

# CITY OF BOARDMAN, OREGON

## COMPREHENSIVE PLAN

LAND USE SEWERAGE  
WATER STORM DRAINAGE  
TRANSPORTATION HOUSING

The preparations of this report was  
financed in part through a Compre-  
hensive Planning Grant from the  
Department of Housing and Urban  
Development.

AUGUST 1975

PREPARED BY

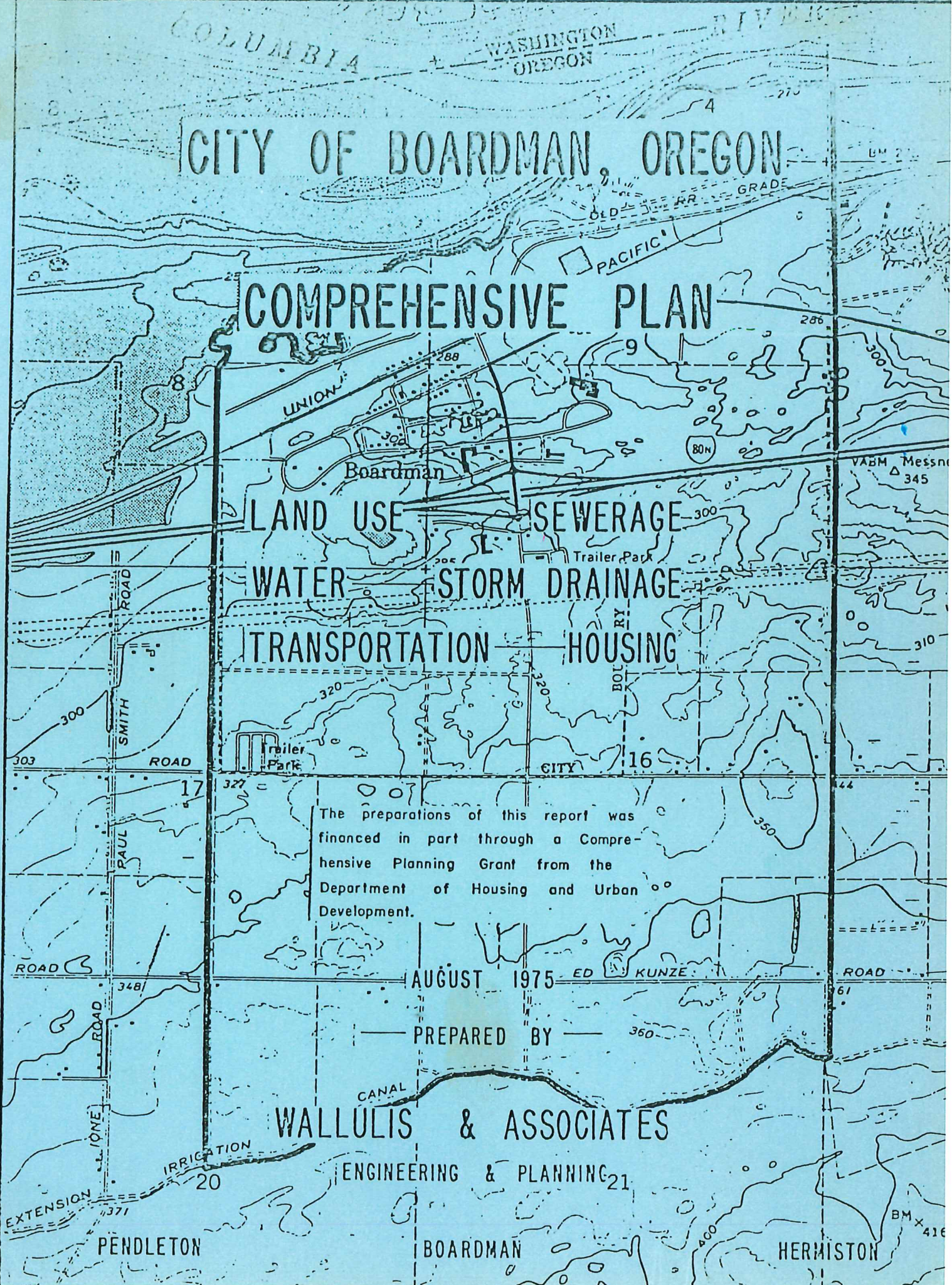
WALLULIS & ASSOCIATES

ENGINEERING & PLANNING

PENDLETON

BOARDMAN

HERMISTON





COLUMBIA RIVER

PORT  
OF  
MORROW

NEW STORE

CE

EXISTING  
RESIDENTIAL

NO. 1000000

NO. 1000000

PORT  
OF  
MORROW

U.S. ARMY

NEW STORE

NEW STORE

NEIGHBORHOOD  
RESIDENTIAL  
PEOPLE

NEIGHBORHOOD  
RESIDENTIAL  
PEOPLE

PORT OF MORROW

# WALLULIS & ASSOCIATES

## ENGINEERING & PLANNING

213 S.W. Emigrant Ave.  
PENDLETON, OREGON  
Phone 503-276-1598

- Water & Sewage Treatment, Transmission & Distribution
- Solid Wastes
- Municipal Planning
- Streets & Storm Drainage
- Rate Studies & Financing

Owner:  
STANLEY G. WALLULIS  
Firm Managers:  
ROBERT G. JOSSIS  
Environmental Engineers:  
NAYAN M. VORA

August 26, 1975

Mayor and City Council  
Boardman, Oregon 97818

Re: Boardman "701"  
Comprehensive Plan  
Contract No. 74-12-02

Gentlemen:

Herewith submitted is the Boardman Comprehensive Plan for Land Use, Sewerage, Water, Storm Drainage, Transportation and Housing. Also included within the Study are applicable Oregon Land Conservation and Development Commission planning goals.

The Comprehensive Plan is the result of planning efforts of the "Committee of the Future", beginning in January, 1975 and extending through July, 1975. Subsequent to the Committee's approval of the Study in its final form, the Study was reviewed and approved in concept by the Planning Commission and the City Council.

Although complete agreement among Planning Committee members was not attained on each detail of the Plan, it does contain total agreement on most aspects and majority opinions on the others.

The "Committee of the Future" respectfully requests that the City Council move ahead to make firm policy determinations relative to land use and master utility planning. The Comprehensive Plan, as presented, will be a sound basis for such formal policy deliberations and future planning efforts, and should be expeditiously utilized. With the present development proposals and immediate growth potential in Boardman, the City Council should take action on the Plan's recommendations soon.

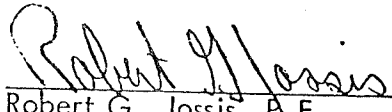
We, as your Planner and the "Committee of the Future", enjoyed the opportunity to serve Boardman in its planning effort and found it a real challenge in developing sound and workable recommendations.

"COMMITTEE OF THE FUTURE"

Gene Allen, Chairman  
Jerry Frazier  
Verna Gauthier  
Mary Lee Marlow  
Marty McDowell  
Jack McFadden  
Fred Nishimura

Jerry Peck  
Edith Partlow  
Lois Peterson  
John Prag  
Vernon Russell  
Kaye Trumbull  
Jerry Watts

Respectfully submitted,

  
Robert G. Jossis, A.E.

RGJ:gp

cc:

CITY OF BOARDMAN, OREGON

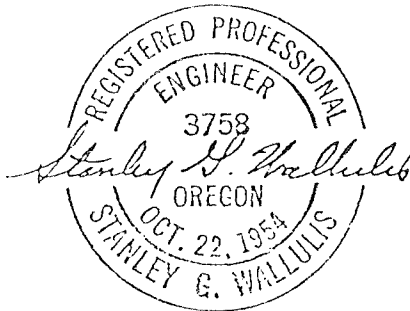
COMPREHENSIVE PLAN

Land Use - Sewerage - Water

Storm Drainage - Transportation - Housing

Prepared By:

WALLULIS & ASSOCIATES  
Engineering and Planning  
213 S. W. Emigrant Avenue  
Pendleton, Oregon 97801



The preparation of this report was financed in part through a Comprehensive Planning Grant from the Department of Housing and Urban Development.

