application. The recommended facilities are illustrated in Figure 6-1.

- The current site should be sufficient to meet the wastewater treatment requirements of the City of Red Deer for many years to come. The area occupied by the equalization and sludge lagoons provides sufficient flexibility that additional land is not expected to be required to accommodate future treatment facilities that will be needed to treat increased flows to a higher level.

  The reduction of extraneous flows to the sanitary sewer system over the long-term will make additional space available for future treatment facilities. Similarly, the implementation of mechanical sludge dewatering, if and when required, will make additional space available for future treatment facilities. Further, short-term plant upgrades can be expected to increase the solids content of the sludge being directed from the plant to the sludge lagoons. These will reduce the lagoon area requirements as would more frequent removal and disposal of dewatered sludge from the lagoons.

- The Master Plan should be considered to be a 'living document' which should be systematically reviewed and updated every five years. The need and timing of capital works beyond year 2007 should be considered as part of the regular five year updates. This will allow the Master Plan to be updated to reflect changes in development patterns, wastewater flows and loads, treatment technologies and effluent criteria.

- The City should pursue the concept of joint phosphorus removal with Nova Corporation to take advantage of economies of scale and to minimize the combined impact of phosphorus discharges to the Red Deer River. The recommended facilities and associated costs which are presented in the Master Plan do not reflect this initiative.

Schedule

A preliminary schedule for implementing the preferred wastewater treatment strategy over the 1997 to 2007 period is presented in Figure 6-2. For reasons noted above, it is imperative that blower building and aeration tank upgrades proceed at the earliest possible time.

Estimated Costs

Conceptual level cost estimates to implement the preferred wastewater treatment strategy over the 1997 to 2007 period are presented in Table 7-1. The estimates include allowances of

25 percent for contingencies, 15 percent for engineering and 10 percent for contractor's overhead and profit and are based on 1996 dollars.

To predict capital works expenditures beyond year 2007 at this time is not considered to be particularly accurate or reliable. It is recommended that the need and cost of capital works beyond year 2007 be considered as part of a regular five year update to the Wastewater Treatment Master Plan.

PLANT UPGRADE ITEM	YEAR												
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
BLOWER BUILDING													
AERATION TANK 1 UPGRADE													
AERATION TANK 2A UPGRADE													
AERATION TANK 2B UPGRADE													
DAF FACILITY													
ADDITIONAL BLOWER													
MISCELLANEOUS PLANT UPGRADES													
SLUDGE FERMENTER													
SLUDGE LAGOON MODIFICATIONS													
EQUALIZATION LAGOON MODIFICATIONS													
CAPACITY UPGRADE													
CHEMICAL FACILITY													
UV DISINFECTION													
ESTIMATED COST ($*10^6$)	0.00	5.25	1.50	3.00	0.45	0.00	0.00	0.00	4.95	4.05	1.50	0.00	20.70

* INCLUDES CONTINGENCY ALLOWANCE @ 25%, ENGINEERING @ 15%, AND CONTRACTOR'S O/H AND PROFIT @ 10%

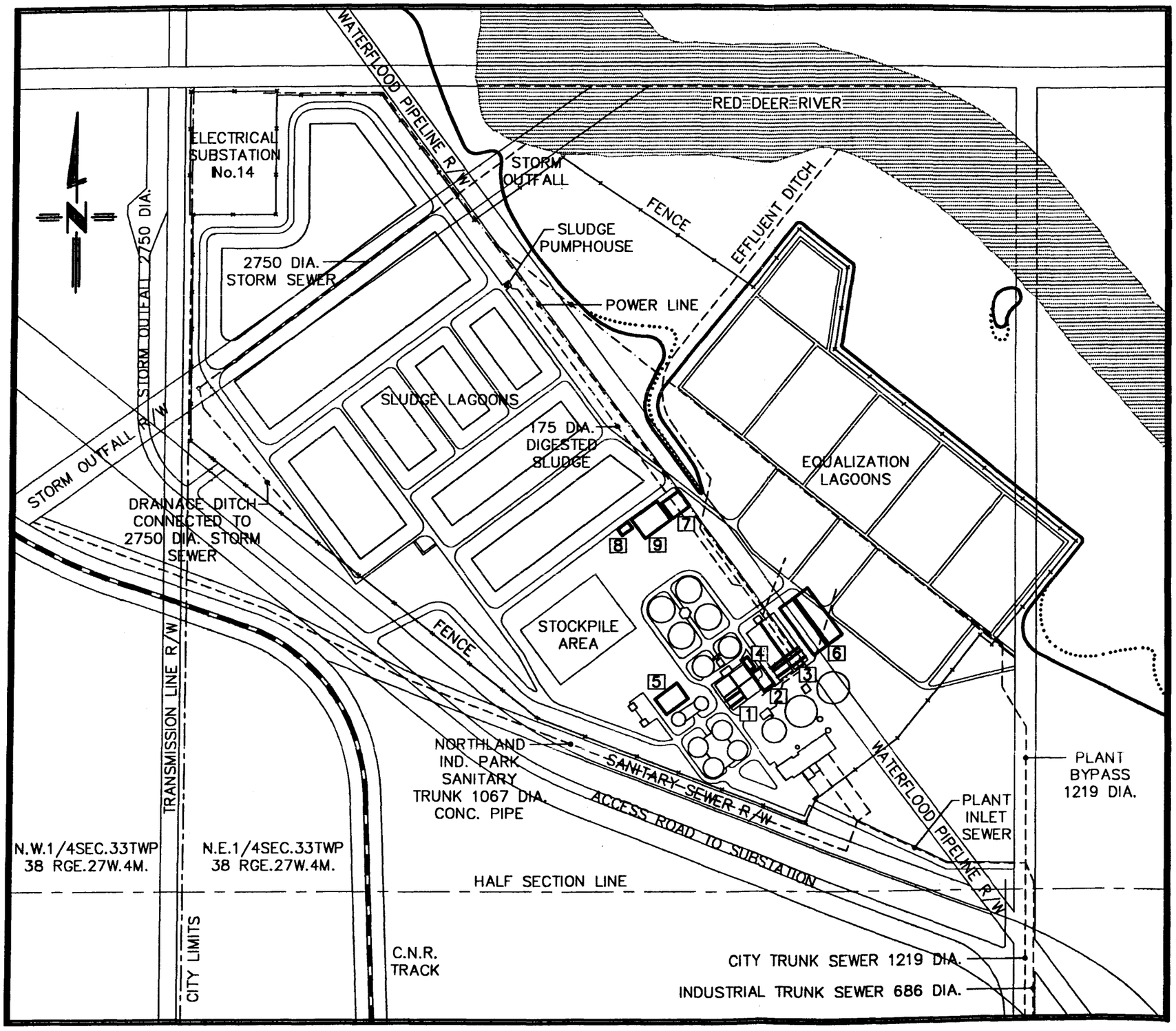
City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

PRELIMINARY CONSTRUCTION SCHEDULE AND CONCEPTUAL LEVEL COST ESTIMATES

FIGURE 6-2

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_6-2.DWG



SCALE 1:4000

NOTE:

ACCORDING TO THE DICKSON DAM BREACH INUNDATION MAP THE MAJORITY OF THE PLANT SITE WILL BE UNDER WATER IF A DAM BREACH OCCURS.

LEGEND:

——— FLOOD RISK LIMIT OF THE 100 YEAR FLOOD
····· FLOOD RISK LIMIT OF THE 10 YEAR FLOOD

PRELIMINARY LOCATIONS OF PROPOSED FACILITIES:

1 – PLANT 1 UPGRADE A/B/C/D
2 – NEW BLOWER BUILDING
3 – PLANT 2 UPGRADE 2A/B
4 – NEW CHEMICAL BUILDING
5 – NEW DAF BUILDING
6 – NEW CAPACITY UPGRADE 3A/B
7 – NEW UV BUILDING
8 – NEW EFFLUENT PS (IF FILTRATION REQUIRED)
9 – NEW FILTRATION FACILITY (IF REQUIRED)

City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

RECOMMENDED FACILITIES

FIGURE 6-1

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_6-1.DWG

Table 7-1
Preliminary Construction Schedule and Conceptual Level Cost Estimates

YEAR	PLANT UPGRADE ITEM	ESTIMATED COST
1997	Blower Building Aeration Tank 1 Upgrade	$5 250 000
1998	Aeration Tank 2A Upgrade	1 500 000
1999	Aeration Tank 2B Upgrade Dissolved Air Flotation Facility	3 000 000
2000	Additional Blower	450 000
2001	N/A	
2002	N/A	
2003	N/A	
2004	Sludge Fermenter Sludge Lagoon Modifications Equalization Lagoon Modifications Capacity Upgrade	4 950 000
2005	Capacity Upgrade (Continued) Chemical Facility	4 050 000
2006	Ultra-Violet Disinfection Facility	1 500 000
2007	N/A	
	Total	**$20 700 000**

Alberta
ENVIRONMENTAL PROTECTION

Air and Water Approvals Division
Municipal Water and Wastewater Branch

3rd floor, Provincial Building
4920 - 51 Street
Red Deer, Alberta
Canada T4N 6K8

Telephone 403/340-5310
Fax 403/340-5022

ENVIRONMENTAL REGULATORY SERVICE

PARKLAND REGION

January 7, 1997

Mr. Paul Goranson, P.Eng.
Manager of Public Works
City of Red Deer
4914 - 48 Avenue
P. O. Box 5008
RED DEER, Alberta
T4N 3T4

Dear Mr. Goranson:

Re: Effluent Criteria for Wastewater Treatment

As a summary to our discussions over the past several months, I would like to re-state the rationale behind the more stringent effluent criteria being proposed for the Red Deer wastewater treatment plant:

1. ***PHOSPHORUS***

Phosphorus is the key nutrient which triggers vegetation growth in receiving streams. The City of Red Deer has been identified as the source of roughly 2/3 of the phosphorus in the Red Deer River upstream of Content Bridge. Without control of the phosphorus in the City's discharge, the river quality will show deterioration in future years.

2. ***NITROGEN***

Ammonia-nitrogen in wastewater discharges can be toxic to fish populations in the receiving streams. This problem is enhanced in the Red Deer River due to the relatively high pH of the river. The City of Red Deer is, again, the major source of ammonia in the river in the reach upstream of Content Bridge. While major fish kills have not yet been documented, our goal is to ensure that the potential is eliminated, hence the requirement for ammonia removal.

3. ***BACTERIA***

During certain flow conditions in the river, the concentrations of coliform bacteria in the river downstream of Red Deer exceed the Alberta Surface Water Quality objectives. The City's wastewater discharge is a major source of these bacteria, therefore disinfection of the effluent is deemed to be very important.

.../2

4. ***CONSISTENCY***

It is the current policy of Alberta Environmental Protection that major cities (and industries) are expected to incorporate "Best Practicable Technology" in their wastewater treatment facilities. The technology for municipal wastewater treatment has advanced to where nutrient removal and disinfection have been shown to be achievable for these major discharges. The criteria and scheduling which we have proposed are similar to what is occurring in other major cities in Alberta. Edmonton, Calgary, Lethbridge and Medicine Hat are all either constructing, or is some cases, operating some form of nutrient removal and disinfection facilities.

I trust this is an adequate overview of the situation. If I can be of further assistance, please contact me at your convenience.

Yours truly,

A. K. KENNEDY, P.Eng.
Senior Regional Engineer

*bjm

cc: W. Inkpen, Regional Director
Asoke Weerasinghe, P.Eng.

Comments:

We recommend that Council accept the proposed Master Plan. The required financial resources will be presented with the 1997 Budget.

"G. D. SURKAN"
Mayor

"H. M. C. DAY"
City Manager

FILE

Council Decision - January 13, 1997 Meeting

DATE: **January 14, 1997**

TO: **Public Works Manager**

FROM: **City Clerk**

RE: ***WASTEWATER TREATMENT MASTER PLAN***

Reference Report: Public Works Manager, dated January 7, 1997

Resolution Passed:

"RESOLVED that Council of The City of Red Deer, having considered report from the Public Works Manager dated January 7, 1997, re: Wastewater Treatment Master Plan, hereby approves the Wastewater Treatment Master Plan as presented to Council January 13, 1997."

Report Back to Council Required: Yes, to be presented during budget deliberations for approval of any expenditures.

Comments/Further Action: Congratulations on the completion and acceptance of the Wastewater Treatment Master Plan by Council.

Kelly Kloss
City Clerk

KK/clr

c Director of Development Services
Director or Corporate Services
Director of Community Services
Mechanical Services Superintendent

CITY OF RED DEER
WASTEWATER TREATMENT
MASTER PLAN
FINAL REPORT

Prepared by:

REID CROWTHER & PARTNERS LTD.
Consulting Engineering Worldwide
#300, Atrium VII, 340 Midpark Way SE
Calgary, AB T2X 1P1

Phone: (403) 254-3301
Fax: (403) 254-3333

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Calgary, AB T2R 1M1

Phone: (403) 269-9922
Fax: (403) 269-1526

OCTOBER, 1996

Project No. 24824.00

Reid Crowther

Please refer to file 24824-4(a)
G:\24824.00\1114\WPR\1-008JWS.DOC\SAJ

October 30, 1996

City of Red Deer
Department of Public Works
Box 5008, 5420 - 47 Street
Red Deer AB, T4N 3T4

Attention: Mr. Paul Goranson, P.Eng
Acting Public Works Manager

Dear Sir:

RE: Wastewater Treatment Master Plan
Final Report

Enclosed are ten (10) copies of the City of Red Deer Wastewater Treatment Master Plan Final Report.

We have enjoyed working with the City and this assignment and have appreciated the assistance and input provided by all City staff. We trust that the Master Plan meets your current and future requirements.

Please contact J.W. Switzer should you require further information or clarification.

Sincerely,

PROFESSIONAL ENGINEER J.W. SWITZER ALBERTA

J. Warren Switzer, P.Eng.
Reid Crowther & Partners Ltd.
(Sections 1.0, 2.0, 3.0, 4.0, 7.0, Appendices A & B)

George McGeachie, M.Sc., P.Eng.
Stanley Associates Engineering Ltd.
(Sections 5.0 and 6.0)

PROFESSIONAL ENGINEER ALBERTA

JWS/GM/TM

Enclosures

Reid Crowther & Partners Ltd.
☐ Consulting Engineers
☐ #300, Atrium VII, 340 Midpark Way S.E., Calgary Alberta T2X 1P1, Phone: (403) 254-3301, Fax: (403) 254-3333

EXECUTIVE SUMMARY

Overview

The Wastewater Treatment Master Plan establishes a short-term and a long-term strategy for the development of Red Deer's wastewater treatment facilities through to year 2050. The Master Plan incorporates as much flexibility as possible to allow the City to react to changing development patterns, effluent quality requirements and evolving wastewater treatment technologies. It includes a plan of action in some detail for the next ten years and in conceptual detail through to year 2050. The Master Plan provides recommendations regarding construction staging along with conceptual level cost estimates for the recommended facilitates.

Master Plan Development

Ultimate responsibility for development of the Master Plan rests, as it should, with the City's consultants. However, it was developed as a cooperative effort involving the City of Red Deer, the Master Plan Steering Committee and interested members of the public.

The Steering Committee included representatives from the Environmental Advisory Board, Nova Corporation, Alberta Environmental Protection, the Waskasoo Regional Sewer Authority and the City of Red Deer. Each member of the Steering Committee provided valuable input to the Master Plan.

Public consultation was considered to be a key element in developing the Master Plan. Details of the public consultation process are described in Appendix B, as is a list of issues raised and the manner in which they are proposed to be addressed by the Master Plan.

Conclusions and Recommendations

The major conclusions and recommendations which are identified in the Master Plan are listed below.

- The City of Red Deer has traditionally been proactive and has exercised diligence in its efforts to protect the environment. This has been demonstrated by the City's commitment to meet or exceed all environmental requirements set by Alberta Environmental Protection. It has also been demonstrated by the City's initiative to develop this Wastewater Treatment Master Plan.

- The City's Utilities Bylaw should be critically reviewed. The objective of the review should be to have the Bylaw consistent with current standards, as required to allow the City to meet increasingly stringent effluent criteria. In comparison, the City of Calgary Sewer Service

Bylaw contains a more comprehensive list of prohibited substances and a much higher surcharge rate for dischargers whose wastewater exceeds specified contaminant concentrations. It also provides for fines of up to $10,000 and jail terms of up to one year for dischargers who contravene the Bylaw. In reviewing the Utilities Bylaw, it may be advantageous for the City to join forces with other municipalities of similar size to achieve efficiency of effort and uniformity in the end-product.

- Stormwater flows which enter the sanitary sewer system through infiltration, inflow and foundation drainage systems have generally minimal impact on plant operations due to the presence of equalization lagoons at the plant site. However, the City should identify and quantify extraneous flows to the sanitary sewer system, and should undertake a cost-benefit analysis of the options available for reducing these flows. The long-term result of any initiatives which lead to the reduction of extraneous flows will be to extend the capacity of the sewer system and the wastewater treatment plant.

- Consideration should be given to producing a Stormwater Master Plan to evaluate the impact of stormwater discharges to the Red Deer River and to recommend mitigative measures where warranted. Stormwater flows which enter the storm sewer system through surface runoff are usually high in biochemical oxygen demand (BOD_5) and total suspended solids (TSS), and can contribute significant concentrations of metals, salts, nutrients, oil and grease, bacteria and other contaminants. Stormwater discharges can thus have a substantial impact on potable water supplies, recreational uses and aesthetics. The location and impact of snow storage sites should be included in the scope of work for the Stormwater Master Plan.

- The preferred wastewater treatment strategy incorporates an upgrade of the plant aeration system, as recommended in the City of Red Deer Plant Aeration Study (Reid Crowther and Stanley Associates, 1996). The aeration system upgrade should be implemented at the earliest possible time to avoid low dissolved oxygen concentrations and the consequent growth of filamentous organisms, poor sludge settleability and potential non-compliance with the current operating licence. The driving force behind this recommendation is the marginal capability of the existing aeration system to supply the current oxygen demand experienced during peak summer loading periods, plus our understanding that the Fletchers plant will increase production by approximately 50 percent by summer 1997 and by approximately 100 percent by late 1997 or early 1998.

- The preferred wastewater treatment strategy incorporates construction of selector reactors, as recommended in the City of Red Deer Selector Reactor Study (Reid Crowther and Stanley Associates, 1996), for the purpose of improving sludge settleability and solids management at the plant.

- The preferred wastewater treatment strategy to meet Alberta Environmental Protection's nutrient removal criteria for year 2007 comprises biological phosphorus removal with return activated sludge (RAS) denitrification (to provide phosphorus and ammonia removal) with provisions to upgrade to modified three-stage Bardenpho (to allow for total nitrogen removal in the future).

The preferred strategy also includes ultra-violet disinfection for effluent disinfection, dissolved air flotation for waste activated sludge thickening, conversion of the existing waste activated sludge thickeners to primary sludge fermenters (provided that the need is demonstrated), and continuation of the current sludge management practices which include anaerobic digestion followed by lagoon dewatering and agricultural land application. Further evaluation is warranted to consider the merits of sludge disposal to forested lands as an alternative to agricultural land application. The recommended facilities are illustrated in Figure 6-1.

- The current site should be sufficient to meet the wastewater treatment requirements of the City of Red Deer for many years to come. The area occupied by the equalization and sludge lagoons provides sufficient flexibility that additional land is not expected to be required to accommodate future treatment facilities that will be needed to treat increased flows to a higher level

  The reduction of extraneous flows to the sanitary sewer system over the long-term will make additional space available for future treatment facilities. Similarly, the implementation of mechanical sludge dewatering, if and when required, will make additional space available for future treatment facilities. Further, short-term plant upgrades can be expected to increase the solids content of the sludge being directed from the plant to the sludge lagoons. These will reduce the lagoon area requirements as would more frequent removal and disposal of dewatered sludge from the lagoons.

- The Master Plan should be considered to be a 'living document' which should be systematically reviewed and updated every five years. The need and timing of capital works beyond year 2007 should be considered as part of the regular five year updates. This will allow the Master Plan to be updated to reflect changes in development patterns, wastewater flows and loads, treatment technologies and effluent criteria.

- The City should pursue the concept of joint phosphorus removal with Nova Corporation to take advantage of economies of scale and to minimize the combined impact of phosphorus discharges to the Red Deer River. The recommended facilities and associated costs which are presented in the Master Plan do not reflect this initiative.

Schedule

A preliminary schedule for implementing the preferred wastewater treatment strategy over the 1997 to 2007 period is presented in Figure 6-2. For reasons noted above, it is imperative that blower building and aeration tank upgrades proceed at the earliest possible time.

Estimated Costs

Conceptual level cost estimates to implement the preferred wastewater treatment strategy over the 1997 to 2007 period are presented in Table 7-1. The estimates include allowances of

25 percent for contingencies, 15 percent for engineering and 10 percent for contractor's overhead and profit and are based on 1996 dollars.

To predict capital works expenditures beyond year 2007 at this time is not considered to be particularly accurate or reliable. It is recommended that the need and cost of capital works beyond year 2007 be considered as part of a regular five year update to the Wastewater Treatment Master Plan.

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NOMENCLATURE

AD1 ..... Anaerobic Digester 1
AD2 ..... Anaerobic Digester 2
AD3 ..... Anaerobic Digester 3
AD4 ..... Anaerobic Digester 4
ADF ..... Average Daily Flow
AEP ..... Alberta Environmental Protection
AT1 ..... Aeration Tank 1
AT2A ..... Aeration Tank 2A
AT2B ..... Aeration Tank 2B
BAFs ..... Biologically Activated Filters
Bio-N ..... Biological Nitrogen
Bio-P ..... Biological Phosphorus
BNR ..... Biological Nutrient Removal
BOD_5 ..... 5-Day Biochemical Oxygen Demand
BPR ..... Biological Phosphorus Removal
COD ..... Chemical Oxygen Demand
CPR ..... Chemical Phosphorus Removal
DAF ..... Dissolved Air Flotation
DeNit ..... Denitrification
DO ..... Dissolved Oxygen
GT1 ..... Grit Trap 1
GT2 ..... Grit Trap 2
GT3 ..... Grit Trap 3
kg ..... Kilogram(s)
kW ..... Kilowatt(s)
m ..... Metre(s)
mL ..... Millilitre(s)
mm ..... Millimetre(s)
mg/L ..... Milligrams per Litre
MCRT ..... Mean Cell Retention Time
ML/d ..... Megalitres per Day
MLSS ..... Mixed Liquor Suspended Solids
NH_3-N ..... Ammonia Nitrogen
NO_3-N ..... Nitrate Nitrogen
OUR ..... Oxygen Uptake Rate

PC1 ..... Primary Clarifier 1
PC2 ..... Primary Clarifier 2
PC3 ..... Primary Clarifier 3
PF ..... Peak Flow
PHB ..... Poly-β-Hydroxybutyrate
PO_4 ..... Phosphates
RAS ..... Return Activated Sludge
SC1 ..... Secondary Clarifier 1
SC2 ..... Secondary Clarifier 2
SC3 ..... Secondary Clarifier 3
SC4 ..... Secondary Clarifier 4
SC5 ..... Secondary Clarifier 5
SC6 ..... Secondary Clarifier 6
SLR ..... Solids Loading Rate
SOR ..... Surface Overflow Rate
SRT ..... Solids Retention Time
SVIs ..... Sludge Volume Indices
SWD ..... Side Water Depth
TKN ..... Total Kjehldahl Nitrogen
TP ..... Total Phosphorus
TSS ..... Total Suspended Solids
VFA ..... Volatile Fatty Acid
VOCs ..... Volatile Organic Compounds
VSS ..... Volatile Suspended Solids
WAS ..... Waste Activated Sludge
WEF MOP 8 ..... Water Environment Federation Manual of Practice No. 8
WWTP ..... Wastewater Treatment Plant

ACKNOWLEDGEMENTS

We would like to acknowledge the valuable input and guidance provided by members of the Wastewater Treatment Master Plan Steering Committee, as follows:

Mr. Dennis Cooper	Waskasoo Regional Services Board
Mr. Al Kennedy	Alberta Environmental Protection
Mr. Wayne Pander	Environmental Advisory Board
Mr. David Russell	Nova Corporation
Mr. Gordon Stewart	City of Red Deer

SECTION 1.0
INTRODUCTION

1.1 BACKGROUND

Wastewater treatment has been provided in the City of Red Deer since 1961. Growth of the serviced population and the imposition of more stringent effluent quality requirements dictated plant expansions and upgrades in 1973 and 1982.

Recent studies and plant-scale testing have demonstrated that significant plant changes will be required in the immediate future to alleviate current operational difficulties and to prevent a deterioration in effluent quality. Additionally, the City is anticipating changes to its plant operating licence, which comes up for renewal in October of 1997. Through communication with Alberta Environmental Protection, the City has been advised that there will be changes to the effluent criteria. The changes will include nutrient control and effluent disinfection, and will require substantial expenditures by the City over the next ten years.

To ensure that the immediate plant changes are compatible with future plant upgrades and expansions, the City commissioned Reid Crowther & Partners Ltd. in association with Stanley Associates Engineering Ltd. to undertake a Wastewater Treatment Master Plan.

1.2 MASTER PLAN OBJECTIVES

The objectives of the Master Plan are to establish both a short and long-term strategy for the development of Red Deer's wastewater treatment facilities to the year 2050, to make recommendations for a cost-effective staging strategy and to provide conceptual level cost estimates for the recommended facilities. A further objective is to incorporate, to the degree possible, sufficient flexibility into the Plan to allow the City to react to changing development patterns, effluent quality requirements and evolving wastewater treatment technologies over the long term. The intent is that any near term upgrades must be compatible with longer term plant upgrade and expansion strategies.

It is intended that the Master Plan develop a plan of action in some detail for the next ten years (i.e. through to year 2007), which is the term of the City's next operating licence from Alberta Environmental Protection, and in conceptual detail through to year 2050. Accordingly, the Master Plan will assess the impact of pending and future changes in effluent quality requirements together with increased wastewater flows and changing wastewater characteristics.

1.3 REPORT ORGANIZATION

The Master Plan Report is organized in a series of Sections and Appendices as indicated below.

Section 1.0 provides introductory comments on the background and objectives of the Master Plan and describes how the Report has been organized.

Section 2.0 provides an overview of the existing wastewater collection, treatment and disposal system. It also presents a detailed assessment of the existing treatment facilities and identification of the potential for capacity increases through operational modifications and/or equipment upgrades.

Section 3.0 examines historical wastewater flows and characteristics, and uses this information together with anticipated population growth and land use changes to project wastewater flows and loads through to year 2050.

Section 4.0 identifies the near term and projected long term effluent quality requirements. This includes a discussion of the near term requirements to be mandated by Alberta Environmental Protection. It also includes a discussion of trends in effluent quality requirements in other jurisdictions such as the United States Environmental Protection Agency and the European Union, and projects what the effluent criteria might be beyond year 2007.

Section 5.0 describes the long list of wastewater treatment options which have been developed for consideration, presents a summary comparison of the long list of options, describes the short-listed options which have been selected for further evaluation, and identifies the preferred strategy. The Section also describes the process used to evaluate both the liquid and solids stream treatment options.

Section 6.0 describes the preferred wastewater treatment strategy together with construction staging requirements and conceptual level cost estimates.

Section 7.0 summarizes the recommendations from the Master Plan Study.

Appendix A identifies the operational improvements which have been suggested by the plant staff.

Appendix B describes both the procedures and results of the public consultation process that was used in developing the Wastewater Treatment Master Plan.

SECTION 2.0
EXISTING WASTEWATER COLLECTION AND TREATMENT FACILITIES

2.1 WASTEWATER COLLECTION SYSTEM

2.1.1 Overview

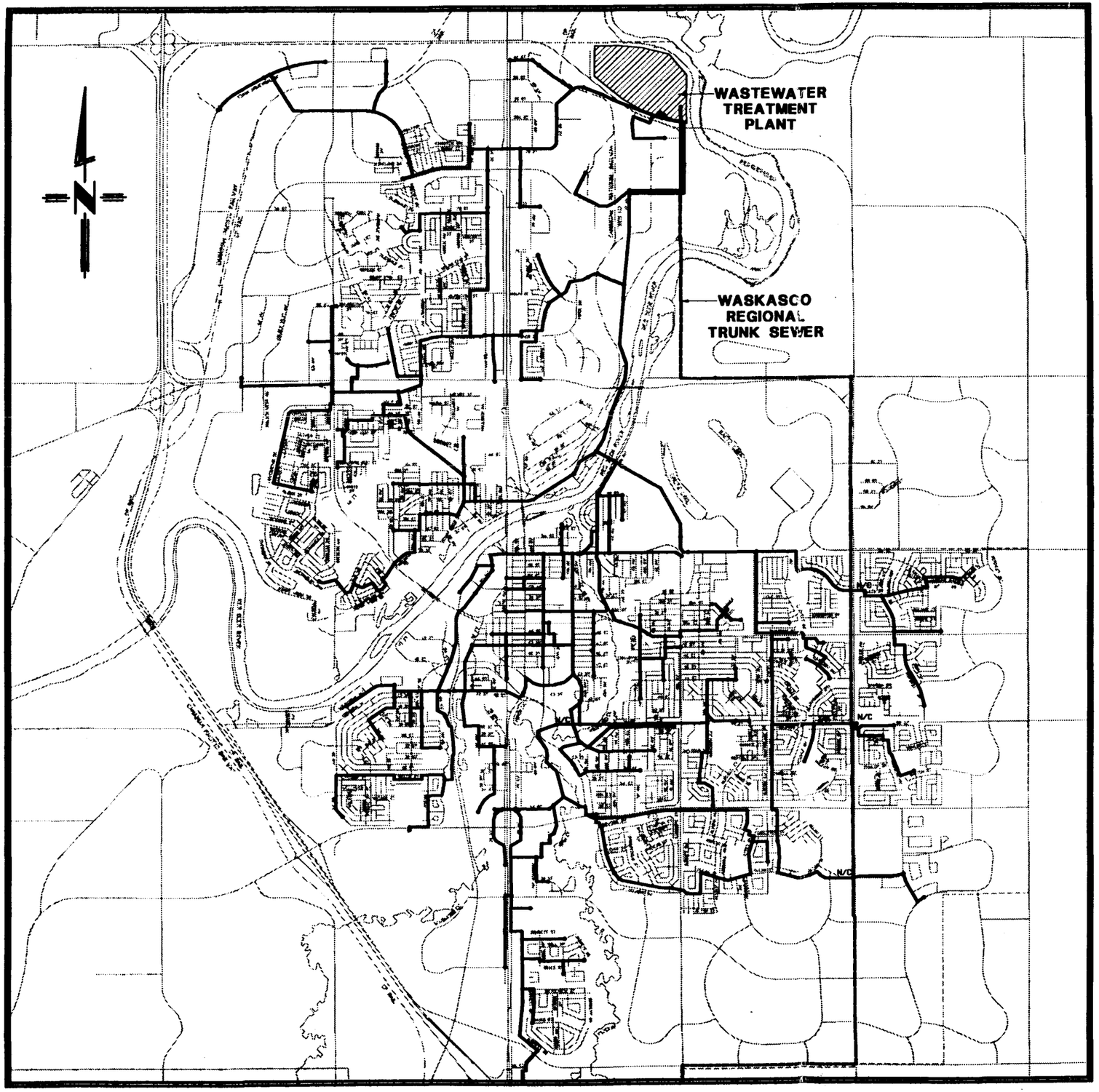
The wastewater collection system is illustrated in Figure 2-1. The catchment area boundary roughly coincides with the City limits. The trunk sewers will be extended in the future to service areas of new development in the Northwest, Southeast and East districts. The Waskasoo Regional Trunk Sewer which services the Town of Penhold and a portion of the County of Red Deer is also indicated in Figure 2-1. The stormwater collection system is illustrated in Figure 2-2. Past upgrades have largely segregated the storm and sanitary sewers into two separate systems.

2.1.2 Utilities Bylaw

The Utilities Bylaw (Bylaw No. 2960/88) in force at Red Deer was proclaimed in 1988 with annual updates occurring until 1996. The Bylaw sets out the quality and quantity of wastewater that can be discharged to both the sanitary and storm collection systems and the charges associated with overstrength discharges to the sanitary system.

Only stormwater may be discharged to a storm sewer and only wastewater may be discharged to a sanitary sewer. Wastewater discharged to the sanitary system must be free of:

- Dangerous goods as defined by the Dangerous Goods Control Act
- Ashes, cinders, sand, potters clay, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, or other solid or viscous substance capable of causing obstruction or other interference with the operation of the wastewater collection and treatment system
- Animal manure or paunch manure, animal intestines or intestinal contents, animal hooves or toenails, animal bones or bone scraps, animal stomach casings, hog bristles, hides or parts thereof, animal fat or flesh larger than will pass through a 6 mm screen, poultry entrails, poultry heads, poultry feet, feathers, eggshells, fleshings and hair resulting from tanning operations, or blood
- Lime slurry and residues
- Any substance which the City may deem inappropriate for discharge to the sewer



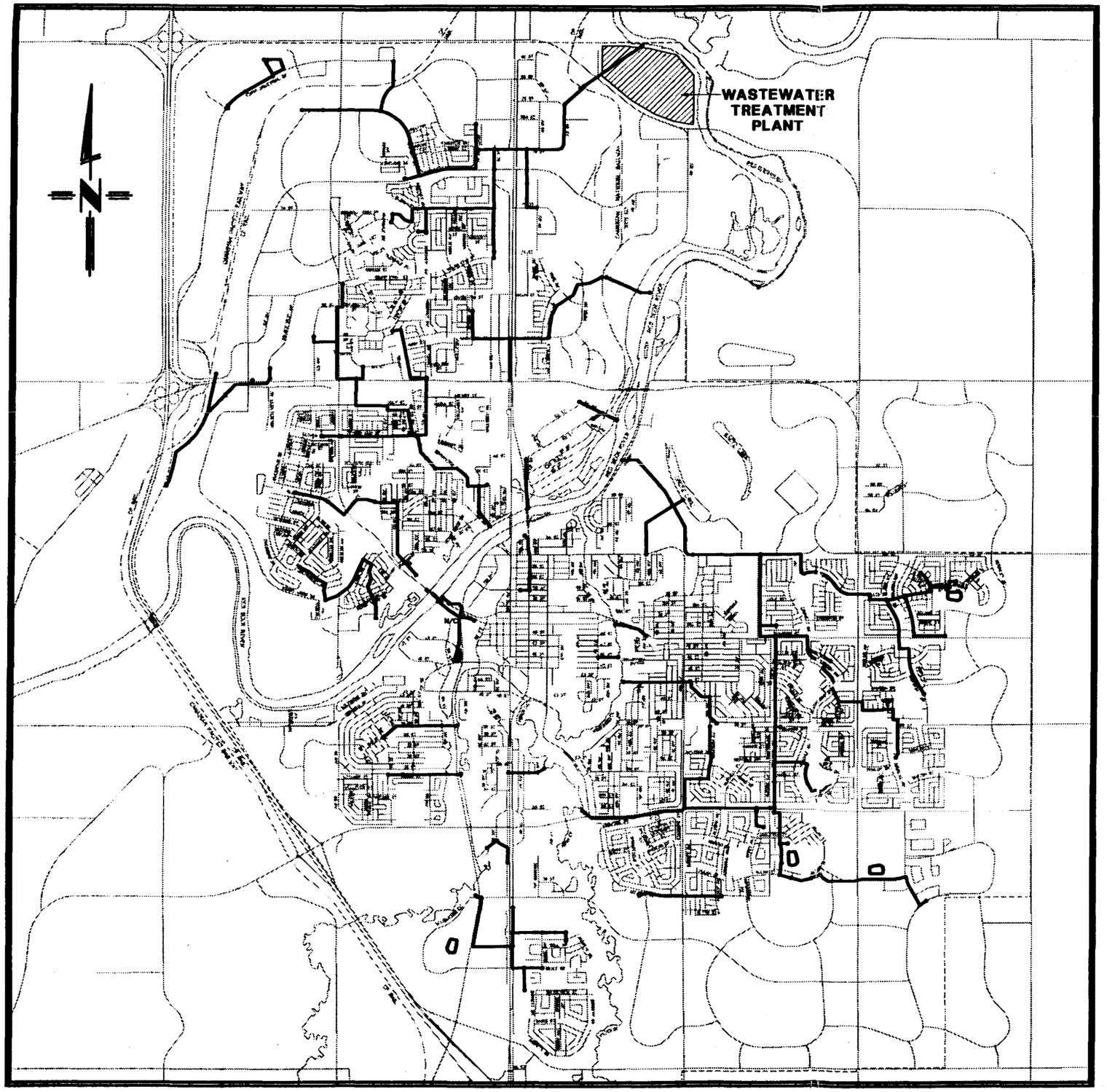
City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

WASTEWATER COLLECTION SYSTEM

FIGURE 2-1

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_2-1.DWG



City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

STORMWATER COLLECTION SYSTEM

FIGURE 2-2

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_2-2.DWG

The City can have samples of wastewater taken to determine its contents. Generally, wastewater samples are collected from industrial dischargers only. If wastewater samples have been collected from a discharger to the sanitary sewer system, the discharger will pay a volume charge for the wastewater discharged. If the wastewater contains more than 200 mg/L of total suspended solids (TSS), 200 mg/L of 5-day biochemical oxygen demand (BOD_5) or 100 mg/L of oil and grease, the discharger must pay treatment charges associated with those parameters which exceed the limits. To date, no penalties have been set for contravention of the Bylaw.

The City may require a discharger to provide preliminary treatment of the wastewater to change its characteristics to meet the requirements indicated in Table 2-1. The costs of construction, operation and maintenance of the preliminary treatment system must be borne by the discharger. Grease, oil and sand interceptors are required at all restaurants, garages, petroleum service stations, and vehicle and equipment washing establishments. The City may require other types of businesses to install interceptors if the wastewater discharged contains excessive amounts of grease or other harmful ingredients.

By comparison, the City of Calgary Sewer Service Bylaw (Bylaw No. 34M96) is generally more stringent. Calgary requires that a report, certified by a professional engineer, be submitted by any industrial or commercial discharger wishing to connect to the sanitary sewer system. The report must contain the information itemized in the Bylaw. The application must be supplemented by any additional information the City requires. The Calgary Bylaw provides for fines of up to $10 000 and jail terms of up to one year for contravention. The Calgary Bylaw stipulates reporting procedures for unlawful, unauthorized and accidental releases of prohibited materials into the sanitary sewer network whereas the Red Deer Bylaw is silent on this issue.

The Calgary Bylaw has a more comprehensive list of prohibited substances that is almost double that of Red Deer (refer to Table 2-1). However, Red Deer has more stringent limits on waste concentrations for those materials defined as restricted wastes (refer to Table 2-2). The surcharge applied to City of Calgary dischargers whose wastes exceed the stipulated concentration is generally much higher than the surcharge applied to Red Deer dischargers. For example, the BOD_5 and TSS surcharge rates are approximately 60 percent of the Calgary rates, and the oil and grease surcharge rate is approximately 12.5 percent of the Calgary rate.

Table 2-1
Utilities Bylaw - Prohibited Substances

ITEM	RED DEER	CALGARY
pH	5.5 - 10.0	5.5 - 10.0
Temperature		75°C
Biological Wastes		✓
Corrosive/Toxic Wastewater	✓	✓
Dangerous Goods	✓	
Elemental Mercury		
Flammable/Explosive Liquids		✓
Grit		✓
Hazardous Waste/Materials	✓	✓
Herbicides		✓
Lime Slurry Residues	✓	
Matter Consisting of 2 or More Liquid Layers		✓
Obstruction Causing Substances		
Agricultural Wastes		
Animal Guts/Tissue	✓	✓
Animal Hooves, Toenails or Bone Scraps	✓	
Ashes	✓	✓
Asphalt		
Bones	✓	✓
Cement Based Products		
Cinders	✓	✓
Feathers	✓	✓
Fleshings and Hair Resulting from Tanning Operations	✓	
Gardening Wastes		
Glass	✓	✓
Gravel		
Hides or Parts Thereof	✓	
Hog Bristles	✓	
Horse, Cattle, Sheep, or Swine Manure	✓	
Metal	✓	✓
Mud	✓	✓
Paper/Cardboard		
Paunch Manure/Intestinal Contents	✓	✓
Plastics	✓	✓
Potters Clay	✓	
Poultry Entrails, Heads, Feet, Feathers, or Eggshells	✓	
Rags	✓	✓
Rock		
Sand	✓	✓
Sharps		
Shavings	✓	✓
Soil		
Straw	✓	✓
Tar	✓	✓
Unground Garbage		✓
Whole Blood	✓	✓
Wood	✓	✓
Paint		
Pesticides		✓
Petroleum Derivatives		✓
Radioactive Material		✓
Solvents		✓
Storm Water Drainage		✓
Waste Causing Adverse Effects		✓

Table 2-2
Utilities Bylaw - Prohibited Substance Limits

ITEM	RED DEER	CALGARY
pH	5.5 - 10.0	5.5 - 10.0
Temperature		75°C
BOD	200/1000	300/1200
COD	2000	2400
Oil and Grease	100/500	100/450
Suspended Solids	200/1000	300/1500
Aluminum		50.00
Antimony	1.00	5.00
Arsenic	1.00	1.00
Barium	3.00	
Benzene		0.50
Beryllium		1.00
Bismuth		5.00
Boron	1.00	5.00
BTEX		1.00
Cadmium	0.05	1.00
Chlorinated Hydrocarbons	0.02	
Chromium	1.00	3.00
Cobalt		5.00
Copper	0.50	3.00
Cyanide	1.00	3.00
Ethylbenzene		0.50
Fluoride		10.00
Hydrocarbons	100.00	50.00
Iron		50.00
Lead	1.00	1.00
Manganese	1.00	5.00
Mercury	0.10	0.01
Molybdenum		5.00
Nickel	0.50	3.00
Phenol Compounds	0.10	1.00
Phosphates (as PO_4)	100.00	
Selenium	1.00	1.00
Silver	1.00	5.00
Sulphate		1500.00
Sulphides	1.00	3.00
Tetrachloroethylene		0.70
Thallium		0.50
Tin		5.00
Titanium		5.00
Toluene		0.50
Total Pesticides	0.10	
Vanadium		5.00
Xylenes (Total)		0.50
Zinc	1.00	3.00

2.1.3 Major Industrial Dischargers

The major industries that discharge to the sanitary sewer system include Aurora Canola, CA Meats, CGTX, Dairyworld Foods, Fletchers Fine Foods, Fracmaster and Halliburton.

2.2 WASTEWATER TREATMENT PLANT

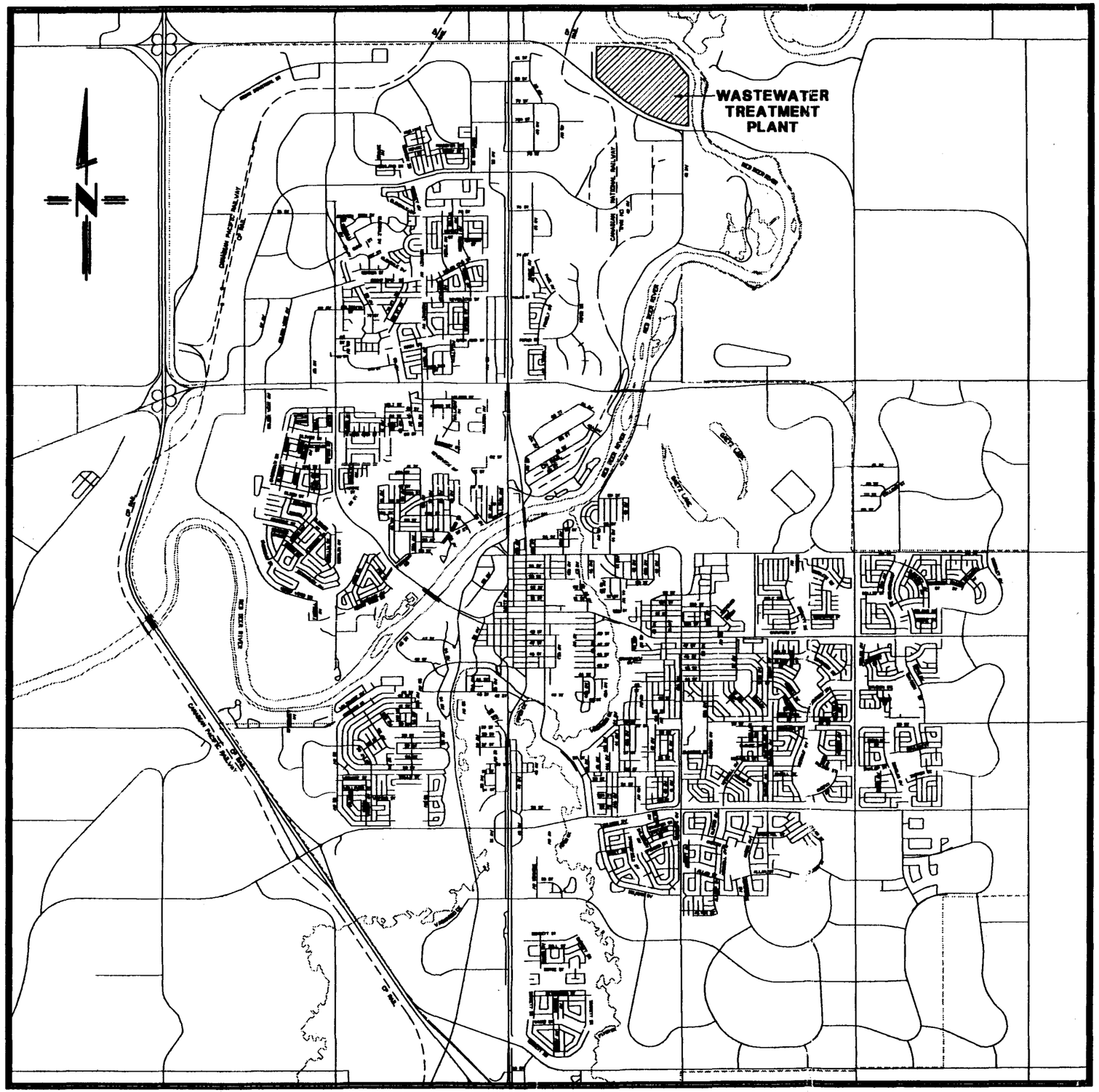
2.2.1 Background

Wastewater treatment was initiated in Red Deer in 1961 when a five cell lagoon system was commissioned in the northeastern portion of the City (refer to Figure 2-3). Between 1968 and 1970, two lagoons were added, aeration equipment was installed in three of the original cells and a final settling cell was constructed to polish the aerated lagoon effluent. Thus, the treatment system consisted of two anaerobic lagoons, three aerated lagoons and a polishing lagoon. The expanded treatment system met the allowable effluent discharge standards of the time. Nevertheless, unacceptably low dissolved oxygen (DO) concentrations occurred in the Red Deer River during the winter months and this caused a stricter effluent discharge permit to be imposed.

In 1973, the first mechanical plant (1973 expansion) was commissioned to treat up to 18.2 megalitres per day (ML/d) of wastewater to a level consistent with the stricter effluent discharge permit. This mechanical plant accepted flows from the City of Red Deer while industrial flows from two large meat packing operations were discharged to the anaerobic lagoons for initial treatment. The industrial flows were then given secondary treatment in the aerated lagoons or in the aeration tank of the mechanical plant if sufficient capacity was available.

