
REGENERATION STUDY
REGENT COURT **FP 1**

/REGENERATION STUDY:
Regent Court F.P.,
Regina, Saskatchewan /

August 1981

Prepared by Prairie Region
Field Support Centre in
collaboration with:

CMHC Technical Services
National Research Council
Reid Crowther Engineering
David Thane, Architect

ACKNOWLEDGEMENT

The Federal Provincial Steering Committee was established in June 1980. The Committee initiated the study, provided firm direction and on-going assistance in policy, administrative and technical matters. A high degree of partnership collaboration was essential to the study preparation and was effectively provided by the Committee under the chairmanship of Hewitt Helmsing. The Committee was composed of the following members:

Committee Chairman

| | |
|-------------|------------------------------------|
| C. Helmsing | Chairman, Regina Housing Authority |
|-------------|------------------------------------|

Members

| | |
|-------------|--|
| G. Anderson | General Manager, CMHC Prairie Region |
| P. Anderson | Provincial Director, CMHC Saskatchewan |
| S. Willox | General Manager, Saskatchewan Housing Corporation |
| F. Wolch | Manager, Regina Housing Authority |
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EXECUTIVE SUMMARY

SUMMARY

The F.P. partners and the Housing Authority requested the assistance of the Prairie Region FSC in the resolution of long standing problems at Regent Court F.P.1. The latter is a project of 109 units located in north central Regina, Saskatchewan, which was completed under Sec. 40 NHA in 1959.

The problems included cumulative physical deterioration combined with varied social problems, for which some corrective measures had previously been discussed by the F.P. partners and Housing Authority, ranging from additional social and recreational facilities for the project, to concept plans for large scale redevelopment.

A Partnership Steering Committee and an FSC team were established and terms of reference approved for the study. These included the detailed delineation of the problems, analysis of cause and priority of impact, together with the examination and costing of appropriate regeneration measures for the F.P. project. In addition the study team was asked to examine the feasibility and impact on F.P.1. of developing additional housing on an adjoining land-locked area of approximately ten acres, owned by the City.

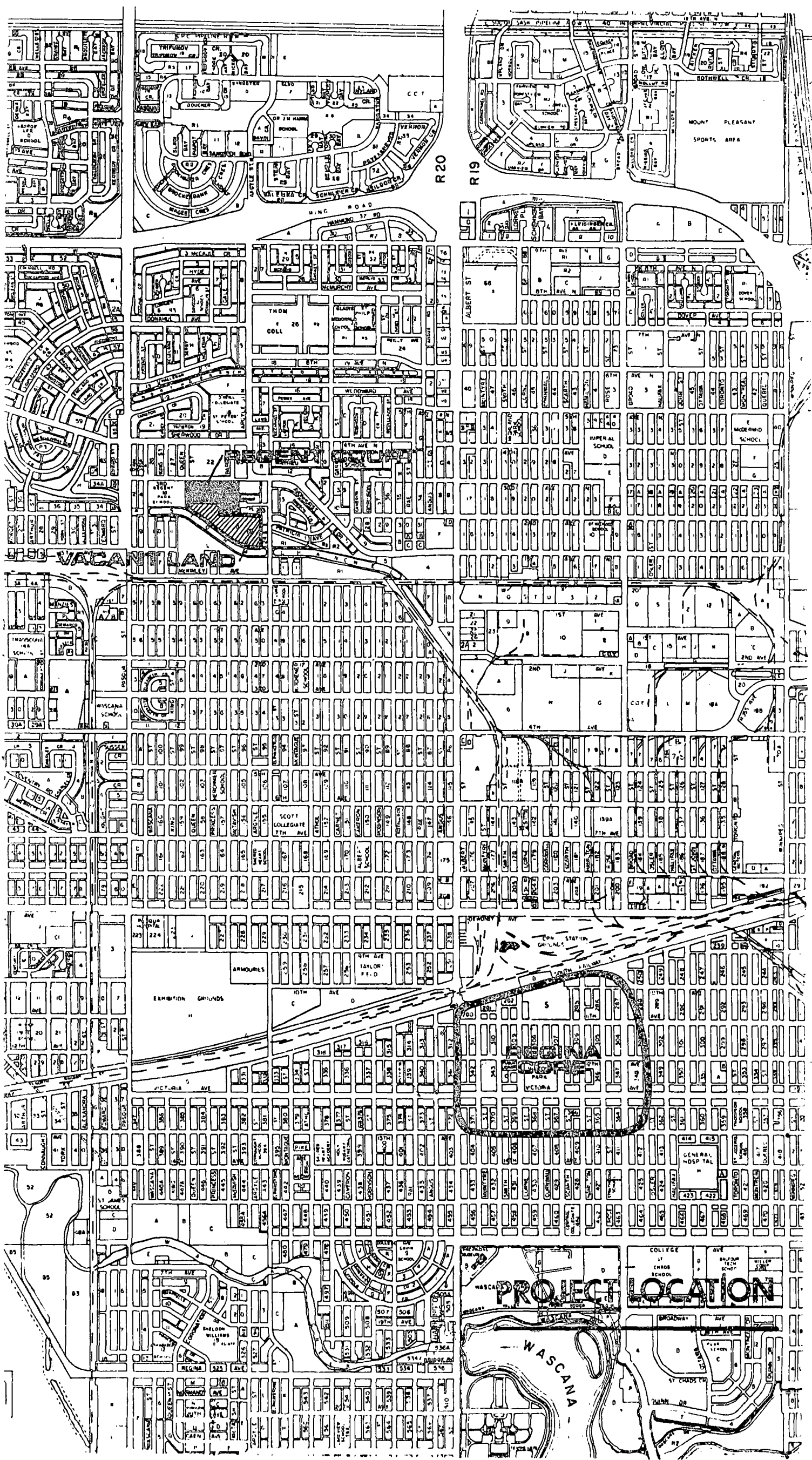
The problems identified in the study included characteristics of a social, physical, and administrative nature. Social issues involved such key areas as the self-imposed isolation from a wide range of city sponsored neighbourhood programs, a general feeling of not belonging to the community, and an imbalance in the project population, with a preponderance of single parent families and the associated problems of child supervision. Personal safety and property were threatened as a result of the above.

In the area of physical development there were the fundamental problems of a low density and sparse courtyard layout which was no longer providing an acceptable environment to meet tenants needs. This was largely due to the poor site utilization, characterized by large unorganized open areas with negligible provision for lot privacy, children's play and other designated activity areas. Landscaping and hard surfaces were inadequate and access to the unit from parking areas was noticeably poor. Buildings were found to be in structurally sound condition but required considerable improvement with respect to standards, energy efficiency, and general liveability.

A preliminary concept addressing these issues and outlining a general approach with preliminary costs was prepared by the FSC and approved by the Steering Committee and their principals in December 1980. A more detailed investigation of regeneration was undertaken in 1981 entitled Phase 2 - Detailed Study. This was funded by CMHC up to a limit of \$25,000 and was carried out in collaboration with NRC, Technical Services and private consultants. The report and plans comprising this study have been submitted to the F.P. Coordinating Committee and to interested Divisions at National Office, prior to the preparation of the current summary report.

The estimated costs of the preferred option of the Steering Committee for regeneration which is described in detail in the Phase 2 - Detailed Study total approximately 2.5 M or \$25,000 per unit for the rehabilitation of 99 F.P. units and the existing site, together with .5 M for the construction of 13 new residential units and a day-care centre, resulting in a total Regeneration cost of 3 M.

It was recognized that the issues identified in this study are shared in varying degrees by much of the social housing stock of this vintage so their analysis and resolution is of general interest. For this reason, the study process, findings, and implementation have been and will continue to be carefully documented for transfer to others.



STUDY ORGANIZATION AND METHODOLOGY

- STUDY APPROACH AND APPLICATION
 - CMHC'S ROLE AND THE F.P. PARTNERSHIP
 - STUDY METHODOLOGY
 - Preliminary Phase
 - Phase 1 Conceptual Plan
 - Phase 2 Detailed Study
 - Phase 3 Final Report
-

STUDY APPROACH AND APPLICATION

The problem of social and physical deterioration applies generally to a greater or lesser degree to all Sec. 40 housing stock constructed in the 1950's or before. It is fair to state that, in many of these projects, cumulative problems place strains on the existing management and budgeting system, and that the projects are readily identifiable as 'problem' housing by local councils, their planning and social service departments, and by the general community. Periodic review of such projects at branch office level indicate that a head-on approach to regeneration is beyond local resources and that, in the absence of major funding and Federal Provincial collaboration, the only practical alternative is to continue the current system of piecemeal repairs.

While the problems with this particular vintage of Sec. 40 housing are widespread and have recognizable similarities across regional boundaries, the solutions to these problems are not so easily categorized. Solutions are of two main types. The first consisting of 'process' are of general application. These include such items as Federal Provincial collaboration, the analytical and planning process, administration and financing of implementation, the testing of NHA programs for regeneration, the process of monitoring and information transfer, and finally the mechanism for tenant participation. The second category of solutions are technical and are 'site specific' in their application, of necessity tailored to a specific location and project. Some degree of 'spin off' will however occur in the innovative aspects of construction methods, materials and costs.

The regeneration of Regent Court has as its major objective project upgrading in response to a Partnership request for assistance. The demonstration and experimental aspects are therefore a lesser priority. The major items of general application will be those relating to 'process' as described above. The technical aspects would be 'site specific' and less likely to have a direct application in other projects. However there will be 'spin off' benefits in technical items, due largely to the fact that new ground is being covered in CMHC and Partnership staff involvement, construction methods, materials, costing and other innovations in the technical field.

CMHC'S ROLE AND THE F.P. PARTNERSHIP

The role of CMHC in the regeneration study was clarified in the early stages. CMHC agreed to provide a Study Team from the Prairie Region Field Support Centre which would act in a consultant role to the F.P. Steering Committee and under the Committee's direction. All proposals were subject to the Steering Committee's assent and the approval of the various principals and agencies represented on the committee. None of the recommendations or opinions in the regeneration study would represent an official CMHC policy or viewpoint, nor would they imply CMHC approval.

The Regent Court Steering Committee was established at the commencement of the study to coordinate the project and act in a decision making and approval capacity.

The committee included representatives from all the F.P. partners, the Housing Authority and the Tenants Association. It is intended to continue the Steering Committee's functions throughout the implementation stage. Federal-Provincial and Housing Authority collaboration will continue to be required in social programs, post construction monitoring of the project, and in the implementation of any major revisions to the evaluation and budgetting systems for ongoing comprehensive rehabilitation on an extensive basis.

The project to date has involved National Office staff in the Finance Sector, Research Administration and Coordination Division, Demonstration and Technical Research Directorate, Policy Evaluation Division, Social Housing Division and National Office Support Centre. In addition all departments of Prairie Regional Staff as well as inspectors and appraisers at the Regina Branch have contributed to the Study.

STUDY METHODOLOGY

Preliminary Phase:

As a result of an initial site investigation and preliminary findings, terms of reference for the regeneration were prepared by FSC, submitted and approved by the Regent Court Steering Committee. These terms of reference called for three major phases of activity.

1. Preparation of Conceptual Master Plan for the regeneration of F.P.1. (including plans for an adjacent 10 acre vacant land-locked parcel).

-
2. Preparation of detailed costs associated with the Conceptual Master Plan.
 3. Preparation of final report consolidating the approved proposals of the Steering Committee to be used for review by the Principles of the F.P. Partnership.

Phase 1 Conceptual Master Plan*

The Conceptual Master Plan outlining a general approach was approved in December, 1980. This provided a broad program of rehabilitation, site improvements and selective clearance, as well as preliminary cost estimates for the F.P. site and adjacent City owned lands.

Phase 2 - Detailed Study**

Following approval of the Conceptual Master Plan a more detailed investigation of regeneration was undertaken in 1981 with the assistance of CMHC Technical Services, and the external resources of the National Research Council, Reid Crowther Engineering Consultants and David Thane, Architect. A budget for this 'Phase 2 - Detailed Study' was provided by CMHC to a limit of \$25,000. The bulk of this provided fees for Engineering and Architectural Consultants. The work was carried out as follows:

1. NRC

Energy Audit using on site pressure testing on typical units and running computer model print-outs to provide cost savings analysis on various retrofit proposals.

* Source: Regent Court F.P.1 - Regeneration
A Conceptual Master Plan November 1980
- prepared by FSC Prairie Region

** Source: Regent Court F.P.1 - Phase 2 Detailed Study
May 1981 - prepared by FSC Prairie Region in
collaboration with Technical Services, NRC,
and private consultants.

2. Technical Services

Unit and site inspections for standards conformance including a summary report and cost estimates.

3. Consulting Architect

Unit and site inspections, with respect to unit liveability, including design modifications and landscaping. A summary report, plans, and cost estimates were included.

4. Consulting Engineer

Existing contours and proposed grading plan together with pre-engineering designs and cost estimates for regrading, roads, parking and services for the F.P. site and adjoining City lands.

The above studies were completed by mid-April 1981. The analysis established a range of options within budget envelopes for each of the major areas of regeneration. For the units the cost options included retrofit, standards conformance, general rehabilitation and design modification in various dollar amounts. For the site improvements the estimates included provision of private space, general landscaping, and major site improvement such as regrading, roads and parking with and without redevelopment. A similar process applied to the development costs of City owned lands.

The above cost options were accompanied by an examination of implementation and funding alternatives to facilitate approval by the partnership of a preferred option for the project regeneration. Phase 2 - Detailed Study was submitted to the F.P. Steering Committee on May 12, 1981 followed by a more detailed examination by each member of the Committee separately. A further meeting in June selected a preferred course of action and settled outstanding issues. The proposals were then to be consolidated in a final report for submission to partnership principles.

phase 3 - Summary Report

This report represents the final report and the completion of Phase 3.

SURVEY AND ANALYSIS

NEED AND DEMAND

SOCIAL ASPECTS AND DEFICIENCIES

- Project Population
- Community Organization
- Neighbourhood and Project Adequacy
- Social Recreation Centre
- Day Care Services

SITE DEVELOPMENT DEFICIENCIES

- General
- Summary of Findings

DWELLING UNITS DEFICIENCIES

- General
- Conformance to Standards
- Unit Liveability
- Energy Deficiencies

EXISTING MAINTENANCE OF COSTS

REASONS FOR DETERIORATION

FLOOD DAMAGE REDUCTION AGREEMENT

REGENERATION ALTERNATIVES

NEED AND DEMAND *

Neighbourhood Profile

The Regent Court project is located in Census Tract 25 and is approximately 3½ miles north west of the City centre. Using data for this Census Tract it is evident that the neighbourhood can in general be described as middle class. Families in this neighbourhood are slightly larger than the metropolitan average. The ethnic background is similar to Regina as a whole, although the percentage of migrants in Census Tract 25 is substantially smaller than for the City, indicating that the area has a reasonably stable population. The occupations of the residents are largely blue collar. Participation in the labour force for both males and females is higher in the neighbourhood than in the City.

Single detached houses form the bulk of the housing stock in this area. Sixty-one percent of the housing stock is owner occupied.

Housing Market

At the present time the average price for a typical three bedroom bungalow in the Regent Court area is \$37,500 to \$44,500. This is 10 to 20 percent less than the average price for the City. The annual household income required to support this price is approximately \$20,000 to \$21,000.

* Source: See Regional Economist's Report
Conceptual Master Plan
Prairie FSC - November 1980

Survey of Need and Demand

Undeniably, the group with the most pressing needs for assisted housing in Regina as well as in the Province as a whole are natives. This group is the neediest both in terms of actual numbers in need and in terms of percentage of the group unassisted. It is estimated that there are 4,185 native families in need of housing assistance in Regina. The needs of this group are currently being addressed under the 1000 unit Urban Native Housing Program.

Single-parent families and low-income families follow natives as the next most neediest client group for housing assistance. There are approximately 1,779 such families in Regina and only 469 have been given assistance to date.

Senior citizens comprise the next neediest client group. There are approximately 2,115 senior citizen households requiring housing assistance. Senior citizens have been the best served of any client group in Regina. To date 879 senior citizen households have been assisted.

There is an additional 142 units of senior citizen housing under construction in Regina at the present time. The Regina Housing Authority presently has approximately 300 senior citizens on its waiting list.

The three groups above are followed by moderate income families, single individuals and handicapped households in order of need. The following table summarizes the Regina client group needs:*

* Source: Saskatchewan Housing Corporation
November 1980

SUMMARY OF REGINA CLIENT GROUP NEEDS

TABLE 1

| | Clients unassisted at November 1980 |
|--------------------------|--|
| Single parents | 740 |
| Low-income families | 570 |
| Moderate income families | 932 |
| Senior Citizens | 1,236 |
| Single individuals | 575 |
| Handicapped | <u>330</u> |
| TOTAL | 4,383 |

SOCIAL ASPECTS AND DEFICIENCIES*

The Regional Social Development Officer carried out an investigation of the social problems during the preliminary FSC survey. Data on project population characteristics, community organization and neighbourhood adequacy were analyzed in relation to the Regent Court project.

Project Population**

Within Regent Court F.P.I. according to 1979 record, the adult population was 138 and the child population was 182. The record also shows that there were 70 one-parent family households in the project and 60% of the single parents were working outside of the home on a full or part-time basis. Of this category, 40% were on government assistance. There were 31 two-parent family households, one had both parents working outside of the home and 30 had one parent working outside of the home. Of the 14 senior citizens living in the project, there were four couples and six singles.

A random sample of 15 files of the family households was reviewed to establish the age distribution of the child population in this project. This was as follows:

| Age | 1 - 5 | 5 - 10 | 11+ |
|-----------------|-------|--------|-----|
| No. of children | 17 | 4 | 3 |

On the basis of the sample preschoolers constitute 71% of the total child population.

* Source: June 1980 Social Survey by Regional Social Development Officer

** Source: Regina Housing Authority - 1980

Community Organizations

The Tenant Association has been dormant for the last six months. The President has resigned and her position has not been filled. Tenants are now represented in the City - funded Community Association by one of the two paid workers provided for under a community service grant from the Provincial Social Services Department. These two workers are located in Unit 69 in the project. Information and referral services as well as supervised sports for teenagers are offered to the total community at large. No formal community organization exists among the senior citizens.