August, 1975

1. Title <b>CITY OF BOARDMAN, OREGON COMPREHENSIVE PLAN</b> Land Use - Sewerage - Water Storm Drainage - Transportation - Housing		5. Report Date (Date of) August, 1975	
7. Author(s) Wallulis & Associates, Planning Consultant		8. Performing Organization Report No.	
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		14.	
15. Supplementary Notes Prepared in cooperation with the Boardman "Committee of the Future", a citizen advisory committee charged with making policy recommendations to the City Council and Planning Commission.			
16. Abstracts The report was to develop a Comprehensive Land Plan using the present Land Use Plan as a basis and formulate programs and policies for Plan implementation; develop master sewerage, water storm drainage and transportation plans with respective financing; forecast future housing needs and analyse present housing deficiencies. In addition, the report was broadened to include treatment of applicable LCDC planning goals.			
17. Key Words and Document Analysis. 17a. Descriptors			
17b. Identifiers/Open-Ended Terms The City of Boardman, Oregon contains fourteen sections: Summary, Conclusions and Recommendations; Introduction; Land Use and Zoning; Sewerage Study; Water Study; Storm Drainage Study; Transportation; Housing; Open Space, Scenic and Historic Areas, Natural Resources and Recreation; Economy of the State; Public Facilities and Services; Energy Conservation; Air, Water and Land Resources Quality; Environmental Assessment.			
17c. COSATI Field/Group			
18. Availability Statement Release Unlimited City of Boardman, Oregon City Hall, Boardman, OR 97818		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 84
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### APPENDIX

## SECTION ONE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### A. SUMMARY

The major emphasis of the Comprehensive Planning Study was devoted to land use, sewerage, water, storm drainage, transportation and housing. The planning effort began in January, 1975, and progressed through a series of Community Planning sessions and a number of events that directly effected the scope and treatment of the Study elements. The document embodies a land use plan and master utility plans which were developed to provide the City of Boardman a sound basis for growth as foreseen in the near future.

However, the Comprehensive Plan must not stop here. It is a vital planning tool for the City and should be utilized or changed and amended as conditions dictate. Contained in the Plan are numerous recommendations which will result in changes in City policy, particularly in financing of public utilities, if adopted by the City.

With the potential for greatly accelerated growth in Boardman, consideration of the proposed plans of action should be made immediately and the resultant policy determinations adopted expeditiously. Developing financial policies relative to public utilities, is of major importance to the City and developers alike, because connection fees and development fees for a typical single family lot could be near \$1000.00. The City Administrator should schedule study sessions for each of the major Plan elements to formulate policies as soon as possible.

To supplement the original Planning Study, the scope was expanded to include the incorporation of applicable Oregon Land Conservation and Development Commission state-wide planning goals and guidelines. The City should endeavor to adhere to the spirit of the LCDC in its planning activities.

#### B. CONCLUSIONS

##### 1. Land Use

- a. Land use determinations must allow for a variety of housing types to meet the needs of all income levels.
- b. Consistency must be maintained between the Comprehensive Plan, zoning ordinance, subdivision ordinance and other supplemental ordinances and policies in order to maintain the integrity of the planning effort.



2. Sanitary Sewerage

- a. The regional treatment facility east of the Port of Morrow, will likely have capacity for 6000 to 7000 people which will service 50% to 60% of the Comprehensive Planning Area.
- b. Sewage transmission lines should be sized for 7000 population level with components of shorter life (pumps, etc.), sized for 4000 population level.
- c. Alternative treatment sites south of the Planning Area are probably more practical for development than expansion of the treatment site east of the Port of Morrow, when that facility reaches its capacity.
- d. The present sewer connection fees and use fees do not reflect total wastewater loading and are not equitable.

3. Water

- a. The present water system is deficient in supply, storage and distribution.
- b. The Ranney Collector, as a new water source, will alleviate water supply deficiencies and defer construction of more reservoir storage.
- c. Ranney Collector will adequately supply water for a 4000 population if service to the Port of Morrow is not required.
- d. Connection and user fees are not presently equitable for users, based upon actual water consumption.

4. Storm Drainage

- a. Boardman's present storm drainage system is adequate.
- b. Change from undeveloped lands and large lots to commercial, industrial and smaller residential lots will greatly increase storm runoff.

5. Transportation

- a. Boardman has an adequate multi-modal transportation network to provide efficient movement of goods and services.
- b. Mass transit is not yet justified, except perhaps, commuter service to industrial site from outlying population centers.

## C. RECOMMENDATIONS

### 1. Land Use

- a. Comprehensive Land Use Plan should be policy oriented towards meeting general goals and affirmed by implementation of specific objectives.
- b. Plan should be flexible and provide for change as conditions change.
- c. Encourage new and innovative development techniques.

### 2. Sanitary Sewerage

- a. Design major trunk lines south of the freeway for a 6000 population level.
- b. Provide additional treatment facilities south of the Planning Area for wastewater loadings beyond the capacity of the initial facility.
- c. Review connection and use fees to reflect the individual users (commercial - industrial) wastewater loading.
- d. Formulate oversizing and assessment policies.

### 3. Water

- a. Investigate an additional storage reservoir after capacity of initial Ranney Collector is reached.
- b. Allocate more of water connection fees to oversizing as soon as possible, to improve the water distribution system.
- c. Review water connection and use fees.
- d. Formulate oversizing and assessment policies for water improvements.

### 4. Storm Drainage

- a. Design storm drainage lines for management of increased runoff as a result of urban development.
- b. Establish oversizing, development fee and assessment policies based on runoff characteristics of land use for storm sewers.

### 5. Transportation

- a. Adopt an interim and ultimate master arterial street plan, including

provisions for bicycles and pedestrians.

- b. Develop policies for street oversizing, intersections and traffic control.
- c. Formulate street development fee policy to finance overwidth arterial and collector streets.

## SECTION TWO

### INTRODUCTION

#### A. REPORT STRUCTURE AND PURPOSE

Originally, the study was undertaken to include the following elements only:

- Land use, zoning and population densities
- Sanitary sewerage
- Water
- Storm drainage
- Housing

The purpose of the study was to develop a Comprehensive Land Use Plan, based on the original Comprehensive Plan of 1971 and establish guidelines and programs for Plan implementation; formulate master utility plans for sanitary sewerage, storm drainage and water; establish system cost estimates and financing plans for the respective utilities; and finally, forecast future housing requirements of the community and analyze present housing conditions and needs. In combination, the study elements were to provide the City of Boardman a sound basis for controlled growth through the land use, zoning and housing elements; and a foundation for future public works construction and financing through the sewerage, water and storm drainage elements.

However, as the study progressed and with the formation of the Oregon Land Conservation and Development Commission, it became evident that expanding the study scope would be prudent. The study was broadened to include applicable state-wide planning goals of the LCDC. These new areas of study focus on natural resources; air, water and land resources quality; recreational needs; economy of the State; public services; transportation; and energy conservation.

The transportation element was given particular emphasis because of its public works aspect and for the need to provide alternative modes of transportation. A master transportation plan was formulated along with a financing method as with the other basic public utilities.

The combination of land use planning, public works and housing, in harmony with LCDC goals, will give the City of Boardman an overall plan for the future, commensurate with its ideals and objectives.

#### B. PLANNING AREA

The Planning Area is bounded on the north by the Columbia River; on the south by the

West Extension Irrigation Canal; on the east by Olson Road; and on the west by Faler Road.

The total area encompasses over 2000 acres comprised of the following components:

	<u>Acres</u>
Corp of Engineers waterfront	149
Port of Morrow industrial site	105
Railroad right-of-way	51
Freeway right-of-way	89
BPA easement	84
Wildlife refuge	35
Presently developed community	152
Undeveloped lands	<u>1,385</u>
Total	2,050

#### C. PLANNING PERIOD

Although the study deals with ultimate development in the Planning Area relative to land use and utilities, interim plans were developed for smaller intermediate population levels. The interim plans are generally associated with a 4000 population level projected at the end of 20 years. The study may in fact, have a shorter life, depending upon growth and economic conditions in Boardman. However, at present, it will give the City a sound basis for growth and utility development in the near future.