The plant was expanded in the early 1980's (1982 expansion) to a total treatment capacity of 53.6 ML/d. Sludge storage lagoons were also added as a part of the 1982 expansion. Additional sludge storage lagoons were constructed soon thereafter.

A site plan of the wastewater treatment plant (WWTP) is provided in Figure 2-4. The WWTP and associated lagoons cover most of the current site. A review of the ownership of properties adjacent to the WWTP site has been undertaken to determine the extent of land area available for future expansion. According to the Economic Development Department, the City owns land to the south and west of the site. Some of this land is currently for sale as industrial sites. The land immediately to the north of the WWTP is privately owned within the County of Red Deer. The remainder of the land adjacent to the WWTP site is owned privately within the City of Red Deer.



City of Red Deer

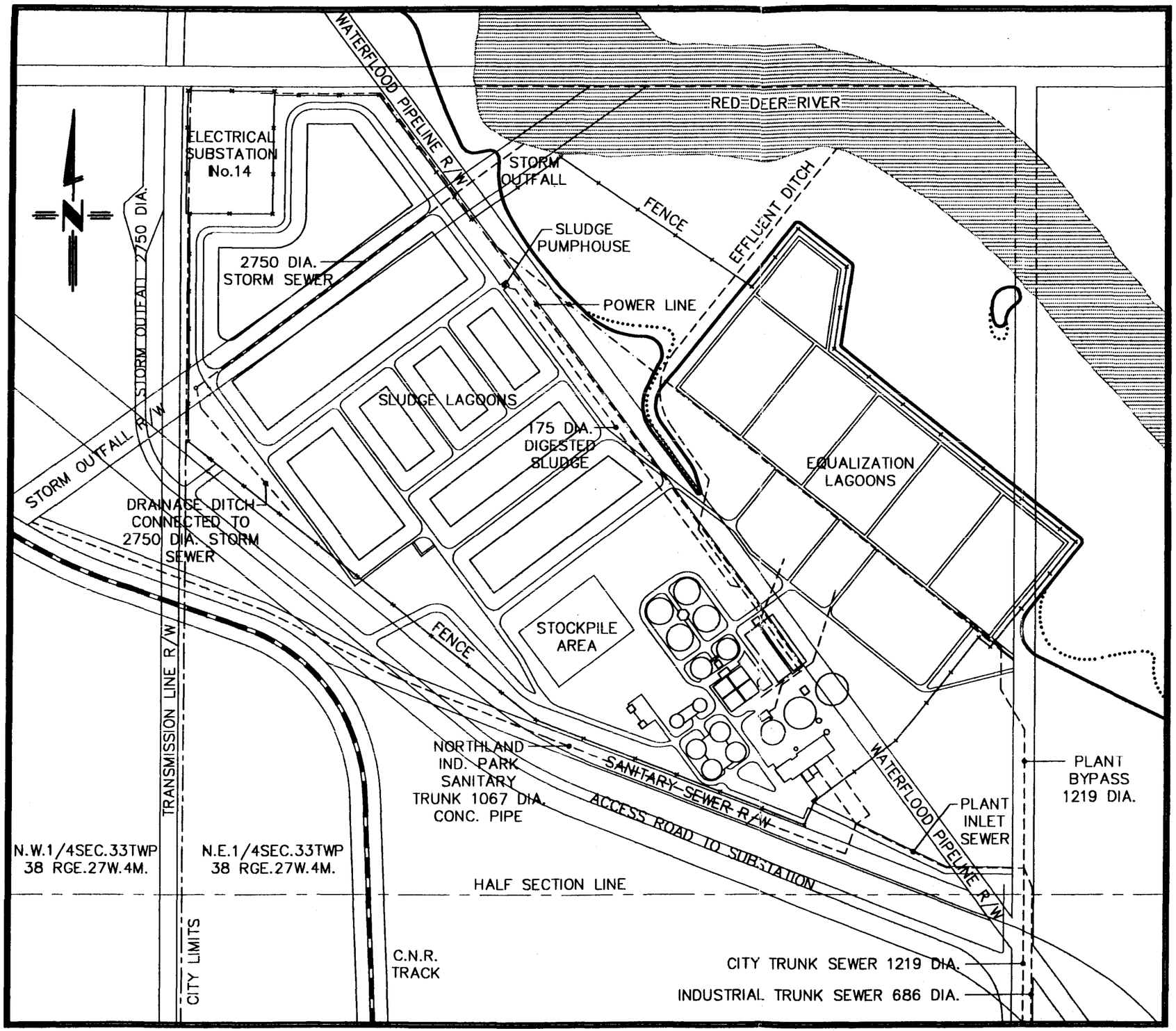
WASTEWATER TREATMENT MASTER PLAN

WASTEWATER TREATMENT PLANT LOCATION

FIGURE 2-3

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_2-3.DWG

SCALE 1:4000



NOTE:

ACCORDING TO THE DICKSON DAM BREACH INUNDATION MAP THE MAJORITY OF THE PLANT SITE WILL BE UNDER WATER IF A DAM BREACH OCCURS.

LEGEND:

——— FLOOD RISK LIMIT OF THE 100 YEAR FLOOD
····· FLOOD RISK LIMIT OF THE 10 YEAR FLOOD

City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

SITE PLAN

FIGURE 2-4

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_2-4.DWG

Figure 2-4 indicates the flood risk limits for the 1 in 100 year flood. A review of the Dickson Dam Breach Inundation Map, contained in the Dickson Dam Emergency Preparedness Plan (Alberta Environment, 1985), indicates that the majority of the treatment plant would be under water if the dam were breached. The probability of breaching is considered to be remote and therefore the resulting extent of flooding has not been indicated.

The current licence to operate, issued by Alberta Environmental Protection, requires reductions of suspended matter to 20 mg/L as TSS and reductions of organic matter to 20 mg/L as BOD_5. To achieve this level of treatment, the following liquid stream treatment processes are employed:

- Screw lift pumps for raising the wastewater from the collection system to the plant headworks
- Bar screens for removing large solids and debris
- Vortex grit traps for grit removal
- Primary clarification for settleable solids removal
- Conventional activated sludge treatment for organics removal
- Secondary clarification for solids/liquid separation
- Lagoons for effluent polishing (if required) before discharge to the Red Deer River

Solids sidestreams are handled as follows:

- Primary clarifier sludge and scum are pumped to anaerobic digesters for stabilization
- Waste activated sludge (WAS) is pumped to gravity thickeners for solids thickening (or sometimes to the primary clarifiers for cothickening) prior to being pumped to the anaerobic digesters for stabilization
- Gravity thickener supernatant is discharged to return activated sludge (RAS) pumping station 1 for recirculation to the aeration tanks
- Gravity thickener scum is pumped to the anaerobic digesters for stabilization
- Anaerobic digester solids are discharged to holding lagoons
- Lagoon solids are periodically removed and land applied
- Lagoon supernatant is returned to the plant liquid stream upstream of the primary clarifiers

Stormwater flows can impact plant operations. The stormwater which enters the otherwise separate sanitary sewer system is reported to originate from a few known sources:

- Foundation drainage systems which are connected directly to the sanitary sewer system
- Infiltration of groundwater to the sanitary sewer system
- Inflow of stormwater to the sanitary sewer system via depressed manholes

Storm flows are temporarily stored at the plant in equalization lagoons. This stormwater is held until the storm abates and is ultimately returned to the plant for full treatment.

2.2.2 Facilities Audit

A facilities audit was performed for each of the wastewater treatment process units. The purpose of the audit was to identify the potential for increases in capacity and flexibility through operational modifications and/or equipment upgrades.

A process flow diagram is provided in Figure 2-5. Table 2-3 provides information on each of the unit processes at the WWTP. The column entitled "AT 1995 FLOW" provides operating parameters calculated on the basis of 1995 plant data. The column entitled "AT DESIGN FLOW" indicates the design values of the operating parameters for the plant. The column entitled "LITERATURE VALUES" provides typical literature values for the operating parameters.

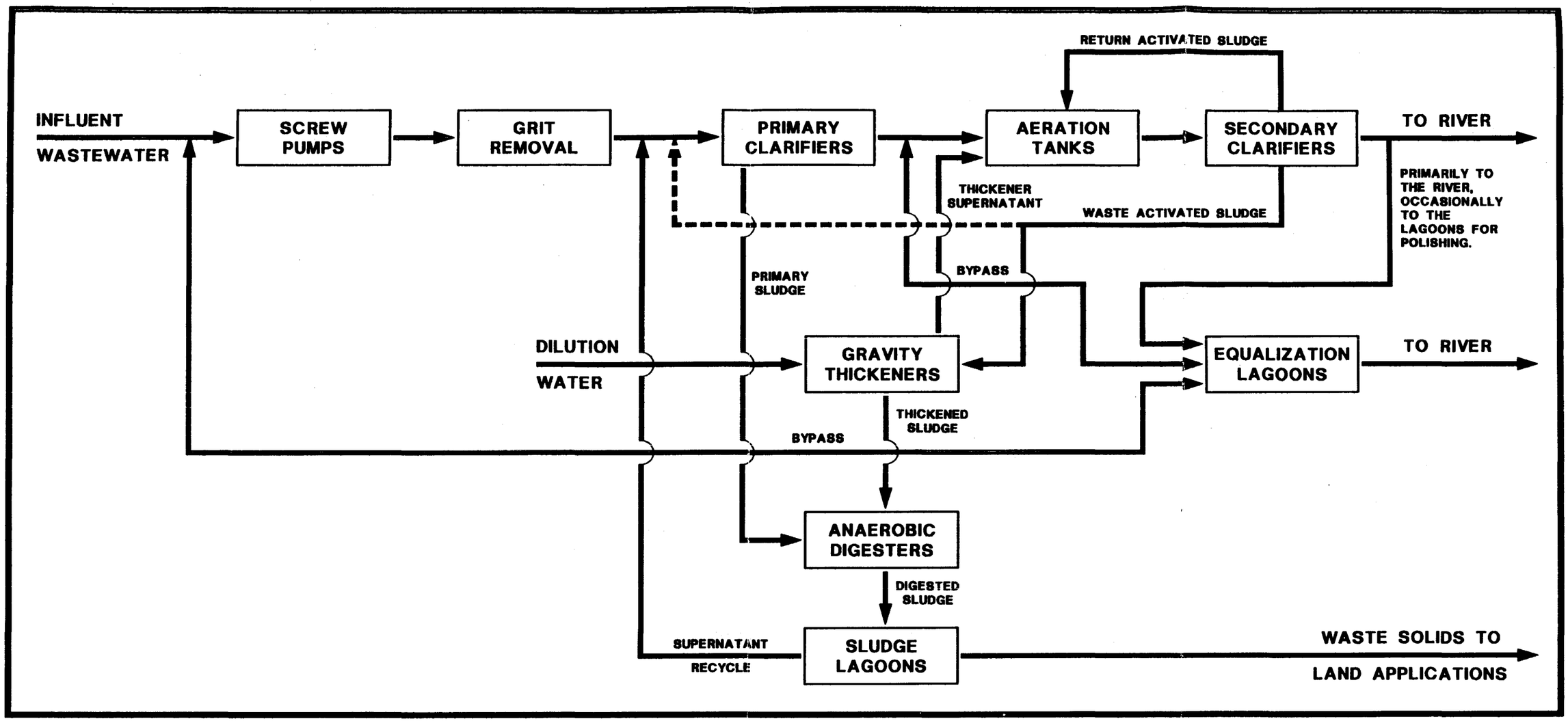
During the facilities audit, the plant operators provided many valuable suggestions for improving operations through equipment upgrades. The suggestions are described in Appendix A.

The results of the audit are described in the following sub-sections.

2.2.2.1 Screw Lift Pumps

(a) Existing Conditions

Two 1200 mm diameter screw lift pumps were originally installed in the 1973 expansion. One additional 1200 mm diameter and two additional 1600 mm diameter pumps were installed in 1982.



City of Red Deer

WASTEWATER TREATMENT
MASTER PLAN

PROCESS FLOW SCHEMATIC

FIGURE 2-5

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_2-5.DWG

Table 2-3
Unit Process Operating Parameters

UNIT PROCESS	DIMENSIONS	OPERATING PARAMETERS	UNITS	AT 1995 FLOW	AT DESIGN FLOW	LITERATURE VALUES
Screw Lift Pumps	2 - 1600 mm diameter 56 kW units 3 - 1200 mm diameter 23 kW units	Flow	ML/d	28	54	--
Bar Screens	2 - 1.5 m wide units with bars at 20 mm 3 - 1.2 m wide units with bars at 20 mm	Flow	ML/d	28	54	--
Grit Traps	1 - 3.4 m diameter x 3.8 m depth vortex unit 2 - 6.1 m diameter x 4.2 m depth vortex units	Flow	ML/d	28	54	--
Primary Clarifiers	1 - 21.3 m diameter x 2.8 m SWD unit 2 - 26 m diameter x 3 m SWD units	Surface Overflow Rate Weir Loading Rate Hydraulic Retention Time	m/d m^2/d hours	20 122 3.8	38 233 2	33 - 49 124 - 496 1.5 - 2.5
Aeration Tanks (designed for BOD_5 removal only)	4 - 15.2 m x 15.2 m x 4.3 m cells 2 - 63.1 m x 15.7 m x 4.7 m tanks 8 - 45 kW mechanical aerators 4 - 56 kW mechanical aerators	Hydraulic Retention Time Mean Cell Retention Time Food: Microorganism Ratio	hours days kg/kg	11.3 4.5 0.3	5.9 -- 0.24	4 - 8 5 - 15 0.2 - 0.6
Secondary Clarifiers	2 - 21.3 m diameter x 3.7 m SWD units 4 - 26 m diameter x 3.7 m SWD units	Surface Overflow Rate Solids Loading Rate	m/d $kg/m^2/d$	10 23	19 71	16 - 33 94 - 140
Sludge Thickeners	2 - 13m diameter x 3.1 m SWD units	Hydraulic Retention Time Solids Loading Rate	days $kg/m^2/d$	0.7 16	0.3 27	0.5 - 20 12 - 34
Anaerobic Digesters	4 - 18.3 m diameter x 7.6 m SWD units	Hydraulic Retention Time Solids Loading Rate	days $kg/m^3/d$	28 0.4	18 2.3	10 - 20 1.6 - 4.8
Sludge Lagoons		Mean Cell Retention Time	years	6.2	--	--

The influent is normally directed to the headworks for treatment. However, flow can be temporarily diverted to equalization lagoons for later treatment in the plant. High flows can be directed to the lagoons upstream of the headworks or downstream of the primary clarifiers. When a power failure occurs, influent wastewater is diverted to the lagoons upstream of the headworks because none of the process equipment is operable under power failure. Wastewater can be returned from the lagoons upstream of the aeration tanks.

The 1200 mm and 1600 mm diameter screw lift pumps have a capacity of 29 ML/d and 65 ML/d, respectively. The total installed pumping capacity at the headworks is 217 ML/d.

(b) Discussion

Discharge from the screw lift pumps for 1995 ranged from an instantaneous minimum of 18 ML/d to an instantaneous maximum of 55 ML/d. The average flow for 1995 was 28 ML/d. The screw lift pumps have sufficient capacity to meet projected flows well into the future.

2.2.2.2 Bar Screens

(a) Existing Conditions

Two bar screens having 20 mm wide openings and equipped with hydraulic rake cleaning mechanisms, were installed in the 1973 expansion. Three additional bar screens with similarly sized openings were installed in the 1982 expansion. These are equipped with cable and pulley rake cleaning mechanisms.

The cleaning cycle is normally initiated by the liquid level differential across the screens. If sufficient time elapses without initiation of a cleaning cycle, a timer will override the level differential control. A belt conveyor carries screenings to a dumpster in a loading bay adjacent to the headworks building.

(b) Discussion

The cable and pulley rake cleaning mechanisms on the newer screens have caused operational problems. The mechanisms are such that the cable can become slack when the rake is being raised. The rake cannot be returned to its initial position once the cable has become slack; thus, the next cleaning cycle cannot be started. The rake can also experience difficulty in penetrating the accumulated screenings and debris on the bar screen which results in poor cleaning. As a result of these

operational and maintenance problems, the newer screens are used only when the old screens are being serviced or the flows are high enough to require more than two screens to be in service. Only a portion of the available screening capacity is currently used and average flows to the plant can be handled with the two older screens. Eventually, the influent flow will increase beyond the capacity of the older screens. Capacity increases can be achieved through replacement of the cable and pulley rake cleaning mechanisms on the newer screens or more likely through replacement of the screens in their entirety.

Provided that the existing screens are properly maintained, it is anticipated that they will suffice well into the future.

2.2.2.3 Grit Traps

(a) Existing Conditions

A single grit trap with a conical bottom was installed in the 1973 expansion (grit trap 1). Two grit traps with flat bottoms were installed in the 1982 expansion (grit traps 2 and 3).

Inorganic grit is settled in the traps. Air compressors are used to gently agitate the grit to facilitate pumping. In grit trap 1, the air compressor is also used as an air lift pump to carry grit to the older grit classifier for dewatering. The pumping sequence is initiated manually up to three times per shift. Two grit pumps carry the grit from grit traps 2 and 3 to the two newer grit classifiers for dewatering. Grit traps 2 and 3 are pumped automatically once per hour. The grit is discharged onto the same conveyor belt that is used for the screenings. Liquid from the classifiers is returned to the headworks channel.

The capacity of grit trap 1 is not known. Grit traps 2 and 3 are operated in duty/standby mode and each is capable of treating flows of 188 ML/d.

(b) Discussion

All three mechanical central paddle mixers are inoperable due to mechanical failure of the gear boxes. Therefore, the mixers are free wheeling. Further investigation is warranted to determine whether this condition is creating grit collection problems and whether there is a need to repair or replace the gear boxes.

2.2.2.4 Primary Clarifiers

(a) Existing Conditions

One 21 m diameter centre-feed primary clarifier was installed in the 1973 expansion (primary clarifier 1) followed by two 26 m diameter centre-feed primary clarifiers in the 1982 expansion (primary clarifiers 2 and 3).

The clarifiers have sloped bottoms and employ scraper arms that convey settled solids to a centre collection well for removal via positive displacement diaphragm pumps to the anaerobic digesters. Each clarifier is equipped with a scum removal system consisting of a skimmer, beach, trough and scum pit. Originally the positive displacement primary sludge pumps were controlled by density meters located in the discharge piping. The density meters were removed because they did not provide accurate readings. Control of the diaphragm pumps has been changed to a timer-based system. To pump scum, the timed sequence of primary sludge pumping must be overridden. Primary scum is transferred to the anaerobic digesters for stabilization.

(b) Discussion

Based on the operations manual prepared by Reid Crowther for the 1982 expansion, the primary clarifiers were designed to treat an average daily flow of approximately 54 ML/d. Therefore, the current flow could be roughly doubled and the clarifiers should still be capable of effectively removing solids from the incoming wastewater. Weekday operation of the primary clarifiers is stable because the clarifiers remove only primary solids. However on the weekends, WAS can be sent to the primary clarifiers for cothickening to reduce the loading on the gravity thickeners. When WAS is diverted to the primary clarifiers and poor WAS settleability prevents effective cothickening, solids have been observed escaping over the primary clarifier effluent launders. Minor solids losses will not seriously affect downstream operations. If WAS cothickening is continued, the primary clarifier capacity will need to be expanded sooner than if WAS is not discharged to the clarifiers.

Consideration should be given to continuously monitoring the sludge depth as a means of controlling the sludge pumps. The merits of such an arrangement include:

- A more consistent percentage of solids being pumped to the digesters
- Reduced liquid volumes being pumped to the digesters

- Reduced heating requirements at the digesters
- Reduced sludge volumes being pumped to the sludge lagoons
- Reduced sludge lagoon supernatant being returned to the treatment plant

2.2.2.5 Aeration Tanks

(a) Existing Conditions

In the 1973 expansion, one aeration tank (aeration tank 1) divided into four zones, each 15.25 m x 15.25 m x 4.25 m in size, was constructed. Two rectangular-shaped aeration tanks (aeration tanks 2A and 2B), each 63 m x 15.6 m x 4.65 m in size, were constructed in the 1982 expansion. Aeration tank 1 is rated at 14 ML/d while aeration tanks 2A and 2B are each rated at 20 ML/d.

The aeration tanks can receive wastewater from any of the three primary clarifiers. All of the aeration tanks are aerated using mechanical surface aerators. The operators attempt to maintain the aeration tank dissolved oxygen concentration between 1.5 mg/L and 2.5 mg/L, generally as follows:

- Do probes record the dissolved oxygen concentration in each tank.
- In aeration tank 1, the operators manually adjust the effluent weir gate in response to the DO concentration in the tank. If the dissolved oxygen concentration is less than 1.5 mg/L, then the gate is raised thereby raising the tank water surface elevation and increasing the submergence of the aerator and its oxygen transfer capabilities. Conversely, if the dissolved oxygen concentration exceeds 2.5 mg/L, the gate is lowered and the rate of oxygen transfer is reduced.
- In aeration tanks 2A and 2B, the operation is similar to that described above for aeration tank 1 except that the effluent weir gates are automatically controlled by an output signal from the DO probes. No operator intervention is required.

According to the plant staff, small adjustments to the effluent weir gate level cause large changes in the DO concentration which makes accurate dissolved oxygen control difficult.

(b) Discussion

Due to the difficulties experienced in maintaining DO concentrations above zero during summertime periods of peak load, the existing aeration capacity was compared to the current and projected oxygen requirements in the City of Red

Deer Plant Aeration Study (Reid Crowther and Stanley Associates, 1996). The comparison indicates that, at flows greater than 29 ML/d in the summer and 34 ML/d in the winter, the existing aeration system may not be able to satisfy aeration requirements. Flow projections indicate that flows of 29 ML/d will be exceeded in 1996 while flows of 34 ML/d will be exceeded by 2003.

In determining the most favourable aeration upgrade option, the implications of seasonal nitrification were considered. The Plant Aeration Study indicated that the preferred upgrade option was to replace the mechanical aeration equipment with a fine bubble diffused aeration system. Conversion to a fine bubble diffused aeration system will provide adequate DO levels and more accurate control. Additional tankage will be required if seasonal nitrification is mandated by Alberta Environmental Protection.

The mixed liquor suspended solids (MLSS) concentration in the aeration tanks is typically in the range of 1500 mg/L. This is indicative of a low sludge mass in the system. Also, the sludge volume indices (SVIs) have been as high as 500 mL/g. This is indicative of a bulking sludge and is likely caused by low dissolved oxygen concentrations in the aeration tanks. Bulking sludges typically do not create difficulties in aeration tank operation but often present serious problems in the secondary clarifiers. The City of Red Deer Selector Reactor Trial Study (Reid Crowther and Stanley Associates, 1996) demonstrated that significant improvements in sludge settleability could be achieved by utilizing a selector reactor in each of the aeration tanks.

The aeration tanks are able to reduce BOD_5 to the levels required by the current effluent discharge permit. However, it is anticipated that additional aeration tank capacity will be needed to satisfy any requirement for seasonal nitrification (refer to Section 4.0).

2.2.2.6 Secondary Clarifiers

(a) Existing Conditions

In the 1973 expansion, two circular centre-feed secondary clarifiers (secondary clarifiers 1 and 2), 21 m in diameter were constructed. An additional four circular centre-feed secondary clarifiers (secondary clarifiers 3, 4, 5 and 6), 26 m in diameter, followed in 1982. Secondary clarifiers 1 and 2 are equipped with inboard effluent launders but are not equipped with scum removal mechanisms. Secondary clarifiers 3, 4, 5 and 6 are equipped with outboard effluent launders and two radial arms that sweep the clarifier surface. Only one of the radial arms is

equipped with a skimmer. All of the secondary clarifiers are fitted with 3.65 m diameter influent feed wells. Sludge is removed from the bottom of each clarifier by suction orifices located on collector arms that rotate about the clarifier centre column. Suction is regulated by adjusting a valve on the RAS line to adjust the hydraulic driving force. The majority of the sludge is recycled to the aeration tanks using screw pumps. Facilities exist to allow the RAS to be chlorinated for sludge bulking and foam control.

Currently, a fraction of the RAS flow is diverted to the gravity thickeners (or on occasion to the primary clarifiers) as WAS in order to control the mean cell retention time (MCRT). WAS can also be diverted directly from the aeration tanks if required. WAS is directed to the gravity thickeners with single speed centrifugal pumps in the older plant and with variable speed centrifugal pumps in the newer plant. WAS pump flow rates are monitored frequently and adjusted according to the sludge blanket level in the secondary clarifiers and RAS solids concentrations.

(b) Discussion

Calculations indicate that the clarifiers are not currently overloaded. Existing surface overflow rates of 10 $m^3/m^2/d$ at average flow are less than typical literature values of 16 to 33 $m^3/m^2/d$. Solids loading rates are currently 23 $kg/m^2/d$ at average flow as compared with 94 to 140 $kg/m^2/d$ reported in the literature. It is important to note that the typical literature values for surface overflow and solids loading rates are based on a sludge with good settleability.

Discussions with plant staff have indicated that secondary clarifier upsets have occurred in the past due to poor sludge settleability. The upsets typically have occurred when the RAS flow rate exceeds approximately 40 percent of the influent flow rate. Higher RAS rates apparently have a tendency to induce more hydraulic turbulence within the secondary clarifiers. The turbulence causes the sludge blanket to be disturbed which results in solids escaping over the effluent launders.

If the sludge settleability can be improved by constructing selector reactors in the aeration tanks, flow to the secondary clarifiers can be increased. If poor settleability continues, clarifier upsets will continue to occur at current surface overflow and solids loading rates.

The secondary clarifiers are underloaded on the basis of surface overflow and solids loading rates. Poor sludge settleability has caused secondary clarifier upsets. If sludge settleability is improved, the clarifiers should be able to accommodate

flows of up to 45 ML/d. Some form of scum removal must be provided upstream of secondary clarifiers 1 and 2 to prevent the escape of floatable material to the river. Additionally, the effluent water volume and pressure at the secondary clarifiers should be increased.

2.2.2.7 Gravity Thickeners

(a) Existing Conditions

Two circular gravity thickeners, each 13 m in diameter and 3 m in depth, were constructed as part of the 1982 plant expansion. The original intent was to gravity thicken the WAS prior to anaerobic digestion. WAS is diluted with final effluent, pumped continuously to the thickeners and thickened by gravity settling. Slowly revolving scraper blades direct the thickened solids to the centre well. Each thickener is equipped with a positive displacement diaphragm pump to transfer thickened sludge to the anaerobic digesters. Thickener supernatant is returned upstream of the aeration tanks for further treatment.

(b) Discussion

Sludge with poor settleability does not thicken well. Eventually a poorly settling sludge accumulates to the top of the weirs and escapes in the supernatant. To overcome this problem, plant staff have modified the loading pattern on the thickeners. When the sludge settleability is poor, WAS is pumped to the thickeners on weekdays only. By Friday, the sludge blanket often rises to the top of the supernatant weirs. To prevent solids loss, WAS is temporarily diverted to the primary clarifiers over the weekend for wasting. This pattern allows the gravity thickeners time to thicken their accumulated sludge inventory in order to receive their traditional WAS loading at the beginning of the work week. Reduced solids loadings from industries and businesses during weekends have allowed the plant staff to utilize this mode of operation.

Gravity thickener performance can be improved by addressing the sludge settleability problem.

2.2.2.8 Anaerobic Digestion

(a) Existing Conditions

Two circular digesters, each 18.3 m in diameter and 7.6 m in depth, were constructed in the 1973 expansion followed by two identically sized units in the

1982 expansion. Anaerobic digesters 1, 3 and 4 were designed as primary digesters with overflow by gravity into anaerobic digester 2 which was designed as a secondary digester. The feeding pattern for the anaerobic digesters is two hours to digester 1, two hours to digester 3 and two hours to digester 4. This cycle is repeated four times each day. The influent to the primary digesters is preheated using a heat exchanger. When a primary digester is not being fed, its contents are recirculated through a heat exchanger to maintain the temperature of the contents at 33 to 35°C. Digester 2 is not equipped with a heat exchanger. Current practice is to mix all four digesters by recirculating compressed digester gas. The MCRT is maintained at a nominal 28 days by removing a daily digested volume approximately equal to the daily combined influent volume from the gravity thickeners and primary clarifiers. Digested sludge is pumped to the sludge storage lagoons.

(b) Discussion

The anaerobic digesters have operated well. Volatile suspended solids (VSS) destruction has averaged approximately 55 percent which is typical of high rate anaerobic digestion. The estimated current VSS loading is 0.4 kg VSS/m^3/d. If typical VSS loading rates were used, the amount of solids added to the digesters could be increased by up to 85 percent without adversely affecting operation. Therefore, there is significant reserve capacity in the existing digesters to accommodate increased VSS loadings.

2.2.2.9 Sludge Lagoons

(a) Existing Conditions

The anaerobically digested sludge is pumped to the adjacent sludge storage lagoons. The purpose of the lagoons is to provide solids/liquid separation. Even though the lagoons were not designed to encourage it, freeze/thaw cycles aid in the solids/liquid separation process. The solids settle to the bottom and are land applied once the lagoon capacity is reached. Supernatant is decanted and returned to the plant for further treatment.

(b) Discussion

Lagoon solids have been low in metals content and have consistently met Alberta Environmental Protection's criteria for land application. As for the lagoon supernatant, it is reintroduced at a controlled rate so as not to overload the plant.

However, experience at the plant has been that the supernatant return stream can cause settleability problems due to low dissolved oxygen concentrations.

In conclusion, it can be stated that the existing sludge lagoon system functions relatively well.

2.2.2.10 Facilities Audit Summary

The facilities audit identified some areas of concern which limit the capacity and operational flexibility of the WWTP. Specifically, the concerns relate to the bar screens and the mechanical aeration system. Operation of the bar screens can be improved through the provision of effective screen cleaning mechanisms on the three units installed in 1982. The inability of the aeration system to meet oxygen demands at peak loads affects the primary clarifiers, secondary clarifiers and gravity thickeners. Low DO concentrations lead to reduced sludge settleability in both the secondary clarifiers and the gravity thickeners. Poor sludge settleability in the secondary clarifiers requires operation at lower flows which decreases their effective capacity. Poor sludge settleability in the gravity thickeners also requires operation at lower flows which decreases their effective capacity. Reduction in gravity thickener capacity requires that WAS be cothickened in the primary clarifiers; this, in turn, limits the effectiveness and capacity of the primary clarifiers.

Improvements recommended in the Plant Aeration Study and the Selector Reactor Trial Study will help to solve the aeration and sludge settleability problems. The net effect will be to increase the capacity and operational flexibility of the plant.

SECTION 3.0
WASTEWATER FLOWS AND CHARACTERISTICS

3.1 PREAMBLE

Population and land use projections were supplied by the City for the years 1996 through 2020. The City also provided direction in terms of the annual population growth rate to be used from year 2020 to year 2050. Projections of wastewater flows and loads were derived from these and related data as described below.

3.2 CURRENT AND PROJECTED POPULATION

According to information provided by the City, the 1995 population was slightly less than 60 000. The population for year 2050 is projected to approach 110 000. Population growth rates between 1996 and 2020 range from a minimum of 1.04 percent to a maximum of 1.35 percent per annum. The population growth rate between 2020 and 2050 has been taken as one percent per annum. Table 3-1 presents the population projections on an annual basis to year 2050.

3.3 CURRENT AND PROJECTED LAND USE

The growth projections consider estimates of the area developed for residential, industrial, commercial and institutional purposes for 1996 to 2020 (refer to Table 3-1). Residential development areas have been based on the projected population increases being accommodated at an average density of 35 persons per hectare. According to planning information provided by the City, residential growth will be concentrated in the Northwest, Southeast and East districts until year 2020 (refer to Figure 3-1). The area required for residential development beyond 2020 has been determined from the one percent annual population growth rate, as noted above. From year 2021 through year 2050, it is believed that residential growth will continue to be concentrated in the Northwest, Southeast and East districts. Wherever the growth occurs, storm and sanitary sewer services will have to be extended to these areas. An estimated additional 1400 hectares of land will be required for residential development by 2050. It is anticipated that some of this development will occur outside the existing city boundaries.

The area developed for industrial, commercial and institutional use is projected to be constant for each of years 1996 through 2020. The industrial and commercial development rates were approximated from the City of Red Deer Comprehensive Annexation Report (CEP Consultants, 1992).

Table 3-1
Population and Land Use Projections

Year	Projected Population	Annual Growth Population	Annual Growth Percent	Housing Units	Development Area (ha) Residential	Industrial	Commercial	Institutional	TOTALS	5 Year Increments	
1995	59,834	-	-								
1996	60,641	807	1.35	310	23.1	6.3	2.0	0.5	31.9		
1997	61,424	783	1.29	301	22.4	6.3	2.0	0.5	31.2		
1998	62,190	766	1.25	295	21.9	6.3	2.0	0.5	30.7		
1999	62,940	750	1.21	288	21.4	6.3	2.0	0.5	30.2		
2000	63,756	816	1.30	314	23.3	6.3	2.0	0.5	32.1	**1996-2000**	**156**
2001	64,610	854	1.34	329	24.4	6.3	2.0	0.5	33.2		
2002	65,465	854	1.32	329	24.4	6.3	2.0	0.5	33.2		
2003	66,319	854	1.31	329	24.4	6.3	2.0	0.5	33.2		
2004	67,173	854	1.29	329	24.4	6.3	2.0	0.5	33.2		
2005	68,037	864	1.29	332	24.7	6.3	2.0	0.5	33.5	**2001-2005**	**166**
2006	68,887	850	1.25	327	24.3	6.3	2.0	0.5	33.1		
2007	69,738	850	1.23	327	24.3	6.3	2.0	0.5	33.1		
2008	70,588	850	1.22	327	24.3	6.3	2.0	0.5	33.1		
2009	71,439	850	1.20	327	24.3	6.3	2.0	0.5	33.1		
2010	72,301	862	1.21	332	24.6	6.3	2.0	0.5	33.4	**2006-2010**	**166**
2011	73,190	889	1.23	342	25.4	6.3	2.0	0.5	34.2		
2012	74,080	889	1.22	342	25.4	6.3	2.0	0.5	34.2		
2013	74,969	889	1.20	342	25.4	6.3	2.0	0.5	34.2		
2014	75,844	875	1.17	336	25.0	6.3	2.0	0.5	33.8		
2015	76,738	894	1.18	344	25.5	6.3	2.0	0.5	34.3	**2011-2015**	**171**
2016	77,582	844	1.10	325	24.1	6.3	2.0	0.5	32.9		
2017	78,426	844	1.09	325	24.1	6.3	2.0	0.5	32.9		
2018	79,270	844	1.08	325	24.1	6.3	2.0	0.5	32.9		
2019	80,114	844	1.06	325	24.1	6.3	2.0	0.5	32.9		
2020	80,949	835	1.04	321	23.9	6.3	2.0	0.5	32.7	**2016-2020**	**164**
2021	81,758	809	1.00	-	23.1	6.3	2.0	0.5	31.9		
2022	82,576	818	1.00	-	23.4	6.3	2.0	0.5	32.2		
2023	83,402	826	1.00	-	23.6	6.3	2.0	0.5	32.4		
2024	84,236	834	1.00	-	23.8	6.3	2.0	0.5	32.6		
2025	85,078	842	1.00	-	24.1	6.3	2.0	0.5	32.9	**2021-2025**	**162**
2026	85,929	851	1.00	-	24.3	6.3	2.0	0.5	33.1		
2027	86,788	859	1.00	-	24.6	6.3	2.0	0.5	33.4		
2028	87,656	868	1.00	-	24.8	6.3	2.0	0.5	33.6		
2029	88,533	877	1.00	-	25.0	6.3	2.0	0.5	33.8		
2030	89,418	885	1.00	-	25.3	6.3	2.0	0.5	34.1	**2026-2030**	**168**
2031	90,312	894	1.00	-	25.5	6.3	2.0	0.5	34.3		
2032	91,215	903	1.00	-	25.8	6.3	2.0	0.5	34.6		
2033	92,128	912	1.00	-	26.1	6.3	2.0	0.5	34.9		
2034	93,049	921	1.00	-	26.3	6.3	2.0	0.5	35.1		
2035	93,979	930	1.00	-	26.6	6.3	2.0	0.5	35.4	**2031-2035**	**174**
2036	94,919	940	1.00	-	26.9	6.3	2.0	0.5	35.7		
2037	95,868	949	1.00	-	27.1	6.3	2.0	0.5	35.9		
2038	96,827	959	1.00	-	27.4	6.3	2.0	0.5	36.2		
2039	97,795	968	1.00	-	27.7	6.3	2.0	0.5	36.5		
2040	98,773	978	1.00	-	27.9	6.3	2.0	0.5	36.7	**2036-2040**	**181**
2041	99,761	988	1.00	-	28.2	6.3	2.0	0.5	37.0		
2042	100,759	998	1.00	-	28.5	6.3	2.0	0.5	37.3		
2043	101,766	1,008	1.00	-	28.8	6.3	2.0	0.5	37.6		
2044	102,784	1,018	1.00	-	29.1	6.3	2.0	0.5	37.9		
2045	103,812	1,028	1.00	-	29.4	6.3	2.0	0.5	38.2	**2041-2045**	**188**
2046	104,850	1,038	1.00	-	29.7	6.3	2.0	0.5	38.5		
2047	105,898	1,048	1.00	-	30.0	6.3	2.0	0.5	38.8		
2048	106,957	1,059	1.00	-	30.3	6.3	2.0	0.5	39.1		
2049	108,027	1,070	1.00	-	30.6	6.3	2.0	0.5	39.4		
2050	109,107	1,080	1.00	-	30.9	6.3	2.0	0.5	39.7	**2046-2050**	**195**
Totals:		**49,269**	**60.43**	**8123**	**1407.7**	**346.5**	**110**	**27.5**	**1891.7**		**1892**

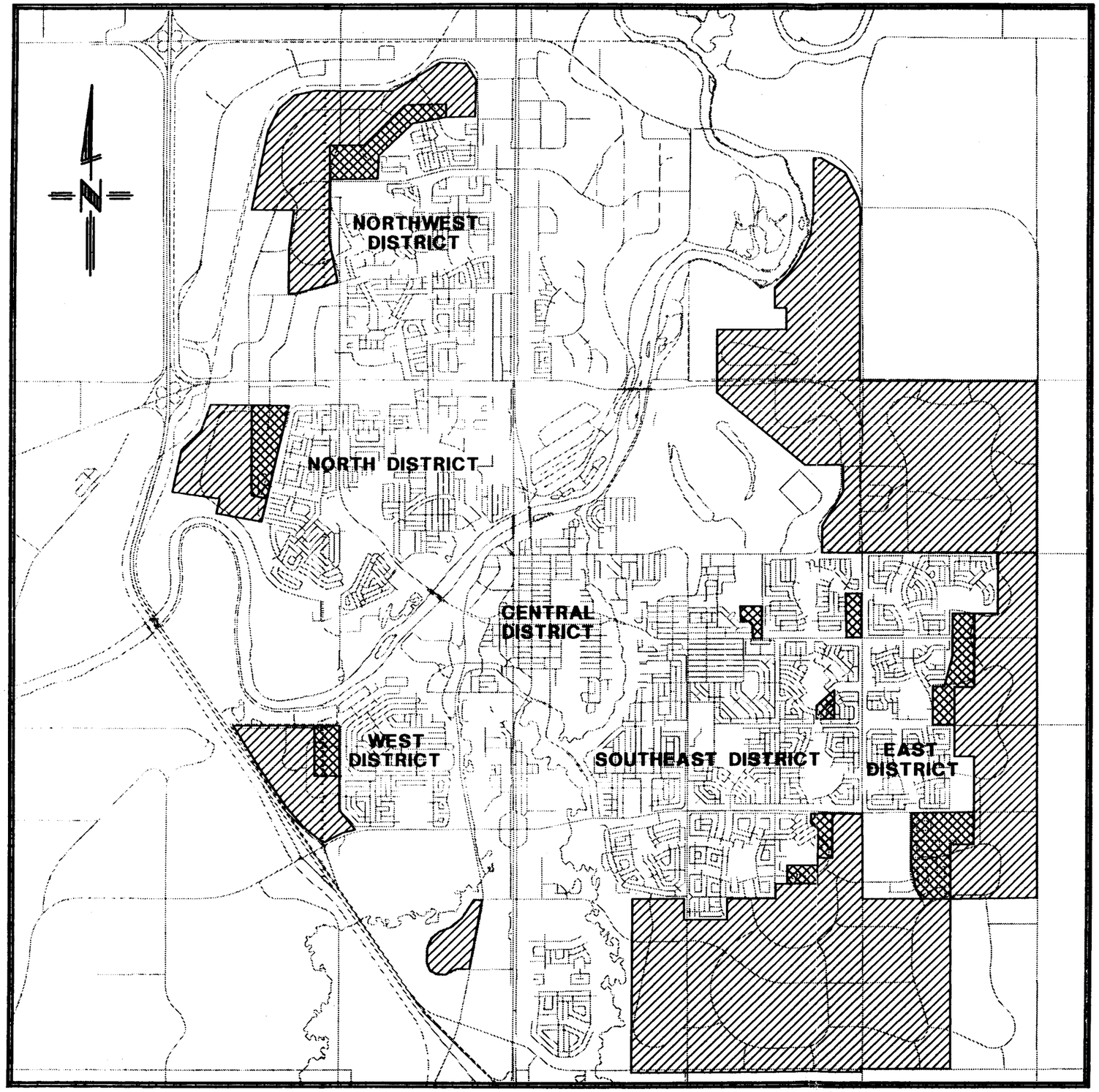
Population projections based on Feb., 1996 Demographic Analysis by Parkland Community Planning Services (Italicized values have been interpolated).

Housing growth based on a population density of 2.6 people per household.

Residential development growth based on an average density of 35 people per hectare.

Industrial and commercial development rates approximated from March, 1992 annexation report

Average 5 year growth rate = 165 ha (residential =120 ha; industrial = 32 ha; commercial & institutional = 13 ha).



LEGEND:

- CITY BOUNDARY
- DISTRICT BOUNDARIES
- RESIDENTIAL DEVELOPMENT 1995 – 200 (±3500 PERSONS)
- RESIDENTIAL DEVELOPMENT 2001 ONWARDS

DISTRICT	1995 POPULATION	YEAR 2000 POPULATION PROJECTIONS
NORTHWEST	11,508	12,111
NORTH	11,129	11,535
CENTRAL	4,207	4,362
WEST	9,076	9,248
SOUTHEAST	17,790	18,765
EAST	5,488	7,386
TOTALS	**59,198***	**63,406***

* EXCLUDES MICHENER CENTRE RESIDENTS

SOURCE: CITY OF RED DEER ENGINEERING DEPARTMENT
PARKLAND COMMUNITY PLANNING SERVICES

City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

RESIDENTIAL DENSITIES AND POPULATION DISTRIBUTION

FIGURE 3-1

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_3-1.DWG

According to the City's Economic Development Department, industrial growth will occur mainly in the Edgar Industrial Subdivision in the northwest corner of the City. Over the last ten years, an average of roughly six hectares of land has been sold by the Economic Development Department in the Edgar Industrial Subdivision which correlates well with the projected rate of development of 6.3 hectares per year. The land is normally sold in one hectare parcels. The rates of development for industrial, commercial and institutional uses were continued at the pre-2020 levels for 2021 to 2050. An estimated additional 484 hectares of land will be developed for industrial, commercial and institutional uses by the year 2050.

3.4 CURRENT AND PROJECTED WASTEWATER CHARACTERISTICS

Flow and load projections for the wastewater treatment plant can be affected by the implementation of water conservation measures, changes in the industrial wastewater flow or strength and changes to infiltration and inflow in the sewer system. Per capita contributions of flow, TSS, BOD_5, total Kjehldahl nitrogen (TKN) and total phosphorus (TP) were determined from the available plant data. Diurnal and monthly flow patterns were also determined.

In a global context, water conservation will become more common and the need for water conservation will undoubtedly result in beneficial recycling of treated wastewater for cooling, irrigation and agricultural use. The implementation of water conservation measures will be initially focused in geographic areas which have experienced chronic water shortages, but can be expected to expand into other areas with the passage of time. These considerations suggest that wastewater received at the treatment plant may increase in strength. Water conservation measures are not currently being considered by the City and their impacts have not been considered in the projection of the wastewater flows and loads.

The only change in the current industrial wastewater contribution is anticipated from Fletchers Fine Foods. Their production is expected to nearly double to 8000 hogs per day by late 1997 or early 1998. Agri Partners has purchased the former National Supply site but are still in the financing stages of setting up grain processing operations. Maple Leaf Foods owns the former Canada Packers plant but there is only a remote chance that food processing will be undertaken at this location. For the purpose of flow and load projections, the industrial wastewater component has been assumed to grow at the same rate as the domestic wastewater component with the exception of the Fletchers plant expansion. Past experience with a similar expansion indicates that the flow from Fletchers will increase by roughly two thirds by 1998.

As the sewer system ages, the infiltration component can be expected to increase. Wastewater conveyed by recently and properly installed sewers will have only a small percentage of infiltration. These two factors will likely balance each other out. The City has indicated that no significant changes in the infiltration and inflow component of the wastewater should be considered for the Master Plan.

Monthly flow, TSS and BOD_5 data collected at the wastewater treatment plant were averaged to determine the 1995 average influent flows and loads. The industrial component was quantified through an analysis of water consumption and measured TSS and BOD_5 data recorded at each of the major industries. Wastewater flow was assumed to be 80 percent of potable water consumption. The non-industrial component was determined by subtracting the industrial flow, and TSS and BOD_5 loads from the total WWTP influent values. The non-industrial component includes wastewater derived from domestic, commercial and institutional sources as well as from infiltration and inflow.

A per capita contribution for non-industrial wastewater was calculated and compared to values presented for domestic wastewater in the Water Environment Federation Manual of Practice No. 8 (WEF MOP 8). The per capita flow contribution from non-industrial sources was calculated to be 0.449 m^3/capita/d which is higher than the WEF MOP 8 value of 0.370 m^3/capita/d. The WEF MOP 8 value does not include an allowance for infiltration and inflow which would likely account for a large portion of the difference. The calculated per capita TSS and BOD_5 load contributions were 0.08 kg/capita/d and 0.06 kg/capita/d, respectively, which are on average 85 percent of the WEF MOP 8 values. Because only TSS and BOD_5 data were available, the per capita TKN and TP loads from non-industrial sources were also set at 85 percent of the WEF MOP 8 values.

The TKN and TP loads from non-industrial sources were subtracted from the WWTP influent values to determine the industrial contribution to the TKN and TP loads at the treatment plant. Because the industrial flows and loads are projected based on increases in population, with the exception of the Fletchers expansion, industrial per capita flow and load contributions were calculated. The per capita contributions are summarized in Table 3-2.

The diurnal and monthly flow variations are presented in Tables 3-3 and 3-4, respectively. The diurnal flow data were collected on May 1st and 2nd, 1996. Flow data from the WWTP annual reports for 1990 through 1995 were averaged to obtain a typical flow pattern. The monthly flow data are plotted in Figure 3-2. The maximum flow occurs in mid-summer and minimum flow occurs in mid-winter.