Neighbourhood and Project Adequacy

The site is well located 3½ miles north and slightly west of the downtown in a relatively stable neighbourhood. Modest single family housing predominates and sells for slightly below the average city house price. The general neighbourhood is a pleasant residential area with convenient shopping, schools, public transportation and has access to a generous provision of parks, recreation, and community programs. The latter programs are mostly operated by the City and are available only to members of the local Community Association. The tenants have in the past been unwilling to become members largely due to a general feeling of not belonging to the community. As a consequence they have not taken advantage of the programs which offer a wide range of accessible and well run activities for all age groups.

The project deficiencies are perhaps best indicated by an annual turnover of 40% and only one of every three applicants taking up residence despite the shortage of

public housing accommodation. Considerable damage due to vandalism is evident (evictions average four per month) and residents have expressed fears for their personal safety, especially after dusk. Privacy is totally lacking for the units with respect to outside living areas, and this together with the extent of hard surfacing and sparse landscaping inhibit a pleasant living environment. The buildings, repainted with tenant participation and little coordination, are now institutional and barrack-like in their appearance and give no cause for pride or sense of responsibility. Deferred maintenance on major items such as grading, walkways, and parking areas are sources of discontent. Children's play facilities are totally inadequate.

Social Recreation Centre

The social recreational centre previously proposed by the tenants for the use of the project residents would benefit the project. The costs, however, would be difficult to justify as a wide range of facilities and programs are within easy reach in the neighbourhood and their quality could not be matched by any project based service. A need for social recreation programs was identified but the recent survey conducted by the Tenant Association with assistance from Regina Housing Authority confirmed that current programs were not well attended. Organizing programs strictly for project residents will also further strengthen the sense of project isolation and tenants would be deprived of the opportunities for wider neighbourhood association.

Day-Care Services

One of the main concerns of the existing tenant group which initiated the Regent Court Study was the lack of day-care facilities for project residents.

The number of working parents and preschool aged children in Regent Court confirm the need for day-care and baby-sitting services. There are presently three day-care facilities operating in the district. The closest one is six blocks away and working parents without a vehicle find it difficult to send their child to a day-care centre and go to work without incurring substantial additional transportation cost and travelling time. Preference for places in any new day-care centre should be given to project residents, but the facilities should also be shared with the neighbourhood to encourage wider associations and help to reduce project isolation.

While it is proposed that the population mix of Regent Court be a more balanced one, it is recognized that the housing needs for single parents is likely to grow along with the requirement for additional social support services including day care.

The Regeneration Study addressed the issue of the possible locations for a day-care facility which would serve both the project and surrounding population. An on-site facility in F.P.1. was considered to be an unsatisfactory solution as it would encourage the further isolation of the project residents from the surrounding community.

As part of the study, the study team was asked to examine the feasibility of developing approximately ten acres of adjacent vacant lands to the south of F.P.1. This area had been virtually landlocked by the development of F.P.1. making the question of accessibility through the F.P. project of vital importance to the feasibility of future development. Addressing this question might at the very least provide the partners with the assurance that current development constraints would not be compounded by project regeneration. The study team examined the opportunity of locating a day-care centre on a portion of this land to provide a facility which was immediately accessible to project residents but which could be shared by the surrounding neighbourhood.

SITE DEVELOPMENT DEFICIENCIES

General

Regent Court F.P.1. site contains 9.7 acres of land upon which 16 residential structures are located. The layout of the project is a typical courtyard arrangement of the 1950's with relatively low density (approximately 10 units/acre), poor traffic circulation, isolated parking, lack of a 'street address' and large areas of unused and unlit open space in a dilapidated condition. Poor grading causes periodic basement flooding and there is a total lack of private space around the dwellings. The general appearance is 'institutional', the site barren of landscaping, and hard surfaces are cracked and sunken. The general impression is given of a demoralizing environment which fails to meet the everyday needs of the residents.

An assessment of existing site conditions was undertaken by Reid Crowther Engineering Consultants. The consultants were asked to provide a general assessment of all soft and hard surfaced areas on the site with respect to their utility and general state of repair. In view of indications of site drainage problems the consultants were asked to include the preparation of a 6" contour interval map for the existing site, and to analyze and make recommendations specifically with respect to storm water drainage. A summary of their findings follows.

Summary of Findings*

The engineer indicates in his report the following problems:

- A number of areas where the site is poorly drained or where in places the run-off is directed towards buildings. The engineer points out that should major regeneration not proceed as proposed, (i.e. new roads, parking lots, walkways, etc.), extensive work would be required to substantially improve drainage.
- Severe settlement primarily of the utility trenches and building back fill areas. This latter has resulted in dangerous settlement of most concrete entrance steps and the shearing off of basement window wells from basement walls.
- Concrete walkways are considered to be in poor condition with severe cracking, heaving, and breakage. Portions of the sidewalk could be considered hazardous for children or senior citizens.
- Asphalt walkways and parking lots all suffer from extensive settlement, heaving and longitudinal cracking. The engineer suggests that the degree of problem indicates a subgrade failure.
- With respect to services, the handling of storm water represents the greatest problem. The original one-year rain storm design has proven inadequate and the City now employs a five-year rain storm frequency. The City has confirmed that the new criteria will apply for site redevelopment

* Source: Regent Court Regeneration Study
Reid Crowther Engineering Consultants

consequently a new storm sewer to the water channel to the south or some form of ponding will be required. Furthermore, the elevation of the bottom of the discharge channel is such that substantial flows in the channel or surcharging the sewer will result in a water level higher than basement floors. With further study on water levels in the channel to confirm this, back water valves on building sewers and flapgates on trunk sewers may well be required to reduce the occurrence of flooding.

- The condition of the underground utilities has not yet been determined due to costs and difficulties of access. It is recommended that the City inspect the mains with a sewer camera prior to finalizing any regeneration plans.

Dwelling Units/Structures

General

There are 109 units in Regent Court F.P.I. in 16 buildings with unit distribution as follows:

| | | | | |
|----|---|---|---|---------------------|
| 6 | - | 2 bedroom 1 storey townhouses | @ | 738 sq. ft./unit* |
| 55 | - | 3 bedroom 2 storey townhouses | @ | 1,033 sq. ft./unit* |
| 18 | - | 4 bedroom 2 storey townhouses | @ | 1,233 sq. ft./unit* |
| 20 | - | 2 bedroom walkup apartments in 2 buildings | @ | 686 sq. ft./unit** |
| 10 | - | 1 bedroom senior citizen units | @ | 498 sq. ft./unit* |

* measured from the outside of exterior wall to centre line of party wall

** measured from inside wall faces

The units and buildings were examined and separate reports prepared for three broad categories of investigation:

- Conformance to Standards - undertaken by CMHC Technical Services
- Unit Liveability - undertaken by David Thane, Private Architect
- Energy Efficiency - undertaken by NRC using an energy audit model developed by H. Orr

Conformance to Standards*

General

Inspections with respect to standards were undertaken by CMHC Technical Services, Prairie Region and Regina Branch on a representative sample of over one-half of the units in the project and a detailed list of deficiencies together with preliminary cost estimates for rehabilitation were prepared.

Summary of Findings

In general the buildings were found to be structurally sound but in need of considerable upgrading to meet acceptable building standards and to replace worn building elements. Some structural concern was expressed with respect to the ten senior citizen units in view of the considerable deflection discovered in both the floors and roofs. Common to all units were major deficiencies including:

- severe deterioration of all windows and frames
- lack of insulation and finishing in all basements
- 70 amp electrical service
- deteriorated flooring and subflooring

* Source: Report entitled "Pilot Project - Rehabilitation Feasibility Investigation of Regent Court F.P.1" prepared by CMHC Technical Services Prairie Region and Regina Branch

-
- deteriorated exterior doors and lack of storm doors
 - deteriorated kitchen cupboards
 - lack of showers in washrooms and deteriorated wall surfaces
 - lack of closet doors on all closets
 - deterioration of roof shingles
 - lack of shut-off valves for all water supply lines to plumbing fixtures.

In addition to the above, the heating systems of both the Senior Citizens and Walkup Apartments suffer from poor distribution.

In the walkup apartments further specific deficiencies were identified which included:

- major fire deficiencies in the basement area
- lack of security in the public areas leading to vandalism and dangerous abuse
- considerable amounts of exposed conduit

Unit Liveability

General

An assessment of the units was undertaken by David Thane, Architect, Incorporated, to ensure that the basic unit form and plan were capable of providing reasonable liveability by today's norms. The Study identified deficiencies with design and environmental improvements necessary to provide this liveability. Detailed findings are included in the report "An Architectural Analysis - Regent Court".

Summary of Findings*

In general it was noted that this project has acquired a poor reputation in the community and is generally considered to be the lowest quality of public housing in Regina. Its present physical state of repair, arrangement of space, lack of landscaping, and general overall worn appearance contribute to this impression.

*Source: Report entitled "An Architectural Analysis - Regent Court" prepared by David Thane Architect Incorporated

Major deficiencies of the various units or buildings which should be addressed with respect to general liveability are summarized as follows:

- a) Deficiencies common to all units:
- lack of dryers for all units with basements
 - deteriorated and/or unattractive kitchen cabinets and counters
 - exposed concrete block walls in habitable rooms
 - substantially worn and unattractive floor coverings, lack of carpetted surfaces
 - inadequate and unsightly patio areas in all grade oriented units
 - lack of privacy and storage in rear yards
 - inadequate landscaping and site furniture
 - inadequate site lighting
 - inadequate active and passive children's play areas
- b) Senior Citizen Units
- inadequacy of the common laundry area both in terms of its cramped space and with respect to it being only accessible from the outside
 - the units are considered to be extremely small with inadequate dining space, kitchen work space, unit storage and lack of general storage space
- c) Two Bedroom Row Housing One Storey
- Minimal size and cluttered entry way
 - poor closet arrangement at the front entry resulting in an untidy appearance, together with condensation on clothes due to proximity of side light
 - unfinished appearance in the bedrooms from the lack of any closet doors
 - the circulation path through the living room hinders proper usage of what is a reasonably sized area
 - very small second bedroom
 - lack of shower facility
 - poor access to the basement
 - unfinished and unpleasant basement area
-

- d) Three Bedroom Row Housing Two Storey
 - small kitchen area almost inadequate to be used as planned for the eating area
 - hazardous stove location in the kitchen
 - lack of closet doors in bedrooms
- e) Four Bedroom Row Housing Two Storey
 - untidy closet arrangement with no closet doors at the front entry
 - poor location of the range next to the window representing a potential fire hazard
 - circulation pattern through the living room hinders good furniture arrangement
 - cramped single run, enclosed stairwell
- f) Two Bedroom Apartment
 - dilapidated main entrance
 - poorly utilized basement area and hazardous location and use of the electrical room for storage
 - spartan quality of laundry space and lack of adequate work area

Energy Deficiencies

Due to the priority of energy conservation and its impact on project operating costs, the assistance of Dr. Harold Orr of NRC at the University of Saskatchewan was enlisted in conducting an Energy Audit*. CMHC provided plans and area calculations from which NRC derived eight appropriate test models. Each of the model units were subjected to air tightness tests by an NRC team. The audit was carried out with six computer runs using the air change data for each test unit and using various assumptions with respect to air changes/hour, together with variable energy related rehabilitation proposals.

* Refer to Appendix 'B' - Energy Audit

The heat loss savings per unit were then analyzed and a determination was made on the appropriate measures. In addition to heat loss analysis the computer model provided the following data:

- design heat loss factor based on given temperature
- annual heat loss based on degree day method
- monthly summary of energy consumption
- predicted fuel costs per annum for various forms of energy source
- predicted hot water, electrical, and appliance costs per annum.

Data from initial computer runs was made available by NRC and will be subjected to a final run following confirmation of specific retrofit and rehabilitation proposals. Predicted heating cost savings can be summarized as follows:

| PREDICTED ANNUAL HEATING COST SAVINGS | | | | Table 2 |
|---------------------------------------|-----------------------|---|------------------------------|-----------------------------------|
| Total Units in Project | House* Type Tested | Heating Costs Annual (Averaged for each house type) | | Predicted Savings per Annum |
| | | 'As is' | Run #6 **** Full Retrofit | |
| 10 | ** 1 BR 1 STY | \$650 | \$ 52 | \$598 |
| 6 | 2 BR 1 STY | 337 | 112 | 225 |
| 55 | 3 BR 2 STY | 299 | 97 | 202 *** |
| 18 | 4 BR 2 STY | 363 | 123 | 240 *** |

The estimated costs for retrofit are included in the Phase 2 - Detailed Plan for regeneration, but are subject to a final computer run based on the above energy audit and final specifications.

* Apartment units have not been tested to date due to need for more complex air tightness testing equipment.

** Regeneration proposes the clearance of these units.

*** These savings assume increased insulation on the lower floor masonry walls, which is not proposed due to costs and complexity. This adjustment in savings has not been calculated.

**** Refer to Appendix 'B' - Energy Audit

EXISTING MAINTENANCE AND OPERATING COSTS

The annual costs for maintenance and improvement from 1977 show expenditures at the \$60,000 level in 1977 and 78 followed by a doubling to \$128,000 (rounded) in 1979. Subsequent rounded expenditures are \$115,000 for 1980 and an estimated \$132,000 for 1981. Of eleven categories in the breakdown of expenditures, only four show significant change over the five-year period. The first and obvious increases are in the labour costs which increased 34% from 1979 to 1980 and are estimated at almost double for 1981 (\$48,500 rounded). The other substantial changes are due to periodic maintenance cycles in ground maintenance and painting. Ground maintenance costs hover around the \$5,000 level except for a doubling to \$10,700 in 1979 when major work was carried out. Exterior painting peaked to almost \$18,000 in 1979, thereafter dropping to the \$2-3,000 level. Interior painting for public areas was insignificant from 1977 to 79, peaked in 1980 to \$3,000 and is forecast to drop sharply in 1981. Painting of unit interiors on the other hand reflects a constant repair cycle in the range of \$18-24,000 p.a.

The major expenditures forecast for 1981 are in the categories of labour, (\$48,500), building maintenance, (\$32,000), and painting, (\$20,000). Other estimated expenditures are modernization and improvement (\$13,000) and heating, ventilation and plumbing (\$12,000). Other categories including ground maintenance and electrical are substantially less.

An examination of the above annual expenditures indicates a modest budget based on a piecemeal approach. A comprehensive approach was adopted in the evaluation carried out under the regeneration study, and the substantial differences reflect the costs of making the project competitive in today's market and extending its useful life to the end of the 50-year amortization period.

Operating costs have undergone a fairly steady increase, doubling over the 5-year period from \$16,000 in 1977 to \$34,000 estimated for 1981.

REASONS FOR DETERIORATION

It is clear from a detailed examination of the project that there is no one root cause for deterioration. The reasons are widespread and cumulative. These can be summarized as follows:

- a) By definition the project represents a concentration of the 'disadvantaged' in a specific locality. While housing for the needy is an accepted principle, its appearance on a property owner's doorstep is a contentious issue with a perceived impact on the status of a neighbourhood, its child environment, and the market value of its housing. The neighbourhood reaction is therefore negative and possibly hostile, and the tenants and their children are not deaf to this message. This negative attitude on top of other income, educational, social and perhaps family and personal problems places a heavy load on project tenants. To help sustain the burden they need the reinforcement of a strong community and the kind of direction which the average Housing Authority is ill-equipped to provide.
- b) This initial disadvantage was compounded by the 1970 Schedule 'C' Graduated Fully Serviced Rental Scale for Public Housing. This stipulates that an additional \$75 per month can be deducted from a single parent's income prior to the calculation of eligible income for public housing accommodation and thus establishes single parent families as a priority on any list of eligible applicants. This priority is reinforced by the limited income of the single parent most of whom are women and the lack of alternative accommodation, aggravated by prejudice in the market

place. Under these circumstances the historic trend towards a population imbalance in public housing seems almost inevitable. The build-up of single parent families occurred in Regent Court during the early 1970's according to the Housing Authority, and did not take place without a vigorous attempt to find alternative eligible families.

This trend compounds management problems, and in the long run appears to have a cumulative effect on tenant morale, child supervision and maintenance costs.

Restrictions on the admittance of single parents in public housing would however result in higher vacancy rates, lengthy waiting lists of single parents, political pressures, and possibly court action from the Human Rights Commission for discriminative housing practices. For the Housing Authorities this is a 'no win' situation. The population imbalance undermines their project, and a percentage quota is unworkable in current circumstances. The problem can be partially relieved by provision of social supports and accessible child care services. Mixed housing programs in new construction can also dilute the concentration locally, but cannot conceal the real need which has to be met head-on over the long term. This is a key area for partnership collaboration.

c) The basic social problems, including lack of neighbourhood acceptance, and the destructive impulses of inadequately supervised children, are aided and abetted by a physical environment which is short on all the features provided to the average homeowner in the normal market situation. "Street address", privacy, play

facilities, landscaping, adequate parking and even personal safety are conspicuously lacking in a deteriorated 'courtyard' layout. Specific measures are proposed to correct these deficiencies.

d) The physical problems, which have been inspected and costed in detail during the study, are in turn aggravated by the tenant problems outlined above. Tenants feelings about the project and the frustrations of the young are reflected in lack of care for property and vandalism to buildings and site. The normal upkeep of property might then be revised by the Housing Authority for 'practical' reasons which in the long run worsen the problem. Examples of this are the extension of hard surface areas due to heavy wear of turf, plus stopping the replacements for damaged trees, shrubs, and privacy fencing. This alleviates the immediate problem, but eventually destroys privacy and the appearance and utility of the site.

From the average Housing Authority's point of view this is an intractable maintenance problem of endless replacement and high costs. To the Social Services Department of the Provincial Government this should however pose a challenge to raise tenants morale and harness their energies on the side of their project, enabling them to take the necessary action to maintain their own private yards and preserve the general appearance of the project. This area again calls for close collaboration on partnership funding and staffing.

e) The breadth and accelerating momentum of these problems are beyond the resources of the average Housing Authority, its staff and planning capabilities, and its current budgetting system. There is no way in which the current annual "shopping basket" of piecemeal maintenance items can possibly stem the tide of cumulative social and physical deterioration. To correct deficiencies in the current system, maintenance procedures and budgetting require substantial overhaul. Housing Authorities cannot cope without reinforcement and support from the F.P. Partnership in flexible staff and financing arrangements.