#### D. CITIZEN INVOLVEMENT

In the fall of 1974, the "Committee of the Future" was formed to recommend programs and policy guidelines relative to growth problems faced by Boardman. The citizen advisory committee was charged with making recommendations to the City Council and Planning Commission, concerning policies affecting Boardman's future. The selection process involved appointment by the Mayor, of a cross-section of interested Boardman residents. The Committee initially consisted of seventeen members.

Since the basic emphasis of the "701" Comprehensive Planning Study and LCDC goals is to provide for the future, the "Committee of the Future" was assigned the task of assisting the planner in formulation of Study recommendations.

Six meetings of the Committee were held to discuss the study elements and to ultimately approve the study contents and forward the recommendations to the Planning Commission and City Council. Total community involvement was achieved through the use of mail-out questionnaires as part of the housing and recreational needs survey.



#### E. PRESSING ISSUES AND PROBLEMS

The City of Boardman is faced with an unusual set of circumstances, requiring immediate attention and sound policy decisions. Fortunately, however, the City is in a position to develop programs to meet demands of the future. The recent bond election for financing regional water and sewerage projects passed by a margin of 4 to 1 and demonstrates Boardman's willingness to provide adequate public services now the for new growth. The potential growth need not be thought of as an impending doom, since the City is wisely planning for the future rather than waiting to react to a crisis situation.

The following conditions individually and collectively, add to Boardman's problems, relative to sound planning for future growth and the providing of adequate public utilities and services:

An industrial complex outside the City limits is placing a burden on Boardman to provide housing and public services for its employees without the added tax revenue from the industries.

A small population, assessed evaluation and tax base combine to place economic restraints on financing and revenue to support major public improvements associated with growth.

The potential impact of PGE power plants, conversion of Naval Bombing Range to farmland, siting of the Alumax aluminum plant at Umatilla and other additional agri-industrial plants at the Port of Morrow industrial park.

### SECTION THREE

#### LAND USE AND ZONING

##### A. GENERAL

With the Oregon Supreme Court decisions of Fasano vs. Washington County Board of Commissioners in 1973, and just this year, of Baker vs. City of Milwaukie, the importance of the Comprehensive Plan is accentuated.

The Plan can no longer be a neglected and unused document while zone changes, conditional uses and variances are granted without proper justification. In the Fasano decision, the Court held that, "The Comprehensive Plan embodies policy determinations and guiding principles; the zoning ordinances provide the detailed means of giving effect to those principles." In effect, the purpose of the zoning ordinance is to carry out or implement the Comprehensive Plan. In the Baker decision, the Court further held that, "If the Plan is to have any efficiency as the basic planning tool....., it must be given preference over conflicting prior zoning ordinances." Otherwise, the Comprehensive Plan would be made useless. The Court concluded that "A Comprehensive Plan is the controlling land use planning instrument for a city, and upon passage of a Comprehensive Plan, a city assumes a responsibility to effectuate that plan and conform prior conflicting zoning ordinances to it."

The Court clearly recognizes the importance of the Comprehensive Plan and mandates that it be adhered to. However, in order to keep the document workable and flexible in order to accomodate changing conditions and justified land use changes, the Plan should be policy-oriented. This means that the Plan should be written to achieve certain goals in residential, commercial and industrial areas, rather than simply designate a single use in an area. If single family and multiple family developments are compatible in reaching a goal for a certain area, then both land uses could presumably be allowed. In addition, general policy statements regarding physical locations of single family to multiple family, multiple family to commercial, etc.; protection of residential areas from noise and traffic; location of various land uses along arterials; providing for a variety of housing types; and relationships of developments to public utilities should be included in the Comprehensive Plan. This will give the Plan flexibility and latitude it and City officials need to provide for proper growth and development of the City.

In a decision involving Payless Properties and the City of Hillsboro, in April of 1975, the Oregon State Court of Appeals emphasized the right of cities to change Comprehensive Plans and zoning ordinances. The Court held that, "While we need not here decide the ultimate limits of authority to make such changes, at least the changes would appear permissible when the original Plan was in error, or there has been a change in the community, or there has been a change in policy, such as could be produced by city or county election results." Thus, by adopting a Comprehensive Plan and zoning ordinance, the City need not feel eternally bound to it.

various uses as conditional uses within certain zones, a degree of flexibility is built into the Comprehensive Plan and zoning ordinance. On the other hand, establishing a zone for mobile home parks and subdivisions gives more control over their ultimate location.

The Planning Committee felt that mobile home parks should be allowed as a conditional use within certain zones, but a mobile home subdivision zone should be established for mobile homes on privately owned lots in deference to renting space in a mobile home park. Although a site for mobile home subdivisions was not specifically selected, the general area most desirable for such developments is indicated on the Land Use Plan, Figure 1. This area is near other existing and proposed mobile home developments.

The desirability of incorporating an element of flexibility into the Comprehensive Plan is vital, considering the scope of the planning effort. If Boardman was static and unchanging, the Comprehensive Plan could be more definitive without allowances for change. However, the Comprehensive Plan is very long range and surely subject to review and change.

1. It covers enough area to support a population of 12,000 to 13,000 people. This is well beyond the anticipated 20 year growth to 4,000 people, although the combined effect of the PGE's Carty and Pebble Springs power plants, Alumax and other agricultural and industrial activity could increase the population beyond 4,000 in twenty years.
2. It contains 2,050 acres of which 875 acres is outside the City limits.
3. Complete development of the area is beyond the design life of even the proposed sewerage and water projects.
4. Considerable amount of land exists north of the freeway for industrial and multiple family residential development.

Consideration of extensive land planning south of the freeway is essential, however, to accomodate immediate and long range potential of residential and business - commercial growth. There is an immediate need to offset the housing shortage for employees of present and future industrial development in the area. An adequate housing situation is also prerequisite to encourage new industrial and commercial development to broaden Boardman's tax base and increase the level and range of service, both public and private.

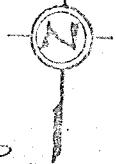
The combination of the zoning ordinance, subdivision ordinance, planned unit development and mobile home ordinances, master utility and park planning are all necessary to carry out the Comprehensive Plan. All of these elements, however, must be part of an integrated plan for land use control.

## B. THE LAND USE PLAN

The Land Use Plan, as shown on Figure 1, page 10, is an attempt to provide general land

COLUMBIA

RIVER



CITY LIMITS

PORT OF MORROW  
INDUSTRIAL PARK

Corp of Engineers  
Recreational

MARINA

SCHOOL  
CAMPUS



80 N

WILDLIFE  
REFUGE

8 S  
17 16

28 Acres  
Sink  
Hole

9 10  
16 15

PAUL  
SMITH  
ROAD

SOUTH  
MAIN  
STREET

MEDICAL  
CENTER

CIVIC  
CENTER

FAITH  
CENTER

SCHOOL






KUNZE 17 16

ROAD

15  
22

EXTENSION

STUDY  
BOUNDARY

-  ---Light Industrial
-  ---Single Family
-  ---Multiple Family
-  ---Commercial
-  ---Tourist Commercial

Page 10

BOARDMAN , OREGON

Land Use Plan

Figure #1

use areas compatible with the housing, commercial, industrial, recreational and social needs for Boardman's future growth as foreseen today. The Plan incorporates many of the basic concepts of the 1971 Comprehensive Plan; but expands its features into general policies and goals, with specific implementation measures to reach those goals. Below are general policies and specific objectives of the Plan:

#### General Policies

1. Advance the position of Boardman as a regional center for industry, commerce, recreation and culture.
2. Encourage a variety of living environments to meet regional housing needs for those of different family size and income.
3. Maintain a relatively low density residential community while recognizing the need for mobile home and apartment developments.
4. Prevent intrusion of incompatible uses into residential, commercial, industrial and civic areas.
5. Encourage orderly conversion of rural land to keep pace with development demand, while in a pattern to assure economical extension of municipal services.
6. Preserve man-made and natural environments and resources and encourage wise management and proper development techniques.
7. Encourage new development concepts to meet changing housing demands and to provide self-contained recreation facilities.
8. Provide for change in the Comprehensive Plan relative to new or unanticipated developments, major change in community, change in Council or Planning Commission policy and through regular review and re-evaluation.

#### Specific Objectives

1. Avoid sprawl and leap-frog development.
2. Avoid strip commercial development.
3. Establish a community, commercial and civic center complex centrally located with adequate off-street parking and pedestrian mall.
4. Encourage tourist-commercial activity near Interstate 80-N.
5. Encourage industrial park development with adequate off-street parking, landscaping and sight screening.