Table 3-2
Per Capita Flow and Load Contributions

	Units	Non-industrial	Industrial
Flow	m^3/capita/d	0.449	0.018 *
TSS	kg/capita/d	0.082	0.017 *
BOD_5	kg/capita/d	0.063	0.030 *
TKN	kg/capita/d	0.010	0.005
TP	kg/capita/d	0.0022	0.0003

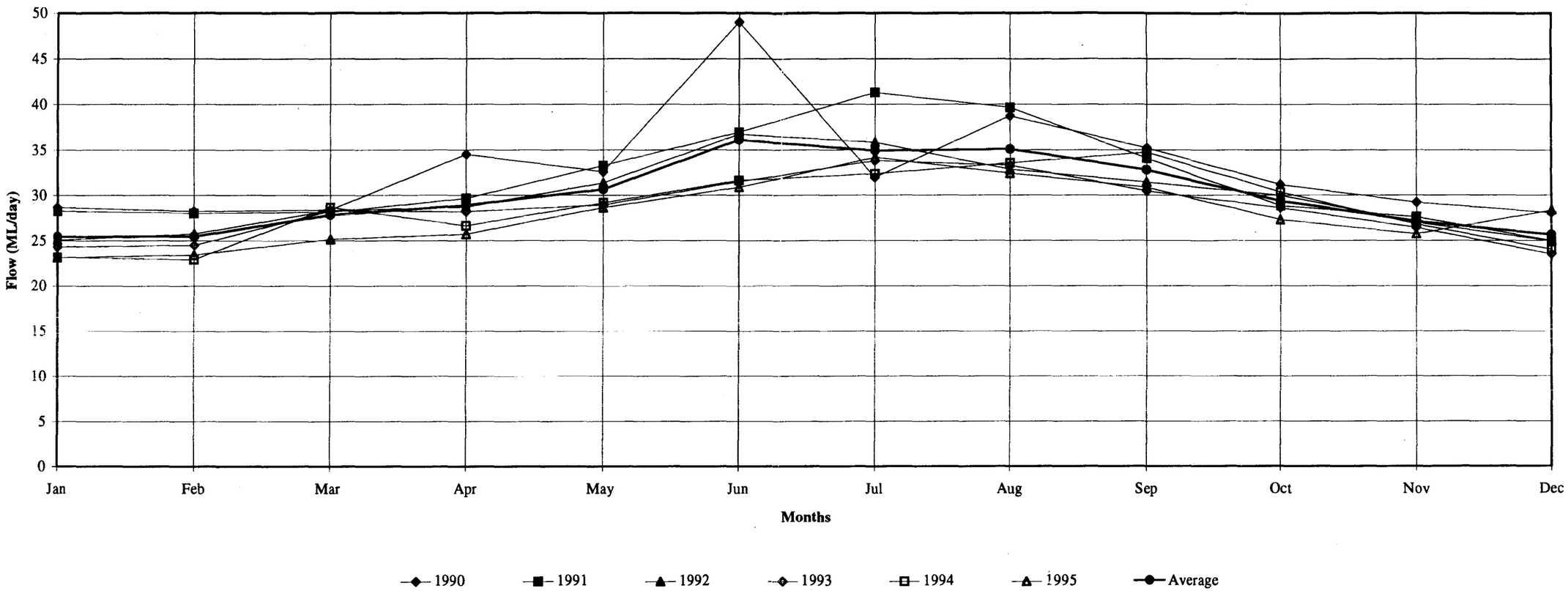
* measured

Table 3-3
Diurnal Flow Pattern

Time	Flow (ML/d)	
	May 1, 1996	May 2, 1996
00:00	30.2	30.9
04:00	15.8	10.6
08:00	13.0	19.2
12:00	32.8	33.1
16:00	30.0	30.7
20:00	--	31.2

Table 3-4
Monthly Flow Variations

Year	Monthly Average Influent Flow ML/day												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1990	28.7	28.2	28.4	34.5	32.6	49.0	31.9	38.7	35.2	31.2	29.2	28.1	396
1991	28.3	28.0	28.1	29.7	33.3	36.9	41.3	39.6	34.1	28.9	27.6	25.0	381
1992	25.1	25.8	28.3	28.7	31.4	36.7	35.8	32.8	31.4	30.0	27.0	25.0	358
1993	24.3	24.5	28.3	28.2	28.9	31.5	33.8	33.3	30.5	28.6	26.4	23.5	342
1994	23.2	22.9	28.7	26.7	29.2	31.6	32.4	33.5	34.7	30.4	26.8	24.0	344
1995	23.1	23.4	25.2	25.7	28.7	30.9	34.2	32.4	30.9	27.3	25.7	28.4	336
Average	25.4	25.5	27.8	28.9	30.7	36.1	34.9	35.1	32.8	29.4	27.1	25.6	359



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City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

WASTEWATER FLOW VARIATIONS

FIGURE 3-2

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_3-2.DWG

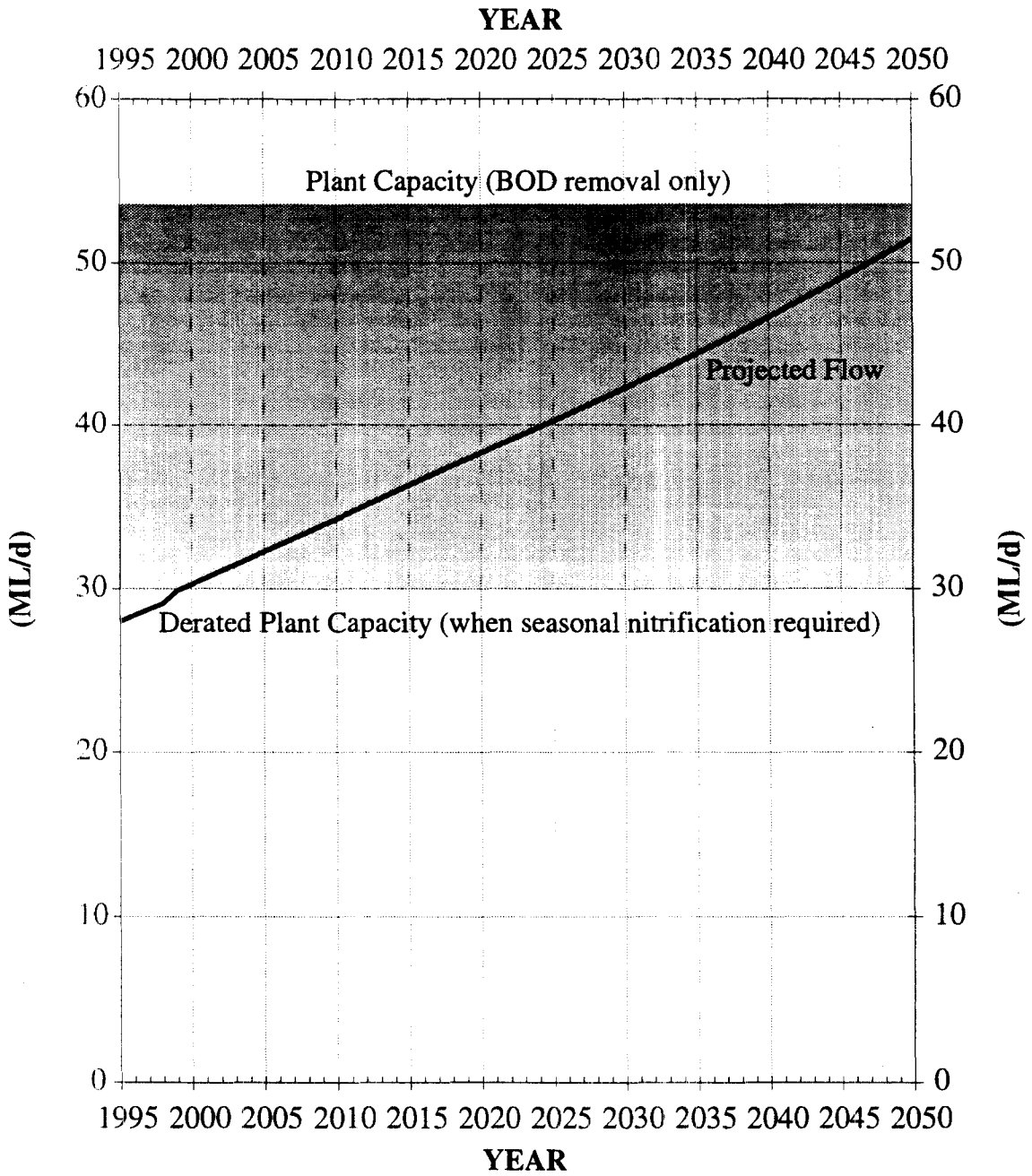
3.5 WASTEWATER FLOW AND LOAD PROJECTIONS

Wastewater flows and loads were projected for non-industrial sources separately from industrial sources (refer to Table 3-5). Future flows and loads from all other sources were projected by multiplying the per capita contributions presented in Table 3-2 by the projected population presented in Table 3-1. The projected industrial flows and loads were determined in a similar manner except for year 1998 where additional flows and loads were added to reflect increased production at Fletchers. The projected flows and loads from all sources are totalled in the last five columns of Table 3-5. The total flow to the wastewater treatment plant is projected to be 51.5 ML/d by year 2050. The projected TSS and BOD_5 loads are 11 300 and 10 800 kg/d, respectively. The projected TKN and TP loads are 1840 and 290 kg/d, respectively.

The projected flows are compared to the plant capacity in Figure 3-3. The top of the shaded area represents the plant design capacity if only BOD_5 removal is required. If the pending requirement for seasonal nitrification is considered (refer to Section 4.0) and the existing mechanical aeration system is left in place, the plant capacity is represented by the lower portion of the shaded area. Based on the analyses undertaken, the derated capacity has been estimated at 30 ML/d. Uncertainties inherent in the analyses may cause the derated capacity to be more or less than 30 ML/d. Once seasonal nitrification is included in the effluent discharge permit, the current plant configuration will not have sufficient capacity to treat the wastewater to the level required.

Table 3-5
Flow and Load Projections 1996 - 2050

		NON-INDUSTRIAL					INDUSTRIAL					TOTAL WWTP INFLUENT				
	Projected	Flow	TSS	BOD_5	TKN	TP	Flow	TSS	BOD_5	TKN	TP	Flow	TSS	BOD_5	TKN	TP
Year	Population	ML/day	kg/day	kg/day	kg/day	kg/day	ML/day	kg/day	kg/day	kg/day	kg/day	ML/day	kg/day	kg/day	kg/day	kg/day
1995	59,834	26.9	4,916	3,754	610	35	1.1	1,040	1,791	328	18	28.0	5,956	5,545	938	152
1996	60,641	27.2	4,983	3,804	619	136	1.1	1,054	1,815	332	18	28.4	6,036	5,619	951	154
1997	61,424	27.6	5,047	3,853	627	138	1.1	1,067	1,839	336	18	28.7	6,114	5,692	963	156
1998	62,190	27.9	5,110	3,901	634	140	1.1	1,081	1,862	341	18	29.1	6,190	5,763	975	158
1999	62,940	28.3	5,171	3,948	642	142	1.6	1,516	2,611	478	26	29.9	6,687	6,559	1,120	167
2000	63,756	28.6	5,239	4,000	650	143	1.6	1,530	2,635	482	26	30.3	6,768	6,635	1,132	169
2001	64,610	29.0	5,309	4,053	659	145	1.6	1,545	2,661	487	26	30.7	6,853	6,714	1,146	171
2002	65,465	29.4	5,379	4,107	668	147	1.6	1,559	2,686	491	26	31.1	6,938	6,793	1,159	174
2003	66,319	29.8	5,449	4,160	676	149	1.7	1,574	2,712	496	27	31.5	7,023	6,872	1,173	176
2004	67,173	30.2	5,519	4,214	685	151	1.7	1,589	2,738	501	27	31.9	7,108	6,952	1,186	178
2005	68,037	30.6	5,590	4,268	694	153	1.7	1,604	2,763	505	27	32.3	7,194	7,032	1,199	180
2006	68,887	31.0	5,660	4,322	703	155	1.7	1,619	2,789	510	27	32.7	7,279	7,110	1,213	182
2007	69,738	31.3	5,730	4,375	711	157	1.7	1,634	2,814	515	28	33.1	7,364	7,189	1,226	184
2008	70,588	31.7	5,800	4,428	720	159	1.7	1,648	2,840	519	28	33.5	7,448	7,268	1,239	187
2009	71,439	32.1	5,870	4,482	729	161	1.8	1,663	2,865	524	28	33.9	7,533	7,347	1,253	189
2010	72,301	32.5	5,941	4,536	737	163	1.8	1,678	2,891	529	28	34.3	7,619	7,427	1,266	191
2011	73,190	32.9	6,014	4,592	747	165	1.8	1,694	2,918	534	29	34.7	7,707	7,509	1,280	193
2012	74,080	33.3	6,087	4,647	756	167	1.8	1,709	2,944	539	29	35.1	7,796	7,592	1,294	196
2013	74,969	33.7	6,160	4,703	765	169	1.8	1,725	2,971	543	29	35.5	7,884	7,674	1,308	198
2014	75,844	34.1	6,232	4,758	774	171	1.8	1,740	2,997	548	29	35.9	7,971	7,755	1,322	200
2015	76,738	34.5	6,305	4,814	783	173	1.9	1,755	3,024	553	30	36.3	8,060	7,838	1,336	202
2016	77,582	34.9	6,375	4,867	791	174	1.9	1,770	3,049	558	30	36.7	8,144	7,916	1,349	204
2017	78,426	35.2	6,444	4,920	800	176	1.9	1,785	3,074	562	30	37.1	8,228	7,994	1,362	207
2018	79,270	35.6	6,513	4,973	809	178	1.9	1,799	3,100	567	30	37.5	8,312	8,073	1,376	209
2019	80,114	36.0	6,583	5,026	817	180	1.9	1,814	3,125	572	31	37.9	8,397	8,151	1,389	211
2020	80,949	36.4	6,651	5,078	826	182	1.9	1,828	3,150	576	31	38.3	8,480	8,228	1,402	213
2021	81,758	36.7	6,718	5,129	834	184	1.9	1,843	3,174	581	31	38.7	8,560	8,303	1,415	215
2022	82,576	37.1	6,785	5,180	842	186	2.0	1,857	3,199	585	31	39.1	8,642	8,379	1,427	217
2023	83,402	37.5	6,853	5,232	851	188	2.0	1,871	3,223	590	32	39.5	8,724	8,455	1,440	219
2024	84,236	37.9	6,921	5,284	859	189	2.0	1,886	3,248	594	32	39.8	8,807	8,533	1,453	221
2025	85,078	38.2	6,990	5,337	868	191	2.0	1,900	3,273	599	32	40.2	8,891	8,611	1,467	224
2026	85,929	38.6	7,060	5,391	876	193	2.0	1,915	3,299	603	32	40.6	8,975	8,690	1,480	226
2027	86,788	39.0	7,131	5,445	885	195	2.0	1,930	3,325	608	33	41.0	9,061	8,769	1,493	228
2028	87,656	39.4	7,202	5,499	894	197	2.1	1,945	3,351	613	33	41.4	9,147	8,850	1,507	230
2029	88,533	39.8	7,274	5,554	903	199	2.1	1,960	3,377	618	33	41.9	9,235	8,931	1,521	232
2030	89,418	40.2	7,347	5,610	912	201	2.1	1,976	3,403	623	33	42.3	9,323	9,013	1,535	235
2031	90,312	40.6	7,421	5,666	921	203	2.1	1,991	3,430	627	34	42.7	9,412	9,096	1,549	237
2032	91,215	41.0	7,495	5,722	930	205	2.1	2,007	3,457	632	34	43.1	9,502	9,180	1,563	239
2033	92,128	41.4	7,570	5,780	940	207	2.1	2,023	3,484	637	34	43.5	9,592	9,264	1,577	241
2034	93,049	41.8	7,645	5,837	949	209	2.2	2,039	3,512	642	34	44.0	9,684	9,349	1,592	244
2035	93,979	42.2	7,722	5,896	959	211	2.2	2,055	3,540	648	35	44.4	9,777	9,436	1,606	246
2036	94,919	42.7	7,799	5,955	968	213	2.2	2,071	3,568	653	35	44.8	9,870	9,523	1,621	249
2037	95,868	43.1	7,877	6,014	978	216	2.2	2,088	3,596	658	35	45.3	9,965	9,611	1,636	251
2038	96,827	43.5	7,956	6,074	988	218	2.2	2,104	3,625	663	36	45.7	10,060	9,700	1,651	253
2039	97,795	43.9	8,035	6,135	998	220	2.2	2,121	3,654	668	36	46.2	10,157	9,789	1,666	256
2040	98,773	44.4	8,116	6,196	1,007	222	2.3	2,138	3,683	674	36	46.6	10,254	9,880	1,681	258
2041	99,761	44.8	8,197	6,258	1,018	224	2.3	2,155	3,713	679	36	47.1	10,352	9,971	1,697	261
2042	100,759	45.3	8,279	6,321	1,028	227	2.3	2,173	3,743	685	37	47.6	10,451	10,064	1,712	263
2043	101,766	45.7	8,362	6,384	1,038	229	2.3	2,190	3,773	690	37	48.0	10,552	10,157	1,728	266
2044	102,784	46.2	8,445	6,448	1,048	231	2.3	2,208	3,803	696	37	48.5	10,653	10,252	1,744	269
2045	103,812	46.6	8,530	6,513	1,059	233	2.4	2,226	3,834	701	38	49.0	10,755	10,347	1,760	271
2046	104,850	47.1	8,615	6,578	1,069	236	2.4	2,244	3,865	707	38	49.5	10,859	10,443	1,777	274
2047	105,898	47.6	8,701	6,643	1,080	238	2.4	2,262	3,897	713	38	50.0	10,963	10,540	1,793	276
2048	106,957	48.1	8,788	6,710	1,091	241	2.4	2,280	3,928	719	39	50.5	11,068	10,638	1,810	279
2049	108,027	48.5	8,876	6,777	1,102	243	2.4	2,299	3,960	724	39	51.0	11,175	10,737	1,826	282
2050	109,107	49.0	8,965	6,845	1,113	245	2.4	2,318	3,993	730	39	51.5	11,282	10,837	1,843	285



City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

PROJECTED FLOW vs. PLANT CAPACITY

FIGURE 3-3

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SECTION 4.0
EFFLUENT QUALITY REQUIREMENTS

4.1 PREAMBLE

This Section provides an overview of flow and water quality conditions in the Red Deer River, and identifies the near term and projected long term effluent quality requirements. A discussion of the near term requirements expected to be mandated by Alberta Environmental Protection is included, as is a discussion of trends in effluent quality requirements in other jurisdictions across Canada, in the United States and in Europe.

4.2 RIVER FLOWS AND WATER QUALITY

Flows in the Red Deer River within the City of Red Deer have changed significantly since construction of the Dickson Dam. The dam construction has also affected some of the river quality parameters.

In general, the River flows are better regulated so that the spring runoff is less of a problem than previously. The median flow ranges from approximately 25 m^3/s in winter to approximately 65 m^3/s in summer. However, peak flows as high as 300 m^3/s have been recorded during the late spring / early summer runoff.

Water temperatures are now higher than prior to the dam construction and this is suspected to be causing increased organic growth in the River. Temperatures range from a low of approximately 3°C in winter to a high of approximately 21°C in summer.

4.3 PROVINCIAL GUIDELINES ON EFFLUENT QUALITY

Alberta Environmental Protection establishes effluent quality requirements based on the more stringent of the quality resulting from the "Best Practicable Technology" or the quality required based on receiving water assessments. Alberta Environmental Protection's Best Practicable Technology Standards for municipalities similar to Red Deer are presented in Table 4-1.

Alberta Environmental Protection's mandate is to set regulations to protect the environment and the agency is proactive in this regard. The City of Red Deer has similarly been proactive in protecting the environment. This has been demonstrated by the City's commitment to meeting or exceeding all environmental requirements set by Alberta Environmental Protection.

Table 4-1
Best Practicable Technology Standards

PARAMETER	STANDARD	SAMPLE	COMMENTS
BOD_5	20 mg/L	Composite	Monthly average of daily samples
TSS	20 mg/L	Composite	Monthly average of daily samples
TP	1 mg/L	Composite	Monthly average of daily samples
NH_3-N	---	Composite	Need assessed on a site specific basis
Total Coliform	1000/100 mL	Grab	Geometric mean of daily samples in a calendar month
Fecal Coliform	200/100 mL	Grab	Geometric mean of daily samples in a calendar month

4.4 NEAR-TERM QUALITY REQUIREMENTS

Alberta Environmental Protection indicated in a letter to the City dated June 12, 1996 that the October 1997 licence renewal can be expected to include the effluent quality criteria identified in Table 4-2. The new licence will stipulate a requirement to have new facilities in place so that the effluent criteria can be met within ten years (i.e. by year 2007).

The dates for converting between the winter and summer ammonia (NH_3-N) limits may be based on river temperature or, alternatively, on specific calendar dates which would not change from year to year. We believe there is greater scientific justification for using the Red Deer River temperature as the basis for converting between seasonal limits. The temperature generally reflects pH changes in the river - low temperatures being associated with lower pH values that occur during spring run off. Ammonia is not as toxic at lower pH values.

Table 4-2
Anticipated Effluent Criteria for the 1997 Licence Renewal

PARAMETER	LIMIT	COMMENTS
BOD_5	20 mg/L	Monthly arithmetic mean of daily samples
TSS	20 mg/L	Monthly arithmetic mean of daily samples
TP	1 mg/L	Monthly arithmetic mean of daily samples
NH_3-N (Winter)	10 mg/L	Monthly arithmetic mean of daily samples
NH_3-N (Summer)	5 mg/L	Monthly arithmetic mean of daily samples
Total Coliform	1000/100 mL	Monthly geometric mean of daily samples
Fecal Coliform	200/100 mL	Monthly geometric mean of daily samples

Discussions with representatives from Alberta Environmental Protection have been ongoing regarding the rationale for the proposed effluent requirements and the potential for certain limits to be modified, principally the requirement for seasonal nitrification and year round disinfection. The regulatory agency has agreed to provide a rationale to the City for the proposed limits and to indicate whether there is room for negotiation. However, such information has not been made available at the time of writing and, for the purposes of the Wastewater Treatment Master Plan, we have proceeded on the premise that the proposed limits will remain unchanged.

4.5 LONG-TERM QUALITY REQUIREMENTS

4.5.1 Overview

Technology improvements and more sophisticated water quality criteria can be expected to drive allowable discharge levels to lower values. Legislation will continue in the current direction toward more stringent standards and a broader area of regulatory control. Future standards can be expected to address pollution prevention, enhanced monitoring and control of point source and non-point source contaminants, water quality-based effluent limits and cross-media impacts. The control and treatment of stormwater discharges, combined sewer overflows and sanitary sewer overflows will also receive closer scrutiny.

Another trend which can be anticipated over the long-term is the trading of discharge limits among receiving media, provided that the net result includes both an overall reduction in the amount of the contaminant discharged and a reduction in the potential environmental/public health risk from the combined discharge.

Specific issues which the City can anticipate having to address over the long-term include:

- Control of Conventional Contaminants
- Control of Discharges to the Collection System
- Control of Sludge Management and Disposal
- Implementation of Water Quality-Based Effluent Limits
- Control of Effluent Toxicity
- Control of Stormwater Discharges
- Control of Combined Sewer Overflows
- Control of Sanitary Sewer Overflows

Each of these issues is described in the sub-sections which follow. The long-term wastewater treatment needs must be considered as an integral part of plans for future additions to the wastewater treatment plant. Further, sufficient space must be allocated for the enhanced treatment needs as well as for other process modifications which have not yet been identified but can be expected to be required as the standards and regulations evolve.

The effluent criteria which might be expected to come into effect beyond year 2007 are presented in Table 4-3.

Table 4-3
Anticipated Effluent Criteria Beyond Year 2007

PARAMETER	LIMIT
BOD_5	10 mg/L
TSS	10 mg/L
TP	0.5 mg/L
NH_3-N (Winter)	6 mg/L
NH_3-N (Summer)	3 mg/L
Total Coliform	500/100 mL
Fecal Coliform	100/100 mL
Total Nitrogen	*

* Unknown but could require nitrification/denitrification to convert nitrates to nitrogen gas for total nitrogen removal.

4.5.2 Control of Conventional Contaminants

A continued emphasis by the regulatory agencies toward more stringent control of conventional pollutants such as organic materials, suspended solids and nutrients is anticipated. As technological advances have made lower levels of the conventional pollutants achievable, one can expect that lower effluent limits will be pursued by the regulatory agencies where warranted.

Effluent filtration may be required to meet tighter TSS and total phosphorus limits. Advanced suspended growth biological nutrient removal and/or fixed film denitrification processes may be required to meet future nitrogen limits. Also, higher ultraviolet radiation doses may be required to achieve virus removal from the effluent stream.

4.5.3 Control of Discharges to the Collection System

Increasingly more stringent regulations governing the quality of effluent discharged from a WWTP can be expected to drive a trend toward closer monitoring and control of discharges to the wastewater collection system. The City is responsible for the quality of effluent from its WWTP and, if control over the quality of influent is not exercised, control over effluent quality cannot be effected.

Revisions to the City's Utility Bylaw will be needed to help the City gain increased control over industrial discharges to the sewer system. This implies more stringent requirements for obtaining approvals for new or expanded connections to the sanitary sewer system, more stringent requirements for the monitoring and pre-treatment of industrial and commercial discharges, increasing limitations on the number and allowable concentration of contaminants discharged, higher surcharge rates, increasing regulation of septage and wastewater haulers, and the provision of increasingly larger fines and longer jail sentences for persons who are found to be in violation of the Bylaw.

There will also be a necessary trend toward formalizing both the process and time frame to be followed by an industry to achieve compliance without compromising enforcement actions.

4.5.4 Control of Sludge Management and Disposal

Concerns regarding the quality of sludge being utilized for land application will lead to more stringent control of contaminants, particularly in cases where the sludge is being applied to croplands. In cases where sludge is being disposed to landfills, increased concerns can be expected regarding the sludge quality and its liquid content. As the acceptable amounts of metals and priority pollutants in sludges for land application or disposal are more stringently controlled, municipalities will need to control the amount of metals and priority pollutants received at their wastewater treatment facilities from dischargers through revisions and updates to their sewer control bylaws.

We expect that incentives for pollution prevention will be provided in the future to create markets for wastewater treatment by-products (e.g. the utilization of wastewater treatment by-products for land reclamation, land reforestation projects and for commercially available fertilizers).

4.5.5 Implementation of Water Quality-Based Effluent Limits

We expect a continuation in the current trend toward water quality-based effluent limits. With water quality-based standards, conditions in the receiving waters and the characteristics of the waste discharge will determine the effluent limits.

The effluent limits will be established through studies, possibly on a watershed scale, that will determine the allowable discharge for various parameters at specific locations. There will be a corresponding increased emphasis on comprehensive watershed management plans to provide a larger perspective on surface water quality.

4.5.6 Control of Effluent Toxicity

Effluent toxicity will be an issue of ever-increasing importance. We anticipate a shift in emphasis by the regulatory agencies toward increased control of toxic pollutants, particularly ammonia, heavy metals and trace organics. Traditional secondary treatment facilities such as the Red Deer plant are capable of achieving only limited success in the removal of toxic substances.

The time period over which these requirements will evolve can be used as an opportunity to set standards to improve toxics reductions through source control and waste minimization programs. The best approach is to reduce toxics discharges to the collection system, thereby reducing the need for costly end-of-pipe treatment. Nevertheless, it may still be necessary to meet the new water quality-based effluent limits through a combination of source control and state-of-the-art wastewater treatment facilities.

Pollution prevention concepts can be expected to embody a holistic approach to the maintenance of a clean environment. Wherever possible, the control of natural and man-made chemicals (especially toxicants) should be directed toward not creating them in the first place. If they must be created, then they should be removed as close to the source as possible to prevent escape into the environment, or they should be destroyed or directed into a state that poses the lowest possible risk. This approach will limit the shifting of pollutants from one receiving medium to another when such shifting does not significantly lower the overall environmental or health risk. Pollution prevention and related initiatives can be expected to incorporate multi-media and/or cross-receiving media provisions.

4.5.7 Control of Air Emissions

Compounds encountered in wastewater often create nuisance odours for neighbours of wastewater treatment facilities. Some odourous gases such as hydrogen sulphide also accelerate corrosion of concrete and metals used to construct wastewater processing facilities. Odourous gases and volatile organic compounds (VOCs) at a WWTP originate primarily from the headworks, clarifiers, aeration tanks, solids handling facilities and equalization basins. In future, air emission issues will need to be evaluated and the need for odour control systems assessed. There is little guidance or precedent for air permitting decisions as they relate to wastewater treatment plants, and accurate emission estimation tools have only recently begun to emerge.

It is interesting to note that the amount of VOCs released from an aeration tank is a function of the type of aeration equipment installed. The greatest volume is released by mechanical aeration equipment, followed by coarse-bubble aeration systems and finally by fine-bubble aeration systems. This was one of the factors considered in providing the recommendation in the Plant Aeration Study to upgrade the existing mechanical aeration system to a fine-bubble system.

We can anticipate that all new or modified sources which generate an increase in emissions will be required to use the best available control technology. This will include off-gas collection with active ventilation systems, and off-gas treatment to remove odourous compounds before the treated air is discharged to the atmosphere.

4.5.8 Control of Stormwater Discharges

Although not generally considered to be related to the operation of wastewater treatment plants, it is expected that the future control of stormwater discharges may affect wastewater treatment operations. As a non-point source of water pollution, stormwater discharges (including melt water from snow storage sites) will come under increasing scrutiny and legislation.

Stormwater runoff from urban areas is usually high in BOD_5 and suspended solids, and can contribute significant concentrations of metals, salts, nutrients, oil and grease, bacteria and other contaminants. Stormwater discharges to receiving waters can thus have substantial impact on potable water supplies, aquatic habitat, recreational uses and aesthetics.

We expect that the containment of contaminants carried by stormwater will become a requirement within the stormwater collection system, with the contained contaminants

being treated at "satellite" locations, or discharged to the sanitary sewer system for treatment at the WWTP.

In the case of retention ponds, which are commonly used to provide temporary storage and to control the rate of discharge to the stormwater collection system, one can expect an increasing requirement for treatment prior to discharge. Such treatment may include wetlands and ultra-violet disinfection, and will require significant capital expenditures.

4.5.9 Control of Combined Sewer Overflows

Combined sewer overflows occur when combined storm and sanitary sewerage systems receive excessive stormwater flows from streets, roof drains and other stormwater catchment systems. It is understood that the City of Red Deer sewerage system comprises essentially separate storm and sanitary sewers. However, it is also understood that some basement sump pumps discharge groundwater to the sanitary system. These groundwater flows are supplementary to stormwater and groundwater contributions to the sanitary sewer system achieved via infiltration and inflow.

In many municipalities, combined sewer overflows direct untreated wastewater to receiving streams, whenever the design capacity of the sanitary sewer system is exceeded. This causes wastewater flows to bypass the wastewater treatment plant which the municipality has constructed to protect the quality of the receiving water. However, the City of Red Deer has been proactive in eliminating cross-connections; consequently, no combined sewer overflows exist within the Red Deer system.

4.5.10 Control of Sanitary Sewer Overflows

In the United States, consideration is being given to regulating sewer system flows which are diverted to public or private property, or to the environment. This would include sewer flow diversions to the groundwater, and the back-up of sewer flows into building basements.

Sanitary sewer systems have, in most cases, been designed not to surcharge under peak flow conditions. However, the combination of growth and infiltration and inflow sometimes results in surcharging after intense storm events. Emerging sanitary sewer overflow policy can be expected to incorporate the determination of design storm protection level. This will most likely be based on site-specific conditions associated with storm intensity patterns, occurrences of sanitary sewer overflows in residential neighbourhoods, basement back-ups, and the cost to reduce the incidence of sanitary sewer overflows for the design storm.

The approach which is being contemplated most likely will result in a policy that focuses on the number of times per year a sanitary sewer overflow results in primary human contact. This strategy is fundamentally different from the current approach of how many times a year sanitary sewer overflows cause a violation of surface water quality.

A continued emphasis by the City in eliminating weeping tile connections to the sanitary sewer system will help to reduce the potential for sanitary sewer overflows.

SECTION 5.0
WASTEWATER TREATMENT OPTIONS

5.1 PREAMBLE

The projected wastewater flows and loads, effluent quality requirements and their related time frames have been presented in Sections 3.0 and 4.0.

This Section deals with the liquid stream alternatives and the sludge treatment and disposal alternatives to meet the projected requirements indicated in Sections 3.0 and 4.0. A long list of liquid and sludge treatment and disposal options is presented. Odour control alternatives are also presented as well as stormwater control and treatment alternatives. The options have been screened by examining their viability and feasibility for future use at the Red Deer wastewater treatment plant. The results of this screening process are presented as short-listed options.

The short-listed treatment options are the fully described and evaluated. This evaluation forms the basis for identifying the preferred wastewater treatment strategy described in Section 6.0.

5.2 LONG LIST OF TREATMENT OPTIONS

5.2.1 Liquid Stream Alternatives

The liquid stream to be treated is primary effluent. In all cases, the secondary treatment processes listed below assume that the wastewater has been subjected to screening, degritting and primary clarification.

The alternative processes are:

- Activated Sludge followed by Wetlands Treatment for Nutrient Removal
- Biological Phosphorus Removal
- Biological Phosphorus Removal with Nitrification
- Biological Nutrient Removal comprising Nitrification/Denitrification
- Chemical Precipitation of Phosphorus
- Nitrifying Activated Sludge with Chemical Phosphorus Removal
- Combined Chemical Phosphorus Removal and Biological Nutrient Removal
- Activated Sludge followed by Effluent Storage and Irrigation

- Fixed Film Activated Sludge with Chemical Phosphorus Precipitation
- Biological Nutrient Removal Activated Sludge comprising Submerged Attached Growth (e.g. Ringlace for accelerated nitrification)
- Biological Nutrient Removal plus Expansion to include Biologically Aerated Filters and Anaerobic Packed Columns
- Emerging Technologies:

  (1) Hydroxyl System combining suspended growth and attached growth with ozonation to form hydroxyl radicals

  (2) Zenogem System comprising high rate activated sludge with membrane solids separation

- Oxygen Enriched Biological Nutrient Removal Activated Sludge
- High Rate Activated Sludge plus High Rate Irrigation
- High Rate Activated Sludge plus Biologically Aerated Filters and Chemical Precipitation (Aerobic/Anaerobic Biologically Aerated Filters in Series for Nitrification/Denitrification)
- Activated Sludge Biological Nutrient Removal without Fermentation plus Recharge of Sandy Areas to Achieve Additional Nitrogen and Phosphorus Removal
- Effluent Irrigation (e.g. Riverbend Golf Course, City Tree Farm)

5.2.2 Sludge Management and Disposal Alternatives

The alternative processes are:

- Continued Anaerobic Digestion of Primary Sludge with Separate Dewatering of Waste Activated Sludge
- Continued Anaerobic Digestion of Primary Sludge and Waste Activated Sludge with Chemical Precipitation of Phosphorus from the Lagoons or Enhancement of Struvite Formation in the Lagoons
- Changes to the Existing Dewatering Lagoons to Achieve Sufficient Capacity of the Plant Site to Accommodate Sludge Production to Plant Influent Flows of 51.5 ML/d
- Development of New Dewatering Lagoons at a Remote Site with Transmission by Pumping Station and Forcemain
- Composting of Dewatered Primary Sludge and Waste Activated Sludge at a Remote Site Using Wood Chips, Sawdust or Municipal Solid Waste as a Bulking Agent

- Subsurface Injection of Sludge on Agricultural Land Using Terragators
- Lime or Kiln Dust Stabilization of Dewatered Sludge With or Without Anaerobic Digestion
- Stabilization by Forest Land Application (e.g. Sunpine Forest Products at Sundre)
- Stabilization Using Autoheated Thermophilic Aerobic Digestion Technology to Produce A High Quality Product for Subsequent Sale After Dewatering (Modify the Process for Significant Volatile Fatty Acid Production)

5.2.3 Odour Control Alternatives

Odour control systems can be classified as physical, chemical and biological. These systems or methods when applied to the field of wastewater treatment are summarized in Table 5-1 (taken from Wastewater Engineering by Metcalf and Eddy, third edition).

Table 5-1
Methods to Control Odourous Gases Found in Wastewater Systems

METHOD	DESCRIPTION AND/OR APPLICATION
PHYSICAL METHODS:	
Containment	Installation of covers, collection hoods, and air-handling equipment for containing and directing odourous gases to disposal or treatment system.
Dilution with odour-free air	Gases can be mixed with fresh air sources to reduce the odour unit values. Alternatively, gases can be discharged through tall stacks to achieve atmospheric dilution and dispersion.
Combustion	Gaseous odours can be eliminated by combustion at temperatures varying from 650 to 815°C. Gases can be combusted in conjunction with treatment plant solids or separately in a fume incinerator.
Adsorption, activated carbon	Odourous gases can be passed through beds of activated carbon to remove odours. Carbon regeneration can be used to reduce costs.
Adsorption on sand, soil, or compost beds	Odourous gases can be passed through sand, soil, or compost beds. Odourous gases from pumping stations may be vented to the surrounding soils or to specially designed beds containing sand or soils. Odourous gases collected from treatment units may be passed through compost beds.
Oxygen injection	The injection of oxygen (either air or pure oxygen) into the wastewater to control the development of anaerobic conditions has proven to be effective.
Masking agents	Perfume scents can be sprayed in fine mists near offending process units to overpower or mask objectionable odours. In some cases, the odour of the masking agent is worse than the

METHOD	DESCRIPTION AND/OR APPLICATION
	original odour. Effectiveness of masking agents is limited.
Scrubbing towers	Odourous gases can be passed through specially designed scrubbing towers to remove odours. Some type of chemical or biological agent is usually used in conjunction with the tower.
CHEMICAL METHODS:	
Scrubbing with various alkalis	Odourous gases can be passed through specially designed scrubbing towers to remove odours. If the level of carbon dioxide is high, costs may be prohibitive.
Chemical oxidation	Oxidizing the odour compounds in wastewater is one of the most common methods used to achieve odour control. Chlorine, ozone, hydrogen peroxide, and potassium permanganate are among the oxidants that have been used. Chlorine also limits the development of a slime layer.
Chemical precipitation	Chemical precipitation refers to the precipitation of sulfide with metallic salts, especially iron.
BIOLOGICAL METHODS:	
Trickling filters or activated-sludge aeration tanks	Odourous gases can be passed through trickling filters or used as process air for activated-sludge aeration tanks to remove odourous compounds.
Special biological stripping towers	Specially designed towers can be used to strip odourous compounds. Typically, the towers are filled with plastic media or wood chips of various types on which biological growths can be maintained.

5.2.4 Stormwater Control and Treatment Alternatives

Stormwater control and treatment needs to be considered with respect to:

Direct Discharges : Stormwater discharges to the receiving water directly from the land, and

Indirect Discharges: Stormwater flows entering the sanitary sewer system and, following treatment at the WWTP, being discharged to the receiving water.

5.2.4.1 Stormwater Control Methods

Direct Discharges

a) Detention Ponds

Stormwater detention ponds can be either wet or dry ponds. They function on the principle of providing storage for runoff from a given design storm and metering the flow out of the pond at a controlled rate. Typical criteria used in Alberta require that the pond be sized to contain runoff from a 1:100 year return period 24 hour duration storm event with outflow limited to the runoff rate calculated for pre-development conditions and a 1:5 year return period storm. Detention ponds reduce the required size of downstream stormwater conveyance systems and help to reduce peak discharge rates to receiving waters.

b) Distributed Storage

A common strategy to eliminate the need for storage ponds, or at least reduce the required pond capacity, is to include many small storage areas within a development. These can include rooftops, parking lots and trapped flows on roadways. Similar to storage ponds, outflow rates from the storage areas are restricted to reduce overall peak flows in the conveyance system and downstream.

c) Superpipes

Superpipes consist of very large diameter sections of pipe placed in-line with the storm sewer. They function on basically the same principal as detention ponds, that is by providing storage capacity and controlling the rate of outflow. Superpipes are more expensive than detention ponds and are normally used when constraints prevent the use of detention ponds or other less expensive methods.

d) Catchbasin Inlet Controls

Alberta Environmental Protection requires that conveyance systems be sized to accommodate runoff from a 1:5 year return period storm. It is common design practice to also ensure that overland escape routes exist to accommodate at least a 1:100 year return period storm. To ensure that piped systems are not surcharged during storms greater than 1:5 year, flow control devices can be placed at catchbasin inlets to restrict flows to 1:5 year rates.

e) Regulations

Regulations can be implemented to limit allowable percentage of impervious areas within a development.

f) Others

Other, less commonly used, stormwater control methods include:

- Evaporation ponds
- Soakaway pits
- Cisterns
- Infiltration areas

Indirect Discharges

The Red Deer sanitary sewer system receives stormwater flows from the following known sources:

- House and building foundation drainage systems and sumps which are connected and pumped to the sanitary sewer
- House and building rainwater leaders which are connected to the sanitary sewer system
- Storm drainage which enters the sanitary sewer system through depressed sanitary sewer manholes
- Stormwater which enters the sanitary sewer system via groundwater infiltration of leaking sanitary sewers and manholes

The impact of stormwater flows on the Red Deer wastewater treatment plant are significant. Peak plant flows occur during storms and can raise the average day diurnal flow by a factor of six (i.e. peak flows during storms are three times the normal peak daily flow).

Control methods will entail the work necessary to reduce or eliminate the major sources of stormwater flows entering the sanitary sewer system, including:

- Enforcement of the Utilities Bylaw prohibiting all new homes and building stormwater systems from being directly connected to the sanitary sewer system
- Progressive disconnection of all existing house and building stormwater systems from the sanitary sewer system

- Regrading of all depressed sanitary sewer manholes or sealing of manholes to prevent inflow to the system
- Progressive repair of the sanitary sewer system to control and reduce the impact of stormwater/groundwater infiltration to the system

5.2.4.2 Stormwater Treatment Methods

Direct Discharges

a) Detention Ponds

Detention ponds are the most commonly used stormwater treatment method in Alberta. Detention ponds function mainly to remove solids by reducing water velocity through the pond below settling velocities for the types of sediment expected from the catchment area. As other contaminants such as hydrocarbons and lead tend to adhere to solids particles, sediment removal is important in reducing overall contaminant loadings. Incorporation of multiple level discharge and skimming capabilities in a detention pond can also facilitate the removal of other materials such as free hydrocarbons.

b) Mechanical Devices

Mechanical devices such as cleanout catchbasins and skimming manholes (e.g. Stormceptor manholes) can remove solids and hydrocarbons at flow rates within the capacity of the device. Sediment removal capabilities for these devices are dependent, as with detention ponds, on reducing flow velocities to allow solids to settle by gravity. Therefore, effective sediment removal can normally only be achieved with relatively small flows due to practical restrictions on the size of the device.

c) Infiltration and Evaporation Ponds

Both infiltration and evaporation ponds provide high levels of treatment, but have limited application, particularly in urban settings, due to the large areas of land required as compared to other methods. Also, infiltration ponds are not usually viable alternatives in Alberta due to the presence of low permeability soils throughout most of the Province.

d) Storage/Diversion Ponds

These systems are similar to detention ponds, but are designed to divert the "first flush" of stormwater, containing the highest contaminant loadings, directly to the sanitary sewer system for treatment prior to discharge.

Indirect Discharges

The treatment of stormwater reaching the sanitary sewer system can be best achieved using the existing equalization lagoons. The equalization lagoons receive flows in excess of the wastewater treatment plant's design flow by way of an overflow system at the plant. These excess storm induced flows are stored in the lagoons until the storm has abated and are subsequently returned to the plant for treatment.

5.2.5 Screening of Treatment Alternatives

5.2.5.1 Liquid Stream Alternatives

a) Activated Sludge followed by Wetlands Treatment for Nutrient Removal

The degree of phosphorus removal achieved in wetlands treatment is minimal. Because the principal treatment mechanism in wetlands treatment is biological, treatment performance is sensitive to temperature. Due to the cold climate in Red Deer, storage of the effluent would be required during winter when the nutrient removal processes taking place in the wetlands would be minimal or non-existent. This process would not satisfy the projected future requirements for effluent discharge quality with respect to nutrient removal. In the climatic conditions of Red Deer, the use of wetlands treatment as a nutrient removal process is not feasible and will not be considered further. Refer to Appendix B for additional discussion on wetlands treatment.

b) Biological Phosphorus Removal

Activated sludge bioreactors can be modified into a series of anaerobic, anoxic, aerobic process configurations to encourage the growth of bacteria which are able to store phosphorus intracellularly in amounts in excess of their metabolic requirements. If raw sewage and return activated sludge are contacted in an anaerobic environment for 20 to 30 minutes in the presence of single carbon compounds such as volatile fatty acids (VFAs) these bio-P organisms can be induced into a metabolic pathway that under subsequent aerobic conditions will allow them to concentrate P levels of up to 3.5 to 5.5 percent of the activated

sludge weight. When the sludge is subsequently wasted from the process, the phosphorus is removed as well to levels as low as 0.5 mg/L total phosphorus. In cold climate areas, such as Canada, VFAs usually are not generated to sufficiently high levels in the sewers - particularly in winter - and therefore VFAs are generated in fermenters using the settled primary sludge.

The Bio-P process can easily be retrofitted to activated sludge systems without any derating of capacity occurring. The process has the advantage that no chemical addition is required to precipitate phosphorus and sludge quantities produced are similar to secondary treatment activated sludge. Other advantages of the Bio-P process are that sludge characteristics are improved by the anaerobic selector cells and usually the oxygen transfer characteristics of the liquid phase are improved.

The Bio-P process can be the first phase of a future nitrogen and phosphorus removal process. Good Bio-P removal has been demonstrated in the full-scale selector reactor trials at the Red Deer wastewater treatment plant. Therefore, this process will be considered for possible application to the plant.

c) Biological Phosphorus Removal with Nitrification

Because it is expected that future effluent quality discharge criteria will include a requirement for nitrogen control, this process will be considered further. The process provides for the removal of phosphorus and ammonia.

d) Biological Nutrient Removal Comprising Nitrification/Denitrification

This treatment process would provide an effluent of the quality required by the projected future effluent quality requirements and will be given further consideration. The process provides for the removal of phosphorus and nitrogen.

e) Chemical Phosphorus Removal

The most common method of phosphorus removal implemented at existing activated sludge facilities is by adding alum at a dosage of about 80-100 mg/L, or ferric chloride at a dosage of about 40 mg/L to the effluent end of the bioreactors. The phosphorus is bound up in the sludge matrix as an insoluble chemical precipitate which can withstand both anaerobic and aerobic stabilization of sludge without subsequent release.

Chemical addition facilities are inexpensive to install, easy to operate, and consist of chemical storage tanks and proportioning pumps to feed liquid chemical solutions.

Consistent removal of phosphorus down to effluent concentrations of 0.7 to 1.0 mg/L can easily be achieved following final clarification.