FLOOD DAMAGE REDUCTION AGREEMENT

A Flood Damage Reduction Agreement has been executed by the Federal and Provincial Governments which has implications for the development of Regent Court and adjacent lands. For this reason the regeneration proposals have undergone some preliminary reviews with regard to the provisions of the agreement.

The Flood Damage Reduction Agreement implications for the site and adjacent areas were discussed with the partners on the Steering Committee and the City undertook to provide an engineering report on the subject. The report by the Director of Public Works and Engineering for the City of Regina quotes the 1:500 flood level of Wascana Creek (the main drainage system which is downstream from the North Channel

adjacent to Regent Court) as 567.39. This is then compared to the F.P. site average grade elevation and storm sewer invert elevations at 572.56 and 569.30 respectively. It is concluded by the City Engineer that there is no danger of water back-up flooding the North Channel. The above drainage system is adequate for handling high water levels in their normal sequence i.e. street run-off two weeks in advance of agricultural run-off. If a freak coincidence of these two types of run-off occurs then the flood danger increases for extensive areas of existing development, including Regent Court. It is recommended that for new construction at Regent Court the building grades be held no lower than existing grades.

It was recommended by Technical Services Prairie Region that the approved regeneration proposal be reviewed by the Technical Steering Committee for the Canada-Saskatchewan Flood Damage Reduction Program.

REGENERATION ALTERNATIVES

General

There are a number of alternative courses of action which could be pursued in the regeneration of Regent Court. In broad terms the project can be left 'as is', sold 'as is', rehabilitated or redeveloped. The feasibility of undertaking any action requires that it be measured against the alternatives. Fundamental to any assessment is a comprehensive understanding of the general state of repair of the project and its overall capability to perform a housing function. The Regent Court study therefore focused on the regeneration of existing stock and the measures and commitments required to bring deteriorating but structurally sound housing to a level capable of meeting tenants needs. This being completed, the cost and benefits of undertaking of such actions can be assessed with respect to the alternatives outlined below.

a) Continue 'as is'

There appears to be no advantage to the tenant group or the partnership in leaving the project 'as is' except a deferrment of costs, or as a prelude to disposal or redevelopment. Furthermore, inaction at this point would compound the problems and increase unrest and pressures for adhoc remedial measures.

b) Sell Project 'as is'

There are several drawbacks to selling the project 'as is'. Primarily these include a lack of current demand for land and the need for major project upgrading if existing units are taken over. There is therefore little prospect of developers either

purchasing for redevelopment or accepting the risks associated with the relatively unknown area of large scale project rehabilitation. Even if the market were strong, outright disposal would not be acceptable without replacement of low cost housing stock on an alternate site. The costs of such replacement at current land and unit prices would outweigh the benefits.

c) Major Redevelopment

Major redevelopment is a legitimate approach based primarily on more efficient utilization of land at a density of say 14 to 16 units per acre which is the norm in Regina for similar types of ground oriented housing. This could involve redevelopment of the entire site or redevelopment of portions of the site aiming towards increased density or the creation of 'surplus' land which could be sold or otherwise disposed of. In both cases cost savings would result from higher densities and if the entire site was retained, additional public housing would be made available in a mature and well serviced location. Major redevelopment would address the existing problems, including the modernization of the units and the creation of a physical environment within which the current imbalance of the project population can be addressed. Careful phasing would reduce tenant disruption and premature clearance.

In the Regent Court setting, however, major redevelopment at this time raises a number of concerns as follows:

- The unit inspections indicated structural soundness in all buildings except senior citizen units. Large scale clearance is therefore difficult to justify at this time.

- Density in its derogatory sense is the perceived degree of overcrowding. In a prairie context this perception must be weighed carefully and density increases must be amply justified in both economic and social terms. A significant density increase at Regent Court at this time is considered premature.

The regeneration proposals supported by the F.P. Steering Committee, while not significantly increasing the density at this time, do improve land utilization.

This still leaves open the option of substantial density increases at a later date, by which time existing social and physical issues of Regent Court will have been addressed, and the condition of the project and the state of the market may be more appropriate for such action.

d) Rehabilitation of Existing Housing with Selective Clearance

The final major option would provide for the upgrading of the existing housing and site, giving full recognition to the sound structural quality of the existing stock. In this option a comprehensive rehabilitation of both the units and the site would reflect both the tenants and partnerships needs with respect to energy efficiency, sound building standards, and unit liveability. Selective clearance of 10 units would facilitate site improvement and pave the way for future redevelopment when appropriate. The existing number of units and density would in this option remain substantially unchanged.

Recommendation

The recommendation is to proceed with regeneration alternative d) involving a major emphasis on retention and rehabilitation of structurally sound dwellings. This is accompanied by modest clearance sufficient to undertake substantial site improvements and the first steps of redevelopment. A significant increase in density is considered premature at this time and contrary to deeply rooted local perceptions of higher densities as a major contributor to social problems and housing deterioration. This factor must be weighed carefully in a Prairies context.

It is noted that the comprehensive rehabilitation approach does not preclude increasing density in the future either by the provision of in-fill housing or further clearance, on an economic basis reflecting changing market conditions.

The recommended approach can address a wide range of problems including energy efficiency, building standards, unit liveability, site plan obsolescence, and social problems. The sound structural condition of the existing stock is given full recognition and the program can be phased to fit partnership and tenant preferences and resources.

PROPOSALS

- General

UNIT REHABILITATION

SITE REHABILITATION

- General
- Grading and Drainage
- Circulation
- Horizontal Surfaces

RESIDENTIAL REDEVELOPMENT

- Clearance
- New Construction

SUPPORTING FACILITIES

- Day-Care Centre

SOCIAL MEASURES

SECTION 40 MODERNIZATION AND IMPROVEMENT - THE FUTURE

INFORMATION AND MONITORING

General

The course of physical action recommended by the Steering Committee focuses on the retention and upgrading of the existing housing and site, together with some minor clearance and infill proposals. If implemented as proposed, the regeneration activity would rehabilitate 79 town housing units and 20 walkup apartments, clear 10 senior citizen units and provide 13 new units for a total of 112 units. Full rehabilitation of site and site works would be included.

The physical regeneration proposals are accompanied by social and administrative support proposals which attempt to provide social programs, assistance for day care, and achieve a more balanced project population mix. The full support of provincial and municipal social services is available to assist in the funding and staffing of social facilities and the operation of social programs. The Saskatchewan Housing Corporation resources, together with other NHA facilities will cover a range of programs designed to improve the balance of population over the long term. Finally a comprehensive monitoring capability will be available to check the progress and results of implementation and to ensure information transfer.

UNIT REHABILITATION

Comprehensive rehabilitation is proposed for 99 housing units as summarized in the accompanying Table No. 3. The costs shown are based upon estimates provided by all the consultants to the study. Not all recommendations

of the consultants were agreed to by the Steering Committee and some overlap of consultants costs have been eliminated. The costs shown in support of the unit rehabilitation proposal contain and reflect these adjustments. A detailed item by item proposal is contained in Appendix 'A'.

The costs have been assembled to reflect local circumstances in Regina with respect to both material and labour costs and then rounded to the nearest \$5.00. It is recognized however that an estimate of full accurate rehabilitation costs is difficult to establish in view of many hidden and unknown physical conditions of existing structures. Also, the manner in which improvements are undertaken, the timing and scale of activity will all impact on actual item costs. Allowance for these factors has been made as described below.

The rehabilitation cost is based upon typical unit costs multiplied by the number of units of each type. Not all items of repair and rehabilitation listed for each unit will be required for each unit. Some savings will thus be obtained to apply against 'surprise' cost items.

In addition a full 10% contingency for unit rehabilitation costs has been included on top of actual costs. Further, a full 5% contingency has been added to the total estimated rehabilitation cost.

UNIT REHABILITATION PROPOSAL

TABLE 3

| | | NEW | | | | | |
|--------------------------------------|--------------------------|----------|-----------|-------------|-------------|-------------|-----------|
| | | | | | APPLIANCES, | CONTINGENCY | |
| | | RETROFIT | STANDARDS | LIVEABILITY | DECKS, etc. | 10% | TOTAL |
| 2 Bedroom Row Housing 1 Storey | Dollars per Unit | 3,495 | 6,625 | 680 | 1,100 | 1,190 | 13,090 |
| | No. of Units | 6 | 6 | 6 | 6 | 6 | 6 |
| | Total Dollars | 20,970 | 39,750 | 4,080 | 6,600 | 7,140 | 78,540 |
| 3 Bedroom Row Housing 2 Storey | Dollars per Unit | 5,615 | 6,865 | 250 | 1,100 | 1,380 | 15,210 |
| | No. of Units | 55 | 55 | 55 | 55 | 55 | 55 |
| | Total Dollars | 308,825 | 377,575 | 13,750 | 60,500 | 75,900 | 836,550 |
| 4 Bedroom Row Housing 2 Storey | Dollars per Unit | 5,995 | 9,180 | 550 | 1,100 | 1,680 | 18,505 |
| | No. of Units | 18 | 18 | 18 | 18 | 18 | 18 |
| | Total Dollars | 107,910 | 165,240 | 9,900 | 19,800 | 30,240 | 333,090 |
| 2 Bedroom Apartment 2½ Storey | Dollars per Unit | 2,185 | 8,745 | 670 | -- | 1,160 | 12,760 |
| | No. of Units | 20 | 20 | 20 | 20 | 20 | 20 |
| | Total Dollars | 43,700 | 174,900 | 13,400 | -- | 23,200 | 255,200 |
| 99 Units | Total Project Dollars | 481,405 | 757,465 | 41,130 | 86,900 | 136,480 | 1,503,380 |
| % of Total | | 32% | 50% | 3% | 6% | 9% | 100% |

Cost per unit (99) = 15,185

SITE REHABILITATION

General

Comprehensive site rehabilitation is required to resolve three key problems in the F.P.I. project including site grading and drainage, site circulation, and deterioration of hard surfaces. The costs for the proposed site work are based upon estimates provided by Reid Crowther, Engineering Consultants, as listed in Table 4. A detailed item by item listing is contained in Appendix A.

Grading and Drainage

It is proposed to correct the grading and drainage problems as outlined previously in the report by a complete regrading of the site, which will include corrective measures to overcome the settlement problems.

In addition it is proposed to provide an additional storm sewer discharging into the storm channel to the south to address the inadequacy of the existing storm water collection system.

Circulation

It is proposed to develop a minor project road and parking system to replace the present clustered parking arrangement. The provision of the "loop road" is considered an essential element in the regeneration proposals for the following reasons:

- a) Provides a "street address" for the units to minimize the project-like character of the housing and to facilitate the availability of normal services such as home deliveries, garbage collection, visitor access and parking.
- b) Encourages, through street frontage and address, a greater pride in the housing, its appearance and general maintenance by the tenants.

- c) Provides greater flexibility required for future change.
- d) Facilitates improved vehicular access to each of the ground oriented units and provides adjacent unit and visitor parking at the unit.
- e) Facilitates, if and when required, access to the vacant land to the south (presently land locked) for future residential development.

Horizontal Surfaces

The deteriorating quality of a large portion of both the hard and soft surfaces of the site together with the need for major regrading has indicated that a full replacement of all walkways, parking areas, and soft landscape areas is required. In addition the resolution of the settlement problems of the site would further dictate against the retention of any existing surfaces.

The summary of estimated costs are contained in Table 4 following.*

Table 4
Engineering Site Improvements

| | |
|-----------------------------------|---------|
| Hard Surface Removal and Proposal | 61,500 |
| Regrading | 60,000 |
| New Pavement | 136,900 |
| Curbs and Sidewalks | 95,800 |
| Storm Sewers | 89,100 |
| San Sewers (Adjustments) | 5,100 |
| Water mains (Adjustments) | 10,300 |
| Sub Total | 458,700 |
| 25% Engineering and Contingencies | 114,675 |
| TOTAL ENGINEERING | 573,375 |

* Source: Regent Court Regeneration Study Phase II
Prepared by Reid Crowther Engineers
Also Appendix 'C' Engineering Plans P1 - P6

Architectural Site Improvements

In addition to specific engineering proposals, there were the general site planning measures required to reorganize and effectively use the large areas of open space, to improve landscaping, play facilities, and site lighting, and to provide for privacy, including fenced rear yards for each row housing unit.*

The cost estimates are shown in detail in Appendix 'A' and summarized in Table 5 below.

Table 5
Architectural Site Improvements

| | |
|--|---------------|
| Privacy fencing | 42,700 |
| Additional fencing | 5,400 |
| Garden storage sheds | 21,900 |
| Benches, play equipment | 19,200 |
| Exterior Lighting and Soft Landscaping | <u>76,300</u> |
| TOTAL ARCHITECTURAL | 165,500 |
| TOTAL SITE REHABILITATION | 738,875 |

* Source: Report "Regent Court - An Architectural Analysis" prepared by David Thane Architect Incorporated. Also Appendix 'C' - Proposed Site Plan

REDEVELOPMENT

Clearance

It is proposed to clear the ten units of senior citizen single storey housing. This unit is extremely small and cramped with a usable floor area of 466 square feet. This particularly applies to inadequate kitchen, dining, storage, and utility areas. The consulting architect's report states that these units are generally marginal even for single or bachelor type occupancy. The NRC energy audit pressure test shows unusually high heat loss with a reading of 8.75 air changes per hour (compared to expected norm of 0.44). Although the cost of rehabilitating these units is not excessive, their layout and space limitations call into question any major expenditures for an extended life.

Over-riding the above cost considerations is the prime importance of improving circulation and access to all units in the project. This is a critical decision for the future of the project due to the major benefits it provides both immediate and long term. These are described in greater detail under 'Site Rehabilitation, b) Circulation'. While there are a number of alternatives possible, the marginal feasibility of rehabilitating the senior citizen units, their relatively poor and dispersed location within the project, and their key location with respect to the preferred alignment of the proposed project loop road, has resulted in the proposal to clear the ten senior citizen units. The costs for demolition of these units is estimated at \$3,500.00.

While rehabilitation is presently proposed for the two walkup apartment blocks in view of their substantially sound condition, concern has been expressed from the Housing Authority with respect to the life of the mechanical systems, with particular reference to heating. These were not specifically identified in any of the consultant's findings. A detailed assessment of the mechanical systems is underway by a qualified consultant. This will assess their quality and life expectancy as well as estimating the cost of upgrading, repairs, or replacement. If the addition of these costs suggest lack of feasibility of rehabilitation, then clearance and redevelopment would be given serious consideration.

New Construction

It is proposed at this stage of redevelopment to construct eleven new housing units to replace the senior citizen units being demolished. Considerations of population mix, other relocation alternatives and existing tenant wishes will establish the final unit types to be built. For estimating purposes, the costs for eleven new senior citizen housing units have been included. Total costs are in Table 6. In addition, it is proposed to convert half the semi-basement space of the walkup apartments to bachelor units. These basements are presently well under-utilized and require considerable modification to meet code and standard requirements. Conversion costs accomplished in concert with other basement rehabilitation costs are estimated at \$14,500 per unit with a total conversion cost for two units of \$29,000.00.

Table 6

New Construction and Conversion Costs

| | |
|---|---------------|
| Eleven New Senior Citizen Units at 35,000 | 385,000 |
| Two Apartment Conversions at 14,500 | 29,000 |
| Curb stop adjustments | 4,730 |
| Service Connections | <u>11,100</u> |
| TOTAL COSTS | 429,830 |

SUPPORTING FACILITY

Day-Care Centre

The provision of day-care service is viewed as a major element of project regeneration. As the need for this service also exists in the immediate neighbourhood, the facility must be generally accessible to both client groups.

A parcel of the city land adjacent to and immediately south of F.P.1. was identified as one possible site which met the above requirements. The proposed site was submitted to the Provincial Social Services Department for review and comment.

The Provincial Social Services Department approved in principle the Conceptual Master Plan* proposals for day-care provision adjacent to the F.P. site. The next stage is to submit a formal application for a provincial start-up grant and operational funding. Capital funding would have to be supplied by the partnership. The application would consist of plans and cost estimates based on a survey of need.

* Source: Conceptual Master Plan November 1980
- prepared by Prairie Region FSC (Map 5)

Requirements and Costs

For the purposes of a preliminary estimate prior to a survey of need we were advised to use a requirement of 60 day-care spaces for Regent Court*. This is the maximum space permitted by the province for one day-care building, and gives a total space requirement of 2600 sq. ft. (at 35 sq. ft. per pre-schooler plus 25% for common space in halls, kitchens, etc.) At an approximate \$40 per sq. ft. together with 15% for Architectural Services and contingencies, this would cost \$119,600 for a single storey building**. Single storey is the preferred building form for fire safety and ease of operation.

Provincial Funding*

Provincial funding provides for a start-up grant of \$600 per day-care space totalling \$36,000 for the above proposal. This would cover furniture and equipment costs estimated at \$27,600 as follows:

Table 7

| <u>FURNITURE AND EQUIPMENT</u> | |
|--------------------------------|------------|
| Children's Equipment | \$ 20,000 |
| Kitchen Equipment | 6,000 |
| Office Furniture & Equipment | 1,000 |
| Fire Extinguishers (4) | <u>600</u> |
| | \$ 27,600 |

* Source: Provincial Department of Social Services

** Source: Regina Branch - approx. figures for comparable space (eg. school accommodation)

Table 8

SUMMARY OF PHYSICAL COSTS

| | |
|--------------------------------------|--------------------|
| Rehabilitation 99 Existing Units | \$1,503,380 |
| Rehabilitation of Site | |
| - Engineering | 573,375 |
| - Architectural | 165,500 |
| Clearance 10 units | 3,500 |
| New Construction/Conversion 13 units | 429,830 |
| Day-care Facility | <u>119,600</u> |
| TOTAL PHYSICAL COSTS | <u>\$2,795,185</u> |

SOCIAL MEASURES*

Play Facilities

The absence of on-site outdoor play facilities and the number of preschoolers in the project suggest a need for significant improvement to the project play areas to facilitate parent supervision, encourage creative, social and quiet play, and minimize vandalism. These costs have been included in site rehabilitation costs.