6. Locate high density multiple family developments in areas to offer a buffer between single family residential and commercial or industrial uses; close to schools and shopping; and within quick access to arterial streets.
7. Allow mobile homes in mobile home parks and subdivisions only.
8. Encourage planned unit developments while maintaining overall low density profile by incorporation of more open space in the development.
9. Provide for regional medical and faith centers.
10. Encourage common usage of park, school and faith center facilities.
11. Expand low cost outdoor recreational facilities; small neighborhood parks, open space, bike paths..

### C. PROMINENT ELEMENTS OF NATURAL AND MAN-MADE ENVIRONMENTS

#### 1. Natural

The Columbia River and waterfront property are the most predominant elements of Boardman's environment. The Columbia River will serve as the City's domestic water supply as well as providing swimming, boating and fishing. The waterfront is available for picnicing, camping and possible future recreational uses such as playfields.

No real liabilities exist for the Columbia River and waterfront property, except that if the property was privately owned, it would be prime land for luxury type residential developments as well as commercial activities, such as restaurants overlooking the river.

The wildlife refuge offers an area for the preservation of aquatic wildlife in and around Boardman, but could be a possible deterrent to an economical discharge point for storm drainage.

#### 2. Man-made

The Planning area is bisected in an east-west direction by three major facilities; the railroad, Interstate 80-N, the BPA transmission line; and bounded on the south by the West Extension Irrigation Canal.

Combined with the Columbia River; the railroad and the freeway provide the major transportation facilities through Boardman. The routes are essential for the movement of goods and services to and from the City.

However, both the railroad and freeway pose major problems in providing basic

City services. Construction costs for water and sewer lines increases significantly because of required underground crossings. The freeway breaks up the continuity of the community by dividing it into two geographical areas and presently vehicular movements between the areas are limited to one crossing. Construction of another overpass to the Port of Morrow from the residential area south of I-80-N will be very costly. The BPA easement leaves a strip of relatively undevelopable land through otherwise prime residential and commercial areas.

While the freeway, railroad and BPA easements are all deterrents to Boardman's development in certain ways; their presence, combined with the Columbia River, are vital to Boardman's present status and are prerequisite for the area's potential development as a major Eastern Oregon agri-industrial and commercial center.

#### D. IMPACT OF LOW PROFILE WAGE EARNER

The conceptual planning that went into the Comprehensive Plan of 1971 called for the development of an attractive model community unmatched anywhere for comfort and livability. This perception of a future Boardman should undoubtedly be strived for. However, the type of development and livability affordable five years ago may be beyond the reach of many now. From the public standpoint, levels of governmental services demanded and those that can be economically given, are a direct function of the prevailing economic conditions. The question must be answered relative to desirability of parks, pedestrian and equestrian ways, swimming pools, civic centers, libraries, large single family lots vs. providing "basic" services of water, sewerage, storm drainage, streets and street lighting, police and fire protection.

Surely both the basic services and facilities to enhance livability can be realized in Boardman. The "level of service" provided is the component which is directly related to economic condition of the community.

##### 1. Land Use Planning

Low profile wage earners will not be able to afford the improvement cost associated with a 10,000 square foot lot and still be able to construct an attractive, comfortable home. Today, even smaller lots with a minimum size conventional new home is too much of a financial burden for many people. Maintaining the large yard associated with a 10,000 square foot lot is an added financial burden.

Presently, in Boardman there are very few existing low cost homes and virtually none for sale. This points out the need for alternative forms of housing to the conventional single family detached home. This could include multiple family apartments (perhaps subsidized), mobile home parks and mobile home subdivisions.

A land use plan and zoning regulations should be developed to provide for these types of housing and to encourage innovative developments to provide for needs of the low income residents.

2. Recreational

Low cost recreational facilities and activities should be provided for the community as a whole and especially for the low income. This could include parks with playground equipment and picnic facilities, swimming and making school gymnasiums available to the public in the evenings. Perhaps the most obvious area to be developed is the waterfront. This would provide multi-use in one area for individual or family activity.

3. Transportation

Alternative means of travel, especially to and from work and the commercial center, should be provided for. This could involve a shuttle bus service, pedestrian ways and bike paths.

4. Public Facilities and Services

One of the most desirable public utility systems is one that is self-supporting. Policies and rate structures should be established to meet this end. Then, the facilities will be supported in direct proportion to use. This way, the facilities will not have to be subsidized by the general public with more of a burden on the low income. The tax money could then be used for services and facilities to make Boardman more livable: A civic center, swimming pool, parks and recreation, senior citizens center, etc.

## SECTION FOUR

### SEWERAGE STUDY

#### A. GENERAL

In 1974, the City of Boardman received an offer of an EPA grant for construction of a regional sewage transmission and treatment facility. The project is regional in scope, because it will be accessible to both the City and the Port of Morrow industrial park tenants. However, it is anticipated that only domestic sewage and not industrial wastewater will be discharged into the system by the Port tenants.

A grant eligible loan was secured from the DEQ for advance planning and engineering in 1974. Engineering design has been interrupted for consideration of alternative sites, annexation of Port Industrial Park, bond elections, emphasis shift to water developments, securing easements and other reasons. The new facility originally scheduled for completion July, 1975, now is tentatively scheduled for completion in late 1976.

Recently the following events occurred and to bring the sewerage project into focus, are summarized as follows:

Industrial annexation did not become a reality and does not appear likely in the near future.

The City Council reaffirmed its position of constructing the sewage lagoon site east of the Port of Morrow.

The bond election for the City's share of project costs passed handily, with a 4 to 1 ratio, approving the sale of bonds.

Now with the regional sewerage project on track again, design work can continue with project bidding scheduled for late 1975 or early 1976.

#### B. SERVICE AREAS

##### 1. Present System

The present lagoon and aeration cell has the capacity to serve a population equivalent of approximately 1200 people. With the present residential population and commercial contribution, the effective population equivalent is near 810. This results in a present reserve capacity for 390 people or about 130 to 150 single family connections.

Beyond that point, excessive wastewater loadings will result. Anaerobic conditions are likely to occur with the resultant "rotten egg" smell from the sewage lagoon. Expansion of the present system is not possible since by agreement, the site, which is on Corp of Engineers property, is to be abandoned when an alternative facility is constructed.

## 2. New Regional Sewerage Facility

The regional sewage transmission and treatment facility site was selected and approved on Burlington Northern land, located east of the Port of Morrow. The lagoon was designed with a one acre water surface for each 100 people served. With 40 acres under lagoon, the population equivalent of the treatment facility would be 4000 people. The new facility, as designed, provides for a three month winter holding capacity without discharge.

The providing of 3 months winter storage results in the low organic design loading of 100 persons per acre. Lagoons are capable of providing adequate treatment with organic loadings of 175 persons per acre of water surface. Winter irrigation of lagoon effluent is a possibility and could extend the lagoon capacity by another 60 to 75 percent. If these assumptions hold true, the effective population capacity of the treatment facility would be between 6000 and 7000 people. At these population levels, the system will be able to serve approximately 60 percent of the Comprehensive Planning Area.

Actual performance of the system must be monitored on a regular basis from the offset. With the information gathered, the City will be able to forecast well in advance of when the treatment facility reaches its effective capacity. At that time, modifications or expansion of the regional facility; or construction of a supplemental facility will be required.

## C. FUTURE TREATMENT FACILITIES

### 1. Aeration of Initial Regional Facility

By supplying supplemental mechanical aeration to the lagoon, the organic loading capacity may be as much as tripled and the detention time decreased by one-third. With the increased capacity of the lagoons, additional land for effluent irrigation would be required however. The carrying capacity of the 35 acres of land available for irrigation with the new regional system would not be able to handle lagoon discharges beyond the 7000 population level.

The transmission line to the lagoon is being designed for a population of 7000 and a parallel line or alternate route to transport sewage in excess of the initial line capacity would be required when the community grows beyond 7000 persons.



## 2. Expansion of Initial Regional Facility

The only probable expansion in physical size would be to the east. Expansion would be required for both the lagoons and irrigation lands. Land for expansion is limited because land to the south is presently being used for industrial waste effluent irrigation from the Port of Morrow tenants; the county road, Port property and rock plant limit expansion westerly; while the railroad is a deterrent to northerly expansion.