However, there are several disadvantages of the process as follows:

- Chemical costs are high
- Sludge quantities are increased by about 25 to 30 percent over secondary activated sludge quantities
- Sludge handling facility capacities need to be increased by about 25 percent
- Sludge handling costs are increased by 25 percent
- When nitrification is required, the inerts added with the chemical result in significant additional capacity requirement for the final clarifiers

f) Nitrifying Activated Sludge with Chemical Phosphorus Removal

This treatment process would provide an effluent of the quality required by the projected future effluent criteria and will be considered further. Denitrification could be included to control nitrogen concentrations in the final effluent. This process will provide for the removal of phosphorus and ammonia (and nitrogen, with denitrification).

g) Combined Chemical Phosphorus Removal and Biological Nutrient Removal

Implementation of BNR processes for phosphorus removal and nitrification and denitrification by retrofitting existing activated sludge tankage - usually result in significant capacity derating - usually in the range of 30 percent of the design capacity. Some derating has been predicted for Red Deer. To minimize this derating, chemical phosphorus removal can be combined with biological phosphorus removal. A low dosage of precipitating chemical can be applied to the primary settling tanks - say 20 mg/L. Even such a low dosage will remove 50 percent of the phosphorus in the raw sewage and also assists in settling out additional organics in the primary clarifiers. The associated reduction in BOD_5 load to the bioreactors allows the bioreactors to be reduced in size thereby minimizing plant derating. The additional organics removed in the primary clarifiers are available for fermentation and production of additional VFA which tends to accelerate the BNR processes.

Although additional sludge is produced and additional operating costs result from the chemical addition, this can be a good compromise process for minimizing capital costs in the first phase. The Saskatoon BNR facility has been designed to allow combined chemical/biological BNR processes.

The alum or ferric chloride chemical addition can also be utilized for trimming the phosphorus removal by addition to the effluent from the bioreactor to insure that phosphorus effluent limits are addressed, should the biological process be upset for some reason.

h) Activated Sludge Followed by Effluent Storage and Irrigation

The final effluent from this process would need to be filtered and disinfected to a high level in order to render it suitable for irrigation purposes where human/recreational use contact is probable. Most likely, the effluent quality discharge requirements would dictate the addition of nutrient removal in the activated sludge process to meet the criteria for river discharge when required. Irrigation would not be feasible during the six month winter period and effluent storage with a capacity equal to nine months would have to be provided. Significant land areas would be required for the effluent storage facilities. From previous similar studies in central Alberta, this alternative is not considered viable and will not be considered further. However, the use of final effluent for land irrigation, is worthy of further consideration.

i) Fixed Film Activated Sludge with Chemical Phosphorus Precipitation

The combination of fixed film processes with activated sludge systems has been used successfully for high strength industrial wastes. High rate synthetic media trickling filters can be utilized as biological roughing devices following primary treatment to economically remove most of the organic carbon. The existing activated sludge processes could then be utilized for removing the residual carbon and for nitrification of ammonia to nitrates. Removal of phosphorus would have to be achieved by chemical precipitation because of the difficulty in achieving biological phosphorus removal in a fixed film process.

Problems associated with fixed film operation include the potential for odour generation during summertime high temperature conditions, particularly where high strength food wastes are concerned. As well, the trickling filter tower would be about seven metres high requiring additional pumping, and would make the plant a much more visible facility. There are additional problems with process

flexibility should there be a future requirement for nitrogen removal. Optimizing the combined systems for nitrification/denitrification would be more difficult than for a suspended growth system alone. This option will not be given further consideration.

j) Biological Nutrient Removal Activated Sludge Utilizing Submerged Attached Growth (e.g. Ringlace® for Accelerated Nitrification)

Recent research has shown that the use of submerged media to encourage the growth of nitrifiers can significantly reduce the size of aerobic sections in bioreactors. For example, racks of braided nylon ropes submerged over top of air diffusers, such as "Ringlace"® are becoming more common in the United States to reduce the size of aerobic zones in nitrifying bioreactors. They are particularly suited to multi-celled BNR processes and are compatible with most bio-P and bio-N removal processes.

The benefits in saving more than about 20 percent of the aerobic bioreactors capacity has yet to be proven and their track record in cold climates is limited with no installations in Canada to date. Since this is really emerging technology, submerged attached growth systems will not be considered further.

k) Biological Nutrient Removal Plus Expansion to Include Biologically Aerated Filters and Anaerobic Packed Columns

Where space limitation is a problem, the use of Biologically Aerated Filters (BAFs) in series with anaerobic packed columns can be utilized to achieve nitrification/denitrification. At Red Deer, the existing activated sludge plant could be converted to a BNR plant for nitrification/denitrification and biological phosphorus removal up to its retrofit capacity as a BNR facility. Future growth and loadings for nitrification/denitrification and phosphorus removal could be achieved using proprietary BAFs such as Biofor or Biostyr in conjunction with chemical precipitation of phosphorus.

These devices have a limited track record to date and are expensive in terms of capital cost. Since Red Deer does not have a space limitation problem, utilization of BAFs will not be considered further.

l) Emerging Technologies

The emerging technologies which have been considered include:

- The Hydroxyl System combining suspended growth and attached growth with ozonation to form hydroxyl radicals
- The Zenogem System comprising high rate activated sludge with membrane solids separation

These two innovative processes have been applied in full scale wastewater treatment plants with some success. However, neither process to our knowledge has been proven for a plant of similar capacity to Red Deer. The application of these emerging processes has been limited to plants having capacities of less than 2.5 ML/d.

Disadvantages of the Hydroxyl System include:

- Sludge digestion concepts have not been adequately tested
- Clarification concepts have not been adequately tested under all loading conditions
- Long term operating and maintenance costs are high
- The process does not provide for biological nutrient removal

Disadvantages of the Zenogem System include:

- High operating and maintenance requirements
- Membrane life and performance are unproven over the long-term
- High capital cost
- Odour control measures may be required
- The process does not provide for biological nutrient removal

Both systems are proprietary systems and subject to patents which would limit competitive pricing. The two processes are regarded as promising technologies in the field of wastewater treatment more suited to smaller site specific wastewater systems; therefore, they will not be given further consideration.

m) Oxygen Enriched Biological Nutrient Removal Activated Sludge

The retrofit capacity of the existing activated sludge facilities for BNR conversion could be significantly expanded if the aerobic portions of the plant were retrofitted as an oxygen enriched system. High mixed liquor suspended solids levels (e.g. 7000 to 10 000 mg/L) could be carried throughout the bioreactor. This would almost double the retrofit BNR capacity. A number of plants in the United States are currently being retrofitted as BNR facilities using this technology (e.g. Hagerstown, Maryland).

There are several drawbacks of this retrofit concept:

- Red Deer secondary clarifier settling capacity would have to be significantly expanded and changed to accept the high MLSS loadings
- Either an oxygen generation facility (pressure swing molecular sieve or cryogenic oxygen generation) would have to be constructed and operated or oxygen storage facilities for delivery of commercially produced oxygen would have to be provided
- The aerobic section of existing and future bioreactors would have to be modified as covered tanks, with diffusers suitable for oxygen utilization instead of compressed air

The fact that this is really an emerging technology is the major reason not to further consider its application in Red Deer.

n) High Rate Activated Sludge Plus High Rate Irrigation

In this option, the degree of secondary treatment could be relaxed to achieve a 40:60 BOD_5:TSS effluent quality in a high rate activated sludge process. In the high rate activated sludge process, high mixed liquor suspended solids (MLSS) concentrations are maintained with high volumetric loadings. High F:M ratios and long mean cell retention times are achieved at significantly reduced hydraulic retention times (e.g. three hours). Removal of nitrogen or conversion of ammonia to nitrates and removal of phosphorus would be achieved by irrigating the effluent at high rates on available farm land. High rate irrigation consists of irrigating the land at the maximum rate possible without reducing crop growth or overloading the infiltration capacity of the soil.

Some nitrogen removal would be achieved by crop uptake. Conversion of ammonia to nitrate would occur as the effluent percolates through the soils. Phosphorus would be removed by crop uptake and adsorption on the soils. In the

Red Deer area, crop irrigation rates may be 500 mm per year while high rate irrigation could be 750 to 1000 mm per year.

Disadvantages of this option are the requirement for storage of effluent during the six months of winter and the need to control application rates on each parcel of land to avoid surface runoff and overloading of the adsorption capacity of the soil.

Further consideration of this option will not be made because of the careful control of the application rate which is needed to avoid the environmental concerns associated with high rate irrigation.

o) ***High Rate Activated Sludge Plus Biologically Aerated Filters and Chemical Precipitation (Aerobic/Anaerobic Biologically Aerated Filters in Series for Nitrification/Denitrification)***

In this option, the capacity of the existing aeration tanks could be significantly expanded (e.g. three times the existing capacity) by converting them to high rate activated sludge systems. Alum addition to the end of the aeration tanks could be included to precipitate phosphorus in this activated sludge roughing process for BOD_5 and TSS removal. In series with the high rate activated sludge, nitrifying and possibly denitrifying biologically aerated filters, could be utilized for nitrification and denitrification.

Again, this process will be eliminated from further consideration because of the proprietary nature of the BAFs and the limited track record. Canmore, Alberta is currently installing the first operational BAF plant in western Canada.

p) ***Activated Sludge Biological Nutrient Removal without Fermentation Plus Recharge of Sandy Areas to Achieve Additional Nitrogen and Phosphorus Removal***

The selector reactor trials at Red Deer have shown that significant phosphorus removal is achievable through biological phosphorus removal processes by simply converting a portion of the bioreactor in the existing activated sludge system to an anoxic/anaerobic zone. Most probably, optimization of the bioreactors to achieve good mixing and anaerobic conditions at the inlet to the bioreactor would result in continued (at least partial) bio-P removal in the completely retrofitted plant and any future reactors, even without primary sludge fermentation. If the effluent were infiltrated into the ground using spreading basins in the high infiltration capacity soils of the Blackfalds area, any remaining phosphorus in the effluent could be adsorbed into the clay content of these soils.

Although this option would save significant capital costs in plant retrofit by eliminating the fermenters, capital costs for effluent transmission would at least equal the savings. Uncertainties associated with this option include the availability of sufficient land for infiltration, difficulty in year round infiltration due to winter conditions and the long term phosphorus adsorption capacity of the soils. For these reasons, this option will not be not considered further.

q) Effluent Irrigation (e.g. Riverbend Golf Course, City Tree Farm)

The use of treated effluent for the irrigation of local golf courses and tree farms is worthy of further consideration and should be evaluated. A high level of effluent disinfection and perhaps filtration will be a prerequisite for an irrigation system to meet Public Health regulations and concerns.

Effluent irrigation could be considered in conjunction with all short-listed treatment options developed in the Master Plan.

Table 5-2 summarizes the results of the screening process for the liquid stream alternatives.

Table 5-2
Summary of Screening Process for the Liquid Stream Alternatives

Liquid Stream Treatment		Screening Comments and Results
1	Activated sludge followed by wetlands treatment for nutrient removal	• Phosphorus removal minimal • Not suitable for Red Deer winter climate • **Not included on Short-List**
2	Biological Phosphorus Removal	• Cost effective retrofit • No capacity derating • No chemical addition • Least sludge of P removal options • Nitrification minimal • **Included on Short-List**
3	Biological phosphorous removal with nitrification	• Suitable for retrofitting • Provides for nutrient (phosphorus and ammonia) removal and future license requirements • **Included on Short-List**

	Liquid Stream Treatment	• Screening Comments and Results
4	Biological nutrient removal comprising nitrification/denitrification	• Suitable for retrofitting • Provides for nutrient (phosphorus, ammonia and nitrogen) removal and future license requirements • **Included on Short-List**
5	Chemical Phosphorus Removal	• Easiest and best capital cost retrofit • Large chemical cost and sludge handling cost • 30 percent increase in sludge quantity • Need additional final clarifier capacity to accommodate nitrification (ammonia removal) • **Included on Short-List**
6	Nitrifying activated sludge with chemical phosphorus removal	• Suitable for retrofitting • Provides for nutrient removal and future license requirements • **Included on Short-List**
7	Combined chemical phosphorus removal and biological nutrient removal	• Suitable for retrofitting • Provides for nutrient removal and future license requirements • **Included on Short-List**
8	Activated sludge followed by effluent storage and irrigation	• Requires large land area • Not suitable for Red Deer winter climate • Significant storage and transmission costs • **Not included on Short-List**
9	Fixed film activated sludge with chemical phosphorus precipitation	• Potential odour problems • Requires additional pumping • Difficult retrofit • Limited flexibility in process control • **Not included on Short-List**
10	Biological nutrient removal activated sludge utilizing submerged attached growth (e.g. Ringlace® for accelerated nitrification)	• No Canadian installations • Emerging technology • **Not including on Short-List**
11	Biological nutrient removal plus expansion to include biologically aerated filters and anaerobic packed columns	• Limited proven success in cold climate conditions • High capital cost • Difficult retrofit • Emerging technology • **Not included on Short-List**

	Liquid Stream Treatment	• Screening Comments and Results
12	Emerging technologies 1. Hydroxyl System combining suspended growth and attached growth with ozonation to form hydroxyl radicals 2. Zenogem System comprising high rate activated sludge with membrane solids separation	• Emerging technology • Unproven applications in Canada • Applications limited to WWTP <2.5 ML/d • High O&M costs • Potential odour problems • **Not included on Short-List**
13	Oxygen enriched biological nutrient removal activated sludge	• Not a suitable retrofit • High capital costs • High O&M costs • Emerging technology • **Not included on Short-List**
14	High rate activated sludge plus high rate irrigation	• Not suitable for Red Deer winter climate • Significant storage and transmission costs • **Not included on Short-List**
15	High rate activated sludge plus biologically aerated filters and chemical precipitation (aerobic/anaerobic biologically aerated filters in series for nitrification/ denitrification)	• Limited track record • Difficult retrofit • Challenging process control requirements • **Not included on Short-List**
16	Activated sludge biological nutrient removal without fermentation plus recharge of sandy areas to achieve additional nitrogen and phosphorus removal	• High effluent transmission costs • Large land area required • Unsuitable for Red Deer winter climate • **Not included on Short-List**
17	Effluent irrigation (e.g. Riverbend Golf Course, City Tree Farm)	• Good use of reclaimed wastewater • Public health issues and costs need to be assessed • Cost/benefit analysis required • **Included with all Short-Listed Liquid Stream Options**

5.2.5.2 Sludge Management and Disposal Alternatives

a) Continued Anaerobic Digestion of Primary Sludge with Separate Thickening of Waste Activated Sludge

To meet Alberta Environmental Protection's criteria and regulations for land application, a waste activated sludge must be stabilized. Undigested thickened waste activated sludge would not meet this criteria. The required stabilization can be accomplished using the existing anaerobic digesters. By providing for efficient thickening of the primary and waste activated sludge prior to anaerobic digestion, the existing digester capacities will serve the plant for many years and provide for handling a sludge production of approximately twice the existing production. This option will not be considered further.

b) Continued Anaerobic Digestion of Primary Sludge and Waste Activated Sludge with Chemical Precipitation of Phosphorus from the Lagoons or Enhancement of Struvite Formation in the Lagoons

This option, coupled with the provision of efficient thickening of the sludges, prior to anaerobic digestion, will be considered further.

c) Changes to the Existing Dewatering Lagoons to Achieve Sufficient Capacity on the Plant Site to Accommodate Sludge Production to Plant Influent Flows of 51.5 ML/d.

The existing sludge dewatering lagoons work well and lagoon bio-solids produced have consistently met Alberta Environmental Protection's regulations and criteria for land application.

Any changes required to the existing dewatering lagoons to provide for the plant's projected future loadings will be considered in order to identify the preferred long term sludge management and disposal option. This option will be considered further.

d) Development of New Dewatering Lagoons at a Remote Site with Transmission by Pumping Station and Forcemain

Should the capacity of the existing sludge dewatering lagoons prove to be inadequate for future needs at the plant, then this option could be considered. If the City of Red Deer wishes to have the existing sludge dewatering lagoons

relocated for aesthetic or other reasons, this option will be considered further and fully evaluated.

e) ***Composting of Dewatered Primary Sludge and Waste Activated Sludge at a Remote Site Using Wood Chips, Sawdust or Municipal Solid Waste as a Bulking Agent***

This option would require the provision of a new sludge dewatering facility at the plant (e.g. centrifuge, belt filter press, screw press, rotary press) to dewater the anaerobically digested sludge to facilitate transportation to a remote composting site. Alternatively, the digested sludge could be pumped to the remote site and dewatered there. This option is worthy of further consideration if the existing sludge management and disposal system is to be changed or discontinued in the long term.

f) ***Subsurface Injection of Sludge on Agricultural Land Using Terragators***

The City of Calgary disposes of its stabilized waste sludge (bio-solids) using Terragators for subsurface injection on agricultural land. This operation has proven to be successful.

This option will be considered further and the possibility and feasibility of making use of the City of Calgary's Calgro operation could be examined. Calgary's experience in the operation of this method of sludge disposal could be fully examined in evaluating this option for possible use at Red Deer.

g) ***Lime or Kiln Dust Stabilization of Dewatered Sludge With or Without Anaerobic Digestion***

The stabilization of dewatered sludge can produce pathogen-free bio-solids which are odourless and of an alkaline nature.

This type of stabilized bio-solid can be easily transported and used as a source of limestone and fertilizer for crop production, as a soil amendment for reclaiming degraded soils, in landscaping and as a component in soil blends. This process is being installed at the Lake Louise WWTP.

This option could be used to provide the City of Red Deer with additional disposal options on uses for its waste sludges, and will be given further consideration.

h) Stabilization by Forest Land Application (e.g. Sunpine Forest Products at Sundre)

This option will be considered further. The reported experience from British Columbia and the western United States will be investigated and evaluated for possible use at Red Deer.

i) Stabilization Using Autoheated Thermophilic Aerobic Digestion Technology to Produce a High Quality Product for Subsequent Sale After Dewatering (Modify the Process for Significant Volatile Fatty Acid Production)

The existing anaerobic digestion facility performance and capacities are more than adequate for the long term sludge stabilization requirements at Red Deer. Additional or new digestion facilities are not warranted, considering the City's present investment in the anaerobic digesters and related facilities and systems. This option will not be considered further.

Table 5-3 summarizes the results of the screening process for the sludge management and disposal alternatives.

5.2.5.3 Odour Control Alternatives

All methods described in Section 5.2.3, Odour Control Alternatives, which have a proven performance record, should be considered for use at Red Deer, as required.

5.2.5.4 Stormwater Control and Treatment Alternatives

All methods of control and treatment listed in Section 5.2.4, Stormwater Control and Treatment Alternatives, should be considered for use at Red Deer, as required.

Table 5-3
Summary of Screening Process for Sludge Management and Disposal Alternatives

	Sludge Management and Disposal	Screening Comments and Results
1.	Continued anaerobic digestion of primary sludge with separate thickening of waste activated sludge	• Waste activated sludge (WAS) needs to be digested for land application • **Not Included on Short-List**
2.	Continued anaerobic digestion of primary sludge and waste activated sludge with chemical precipitation of phosphorus from the lagoons or enhancement of struvite formation in the lagoons	• Needs addition of DAF thickening for WAS • **Included on Short-List**

	Sludge Management and Disposal	Screening Comments and Results
3.	Changes to the existing dewatering lagoons to achieve sufficient capacity of the plant site to accommodate sludge production to plant influent flows of 51.5 ML/d	• Existing system works well • Long range requirements to be examined • **Included on Short-List**
4.	Development of new dewatering lagoons at a remote site with transmission by pumping station and forcemain	• City of Red Deer long range requirements to be examined • Alternative to be evaluated • **Included on Short-List**
5.	Composting of dewatered primary sludge and waste activated sludge at a remote site using wood chips, sawdust or municipal solid waste as a bulking agent	• City of Red Deer long range requirements to be examined • Alternative to be evaluated • **Included on Short-List**
6.	Subsurface injection of sludge on agricultural land using Terragators	• Works well for City of Calgary • **Included on Short-List**
7.	Lime or kiln dust stabilization of dewatered sludge with or without anaerobic digestion	• Would provide alternative bio-solids for additional disposal options • **Included on Short-List**
8.	Stabilization by forest land application (e.g. Sunpine Forest Products at Sundre)	• To be investigated and evaluated • Successful application in western USA and British Columbia • **Included on Short-List**
9.	Stabilization using autoheated thermophilic aerobic digestion technology to produce a high quality product for subsequent sale after dewatering (modify the process for significant volatile fatty acid production)	• High capital cost • Existing digestion system works well and has capacity for future projected loads • Additional digestion process not warranted • **Not included on Short-List**

5.2.5.5 Results from the Screening of Treatment Alternatives

The results of the screening of the long list of liquid stream treatment and sludge management and disposal options as identified in Tables 5-2 and 5-3, are presented as the short-listed options in Section 5.3.

5.3 SHORT LIST OF TREATMENT OPTIONS

5.3.1 Liquid Stream Alternatives

The long list of fifteen liquid stream alternatives has been reduced to five. Each of the short-listed alternatives includes the option of effluent discharge to the Red Deer River or effluent irrigation. The four short-listed liquid stream alternatives are:

- Biological Phosphorus Removal
- Biological Phosphorus Removal with Nitrification
- Biological Nutrient Removal comprising Nitrification/Denitrification
- Nitrification Activated Sludge with Chemical Phosphorus Removal
- Combined Chemical Phosphorus Removal and Biological Nutrient Removal

The second liquid stream alternative can actually be achieved in two different configurations. One configuration consists of biological phosphorus removal with RAS denitrification and the second configuration consists of a modified three-stage Bardenpho process. Therefore, the remainder of the Master Plan Report will consider five short-listed liquid stream alternatives.

The short-listed alternatives are compatible with the use and/or retrofitting of the existing process units and tankage, process and yard piping, and plant hydraulics. Each alternative can make full use of the existing process units including the aeration tanks, secondary clarifiers, associated RAS and WAS pumping systems, and the gravity sludge thickeners. The short-listed liquid stream alternatives are also compatible with the short-listed sludge management and disposal alternatives.

To meet the bacteriological quality requirements as identified in Section 4.0, it will be necessary to disinfect the effluent. The most viable process options are:

- Chlorination and dechlorination
- Ultra-violet disinfection

A chlorination/dechlorination system would entail the handling, storage, application and control of two potentially hazardous chemicals; chlorine and sulphur dioxide. An ultra-violet disinfection system is easily controlled, is less hazardous to operate and eliminates the likelihood of discharging toxic residual chlorine concentrations and/or chlorinated organic compounds in the final effluent.

From our experience, ultra-violet disinfection is economically competitive and an attractive option from an operational standpoint. Until recently, low pressure mercury vapour lamps mounted in an "in-channel" configuration have been the standard practice for UV disinfection systems. However, medium pressure lamps are gaining in popularity.

An ultra-violet disinfection systems is recommended. This would ensure the effluent disinfection criteria are met and capital operating and maintenance costs which would be required for a chlorination/dechlorination system are avoided.

Ultra-violet disinfection systems have been adopted by other wastewater treatment plants in Alberta, including Calgary, Edmonton, Canmore, Banff, Lake Louise and Lethbridge.

5.3.2 Sludge Management and Disposal Alternatives

The long list of eight sludge management and disposal alternatives has been reduced to five management alternatives and two disposal alternatives. The five short-listed sludge management alternatives are:

- Continued Anaerobic Digestion of Primary Sludge and Waste Activated Sludge with Chemical Precipitation of Phosphorus from the Lagoons or Enhancement of Struvite Formation in the Lagoons
- Changes to the Existing Dewatering Lagoons to Achieve Sufficient Capacity of the Plant Site to Accommodate Sludge Production to Plant Influent Flows of 51.5 ML/d
- Development of New Dewatering Lagoons at a Remote Site with Transmission by Pumping Station and Forcemain
- Composting of Dewatered Anaerobically Digested Primary Sludge and Waste Activated Sludge at a Remote Site Using Wood Chips, Sawdust or Municipal Solid Waste as a Bulking Agent
- Lime or Kiln Dust Stabilization of Dewatered Sludge with or without Anaerobic Digestion

The first three management alternatives are variations on the same theme, incorporating a continuation of current practices over the near-term leading to longer-term alternatives that could entail (1) the construction of mechanical dewatering facilities at the plant site or (2) the construction of a pumping station and forcemain to convey sludge to new dewatering lagoons at a remote site. Either option would provide additional space at the existing site to accommodate future treatment facilities.

The two short-listed sludge disposal options are:

- Subsurface Injection of Sludge on Agricultural Land Using Terragators
- Stabilization by Forest Land Application (e.g. Sunpine Forest Products at Sundre)

The short-listed sludge management and disposal alternatives are compatible (or can be made compatible) with the short-listed liquid stream alternatives.

5.3.3 Detailed Discussion of Short-Listed Options

5.3.3.1 Liquid Stream Alternatives

a) Preamble

The short-listed alternatives for the liquid stream all incorporate activated sludge nutrient removal processes for the removal of BOD_5, TSS, phosphorus and nitrogen in the form of ammonia. The following provides a detailed discussion of short-listed liquid stream alternatives, preceded by a discussion on phosphorus, ammonia and total nitrogen removal.

b) Phosphorus Removal

For the implementation of phosphorus removal, there are two basic approaches:

- Chemical phosphorus removal by the addition of a metal salt solution to the activated sludge stream prior to final clarification to chemically precipitate phosphorus
- Biological phosphorus removal whereby the environment to which the mixed liquor biomass is exposed in the bioreactor is manipulated to encourage the development of bio-P organisms which remove phosphorus from solution in amounts far in excess of their normal metabolic requirements

Chemical phosphorus removal will require the installation of metal salt solution storage tanks along with the appropriate chemical metering pumps and metering pump flow-pacing equipment. Often, the metal salt solution is added to the mixed liquor between the bioreactors and final clarifiers. Typical metal salts used in the chemical precipitation of phosphorus from wastewaters are aluminum sulphate, ferrous or ferric sulphate, or ferrous or ferric chloride. The metal phosphate precipitant is very insoluble and is removed from the system via the waste activated sludge stream.

Biological phosphorus removal involves dividing the bioreactor into unaerated and aerated zones to achieve sequential exposure of the biomass to anaerobic followed by aerobic conditions. This sequential exposure favours the development of bio-P organisms. In an anaerobic environment, these organisms take up soluble, readily biodegradable organic matter in the form of short chain fatty acids (such as acetic acid) and store it as poly-β-hydroxybutyrate (PHB). The bio-P bacteria get the energy to do this by the breakdown of previously accumulated polyphosphate and dissolution of the phosphate into solution. Subsequently, when these organisms are exposed to aerobic conditions, the energy provided by the oxidation of the PHB results in the synthesis of new bio-P cells and the uptake of phosphorus from solution to form polyphosphate granules inside the cell mass. Waste activated sludge is withdrawn from the system at points where the biomass is in an aerobic state; in this fashion, phosphorus is removed from the system.

Installation of a biological phosphorus removal system will require partitioning of the bioreactors into appropriate zone volumes that are unaerated and aerated. A source of soluble readily biodegradable organic matter in the form of short chain fatty acids must be available in the anaerobic zone. If the incoming wastewater stream has insufficient short chain fatty acids, this can be rectified by installing a primary sludge fermentation system in the plant. For good biological phosphorus removal, the biomass must have no access to oxygen in the anaerobic zone - either dissolved oxygen from an aeration system or nitrate oxygen from the recycle of a nitrified return activated sludge stream. Proper care must be taken to minimize the release of phosphorus from the biomass in sidestream sludge processing operations and to ensure that any phosphorus so released does not exceed the capacity of the treatment system to remove it.

In recent years, biological phosphorus removal systems have begun to win favour over chemical phosphorus removal systems. Some of the reasons for this are listed below:

- No ongoing operating cost for the purchase of chemicals to precipitate phosphorus
- Reduced solids loading on the final clarification system
- Less mass of solids generated requiring less sludge processing and reduced disposal costs
- Improved settleability of mixed liquor
- Less aeration energy required because bio-P bacteria remove soluble readily biodegradable organic matter from solution under anaerobic conditions

- Higher oxygen transfer efficiency due to higher alpha-factor in the aerobic zone of a bio-P process than in a conventional process

Not all of the above advantages may apply in all circumstances.

If chemical precipitant is added to the secondary treatment process for phosphorus removal, then one can expect an additional 20 to 25 percent waste activated sludge mass production. The additional sludge production will aggravate the capacity problem in the existing gravity thickeners and reduce the capacity of the anaerobic digestors.

These problems might be overcome by installing an alternate form of waste activated sludge thickening such as a dewatering screen or a dissolved air flotation thickener. However, the ability of these processes to achieve the desired thickened sludge concentrations may be limited by the "bulky" nature of the sludge.

If biological phosphorus removal is chosen as the method for phosphorus treatment, then approximately the same mass of waste activated sludge will be generated as is generated now. However, due to the "selector effect" inherent in bio-P processing configurations, a significant improvement in mixed liquor settleability should occur. The performance of the final clarifiers and any waste activated sludge thickening system will be improved as a result.

In biological phosphorus removal, sidestream sludge management processes should be selected and operated so as to minimize the recycle of previously-removed phosphorus from the sludge back to the mainstream processing train. In this regard, dissolved air flotation thickening of WAS is desirable. Thickened WAS concentrations of about four to six percent should be achievable. The WAS stream may be drawn from either the RAS stream, as is currently the case, or directly from the bioreactors. There is provision at the plant to do the latter and this would be the preferred method for improved process control.

In a biological phosphorus removal system, care must be taken to minimize the recycle of previously-removed phosphorus from the sidestream back to the mainstream. At the Red Deer plant, there is historical evidence of struvite (mono-ammonium phosphate) precipitation in some digested sludge piping and in the lagoon system piping. The implementation of biological phosphorus removal may aggravate this tendency; however, struvite precipitation indicates that the phosphorus so removed will not be available for recycle to impair the efficiency of the mainstream treatment process. It will be important, therefore, to ensure that struvite precipitation occurs in a controlled fashion and at a location that causes a minimum of scaling problems for piping and equipment.

c) *Ammonia Removal*

Ammonia can be removed using the activated sludge process if it is operated at a sufficiently high mean cell retention time (MCRT) and if enough oxygen is provided. The ammonia is oxidized biologically first to nitrite and then to nitrate. As a general guideline for a typical domestic wastewater treatment plant, a dissolved oxygen concentration of at least 1.5 mg/L is required and the MCRT should be about seven days for summer operation and about 15 days for winter operation.

The plant facilities required to achieve nitrification are as follows:

- Sufficient aeration capacity to satisfy both the carbonaceous oxygen demand as well as the nitrogenous oxygen demand. In Red Deer, the latter will be particularly significant due to the relatively high nitrogen content of the incoming waste stream.
- Sufficient aeration tank volume and final clarifier capacity to retain an adequate biomass inventory in the system and to allow for separation of the biomass from the liquid stream.

With respect to the first point, previous discussion in this report has noted that the capacity of the aeration system appears inadequate for both carbonaceous and nitrogenous oxidation. With respect to the second point, the aeration tank volume is likely adequate; however, the final clarifier capacity is approaching its limit given the poor settling properties of the mixed liquor. Additional final clarification capacity will be required unless the mixed liquor settling characteristics can be improved to achieve a sludge volume index (SVI) of less than 100 mL/g.

If year-round ammonia removal is required, then operating at a higher MCRT will be necessary and care must be taken to avoid the intermittent return of high-TKN streams from sludge processing/storage operations to the mainstream treatment process. This is particularly important during the winter when ammonia oxidation rates are relatively low. Therefore, high TKN return streams should be flow and load equalized to allow acclimatization and build-up of a sufficient nitrifying population in the activated sludge biomass so that efficient ammonia removal can be achieved.

d) *Total Nitrogen Removal*

As noted earlier, the long term (say 20± years) may see a total nitrogen limit imposed. If this occurs, then a full biological nutrient removal (BNR) treatment

system will be required. This will involve partitioning of the bioreactors into appropriate volumes of anaerobic, anoxic and aerobic zones and the incorporation of one or more internal mixed liquor recycle flows within the bioreactors.

Aside from the issues discussed above for phosphorus and ammonia removal, there should be no other impacts on the selection and operation of solids management facilities due to the installation of a total nitrogen removal system.

e) BNR Options

If Alberta Environmental Protection specifies phosphorus and ammonia-nitrogen removal, as projected in Section 4.0, then biological nutrient removal systems should be considered, especially since the existing aeration equipment will soon require upgrading. Experience has shown that BNR systems have many advantages over more traditional chemical/biological nutrient removal systems. The advantages include:

- **Lower Oxygen Demands**

  BNR systems employing denitrification require less oxygen than systems without denitrification because the denitrifying bacteria remove organics otherwise destined for aerobic heterotrophs. The savings in reduced oxygen transfer requirements can be substantial because the oxygen demand is decreased by 3.4 mg/mg of nitrate nitrogen (NO_3-N) that is denitrified.

- **Improved Oxygen Transfer**

  The oxygen transfer coefficient (α) in BNR systems is up to 50 percent higher than in conventional activated sludge systems. This translates into significant savings because less air is required to transfer equivalent amounts of oxygen to the biomass. A lesser air requirement means blower sizes and power costs can be reduced.

- **Reduced Chemical Requirements**

  BNR systems do not require chemical precipitates to remove phosphorus. The phosphorus is removed by wasting the phosphorus accumulated within the Poly-P bacteria contained within the biomass. Removal is accomplished provided the sludge is maintained in an aerobic condition. Chemical storage and feed systems, however, usually are installed for emergency back-up purposes. If the biomass were to go fully anaerobic, released phosphates could be captured prior to discharge. Although there may be an equipment cost associated with the storage and feed system, the chemical costs are relatively minor.

- **Denitrification**

  Denitrifying systems can be more easily provided within a BNR system. Denitrification systems lessen the impact on the receiving water body more so than nitrifying systems. Although nitrifying systems may prevent acute toxicity to certain aquatic life forms, they do not lessen NO_3 loadings to the receiving water. Unchecked nitrate loadings can lead to eutrophication, a condition whereby excessive plant growth causes subsequent bacterial decay, excessive oxygen demand and depressed oxygen levels toxic to aquatic life. Denitrification coverts the NO_3 to harmless N_2 gas which escapes to the atmosphere.

As a result, BNR systems are quickly gaining popularity over traditional activated sludge systems. Interest has quickened as BNR plants prove their treatment efficiency and myths about increased operating requirements are dispelled. At least three types of BNR configurations can be considered for the Red Deer WWTP, as follows:

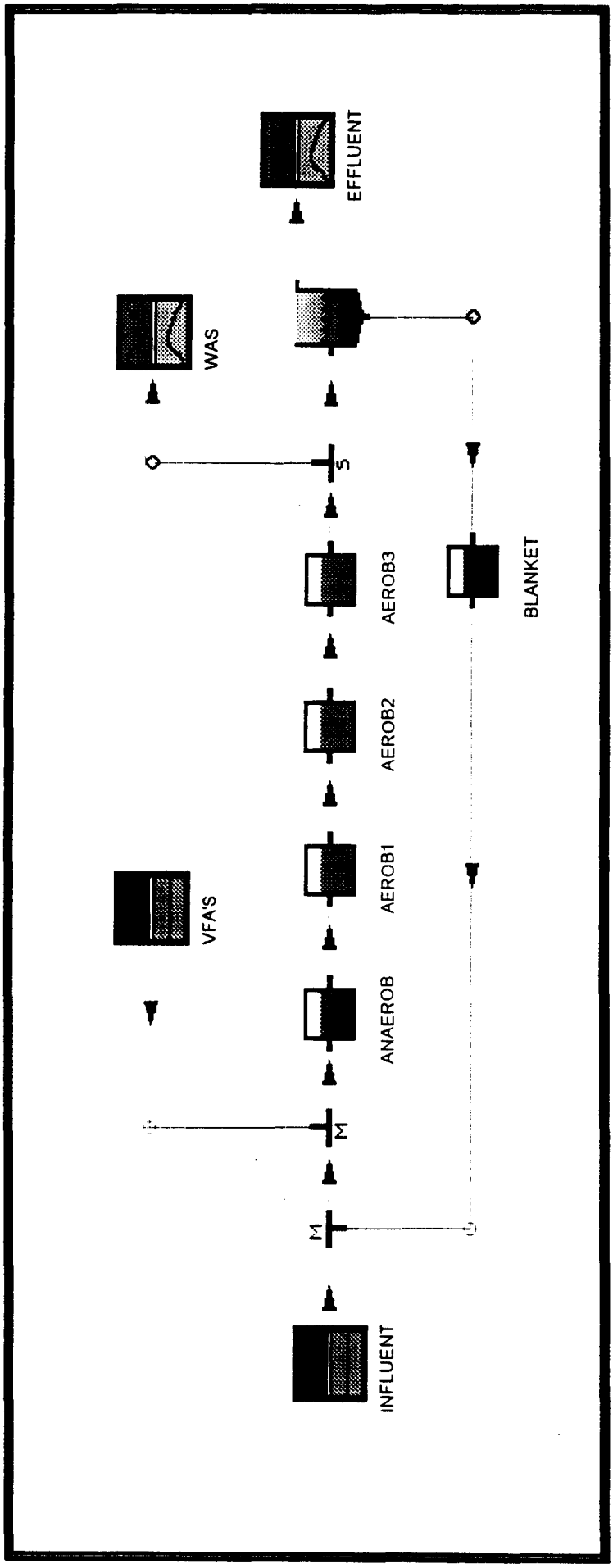
- **Biological Phosphorus Removal**
- **Biological Phosphorus Removal with RAS Denitrification**
- **Modified Three-Stage Bardenpho**

Other BNR configurations exist; however, based on experience at other BNR plants and the plant studies regarding wastewater characteristics and selector trials, these systems are judged to be the most suitable for retrofit implementation at Red Deer.

BNR retrofits are often implemented in stages for a number of reasons. Partial implementation allows valuable training time for plant staff to become acquainted with new operating and maintenance requirements before full-scale BNR implementation. Also, observations regarding plant performance often can be usefully integrated/designed into subsequent BNR retrofit stages. For these reasons, it is likely that a similar approach will be employed at Red Deer.

- **Biological Phosphorus Removal**

Refer to Figures 5-1 and 5-2 for illustrations of the BioWin process schematic and site plan of retrofit for this configuration. The cells of aeration tank 1 would operate in a plug flow manner. Primary effluent and fermenter supernatant would be mixed with RAS in the first quadrant (990 m^3) in an unaerated zone and pass through the remaining three quadrants (each 990 m^3) to eventual discharge to the secondary clarifiers.



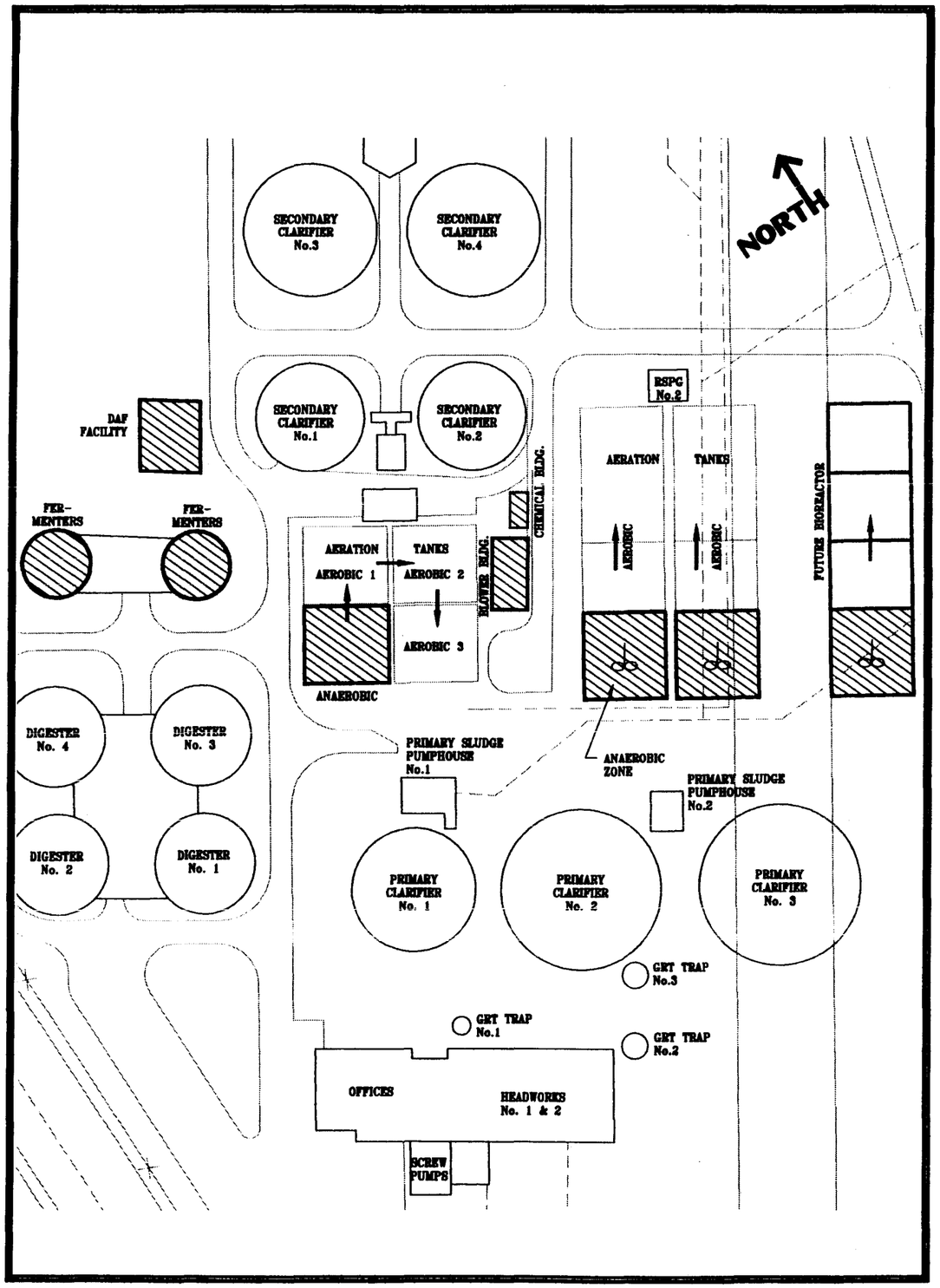
City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

BNR RETROFIT EMPLOYING BIO-P REMOVAL ONLY PROCESS SCHEMATIC

FIGURE 5-1

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_5-1.DWG



City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

BNR RETROFIT EMPLOYING BIO-P REMOVAL ONLY FACILITIES LAYOUT

FIGURE 5-2

FILE: G:\24824.00\1114\CAD\FIG_5-2.DWG

SCALE: 1=1

Aeration tanks 2A and 2B would be retrofitted to operate as individual BNR modules. Mixed unaerated and anaerobic zones would be constructed in the first half of each bioreactor. Each bioreactor would operate as a totally mixed plug flow system.

WAS would be drawn directly from the last aerobic zone of each bioreactor in order to allow full soluble phosphorus adsorption by the Poly-P bacteria. The WAS would be pumped to sludge thickening equipment such as centrifuges, dissolved air flotation units (DAFs), or belt thickeners. The gravity thickeners would be abandoned as sludge thickening equipment and converted to fermenters to provide a steady source of volatile fatty acids for the anaerobic zone. Further, the existing aeration system would be upgraded.

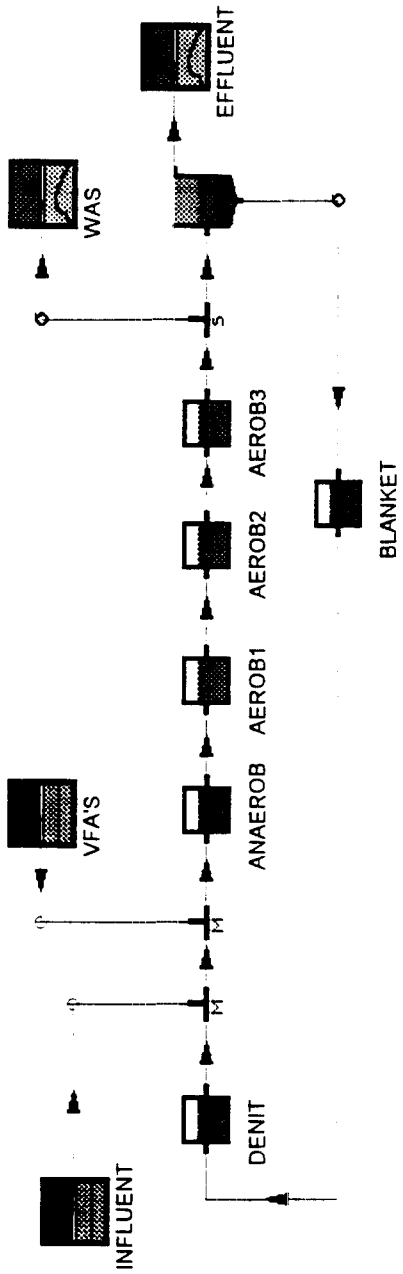
This type of BNR system is less popular than the other BNR systems because there is a risk that recycled nitrates may interfere with the Poly-P bacteria substrate uptake. The other systems ensure minimal nitrate loading to the anaerobic zone, thus protecting Poly-P substrate uptake. For this reason, we do not recommend employing this type of configuration even though preliminary steady-state modeling suggests it may be feasible.

- **Biological Phosphorus Removal with RAS Denitrification**

Refer to Figures 5-3 and 5-4 for illustrations of the BioWin process schematic and site retrofit for this configuration. Again, the cells of aeration tank 1 would operate in a plug flow manner. The first quadrant would be split into a RAS denitrification zone and an anaerobic zone followed by the final three quadrants which would remain aerated. RAS would be introduced into the denitrification zone (400 m^3) to allow denitrification to proceed, flow into the anaerobic zone (590 m^3) to mix with primary effluent and fermenter supernatant, and then flow through the remaining three aerobic zones (each 990 m^3) before finally discharging to the secondary clarifiers.

Aeration tanks 2A and 2B would be retrofitted to create a RAS denitrification zone and an anaerobic zone in the first half of each bioreactor, and would be operated as described above for denitrification of the RAS and introduction of primary effluent and fermenter supernatant to the anaerobic zones.