Vandalism

The frequency of vandalism and petty crimes should be reduced. Physical improvement of the project will provide the improved environment but better community organization is the key to solving the problem. It is recommended that the Housing Authority should encourage the Tenant Association to work with the Police Crime Prevention Unit, as community based programs of this type have been found most effective.

Tenant Organization

The Tenant Association is important as it enables tenants to voice their concerns and become involved in their community. It also provides educational and training opportunities which would benefit many of the residents. In order to provide effective services to the tenants the Association must revitalize its organization and programs. Involvement in the planning of Regent Court Regeneration as well as representation in the Community Association should establish a sense of responsibility and a growing participation in the affairs

* Source: Social Survey carried out in June 1980
Regional Social Development Officer

of the Tenant Association. The Tenant Association should also optimize the use of the Community Services Grant provided by the Province to promote community participation, life skill training and information and referral programs within the project.

The preliminary investigation has indicated that the attitudes of the tenants and the wider community towards each other could be improved with mutual benefit. The possibilities for mutual misunderstanding, including the tenants sense of isolation and the communities' views on public housing, can be corrected to some extent by careful planning. Such planning should encourage wider community associations for the tenants and their children, and a pride in their property. Measures such as shared programs, a balance of population, property improvements, a private lot and a 'street address' would help to bring about these improvements. The details of such measures are described elsewhere in the study.

In considering improvements in the population balance it should be emphasized that a concerted effort will be required to meet the long term needs of single parent families as a growing segment of the population receiving low-cost housing. The problem is likely to grow in volume and the opportunities for reducing the number of single parents at Regent Court are therefore limited.

It is acknowledged that Regent Court represents a lower than average quality of accommodation in the

Housing Authority portfolio. Under these circumstances it is likely that the tenant group population characteristics tend not to reflect the norm of other public housing ground oriented projects in the portfolio. If this is the case, attempts should be made to correct such distortions. In any event the question of a balanced population redistribution within the total Housing Authority stock should be fully explored. It may then prove possible to increase the proportion of two-parent families, senior citizens and the handicapped at Regent Court.

The availability of vacant land to the south also provides an opportunity of introducing a variety of housing types and population. Non-profit, co-operative, and market housing could be considered.

Suitability of the Project for Senior Citizens Housing

The existing senior citizen housing has certain disadvantages. The inconvenience of having to walk out of the unit to get to the laundry room is a major complaint among the seniors in the existing units. Limited supportive social services are provided to the seniors because of the small number of units on the site. In spite of these drawbacks the general location of the site is favourable due to relatively easy access to a variety of facilities, including shopping, neighbourhood programs and services, and public transportation. An increased number of senior citizen units in the regenerated project could provide a more appropriate tenant mix and would justify the provision of the supportive social services which are available to senior citizens living in other locations.

Tenant Participation

During the Conceptual Plan phase the Social Development Officer Prairie Region met with a representative group of the tenants to discuss the problems of the project and possible remedial action. As soon as the F.P. Steering Committee was established in Regina under the chairmanship of the Housing Authority Chairman, a tenant representative was appointed to the committee. On-going liaison has since been maintained by means of bi-weekly progress summaries and regular meetings with the Housing Authority to bring the Tenants Association up to date and to receive input on the plan. Following approval of the proposals, consideration should be given to conveying to all residents an outline of the plan, its purpose, and the part which the residents can play in its implementation.

SECTION 40 MODERNIZATION & IMPROVEMENT - THE FUTURE

The funding of regeneration has to date been provided under an annual Sec. 40 modernization and improvement budget. Under this procedure a shopping list of maintenance items is submitted annually for CMHC approval. Such a system is perfectly valid over the short term provided it is limited to detailed maintenance items. Over the years however major building and site modifications may be required to head off cumulative physical deterioration, and shifts in the balance of population may occur which create unforeseen social problems and special needs. These are the root causes of long term deterioration which are beyond present administrative and funding capabilities.

In seeking a balanced decision on the long term funding it is important to note the relationship between the many autonomous housing authorities concerned daily with the practical problems of tenant behavior and detailed maintenance, and the centralized funding system 'site unseen'. Some mutually agreed arrangement must be found to combine the practical skills of the housing authorities and their intimate knowledge of the projects, with the technical and financial skills required to evaluate long term physical and social deterioration and to plan on-going effective measures on a broad front, which will be cost effective and responsive to future change.

This subject cannot be dealt with in detail in this report. It is suggested however that in-depth discussions be organized by CMHC in the near future with a sample of Provincial Housing Corporations and Housing Authorities

to examine long term project evaluation and funding.

Some suggested areas for discussion are as follows:

- a) the provision of flexible partnership funding sources responsive to on-going evaluation and comprehensive remedial measures.
- b) the establishment of partnership procedures for project evaluation on a 5-year cycle.
- c) the assembly and composition of evaluation teams and the definition of required skills.

INFORMATION AND MONITORING

A bi-weekly information system was implemented during the study to keep the partnership and CMHC management aware of study progress. This was done by means of a bar chart and narrative summary which was updated and made available for wide distribution. A seminar was held with appropriate National Office divisional representatives on June 9th and 10th at the Prairie Regional Office to present the Regeneration Study and to provide an opportunity for an open discussion on the significant issues.

To achieve a controlled experiment of practical value to the partnership it is essential to establish a monitoring system for the construction and post-construction phase. This will record in summary and bar charts the construction progress and innovations, and evaluate the results in terms of Housing Authority and tenants reactions, functioning of the plan and performance of materials over an extended period. In this way results can be summarized and distributed and steady progress can be made in improvement of policy, process and method, for general application in all regions.

The F.P. Steering Committee is directing the public relations aspects of the project. One of their prime concerns is to avoid raising premature expectations and to phase the publicity releases at significant stages once proposals are fully approved by the Committee and their principals.

IMPLEMENTATION

RELOCATION

- General
- Alternatives
- Recommendation

REHABILITATION

- General
- Alternatives
- Recommendation

SITE IMPROVEMENTS

- General
- Alternatives
- Recommendation

REGENERATION MANAGEMENT

FUNDING

RELOCATION

General

Rehabilitation under NHA programs does not usually involve relocation of residents, so there is very little previous experience in this type of operation. In Regent Court there will be some small scale rehabilitation work which can be carried out within occupied units. Some of the work however will involve major disturbance and discomfort and for the duration of such work it is essential that the tenants are moved elsewhere. This would also have the added advantage of shortening the construction phase by allowing the work force an opportunity to work effectively without interference. One of the major purposes of a sound decision on relocation will be to establish a reasonable balance between job efficiency and tenant convenience. The purposes of any relocation operation would be as follows:

- a) to establish optimum work conditions to enable the job to be carried out effectively in the shortest possible time period.
- b) to avoid discomfort, noise, and general disruption of living conditions for the residents.

Relocation involves the moving of people and household effects and each of these must be considered separately in evolving a strategy. An essential prerequisite to successful implementation is a sequence of unit rehabilitation which is tailored to a specific relocation strategy. The strategy would necessarily involve the tenants whose support must be enlisted if the operation is to be successful.

Alternatives

In seeking relocation accommodation the following alternatives were considered:

- a) Utilize project vacancies for temporary accommodation and allocate funds to furnish say 6 units to be used as relocation bank. This has the advantage of familiar surroundings for the tenant, comparatively modest costs and continual reuse of the unit throughout the construction period, with a possibility of partial recoveries from furniture sales on completion of work. This would also be a suitable method for the housing of those senior citizens who wish to remain in the project. On completion of redevelopment they could move to one of the newly completed units.
- b) Arrangements might be negotiated with a local motel to set aside units for relocation during the total construction period. This would not be appropriate family accommodation and the locations might be inconvenient. Costs would be relatively high for such accommodation.
- c) Use MIF/CORE units in the City. Currently there are approximately 100 units. Sales are going well however with the result that there are only about 15 vacancies at this time.* It may be possible to reconsider this at a date closer to the construction phase. The method has the same drawbacks as above in terms of scattered locations plus the need to move with household effects. CMHC policy re MIF would also run counter to any proposal which delayed property sales.

* Source: CMHC Prairie Region - Mortgage Admin. & Real Estate

d) Use RHA vacant units throughout the City (average of 200 units)* as temporary accommodation. This would involve moving out of the neighbourhood with household effects and would be a major disruption of the tenants lives.

All the alternatives described above involve the movement of household effects which can be handled as follows:

- a) For vacant project units which are temporarily furnished and for motel accommodation the household effects could be stored in the basement of the unit to be rehabilitated, or by placing them in rented storage.
- b) For RHA and MIF units the household effects would have to move with the tenant and return on completion of the unit.

Relocation options can be summarized as follows:

RELOCATION ALTERNATIVES

Table 9

| RELOCATION | | COMMENTS |
|----------------------------|-------------------|---|
| Tenants | Household Effects | |
| No relocation | No relocation | Relatively slow pace at 36 vacancies p.a. No flexibility for rehabilitation operation which must be planned around vacancies as they occur. Large firm may use as means of employing skilled labour in off-peak periods. Maximum tenant convenience. |
| Furnished Units in project | Temporary Storage | Reasonable pace due to constant turnover. Planned rehabilitation possible. Families use as temporary accommodation for a few days during major construction work. Maximum tenant convenience. |

* Source: Regina Housing Authority

Table 9 continued

| Tenants | Household Effects | COMMENTS |
|--------------------------------------|----------------------|--|
| Motel | Temporary Storage | Pace as fast as budget permits. Permits planned rehabilitation at high volume. Suitable for 'economies of scale' and innovative industrial methods of large firm. Tenant disturbance, possibly unsuitable units and location. |
| MIF Units | Move with Tenant | Availability uncertain as sales are currently brisk. Policy review for MIF sales required to hold units. Location might be scattered and inconvenient. Tenants lives and schooling may be dislocated. |
| RHA Units 20% or 200 Vacancies | Move with tenant | Planned rehabilitation at high volume. Rapid pace possible due to large pool of vacant units therefore especially suitable for large firm and innovative industrial methods. Locations might be scattered and inconvenient. Tenants lives and schooling may be dislocated. |

Recommendation

It is recommended that relocation alternative a)
utilizing a bank of refurbished units on site be utilized.

The costs associated with the recommended strategy would
be as follows:

| | |
|---|---------------|
| Furniture acquisition for 6 units @ 4000/unit | 24,000 |
| Moving costs of tenant furniture to on site or basement storage during rehabilitation and return to original unit 5 hours @ 36.00/per unit* 99 units | <u>17,820</u> |
| TOTAL RELOCATION | 59,640 |

* Source: McCosham, Saskatoon

REHABILITATION

General

The overall pace of project rehabilitation will be governed by the relocation potential. For the individual unit, duration of work may be quite short (say 5 days), but the overall turn-over of completed units will depend upon the labour resources available and upon the potential for relocation of the various methods previously outlined.

The usual approach to residential rehabilitation has been to use small contracting firms on individual houses. This approach has been appropriate for much of the work on single family housing in RRAP areas. Such a method was responsive to the individual of modest means seeking competitive bids for small scale rehabilitation. The advantages of this approach for Regent Court would be flexibility, moderate pace and minimal disturbance for the residents.

At the other end of the spectrum the Regent Court project offers unique opportunities for economies of scale and innovative methods due to the concentration of units under public management. This approach would use the organizational and financial skills of a large firm in an attempt to improve the efficiency of rehabilitation. The advantages would be as follows:

- a) Opportunities for experimenting with innovative approaches by making full use of the firms organizational and financial skills to achieve economies of scale.
- b) Financial control of the total operation.
- c) Financial resources and availability of bonding.
- d) Organization of labour, including effective use of sub-contractors and efficient direction of the flow of work.

- e) Bulk purchase of materials.
- f) Optimum phasing of the work.
- g) Effective standards of workmanship and consistency throughout the project.
- h) Short construction period.
- i) Minimal period of disturbance for the project as a whole.

Alternatives

There appear to be four main alternative approaches to implementing rehabilitation as follows:

- a) Use the substantial resources of a large firm.
The advantages are described above and focus mainly on efficiency and industrial innovation. Guaranteed access to vacant units would be required as a consequence of sound relocation strategies.
- b) Use a medium to small local contractor with known track record in RRAP. The advantages would be the contractors proven reliability and competence together with his flexibility in adapting to a variety of relocation alternatives.
- c) Use sub-contractors hired and supervised by the Housing Authority as in the usual maintenance procedures. The tasks outlined in the estimates indicate that 6 sub-contractors would cover the total rehabilitation work in any one unit. Advantages are described above and focus on flexibility and tenant convenience. Guaranteed access to vacant units would permit better planning and control but would not be an essential requirement for this method.

- d) Regard the rehabilitation as an on-going long term task requiring permanent RHA staff. The advantages of this method might be costs, and the development of a skilled permanent staff. Such a staff could be employed on the total RHA housing stock in on-going systematic rehabilitation in lieu of a one-shot operation.

The above approaches can be combined with the relocation strategies previously outlined. The large firm (alternative a) operates at optimum capacity with the larger planned potential provided by relocation units. It might also welcome the opportunity to carry out rehabilitation work at a slower pace, using project relocation or rehabilitating units as they become vacant, as a means of retaining skilled labour in a slack period. The advantage to the project would be the availability of a large pool of organizational and financial skills.

Alternative b), using a medium to small contractor, is a practical solution adapted to local conditions and offering flexibility together with a guarantee of competence and reliability based on an established track record. Alternative c) and d) using small sub-contractors or staff labour force, would be more appropriate for slower paced planned relocation geared to a modest bank of project units, or to rehabilitation of vacant units as and where they occur.

Recommendation

Alternative b), using an established medium to small contractor, is provisionally recommended for Regent Court due to its appropriateness for the local situation. The final choice should not be made however until HUDAC and major industrial concerns have been thoroughly canvassed for their interest and potential in innovative large scale rehabilitation.

TABLE 10

SUMMARY OF REHABILITATION AND RELOCATION ALTERNATIVES

| REHABILITATION | COMMENTS | RELOCATION | COMMENTS |
|-------------------------------|--|----------------------------------|---|
| a) Large firm | Efficiency | a) No relocation | Maximum tenant convenience. No relocation costs. Least control over timing and operation. Large firm may use this option to retain skilled staff in off-peak periods. |
| | Opportunity for industrial innovation | b) Furnished Units in project | As above only pace of rehabilitation increases opportunities for efficiency and industrial innovation. Guarantees access to vacant units for rehab. Maximum tenant convenience by providing accommodation on-site. Minimizes relocation costs. |
| | Organizational & financial skills | | |
| | Financial control of project | | |
| | Financial resources & bonding | | |
| | Organization of labour | c) Motel | Inconvenient location and unit. Pace of rehabilitation adaptable to available budget and large scale operation. |
| | Bulk purchase of materials | d) RHA Units | Location could be inconvenient. Household effects must be relocated with tenant. 200 units vacant provides generous capacity and speed of rehabilitation. Adaptable to large scale operation. |
| | Optimum phasing of work | e) MIF Units | Requires a policy review re MIF sales which are going well to date. |
| | Short construction period | | |
| | Minimal disturbance of total project | | |
| b) Medium to small contractor | In general demands planned relocation | a) No relocation | As above. Medium/small firm adaptable to slow volume. |
| | Select for track record in RRAP | b) Furnished units in project | As above. Medium/small firm particularly appropriate. |
| | Proven reliability and competence | c) Motel | As described in c), d), and e) above. |
| | Adaptability to varied work schedules and a range of relocation options. | d) RHA Units | Medium/small firm has flexibility |
| | Economic soundness known from past performance and estimates. | e) MIF Units | to adapt to higher volumes involved |

| REHABILITATION | COMMENTS | RELOCATION | COMMENTS |
|--------------------|---|---|---|
| c) Sub-contractors | Flexibility regarding pace of rehabilitation and location of units, suitable for scattered vacancies and moderate pace. | a) No relocation b) Furnished Units on project c) Motel d) RHA Units e) MIF | Slow pace and random vacancies adapted to flexibility of sub-contractors. Medium pace & planned relocation still appropriate for this technique. Disruption, planning and budget on this scale difficult to justify and expensive. Disruption of tenants. Does provide family accommodation for a short period on a relatively large scale. This permits a faster pace which sub-contractors may not be able to maintain. As above, but availability of units doubtful due to MIF sales policy. |
| d) RHA Staff | Flexibility as above On going rehabilitation Avoidance of problem build-up Familiarity with project & tenants Suited to random vacancies as above | a) No relocation b) Furnished Units on project c) Motel d) RHA Units e) MIF | Appropriate to relocation method - as for sub-contractors due to slow pace and random vacancies Appropriate as above with increased pace of rehabilitation possible. Costly and inconvenient to tenants due to unsuitable accommodation. Tenant disruption. Provides for a faster pace which permanent staff resources may not maintain. As above. |

SITE IMPROVEMENTS

General

A major consideration in effective site improvement is the need for phasing the sequence of operations over the entire site to ensure the efficient use of skilled labour and heavy machinery. The site could not therefore be approached in a piecemeal fashion without a disproportionate escalation of costs and an unnecessarily lengthy implementation stage.

Alternatives

- a) Use of the total site providing for the maximum operational effectiveness over a minimal construction period, and involving safety measures, alternative access and parking.
- b) An operation involving 3 or more phases and improving one third of the site in each phase. This would involve defined safety zones, alternative access and parking as required, and provide for a reasonably effective operation and construction period.
- c) Site operations with phasing geared to the selected strategy for rehabilitation. This would involve complex phasing and substantial constraints on site operations affecting their efficiency, costs and speed of operation. It would however contribute to the safety and convenience of the residents.

Within this general framework a series of alternative proposals can be implemented to provide progressively more comprehensive site improvements tailored to budget. These range from privacy on the lot, to general landscaping improvements, to a substantially upgraded layout plan with a loop access road. The latter will provide potential for redevelopment, and infill housing and ultimately the development of the landlocked city parcel at the rear of the F.P. site.

Recommendation

Alternative b) phased site improvement is recommended as a compromise which avoids the hardship of sterilizing the entire site and the complexities of coordinating site works with unit rehabilitation.