Also, as with the aeration alternative, a parallel or alternate sewage transmission line route would have to be constructed to the treatment site.

## 3. New Supplemental Treatment Facility

On the premise that the initial lagoon will accomodate 7000 people or about 60 percent of the ultimate population of the Comprehensive Planning Area, the remainder of the potential growth could be served with a second facility at a different site. Also, assuming growth south of I-80N will occur in an orderly fashion in a southerly direction, the most attractive sites to serve population growth in excess of 7000 people, are Site No. 3, or the Navy Bombing Range as analyzed in the Engineering Report on Sewage Transmission, Treatment and Disposal by Stanley G. Wallulis, Planning and Engineering. Site No. 3 is located 1/4 mile south of the West Extension Irrigation Canal on an extension of Main Street, and the bombing range site is located approximately 5/8 mile south and 1/2 mile west of Site No. 3.

Sewage from the southerly portion of the Planning Area would have to be intercepted and pumped south to one of the proposed sites. At such time that the initial treatment facility nears its capacity, the above alternative sites should again be reviewed as to their feasibility and cost.

## D. SEWAGE FLOW VOLUMES, LINE SIZES AND LOCATIONS

Initially, this section was to analyze the ultimate sewage flow volumes generated within the Planning Area. However, because of alternatives available when the population reaches 7000, a master plan was also developed for a 6000 population south of the freeway, as well as for an ultimate population in the range of 12,500. Planning for the intermediate population is probably more reasonable, taking into consideration the long time frame before ultimate population is reached.

### 1. Design Criteria

Single family residential  
Multiple family residential  
Schools  
Tourist commercial

12 people/acre @ 100 gpcpd\*  
30 people/acre @ 100 gpcpd  
51 people/acre @ 20 gpcpd  
8 people/acre @ 100 gpcpd

Business commercial  
Infiltration  
Industrial

6 people/acre @ 100 gpcpd  
750 gal/acre/day  
The type of industries envisioned in the Planning Area will not have a significant loading on the system.

\*Gallons per capita per day

2. Ultimate Population - 12,500 South of I-80N

As shown on Figure 2 , page 19, oversized lines range from 10 inch to 15 inch with an ultimate sewage flow volume of 5.9 cfs or 2600 gpm. The pump stations and transmission lines enroute to the treatment facility are not sized to accomodate that flow volume. To size the pump stations and transmission lines to handle the larger flows, would be unwise since much of their practical useful life would be utilized before the ultimate population is reached. In addition, expansion of the treatment facility to accept ultimate sewage flow volumes does not appear to be grant eligible at this time.

Therefore, neither larger line sizes, nor an alternate transmission route is shown north of the freeway. The line sizes south of the freeway are merely for illustrative purposes and are not recommended for construction.

3. 6000 Population South of I-80N

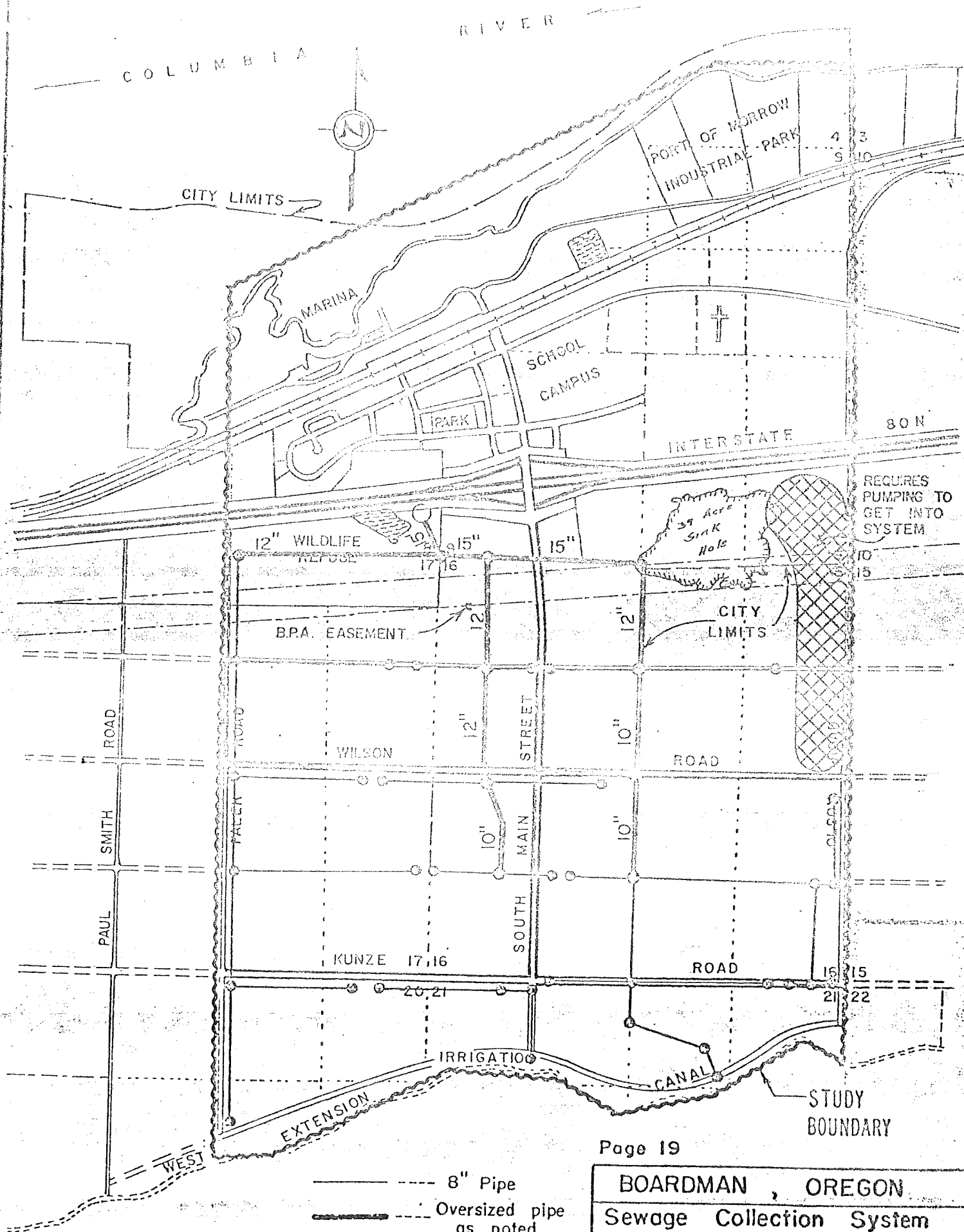
As shown on Figure 3 , page 20, oversized lines are limited to 10 inch and 12 inch sizes, with a peak flow of 3.0 cfs or 1320 gpm. Taking into consideration the limitations of the initial treatment facility, the realistic scope of this Study, the useful life of sewerage system components and future available alternative treatment sites south of the Planning Area; this projection of pipe sizes are reasonable estimates of requirements to service areas as shown in the Plan. Flows from the southerly area as shown on Figure 3 will have to be intercepted with treatment most likely at an alternative site.

4. 2000 Population South of I-80N

Oversizing for a population of 2000 would involve only 650 feet of 10 inch line. However, to build relief lines in the event the population reaches 6000 would probably be double (at today's prices) the cost of installing the larger lines initially. Such action would be grossly shortsighted and not in the best interests of the public.

5. General

Pipe sizes and locations as depicted on Figure 3 , could change slightly depending on actual development and the obtaining of more precise contour maps.





However, for Planning purposes, the locations and sizes are adequate. Location of 8 inch lines are to indicate general flow patterns, but are not intended as final line locations. However, where a general line location as shown, passes through one development into another, provisions must be made to serve the future developments.

#### E. PUMPING FACILITIES AND FORCE MAINS

As indicated in the Engineering Report on "Sewage Transmission, Treatment and Disposal" for the City of Boardman; three pump stations and force mains will be required for the initial regional treatment facility. However, one pump station replaces an existing station at Main and Columbia, which will not have sufficient capacity in the regional sewerage system.