Process changes required to implement this configuration include making provisions for a static fermenter for VFA production, thickening WAS using DAF technology, upgrading or replacing the existing aeration equipment, and



City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

BNR RETROFIT EMPLOYING RAS-DENIT PROCESS SCHEMATIC

FIGURE 5-3

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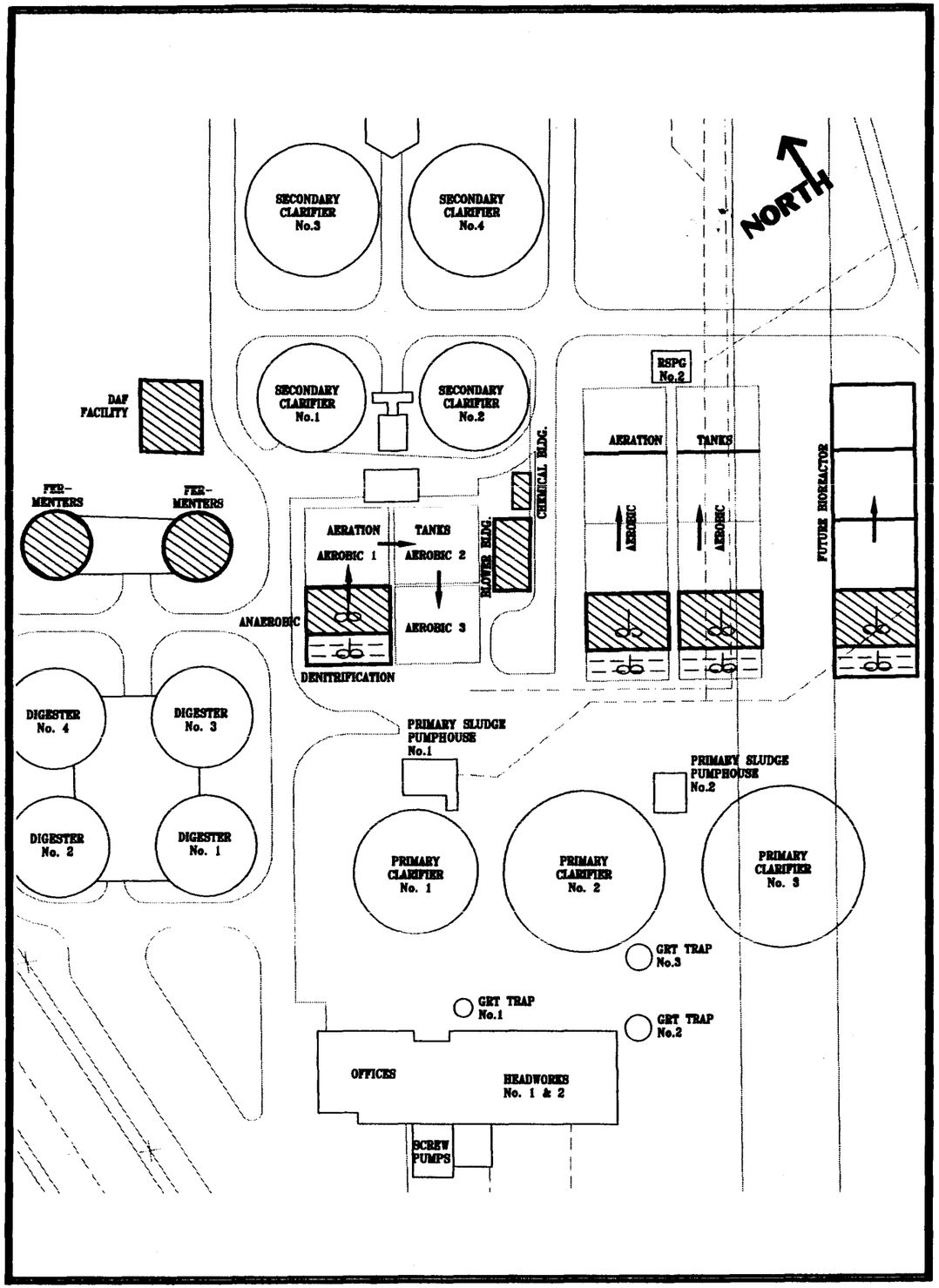


City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

BNR RETROFIT EMPLOYING RAS-DENIT FACILITIES LAYOUT

FIGURE 5-4

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_5-4.DWG

constructing a divider wall in the first cell to form a separation between RAS denitrification and anaerobic zones.

- **Modified Three-Stage Bardenpho**

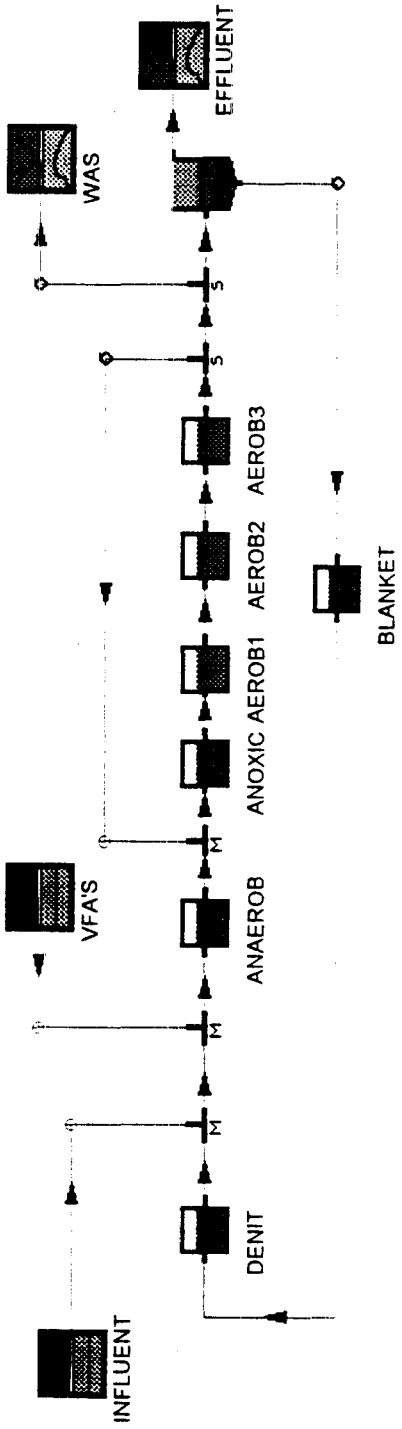
Refer to Figures 5-5 and 5-6 for illustrations of the BioWin process schematic and site retrofit for this configuration. Again, the cells of aeration tank 1 would operate in a plug flow manner. The first quadrant would be split into a first anoxic zone (100 m^3), an aerobic zone (400 m^3), and a second anoxic zone (490 m^3) followed by the final three quadrants which would remain aerated. The RAS would be introduced into the first anoxic zone (100 m^3) to allow denitrification of the RAS to proceed upstream of the anaerobic zone. A propeller pump would recycle nitrified MLSS flow from the last aeration cell to the second anoxic zone to provide additional denitrification.

The second anoxic zone in this configuration allows greater denitrification to occur and results in lower oxygen uptake rates (OURs) in the downstream aerobic reactors than for Biological Phosphorus Removal with RAS Denitrification. From a nutrient removal perspective, this is the best configuration of the three.

A WAS handling and fermenter system, as proposed for the previously described BNR Options, would be employed for this option. Replacement of the existing aeration system would also be required.

A list of process changes required to implement this configuration is presented below:

- Make provisions for a static fermenter for VFA production
- Thicken WAS using DAF technology
- Upgrade existing aeration equipment or replace with fine bubble diffuser equipment
- Construct a divider wall in first cell to provide for a low volume RAS denitrification reactor
- Construct a divider wall in first cell to form a separation between MLSS denitrification and the anaerobic zone
- Install nitrified mixed liquor recycle pumps



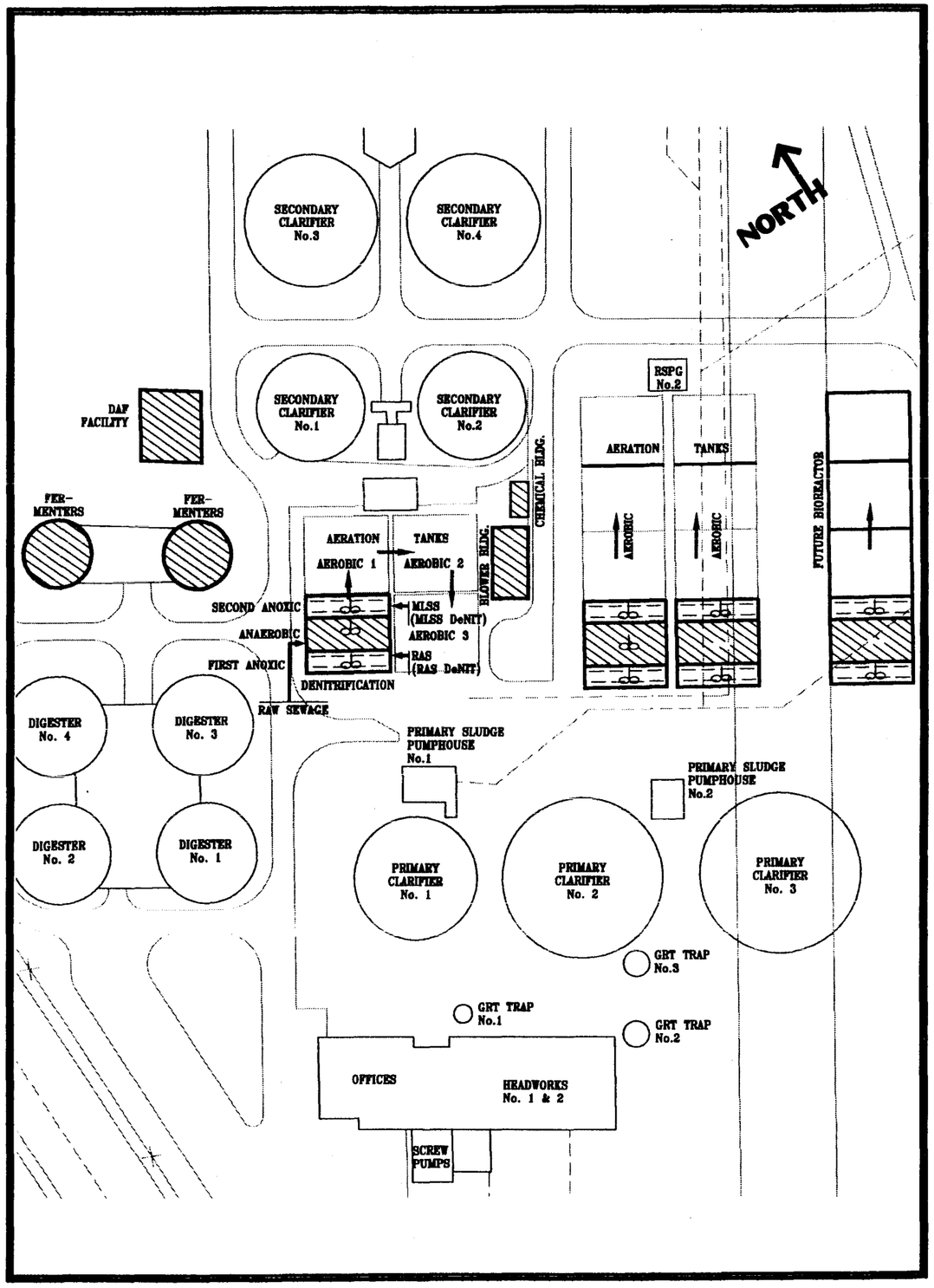
City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

BNR RETROFIT EMPLOYING MODIFIED THREE-STAGE BARDENPHO PROCESS SCHEMATIC

FIGURE 5-5

PLOT: 1=1 FILE: G:\24824.00\1114\CAD\FIG_5-5.DWG



City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

BNR RETROFIT EMPLOYING MODIFIED 3-STAGE BARDENPHO FACILITIES LAYOUT

FIGURE 5-6

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f) Non BNR Options

- **Nitrifying Activated Sludge with Chemical Phosphorus Removal**

It seems most likely that Alberta Environmental Protection will require combined phosphorus and ammonia-nitrogen removal in granting a renewed licence to operate in 1997, as outlined in Section 4.0. One of the most popular means of meeting this type of effluent limit is to employ chemical phosphorus precipitation, with plant nitrification by maintaining high MCRTs favourable to nitrifier growth. This type of operation should be considered if AEP stipulates combined phosphorus removal and ammonia-nitrogen removal.

Metal salts such as aluminum sulphate, ferrous or ferric sulphate, or ferrous or ferric chloride have been used to chemically precipitate soluble phosphorus from municipal wastewaters. They are most often introduced at a point of good mixing in piping/channels between aeration tanks and secondary clarifiers. The metal phosphate precipitant is very insoluble and is removed from the system via the WAS stream.

A similar approach is recommended if chemical phosphorus removal is to be implemented at Red Deer. It would be most prudent to add aluminum sulphate in metered doses at the two wells splitting flows to the two older and four newer secondary clarifiers. Metering pumps and storage tanks could be housed in a centralized building.

The installation would be equipped with two metering pumps, two storage tanks, and necessary controls. Preliminary equipment sizings are as follows:

- Metering pumps capable of pumping between 0.5 and 2.5 m^3/d alum solution for the older plant and between 1.25 and 6.5 m^3/d for the newer plant
- Storage tanks sized at 50 m^3 to provide approximately one month of alum storage

A new alum dosing facility would cost approximately $400 000 to construct, excluding engineering fees and applicable taxes. Chemical costs will, however, be substantial. Dosing at 75 mg/L would cost approximately $310 000 per year, excluding taxes. Electrical costs would be approximately $7000 per year. Also, additional maintenance would be required to keep the facility operating and clean.

Maintaining nitrification throughout the year would require the plant MCRT to be increased appreciably. The plant MCRT would probably have to be maintained above 15 days during winter operation in order not to wash out the cold

temperature sensitive nitrifying bacteria. The plant MCRTs could be reduced to as low as five days during the summer and nitrification would still be maintained.

Raising the plant MCRT, however, will have some consequences that should be addressed. By increasing the MCRT, the mass of sludge in the system will increase. A higher mass of sludge in the system will increase the solids loading on the secondary clarifiers. It is likely that a higher solids loading rate (SLR) will require higher underflow RAS flow rates. A higher RAS flow rate may mean increased clarifier turbulence and higher risk of the poorly settling sludge escaping over the effluent weirs. Consequently, the sludge settleability will have to be improved or the SLRs decreased in some other fashion for this option to produce lower-risk performance.

SLRs could be decreased, even at higher MCRTs, by reducing the BOD_5 loading to the aeration tanks. Chemical precipitants have been used to aid sedimentation of organic solids in primary clarifiers to reduce the organic loading to downstream aeration tanks. The net effect is to reduce the production of biological solids and lower the MLSS concentration. A lower MLSS concentration translates into a lower SLR to the secondary clarifiers and, therefore, more stable clarifier operation. Preliminary jar testing using alum addition to raw sewage has been completed to determine its efficacy. Chemical analysis has not been completed; however, observations made during the testing indicate that improved solids removal is achievable by dosing with alum at rates as low as 50 mg/L.

A higher plant MCRT will reduce the SLR to the gravity thickeners because biomass endogenous decay is increased. However, the reduced SLR is not likely to improve the gravity thickeners' operation as the root of the problem is believed related to sludge settleability and not SLR or surface overflow rates (SOR).

Increasing plant MCRT during the winter months will maintain nitrification which will mean oxygen demand for these months will be increased appreciably over existing levels. The higher oxygen demands will translate into higher power consumption in order to transfer the oxygen to meet the higher biomass oxygen demands. The bottom line is that increased power consumption and costs will result from winter nitrification.

Preliminary investigations conducted at the plant have revealed that the transfer capability of the existing aeration equipment soon will be exceeded by the biomass oxygen demand. Modification to the aeration system is required soon, otherwise low dissolved oxygen will impair treatment.

A list of facilities required to implement chemical phosphorus removal and nitrification throughout the year is presented below:

- Install a complete alum dosing facility
- Possibly install additional aeration equipment to supplement the existing mechanical aerators or replace the entire system with a new blower/diffuser air system
- Install associated equipment/utilities

- **Combined Chemical Phosphorus Removal and Biological Nutrient Removal**

The provision of a chemical phosphorus removal system in conjunction with a biological nutrient removal process is the approach used by some plants faced with the effluent quality discharge requirements projected for Red Deer. The chemical phosphorus removal system/process minimizes the size of bioreactors required and hence derating of existing plant capacity upon retrofit; as well it provides a backup to the BNR system/process in the event of a biological nutrient removal process excursion or upset in the plant's biological process operation. Such upsets could and do happen due to industrial or other discharges to the sewer system which contravene the Utilities Bylaw. The dosage rate for supplemental CPR would be significantly lower than the rates for a stand alone CPR system.

Figure 5-7 shows a possible location for the new Blower Building and Chemical Facilities Building which would be required for the short-listed treatment options.

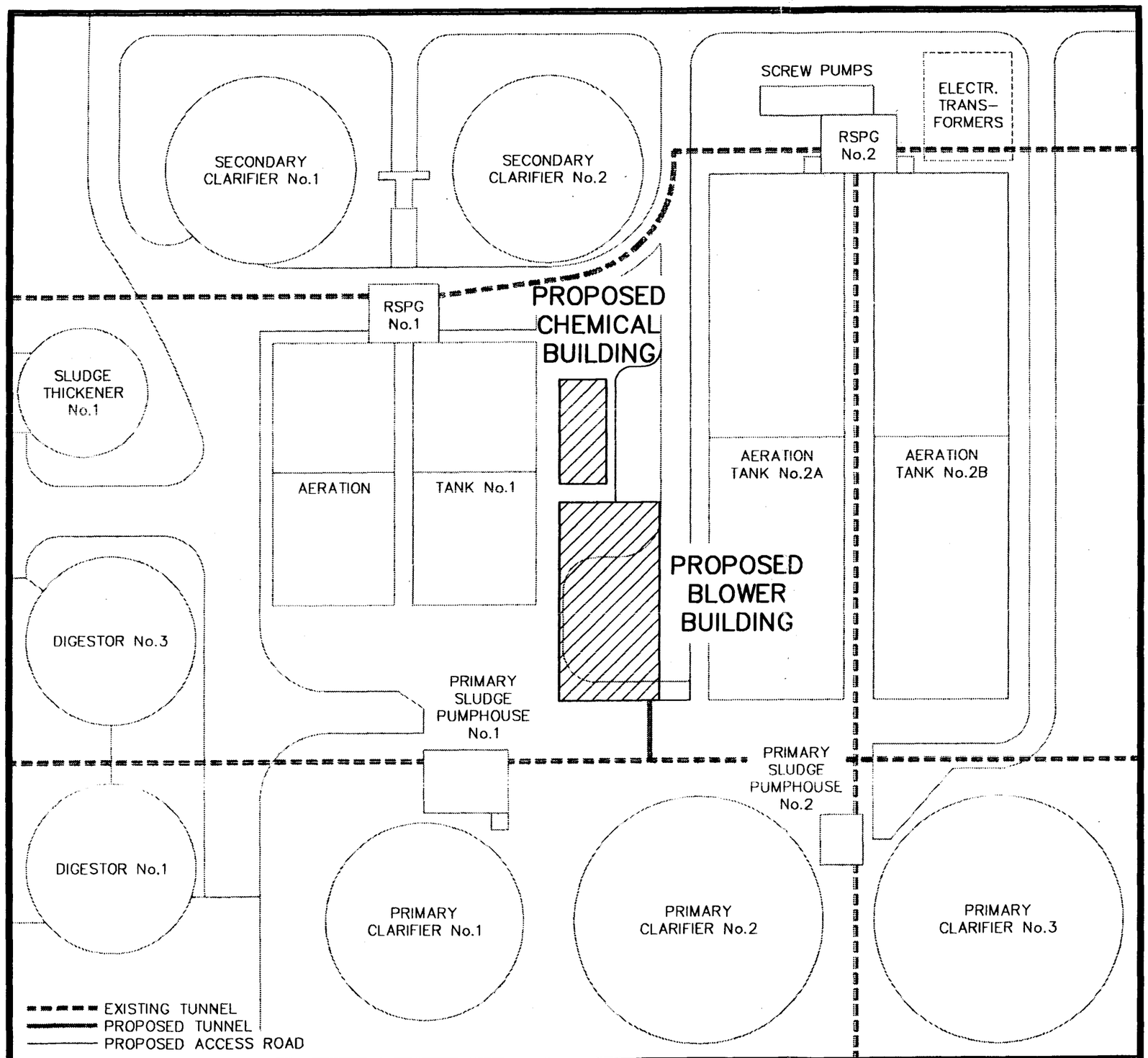
5.3.3.2 Sludge Management and Disposal Alternatives

a) Sludge Management Alternatives

The following provides a detailed discussion of the short-listed sludge management alternatives.

- **Continued Anaerobic Digestion of Primary Sludge and Waste Activated Sludge with Chemical Precipitation of Phosphorus from the Lagoons or Enhancement of Struvite Formation in the Lagoons**

This option would allow changes to the existing dewatering lagoons to achieve sufficient capacity of the plant site to accommodate sludge production to year 2050 or development of new dewatering lagoons at a remote site with transmission of waste sludge by pumping station and forcemain.



City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

PROPOSED BLOWER BUILDING AND CHEMICAL BUILDING LAYOUT

FIGURE 5-7

FILE: G:\24824.00\1114\CAD\FIG_5-7.DWG

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This option would continue to use the gravity thickeners for the primary sludge with separate thickening of the waste activated sludge prior to anaerobic digestion. The separate activated sludge thickening would be done using a new dissolved air flotation system. This would reduce the volume of sludge to be digested and extend the life of the existing anaerobic digesters by freeing up digester capacity for future increases in the plant loadings. The DAF system is described in the City of Red Deer Solids Handling Study (Reid Crowther and Stanley Associates, 1995). The system would be located in a separate building.

This sludge management option could be integrated with changes to the sludge dewatering lagoons to achieve sufficient capacity to accommodate sludge production to the year 2050, if required, or the development of new dewatering lagoons at a remote site with transmission by pumping station and forcemain, if deemed desirable by the City.

This sludge management option could also be considered along with the sludge management option described immediately below for composting of the sludge at a remote site. Sludge dewatering by centrifuge, belt filter press, screw press or rotary press at the remote composting site could be considered. The existing dewatering lagoons would be decommissioned.

- **Composting of Dewatered Anaerobically Digested Primary Sludge and Waste Activated Sludge at a Remote Site Using Wood Chips, Sawdust or Municipal Solid Waste as a Bulking Agent**

  If the economics can be justified, then the digested sludge could be dewatered on-site or at a remote site with the use of a new sludge dewatering facility (centrifuge, belt filter press, screw press or rotary press) and the existing sludge dewatering lagoons could be decommissioned. The digested sludge could be dewatered at the existing site and trucked to a remote site or pumped and piped to the remote site and dewatered there. This option could be combined with the sludge management option described immediately below for added pathogen kill and the production of an alternate bio-solids product for utilization on local land projects.

- **Lime or Kiln Dust Stabilization of Dewatered Sludge with or without Anaerobic Digestion**

  This option could be used to supplement the digestion stabilization treatment of the bio-solids or following dewatering of the digested sludge using new dewatering equipment.

Dewatering could be done on-site or at a remote site and combined with composting and lime-stabilization which would allow for decommissioning of the existing sludge lagoons. The lime-stabilized sludge could provide for additional land application alternatives, including crop land. Note that use of kiln dust could infringe on the N-Viro lime stabilization process patent.

b) Sludge Disposal Alternatives

The following outlines the short-listed sludge disposal alternatives.

- **Subsurface Injection of Sludge on Agricultural Land using Terragators**

  The existing disposal method of stabilized thickened sludge is by land spreading. An alternative method is by injection using Terragators. The system is used by the City of Calgary successfully and the City of Calgary's operation should be investigated for possible use by Red Deer.

- **Disposal by Forest Land Application (e.g. Sunpine Forest Products at Sundre)**

  This method of disposal has been applied with some success in the western United States and British Columbia. Its possible application for Red Deer warrants further investigation.

5.4 EVALUATION OF SHORT-LISTED OPTIONS

5.4.1 Liquid Stream Alternatives

5.4.1.1 Preamble

The short-listed options include:

- Biological Phosphorus Removal
- Biological Nutrient Removal with RAS denitrification (phosphorus and ammonia removal)
- Modified Three-Stage Bardenpho (phosphorus and total nitrogen removal)
- Nitrifying Activated Sludge with Chemical Phosphorus Removal
- Combined Chemical Phosphorus Removal and Biological Nutrient Removal

5.4.1.2 Discussion

The option to be selected must provide for the more stringent effluent quality requirements anticipated with the 1997 Alberta Environmental Protection licence renewal in the short term and any projected additional longer term requirements.

The short term requirements, in this case, have been considered to apply up to year 2020 approximately. The longer term requirements have been considered to apply beyond year 2020.

The selected option must be compatible with the recommendations from the recent studies related to the existing plant's performance. The construction of the selected option must also provide for the plant's ongoing operation and avoid any serious interruption or upset to the plant's treatment performance. The implementation and phasing of the selected option should be done in the most cost effective manner. Each completed phase should stand alone and result in an upgrading which will fit into the overall upgrade required to be in place and fully operational by the year 2007.

The selected option must lend itself to an expansion of the plant (capacity upgrade) to meet projected longer-term requirements. The selected option should provide for the projected future expansion requirements to be accommodated within the existing site boundaries and be compatible with adjacent land uses. The selected option must also be compatible with retrofitting the existing plant and make good use of existing hydraulics, process facilities, tankage and equipment.

The simplest and least capital cost process upgrade for phosphorus removal has proven to be chemical precipitation. However, this process has some several disadvantages:

- There is a significant ongoing operational cost for the supply of the precipitating chemical salt, which is most commonly liquid alum or an iron salt solution. This chemical cost is estimated to be $300 000 per year by the year 2007.

- The present value of an annual expenditure of $300 000 over a period of 10 to 20 years is $2 700 000 to $4 800 000, respectively.

- This process also results in the increased production of the waste sludge mass. An increase of up to 30 percent can be expected with this process when compared to the waste sludge production from the conventional activated sludge process. This will result in higher sludge treatment and disposal costs proportional to the increase in sludge mass.

- The chemical and sludge is less amenable to dewatering processes than conventional activated sludge.

- The sludge produced by the chemical precipitation process for phosphorus removal contains the metal element of the chemical/metal salt used. This is most commonly aluminum or iron. The inclusion of the inorganic metal in the waste sludge can make the waste sludge less attractive with respect to the utilization of the bio-solids produced for final disposal or utilization.

The proven alternative to chemical phosphorus removal is biological phosphorus removal. The biological phosphorus removal process has been evaluated for many municipalities, like the City of Red Deer, in selecting the process for phosphorus removal. Where the wastewater has proven to be compatible with biological phosphorus removal, the evaluation of the two process processes has clearly favoured the use of BPR for plants with average day flows greater than 5 ML/d.

The application of biological phosphorus removal in western Canada is some 15 years old. Plants using or adopting the BPR process include:

- City of Calgary, Bonnybrook
- City of Edmonton
- City of Lethbridge
- City of Kelowna
- City of Penticton
- Summerland, British Columbia
- City of Saskatoon

5.4.1.3 Preferred Liquid Stream Alternative

From our experience, we are confident that the biological phosphorus removal process would be a reliable and cost effective choice for the upgrading of the WWTP. This confidence is reinforced by the results from the Solids Handling Study, the Plant Aeration Study and the Selector Reactor Trial Study. The recommendations from these studies are fully compatible with adoption of the biological phosphorus removal process.

The removal of ammonia from wastewater is most easily achieved by the biological activated sludge process and is easily incorporated with biological phosphorus removal. The resulting process is a BNR process for the biological removal of the phosphorus and nitrogen (as ammonia) nutrients from the wastewater.

The BNR process, when designed to include the removal of ammonia by nitrification, can be readily adapted for the removal of nitrogen (as nitrate and nitrite), using an additional denitrification process accommodated within the BNR bioreactor by recycling mixed liquor from the tail-end of the bioreactor to an anoxic reactor cell.

The selection of a BNR process option should accommodate the short term and conceivable long term effluent quality requirements for the Red Deer WWTP. The BNR process has been proven successful in many municipal wastewater treatment applications similar to Red Deer. The selector reactor trial conducted at the Red Deer Plant show that the raw wastewater is amenable to a BNR process. A biological phosphorus removal process is now operating within aeration tank 1 used for the selector reactor trial, without the addition of supplementary volatile fatty acids (VFAs) from an external fermenter source.

The BNR option has the following advantages over the CPR option:

- Reduced waste sludge mass production
- Improved settleability of the secondary sludge
- Improved sludge dewatering characteristics
- Production of a more environmentally acceptable, organic sludge with insignificant metal content
- Insignificant chemical costs

The BNR/activated sludge process and its operation and control has previously been regarded as being much more complicated than a CPR/activated sludge process. This perception, in recent years, has been proven to be a myth. In fact, the BNR/activated sludge process is easily operated and controlled, given proper understanding by and training of the operations staff.

Normally, a backup precipitating chemical facility is provided with the BNR process to ensure control of phosphorus removal in the event of unforeseen biological process upsets. This is an accepted approach in the field of BNR process design and construction. However, once the BNR process is established, the use of chemical would be expected to be a rare event and the associated chemical cost insignificant compared to the plant's overall operation and maintenance costs provided the BNR process is well maintained and primary sludge fermentation is provided for production of VFAs.

As previously explained, where the primary effluent is deficient in VFA content, a primary sludge fermentation process is provided with the BNR process to ensure the supply of the VFAs necessary for successful and predictable process performance.

In summary, the preferred liquid stream alternative employs biological nutrient removal comprising biological phosphorus removal with RAS denitrification to provide phosphorus and ammonia removal (refer to Figures 5-3 and 5-4). The design should incorporate provisions to upgrade to Modified Three-Stage Bardenpho to allow for total nitrogen removal in the future (refer to Figures 5-5 and 5-6).

5.4.2 Sludge Management and Disposal Alternatives

5.4.2.1 Preamble

The short-listed sludge treatment options include:

- Continued anaerobic digestion of primary sludge and waste activated sludge with chemical precipitation of phosphorus from the sludge lagoons supernatant or enhancement of struvite formation in the lagoons. With changes to the sludge dewatering lagoons, sufficient plant site capacity can be achieved to accommodate sludge production to year 2050. Alternatively, new sludge dewatering lagoons could be developed at a remote site with sludge transmission by pumping station and forcemain.
- Composting of dewatered anaerobically digested primary sludge and waste activated sludge at a remote site using wood chips, sawdust or municipal solid waste as a bulking agent.
- Lime or kiln dust stabilization of dewatered sludge with or without anaerobic digestion.

The short-listed sludge disposal options include:

- Subsurface injection on agricultural land using Terragators
- Stabilization by forest land application (e.g. Sunpine Forest Products at Sundre)

5.4.2.2 Discussion

From our discussions with the City of Red Deer WWTP management and operations staff, it would appear that the City is generally satisfied with the existing sludge management and disposal system. It is understood that the system operates well and has not generated any serious negative public reaction with respect to odours or aesthetics.

Digested sludge is stored in the lagoons and thickened by decanting the supernatant from the lagoons and returning same to the primary plant process for treatment. From our discussions with the operations staff, the supernatant collection and return system needs to be improved and upgraded. The thickened digested sludge, at approximately 10 percent solids content by weight, is periodically (every two to three years) taken from the lagoons by pumping to sludge tankers and disposed of on agricultural lands by land spreading and surface tilling.

This operation is currently done by contracting the work to private sludge disposal operators who are responsible for collecting, hauling and spreading the sludge on farm land The City is responsible for setting up agreements with the farmers to accept the sludge and for regulating the spreading dosages, sludge quality and timing of the operation all to comply with AEP regulations and guidelines.

The sludge production rate at the existing plant will likely decrease with the introduction of a BNR process. By 2050, the plant is anticipated to have an average daily flow of 51.5 ML/d which is 1.8 times the existing flow. The sludge production in 2050 is anticipated to be 1.5 times that of the existing plant. Hence, the thickened lagoon sludge may have to be disposed of every 1 to 1.5 years in 2050, if the existing sludge management and disposal system is maintained.

The existing system is simple and cost effective and no obvious reasons exist as to why it should not be continued at least to the year 2007. Requirements and circumstances beyond 2007 may dictate a change to the system and should be addressed in the light of the circumstances as they develop in future years.

5.4.2.3 Preferred Sludge Management and Disposal Alternative

The preferred sludge management and disposal alternative comprises continued anaerobic digestion of the primary and waste activated sludge with chemical precipitation of phosphorus from the sludge lagoons supernatant or enhancement of struvite formation in the lagoons.

SECTION 6.0
PREFERRED TREATMENT STRATEGY

6.1 DESCRIPTION

6.1.1 Preamble

The preferred liquid stream and sludge management and disposal options were identified in Section 5.0. This Section describes how the preferred wastewater treatment strategy can be implemented, identifies the construction staging requirements and estimated costs, and includes qualifying statements regarding the proposed construction schedule and project cost estimates.

6.1.2 Liquid Stream

The preferred liquid stream alternative comprises Biological Phosphorus (Bio-P) Removal with RAS Denitrification (RAS DeNit) to provide phosphorus and ammonia removal, with provisions to upgrade to Modified Three-Stage Bardenpho to allow for phosphorus and nitrogen removal in the future. The Biological Phosphorus Removal with RAS Denitrification process is illustrated in Figures 5-3 and 5-4. The Modified Three-Stage Bardenpho process is illustrated in Figures 5-5 and 5-6.

The existing aeration tanks would be retrofitted to provide for the new BNR process. The first cell of aeration tank 1 would be subdivided by two partition walls to create first anoxic, anaerobic and second anoxic cells. The three remaining cells would be aerobic cells. The existing surface mechanical aeration system would be replaced with a new fine bubble diffused aeration system. The first anoxic, anaerobic and second anoxic cells would be provided with mixers only. A blower building would also be constructed to serve the new aeration system.

Aeration tanks 2A and 2B would be retrofitted in a similar way by creating the first anoxic, anaerobic and second anoxic cells within the first half of each of the upstream cells. The first anoxic, anaerobic and second anoxic cells would be provided with mixers only. The remaining tankage would be retrofitted with a new fine bubble, diffused air, aeration system, to be serviced by the new blower building.

The purpose of the first anoxic cell is to provide for denitrification of the RAS before it enters the anaerobic cell. The purpose of the second anoxic cell is to provide for additional denitrification of the mixed liquor before it enters the aerobic bioreactor. Mixed liquor would be recycled from the last aerobic cell back to the second anoxic cell

to achieve this additional denitrification. The additional denitrification process would be provided for in the retrofit design, but may not be installed initially. Additional denitrification may only be justified if and when an Alberta Environmental Protection "total nitrogen removal criteria" is applied to the effluent quality. In the interim, the second anoxic cell would also be provided with fine bubble, diffused aeration to provide for additional aerobic volume.

In addition to the retrofit of the existing aeration tanks and construction of a blower building, a new chemical storage and metering facility would be required. The purpose of this facility is to ensure that the phosphorus removal criterion is met at all times, if and when the biological nutrient removal process is adversely impacted.

The preferred treatment strategy also includes a new disinfection facility utilizing ultra-violet technology. The facility will consist of banks of ultra-violet mercury vapour lamps arranged in modules. Each bank will be installed within a concrete channel in a new building. The system will be designed to inactivate bacteria and viruses to meet the anticipated AEP 1997 licence requirements.

6.1.3 Sludge Management and Disposal

The preferred option is to continue the existing practice of anaerobic digestion, lagoon dewatering and application of the dewatered sludge to agricultural lands, at least over the near-term. Requirements and circumstances beyond year 2007 may dictate changes to the system and should be addressed in the light of circumstances as they develop. Further evaluation is warranted to consider the merits of sludge application to forested lands, such as at Sunpine Forest Products in Sundre.

Construction of a new dissolved air flotation facility will complement the existing system of thickening the waste activated sludge stream prior to anaerobic digestion while the existing gravity thickeners, used for this purpose at present, will be converted to primary sludge fermenters to ensure a reliable supply of volatile fatty acids for the BNR process.

6.2 CONSTRUCTION STAGING

6.2.1 Implementation Strategy

The proposed implementation strategy is as follows (refer to Figure 6-1):

- Retrofit aeration tank 1 for biological nutrient removal. The retrofit will include (1) a selector reactor, (2) fine bubble aeration system, (3) RAS/WAS retrofitting

SCALE 1:4000

NOTE:

ACCORDING TO THE DICKSON DAM BREACH INUNDATION MAP THE MAJORITY OF THE PLANT SITE WILL BE UNDER WATER IF A DAM BREACH OCCURS.

LEGEND:

——— FLOOD RISK LIMIT OF THE 100 YEAR FLOOD
····· FLOOD RISK LIMIT OF THE 10 YEAR FLOOD

PRELIMINARY LOCATIONS OF PROPOSED FACILITIES:

1 – PLANT 1 UPGRADE A/B/C/D
2 – NEW BLOWER BUILDING
3 – PLANT 2 UPGRADE 2A/B
4 – NEW CHEMICAL BUILDING
5 – NEW DAF BUILDING
6 – NEW CAPACITY UPGRADE 3A/B
7 – NEW UV BUILDING
8 – NEW EFFLUENT PS (IF FILTRATION REQUIRED)
9 – NEW FILTRATION FACILITY (IF REQUIRED)

RED DEER RIVER
WATERFLOOD PIPELINE R/W
ELECTRICAL SUBSTATION No.14
STORM OUTFALL
FENCE
EFFLUENT DITCH
SLUDGE PUMPHOUSE
2750 DIA. STORM SEWER
POWER LINE
STORM OUTFALL 2750 DIA.
STORM OUTFALL R/W
SLUDGE LAGOONS
175 DIA. DIGESTED SLUDGE
EQUALIZATION LAGOONS
DRAINAGE DITCH CONNECTED TO 2750 DIA. STORM SEWER
STOCKPILE AREA
FENCE
TRANSMISSION LINE R/W
NORTHLAND IND. PARK SANITARY TRUNK 1067 DIA. CONC. PIPE
SANITARY SEWER R/W
ACCESS ROAD TO SUBSTATION
WATERFLOOD PIPELINE R/W
PLANT INLET SEWER
PLANT BYPASS 1219 DIA.
N.W.1/4SEC.33TWP 38 RGE.27W.4M.
N.E.1/4SEC.33TWP 38 RGE.27W.4M.
HALF SECTION LINE
CITY LIMITS
C.N.R. TRACK
CITY TRUNK SEWER 1219 DIA.
INDUSTRIAL TRUNK SEWER 686 DIA.

City of Red Deer

WASTEWATER TREATMENT MASTER PLAN

RECOMMENDED FACILITIES

FIGURE 6-1

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with recycles, and (4) a new blower building to serve short-term needs and to provide for long-term expansion. All plant flows will be directed to aeration tanks 2A and 2B during the retrofit of aeration tank 1. Upon construction completion, the BNR retrofit of aeration tank 1 will be commissioned and process performance will be optimized.

- Retrofit aeration tank 2A for biological nutrient removal. The retrofit will include (1) a selector reactor, (2) fine bubble aeration system, and (3) RAS/WAS retrofitting with recycles. All plant flows will be directed to aeration tanks 1 and 2B during the retrofit of aeration tank 2A. Upon construction completion, the BNR retrofit of aeration tank 2A will be commissioned and process performance will be optimized.

- Retrofit aeration tank 2B for biological nutrient removal as for aeration tank 2A, above.

- Construct a new dissolved air flotation facility for WAS thickening prior to anaerobic digestion. Primary sludge will be thickened separately using the existing gravity thickeners. Upon construction completion, the DAF facility will be commissioned and process performance will be optimized.

- Construct a new chemical storage and metering facility.

- Prove the need for the primary sludge fermentation process before committing to its construction. If not required, delete the requirement for these facilities. If required, construct primary sludge fermenters by retrofitting the existing sludge gravity thickeners.

- Construct a new UV disinfection facility.

The work described above, when completed, will result in a BNR plant having a capacity in the order of 30 ML/d. The process will meet or exceed the anticipated licence requirements to come into effect in 2007. The flow projections (Figure 3-3) indicate that average daily flows will exceed 30 ML/d before year 2007; therefore, it will likely be necessary to construct additional plant capacity and to have it commissioned in advance of year 2007. This expansion should include:

- New BNR bioreactor modules 3A/3B similar to retrofitted aeration tanks 2A & 2B

- New RAS and WAS facilities

The new bioreactor modules could be constructed to provide for an expansion of up to 20 ML/d in 10 ML/d phases. The first phase (30 ML/d plus 10 ML/d = 40 ML/d) could provide a total plant capacity that would be adequate until year 2030 approximately. The second phase (40 ML/d plus 10 ML/d = 50 ML/d) could provide a

total plant capacity that would be adequate until year 2050 approximately. The flow projections (Figure 3-3) indicate that average daily flows will be 51.5 ML/d by year 2050. The strategy and timing for the plant capacity expansion should be reviewed following completion of the BNR retrofit to the existing plant.

Subject to some modifications and upgrading, the existing headworks, primary clarifiers and secondary clarifiers should suffice for the foreseeable future and adequately serve the retrofitted BNR plant. This needs to be confirmed following the BNR retrofit.

The existing site can be made to accommodate the planned upgraded expansion. Land presently occupied by the equalization lagoons will likely have to be partially reclaimed to accommodate a BNR plant capacity of 50 ML/d.

Figure 6-1 shows the location of all proposed facilities included as part of this Master Plan. A preliminary implementation schedule is presented in Figure 6-2 together with conceptual level cost estimates.

It may be feasible to adjust the construction sequence so that the retrofitting of aeration tanks 2A and 2B precede the retrofitting of aeration tank 1. This approach appears to make sense in that it would provide greater plant capacity at an earlier stage so that the Fletcher's expansion could be more easily accommodated. However, it would require the City to spend $0.75 million one year earlier (from 1998 to 1997) than has been indicated in Figure 6-2. This aspect of construction sequencing should be examined in further detail at the preliminary design stage.

6.3 ESTIMATED COSTS

6.3.1 Conceptual Level Cost Estimates

Table 6-1 presents the conceptual level cost estimates for the proposed works in 1996 dollars. These estimated costs include:

- Contingency Allowance @ 25 percent
- Contractor Profit @ 10 percent
- Engineering @ 15 percent

PLANT UPGRADE ITEM	YEAR												
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
BLOWER BUILDING													
AERATION TANK 1 UPGRADE													
AERATION TANK 2A UPGRADE													
AERATION TANK 2B UPGRADE													
DAF FACILITY													
ADDITIONAL BLOWER													
MISCELLANEOUS PLANT UPGRADES													
SLUDGE FERMENTER													
SLUDGE LAGOON MODIFICATIONS													
EQUALIZATION LAGOON MODIFICATIONS													
CAPACITY UPGRADE													
CHEMICAL FACILITY													
UV DISINFECTION													
ESTIMATED COST ($\times 10^6$)	0.00	5.25	1.50	3.00	0.45	0.00	0.00	0.00	4.95	4.05	1.50	0.00	20.70

× INCLUDES CONTINGENCY ALLOWANCE @ 25%, ENGINEERING @ 15%, AND CONTRACTOR'S O/H AND PROFIT @ 10%

City of Red Deer

WASTEWATER TREATMENT
MASTER PLAN

PRELIMINARY CONSTRUCTION SCHEDULE AND CONCEPTUAL LEVEL COST ESTIMATES

FIGURE 6-2

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Table 6-1
Conceptual Level Cost Estimates

Work	Cost 1996 ($ * 10^6)
Blower Building	4.50
Aeration Tank 1 Upgrade	0.75
Aeration Tank 2A Upgrade	1.50
Aeration Tank 2B Upgrade	1.50
DAF Facility	1.50
Additional Blower	0.45
Miscellaneous Plant Upgrades	0.30
Sludge Fermenter	0.60
Sludge Lagoon Modifications	0.30
Equalization Lagoon Modifications	0.75
Capacity Upgrade	6.45
Chemical Facility	0.60
UV Disinfection	1.50
Total Estimated Cost ($*$10^6$)	20.70

6.4 QUALIFICATIONS

It must be noted that the construction staging strategy and estimated costs are preliminary and based on conceptual data only. The schedule and estimates will require updating following completion of additional work which is outside the scope of this Master Plan (i.e. preliminary design, predesign and functional/detailed design) and which is required to identify/quantify and estimate the cost of the construction and schedules to a more realistic level for firm budgeting purposes.

APPENDIX A
SUGGESTED OPERATIONAL IMPROVEMENTS

A-1 HEADWORKS

The screenings/grit conveyor has caused operational difficulties because it is too low to the floor to allow proper access for cleaning. Alignment problems can occur when the rollers become coated with material.

Discussions with plant staff revealed that grit trap 1 has a few minor operational problems. The pipe that carries grit from grit trap 1 to the grit classifier is located above ground and freezes in the winter even though it is heat traced. Because the pumping sequence is manual, a depth indicator would make operation of grit trap 1 less difficult.

A-2 PRIMARY CLARIFIERS

Operators indicated that the underflow suspended solids concentration from primary clarifiers 2 and 3 is kept at two percent. At concentrations greater than two percent, the diaphragm pumps are not able to pump the underflow solids to the digesters without the sludge lines becoming plugged. Sludge from primary clarifier 1 can be pumped at concentrations of up to four percent because of the proximity of the clarifier to the anaerobic digesters.

Operational problems have occurred with the scum trough and beach icing up at cold temperatures. Scum pumping could be made easier if a high level alarm would be provided for the scum pit for primary clarifier 1.

A-3 AERATION TANKS

Fogs and aerosols generated by the mechanical aeration equipment in the aeration tanks have caused substantial icing problems on the catwalks of aeration tank 1.

A-4 SECONDARY CLARIFIERS

The lack of scum removal equipment in secondary clarifiers 1 and 2 has resulted in losses of scum over the effluent weirs. Another operational problem experienced in all of the secondary clarifiers is the growth of algae in the effluent launders in both summer and winter. Because insufficient effluent water pressure and volume are available at the secondary clarifiers, the operator must climb into the effluent launder with a brush and remove the algae manually.

APPENDIX B
PUBLIC CONSULTATION

B-1 INTRODUCTION

Public consultation was considered to be a key element in developing the Wastewater Treatment Master Plan. The public consultation phase was conducted after the wastewater treatment options had been identified and input had been received from the Steering Committee. It consisted of the following components:

- Newspaper advertisement of a Public Open House on September 1, 1996.
- Public Open House at the Red Deer Museum on September 5, 1996 between the hours of 3:00 p.m. and 8:00 p.m.

The Open House consisted of a series of displays to describe the objectives and stage of development of the Wastewater Treatment Master Plan and the purpose of the Open House, to provide an overview of wastewater treatment in the City of Red Deer, to describe the existing wastewater treatment process, to identify the wastewater related issues which the City is facing (including upgraded effluent criteria and the impacts on the capital budget and utility rates for City residents and businesses), and to provide background information regarding the benefits of upgrading the effluent criteria.

The Open House also included a presentation by senior staff from the City and from its consultant. The City and consultant staff members made themselves available throughout the Open House to discuss issues of concern to those in attendance and to answer questions arising from those discussions. Following the presentation, there was a general discussion among the representatives from the public and the representatives from the City and its consultant.

City representatives who hosted the Open House included Mr. Paul Goranson, Mr. Garth Wood and Mr. Barry Brookes. Consultant representatives who provided support to the City during the Open House included Mr. Warren Switzer and Dr. Warren Wilson.

A questionnaire was prepared and made available at the Open House for the purpose of soliciting specific information from those members of the public who attended.

A copy of each of the displays and the questionnaire is included at the back of this Appendix. A list of those who attended the Open House is presented in Table B-1.

Table B-1
List of Attendees at Open House

NAME	AFFILIATION	ADDRESS	TELEPHONE NO.
Teresa Neuman		4627 - 48 Street	347-0012
Michael O'Brien		20 Riverview Park	346-6814
Don Hepburn		85 Selkirk Blvd.	342-2245
Joan Hepburn		85 Selkirk Blvd.	342-2245
Rod Trentham		43 Dobler Avenue	340-8959
Paulo Mancuso		1 - 7460 - 49 Avenue	347-1845
Bev Hughes	City Councilor	16 Allsop Close	343-1881
Morris Flewwelling	City Councilor	4126 - 35 Street	346-6317

B-2 ISSUES RAISED AT THE OPEN HOUSE

There were a number of issues raised and opinions expressed by the public as described below

- Compliance With Alberta Guidelines

  There is a need for the applicable Alberta Environmental Protection Guidelines for wastewater treatment facilities to be followed throughout the Master Plan and subsequent design and construction process.

- Aluminum Residuals

  There is concern for the impact on the quality of water in the Red Deer River as a result of alum sludge discharge from the City's water treatment plant to the River.