Site Improvement Strategy*

The sequence of operations might be as follows:

- a) Review of preliminary site improvement plans by city and S.P.C. Check sanitary sewers with sewer camera.
- b) Preparation of working drawings and tender packages for site improvement.
- c) Utility survey, relocation and clearance:
Stake out utilities and services.
Relocation and building clearance as required.
- d) Services, roads and grading:
Install catch basins and storms.
Repair or replace sanitary sewers as required.
Excavate for surplus material and fill on site.
Install gravel.
Install underground electrical cable, parking plugs and site lighting.
Install curbs.
Fine grading and distribute topsoil.
Pave roads, parking areas and other hard surfaces.
- e) Landscaping and site works:
Completion of planting, sodding, sprinklers, and other site works.
Install site furniture and play equipment.

CMHC would be responsible for arranging for tenders. The working drawings would be prepared by appropriate engineering and landscape consultants. The staking out work under 3. would be carried out by the City and Saskatchewan Power Corporation, relocation by the Regina Housing Authority, and building clearance by a demolition contractor. With these operations completed

* Source: Technical Services, Prairie Region

the site improvement (electrical work excepted) falls into two major categories of services, roads and grading; followed by landscaping and site works. These would probably be handled most effectively under two separate contracts. The work should be completed within a six week period and for climatic reasons should be carried out between May and November 1st.

Separate tender packages would be prepared for building clearance; for services, roads and grading; and for landscaping and site works. Specifications should ensure that provision is made by the contractor for access to the units as required during site operations. Alternative parking should also be provided for the residents.

Site supervision could be provided by the engineering and architectural consultants as their involvement in the Phase 2 Detailed Study and their familiarity with the site and the objectives of regeneration are appropriate qualifications for the task.

REGENERATION MANAGEMENT

While the actual implementation of unit rehabilitation, site rehabilitation, and relocation activities should be supervised by the appropriate professional consultants or representatives of the Housing Authorities, there is a vital need for the overall coordination of these activities in the implementation stage. This is viewed as a full time activity, and a sum of \$70,000.00 has been allocated for a regeneration manager based upon \$35,000 per annum for two years.

Management expertise could be sought from the private sector, initiating their active involvement in a major governmental rehabilitation effort. Alternatively, this would provide a unique opportunity for the development of partnership skills in regeneration management which can be utilized throughout the Section 40 housing portfolio both locally and nationally. It is recommended that partnership resources be utilized or intimately involved with the regeneration management.

FUNDING

General

From the inception of the study the testing of a wide spectrum of NHA programs in a rehabilitation context was considered as a priority for the implementation funding. For this reason a large number of programs were examined in the concept stage* with the anticipation that a flexible approach to long term funding was desirable and that consideration might even be given to reactivating obsolete programs if these appeared appropriate for the purposes of long term regeneration.

Many of the programs related to regeneration were examined and dismissed as impractical due to disentanglement, termination, complex reactivation procedures, and elaborate delivery mechanisms. The latter included such items as Provincial allocations, agreements and area designations. For these reasons Sec. 24 & 25 Urban Renewal, CSCP, NIP, Sec. 27 Site Clearance and RRAP were examined and rejected. CHIP grants have already been utilized for the row housing.

* Source: Regent Court - Stage 1 Conceptual Master Plan
Nov. 20/80 (revised) - Appendix D

Provincial programs examined included the Residential Rehabilitation Program and the Warm-up Saskatchewan Conservation Program, both of which were rejected as they apply to homeowners only. Other programs were still relevant and practicable. These included the Sec. 40 Modernization and Improvement program and Sec. 40 Capital Funding.

Sec. 40 Modernization and Improvement

The Sec. 40 Modernization and Improvement Program has no specific guidelines which define the tasks and budget limits. Its method of implementation however is normally determined by Housing Authority inspection procedures and partnership review of expenditures. These have usually adopted a 'maintenance' approach which normally precluded a comprehensive evaluation of the project in broad social and developmental terms. In addition budget resources under Modernization and Improvement are normally designed for annual expenditures, the funding coming from operating losses and being written off in one year. In discussions with National Office these historical limitations were clarified and it was concluded that the Modernization and Improvement Budget was adaptable to major expenditures on regeneration provided these were properly documented and justified.

Sec. 40 - Capital Funding

Sec. 40 Capital Funding has been discussed with the F.P. partners in Steering Committee meetings and appears to be generally accepted as a preferred funding device, provided the Province do not lose their allocation of subsidy units, and assuming that there are no major restrictions on capital expenditures for rehabilitation. It is recommended therefore that following approval of a Regent Court Regeneration proposal and subject to necessary financial reviews, application should be made to the Treasurer's Directorate for additional capital funds for implementation.

New Construction

A number of programs have been considered by the partnership for new construction including redevelopment, infill and the development of adjacent city lands. On the F.P. site the preferred programs were Sec. 40 public housing with a preference for senior citizens. Other social housing programs were considered but dismissed due to the complexities of subdividing the F.P. site. A number of mixed programs were also considered for new construction on adjacent lands including non-profit, coop, and Sec. 6 lending. The purpose of these programs would be to establish an improved population balance by building an appropriate 'mix' of housing.

APPENDIX A

FINANCIAL SUMMARY

Rehabilitation:

| | | |
|--|---------|-----------|
| Units | | |
| 2 BR ROW HOUSE (16 units) | 78,540 | |
| 3 BR ROW HOUSE (55 units) | 836,550 | |
| 4 BR ROW HOUSE (18 units) | 333,090 | |
| 2 BR APTS (20 units) | 255,200 | |
| Sub Total | | 1,503,380 |
| Site | | |
| Engineering | 573,375 | |
| Architectural | 165,500 | |
| Sub Total | | 738,875 |
| Relocation | | 59,640 |
| Construction Management | | 70,000 |
| 5% Additional Contingency on Above Costs | | 118,590 |
| Cost of Study | | 50,000 |
| TOTAL REHABILITATION (25,660/unit) | | 2,540,485 |

New Construction:

| | | |
|------------------------|---------|---------|
| Clearance | | 3,500 |
| New Construction | | |
| 11 units @ 35,000 | 385,000 | |
| Apt. Conversion | 29,000 | |
| Engineering | 15,830 | |
| Sub Total | | 429,830 |
| Day Care Centre | | 119,600 |
| TOTAL NEW CONSTRUCTION | | 552,930 |

| | |
|--------------------|-----------|
| TOTAL REGENERATION | 3,093,415 |
|--------------------|-----------|

APPENDIX A

FINANCIAL SUMMARY

UNIT REHABILITATION

| * SENIOR CITIZEN 1 STOREY (10 units) 1 BEDROOM ROW HOUSING | | Estimated Cost Per Unit | REMARKS |
|---|--|-------------------------------|---------|
| A. RETROFIT | | | |
| Heating thermostat control valve and labour | | 130 | |
| Insulate exterior walls and new siding | | 935 | |
| Insulate attic (R35) in new roof | | 250 | |
| Insulate floor (R20) | | 350 | |
| Insulated metal exterior doors & storm doors | | 1,100 | |
| Seal lower side light | | 100 | |
| Replace windows, recaulk | | 745 | |
| Sub Total - A | | 3,610 | |
| B. REHABILITATION TO ACCEPTABLE STANDARD | | | |
| KITCHEN | | | |
| Replace kitchen cupboards in revised kitchen - material and labour | | 1,130 | |
| Patch drywall and repair | | 50 | |
| Shut off valves for sink | | 35 | |
| BATHROOM | | | |
| Tub enclosure | | 250 | |
| Shower valves, labour | | 100 | |
| Sink & vanity | | 250 | |
| Remove tiles/sink | | 25 | |
| Grab bar | | 35 | |
| Patch drywall | | 50 | |
| BEDROOM | | | |
| Closet doors | | 100 | |
| FLOORS | | | |
| ¾" plywood underlay kitchen/bathroom with new sheet good floor covering -- carpet remainder of unit | | 1,450 | |
| PARTY WALL | | | |
| Strap, drywall, paint | | 700 | |
| STORAGE | | | |
| 3 shelves & duplex outfit | | 100 | |
| EXTERIOR | | | |
| New trussed rafters roof, asphalt shingles | | 1,275 | |
| Mail box, unit number | | 30 | |
| Install laundry room window | | 225 | |
| Soffits | | 130 | |
| INTERIOR | | | |
| Paint walls/doors/trim/stipple ceiling | | 750 | |
| Smoke detector | | 30 | |
| Sub Total - B | | 6,715 | |

* Detailed cost summary for rehabilitation of senior citizen units included for reference only

| SENIOR CITIZEN 1 STOREY (10 Units) 1 BEDROOM ROW HOUSING ...cont'd | | Estimated Cost Per Unit | REMARKS |
|--|---------|-------------------------------|---------|
| C. <u>ARCHITECTURAL DESIGN MODIFICATIONS</u> | | | |
| Relocate Range Plug | 100 | | |
| Relocate Fridge Outlet | 100 | | |
| Plumbing for relocated sink | 100 | | |
| Kitchen counter | 450 | | |
| Bifold door front entry | 75 | | |
| Framing & drywall for storage area, kitchen, bedroom adjustment | 420 | | |
| Patio door kitchen/dining | 600 | | |
| Wood deck back entrance | 1,100 | | |
| Sub Total - C | 2,945 | | |
| Senior Citizens - Total | 13,270 | | |
| Add 10% Contingency | 1,320 | | |
| Total per Unit | 14,590 | | |
| Total Cost - 10 units | 145,900 | | |

| 2 BEDROOM 1 STOREY (6 UNITS) ROW HOUSING | | Estimated Cost Per Unit | REMARKS |
|--|--|-------------------------------|--|
| A. RETROFIT | | | |
| Heating - replace furnace | | 350 | -replacement of existing furnace with smaller unit where required. NRC advised against use of energy efficient furnace |
| Basement Wall Insulation (R12), 2 x 4 strapping drywall finish | | 1,100 | -use R20 insulation |
| Basement storm window | | 200 | -further consideration to be given to closing up window opening |
| Insulated metal exterior doors and storm doors | | 1,000 | |
| Seal lower light | | 100 | |
| Replace windows | | 745 | |
| Sub Total - A | | 3,495 | |
| B. REHABILITATION TO ACCEPTABLE STANDARDS | | | |
| BASEMENT | | | |
| Firestop chimney | | 10 | |
| Handrail | | 30 | |
| Dryer Receptacle | | 100 | |
| 100 Amp Service | | 100 | |
| Washer and dryer | | 800 | |
| KITCHEN | | | |
| Cupboards | | 500 | -cupboard structure is sound-replace doors only |
| Shut off valve | | 35 | |
| New duplex receptacle over counter | | 50 | |
| BATHROOM | | | |
| Tub wall covering 5' above tub | | 240 | -use "paris wall" fibreglass reinforced vinyl, 50% saving over tile |
| Shower valves, labour | | 100 | |
| Curtain for shower and rod over window | | 25 | |
| Sink and vanity | | 250 | |
| Patch and repair drywall | | 50 | |
| BEDROOM | | | |
| Closet doors | | 200 | |
| FLOORS | | | |
| ¼" plywood underlay kitchen/bathroom & new sheet goods covering - carpet remainder of unit | | 2,100 | |
| PARTY WALLS | | | |
| Strap and Drywall | | 705 | |

| 2 BEDROOM 1 STOREY (6 units) ROW HOUSING ...Cont'd | | Estimated Cost Per Unit | REMARKS |
|---|--|-------------------------------|--|
| EXTERIOR | | | |
| Precast concrete steps at front | | 250 | |
| Level window well and secure | | 60 | |
| Repoint chimney | | 10 | |
| Identification NO. | | 10 | |
| Mail Box | | 20 | |
| INTERIOR | | | |
| Repaint walls/doors/trim/stipple ceiling | | 950 | |
| Smoke Detector | | 30 | |
| Sub Total | | 6,625 | |
| C. <u>ARCHITECTURAL DESIGN MODIFICATIONS</u> | | | |
| KITCHEN | | | |
| Relocate range plug | | 100 | |
| Plumbing adjustment | | 40 | |
| BEDROOM | | | |
| Closet doors new closet | | 100 | |
| Framing drywall for bedroom closet, separation wall, open stairwall | | 440 | |
| Sub Total - C | | 680 | |
| Wood deck at back | | 1,100 | -alternative solution at rear would leave existing asphalt, add 3" sand and pavers-savings approx. 400 |
| Sub Total | | 1,100 | |
| Row Housing 2 BR Total | | 11,900 | |
| 10% Contingency | | 1,190 | |
| Total Per Unit | | 13,090 | |
| Total Cost - 6 Units | | 78,540 | |

| 3 BEDROOM - 2 STOREY (55 UNITS) ROW HOUSING | | Estimated Cost Per Unit | REMARKS |
|--|---|-------------------------------|---|
| A. | <u>RETROFIT</u> Heating - new furnace | 350 | -replacement of existing furnace with smaller unit where required. NRC advised against use of energy efficient units now coming on market |
| | Basement Wall Insulation R12, 2 x 4, with drywall | 1,100 | -R20 insulation |
| | Insulate upper storey & reuse existing siding | 1,200 | -Existing siding is premier quality and should be reused |
| | Basement storm window | 200 | -further consideration to be given to sealing window opening |
| | Insulated metal exterior doors and storm doors | 1,000 | |
| | Seal lower side light | 100 | |
| | Replace windows | 1,465 | |
| | New brick sill & caulk | 200 | |
| | Sub Total - A | 5,615 | |
| | | | |
| B. | REHABILITATE TO ACCEPTABLE STANDARD | | |
| | BASEMENT | | |
| | Firestop chimney | 10 | |
| | Handrail | 30 | |
| | Dryer receptacle | 100 | |
| | 100 amp service | 100 | |
| | Washer and dryer | 800 | |
| | KITCHEN | | |
| | Cupboard doors | 500 | -replace cupboard doors refinish remainder |
| | Shut off valves, sink | 35 | |
| | BATHROOM | | |
| | New tub enclosure | 250 | |
| | Shower valves/labour | 100 | |
| | Sink & vanity | 250 | |
| | Remove tiles, sink | 25 | |
| | Patch drywall | 50 | |
| | BEDROOM | | |
| | Closet doors | 300 | |
| | FLOORS | | |
| | ¼" plywood underlay for kitchen/wash-room & new sheet goods floor covering and carpet remainder | 1,580 | |
| | PARTY WALLS | | |
| | Strap, drywall | 705 | |

3 BEDROOM - 2 STOREY (55 units)
ROW HOUSING
...cont'd

Estimated
Cost
Per Unit

REMARKS

EXTERIOR
Reshingle roof
Precast concrete steps in front
Level window wells & secure
Repoint chimney
Identification No.
Mail box

420
250
60
10
10
20

INTERIOR
Repaint all walls/doors/trim &
stipple ceiling
Smoke detectors 2 @ 30

1,200
60

Sub Total - B

6,865

C. ARCHITECTURAL DESIGN MODIFICATIONS

Front entry bifold doors
Duplex outlet for fridge
Relocate range plug

100
50
100

*No major design
modifications
recommended - reverse
location of stove &
fridge to eliminate
fire hazard

Sub Total - C

250

Wood deck in back

1,100

Sub Total

1,100

Row Housing 3 BR Total

13,830

10% Contingency

1,380

Total Per Unit

15,210

Total Cost - 55 Units

836,550

| 4 BEDROOM 2 STOREY (18 units) ROW HOUSING | | Estimated Cost Per Unit | REMARKS |
|--|---|-------------------------------|---|
| A. | <u>RETROFIT</u> Heating - replace furnace | 350 | -replacement of existing furnace with smaller unit where required. NRC advised against use of energy efficient units now coming on market |
| | Basement wall insulation R(12) - 2 x 4 strap with drywall | 1,000 | |
| | Insulate upper storey and reuse existing cladding - refinish | 1,200 | |
| | Basement storm window | 200 | |
| | Insulated metal doors & storm doors | 1,000 | |
| | Seal lower side light | 100 | |
| | Replace windows | 1,845 | |
| | New brick sill & caulking | 300 | |
| | Sub Total - A | 5,995 | |
| | | | |
| B. | <u>REHABILITATION TO ACCEPTABLE STANDARDS</u> | | |
| | <u>BASEMENT</u> | | |
| | Firestop chimney | 10 | |
| | Handrail | 30 | |
| | Dryer receptacle | 100 | |
| | 100 amp service | 100 | |
| | Washer/dryer | 800 | |
| | <u>KITCHEN</u> | | |
| | Cupboards | 500 | -replace doors only, refinish remainder |
| | Shut off valves for sink | 35 | |
| | Add duplex receptacle over counter | 40 | |
| | <u>BATHROOM</u> | | |
| | Tub enclosure | 250 | |
| | Shower valve, labour | 100 | |
| | Sink, vanity | 250 | |
| | Remove tiles, sink | 25 | |
| | Patch drywall | 50 | |
| | <u>BEDROOM</u> | | |
| | Closet doors | 400 | |
| | <u>FLOORS</u> | | |
| | ½" plywood underlay in kitchen/washroom and new sheet good floor covering, carpet remainder of unit | 3,275 | |
| | <u>PARTY WALLS</u> | | |
| | Strap and drywall | 705 | |
| | <u>EXTERIOR - General</u> | | |
| | Reshingle roof | 600 | |
| | Precast concrete steps in front | 250 | |
| | Level window well/secure | 60 | |
| | Repoint chimney | 10 | |
| | Identification No. | 10 | |
| | Mail box | 20 | |

| 4 BEDROOM 2 STOREY (18 units) ROW HOUSING ... cont'd | | Estimated Cost Per Unit | REMARKS |
|--|--|-------------------------------|---|
| INTERIOR | | | |
| Paint walls/doors/trim/stipple ceiling | | 1,500 | |
| Smoke detectors 2@ 30 | | 60 | |
| Sub Total - B | | 9,180 | |
| C. <u>ARCHITECTURAL DESIGN MODIFICATIONS</u> | | | |
| | | | *No major design modifications other than to reverse location of stove and fridge to eliminate fire hazard |
| Outlet for fridge | | 50 | |
| Bifold door front entry | | 100 | |
| Framing & Drywall for front entry | | 300 | |
| Relocate range plug | | 100 | |
| Sub Total - C | | 550 | |
| Wood deck in back | | 1,100 | -allowance for precast concrete steps allowed in standard rehab. -one deck only |
| Sub Total | | 1,100 | |
| Row Housing 4 BR Total | | 16,825 | |
| 10% Contingency | | 1,680 | |
| Total Per Unit | | 18,505 | |
| Total Cost - 18 Units | | 333,090 | |