Future pump stations will be required to pump sewage from the southerly part of the Planning Area to possible treatment sites south of the Canal. Also, as shown on Figure 3, page 20, the area just south of the freeway and on the east side of the Planning Area will have to be pumped to get into the sewage collection system. Likewise, because of irregular topography, both north and south of the freeway, additional pump stations may have to be installed to serve areas not able to get into a collection line by gravity flow. These small pump stations should be assessed to the benefitting properties, however, and not be an obligation of the City as a whole.

#### F. FINANCING PLANS

##### 1. Oversizing Policy

The City should pay for oversizing costs over an 8 inch equivalent pipe size. This is based on the premise that the larger line size is required for additional capacity to serve a large segment of the population rather than to serve just an individual development. Oversizing costs should include oversizing of pipe, fittings, extra trench width and installation costs.

##### 2. Assessment Policy

Where the City does the engineering and lets the contract on a project and assesses the benefitting property owners, the most equitable assessment procedure must be used. Depending upon the situation, the assessment could be made on a per lot basis, dwelling unit basis, front foot or square foot basis. The initial determination of the method of assessment should be proposed by City Staff and have concurrence and approval of the City Council in passage of each assessment resolution.

Policies should also be developed relative to line extensions outside City limits, or to areas under delayed annexations. Policies could incorporate

pending assessments outside City limits, "late-comers" agreements or other assessment procedures. Policies should encourage controlled growth radiating from the central area rather than uncontrolled growth in areas distant from the existing City limits or already developed areas.

### 3. Connection Fees

The basic philosophy behind a connection fee is that new users are paying debt service attributed to oversized lines, pumping stations and expanded treatment facilities that are required to serve them. In deference, user revenues are primarily to pay for operation, maintenance and replacement. Everyone benefits once the systems are built and should contribute to operation and ultimate replacement.

A sinking fund or sewer construction fund should be established for the sewer connection fees and be earmarked for payment of oversized lines, and treatment facility expansion. This will insure that money will be available for new capital improvements attributed to new growth.

In 1972, Public Law 92-500 amended the Federal Water Pollution Control Act in a number of significant ways. One such amendment requires that sewer use charges (for operation, maintenance and replacement) be proportional to the user's contribution to the total wastewater loading of the sewerage system. Total wastewater loading includes not only the volume of water discharged to the sewer, but also BOD (biochemical oxygen demand) and suspended solids loading.

This same reasoning should extend to connection fees for financing of capital improvements to sewerage transmission and treatment facilities. If a user has ten times the volume of wastewater discharge as a typical single family residence, he should pay ten times the normal connection fee. In effect, his wastewater discharge is taking up the equivalent of ten single family users in the treatment facility. Likewise, if the BOD loading of a user's wastewater is significantly higher than typical domestic sewage, his connection fee should be proportionately higher.

#### a. Calculation of Connection Fee - Residential

##### Treatment Facilities

Local funding required for new treatment facility and transmission lines	\$420,000.00
New treatment facility capacity	4000 people
Present users (population equivalent)	<u>810</u>
Additional capacity	3190 people

Assuming an average of 3.0 people per connection, there would be 1063 additional single family connections available. However, only the percentage of project cost attributed to future users should be used in connection fee calculation.

Therefore, connection fee =

$$\frac{(3190)}{(4000)} \frac{(\$420,000)}{(\frac{1063}{3})} = \$315.10$$

#### Oversized Lines

Total oversizing cost, including engineering and contingencies, for a 6000 population south of the freeway, is \$39,960.00.

Therefore, connection fee =

$$\frac{\$39,960.00}{1063} = \$37.59$$

Since the total connection fee attributed to the treatment plant and oversizing is \$352.69, the current \$350.00 connection fee should be retained at present.

It is possible that more connections will be available if the treatment facility will in fact, accomodate more than a 4000 population equivalent. By retaining the \$350.00 connection fee, a reserve fund could be built up to defray a portion of the deficit financing associated with future capital improvements in sewage treatment, transmission and disposal.

#### b. Calculation of Connection Fee - Multiple Family

Connection fees for multiple family developments; duplexes, triplexes, apartments, mobile home parks, etc., should be the \$350.00 single family connection fee per living unit. Thus, a triplex would pay \$1,050.00 in connection fees.

#### c. Calculation of Connection Fee - Commercial

For most commercial establishments, the BOD and suspended solids loading of wastewater is similar to that of domestic sewage. To reflect a higher volume of wastewater discharged to the sewer, the following formula for determining the connection fee is proposed.

$$\text{Connection fee} = \frac{AV_c}{V_d}$$

A = Single family connection fee = \$350.00  
V<sub>c</sub> = Average monthly commercial metered water consumption  
V<sub>d</sub> = Average monthly single family wastewater discharge = 10,000 gallons

d. Calculation of Connection Fee - High Rate Commercial and Industrial

In order to make connection fees proportional to wastewater loading of high rate commercial and industrial users, the volume of wastewater discharged and its BOD and suspended solids loading must be taken into consideration. A formula based on total wastewater loading of high rate commercial and industrial relative to average loadings of a single family residence and the single family connection fee should be adopted to determine high rate commercial and industrial connection fees.

Industrial and high rate commercial sewage flows will have to be metered and sampled to establish flow volume and BOD and suspended solids loading of wastewater. At the time of connection, an estimated fee should be charged with adjustments made once loading has been established.

In no case should the connection fee be less than the current \$350.00 minimum.

- e. The sewer connection fee should be revised each year by the increase or decrease in the Engineering News Record Construction Cost Index for sewage treatment plants and sewer lines for the Seattle region.

#### 4. Sewer Use Fee

As previously established, the sewer use fee must be proportional to total wastewater loading of the user. Use fee schedules similar to the connection fee schedules should be adopted to reflect wastewater volume and loading of users. In fact, this type of equitable sewer use charge system is a requirement for recipients of Federal funds for sewerage projects.

A policy should also be adopted relative to sewer use fees for users outside of the City limits. Generally users outside the City pay 1½ to 2 times the normal sewer use fee inside the City.



## SECTION FIVE

### WATER STUDY

#### A. GENERAL

With the passage of the bond election in May, 1975, for the regional water supply system, the City of Boardman took a major step in alleviating its water supply problem and providing for future growth. The City will soon have the capability of providing ample quantities of water without fear of source depletion, as is the present case.

#### B. PRESENT SYSTEM DEFICIENCIES AND NEEDED IMPROVEMENTS

The present system deficiencies of major concern are the water distribution system, lack of adequate storage and the failing deep well. Of course, with the new water source development just recently approved, the deep well will soon cease to be a problem.

##### 1. Distribution

The distribution system, although just over 10 years old and in good condition, is unfortunately undersized. This results in inadequate pressures for proper fire protection, particularly during high irrigation demand periods. Fire hydrant coverage is generally adequate except for an area around the intersections of Park Avenue and Second Street, Boardman Avenue and Second Street, and the Dodge City Motel. Hydrants are installed on 4 inch and 6 inch lines which severely limits their flow delivery capabilities, especially when line pressure is low.

##### 2. Storage

In the spring of 1974, the State Health Division established an additional storage need of 775,000 gallons for the City. This would result in a total storage of 900,000 gallons. This is twice the three day storage normally required by the Health Division. However, during periods of high irrigation, water demand is as much as 15 times normal demand. Consequently, the additional reserve storage may be justified.

Presently, the 125,000 gallon storage tank does not even provide one day's reserve at the present average consumption of 225 gallons per capita per day.

##### 3. Water Source

As previously mentioned, the present deep well is the most critical component

of the water system deficiencies. The present source will only have to function as Boardman's only water supply for another year. At that time, the Ranney Collector will be on line.

The combination of an average water table drawdown of 15.8 feet per year, recent lack of recharge and new hook-ups this summer are cause for close monitoring of the water source to insure adequate supply through the summer. Water rationing through controlled irrigation may be a reality for this summer as well.

The State Health Division has mandated that no further system extensions be made until water source deficiencies are corrected or funding is available for an improvement program. With the Economic Development Administration's grant and bond issue passage for local participation, funding is now available for development of a new water source. Relaxation of the Health Division's policy is now possible and needed to provide new line extensions and hook-ups. The resultant user revenues and hook-up fees are necessary for financing the new water supply system in the initial critical years.