- Impact of Landfill Leachate

  There is concern for the impact on the quality of water in the Red Deer River as a result of landfill leachate that will be discharged from the new landfill to the sanitary sewer system for treatment at the wastewater treatment plant.

- Biological Treatment Processes

  There is support for the use of biological treatment processes at the wastewater treatment plant.

- Impact of Roadway Contaminants on the Red Deer River

  There is concern for the impact on the quality of water in the Red Deer River as a result of contaminants carried by stormwater and snow melt from City streets to the River. Chlorides are of particular concern.

- Wetlands Treatment

  Wetlands should be considered in developing the preferred wastewater treatment strategy.

- Solar Aquatics Treatment

  Solar Aquatics should be considered in developing the preferred wastewater treatment strategy.

B-3 CONSIDERATION OF ISSUES RAISED AT THE OPEN HOUSE

Following careful consideration of the issues raised at the Open House, the City and its consultant formulated a position on each issue as described below. The sequence of the items discussed is the same as for the issues raised, as listed in Section B-2.

- Compliance With Alberta Guidelines

  All applicable Federal and Provincial laws, regulations and guidelines will be followed in the development of the Master Plan and in the subsequent design and construction of the required plant upgrades.

- Aluminum Residuals

  The City of Red Deer Water Treatment Plant meets all requirements of Alberta Environmental Protection. The issue of discharging alum sludge to the Red Deer River will be considered during the next plant operations review.

- Impact of Landfill Leachate

  The impact on the quality of water in the Red Deer River of landfill leachate discharge to the sanitary sewer system will be evaluated once the landfill is operational, and the leachate flows and characteristics have been quantified.

- Biological Treatment Processes

  The Wastewater Treatment Plant currently uses biological processes to treat the wastewater. The proposed treatment options similarly include biological treatment processes.

- Impact of Roadway Contaminants on the Red Deer River

  The containment and treatment of roadway contaminants are not easily addressed from a technical perspective. With respect to the impacts arising from the application of chlorides, the City's approach has been to control chlorides at the source by exercising diligence in the quantity of de-icing salts being applied to City streets in winter.

- Wetlands Treatment

  Wetlands treatment is most effective during the growing season; little benefit is achieved during the late fall, winter and early spring periods. Therefore, seasonal storage is a prerequisite for wetlands treatment in northern climates similar to Red Deer. The storage facility that would be required to accommodate six months of current average day flows would be approximately 340 hectares at an average depth of 1.5 metres. In addition, the wetlands area required to accommodate the current average day flow would be approximately 200 hectares. Therefore, the total area required to store and treat current wastewater flows in a wetlands facility would be approximately 540 hectares. By comparison the area of the existing wastewater treatment plant site is approximately 40 hectares. In other words, the City would be required to purchase or acquire the rights to an additional 500 hectares (8 quarter sections) in order to pursue the wetlands treatment option. The amount of land required will increase as the wastewater flows to the plant increase. Further, it should be recognized that Alberta Environmental Protection will consider wetlands treatment only if the wastewater has received prior treatment to a secondary or tertiary level. In summary, wetlands treatment is judged to be inappropriate for the City of Red Deer.

- Solar Aquatics Treatment

  Solar Aquatics technology consists of a greenhouse enclosing a large number of ponds and tanks, which grow floating and attached plants as well as relatively high concentrations of suspended bacteria biomass. Preliminary treatment required in advance of a Solar Aquatics facility includes mechanical screening and degritting. The greenhouse required to serve the current wastewater flow would be in the order

of 20 000 square metres and would increase over time as the wastewater flows increase. An additional structure or structures would be required to house blowers, pumps, and other mechanical equipment. The greenhouse would contain solar tanks and solar ponds. The solar tanks would function as a biological seed generation system for the larger solar ponds. The bulk of the biological treatment would occur in the larger ponds; however, the ponds would require aeration and mixed liquor suspended solids levels would be maintained at approximately 1500 mg/L. The discharge from the solar ponds would be treated in high rate clarifiers and would then pass through micro-screens prior to ultra-violet disinfection and discharge to the Red Deer River. The flow of waste biological sludge is estimated to be 3000 kg/day at one percent solids concentration. This sludge would require stabilization in the existing anaerobic digesters. Solar Aquatics technology is not cost-competitive at this scale and does not make good use of the City's investment in its existing wastewater treatment facilities. While the technology can be well utilized at a smaller scale, the higher capital costs and equally high operating costs suggest that this treatment option is not feasible for a City as large as Red Deer.

For comparison, the study team obtained a cost estimate for installation of a solar aquatics system for the Town of Didsbury, Alberta. For a system designed to treat 2.2 ML/day, the cost was estimated to be $2,200,000, excluding provisions for phosphorus removal. In 2007, the wastewater flow in Red Deer is projected to be 33.1 ML/day. Therefore, the order of magnitude cost for installation of solar aquatics in Red Deer would be in the order of $33,000,000.

CITY OF RED DEER

WASTEWATER TREATMENT MASTER PLAN

CITY OF RED DEER

OPEN HOUSE

WASTEWATER TREATMENT MASTER PLAN

Stewart Room
Red Deer Museum

Thursday, September 5, 1996
3:00 to 8:00 p.m.
Presentation at 6:30 p.m.

The City of Red Deer is in the process of conducting a Wastewater Treatment Master Plan to establish short-term and long-term strategies for the City's wastewater treatment facilities. This plan is intended to address:

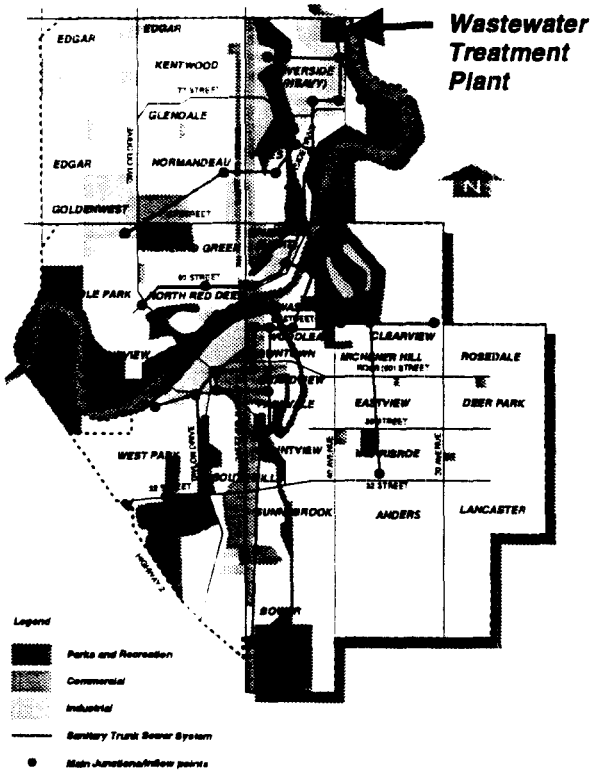
- **Anticipated Short-Term and Long-Term Changes to the City's Operating License**
- **Required Upgrading of Wastewater Treatment Facilities**
- **Required Changes to the Sewer Use Bylaw (more stringent control of discharges to the sewer system)**
- **Required Changes to Utility Rates (impact on industries, businesses and residences)**

The City is interested in obtaining public input on key issues. Accordingly, the City will be holding an Open House with a presentation by its engineering consultant. Representatives from the City and its consultant will be in attendance to discuss issues and answer questions throughout. Displays, handouts and a questionnaire will also be available.

Reid Crowther

Stanley ASSOCIATES

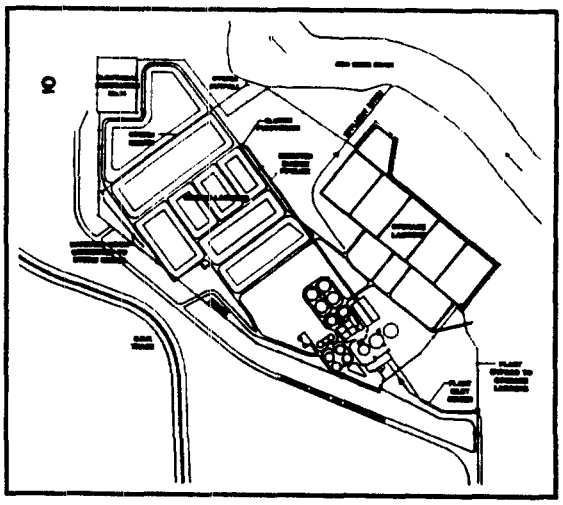
WASTEWATER TREATMENT IN THE CITY OF RED DEER



CITY OF RED DEER

- The sanitary sewer system collects wastewater from residences, schools, hospitals, businesses and industries.

- Wastewater flows are directed to the Red Deer Wastewater Treatment Plant located in the Riverside Industrial Park.



WASTEWATER TREATMENT PLANT

WASTEWATER TREATMENT PROCESS

PRELIMINARY TREATMENT

- Bar Screens remove rags, sticks, cans and similar objects
- Grit Chambers remove smaller inorganic objects such as sand, gravel, cinders and stones

PRIMARY TREATMENT

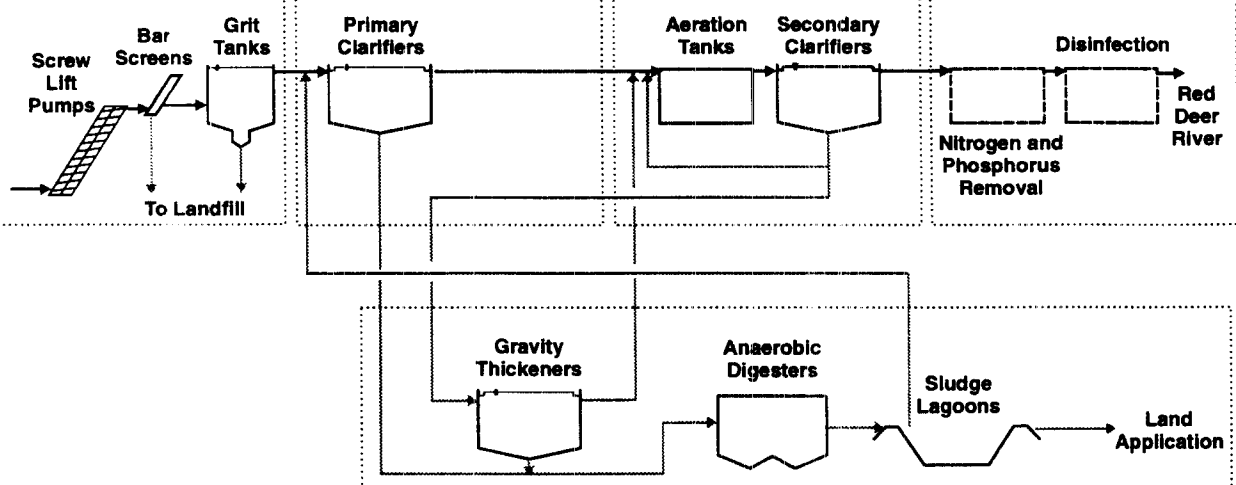
- Primary Clarifiers settle out the heavier solids
- The settled solids are pumped to the Anaerobic Digesters

SECONDARY TREATMENT

- Aeration Tanks promote the growth of micro-organisms which purify the wastewater by using the materials present as a food source
- Secondary Clarifiers settle out biosolids for recycling to the Aeration Tanks and wasting to the Gravity Thickeners

PROPOSED TERTIARY TREATMENT

- Tertiary treatment is not currently used at the wastewater treatment plant
- Tertiary treatment normally includes nitrogen and phosphorus removal and disinfection



SOLIDS TREATMENT

- Gravity Thickeners settle out the solids which are then pumped to the Anaerobic Digesters. The remaining liquid is returned to the Aeration Tanks
- Anaerobic Digesters convert the solids to a more stable form. The stabilized solids are pumped to the Sludge Lagoons
- The Sludge Lagoons decrease the liquid content of the stabilized solids
- Each year a portion of the dewatered solids is applied to farmland and the liquid portion is returned ahead of the Primary Clarifiers

ISSUES

• EFFLUENT CRITERIA

- There is a need to reduce the levels of nitrogen, phosphorus, bacteria and viruses in the Red Deer River
- The City, together with Alberta Environmental Protection, is addressing this need
- By the year 2007, the City will have upgraded the wastewater treatment plant to meet the following effluent criteria:

PARAMETER	LIMIT	COMMENTS
BOD	20 mg/L	Monthly arithmetic mean
TSS	20 mg/L	Monthly arithmetic mean
TP	1 mg/L	Monthly arithmetic mean
NH_3-N (Winter)	10 mg/L	Monthly arithmetic mean
NH_3-N (Summer)	5 mg/L	Monthly arithmetic mean
Total Coliform	1,000/100 mL	Monthly geometric mean
Fecal Coliform	200/100 mL	Monthly geometric mean

- The wastewater treatment plant upgrades will include nitrogen and phosphorus removal and disinfection
- The study team (the City and its Consultant) is reviewing the upgrade options that can treat Red Deer's wastewater to the new effluent criteria. Processes under consideration include:
  - Biological Phosphorus Removal and Nitrificiation
  - Biological Phosphorus Removal and Nitrification/Denitrification
  - Nitrifying Activated Sludge with Chemical Phosphorus Removal
  - Combined Chemical and Biological Phosphorus Removal
- The Study Team is requesting your assistance in selecting the most suitable wastewater treatment process Please provide this input on your questionnaire

• IMPACTS ON WASTEWATER RATES

- Wastewater treatment plant upgrades = new capital spending = new wastewater rates

• IMPACTS ON SEWER USE BYLAW

- New effluent criteria will require review and updating of the City's Sewer Use Bylaw
- Updating of the Sewer Use Bylaw will require reductions in extraneous flows to the sanitary sewer system (eg elimination of weeping tile connections)
- The new effluent criteria will also require that the wastewater rates be reviewed and updated to reflect the increased costs of providing a higher level of wastewater treatment

WHY ARE NITROGEN, PHOSPHORUS, BACTERIA AND VIRUSES OF CONCERN?

- Nitrogen and phosphorus are nutrients that are required by all living things including aquatic organisms
- Addition of overabundant quantities of nitrogen and phosphorus to fresh water streams from human activities can seriously impact the quality of the receiving stream
- The discharge of treated wastewater can lead to increased levels of ammonia-nitrogen, nitrate-nitrogen and phosphorus in the receiving stream
- Ammonia-nitrogen can be toxic to fish in the receiving stream. It can also cause a depletion of the dissolved oxygen in the receiving stream
- Increased levels of nitrate-nitrogen and phosphorus can stimulate extremely rapid growth of algae and other aquatic plants which will deplete the water of dissolved oxygen gas and cause massive fish kills
- Bacteria and viruses can transmit disease to humans
- An increased level of wastewater treatment will reduce nitrogen and phosphorus levels and also the number of bacteria and viruses that are discharged to the river

CITY OF RED DEER

Please fill out a questionnaire so that we can get your input on the Wastewater Treatment Master Plan.

THANK YOU

FOR YOUR INPUT

Reid Crowther

Stanley

RED DEER WASTEWATER TREATMENT MASTER PLAN QUESTIONNAIRE

This Questionnaire is being filled out by a homeowner _____ renter _____ business owner _____ within the City of Red Deer.

Do you have any preferences, comments or suggestions regarding the wastewater treatment options being considered by the Study Team? Yes _____ No _____. If yes, please describe.

_____
_____
_____
_____
_____
_____
_____
_____
_____

The evaluation criteria for the wastewater treatment options include:

- capital costs
- operating costs
- compatibility to the existing plant
- ability of the process to meet short-term and long-term effluent criteria
- ease of expansion
- area requirements
- sensitivity of the process to adjacent development
- potential for odour generation
- biosolids production
- ease and flexibility of operation, and
- robustness of the treatment process

Are there any additional criteria that should be used for evaluating the wastewater treatment options? Yes _____ No _____. If yes, please explain. _____

_____
_____
_____
_____
_____
_____
_____

How much do you pay on your monthly utility bill for wastewater treatment? _____

_____

_____

_____

_____

Are you prepared to contribute financially toward the City's efforts to meet the new effluent criteria? Yes _____ No _____. If yes, indicate the percentage increase in wastewater rates that you would be willing to pay. 0 to 10 % _____ 10 to 20 % _____ 20 to 30 % _____ above 30 % _____.

Higher levels of treatment beyond the new effluent criteria are attainable at additional cost. Are you prepared to contribute financially toward the City's efforts to achieve higher levels of treatment beyond the new effluent criteria? Yes _____ No _____. If yes, indicate the percentage increase in wastewater rates that you would be willing to pay. 0 to 10 % _____ 10 to 20 % _____ 20 to 30 % _____ above 30 % _____.

How should the costs for increased levels of treatment be distributed? All wastewater dischargers charged on the basis of volume and strength of the wastewater they produce _____ Major wastewater dischargers charged for a larger portion of the cost _____ Residential wastewater dischargers charged for a larger portion of the cost _____.

Are there any concerns about the current wastewater treatment plant site? Yes _____ No _____. If yes, please explain. _____

_____

_____

_____

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_____

_____

In some areas, the weeping tiles around building foundations discharge to the sanitary sewer system and this extra flow, which is uncontaminated, must be treated. It would be more appropriate for the weeping tiles to be connected to the storm sewers which are discharge directly to the river. Are you prepared to contribute financially toward re-directing this flow to the storm sewers? Yes _____ No. _____ If yes, indicate how much would you be willing to pay to have the City connect the weeping tile to the storm sewer. $0 to $500 _____ $500 to $1000 _____ $1000 to $1500 _____ more than $1500 _____.

RED DEER WASTEWATER TREATMENT MASTER PLAN QUESTIONNAIRE

To Paul Goranson.

This Questionnaire is being filled out by a homeowner ✓ renter _____ business owner ✓ within the City of Red Deer.

Do you have any preferences, comments or suggestions regarding the wastewater treatment options being considered by the Study Team? Yes ✓ No _____. If yes, please describe.

- Improve the tourist RV. dumping facilities at the plant; neat signs, water, sloping drain.
- Provide covered year round constructed wetland facility for polishing treated wastewater at sewage plant - using methane for heating.
- Design covered constructed wetland at landfill site to treat leaching water; heat with methane collected from ~~old~~ current and new landfill sites.
- Prepare construction cost rational taking health costs of downstream users into account as well as placing an economic value on healthy aquatic environment.
- Purchase Childs land for expansion of constructed wetlands.
- Remove as much alum from the river as possible, and use ultra-violet light rather than chlorine for disinfecting water prior to release to river

The evaluation criteria for the wastewater treatment options include:

- capital costs
- operating costs
- compatibility to the existing plant
- ability of the process to meet short-term and long-term effluent criteria
- ease of expansion
- area requirements
- sensitivity of the process to adjacent development
- potential for odour generation
- biosolids production
- ease and flexibility of operation, and
- robustness of the treatment process

Are there any additional criteria that should be used for evaluating the wastewater treatment options? Yes ✓✓ No _____. If yes, please explain.

- Health of downstream human users of the river water, fish + fowl.
- Health of the river and its aquatic inhabitants.
- Aesthetics of the plant and its integration into the positive environmentally friendly image of the city by using covered wetlands to improve the quality of our treated sewage.
- It is rather astonishing that "protection of the environment" isn't on the above list; it should be in 1st. place.

How much do you pay on your monthly utility bill for wastewater treatment? Don't know.

Are you prepared to contribute financially toward the City's efforts to meet the new effluent criteria? Yes ✓ No _____. If yes, indicate the percentage increase in wastewater rates that you would be willing to pay. 0 to 10 % _____ 10 to 20 % ✓ 20 to 30 % _____ above 30 % _____.

Higher levels of treatment beyond the new effluent criteria are attainable at additional cost. Are you prepared to contribute financially toward the City's efforts to achieve higher levels of treatment beyond the new effluent criteria? Yes ✓ No _____. If yes, indicate the percentage increase in wastewater rates that you would be willing to pay. 0 to 10 % _____ 10 to 20 % ✓ 20 to 30 % _____ above 30 % _____. But general tax revenue should pick up a good chunk otherwise big business can avoid their share - as well as apartment dwellers and the tourist industry.

How should the costs for increased levels of treatment be distributed? All wastewater dischargers charged on the basis of volume and strength of the wastewater they produce yes Major wastewater dischargers charged for a larger portion of the cost yes Residential wastewater dischargers charged for a larger portion of the cost yes.

Are there any concerns about the current wastewater treatment plant site? Yes ✓ No _____. If yes, please explain. Needs better facilities for tourists needing RV dumping facilities.

Needs increased revenue to meet new standards which will likely be increasingly stringent as our understanding of the disease/drinking water relationship clarifies itself. General tax revenue for policing of regulations as well as upgrading of facilities is needed. The current tax freeze is foolish in the long run and will impose an increasing burden on our children.

In some areas, the weeping tiles around building foundations discharge to the sanitary sewer system and this extra flow, which is uncontaminated, must be treated. It would be more appropriate for the weeping tiles to be connected to the storm sewers which are discharge directly to the river. Are you prepared to contribute financially toward re-directing this flow to the storm sewers? Yes ✓ No. _____ If yes, indicate how much would you be willing to pay to have the City connect the weeping tile to the storm sewer. $0 to $500 ✓ $500 to $1000 _____ $1000 to $1500 _____ more than $1500 _____. The balance should be picked up by general tax revenue charged to all since this a problem created by the City and not by those home owners improperly connected

Item No. 7

DATE: January 7, 1997

TO: Kelly Kloss, City Clerk

FROM: Alan Scott, Land and Economic Development Manager

RE: **INDUSTRIAL LAND PRICES**

By resolution of Council, dated February 13, 1995, the Land and Economic Development Department is directed to review industrial and commercial land prices on an annual basis and, where appropriate, recommend price changes to Council. While this review has been carried out annually for a number of years, we have maintained our current price structure with a few exceptions since 1990. The exceptions include an increase in price in both Riverside Light Industrial and Northlands Industrial on smaller parcels of less than 1.0 acre, but the base price has remained unchanged for six years.

We have completed a study on industrial land prices in an effort to ascertain if changes are needed. We rejected the option of engaging an independent appraiser to review industrial land pricing because the City is the only developer currently involved in industrial land development within city boundaries. Industrial land development in the surrounding area is of a different type entirely, with limited services provided. Instead, we interviewed commercial realtors and analyzed our own land sales.

Both Northlands and Riverside Light Industrial Park land prices have been set at a higher figure than those in Edgar Industrial Park. This was done in recognition of the maturity of both Riverside and Northlands and, at the same time, to encourage development of Edgar Industrial Park. This strategy has worked well and Edgar Industrial Park has continued to develop at a more rapid pace over the past two years. Northlands Industrial and Riverside Light Industrial are virtually sold out, which will result in all of our future efforts being concentrated on Edgar Industrial Park.

During the past three years, we have priced Northlands and Riverside Light at about 7% above Edgar Industrial Park. Base price in Riverside Light and Northlands has been $70,000 per acre, while at the same time Edgar has been priced at $65,500 per acre. Premiums for lots of less than 1.0 acre and discounts for purchases greater than 3.0 acres apply in all three parks.

Discussions with realtors and our own assessment of the market would confirm that Edgar prices should be adjusted to be more in line with those that were applicable to Northlands and Riverside Light. Because of Edgar's strategic location, adjacent to Highways 2 and 11A, it was determined that a two price structure should be recommended, to recognize the exposure to lots adjacent to these two main traffic routes.

2/...

Because of the size of Edgar Industrial Park, a greater variety of uses can be accommodated, with larger parcels available adjacent to CP Rail. We would propose to continue with the present premium and discount policy, which would add a premium to lots of less than 1.0 acre and offer a discount for purchases over 3.0 acres. In addition, we would encourage Council to consider establishing a premium for lots which back on to Highways 11A and 2.

RECOMMENDATION

We recommend increasing the base price for Edgar Industrial Park by 3.9%. This would result in a new price of $68,500 per acre, an increase of $3,000.

We would further recommend that lots adjacent to Highways 11A and 2 carry a premium of a further 5%, which would result in a price of $72,000 per acre.

We believe these recommendations are reasonable in view of the information we have been able to obtain, both from our own sales and from outside sources, most notably the real estate profession. The proposed price adjustment puts the Edgar lots in line with pricing which was in effect in Northlands and Riverside.

Respectfully submitted,

Alan V. Scott

AVS/mm

Comments:

We concur with the recommendations of the Land and Economic Development Manager.

"G. D. SURKAN"
Mayor

"H. M. C. DAY"
City Manager

Council Decision - January 13, 1997 Meeting

FILE

DATE: January 14, 1997

TO: Land and Economic Development Manager

FROM: City Clerk

RE: ***INDUSTRIAL LAND PRICES***

Reference Report: January 14, 1997

Resolution Passed:

"RESOLVED that Council of The City of Red Deer, having considered report from the Land and Economic Development Manager dated January 7, 1997, re: Industrial Land Prices, hereby agrees to increase the base price for Edgar Industrial Park by 3.9%, resulting in a new price of $68,500.00 per acre, and as presented to Council January 13, 1997."

Resolution introduced and tabled:

"RESOLVED that Council of The City of Red Deer, having considered report from the Land and Economic Development Manager dated January 7, 1997, re: Industrial Land Prices, hereby agrees to increase the price for Edgar Industrial Park lots adjacent to Highways 11A and 2 to carry a premium price of 5% above the base price for Edgar Industrial Park which would result in a price of $72,000.00 per acre, and as presented to Council January 13, 1997.

"RESOLVED that Council of The City of Red Deer hereby agrees to table the resolution relative to Edgar Industrial Park Lot Pricing for up to 60 days, subject to receipt of an independent appraisal for the land in question."

Report Back to Council Required: Yes, as set out above, upon receipt of an independent appraisal report for the land in question, a report is to be submitted back to Council within 60 days.

Kelly Kloss
City Clerk

KK/clr

c Director of Development Services

Item No. 1
Correspondence

DATE: **January 3, 1997**

TO: **City Council**

FROM: **City Clerk**

RE: ***ROAD CLOSURE BYLAW 3175/96 AND PARTIAL DISPOSAL OF LOT R, PLAN 1030 NY (LOWER FAIRVIEW)***

Council previously gave consideration to the development of an area known as CPR 7, Lower Fairview. At the Council Meeting of August 26, 1996, Road Closure Bylaw 3175/96 and a resolution to dispose of a portion of reserve described as Lot R, Plan 1030 NY, was passed.

On December 18, 1996 this office received a letter from Snell and Oslund Surveys indicating that the description they had previously supplied to this office with respect to the above was incorrect. A correct description has now been supplied and Snell and Oslund Surveys are requesting that the above noted Road Closure Bylaw and Disposal of Reserve resolution be amended to reflect the correct descriptions.

As the actual physical portion of road to be closed and reserve to be disposed of has not changed, Council can pass an amendment to each amending the description without readvertising.

RECOMMENDATION

That Council give three readings to Road Closure Bylaw Amendment 3175/A-97 and that Council pass a resolution amending the municipal reserve description.

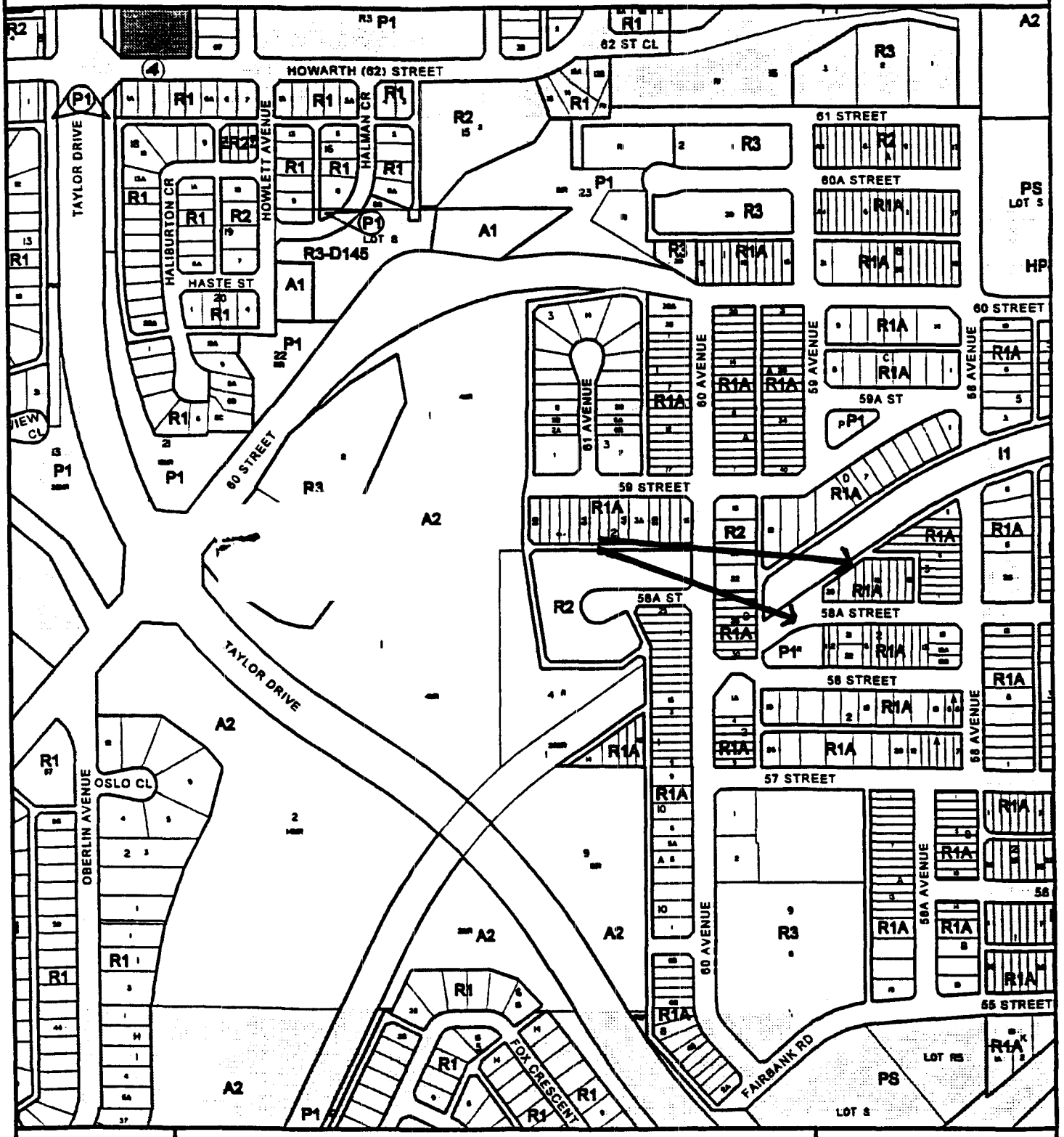
Kelly Kloss
City Clerk

KK/clr
attchs.

THE CITY OF RED DEER - LAND USE BYLAW

LAND USE DISTRICTS

E10



SCALE 1:5000
10-JAN-1996

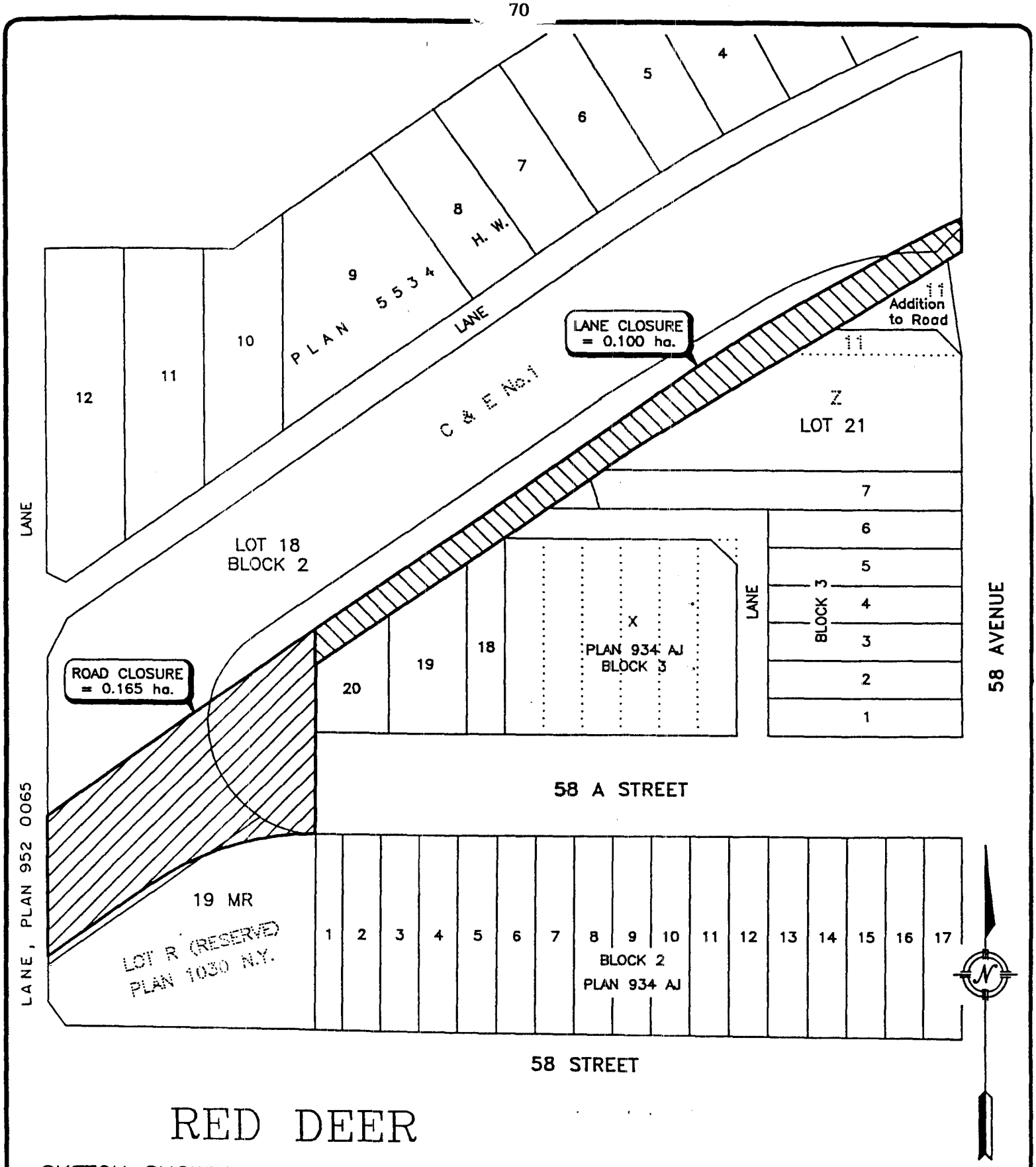
BYLAW NUMBER - 3156/96

AMENDMENTS:

SEE SECTION SIX FOR LANDUSE DISTRICT DEFINITIONS

D11	E11	F11
D10	E10	F10
D9	E9	F9

S.W.¼ -20-38-27-4



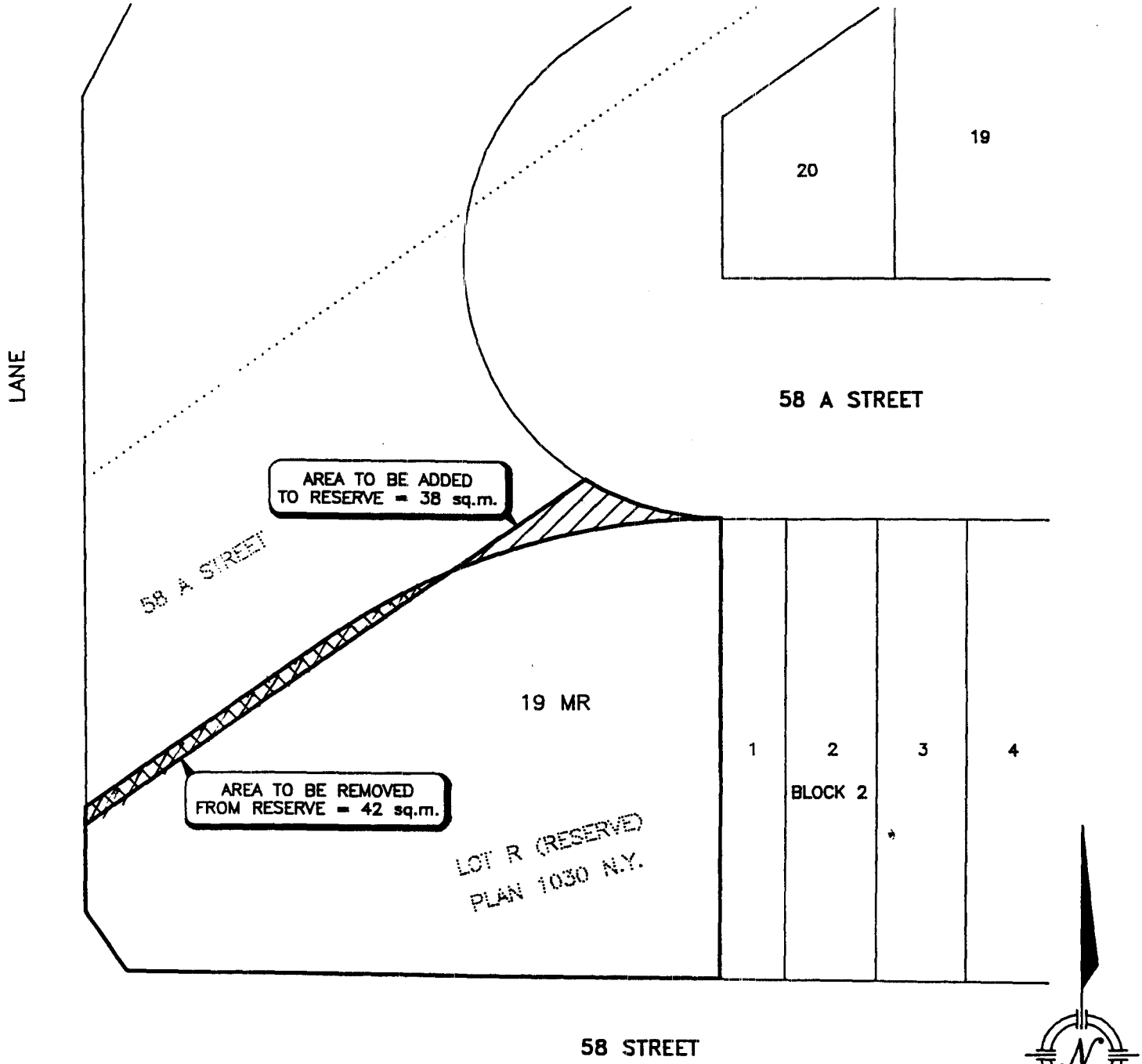
RED DEER

SKETCH SHOWING AREAS OF CLOSURES OF
Part of LANE, PLAN 934 AJ
Part of 58 A STREET, PLAN 1030 NY
IN THE S.1/2 Sec.20–38–27–4

DISTANCES ARE IN METRES AND DECIMALS THEREOF.

SCALE = 1:1000

SNELL & OSLUND SURVEYS (1979) LTD.
RED DEER – ROCKY MOUNTAIN HOUSE
25–175 JULY 16, 1996



RED DEER

SKETCH SHOWING AREAS TO BE ADDED/REMOVED FROM RESERVE

AREA OF LOT R, BLOCK 2, PLAN 1030 NY = 1588 sq.m.
AREA TO BE REMOVED = 42 sq.m.
AREA TO BE ADDED = 38 sq.m.
AREA OF LOT 19MR, BLOCK 2, PLAN 962 _____ = 1584 sq.m.

SCALE = 1:500

SNELL & OSLUND SURVEYS (1979) LTD.
RED DEER – ROCKY MOUNTAIN HOUSE
25–175 JULY 16, 1996

Snell & Oslund Surveys (1979) Ltd.
LAND SURVEYORS AND PROFESSIONAL ENGINEERS
PHONE: (403) 342-1255 FAX: (403) 343-7025

G. OSLUND, A.L.S., P.ENG.
G. B. R. ROSS, A.L.S.
D. VANDENBRINK, A.L.S., P.ENG.

P.O. BOX 610
#2, 5128 - 52 STREET
RED DEER, ALBERTA T4N 5G6

December 18, 1996
File 25-175

City of Red Deer,
Box 5008,
RED DEER, AB.
T4N 3T4

ATTENTION: KELLY KLOSS, CITY CLERK

Dear Sir:

Re: Subdivision of Plan 1030 NY

Further to our conversation of yesterday, please accept this letter as a request for a revision in the description of Road Closure By Law No. 3175/96 and Partial Disposal of Lot R, Plan 1030 NY. We respectfully request that the descriptions be revised as shown on the attached sheets. We will require a certified copy of the amended Road Closure By Law and the amended Partial Reserve Disposal.

The new descriptions contain exactly the same lands as intended in the original Road Closure By Law and Reserve Disposal.

Thank you for your attention to this matter.

Yours truly,

Dirk VandenBrink, A.L.S.,P.Eng.

DV:lt
Encl.
c.c. to Peter Robinson

DATE: **August 27, 1996**

TO: **Land & Economic Development Manager**

FROM: **Assistant City Clerk**

RE: **PARTIAL DISPOSAL OF LOT R (RESERVE),PLAN 1030 NY - LOWER FAIRVIEW, NORTH RED DEER**

At the Council Meeting held on August 26, 1996, following the Public Hearing, Council passed the following resolution relative to the above topic:

> "RESOLVED that Council of The City of Red Deer, having considered the report from the Land and Economic Development Manager dated July 19, 1996, re: Partial Disposal of Lot R (Reserve), Plan 1030 NY, hereby approves the disposal of Municipal Reserve lands described as:
>
> > All that portion of Lot R (Reserve), Plan 1030 NY within the limits of ~~subdivision Plan 962~~ LOT 32, BLOCK 2, PLAN _____ containing 42 square metres more or less excepting thereout all mines and minerals.
>
> and as presented to Council August 26, 1996."

The decision of Council in this instance is submitted for your information and appropriate action.

JEFF GRAVES
Assistant City Clerk

JG/fm

c Director of Development Service

BYLAW NO. 3175/96

Being a Bylaw to close a portion of road in The City of Red Deer as described herein.

NOW THEREFORE THE MUNICIPAL COUNCIL OF THE CITY OF RED DEER, IN THE PROVINCE OF ALBERTA, DULY ASSEMBLED, ENACTS AS FOLLOWS:

1 The following portion of roadway in The City of Red Deer is hereby closed:

> "All that portion of 58A Street as shown on Plan 1030 NY lying east of Plan 952-0065 contained within ~~Lot 18, Block 2~~, Plan ~~962~~ _____, and containing 0.165 hectares more or less, excepting thereout all mines and minerals."

* — Remove reference to Lot 18, Block 2
There is no Lot 18 on revised plan

* — Remove reference to 962, Plan
May be registered in 1997

READ A FIRST TIME IN OPEN COUNCIL this	29	day of July	A.D.1996.
READ A SECOND TIME IN OPEN COUNCIL this	26	day of August	A.D.1996.
READ A THIRD TIME IN OPEN COUNCIL this	26	day of August	A.D.1996.
AND SIGNED BY THE MAYOR AND CITY CLERK this	26	day of August	A.D.1996.

MAYOR

CITY CLERK (ASSISTANT)

CERTIFIED TO BE A TRUE AND CORRECT COPY OF THE ORIGINAL BYLAW.

(ASSISTANT) CITY CLERK

Comments:

We concur with the recommendation of the City Clerk.

"G. D. SURKAN"
Mayor

"H. M. C. DAY"
City Manager

Box 5008
Red Deer, Alberta
T4N 3T4

The City of Red Deer

FILE

Office of the City Clerk

January 14, 1997

Snell and Oslund Surveys
Att: Mr. Dick VandenBrink
#2, 5128-52 Street
Red Deer, AB
T4N 5G6

Dear Sir:

RE: ROAD CLOSURE BYLAW 3175/96 AND PARTIAL DISPOSAL OF LOT R, PLAN 1030 NY (LOWER FAIRVIEW)

At the Council Meeting of January 13, 1997, Road Closure Bylaw 3175/96 and a resolution to dispose of a portion of reserve described as Lot R, Plan 1030 NY, was amended to reflect corrected land descriptions.

At the Council Meeting of January 13, 1997, Road Closure Bylaw 3175/A-97 and the amending Disposal of Reserve resolution were passed. A certified copy of Land Use Bylaw Amendment 3175/A-97 is attached, along with the appropriate declaration for the disposal of municipal reserve. As the actual physical portion of road to be closed and reserve to be disposed of had not changed, re-advertising was not necessary.

Sincerely,

Kelly Kloss
City Clerk

KK/clr
attchs.

c Director of Development Services
Director of Community Services
City Assessor
Land and Economic Development Manager
Principal Planner
Tony Woods, Engineering Department
Council and Committee Secretary, S. Ladwig
Charlaine Rausch, Land Use Bylaw

4914 - 48th Avenue, Red Deer, AB Canada T4N 3T4
Tel: (403) 342-8132 Fax: (403) 346-6195 E-mail: cityclerk@city.red-deer.ab.ca Web: http://www.city.red-deer.ab.ca

FILE

CANADA	)	
	)	**IN THE MATTER OF SECTION 674**
PROVINCE OF ALBERTA	)	
	)	**OF THE MUNICIPAL GOVERNMENT**
TO WIT:	)	
	)	**ACT, 1994, CHAPTER M-26.1**

I, Kelly Kloss, of the City of Red Deer, in the Province of Alberta, DO SOLEMNLY DECLARE:

1. THAT I am the duly appointed City Clerk of The City of Red Deer and its proper designated officer in this behalf.

2. THAT the Council of The City of Red Deer wishes to dispose of a municipal reserve.

3. THAT The City of Red Deer has complied with the provisions of Section 674 of the Municipal Government Act, 1994, Chapter M-26.1.

4. THAT The City of Red Deer, in accordance with Section 675(1) of the Municipal Government Act, requests the removal of the designation of municipal reserve from the lands described as follows:

   "All that portion of Lot R (Reserve), Plan 1030 NY within the limits of Lot 32, Block 2, Plan _____, containing 42 square metres more or less excepting thereout all mines and minerals"

AND I MAKE THIS SOLEMN DECLARATION conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of The Canada Evidence Act.

DECLARED before me at the City of Red Deer, in the Province of Alberta, this 15 day of January, A.D. 1997.	)	KELLY KLOSS, CITY CLERK

A COMMISSIONER FOR OATHS IN AND FOR THE PROVINCE OF ALBERTA

FILE

BYLAW NO. 3175/A-97

Being a bylaw to amend Road Closure Bylaw 3175/96.

NOW THEREFORE THE MUNICIPAL COUNCIL OF THE CITY OF RED DEER, IN THE PROVINCE OF ALBERTA, DULY ASSEMBLED, ENACTS AS FOLLOWS:

That section 1 of Road Closure Bylaw 3175/96 be deleted and the following section 1 be substituted therefor:

"1 The following portion of roadway in the City of Red Deer is hereby closed:

'All that portion of 58 A Street as shown on Plan 1030 NY lying east of Plan 952-0065 contained within Plan _____, and containing 0.165 hectares more or less, excepting thereout all mines and minerals.' "

READ A FIRST TIME IN OPEN COUNCIL this 13 day of January A.D.1997.

READ A SECOND TIME IN OPEN COUNCIL this 13 day of January A.D.1997.

READ A THIRD TIME IN OPEN COUNCIL this 13 day of January A.D.1997.