| APARTMENT BUILDING (20 units) 2½ STOREY - 2 BEDROOM APARTMENTS | | Estimated Cost Per Unit | REMARKS |
|--|---|-------------------------------|---------------------|
| A. RETROFIT | New roof access hatch | 45 | |
| | Close windows by storage room | 100 | |
| | Replace windows | 1,090 | |
| | Caulk and new sill | 300 | |
| | Insulate Basement - 2 x 4½ drywall | 400 | -R20 insulation |
| | Relocate thermostat | 250 | |
| | Sub Total - A | 2,185 | |
| B. REHABILITATION TO ACCEPTABLE STANDARD | KITCHEN | | |
| | Kitchen Cupboards | 500 | -replace doors only |
| | Shut off valves/sink | 35 | |
| | Add duplex receptacle | 100 | |
| | BATHROOM | | |
| | Retile | 400 | |
| | Shower, shut off valve | 100 | |
| | Shower curtain and rod | 50 | |
| | New sink and vanity | 250 | |
| | Patching drywall | 50 | |
| | BEDROOMS | | |
| | Closet doors | 200 | |
| | FLOORING | | |
| | ¼" plywood underlay for kitchen/ washroom & new sheet goods floor covering - carpet remainder | 1,835 | |
| | PARTY WALLS | | |
| | Corridor side strapped & drywalled | 355 | |
| | Suite entry door/closet | 250 | |
| | Entry closet bifold | 100 | |
| | Paint walls/doors/trim & stipple ceiling | 950 | |
| | COMMON AREAS: PER UNIT COST | | |
| | Fireguard corridor ceiling | 100 | |
| | Corridor walls - strap sound insulate and drywall and paint | 950 | |
| | Corridor doors - fire rated hardware and closer and new partition | 460 | |
| | Refinish stairs & handrail | 300 | |
| | New corridor flooring | 200 | |
| | Replace ceiling fixtures in corridor | 220 | |
| | Exit lighting | 35 | |
| | Emergency lighting | 245 | |
| | Partition and keyed entry for electri- cal panel | 80 | |

| APARTMENT BUILDING 2½ STOREY - 2 BEDROOM APARTMENTS ... cont'd | | Estimated Cost Per Unit | REMARKS |
|---|--|-------------------------------|---------|
| COMMON AREAS: cont'd | | | |
| Fire rated doors for mechanical room | | 45 | |
| Refinish exterior steps | | 80 | |
| Rebuild brick planter | | 160 | |
| Painting interior/exterior | | 195 | |
| Upgrade recreation room and dryer room | | 500 | |
| Sub Total - B | | 8,745 | |
| C. <u>ARCHITECTURAL DESIGN MODIFICATIONS</u> 2 Bedroom Apartment | | | |
| Relocate sink in corner | | 150 | |
| Framing, drywall for kitchen/living area/closets in master bedroom | | 420 | |
| Bifold doors for closet | | 100 | |
| Sub Total - C | | 670 | |
| Apartments 2 BR Total | | 11,600 | |
| 10% Contingency | | 1,160 | |
| Total per Unit | | 12,760 | |
| Total Cost - 20 units | | 255,200 | |
| Unit Rehabilitation Total | | 1,503,380 | |
| Relocation | | 59,640 | |

APPENDIX A

SITE REHABILITATION

| F.P. SITE: | Estimated Cost | Sub Total |
|------------------------------------|----------------|-----------|
| A. ENGINEERING | | |
| Hard Surface Removal and Disposal: | | |
| Existing Asphalt Parking Areas | 11,500 | |
| Textured Asphalt | 26,300 | |
| Concrete Curb | 2,700 | |
| Concrete Sidewalk | 7,500 | |
| Concrete Fence Posts | 13,500 | |
| | | 61,500 |
| Regrading Allowance | 60,000 | |
| Asphalt Pavement: | | |
| Roads | 87,500 | |
| Parking Stalls | 43,800 | |
| Laybys | 5,600 | |
| | | 196,900 |
| Concrete Sidewalk | 40,000 | |
| Concrete Curbs | 55,800 | |
| | | 95,800 |
| Storm Sewers: | | |
| Sewer Mains, Catchbasin Leads | 35,000 | |
| Manholes | 13,500 | |
| Catchbasins | 12,600 | |
| Modification & Connections | 12,000 | |
| Manhole Rim Adjustment | 1,000 | |
| Outfall Trunk | 12,000 | |
| Outfall Trunk Manhole | 3,000 | |
| | | 89,100 |
| Sanitary Sewers: | | |
| Sewer mains | 1,800 | |
| Manholes | 1,500 | |
| Manhole Rim Adjustment | 1,800 | |
| | | 5,100 |
| Water mains: | | |
| 6" Water Mains | 1,800 | |
| Hydrant Relocation | 2,000 | |
| Valve Connection | 2,000 | |
| Insulation | 4,500 | |
| | | 10,300 |
| Sub Total | | 458,700 |

| F.P. Site - A ENGINEERING, ...cont'd | Estimated Cost | Sub Total |
|---|-------------------|-----------|
|---|-------------------|-----------|

| | | |
|-------------|--|---------|
| Engineering | | 458,700 |
|-------------|--|---------|

| | | |
|-----------------|---------|--|
| 25% Contingency | 114,675 | |
|-----------------|---------|--|

| | | |
|----------------------------|--|---------|
| TOTAL COST - A ENGINEERING | | 573,375 |
|----------------------------|--|---------|

B. ARCHITECTURAL

| | | |
|----------------------|--------|--|
| Private Lot Yard: | | |
| Privacy Fencing | 42,700 | |
| Garden Storage Sheds | 21,900 | |
| Additional Fencing | 5,400 | |

| | | |
|-------------------------|--------|--|
| Benches, Play Equipment | 19,200 | |
|-------------------------|--------|--|

| | | |
|---|--------|--|
| Soft Landscaping, Exterior Lighting, etc. | 76,300 | |
|---|--------|--|

| | | |
|------------------------------|--|---------|
| TOTAL COST - B ARCHITECTURAL | | 165,500 |
|------------------------------|--|---------|

| | | |
|--|--|---------|
| TOTAL COST - SITE REHABILITATION A & B | | 738,875 |
|--|--|---------|

NEW CONSTRUCTION

F.P. SITE - REDEVT/INFILL HOUSING

| | | |
|--------------------------------------|--------|--|
| Servicing Connections 1009/unit x 11 | 11,100 | |
|--------------------------------------|--------|--|

| | | |
|-------------------------------------|-------|--|
| Curb Stop Adjustments 430/unit x 11 | 4,730 | |
|-------------------------------------|-------|--|

| | | |
|--------------------------------------|---------|--|
| New Senior Citizen Units 35,000 x 11 | 385,000 | |
|--------------------------------------|---------|--|

| | | |
|----------------------------------|--------|--|
| Apt. Basement Conversion | | |
| Add 2 Bachelor Suites 14,500 x 2 | 29,000 | |

| | | |
|----------------------------|---------|---------|
| TOTAL COST - REDEVT/INFILL | 429,830 | 429,830 |
|----------------------------|---------|---------|

| | | |
|-----------------------|--|-------|
| CLEARANCE OF 10 UNITS | | 3,500 |
|-----------------------|--|-------|

APPENDIX B

ENERGY AUDIT

The energy audit program used in this study is the one developed by National Research Council in Saskatoon under the leadership of Dr. Harold Orr. The process was generally as follows:

- a) CMHC provided NRC with 1/4" plan drawings of typical units together with area calculations of the following building components and their existing R Values:

-
- Ceiling
 - Exterior Walls above basement foundation
 - Basement wall above grade
 - Basement wall below grade
 - Basement floor (lower and floor level)
 - Exterior doors
 - Windows - South orientation
 - North orientation
 - East orientation
 - West orientation
-

- b) NRC then determined from the plans provided, the number of exterior walls (i.e. row housing end and centre units plus orientation). For this study 8 models of the 1 and 2 storey row housing units were tested.
- c) NRC provided men and equipment on sites to determine the air change per hour for each of the test models to establish airtightness of the existing units.
- d) The energy audit for each of the typical test units was then done under the following program decisions:

Run 1. Existing Unit as is, using the field results of air-change data;

Run 2. Existing unit as is, assuming a general program of typical weather sealing and caulking for all exterior openings and

penetrations of the hot/cold wall by mechanical, electrical or plumbing services - (reduction of air change by more than 50%);

- Run 3. Using new air change rate in (2) increase only the insulation in vertical walls from R12 to R30;
- Run 4. Using new air change rate in (2) increase only basement wall insulation from R2 to R12;
- Run 5. Using new air change rate in (2) increase the insulation in the vertical walls from R12 to R30 and basement walls insulation from R2 to R12;
- Run 6. Using new air change rate in (2) increase the insulation in the vertical walls from R12 to R30, and the basement wall insulation from R2 to R20.

The following pages summarize the heat loss savings per unit type according to the various treatments listed above.

(Senior Citizen) 1 bedroom - centre unit -
West orientation

| HEAT LOSS 1 BR 1 STY CENTRE UNIT/WEST S/C | Percentage Loss Existing Unit As Is | Percentage Loss Existing Unit Weather Sealed | Percentage Loss Existing Unit Weather Sealed R10 in Floor R35 in Ceiling | Percentage Loss Existing Unit Weather Sealed R10 in Floor R35 in Ceiling | Percentage Loss Existing Unit Weather Sealed R30 in Walls R10 in Floor R35 in Ceiling | |
|---|---|--|--|--|--|--|
| Ceiling | 7.82 | 21.47 | 29.80 | 9.38 | 10.43 | |
| Walls | 3.15 | 8.65 | 12.00 | 15.50 | 6.02 | |
| Basement Above Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Basement Below Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Floor | 13.09 | 35.94 | 11.08 | 14.31 | 15.91 | |
| Doors | 0.80 | 2.20 | 3.06 | 3.95 | 4.39 | |
| Windows - South | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Windows - North | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Windows - East | 2.24 | 6.14 | 8.53 | 11.01 | 12.24 | |
| Windows - West | 1.12 | 3.07 | 4.26 | 5.50 | 6.12 | |
| Air Change (Norm in Brackets) | 71.78 | 22.52 | 31.26 | 40.35 | 44.88 | |
| Heating Cost (Dollars) | 640.70 | 158.02 | 102.66 | 62.73 | 49.25 | |

1 bedroom - 1 storey - end unit - west
orientation (Senior Citizens)

| HEAT LOSS 1 BR 1 STY END UNIT/EASTS/C | Percentage Loss Existing Unit As Is | Percentage Loss Existing Unit Weather Sealed | Percentage Loss Existing Unit Weather Sealed R30 in Walls R35 in Ceiling | Percentage Loss Existing Unit Weather Sealed R10 in Floor R35 in Ceiling | Percentage Loss Existing Unit Weather Sealed R30 in Walls R10 in Floor R35 in Ceiling | |
|---|---|--|--|--|--|--|
| Ceiling | 7.64 | 20.15 | 6.51 | 8.39 | 9.98 | |
| Walls | 5.41 | 14.28 | 6.61 | 24.39 | 10.13 | |
| Basement Above Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Basement Below Grade | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Floor | 12.78 | 33.72 | 44.68 | 12.80 | 15.22 | |
| Doors | 0.78 | 2.07 | 2.74 | 3.53 | 4.20 | |
| Windows - South | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Windows - North | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| Windows - East | 2.19 | 5.77 | 7.64 | 9.85 | 11.71 | |
| Windows - West | 1.09 | 2.88 | 3.82 | 4.92 | 5.85 | |
| Air Change (Norm in Brackets) | 70.10 | 21.13 | 28.00 | 36.10 | 42.91 | |
| Heating Cost (Dollars) | 659.43 | 175.88 | 105.11 | 78.77 | 54.72 | |

2 bedroom - 1 storey - end unit - north
orientation

| HEAT LOSS 2 BR 1 STY END UNIT/NORTH | Percentage Loss Existing Unit As Is | Percentage Loss Existing Unit Weather Sealed | Percentage Loss Existing Unit Weather Sealed R30 in Walls R35 in Ceiling | Percentage Loss Existing Unit Weather Sealed R12 in Basement R35 in Ceiling | Percentage Loss Existing Unit Weather Sealed R30 in Walls R12 in Basement R35 in Ceiling | Percentage Loss Existing Unit Weather Sealed R30 in Walls R20 in Basement R35 in Ceiling |
|---|---|--|--|---|---|---|
| Ceiling | 14.93 | 18.18 | 5.62 | 6.80 | 7.67 | 8.03 |
| Walls | 9.29 | 11.32 | 5.01 | 17.36 | 6.84 | 7.16 |
| Basement Above Grade | 3.74 | 4.55 | 5.77 | 1.23 | 1.38 | 0.87 |
| Basement Below Grade | 20.16 | 24.55 | 31.12 | 11.09 | 12.50 | 8.90 |
| Floor | 10.79 | 13.14 | 16.65 | 20.16 | 22.73 | 23.81 |
| Doors | 1.13 | 1.37 | 1.74 | 2.10 | 2.37 | 2.48 |
| Windows - South | 3.38 | 4.11 | 5.21 | 6.31 | 7.11 | 7.45 |
| Windows - North | 4.42 | 5.38 | 6.82 | 8.26 | 9.31 | 9.76 |
| Windows - East | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Windows - West | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Air Change (Norm in Brackets) | 32.16 | 17.40 | 22.06 | 26.70 | 30.10 | 31.53 |
| Heating Cost (Dollars) | 392.24 | 296.10 | 202.57 | 159.20 | 126.80 | 117.83 |

2 bedroom - 1 storey - centre unit - north
orientation

| HEAT LOSS 2 BR 1 STY CENTRE UNIT/NORTH | Percentage Loss Existing Unit As Is | Percentage Loss Existing Unit Weather Sealed | Percentage Loss Existing Unit Weather Sealed R30 in Walls R35 in Ceiling | Percentage Loss Existing Unit Weather Sealed R12 in Basement R35 in Ceiling | Percentage Loss Existing Unit Weather Sealed R30 in Walls R12 in Basement R35 in Ceiling | Percentage Loss Existing Unit Weather Sealed R30 in Walls R20 in Basement |
|--|---|--|--|---|---|---|
| Ceiling | 16.62 | 20.75 | 6.41 | 7.54 | 8.19 | 8.49 |
| Walls | 6.63 | 8.27 | 3.66 | 12.32 | 4.68 | 4.85 |
| Basement Above Grade | 2.99 | 3.73 | 4.73 | 0.97 | 1.06 | 0.66 |
| Basement Below Grade | 16.02 | 19.99 | 25.33 | 8.77 | 9.53 | 6.71 |
| Floor | 12.01 | 15.00 | 19.00 | 22.34 | 24.29 | 25.16 |
| Doors | 1.25 | 1.56 | 1.98 | 2.33 | 2.53 | 2.62 |
| Windows - South | 3.76 | 4.69 | 5.94 | 6.99 | 7.60 | 7.87 |
| Windows - North | 4.92 | 6.14 | 7.78 | 9.15 | 9.95 | 10.31 |
| Windows - East | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Windows - West | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Air Change (Norm in Brackets) | 35.80 | 19.86 | 25.16 | 29.59 | 32.16 | 33.32 |
| Heating Cost (Dollars) | 344.21 | 248.14 | 166.21 | 133.39 | 112.89 | 106.62 |

3 bedroom - 2 storey - end unit - north
orientation

| HEAT LOSS 3 BR 2 STY END UNIT/NORTH | Percentage Loss Existing Unit As Is | Percentage Loss Existing Unit Weather Sealed | Percentage Loss Existing Unit Weather Sealed R30 in Walls | Percentage Loss Existing Unit Weather Sealed R12 in Basement | Percentage Loss Existing Unit Weather Sealed R30 in Walls R12 in Basement | Percentage Loss Existing Unit Weather Sealed R30 in Walls R20 in Basement |
|---|---|--|--|---|---|---|
| Ceiling | 2.39 | 2.97 | 3.42 | 3.87 | 4.70 | 4.90 |
| Walls | 16.77 | 20.64 | 8.38 | 27.11 | 11.50 | 12.00 |
| Basement Above Grade | 9.80 | 12.15 | 14.02 | 2.78 | 3.37 | 2.11 |
| Basement Below Grade | 15.37 | 19.06 | 22.01 | 7.32 | 8.88 | 6.30 |
| Floor | 7.50 | 9.31 | 10.74 | 12.14 | 14.74 | 15.38 |
| Doors | 1.24 | 1.54 | 1.78 | 2.01 | 2.44 | 2.55 |
| Windows - South | 5.33 | 6.61 | 7.63 | 8.61 | 10.46 | 10.92 |
| Windows - North | 6.98 | 8.65 | 9.99 | 11.28 | 13.70 | 14.30 |
| Windows - East | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Windows - West | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Air Change (Norm in Brackets) | 34.62 | 19.08 | 22.02 | 24.88 | 30.21 | 31.53 |
| Heating Cost (Dollars) | 336.89 | 242.49 | 189.87 | 164.26 | 113.44 | 105.67 |