### C. NEEDED IMPROVEMENTS

#### 1. Water Source

The construction of the Ranney Collector drawing from the Columbia River, has a projected capacity of 5760 gpm. Assuming that the per capita consumption will continue at 225 gallons per day and providing for irrigation and fire flows, the maximum daily demand at 4000 population would be 6480 gpm. With the existing deep well on a standby basis, the total system would be capable of serving a population of 4000. Naturally, any service to the Port of Morrow would change that situation and could result in development of a second Ranney Collector, prior to reaching a 4000 population level.

#### 2. Storage

By providing sufficient pumping capacity and adequate standby pumping and power facilities, proper pressures in the distribution system can be maintained and the need for another storage reservoir curtailed. However, consideration should be given to construction of another reservoir in the future to provide at least three days domestic storage.

The following are storage volumes required for different population levels based upon domestic demand of 225 gallons per capita per day and assuming 25% of reservoir capacity is drawn down:

<u>Population</u>	<u>3 Day Storage (gallons)</u>
1,000	850,000
2,000	1,700,000
4,000	3,500,000
12,500	10,500,000

Another consideration in the amount of storage required, is that of irrigation demand. It would be impractical to maintain enough storage for three days supply during high irrigation periods. Irrigation should be curtailed during emergency conditions when the reservoir is the only water supply. However, a significant amount of water will be drawn before everyone in the community can be notified to discontinue irrigation.

As indicated, the projected storage volumes above are based on an average per capita consumption of 225 gallons per day. This includes commercial and public consumption as well as minor water losses. It is unlikely that consumption will continue at that high a rate as population grows. Therefore, the storage volumes indicated at the various population levels will more than likely be adequate for three days domestic consumption. As the population grows, the per capita water consumption should be monitored carefully to establish what consumption rate should be used in determining storage requirements.

The final element affecting storage required is that of possible industrial use from the industries at the Port of Morrow. A sustained use of 1000 gpm would increase the three day storage requirement by 4.3 million gallons while a 1500 gpm usage would increase storage by 6.5 million gallons.

### 3. Distribution

By tying the existing distribution system into a main line from the Ranney Collector system, line pressures will be increased and maintained even during high irrigation usage.

A distribution system for a 4000 population and for an ultimate population are shown on Figures 4 and 5, respectively. The line extending west along the railroad tracks from Main Street and extending south across the freeway is not required initially, but should be installed when funds are available. The purpose of the line is to provide a major loop for the western part of the Planning Area south of the freeway and to provide an intertie to the existing distribution system.

The 18 inch line on Main Street extending south of the freeway from Columbia Avenue is of particular importance. As growth takes place south of the freeway, the line will be required to provide adequate fire flows and looping of

COLUMBIA

RIVER

RANNEY  
COLLECTOR

PORT OF MORROW  
INDUSTRIAL PARK

CITY LIMITS

MARINA

SCHOOL  
CAMPUS

INTERSTATE

80 N

WILDLIFE  
REFUGE

B.P.A. EASEMENT

CITY LIMITS

ROAD

SMITH

PAUL

ROAD 12"

FALER 12"

12" WILSON

STREET

SOUTH MAIN

ROAD

ROAD

OLSON

KUNZE 17.16

20.21

ROAD

16

15

21

22

IRRIGATION

CANAL

STUDY  
BOUNDARY

BOARDMAN, OREGON

Water Distribution System  
4000 Population

COLUMBIA

RIVER

RANNEY COLLECTORS

CITY LIMITS

PORT OF KODROW INDUSTRIAL PARK

MARINA

SCHOOL CAMPUS

PARK

INTERSTATE

80N

WILDLIFE REFUGE

B.P.A. EASEMENT

CITY LIMITS

WILSON

STREET

ROAD

ROAD

ROAD

SMITH

PAUL

ROAD

FALER

SOUTH MAIN

OLSON

KUNZE

ROAD

Future Reservoir Site

IRRIGATION

CANAL

STUDY BOUNDARY

EXTENSION

WEST

BOARDMAN , OREGON  
Water Distribution System  
Ultimate Population  
Figure 11-5

the distribution system. Installation of this line should be of a high priority when funds are available.

#### D. EXTENSION OF WATER SYSTEM TO UNIMPROVED AREAS

Initially, extensions can be made without additional reservoir storage with the pumping facilities capable of maintaining required pressures and flow volumes. At such time that growth and resultant increase in water demand threatens to overtax the pumping capabilities of a single Ranney Collector, a storage reservoir should be constructed in the southeast corner of the Planning Area. This location has the highest elevation within the study boundary.

Construction of a large reservoir would be more advisable when the initial Ranney Collector is inadequate, rather than construction of another collector. The reservoir would add more integrity to the system where water supply is not completely dependent on pumping capabilities. At current prices, a 5.0 million gallon reservoir and required transmission lines could be constructed at the same cost as another Ranney Collector and expansions to the chlorine detention chamber. As indicated previously, a 5.0 million gallon reservoir would have sufficient capacity for a population well in excess of 4000 people. Beyond that point, careful study should be made relative to additional storage or installation of another Ranney Collector.

#### E. FINANCING

As indicated in the Engineering Report on Sewerage and Water Facility Cost Impact for the City of Boardman, by Wallulis and Associates, the initial water system improvements (Ranney Collector, chlorination and initial transmission lines) can be financed by user revenue, connection fees, and a maximum tax levy of \$1.55 per \$1000.00 assessed evaluation. This is premised on moderate growth to a population of 1465 by the year 1986. Of the current connection fee of \$350.00; \$150.00 is apportioned to debt service, \$115.00 to service and meter installation and \$85.00 to distribution line oversizing.

##### 1. Typical Oversizing Cost

For a typical residential area of 160 acres, 7920 feet of 12 inch line is required. The oversizing cost involved is \$58,200.00. Assuming an average of 3.5 lots per acre, the per lot cost for oversizing is \$103.93. Therefore, during the first years of expansion when only \$85.00 of the connection fee is apportioned to oversizing, funds may not be enough to defray the City's oversizing costs.

If growth is generated faster than the 1485 population projected for 1986, additional water revenue and connection fees will likewise be generated. Given that situation, more of the connection fee can be apportioned to oversizing. It will then be possible to install the larger transmission lines as shown on Figure 5, and lines required to loop the entire system (such as the line west along the railroad tracks, as previously mentioned).

## 2. Oversizing Policy

It is proposed that the City pay for oversizing of lines over 8 inches in size in residential areas. In commercial, industrial and other high water consumption and high value areas, the line size required to meet water demands for consumption and fire protection should be paid for by the benefiting properties. Any additional size to service other areas should be City oversizing.

Oversizing cost should include additional pipe and installation cost, and oversized valves, fittings, etc.

## 3. Connection Fees

Connection fees should be set at an amount high enough to generate funds for capital improvements (storage, line oversizing and new source developments), as well as for actual water meter installation.

The amount of connection fee should be proportional to the water consumption of a user. There are a number of ways this can be accomplished.

The following are offered as alternatives.

### a. Actual Water Consumption

A range of connection fees could be established to correspond to a range of water consumptions. Thus a user with a consistently higher water consumption would pay a higher initial connection fee.

### b. Water Meter Size

A different connection fee could be charged for each size of meter required to serve a user. Normally the larger the meter required, the larger the water consumption occurs.

As with sewer connection fees, the water connection fee should be revised each year by the increase or decrease in the construction cost index for water facility construction.

## 4. Use Fees

Use fees should be based on operation, maintenance and replacement costs of the water system. Revenues derived from use fees should be sufficient to result in a self-supporting water system. Periodically, use fees should be reviewed to reflect changes in operation and maintenance costs.

Water billings should also be adjusted for users outside the City limits.

## SECTION SIX

### STORM DRAINAGE STUDY

#### A. GENERAL

Historically, management of storm run-off has not received the same consideration as the more immediate problems of providing other municipal services, such as sewerage and water. This lack of planning has resulted in a wide variation in drainage protection, benefits and costs to property owners.

Boardman is fortunate in that it is not faced with major storm drainage problems associated with excessive rainfall, flooding rivers, lack of underground storm drainage systems or combined storm-sanitary sewers.