AND SIGNED BY THE MAYOR AND CITY CLERK this 13 day of January A.D.1997.

MAYOR

CITY CLERK

CERTIFIED TO BE A TRUE AND CORRECT COPY OF THE ORIGINAL BYLAW.

CITY CLERK

AL-TERRA Engineering Ltd.

Consulting Engineering
Edmonton • Red Deer

December 6, 1996

4110-01

City of Red Deer
City Clerk's Department
Box 5008
Red Deer, Alta; T4N 3T4

Attention: Mr. Kelly Kloss, City Clerk

Dear Sir

Re: Deer Park By Melcor Developments Ltd.
Outline Plan Amendment

Melcor Developments Ltd. is requesting another opportunity to have City Council review the outline plan amendment for the remaining undeveloped area of their Deer Park quarter section. For your information with respect to this matter, we are forwarding herewith:

- The revised version of the outline plan for this quarter section.
- The proposed tentative plan of subdivision for Deer Park Phase 7A, which will be the first phase developed in the lands remaining for development.

This same information was submitted to Parkland Community Planning Services, to commence the approval process, on November 20, 1996. Mr. Paul Meyette, A.C.P., M.C.I.P., of Parkland Community Planning Services, suggested nothing would be gained by having another public meeting to review the currently proposed outline plan amendment, since the information relating to this matter was discussed, thoroughly, at the last public meeting, held on October 28, 1996. He therefore suggested we submit the data directly to your department for further processing.

Since the last submission to City Council, for the outline plan amendment, the tentative plan of subdivision, for Deer Park Phase 7A, has been revised, to reduce the number of lots from 28 lots to 26 lots. The decrease in the number of lots, of course, results in increased lot sizes. As illustrated by the tentative plan of subdivision provided for Deer Park Phase 7A:

- All 26 lots are in conformance with the Land Use Bylaw which requires them to be a minimum of 12.00 metres (39.4 feet) wide. In fact, the narrowest lot proposed is 12.80 metres (42.0 feet wide.

NCEA

Central Block Building • #502, 5000 Gaetz Avenue, Red Deer, Alberta • T4N 6C2 • (403) 340-3022 • Fax (403)340-3038

- 20 of the 26 lots are wider than 12.80 metres (42 feet).
- 11 of the 26 lots are 14.63 metres (48 feet) to 15.24 metres (50 feet) wide.

Accordingly, we trust the previous concerns expressed by area residents, about the proposed lot sizes, has been addressed by the revisions made.

We trust you will make the arrangements necessary to have the matter addressed by City Council, and that you will advise when this will occur. Please call at your convenience should you require further information on this matter.

Yours truly

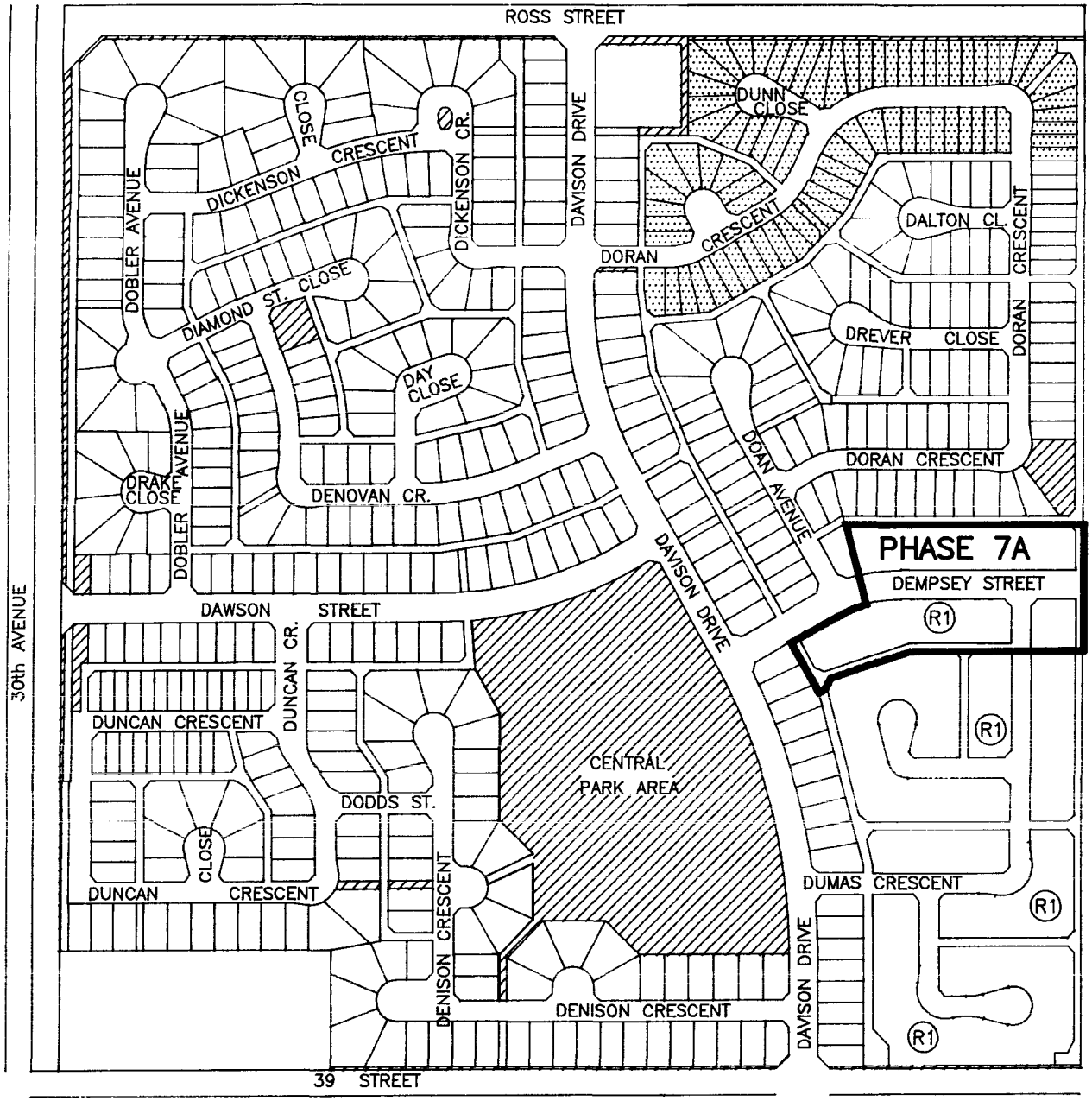
Martin Broks, P. Eng.
Red Deer Manager

c.c. Melcor Developments Ltd.
Attention: Mr. Fred Lebedoff, R.E.T.

Parkland Community Planning Services
Attention: Mr. Paul Meyette, A.C.P., M.C.I.P.

MAB/leb

RED DEER
Deerpark Subdivision Outline Plan Showing a Subdivision of the S.W.1/4 SEC.14–38–27–4 for MELCOR DEVELOPMENTS LTD.



LEGEND & NOTES

MR LOTS SHADED THUS

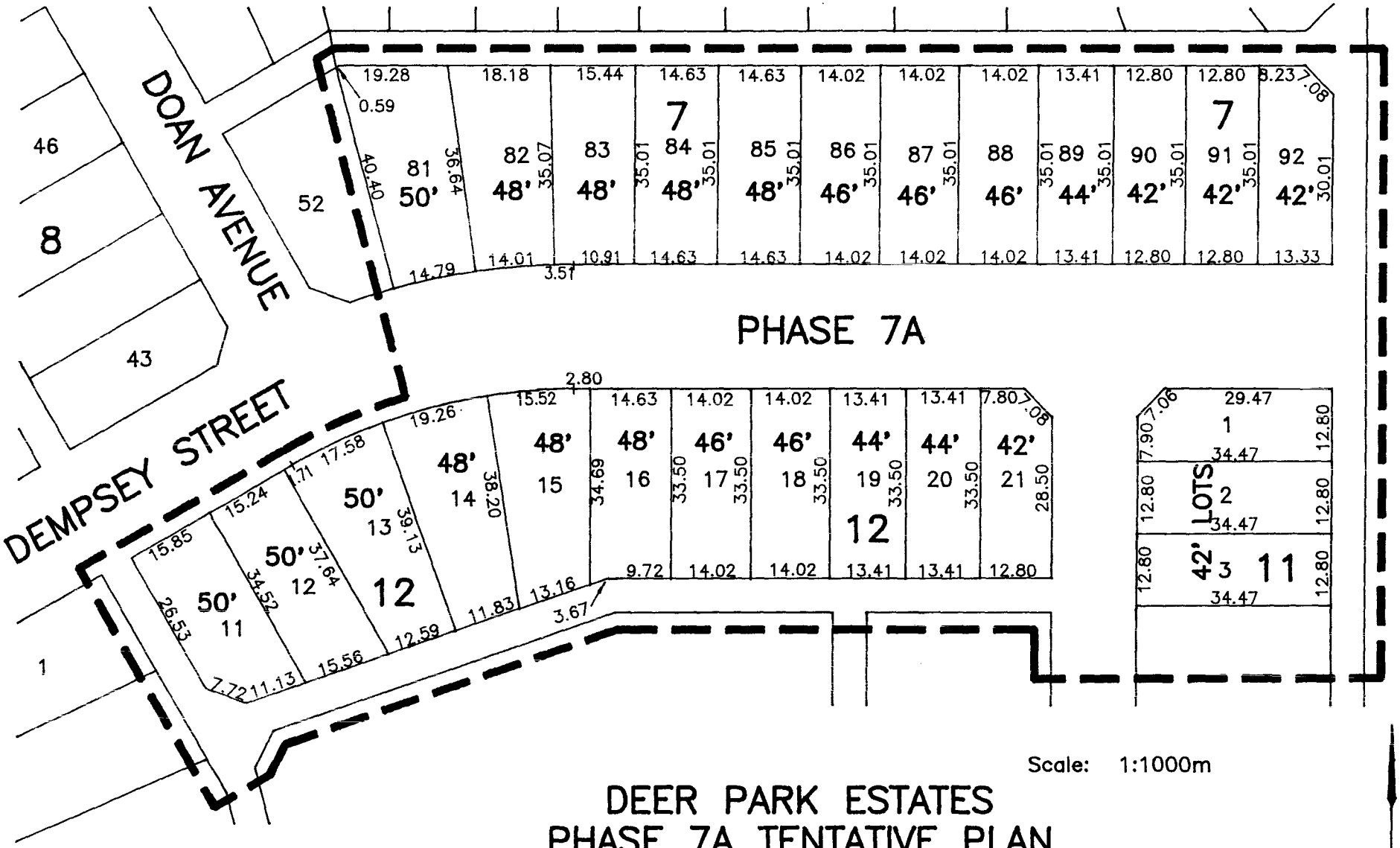
DUPLEX (R1A) LOTS SHADED THUS

SCALE = 1:5000m

N

REVISED: NOV. 20,1996
REVISED: OCT. 29,1996
REVISED: OCT. 25,1996

AL-TERRA
ENGINEERING LTD.
EDMONTON RED DEER



Scale: 1:1000m

DEER PARK ESTATES
PHASE 7A TENTATIVE PLAN

N

PREPARED BY: AL-TERRA ENGINEERING LTD.
AUG. 27, 1996

REVISED: NOV 14/96

NOTES

1. Phase 7A Boundary indicated thus:
2. Existing Deer Park Estates Boundary indicated thus:
3. Frontage at 7.0m setback into lots for Phase 7A is 373.65m OR 1226 Front Feet.
4. Lot yield for Phase 7A is 26 Single Family lots.
5. Imperial lot size shown (ie. 44') is the lot width at 7.0m setback, or in the case of reverse pie lots, at a 23.0m setback.

\PROJS\DEERPK\8X11TNT

Date: October 29, 1996

To: City Council

From: Frank Wong, Planning Assistant

Re: Proposed Amendment - Deer Park Outline Plan
Melcor Developments Limited

Melcor Developments Limited are proposing changes to the existing Deer Park Outline Plan, which was originally adopted by Council in September 1981 and amended in 1991, 1992, and 1994. The proposed changes are required because of the developer's proposal to reduce lot widths from an average of 15 metres (49 feet) to 12.8 metres (42 feet). This will increase the number of lots. An Outline Plan amendment is required because the lot sizes were shown in the existing Outline Plan. This information is not required as part of the City's Outline Plan criteria.

A neighbourhood meeting to discuss the proposed amendment was held on Monday, October 28, 1996 and was attended by four area residents. It was hosted by the Parkland Community Planning Services along with representatives from Melcor Developments Ltd. and Al-terra Engineering Ltd. as well as Councillor Flewwelling.

Developer's Rationale

Mr. Fred Lebedoff of Melcor Developments indicated that changes were necessitated by the changing demographics and market condition and that there is a market for the smaller lots. He also explained that because of the market changes and the fact that the lot lines were not a requirement of the Outline Plan process that they are eliminating the lot lines from the remaining phases of the Plan. Melcor Developments indicates that the minimum house size will remain at 1200 square feet and a double attached garage will be required.

Residents' Response

The area residents comments and concerns were:

- that the developer has recently been altering the original development concept for this neighbourhood. They had understood, when they purchased lots from Melcor approximately seven years ago, that the remainder of the quarter section would be developed to the same standards and lot sizes as their property.
- that the reduced lot sizes would decrease their property value as the smaller lots will restrict the type of house which could be built
- that the elimination of lot lines in future phases would prevent them from having any input as to the lot sizes that will be proposed for land adjacent to theirs
- that the developer's assurance of comparable lot sizes for lots adjacent to the attendees' properties was not acceptable as they do not appear to be binding on the developer

....page 2

Planning Comments

The proposed Outline Plan meets the requirements of the Planning and Subdivision Guidelines of the City of Red Deer; these guidelines do not require that lot lines be shown. The only requirement related to frontage is the minimum lot width of 40 feet in the City's Land Use Bylaw; the Developer is proposing 42 foot widths.

By removing the lot sizing from the Outline Plan, the developer will avoid having to ask Council for an Outline Plan amendment when lot sizes are changed; although this will reduce the residents opportunity to influence lot sizes in the future phases, the removal of lot lines is consistent with most other Outline Plans in the City.

Recommendation

The fundamental question that arises from this issue is whether Council is responsible for enforcing the representations which were made by the Developer to the residents. If Council determines that it has a role, the solution may be to retain larger lot sizes in the Outline Plan adjacent to the existing housing; however lot sizing has not been an area which Council has been involved in the past and had not been a requirement of the Outline Plan Guidelines.

From a planning perspective, there is no objection to the proposal although some attention needs to be paid to the house design to ensure that the required double car garages do not become too predominant in the streetscape (garages will occupy approximately 2/3 of the building frontage facing the street).

Sincerely,

Frank Wong,
Planning Assistant

Att.
Encl..

DEER PARK (MELCOR)

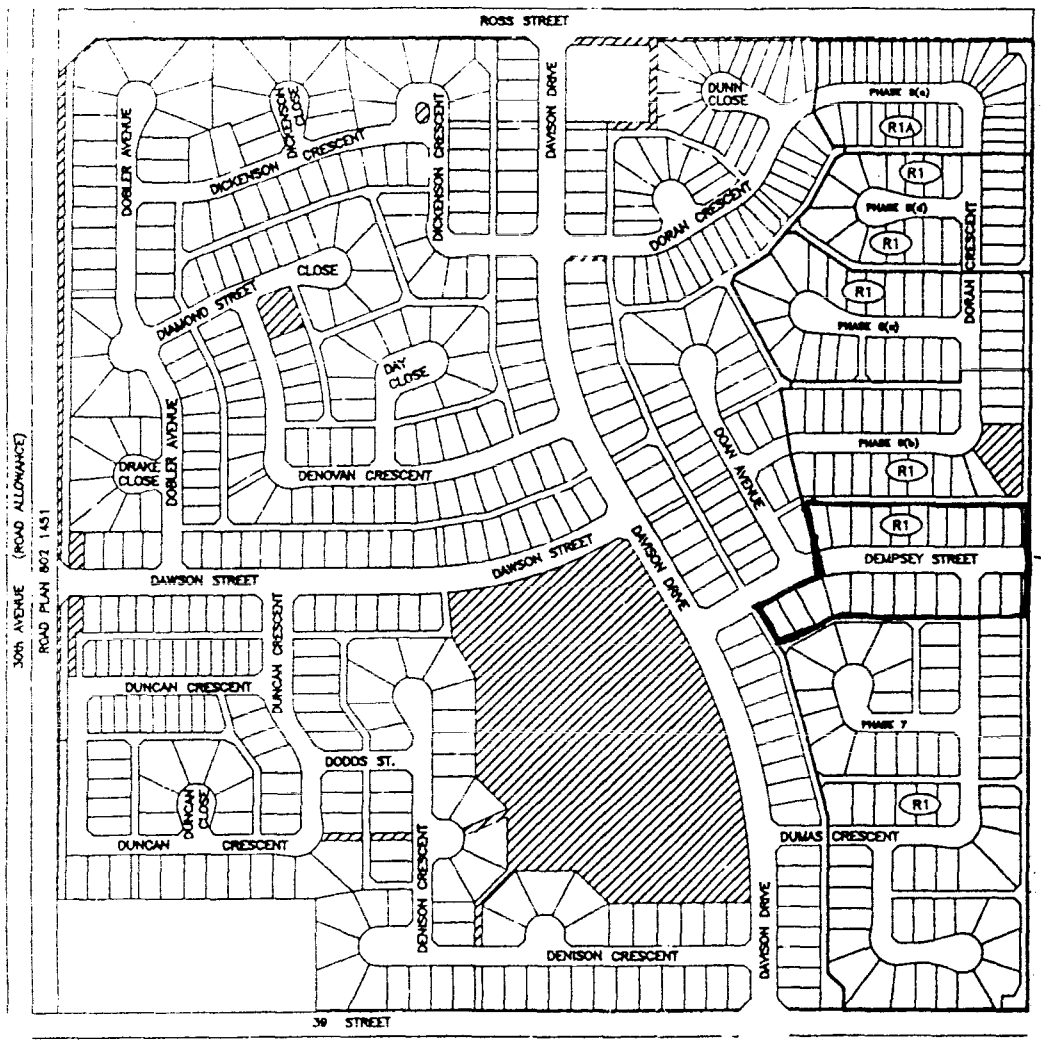
OUTLINE PLAN

ADOPTED BY COUNCIL: SEPT. 28,1981

AMENDED BY COUNCIL: APRIL 15,1991

MARCH 30,1992

JUNE 20,1994



RED DEER
Deerpark Subdivision
Outline Plan
Showing a
Subdivision
of the
S.W.1/4 SEC.14-38-27-4

LEGEND & NOTES

MUNICIPAL RESERVE
TOTAL RESERVE = 6.106 ha.

RESERVE CURRENTLY PLANNED FOR
PHASE 6 = 0.170 ha. 0.43 Acre.

PHASE LIMITS ARE OUTLINED THUS

PHASE NUMBERS ARE INDICATED THUS PHASE 8(a)

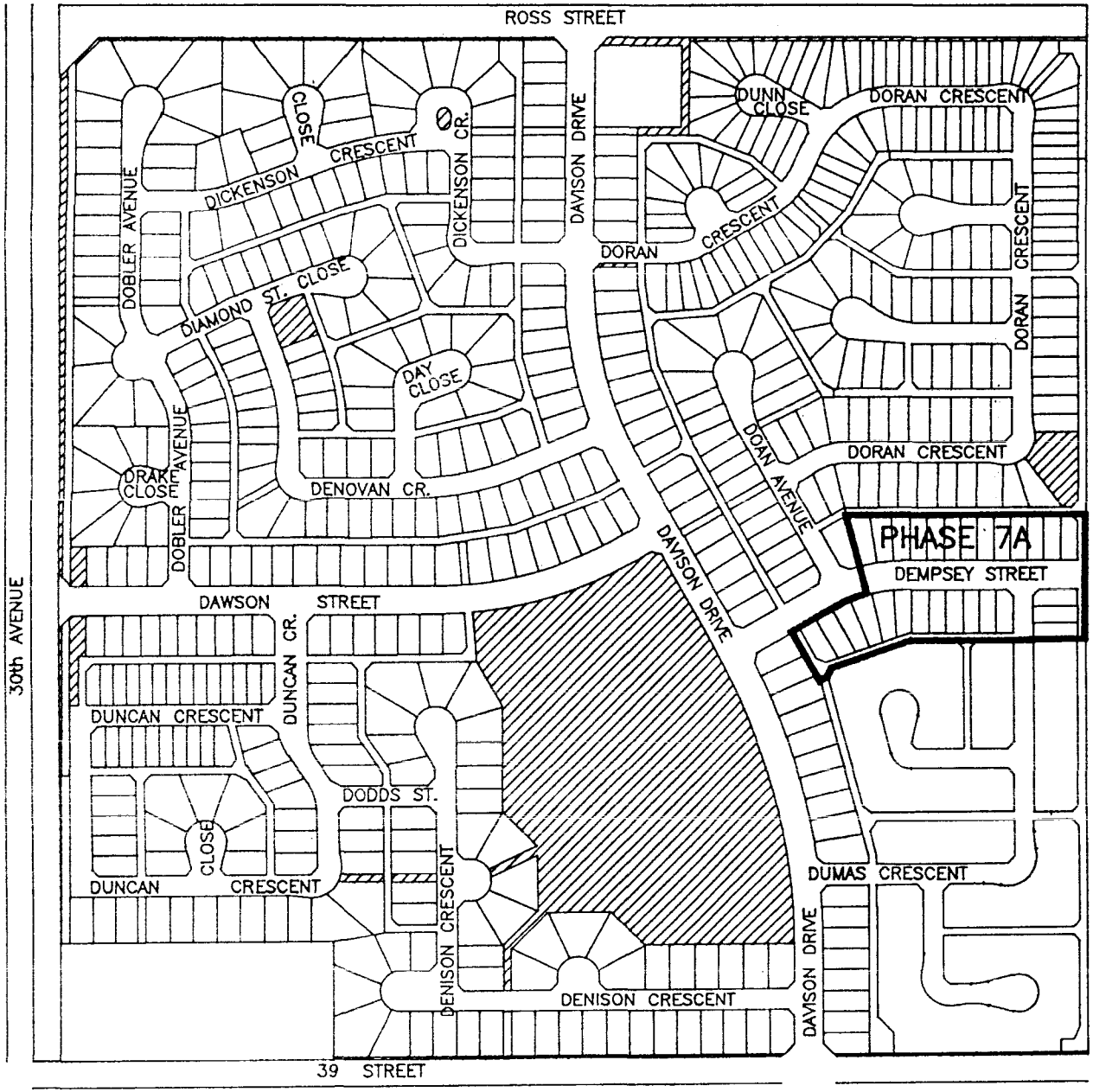
ZONING IS INDICATED THUS (R1A)

Existing Outline Plan

SCALE = 1:4000 BY: A.L.S.

0 40 80 160 240 320 400 Metres

RED DEER
Deerpark Subdivision Outline Plan Showing a Subdivision of the S.W.1/4 SEC.14–38–27–4 for MELCOR DEVELOPMENTS LTD.



LEGEND & NOTES

MR LOTS ARE SHADED THUS

PHASE 7A LOTS ARE OUTLINED THUS

SCALE = 1:5000m

N

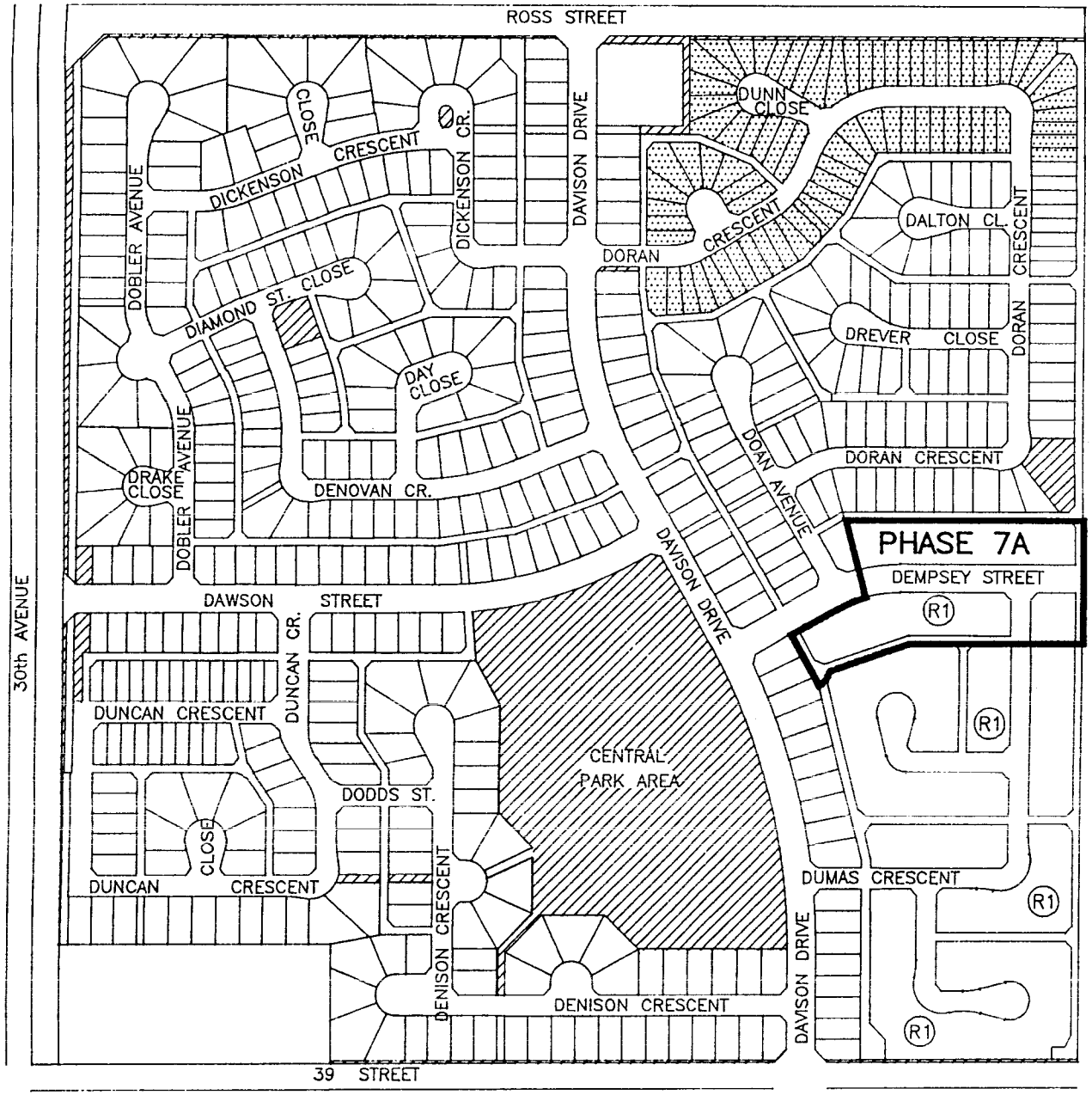
REVISED: OCT. 25,1996

AL-TERRA ENGINEERING LTD.

EDMONTON RED DEER

Previous Proposal

RED DEER
Deerpark Subdivision Outline Plan Showing a Subdivision of the S.W.1/4 SEC.14–38–27–4 for MELCOR DEVELOPMENTS LTD.



LEGEND & NOTES

MR LOTS SHADED THUS

DUPLEX (R1A) LOTS SHADED THUS

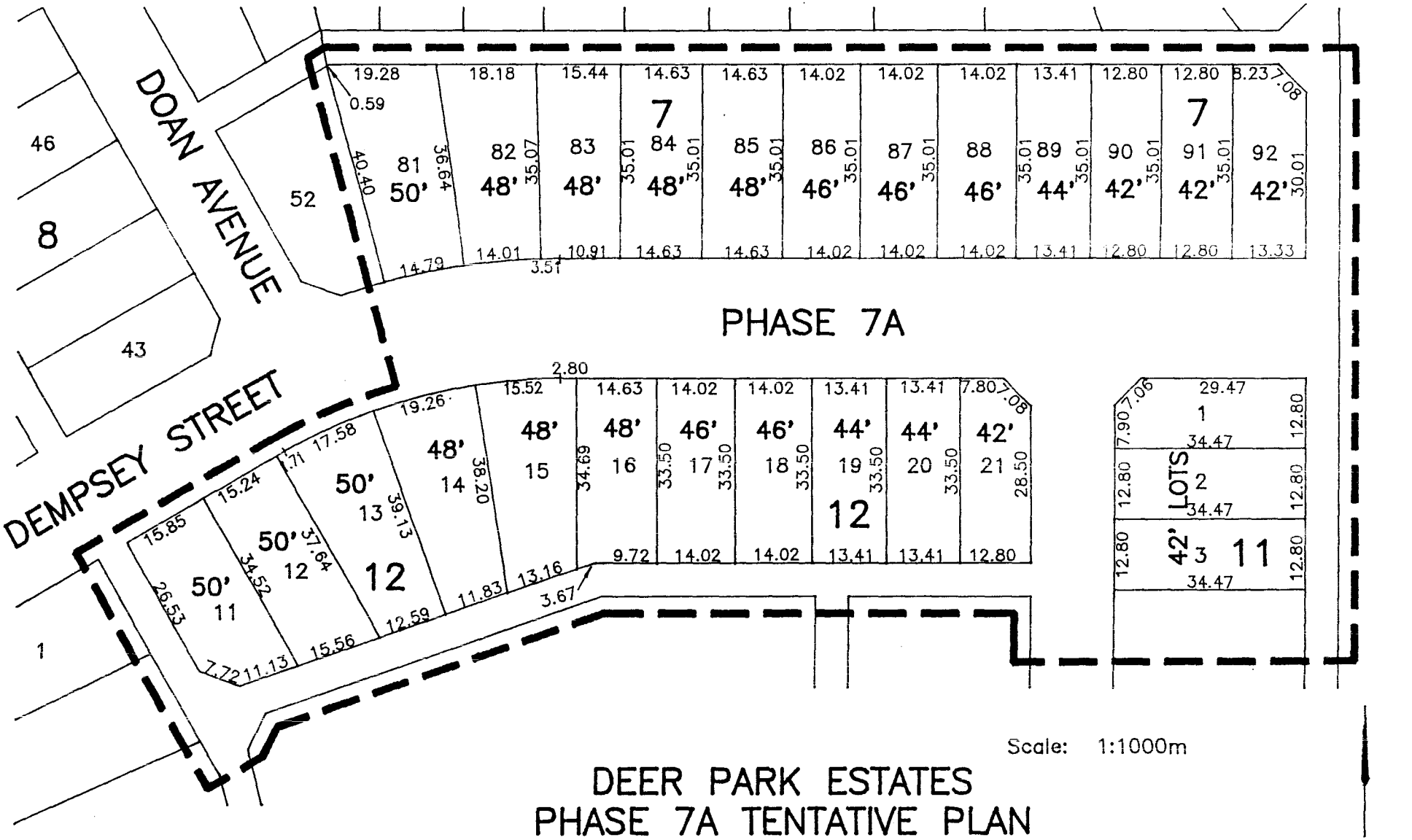
SCALE = 1:5000m

N

REVISED: NOV. 20,1996
REVISED: OCT. 29,1996
REVISED: OCT. 25,1996

AL-TERRA
ENGINEERING LTD.
EDMONTON RED DEER

New Proposal



DEER PARK ESTATES
PHASE 7A TENTATIVE PLAN

PREPARED BY: AL-TERRA ENGINEERING LTD.
AUG. 27, 1996

REVISED: NOV 14/96

New Proposal

NOTES

1. Phase 7A Boundary indicated thus:
2. Existing Deer Park Estates Boundary indicated thus:
3. Frontage at 7.0m setback into lots for Phase 7A is 373.65m OR 1226 Front Feet.
4. Lot yield for Phase 7A is 26 Single Family lots.
5. Imperial lot size shown (ie. 44') is the lot width at 7.0m setback, or in the case of reverse pie lots, at a 23.0m setback.

\PROJS\DEERPK\8X11TNT

PARKLAND
COMMUNITY PLANNING
SERVICES

Suite 500, 4808 Ross Street
Red Deer, Alberta T4N 1X5
Phone: (403) 343-3394
FAX: (403) 346-1570

Date: December 16, 1996

To: Kelly Kloss, City Clerk

From: Frank Wong, Planning Assistant

Re: Al-Terra Engineering Ltd.
Deer Park Outline Plan - Phase 7A - Melcor Developments Ltd.

On November 4, 1996, Council passed the following motion:

"Resolved that Council of the City of Red Deer, having considered report from the Planning Assistant dated October 29, 1996, re: Proposed Amendment - Deer Park Outline Plan / Melcor Developments Ltd., hereby denies the revised Outline Plan for Deer Park Subdivision SW 1/4 14-38-27-4, for Melcor Developments Ltd. as submitted to Council November 4, 1996."

Al-Terra Engineering Ltd., on behalf of Melcor Developments Ltd., is requesting that Council reconsider their decision and has made one amendment to their proposed Outline Plan to partially address Council's concerns.

Planning staff have reviewed the request by Al-Terra, on behalf of Melcor Developments Ltd. and have the following comments:

- the proposed Outline Plan reduces the number of lots in Phase 7A by two from the previous proposal (but is still four lots more than the existing Plan) and eliminates all lotting in the remaining phases

- the increase in some of the lot widths partially addresses the adjacent residents concerns although there are still a few lots at 12.8 metres (42 feet) which may cause some concern in the neighbourhood

- the elimination of lotting in the remaining phases was a major point of contention in the neighbourhood when Council refused the previous Outline Plan amendment

- Planning staff do not feel that enough change had been made to the Outline Plan proposal, which was refused by Council on November 4, 1996 to warrant further public meetings. With the concurrence of the Community Services Director, Melcor Developments Ltd. was advised to go directly to Council to see if Council was prepared to alter their previous decision.

- In order to ensure that the neighbourhood is informed that this issue is being reconsidered by Council, planning staff have distributed a notice to the neighbourhood.

... page 2

Recommendation

Our previous report to Council is attached. As you will note, our office had no objection from a planning perspective; however there were several other issues which Council considered in turning down the previous request for an amendment. Council's further direction is required.

Sincerely,

Frank Wong
Planning Assistant

Attachment

CS-6.160

DATE: **December 10, 1996**

TO: **KELLY KLOSS**
City Clerk

FROM: **LOWELL R. HODGSON**
Community Services Director

RE: **DEER PARK OUTLINE PLAN - PHASE 7-A**

The revised outline plan for the remainder of this quarter section was considered recently by the Deer Park Community Association and City Council, with the issue being that of proposed smaller lots. The contention from the residents was that they saw earlier plans proposing larger lots and their lot purchases were based on that information. They, thus, objected to smaller lots now being proposed. At issue is not just Phase 7-A, but the remainder of the subdivision, as well.

While Melcor Developments Limited has modified this phase from what was earlier presented and has moved closer toward what was shown in an earlier outline plan, they have not shown anything for phases beyond this and, if Council were to approve this revised outline plan, they are at liberty to modify future phases even further. While they may conform to the Land Use Bylaw, the issue is still there for existing residents who saw a different plan and made their decisions to build in Deer Park based on that earlier information.

Deer Park residents have been made aware that this revised plan is coming before City Council, as it was felt there was limited value in presenting this to another community meeting. They have already expressed their concerns and these likely remain with this revised plan, as well.

RECOMMENDATION

THAT Council of The City of Red Deer, having earlier denied amendments to the Deer Park Outline Plan based on earlier presentations made by the developer, again deny this request if it does not show lot sizes for the remainder of the development.

LOWELL R. HODGSON

:dmg

Date: January 5, 1997

To: The Mayor and Council of the City of Red Deer

Re: Al-Terra Engineering Ltd., on behalf of Melcor Developments Ltd.
Proposed Amendment - Deer Park Outline Plan - Phase 7A and Future Phases of the Deer Park Subdivision, as revised November 14 and November 20, 1996

The attached Petition, opposing the proposed amendment to the Deer Park Outline Plan, was circulated to homeowners on Doran Crescent, Doan Avenue and Davison Drive between December 29, 1996 and January 5, 1997. There are 33 occupied homes in the area adjacent to Phase 7A and Future Phases of this subdivision. Fifty-one homeowners were contacted: all are opposed to the proposed amendment and have signed the Petition.

The position of homeowners on this issue remains as presented to Council on November 4, 1996. The present proposed amendment, which creates 26 lots in Phase 7A and eliminates all lot lines in the remaining phases, does not fully address the concerns of adjacent homeowners.

Homeowners believe that the present proposal for Phase 7A does not go far enough to meet standards that are consistent or compatible with existing development in earlier phases or with the original development concept of this subdivision.

The proposal to eliminate all lot lines from the Outline Plan in the remaining phases (south of Phase 7A and east of Davison Drive), is also unacceptable to homeowners. Homeowners have not received any satisfactory explanation as to why the proposal to eliminate lot lines from the Outline Plan is being made at this time, and adjacent homeowners definitely believe they should be able to have some input when future development is planned in the remaining phases of this subdivision.

Homeowners are requesting that the lot lines remain on the Outline Plan, and that the Existing Outline Plan, last amended by Council June 20, 1994, remain unchanged.

Sincerely,

B. Rath

Benjamin Rath
123 Davison Drive

Attachment

cc Mr. Frank Wong, Planning Assistant
Parkland Community Planning Services

PETITION

TO THE MAYOR AND COUNCIL OF THE CITY OF RED DEER:

Re: Al-Terra Engineering Ltd.
Proposed Amendments to Deer Park Outline Plan
Phases 7A, 7B, 7C, and 7D - Melcor Developments Ltd.

We, the undersigned, are opposed to the proposed amendments to the Outline Plan, as revised on November 14 and November 20, 1996 and which include:

1. increasing the number of lots in Phase 7A from 22 to 26.

2. eliminating all lot lines in Phases 7B, 7C, and 7D (the undeveloped area south of Phase 7A and east of Davison Drive), which would prevent adjacent homeowners from voicing their opinions on future development plans for the area.

We are requesting that the Mayor and Council not amend the Existing Outline Plan, which was last amended and approved by Council June 20, 1994; the number of lots in Phase 7A should remain at 22, and all lot lines in the remaining phases should remain on the Outline Plan.

CONTACT PERSON: Benjamin Rath PHONE NO.: 340-0182

SIGNATURE OF REGISTERED OWNER OR ASSESSED OWNER	COMPLETE MUNICIPAL ADDRESS	PRINTED NAME OF REGISTERED OWNER OR ASSESSED OWNER
Brian A. Adair	127 DAVISON DR, R.D.	BRIAN A. ADAIR
Joan Adair	127 DAVISON DR.	JOAN ADAIR
[illegible]	83 DAVISON DR, RD	KEN ROBINSON
Sonja Robinson	83 Davison Dr. R.D.	SONJA ROBINSON
Irvine Hill	95 Davison Dr. R.D.	IRVINE HILL
Janice Hill	95 Davison Dr. R.D.	Janice Hill
Cecil Christians	107 Davison Dr R.D	CECIL CHRISTIANS
Lisa Christians	107 Davison Dr R.D	LISA CHRISTIANS
Debbie Anderson	103 Davison Dr.	DEBBIE ANDERSON
[illegible]	103 DAVISON DR.	CHRIS ANDERSON
Fred Higginson	99 Davison Drive	FRED HIGGINSON
[illegible]	99 - DAVISON DR.	LUZ HIGGINSON

PETITION

TO THE MAYOR AND COUNCIL OF THE CITY OF RED DEER:

Re: Al-Terra Engineering Ltd.
Proposed Amendments to Deer Park Outline Plan
Phases 7A, 7B, 7C, and 7D - Melcor Developments Ltd.

We, the undersigned, are opposed to the proposed amendments to the Outline Plan, as revised on November 14 and November 20, 1996 and which include:

1. increasing the number of lots in Phase 7A from 22 to 26.

2. eliminating all lot lines in Phases 7B, 7C, and 7D (the undeveloped area south of Phase 7A and east of Davison Drive), which would prevent adjacent homeowners from voicing their opinions on future development plans for the area.

We are requesting that the Mayor and Council not amend the Existing Outline Plan, which was last amended and approved by Council June 20, 1994; the number of lots in Phase 7A should remain at 22, and all lot lines in the remaining phases should remain on the Outline Plan.

CONTACT PERSON: Benjamin Rath PHONE NO.: 340-0182

SIGNATURE OF REGISTERED OWNER OR ASSESSED OWNER	COMPLETE MUNICIPAL ADDRESS	PRINTED NAME OF REGISTERED OWNER OR ASSESSED OWNER
Ron Pettit	147 DAVISON DR	RON PETTIT
Carolyn Phillips	143 DAVISON DR	CAROLYN PHILLIPS
Renee White	131 DAVISON DR	RENEE WHITE
Mable Rath	123 DAVISON DR	MABLE RATH
Gerry Mitchell	3 DOAN AVE	GERRY MITCHELL
Merle E. Brandvold	14 Doan Ave.	Merle Brandvold
Rose Siebeneich	43 Doran Cres.	Rose Siebeneich
Barclay White	131 Davison Dr	Barclay White
Bernie Erker	135 Davison Dr.	BERNIE ERKER
R. Dwayne Talor	35 Doran Cresc.	R. Dwayne Lalor
L. Anderson	55 Doran Cres.	L. & K. Anderson
Deb Banske	51 Doran Cres.	Debbie Banske.

PETITION

TO THE MAYOR AND COUNCIL OF THE CITY OF RED DEER:

Re: Al-Terra Engineering Ltd.
Proposed Amendments to Deer Park Outline Plan
Phases 7A, 7B, 7C, and 7D - Melcor Developments Ltd.

We, the undersigned, are opposed to the proposed amendments to the Outline Plan, as revised on November 14 and November 20, 1996 and which include:

1. increasing the number of lots in Phase 7A from 22 to 26.

2. eliminating all lot lines in Phases 7B, 7C, and 7D (the undeveloped area south of Phase 7A and east of Davison Drive), which would prevent adjacent homeowners from voicing their opinions on future development plans for the area.

We are requesting that the Mayor and Council not amend the Existing Outline Plan, which was last amended and approved by Council June 20, 1994; the number of lots in Phase 7A should remain at 22, and all lot lines in the remaining phases should remain on the Outline Plan.

CONTACT PERSON: Benjamin Rath PHONE NO.: 340-0182

SIGNATURE OF REGISTERED OWNER OR ASSESSED OWNER	COMPLETE MUNICIPAL ADDRESS	PRINTED NAME OF REGISTERED OWNER OR ASSESSED OWNER
Ron Erker.	135 DAVISON DR.	RON ERKER.
Marie Pettit	147 Davison Dr.	Marie Pettit
Grant Peterson	151 Dr	Grant Peterson
Rev Peterson	151 Davison Dr	Rev Peterson
T.J. Triomphe	159 Davison Dr.	Teeny J. Triomphe
[illegible]	159 Davison Dr.	Douglas C. McClay
Barry Lakusta	119 DAVISON DR.	BARRY LAKUSTA
Brenda Lakusta	119 DAVISON Dr.	Brenda Lakusta.
Steven Sidoritsch	79 DAVISON DR.	Steven Sidoritsch
[illegible] Corlett	91 DAVISON DR	E. MARION CORLETT
[illegible]	139 Davison Dr.	Kelly Rawley
W. Rawley	139 Davison Dr.	William Rawley

PETITION

TO THE MAYOR AND COUNCIL OF THE CITY OF RED DEER:

Re: Al-Terra Engineering Ltd.
Proposed Amendments to Deer Park Outline Plan
Phases 7A, 7B, 7C, and 7D - Melcor Developments Ltd.

We, the undersigned, are opposed to the proposed amendments to the Outline Plan, as revised on November 14 and November 20, 1996 and which include:

1. increasing the number of lots in Phase 7A from 22 to 26.

2. eliminating all lot lines in Phases 7B, 7C, and 7D (the undeveloped area south of Phase 7A and east of Davison Drive), which would prevent adjacent homeowners from voicing their opinions on future development plans for the area.

We are requesting that the Mayor and Council not amend the Existing Outline Plan, which was last amended and approved by Council June 20, 1994; the number of lots in Phase 7A should remain at 22, and all lot lines in the remaining phases should remain on the Outline Plan.

CONTACT PERSON: Benjamin Rath PHONE NO.: 340-0182

SIGNATURE OF REGISTERED OWNER OR ASSESSED OWNER	COMPLETE MUNICIPAL ADDRESS	PRINTED NAME OF REGISTERED OWNER OR ASSESSED OWNER
	43 DORAN CR. T4R 2P4	KLAUS SIEBENEICH
	31 Doran Cres	W Forrest
	31 Doran Cres	Erica Forrest
	10 DOAN ~~CRES~~ AVE	BRAD WHEELER
	10 DOAN AVE	CARRIE WHEELER
	115 DAVISON DR.	DEANNA HANRAHAN
	27 Doran Cres.	Susan Odegard
	59 Doran Cres	SUSAN Waters
	59 DORAN Cres.	DAN WATERS
	115 Davison Dr.	Dean Hanrahan
	6 DOAN AVE	CARRIE DEGRAAF
	6 DOAN AVE	PETER DEGRAAF

PETITION

TO THE MAYOR AND COUNCIL OF THE CITY OF RED DEER:

Re: Al-Terra Engineering Ltd.
Proposed Amendments to Deer Park Outline Plan
Phases 7A, 7B, 7C, and 7D - Melcor Developments Ltd.

We, the undersigned, are opposed to the proposed amendments to the Outline Plan, as revised on November 14 and November 20, 1996 and which include:

1. increasing the number of lots in Phase 7A from 22 to 26.

2. eliminating all lot lines in Phases 7B, 7C, and 7D (the undeveloped area south of Phase 7A and east of Davison Drive), which would prevent adjacent homeowners from voicing their opinions on future development plans for the area.

We are requesting that the Mayor and Council not amend the Existing Outline Plan, which was last amended and approved by Council June 20, 1994; the number of lots in Phase 7A should remain at 22, and all lot lines in the remaining phases should remain on the Outline Plan.

CONTACT PERSON: Benjamin Rath PHONE NO.: 340-0182

SIGNATURE OF REGISTERED OWNER OR ASSESSED OWNER	COMPLETE MUNICIPAL ADDRESS	PRINTED NAME OF REGISTERED OWNER OR ASSESSED OWNER
Tanya Herman-Howarth	#71 Doran Cres R.D.	TANYA HERMAN-HOWARTH
Doug Ganske	#51 Doran Cres.	DOUG GANSKE.
B. Rath	123 DAVISON DR:	BEN RATH.