3 bedroom - 2 storey - centre unit - north
orientation

| HEAT LOSS 3 BR 2 STY CENTRE UNIT/NORTH | Percentage Loss Existing Unit As Is | Percentage Loss Existing Unit Weather Sealed | Percentage Loss Existing Unit Weather Sealed R30 in Walls | Percentage Loss Existing Unit Weather Sealed R12 in Basement | Percentage Loss Existing Unit Weather Sealed R30 in Walls R12 in Basement | Percentage Loss Existing Unit Weather Sealed R30 in Walls R20 in Basement |
|--|---|--|--|---|---|---|
| Ceiling | 2.88 | 3.76 | 4.15 | 4.62 | 5.21 | 5.37 |
| Walls | 11.31 | 14.25 | 5.49 | 17.50 | 6.90 | 7.10 |
| Basement Above Grade | 7.34 | 9.60 | 10.58 | 2.07 | 2.33 | 1.44 |
| Basement Below Grade | 11.52 | 15.07 | 16.61 | 5.45 | 6.14 | 4.30 |
| Floor | 9.03 | 11.81 | 13.01 | 14.49 | 16.36 | 16.84 |
| Doors | 1.49 | 1.95 | 2.15 | 2.40 | 2.71 | 2.79 |
| Windows - South | 6.41 | 8.38 | 9.24 | 10.29 | 11.61 | 11.96 |
| Windows - North | 8.39 | 10.98 | 12.10 | 13.48 | 15.21 | 15.66 |
| Windows - East | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Windows - West | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Air Change (Norm in Brackets) | 41.63 | 24.20 | 26.68 | 29.71 | 33.53 | 34.53 |
| Heating Cost (Dollars) | 261.32 | 166.39 | 138.43 | 119.52 | 93.08 | 88.49 |

4 bedroom - 2 storey - end unit - north
orientation

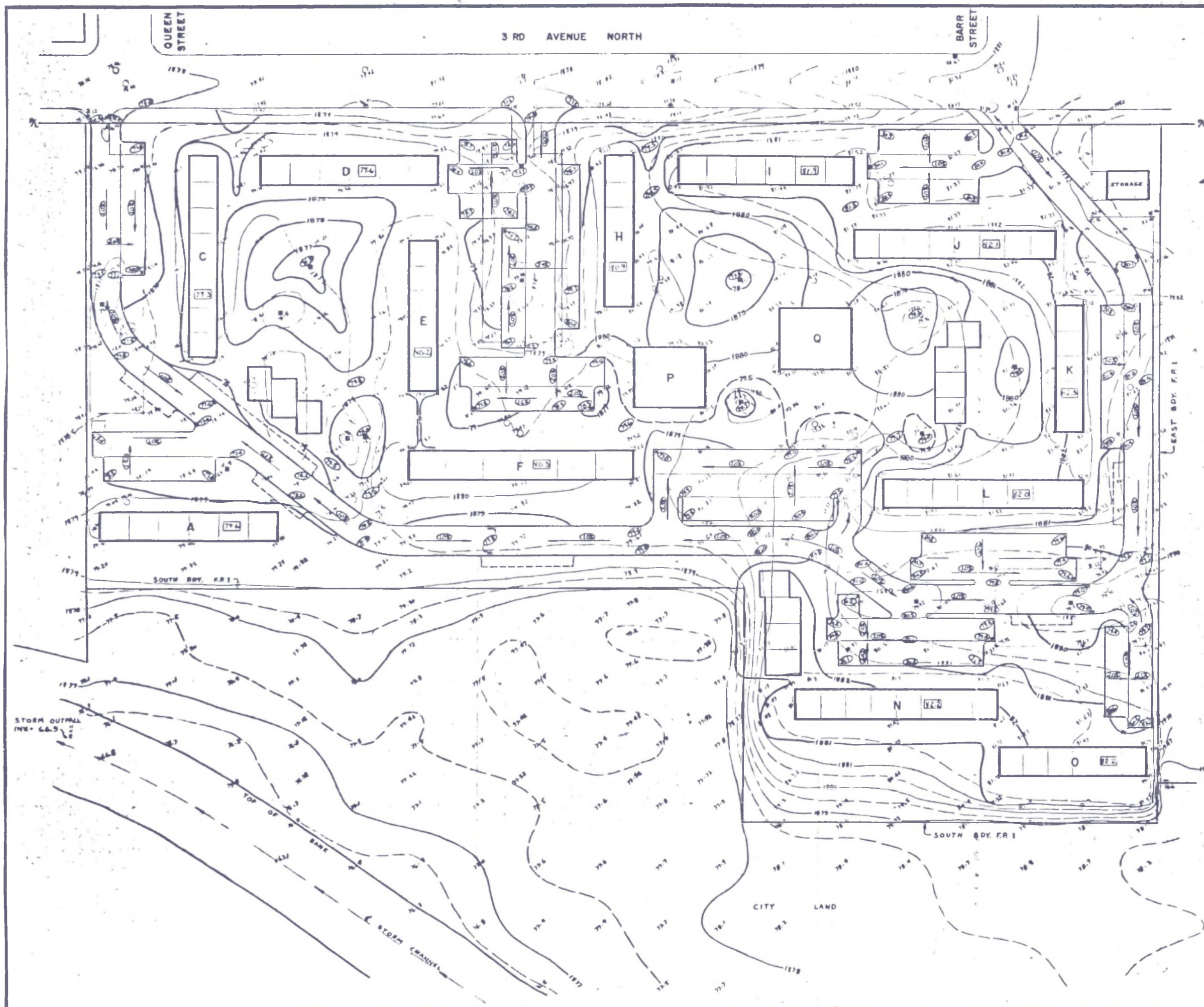
| HEAT LOSS 4 BR 2 STY END UNIT/NORTH | Percentage Loss Existing Unit As Is (R40 in Ceiling) | Percentage Loss Existing Unit Weather Sealed | Percentage Loss Existing Unit Weather Sealed R30 in Walls | Percentage Loss Existing Unit Weather Sealed R12 in Basement | Percentage Loss Existing Unit Weather Sealed R30 in Walls R12 in Basement | Percentage Loss Existing Unit Weather Sealed R30 in Walls R20 in Basement |
|---|---|--|--|---|---|---|
| Ceiling | 2.47 | 3.10 | 3.59 | 3.97 | 4.81 | 5.01 |
| Walls | 16.68 | 20.92 | 8.38 | 26.82 | 11.25 | 11.71 |
| Basement Above Grade | 8.38 | 10.51 | 12.18 | 2.36 | 2.87 | 1.79 |
| Basement Below Grade | 15.09 | 18.92 | 21.92 | 7.14 | 8.66 | 6.13 |
| Floor | 8.12 | 10.19 | 11.80 | 13.06 | 15.85 | 16.49 |
| Doors | 1.09 | 1.37 | 1.58 | 1.75 | 2.12 | 2.21 |
| Windows - South | 5.31 | 6.66 | 7.72 | 8.55 | 10.37 | 10.79 |
| Windows - North | 6.40 | 8.02 | 9.29 | 10.29 | 12.47 | 12.98 |
| Windows - East | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Windows - West | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Air Change (Norm in Brackets) | 36.45 | 20.32 | 23.54 | 26.05 | 31.60 | 32.89 |
| Heating Cost (Dollars) | 395.13 | 282.18 | 221.22 | 198.78 | 139.96 | 131.39 |

4 bedroom - 2 storey - centre it - north
elevation

| HEAT LOSS 4 BR 2 STY CENTRE UNIT/NORTH | Percentage Loss Existing Unit As Is (R40 in Ceiling) | Percentage Loss Existing Unit Weather Sealed | Percentage Loss Existing Unit Weather Sealed R30 in Walls | Percentage Loss Existing Unit Weather Sealed R12 in Basement | Percentage Loss Existing Unit Weather Sealed R30 in Walls R12 in Basement | Percentage Loss Existing Unit Weather Sealed R30 in Walls R20 in Basement |
|--|--|--|--|---|---|---|
| Ceiling | 2.83 | 3.69 | 4.11 | 4.60 | 5.26 | 5.43 |
| Walls | 11.76 | 15.32 | 5.73 | 19.09 | 7.34 | 7.58 |
| Basement Above Grade | 8.41 | 10.95 | 12.19 | 2.39 | 2.74 | 1.70 |
| Basement Below Grade | 11.65 | 15.17 | 16.89 | 5.56 | 6.37 | 4.47 |
| Floor | 8.86 | 11.54 | 12.85 | 14.38 | 16.47 | 17.00 |
| Doors | 1.25 | 1.63 | 1.81 | 2.03 | 2.32 | 2.40 |
| Windows - South | 6.09 | 7.94 | 8.84 | 9.89 | 11.33 | 11.69 |
| Windows - North | 7.34 | 9.55 | 10.64 | 11.90 | 13.63 | 14.07 |
| Windows - East | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Windows - West | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Air Change (Norm in Brackets) | 41.81 | 24.20 | 26.94 | 30.15 | 34.53 | 35.65 |
| Heating Cost (Dollars) | 330.60 | 217.79 | 180.36 | 155.64 | 119.82 | 113.65 |

APPENDIX C

ENGINEERING AND
ARCHITECTURAL PLANS



| | | | | | | | | | |
|-----|------|----------|----|------|-----|------|----------|----|------|
| no. | date | revision | by | app. | no. | date | revision | by | app. |
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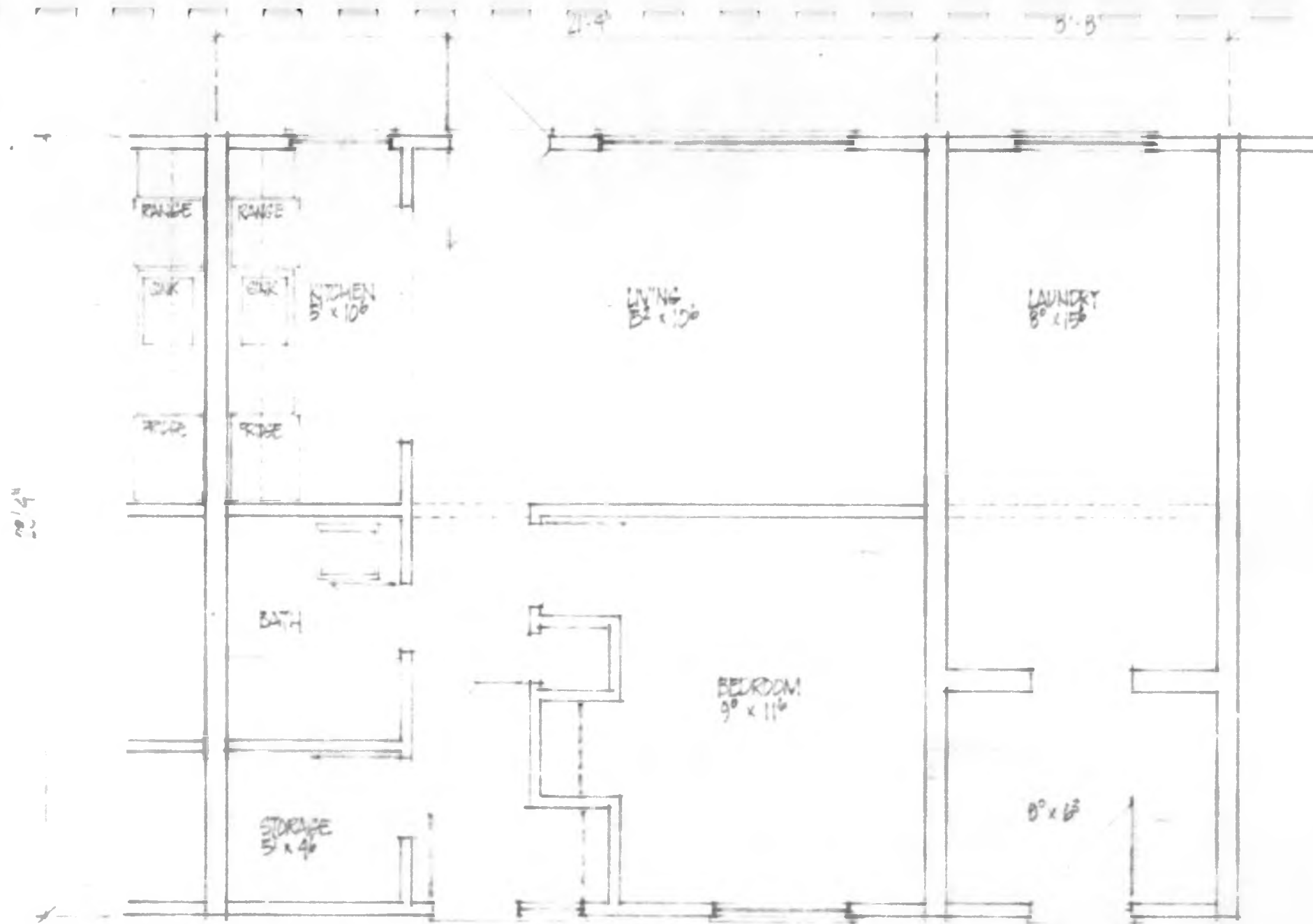
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| detail symbol | A. detail number. B. drawing where detail shown. C. cross reference to drawing where detail taken or shown. |
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| |
|-----------------------------------|
| REID, CROWTHER & PARTNERS LIMITED |
| consulting engineers and planners |

| | |
|---------|------------------------------|
| project | C.M.H.C. REGENT COURT |
| | PROPOSED CONCEPT F.R.I. SITE |

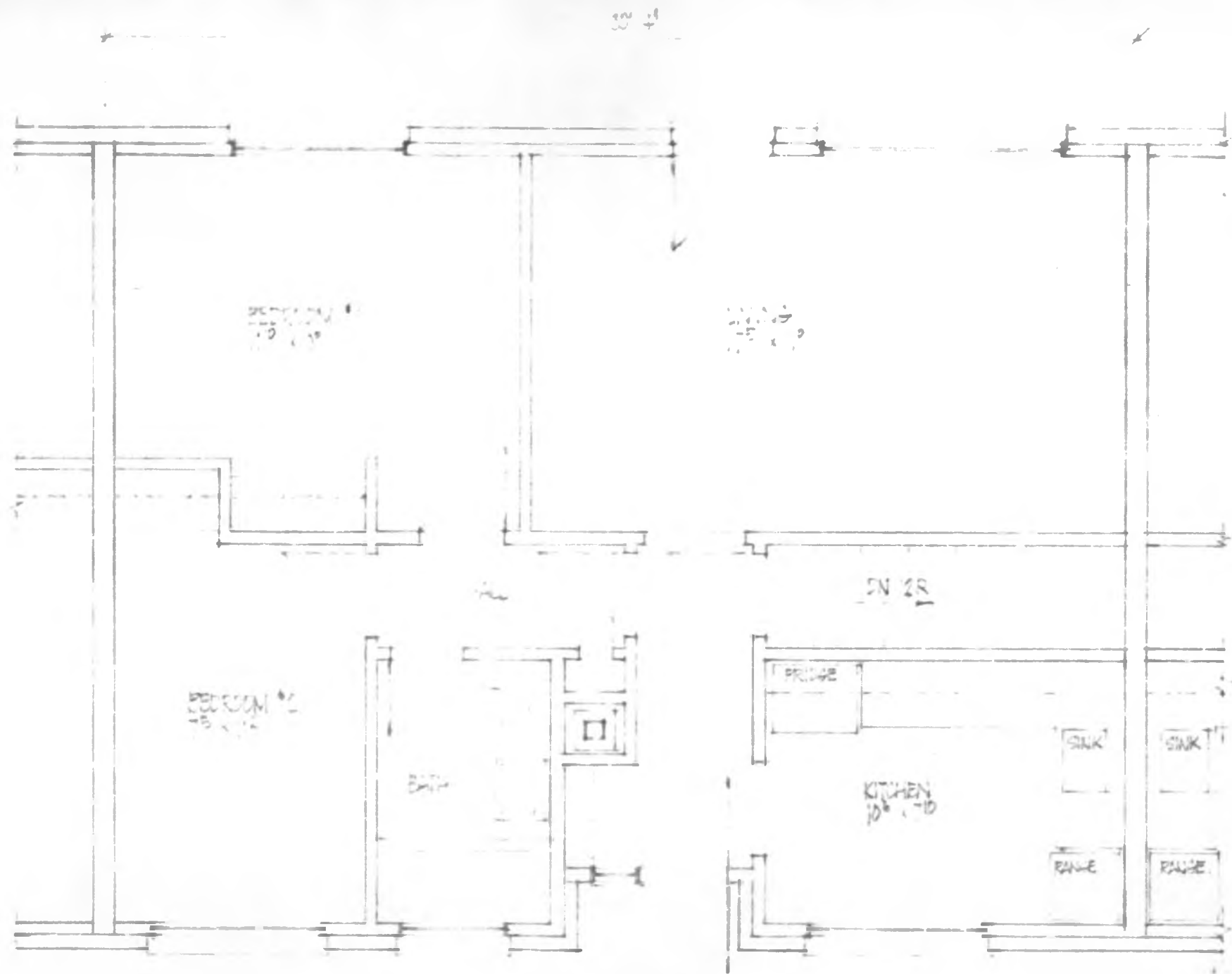
| | | | | | |
|----------|-----|-------------|----------|------|-----------|
| designed | DLH | scale | 1" = 40' | date | APRIL, 81 |
| drawn | RJB | project no. | 6860 | | |
| checked | | drawing no. | P2 | | |
| approved | | | | | |



FLOOR PLAN
SCALE: 1/4" = 1'-0"

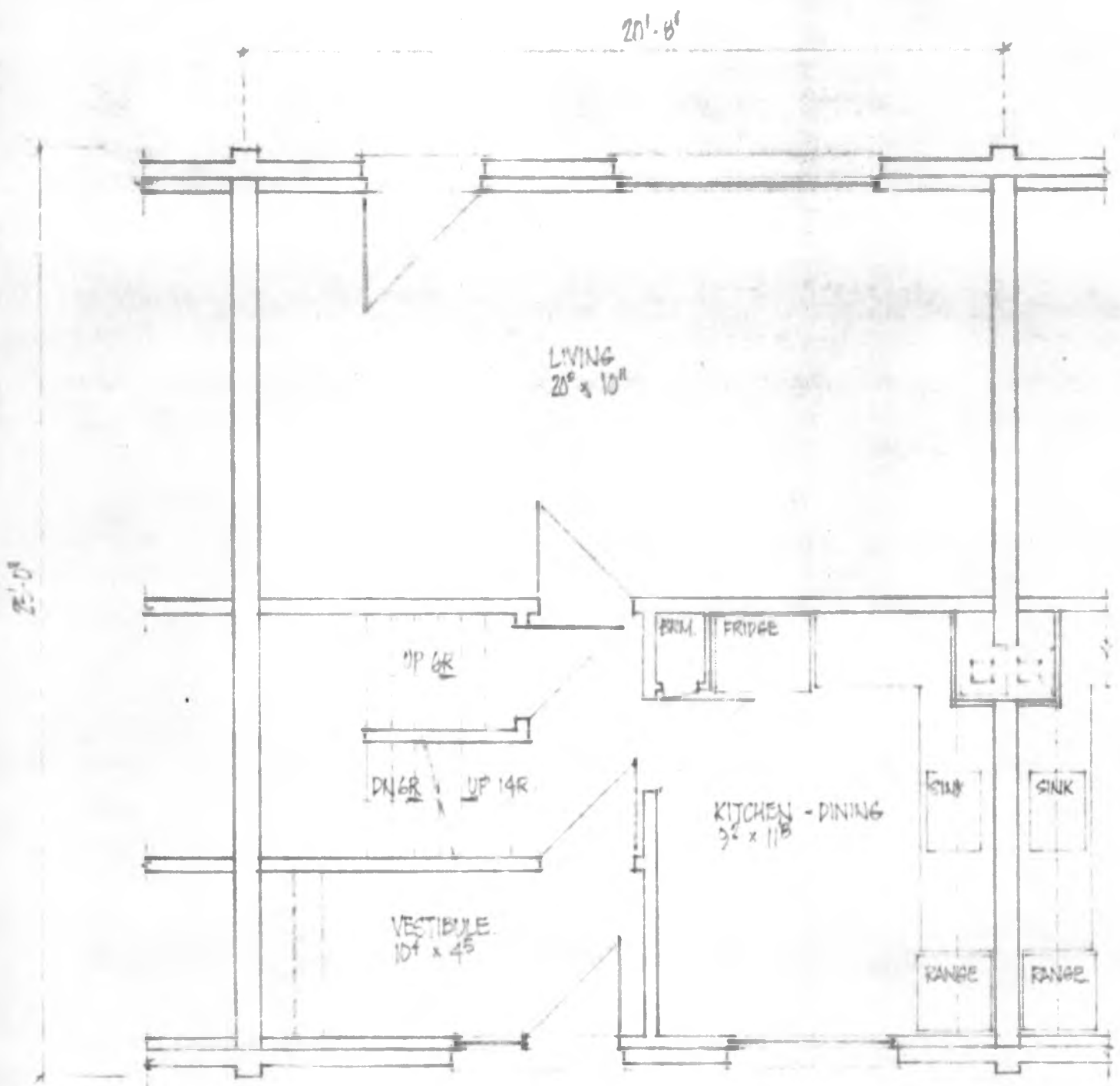
SENIOR CITIZENS
ROW HOUSING.