DEER PARK (MELCOR)

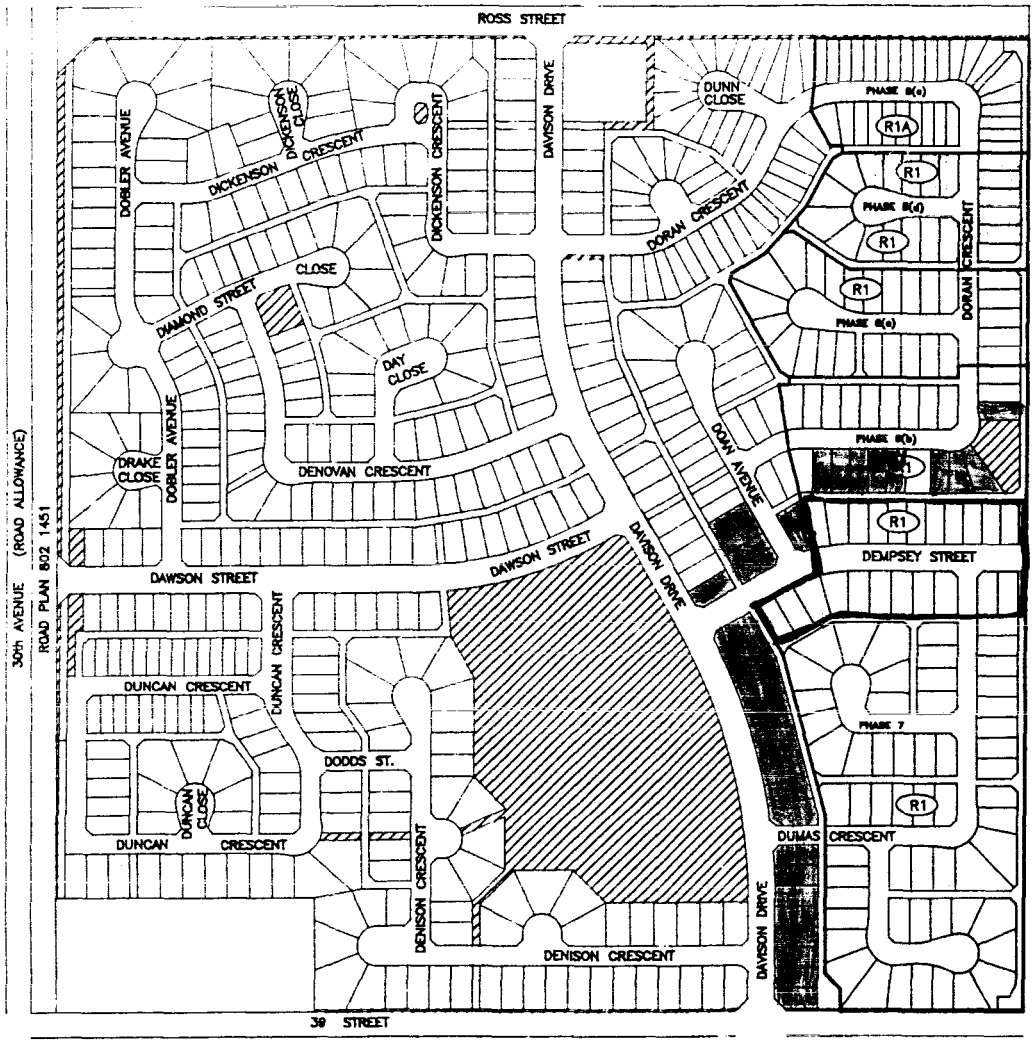
OUTLINE PLAN

ADOPTED BT COUNCIL: SEPT. 28,1981

AMENDED BY COUNCIL: APRIL 15,1991

MARCH 30,1992

JUNE 20,1994



RED DEER
Deerpark Subdivision
Outline Plan
Showing a
Subdivision
of the
S.W.1/4 SEC.14-38-27-4

LEGEND & NOTES

MUNICIPAL RESERVE
TOTAL RESERVE = 6.106 ha.

RESERVE CURRENTLY PLANNED FOR
PHASE 6 = 0.170 ha. 0.43 Acs.

PHASE LIMITS ARE OUTLINED THUS

PHASE NUMBERS ARE INDICATED THUS PHASE 8(a)

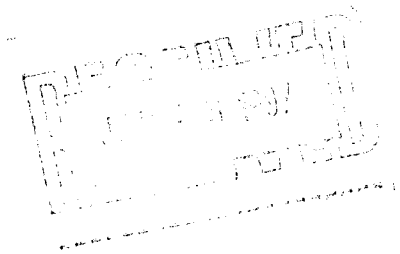
ZONING IS INDICATED THUS (R1A)

- SHADED AREA REPRESENTS LOCATION OF OCCUPIED RESIDENCES INCLUDED IN PETITION

SCALE = 1:4000 BY: A.L.S.

0 40 80 160 240 320 400 Metres

17,984 January 2, 1997



Parkland Community Planning Services
Suite 500, 4808 Ross Street
RED DEER, Alberta.
T4N 1X5

ATTENTION: MR. FRANK WONG,
Planning Assistant

Dear Sir:

Re: Al-Terra Engineering Ltd.
Deer Park Plan Phase 7A
(Melcor Developments Ltd.)

Thank you for your letter and enclosures of December 19th, 1996, in respect to the above-noted matter which, in my opinion, simply represents an attempt by Melcor to reverse City Council's decision pertaining to the same issue of November 4th, 1996.

This new proposal by Melcor, except for a minor variation in terms of total lots, is essentially identical to their proposal rejected by City Council on November 4th, 1996. The facts and circumstances of the earlier proposal are the same pertaining to this new proposal. The facts and issues that were relevant previously have not changed even though Melcor's objective at this time is only at slight variance with its earlier proposal. There is no "new" information to present for Council's consideration.

As indicated, this "new" proposal is, in effect, an appeal of Council's decision of November 4th, 1996, in the absence of any new facts or evidence, which, in itself, attempts to circumvent the usual appeal process. The totality of Melcor's objective at this point varies only marginally from what Council has already ruled.

I am emphatically opposed to this "new" amendment, and opposed to detailing all my objections, I refer you to copies of my earlier responses to Melcor's objectives, dated October 29th, 1996 and October 24th, 1996, which are enclosed.

What I personally find particularly offensive about Melcor's strategy is to apparently offer a token appeasement to the residents of the area

...2/

immediately affected, and deflect attention away from the larger issue, that being the **total** elimination of lot delineations in the area south of 7A to the east of Davison Drive. If Melcor is successful in this aspect of its proposed amendments, Melcor never will need to obtain the approval of the residents along Davison Drive for **any** future development in this area. This would result in Melcor's total abdication of its contractual obligations to existing residents in this area plus a total disregard for the rights of these same taxpayers who reside along this area.

At the risk of appearing impertinent, Council should consider that when the original plan for Deerpark was conceived and passed by City Council repeatedly in the past years, certain facts and representations would then have been made by Melcor to the Council to obtain approval. The rules of this development were then established and acted upon by area taxpayers who then paid premium dollars to build in this subdivsion. I, for one, and I am aware of many others who did so as well, reviewed this development plan, that already was delineated as to lots, prior to making my purchase. Any changes in these rules would create significant unfairness to those of us who purchased on the strength of Melcor's assurances and representations and City Council's sanctioning of this development.

Please note that I wish to address City Council regarding Melcor's proposal.

Yours very truly,

BRIAN A. ADAIR

BAA.sm
Encls.

From: Brian A. Adair
127 Davison Drive
RED DEER, Alberta.
T4R 2E7

Home Phone - 342-2752
Business Phone - 342-1777

HAND DELIVERED

File: 17,984 October 29, 1996

The Council of the City of Red Deer
P. O. Box 5008
RED DEER, Alberta.
T4N 3T4

COPY

TO: The Mayor and Council
Parkland Community Planning Services

Re: Proposed amendments to Bylaw 3156/M-96
Melcor Deer Park Phase 7A

Further to my last correspondence to the Mayor and Council, dated October 24th, 1996, and my attendance at a public forum hosted by the Parkland Community Planning Services at Holy Family School on October 25th, 1996, I, once again, voice my opposition to the above-noted issue. To be specific, while I have no opposition to the land-use amendment to R1, I do have strenuous objection to the developer's intention to increase the number of building lots from the original plan of 22 to 28. In addition, I have an even stronger opposition to the developer's other plan to re-design the undeveloped land south of Dempsey Street to 39th Street that is adjacent to the Radski section. It would be my position that Concil maintain and enforce the plan for these two areas that was passed by Council on June 20th, 1994. A copy of that particular plan is attached as Exhibit "A".

If I might digress for a moment, and as I referred to in my earlier correspondence of October 24, 1996, when I originally purchased my property from this developer approximately 6 to 7 years ago, it was clearly and specifically represented to me that the plan envisioned by Exhibit "A" would be maintained. This particular subdivision and the area of my lot would be particularly upscale, for which I paid premium dollars. Since the date of purchase and through to the present time, I have made a substantial investment in this property and pay premium tax dollars due to my location. I have confirmed that many of my neighbors were provided the same representations and assurances from this developer.

At the public forum regarding this matter on October 28th, 1996, I was advised by the developer that, due to market conditions and demographic expectations, the developer had a necessity to change its plans,

...2/

not only for Phase 7A but potentially, as well, for the area just south of Phase 7A as previously described herein. As I understand the proposal, not only is there to be an increase in the number of marketable lots within Plan 7A, but the developer hopes to amend Exhibit "A" by eliminating all lot delineations whatsoever. In other words, as far as the latter issue is concerned, the plan to be approved by Council, save for the layout of roadways, will essentially be blank. If this is approved by Council, the developer can thereafter proceed with any kind of development without the necessity of a public forum. In effect, in the absence of any guarantees by the developer, it can dictate, with impunity, the layout of this area. This results in a complete derogation from the original plan which was used to induce my original purchase. Furthermore, this usurps Council's ability to regulate development, but more significantly from my perspective, besides avoiding a contractual obligation, deprives me of my opportunity to address the issue of future development. There is a very serious issue in these circumstances regarding the right to be heard.

At the meeting of October 28th, 1996, it was stated by the developer that the original plan of September 29th, 1981, had to be altered due to changing demands from its customers, that it was affected by market conditions and demographic changes. All of this may be true, but does not provide a justification for altering the original plan for the subdivision especially when that same plan was a also a marketing device. I, and others, relied upon that original plan in making our decisions to purchase in the subdivision. That plan contained the lot delineations as shown on Exhibit "A". If the developer's position is correct, the question then becomes an issue as to which party is to bear the cost. While the developer at this meeting admitted that the lot delineations should not have been shown at the time of purchase, is this an error that ultimately becomes the problem for the purchaser? *

Further to the developer's plan to file an unplotted scheme for that area south of Phase 7A, it was also suggested that there was a proposal to build duplexes south of Phase 7A along the east boundary adjacent to the Radski section. Whether this is true or not is not the question. While this would be in complete opposition to the original plan, if the developer has its way, I, and my neighbors will have absolutely no input into this decision. While I have no dispute that this area can be designated R1, I maintain my strenuous objection as to the method by which this area can be developed and to its content.

Specifically, in respect to Phase 7A, and the developer's intention to increase the number of saleable lots, I remain unconvinced that, with the reduction in size of these lots, it can be realistically expected that the architectural standards previously required and enforced by the developer, at increased cost to myself, can possibly be maintained. The vast majority of these "new lots" are in the range of approximately

...3/

42 feet. To build the size and type of homes require by the architectural controls together with double-attached garages is simply not compatible with these restrictions. I suspect that, for this reason as well as others, there will be a number of requests for by-law relaxations. In addition, there will be an increase in population density with corollary parking problems on a roadway that is to be a feeder line. Also, if the homes to be built comply with these same architectural controls, the aesthetics of the area will be severely compromised by the congestion. Perhaps a variety of lot sizes would best suit the original design concept for this entire area.

Attached as Exhibit "B" is the developer's proposal for Phase 7A and the area south of Phase 7A that I received, for the first time, at the public meeting on October 28th, 1996. It was the first time I was aware that the developer intended to re-file on the area south of Phase 7A by eliminating all references to the original plan. If passed by Council, public in-put will be eliminated and the developer can proceed in its own fashion. This is a complete derogation from the developer's contract with myself.

In conclusion, there are two major issues pertaining to my representations. One is contractual, and the other concerns the actual development of this particular subdivision. In respect to both matters, the question we are concerned with is not simply the development of land for residential purposes, but the concept of how that land is to be developed. In this particular situation, the issue is the fashion by which that land is presented to the purchasing public and the level of committment to that concept by the parties concerned. Despite the possible intervention of changed circumstances, the effect of which may bring pressure on that concept, there remains an obligation to comply and fulfill those same committments.

Please consider my request to be heard before Council when this issue is presented for debate.

Yours truly,

BRIAN A. ADAIR
127 Davison Drive
RED DEER, Alberta.
T4R 2E7

Home phone - 342-2752
Business phone - 342-1777

BAA.sm
Encls.

17,984 October 24, 1996

The Council of the City of Red Deer
P. O. Box 5008
RED DEER, Alberta.
T4N 3T4

COPY

TO THE MAYOR AND COUNCIL:

Re: By-Law 3156/M-96 - Melcor Deer Park Phase 7A

I am forwarding to your attention the within correspondence to voice my objection to the proposal of Melcor Developments Ltd., not to change the designation of the subject Phase to R1 (single family residence), but their agenda to reduce the size of the lots proposed for this new phase.

I have also read Mr. Ben Rath's letter to Council dated October 7th, 1996 in its entirety, a copy of which is attached hereto, and can confirm the specifics that he details therein.

Approximately six years ago, I too purchased a lot from Melcor Developments Ltd. based upon clear representations and promises from their representatives that Deer Park would be an upscale subdivision for which I, together with Mr. Rath and others, paid premium dollars. Melcor promised to develop the area with single larger-than-average lots, and strict architectural controls. In fact, during construction of my residence, I was required to place funds on deposit with Melcor Developments Ltd., to be refunded upon compliance with these same controls. While I, Mr. Rath and others, complied with our requirements, it appears from Melcor's new proposal that there is, once again, an attempt to vary from the original design concept.

In my perspective, the proposal to add more lots to the next phase is a unilateral attempt to vary the original design and plan for Deer Park without consultation with the members of our community, particularly those orginal purchasers who had previously contracted with Melcor on very specific terms. As stated by Mr. Rath, not only will density levels change, with consequent increased levels of traffic, but more significantly, the overall design and appearance will be altered. Furthermore, if attempts are made to comply with the original "architecturally controlled" plans, there are likely to be many applications to relax easements and building restrictions to comply with the smaller lots.

In point of fact, Melcor's proposal certainly had the appearance of varying from the original concept and contract. As indicated, certain representations were made to original purchasers to maintain a certain

level of architectural controls and appearance. There was an original plan and design concept for the Deer Park subdivision that, at one time, was approved, as well, by the City of Red Deer. A plan is approved and marketed then on the basis of the representations contained within that plan. Later on in the development phases, changes are requested at the request of the developer. In my opinion, this should not, in general, be an acceptable practice. There must be consultation regarding changes between the developer, the City as well as the residents.

Therefore, before final approval is granted to increase the number of lots in the new phase, I would ask, on my behalf as well as some other residents, that a public forum be scheduled with notice to the nearby residents to discuss the new proposal.

Yours very truly,

BRIAN A. ADAIR
127 Davison Drive
RED DEER, Alberta.

BAA.sm
Encl.

P.C. PARKLAND COMMUNITY PLANNING SERVICES

HAND DELIVERED

File: 17,984

October 29, 1996

The Council of the City of Red Deer
P. O. Box 5008
RED DEER, Alberta.
T4N 3T4

COPY

TO: The Mayor and Council
Parkland Community Planning Services

Re: Proposed amendments to Bylaw 3156/M-96
Melcor Deer Park Phase 7A

Further to my last correspondence to the Mayor and Council, dated October 24th, 1996, and my attendance at a public forum hosted by the Parkland Community Planning Services at Holy Family School on October 25th, 1996, I, once again, voice my opposition to the above-noted issue. To be specific, while I have no opposition to the land-use amendment to R1, I do have strenuous objection to the developer's intention to increase the number of building lots from the original plan of 22 to 28. In addition, I have an even stronger opposition to the developer's other plan to re-design the undeveloped land south of Dempsey Street to 39th Street that is adjacent to the Radski section. It would be my position that Concil maintain and enforce the plan for these two areas that was passed by Council on June 20th, 1994. A copy of that particular plan is attached as Exhibit "A".

If I might digress for a moment, and as I referred to in my earlier correspondence of October 24, 1996, when I originally purchased my property from this developer approximately 6 to 7 years ago, it was clearly and specifically represented to me that the plan envisioned by Exhibit "A" would be maintained. This particular subdivision and the area of my lot would be particularly upscale, for which I paid premium dollars. Since the date of purchase and through to the present time, I have made a substantial investment in this property and pay premium tax dollars due to my location. I have confirmed that many of my neighbors were provided the same representations and assurances from this developer.

At the public forum regarding this matter on October 28th, 1996, I was advised by the developer that, due to market conditions and demographic expectations, the developer had a necessity to change its plans,

...2/

RED DEER CITY COUNCIL JAN. 3 1997

RE. AL-TERRA ENGINEEEING LTD. proposed outline plane of Phase 7A and Future Phases of the DEER PARK SUBDIVISION on behalf of MELCOR DEVELOPMENTS LTD.

We are opposded to this proposed plan and elimination of al lotting in the remaining phases.

PLEASE NO CHANGES TO THE EXISTING OUTLINE PLAN.

CECIL & ELIZABETH CHRISTIANS
107 DAVISON DR.
RED DEER AB.
T4R 2E8.

Cecil Christians
Elizabeth Christians

M E M O R A N D U M

DATE: December 23, 1996

TO: Frank Wong, Planning Assistant
Parkland Community Planning Services

FROM: Teeny Triomphe, Deer Park Resident

RE: Deer Park Outline Plan - Phase 7A - Melcor Developments Ltd.
Proposed amendment

The amendment to Deer Park Plan - Phase 7A proposed by Al-Terra Engineering Ltd., on behalf of Melcor Developments, is not acceptable. Although they have offered two additional lots and have made the lots on the west end of the area larger, the lots at the east end are extremely small. 42' lot widths are too small, especially for corner lots. What type of house can be built on a lot like that? One that is only about 27' wide? This neighborhood has built a positive reputation for having nice homes and following strict architectural controls (such as attached garages on all homes). Making the lots in Phase 7A smaller will lead to the type of housing that is currently on the south side of Dawson Street and the north part of Duncan Crescent, thereby reducing the value of the homes close to them. The original plan for Phase 7A should be retained.

The area south of Phase 7A should also stay as originally planned. Residents in this neighborhood bought homes with the understanding that the quality and architectural controls that applied to the existing homes would be applied to the entire area. The original proposed subdivision of this area reflected this level of quality and should remain.

How can you take a neighborhood that has been carefully planned to reflect a certain style, and has been marketed as such, and then later let the developer change the design layout and density because they have decided that smaller lots and houses will sell better and produce more profit? Changing proposed land uses at later dates is an injustice to the residents of an area.

Sincerely,

T. J. Triomphe

Teeny J. Triomphe
159 Davison Dr.
Red Deer, AB
T4R 2E7
PH: 347-4122

CC: Brian A. Adair
Ben & Mabel Rath

95 Davison Drive
Red Deer, AB
T4R 2E8

January 4, 1997

City Clerk
City of Red Deer
4808 Ross Street
Red Deer, AB

Dear Sir:

Re: Al-Terra Engineering Ltd.
Deer Park Outline Plan-Phase 7A-Melcor Developments Ltd.
Revised Nov 14/96

I am a resident of Deer Park and live adjacent to Phase 7 of the Deer Park Subdivision.

As noted in a memo from City Planning Assistant, Mr. Frank Wong, Al-Terra Engineering has submitted an amendment on behalf of Melcor Developments to reduce the number of lots in Phase 7A by two from the previous proposal that was denied by Council.

I am opposed to this last amendment as I was to the first amendment that was submitted to Council on Nov 4/96.

It is my opinion that Melcor should be required to develop Phase 7 as per their original approved outline plan adopted by Council Sept 28, 1981. Our lots were purchased with this plan duly approved by City Council and I feel if Melcor is given the approval to develop this area at a higher density, then City Council would be betraying the trust of all of us that bought in good faith. However, after attending the Council Meeting of Nov 4/96 when the area residents presented their concerns on the first proposal, I feel confident that City Council will react with wisdom as they did to the Nov 4/96 proposal.

Yours truly,

Irvine Hill

Comments:

There are essentially two issues embedded in the request for reconsideration from Melcor. One is reconsideration of the change in lot size and number of lots in the 7A Phase which is scheduled for immediate development. The second, is the removal of lot lines from the remainder of the Outline Plan, which addresses the type of future development in the balance of the quarter section.

Reconsideration of both of these issues will require a motion of reconsideration on the part of Council.

It is recommended that Council not reconsider their decision not to alter the lot lines in Phase 7A.

"G. D. SURKAN"
Mayor

"H. M. C. DAY"
City Manager

FILE

Box 5008
Red Deer, Alberta
T4N 3T4

The City of Red Deer

Office of the City Clerk

January 14, 1997

Al-Terra Engineering Ltd.
#502, 5000 Gaetz Avenue
Red Deer, AB T4N 6C2

Att: Martin Broks, P. Eng.
Red Deer Manager

Dear Sir:

RE: DEER PARK BY MELCOR DEVELOPMENTS LTD., AMENDMENT TO OUTLINE PLAN

At The City of Red Deer's Council Meeting held Monday, January 13, 1997, consideration was given to your correspondence of December 6, 1996, concerning the above. At that meeting the following resolution was passed:

> "RESOLVED that Council of The City of Red Deer, having considered correspondence from Parkland Community Planning Services dated January 10, 1997, re: Deer Park by Melcor Developments Ltd. / Outline Plan Amendment, hereby agrees to revise the Outline Plan for Deer Park Subdivision SW ¼ 14-38-27-4 as follows:
>
> 1. Phase 7A be relotted from 22 lots to 26 lots;
>
> 2. Phase 7B be relotted from 26 lots to 29 lots; and
>
> 3. the remaining land noted as Phase 7C reflect minimal lot widths of 45 feet,
>
> and as presented to Council January 13, 1997.

4914 - 48th Avenue, Red Deer, AB Canada T4N 3T4
Tel: (403) 342-8132 Fax: (403) 346-6195 E-mail: cityclerk@city.red-deer.ab.ca Web: http://www.city.red-deer.ab.ca

Parkland Community Planning Services will now be updating the Outline Plan to include the above changes.

If you have any questions, please contact the undersigned.

Sincerely,

Kelly Kloss
City Clerk

KK/clr

c Director of Community Services
Director of Development Services
Land and Economic Development Manager
Principal Planner

Melcor Developments Ltd.
400, 4808 Ross Street
Red Deer, AB T4N 1X5

Mr. Benjamin Rath
123 Davison Drive
Red Deer, AB T4R 2E8

Mr. Brian Adair
127 Davison Drive
Red Deer, AB T4R 2E7

Mr. & Mrs. Cecil Christians
107 Davison Drive
Red Deer, AB T4R 2E8

Teeny J. Triomphe
159 Davison Drive
Red Deer, AB T4R 2E7

Mr. Irvine Hill
95 Davison Drive
Red Deer, AB T4R 2E8

ADDENDUM
TO
JANUARY 13, 1997 AGENDA

RE: AL-TERRA ENGINEERING LTD.
PROPOSED AMENDMENT TO DEER PARK
OUTLINE PLAN
PHASES 7A, 7B, & 7C

SUBMITTED BY PARKLAND COMMUNITY PLANNING SERVICES
JANUARY 10, 1997

PARKLAND
COMMUNITY
PLANNING
SERVICES

Suite 500, 4808 Ross Street
Red Deer, Alberta T4N 1X5
Phone: (403) 343-3394
FAX: (403) 346-1570

Date: January 10, 1997

To: City Council

From: Frank Wong, Planning Assistant

Re: Al-Terra Engineering Ltd./Melcor Development Ltd.
Deer Park Outline Plan Amendment
Neighbourhood Public Meeting - January 9, 1997

Subsequent to our December 16, 1996 report to Council and a January 7, 1997 meeting between Melcor representatives and Deer Park residents (Brian Adair, Ben Rath, and Mable Rath) and PCPS, Melcor Developments Ltd. agreed to amend their November 20, 1996 proposal to address the neighbourhood's concerns.

The proposed changes are:

- that Phase 7A be relotted from 22 lots to 26 lots (a decrease of 2 lots from the previous proposal and an increase of 4 lots from the approved Outline Plan),
- Phase 7B will be relotted from 26 lots to 29 lots (an increase of 3 lots from the approved Outline Plan), and
- the remaining land will have a note specifying that minimum lot widths will be greater than 45 feet (see attachment)

A Neighbourhood Public Meeting was held at Holy Family School on the evening of January 9, 1997. The meeting was attended by Melcor representatives Fred Lebedoff and Guy Pelletier, Paul Meyette and myself from our office and 9 area residents. The registration form and written comments are attached.

Fred Lebedoff explained the above changes to the Outline Plan; then the meeting was opened for questions

<u>Residents' Comments and Concerns</u>

- the majority of the attendees accepted the proposed changes
- the seven 42 foot lots in Phase 7A may be too small to accommodate the development of the minimum 1200 square feet dwelling unit with an attached double garage
- there was a question as to whether the remaining land would be designed to accommodate walk out basements

....page 2

- there was a couple of suggestions that Phase 7C be lotted at this time if Melcor is aiming at possibly 35 lots

- there was a request for assurance that this plan will not be amended again in the near future

Planning Comments

This latest (January 7, 1997) proposal addresses many of the concerns of area residents. It is a much improved Plan which the majority of attendees of the January 9, 1997 meeting can support. The lotting of Phases 7A and 7B and the note for the remaining land provide a greater commitment than the November 20, 1996 proposal on the Council agenda. The 42 foot lots may however need special house designs to accommodate the minimum required size of development for the area.

Recommendation

As stated in our previous correspondence, Planning staff have no objection to the proposed Outline Plan amendment. The verbal and written comments from area residents that attended the January 9, 1997 Neighbourhood Public Meeting appears to indicate that the new design is generally acceptable. However some of the attendees still have some concerns; and there are also 42 people that signed the petition which is presently before Council, who did not attend the January 9 Public Meeting; we are unsure as to whether they would support or oppose the amended plan.

The affected residents have been notified of the January 7 Outline Plan Proposal and were invited to attend City Council Meeting on January 13 at 7 pm; at that time Council should be in a position to get an accurate assessment of neighbourhood support for the amendment.

Sincerely,

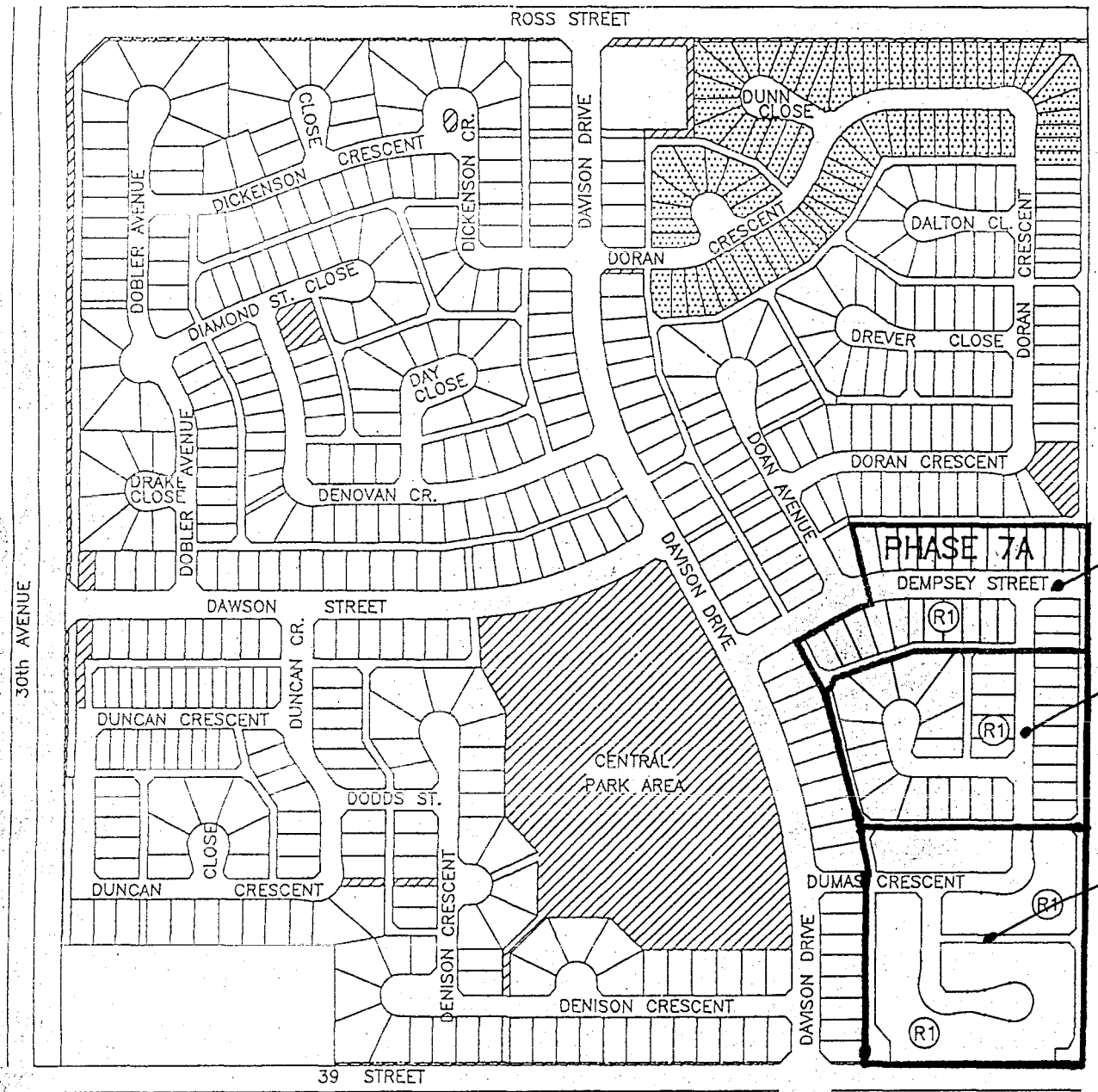
Frank Wong

Frank Wong,
Planning Assistant

Attachment

cc Melcor Developments Ltd.
Deer Park Residents

RED DEER
Deerpark Subdivision Outline Plan Showing a Subdivision of the S.W.1/4 SEC.14–38–27–4 for MELCOR DEVELOPMENTS LTD.



LEGEND & NOTES

MR LOTS SHADED THUS

DUPLEX (R1A) LOTS SHADED THUS

Phase 7A
Increased from 22 to 26 lots

SCALE = 1:5000m

Phase 7B
Increased from 26 to 29 lots

—N—

Phase 7C
Minimum Lot Widths of 45 feet

; Jan. 7/97
REVISED: NOV. 20,1996
REVISED: OCT. 29,1996
REVISED: OCT. 25,1996

AL-TERRA
ENGINEERING LTD.
EDMONTON RED DEER

New Proposal

January 7, 1997
Parkland Community Planning Services

NEIGHBOURHOOD MEETING
MELCOR DEER PARK OUTLINE PLAN AMENDMENT

MELCOR DEVELOPMENTS LTD./PARKLAND COMMUNITY PLANNING SERVICES
HOLY FAMILY SCHOOL, THURSDAY, JANUARY 9, 1997

REGISTRATION (please print)

NAME	ADDRESS	POSTAL CODE	TELEPHONE
B. RATH	123 DAVISON DR.	T4R 2E8	340-0182
M. RATH	123 DAVISON DR.	T4R 2E8	340-0182
W. Forrest	31 Doran Cres	T4R 2M7	347-0605
BRIAN ADAIR	127 DAVISON DR.	T4R-2E7	342-2752
C. CHRISTIANS	107 DAVISON DR	T4R 2E8	341-4501
J. Hill	95 Davison Dr.	T4R 2E8	347-4195
IRV HILL	95 DAVISON DR.	T4R 2E8	347-4195
FRED HIGGINSON	99 Davison Drive	T4R 2E8	343-7754
SUSAN ODEGARD	27 Doran Cres.	T4R 2M7	342-1381

NEIGHBOURHOOD MEETING
MELCOR DEER PARK OUTLINE PLAN AMENDMENT

MELCOR DEVELOPMENTS LTD./PARKLAND COMMUNITY PLANNING SERVICES
HOLY FAMILY SCHOOL, THURSDAY, JANUARY 9, 1997

NAME: BEN RATH, MABLE RATH

ADDRESS: 123 DAVISON DRIVE R.D

COMMENTS:

I ACCEPT THE PROPOSED OUTLINE PLAN AS PRESENTED AT THE NEIGHBORHOOD MEETING ON JANUARY 9, 1997 (OUTLINE PLAN AS REVISED ON JANUARY 7 1997.)

B. Rath
M Rath

NEIGHBOURHOOD MEETING
MELCOR DEER PARK OUTLINE PLAN AMENDMENT

MELCOR DEVELOPMENTS LTD./PARKLAND COMMUNITY PLANNING SERVICES
HOLY FAMILY SCHOOL, THURSDAY, JANUARY 9, 1997

NAME: BRIAN A. ADAIR

ADDRESS: 127 DAWSON DR., RED DEER

COMMENTS:

I do not accept the proposal to amend 7A from 22 to 26 lots, and the change to 7B with lot increase from 26 to 29 lots with a minimum lot size of 45' as proposed (revised) on January 9th, 1997

B. A. Adair

NEIGHBOURHOOD MEETING
MELCOR DEER PARK OUTLINE PLAN AMENDMENT

MELCOR DEVELOPMENTS LTD./PARKLAND COMMUNITY PLANNING SERVICES
HOLY FAMILY SCHOOL, THURSDAY, JANUARY 9, 1997

NAME: Fred Higginson

ADDRESS: 99 Davison Drive

COMMENTS:

Trust dwellings being constructed in Phase 7C that lot widths match those of present lot widths of houses in Davison Drive (8 Houses)

Have some concern of the much increased traffic volume using Davison Drive when all these new houses are constructed.

Are there any plans of constructing another road from 39 street to service these new areas ??!!

NEIGHBOURHOOD MEETING
MELCOR DEER PARK OUTLINE PLAN AMENDMENT

MELCOR DEVELOPMENTS LTD./PARKLAND COMMUNITY PLANNING SERVICES
HOLY FAMILY SCHOOL, THURSDAY, JANUARY 9, 1997

NAME: Wayne Forrest

ADDRESS: 31 Doran Crescent

COMMENTS:

I am concerned about the 42' size lots in 7A. Would like to see a provision similar to that recommended for 7C. (minimum 45').

9 JAN 97

NEIGHBOURHOOD MEETING
MELCOR DEER PARK OUTLINE PLAN AMENDMENT

MELCOR DEVELOPMENTS LTD./PARKLAND COMMUNITY PLANNING SERVICES
HOLY FAMILY SCHOOL, THURSDAY, JANUARY 9, 1997

NAME: IRVINE & JANICE HILL

ADDRESS: 95 DAVISON DRIVE.

COMMENTS:

WE AGREE WITH THE NEW PROPOSAL REVISED JAN 7/97 FOR PHASES 7A, 7B & 7C, WITH THE NOTE FOR A MINIMUM LOT SIZE OF 45 FEET FOR 7C

Irvine Hill
Janice Hill

NEIGHBOURHOOD MEETING
MELCOR DEER PARK OUTLINE PLAN AMENDMENT

MELCOR DEVELOPMENTS LTD./PARKLAND COMMUNITY PLANNING SERVICES
HOLY FAMILY SCHOOL, THURSDAY, JANUARY 9, 1997

NAME: Cecil + ELIZABETH CHRISTIANS

ADDRESS: 107 DAVISON DR.

COMMENTS:

If 7C can be developed as per note per Frank Wong we are in agreement.

Cecil & Christians

ELIZABETH CHRISTIANS

Mailing Jan 9/97

DATE:		December 9, 1996
TO:	X	DIRECTOR OF COMMUNITY SERVICES
		DIRECTOR OF CORPORATE SERVICES
	X	DIRECTOR OF DEVELOPMENT SERVICES
		CITY ASSESSOR
		E. L. & P. MANAGER
		ENGINEERING DEPARTMENT MANAGER
		FIRE CHIEF (EMERGENCY SERVICES)
		INFORMATION TECHNOLOGY SERVICES MANAGER
	X	INSPECTIONS AND LICENSING MANAGER
		LAND AND ECONOMIC DEVELOPMENT MANAGER
		PERSONNEL MANAGER
		PUBLIC WORKS MANAGER
		R.C.M.P. INSPECTOR
		RECREATION, PARKS & CULTURE MANAGER
		SOCIAL PLANNING MANAGER
		TRANSIT MANAGER
		TREASURY SERVICES MANAGER
	X	PRINCIPAL PLANNER
		CITY SOLICITOR

BACKUP INFORMATION NOT SUBMITTED TO COUNCIL

FROM: CITY CLERK

RE: AL-TERRA: DEER PARK OUTLINE PLAN - PHASE 7A -MELCOR

Please submit comments on the attached to this office by January 6, 1997, for the Council Agenda of January 13, 1997.

"Kelly Kloss"
City Clerk

FILE

FILE No.

THE CITY OF RED DEER

P. O. BOX 5008, RED DEER, ALBERTA T4N 3T4 FAX: (403) 346-6195

City Clerk's Department
(403) 342-8132 FAX (403) 346-6195

BACK UP INFORMATION NOT SUBMITTED TO COUNCIL

December 9, 1996

Al-Terra Engineering Ltd.
ATTN: Martin Broks, P. Eng.
#502, 5000 Gaetz Avenue
Red Deer, AB T4N 6C2

Dear Mr. Broks:

I am in receipt of your letter dated December 6, 1996, re: Deer Park by Melcor Developments Ltd., Outline Plan Amendment. Your letter will be placed on the Red Deer City Council Agenda of January 13, 1997.

Your request has been circulated to City Administration for comments. A copy of the administrative comments will be available to you prior to the Council Meeting and can be picked up at our office on the second floor of City Hall on Friday, January 10, 1997.

If you wish to be present and/or speak at the Council Meeting, please telephone our office on Friday, January 10, 1997, and we will advise you of the approximate time that Council will be discussing this item. Upon arrival at City Hall, please enter the park side entrance and proceed to the Council Chambers on the second floor.

Council Meetings are open to the general public and are televised live on Shaw Cable, Channel 3. Council Meetings commence at 4:30 p.m., adjourn for the supper hour at 6:00 p.m., and reconvene at 7:00 p.m. Council agendas are available to the public and media from the City Clerk's Department.

If you have any questions or require further assistance, please do not hesitate to contact me.

Sincerely,

Kelly Kloss
City Clerk

KK/lb

RED·DEER a delight to discover!

Item No. 1
Written Inquiries

DATE: **December 17, 1996**

TO: **City Council**

FROM: **City Clerk**

RE: ***WRITTEN INQUIRY - COUNCILLOR BILL HULL: SUMMARY OF COSTS AND BENEFITS OF IMPLEMENTING A COMMISSION SYSTEM WITH REAL ESTATE AGENTS***

At the Council Meeting of December 16, 1996, the following Written Inquiry was submitted by Councillor Hull.

> "Whereas the City has experienced some difficulties in marketing City properties and negotiating sales agreements;
>
> Please summarize the costs and benefits of implementing a commission system with registered real estate agents."

Attached is the response from the Administration.

Kelly Kloss
City Clerk

KK/clr
attch.

Memo

DATE: January 3, 1997

TO: Kelly Kloss, City Clerk

FROM: Alan Scott, Land and Economic Development Manager

RE: **WRITTEN INQUIRY - COUNCILLOR BILL HULL**
SUMMARY OF COSTS AND BENEFITS OF IMPLEMENTING A COMMISSION SYSTEM WITH REAL ESTATE AGENTS

At the December 16, 1996 Council meeting, the following Written Inquiry was submitted by Councillor Hull:

> "Whereas the City has experienced some difficulties in marketing City properties and negotiating sales agreements;
>
> Please summarize the costs and benefits of implementing a commission system with registered real estate agents."

Over the past 15 years, the Land and Economic Development Department of the City of Red Deer has offered real estate commissions on all industrial and commercial land contained within the City's Land Bank. The basic agreement is with the Red Deer Real Estate Board, however, at different times the City has also had exclusive arrangements with one or more real estate companies.

Initially, the City entered into an agreement with the Real Estate Board, which offered a commission of 3% to any real estate agent who introduced a City-owned property to a successful purchaser. In 1988, in an effort to stimulate real estate sales, the City entered into exclusive arrangements with first one realtor, and subsequently three agents. The exclusive arrangement provided for a commission as high as 6% on the first $100,000, and because the arrangement was exclusive, the commission was payable on all deals - even those which were completed by the City.

In 1991, the exclusive arrangement was terminated and the City reverted to paying a 3% commission on all sales involving a real estate agent.

It should be pointed out that the commission arrangement applies only to industrial commercial land which is held within the City's Land Bank. One of the notable exceptions to this agreement is the former CP Rail lands in the downtown area, which are actually part of the Major Continuous Corridor Project, and therefore do not fall into the City's Land Bank. A decision was made not to pay commission on these properties.

2/...

The current arrangement seems to work well. Reviewing our sales for 1996, about 50% were completed by the City and the remainder involved real estate agents. The total commission paid on the eight deals initiated by real estate agents was $32,581. An exclusive arrangement would have increased the commission obligation significantly. We estimate that the total commissions due and payable on our transactions for 1996, under an exclusive arrangement would have been $139,200. The saving, therefore, in offering a commission only on those deals which are brought to us by a realtor, would have been $106,619.

Our experience with the current deal has been quite satisfactory. Realtors bring us an offer and if it is accepted, a commission is paid. The paper work is completed through the Land and Economic Development Department with directions from the City Solicitor. In most cases, the documentation is completed to the satisfaction of all parties involved.

I am not convinced that offering an exclusive arrangement with a realtor would result in any additional sales. Historically, this was not our experience. In fact, 1996 was our biggest sales year since 1981. This followed on the heels of a successful year in 1995.

I trust this response answers Councillor Hull's inquiry. If I can provide further information, please do not hesitate to contact me.

Alan V. Scott

AVS/mm

BYLAW NO. 3156/A-97

Being a bylaw to amend Bylaw No. 3156/96, the Land Use Bylaw of the City of Red Deer.

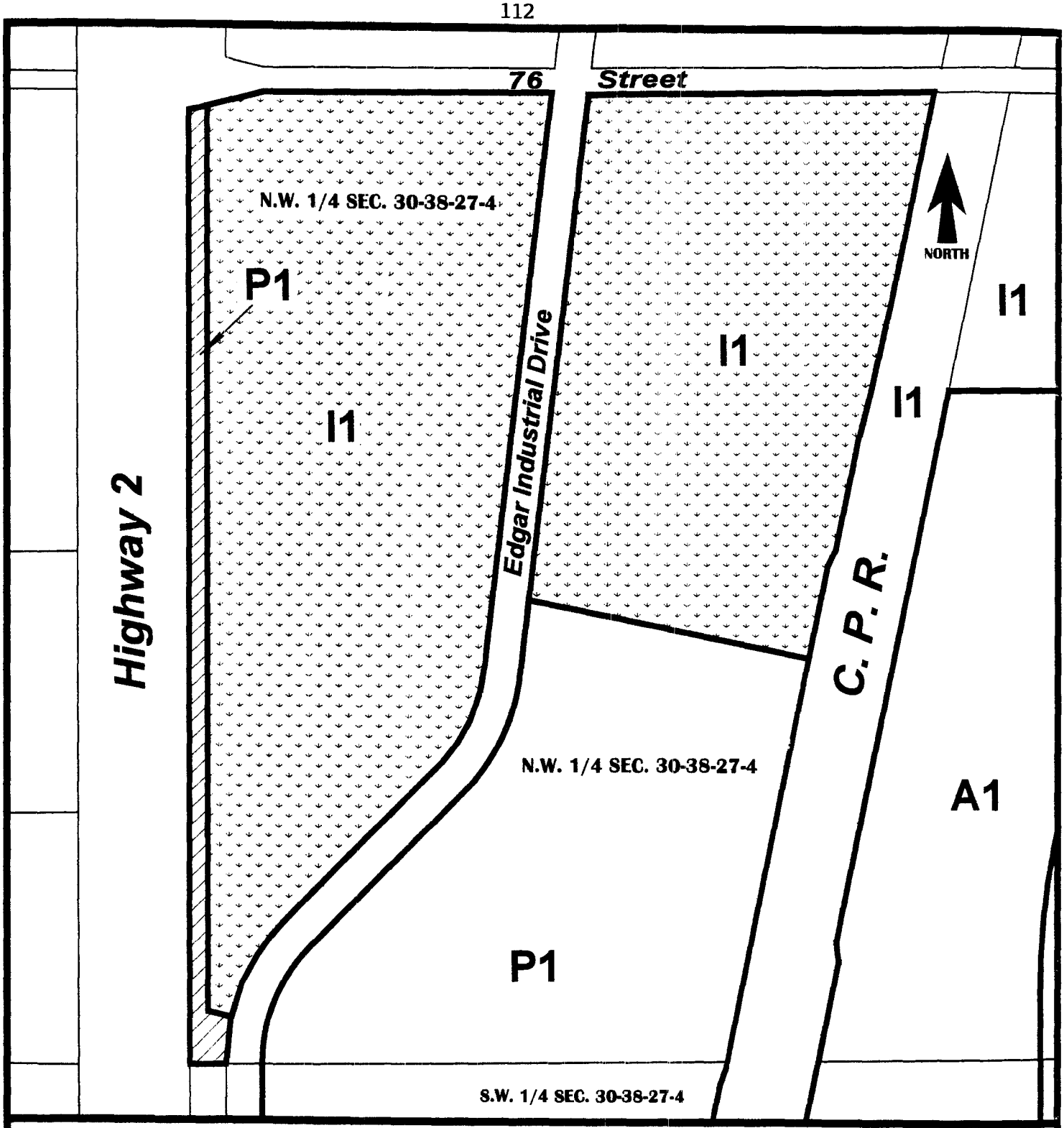
NOW THEREFORE THE MUNICIPAL COUNCIL OF THE CITY OF RED DEER, IN THE PROVINCE OF ALBERTA, DULY ASSEMBLED, ENACTS AS FOLLOWS:

1 The "Use District Map" as referred to in Section 5 is hereby amended in accordance with the Use District Map No. 1/97 attached hereto and forming part of the Bylaw.

READ A FIRST TIME IN OPEN COUNCIL this	day of	A.D. 1997.
READ A SECOND TIME IN OPEN COUNCIL this	day of	A.D. 1997.
READ A THIRD TIME IN OPEN COUNCIL this	day of	A.D. 1997.
AND SIGNED BY THE MAYOR AND CITY CLERK this	day of	A.D. 1997.

MAYOR

CITY CLERK



Change from:

A1 to P1 and I1

Bylaw No. - 3156 / A-97 Map No. 1 / 97

BYLAW NO. 3175/A-97

Being a bylaw to amend Road Closure Bylaw 3175/96.

NOW THEREFORE THE MUNICIPAL COUNCIL OF THE CITY OF RED DEER, IN THE PROVINCE OF ALBERTA, DULY ASSEMBLED, ENACTS AS FOLLOWS:

That section 1 of Road Closure Bylaw 3175/96 be deleted and the following section 1 be substituted therefor:

"1 The following portion of roadway in the City of Red Deer is hereby closed:

'All that portion of 58 A Street as shown on Plan 1030 NY lying east of Plan 952-0065 contained within Plan _____, and containing 0.165 hectares more or less, excepting thereout all mines and minerals.' "

READ A FIRST TIME IN OPEN COUNCIL this	day of	A.D.1997.
READ A SECOND TIME IN OPEN COUNCIL this	day of	A.D.1997.
READ A THIRD TIME IN OPEN COUNCIL this	day of	A.D.1997.
AND SIGNED BY THE MAYOR AND CITY CLERK this	day of	A.D.1997.

_____ _____

MAYOR CITY CLERK