4'-0"



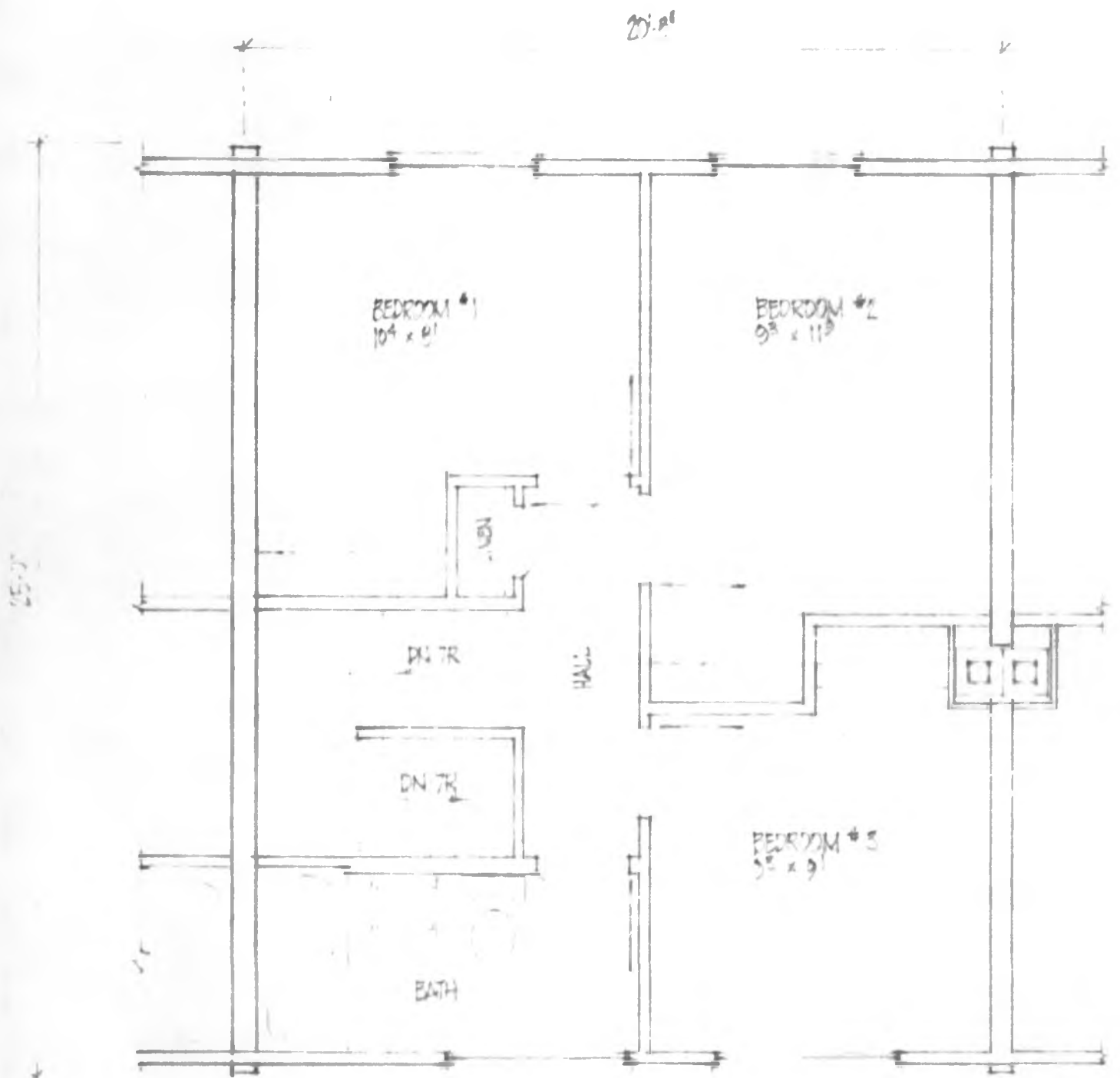
MAIN FLOOR PLAN
SCALE 1/8" = 1'-0"

TWO BEDROOM
ROW HOUSING



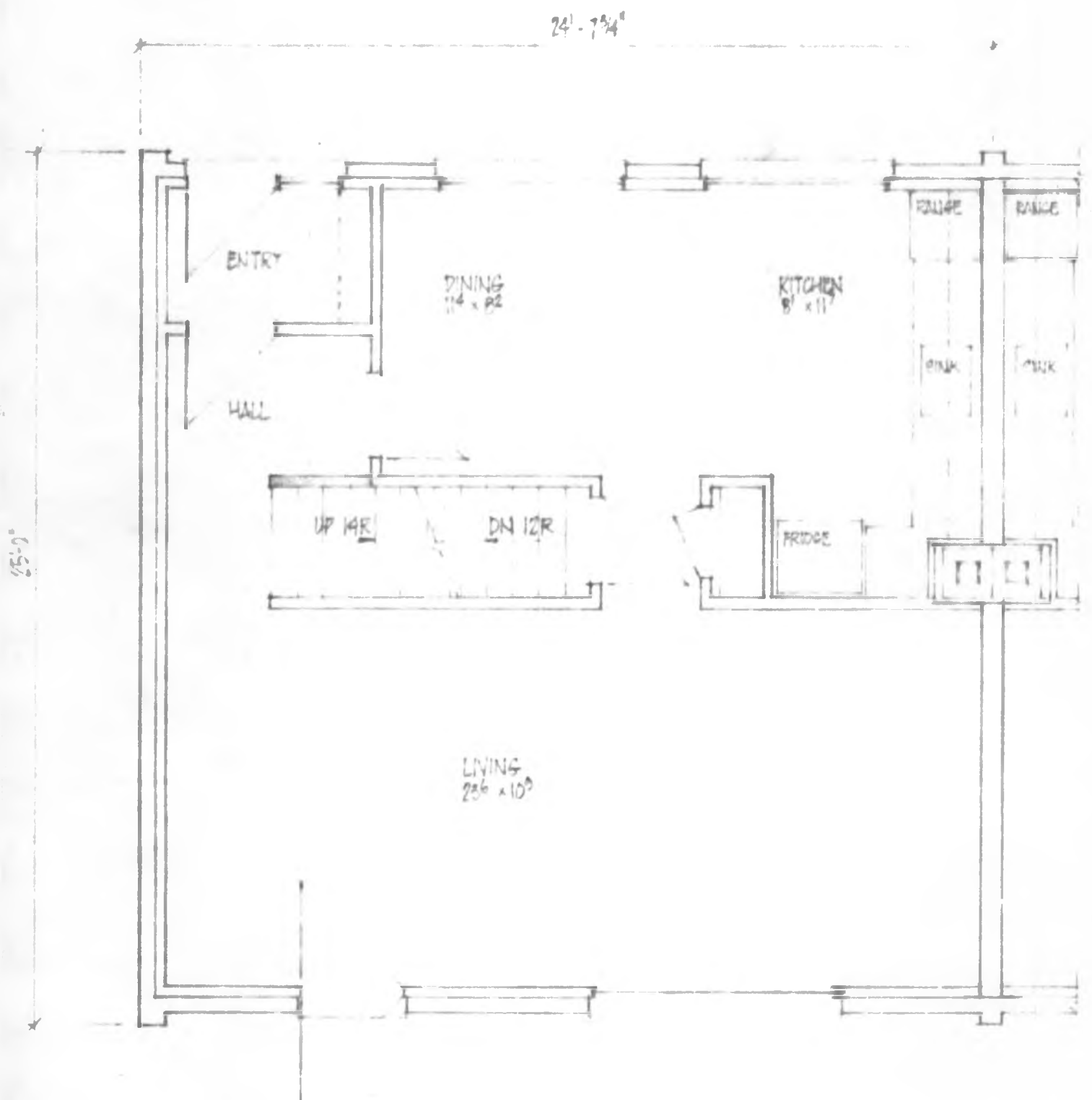
FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

THREE BEDROOM
TOWNHOUSING



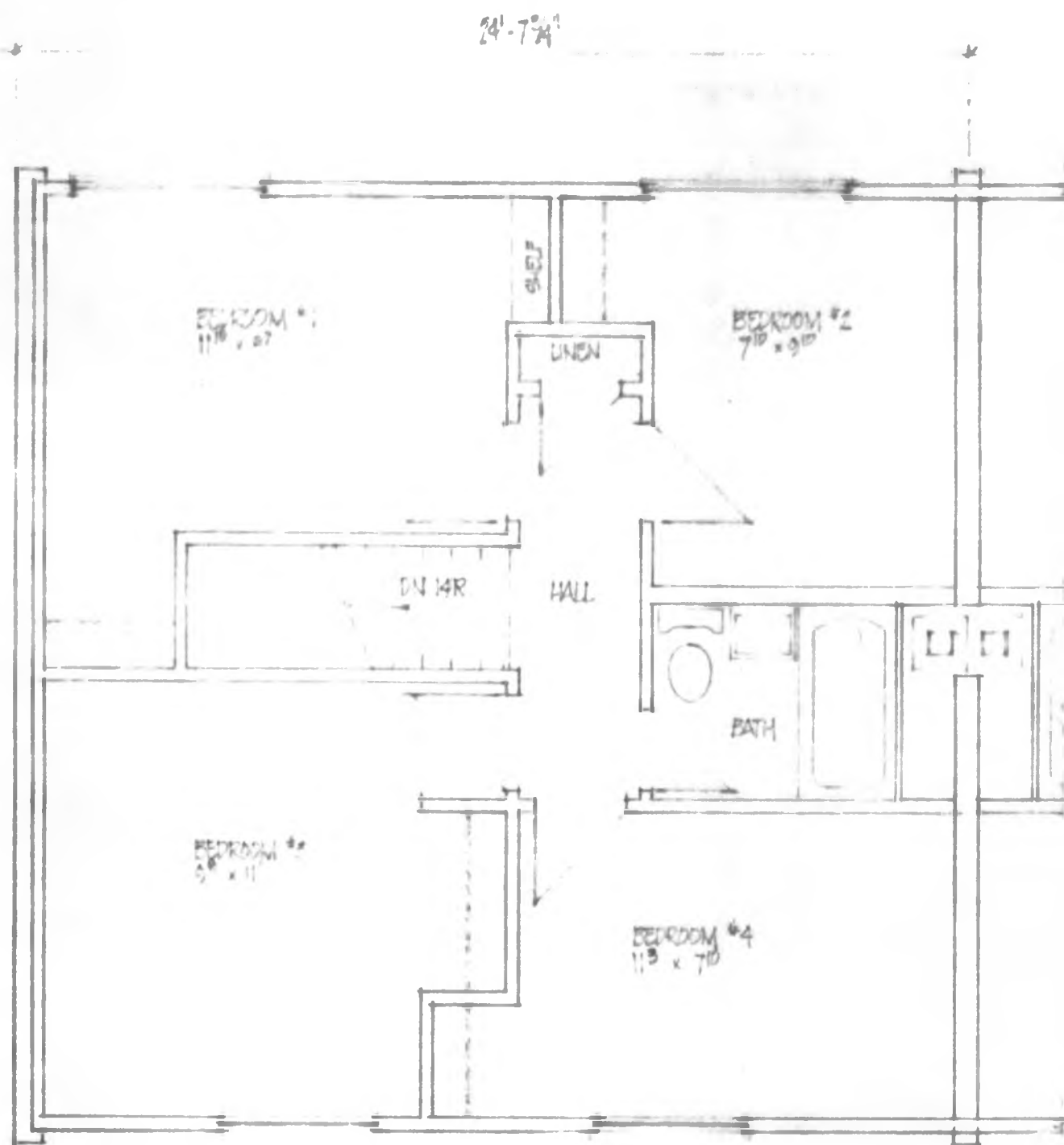
SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"

THREE BEDROOM
TOWNHOUSING



FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

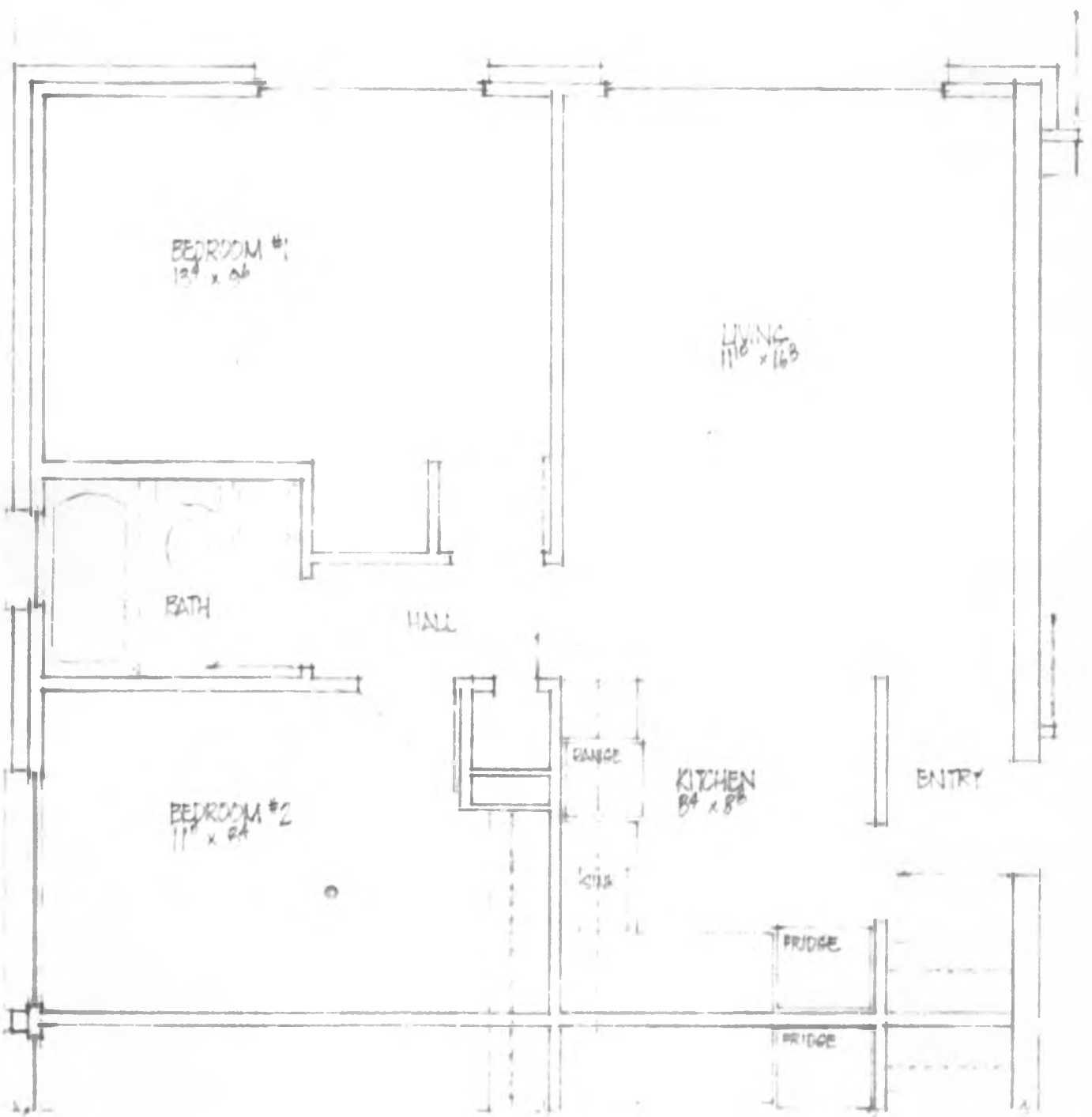
FOUR BEDROOM
TOWNHOUSING



SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"

FOUR BEDROOM
TOWNHOUSING

27.75'±



TYPICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"

TWO BEDROOM
APARTMENT