However, sound planning and policies are essential to perpetuate Boardman's present condition and extend the same livability afforded by an adequate storm drainage system to its new residents.

Boardman's storm drainage system is intended for management of urban storm runoff - an environmental service - rather than for flood control during extremely heavy periods of rainfall. Benefits derived from such a system are more socially oriented rather than actual physical protection of property. Benefits associated with a complete underground storm drainage system are reduced street maintenance, improved aesthetics, enhancement of land value and alleviation of health hazards.

In Public Law 92-500, which amended the Federal Water Pollution Control Act with the goal that by July, 1983, alternative waste management techniques are to be studied and evaluated in order to apply the best practicable waste treatment technology and to otherwise eliminate all discharge of pollutants. Taking "waste treatment" on a broad basis, it could include treatment of storm runoff. Elimination of storm runoff as a point source to a receiving stream or as a pollutant must however, be technologically and economically achievable. Being economically achievable is in question, but at present, the possibility of storm runoff treatment in some form, can not be discounted.

#### B. DRAINAGE IMPACT OF LAND USE CHANGE

The most dramatic and apparent change in storm runoff characteristics is associated with the conversion of undeveloped or agricultural land to residential, commercial, industrial or other uses. Runoff coefficients for unimproved land ranges from 0.10 to 0.30 with the Boardman area being at the low end of the scale, due to the sandy soil. Upon development, however, runoff coefficients increase dramatically:



<u>Type of Surface</u>	<u>Runoff Coefficient</u>
Relatively impervious areas (streets, sidewalks, driveways, roofs)	0.70 - 0.95
Central business district	0.70 - 0.95
Industrial	0.50 - 0.80
Medium density multiple family	0.50 - 0.70
Single family residential	0.30 - 0.50

An area normally having very little runoff can gradually be turned into one of relatively high runoff characteristics. Consequently, storm drainage facilities must be treated and designed in a manner consistent with accepted public standards relative to level of service expected. Providing adequate drainage for the most severe storm expected every two years, should be a minimum design criteria.

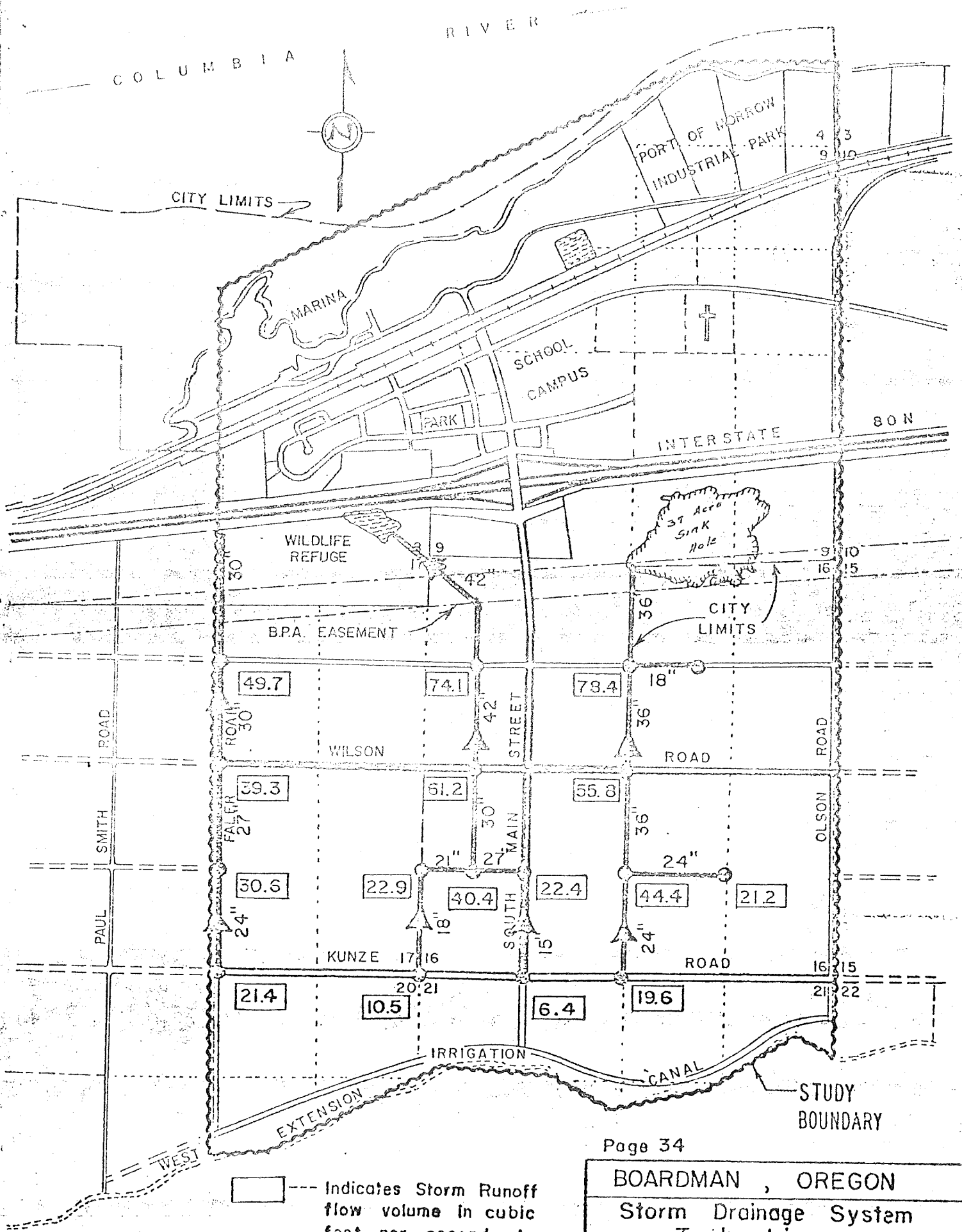
New land development techniques, such as planned unit developments, with innovative designs can significantly reduce the amount or rate of runoff to the public storm drainage system. Total impervious areas can be reduced and storm water detention can be realized by judicious use of land topography and open space. Storm runoff management within private developments should be encouraged and credit given in assessments for public storm drainage projects.

### C. DISCHARGE POINTS

From the southerly boundary of the Planning Area at the Canal, the terrain slopes downward on an average grade of one percent to the freeway. With the freeway presenting itself as a barrier to economic discharge to the Columbia River, discharge points must necessarily be located south of the freeway.

The most desirable discharge points are the sink hole on the east side of the Planning Area and the wildlife refuge on the west side, as shown on Figure 6, page . The two points offer the advantage of being able to divide the Planning Area into distinct drainage areas, each discharging at a different point. This decreases the amount of storm drainage pipe required and minimizes pipe sizes by not combining runoff from different drainage basins. The result is savings both to the property owners and the City in oversizing costs.

A possible alternative to discharging the westerly trunk line to the wildlife refuge is the utilization of the irrigation ditch running northerly from the intersection of Wilson and Faler Roads. This alternative should be studied as to its feasibility when development occurs in that part of the Planning Area. If found to be an attractive alternative, the result could be to eliminate about 2,700 feet of 30 inch pipe by utilizing open channel flow in the ditch.



--- Indicates Storm Runoff  
 flow volume in cubic  
 feet per second at  
 junction point

Page 34  
 BOARDMAN , OREGON  
 Storm Drainage System  
 Trunk Lines  
 Figure #6      Scale: 1" = 1000'

North of the freeway, distinct drainage areas are not prevalent. More practical than major trunk lines collecting runoff from all properties and discharging to a single point, are smaller runoff management systems. Design of these systems would depend upon the nature of the development, but should be consistent with Boardman's overall goal for management of urban storm runoff.

The discharge points may only be part of an interim solution to storm runoff management if treatment should be required in the future. Settling basins (possibly the present sewage lagoon) may have to be installed prior to discharge to a receiving stream or other body of water.

#### D. STORM RUNOFF DETERMINATION - DESIGN CRITERIA

Many factors contribute to the determination of storm drainage runoff, most of which are not precisely determinable. The basic design is based upon drainage area; storm intensity and duration; and runoff coefficients. A certain amount of rational engineering judgement is required in the selection of design factors for runoff determination. It would be remiss to design for the most intense series of climatological and ground conditions that could occur, as well as ignoring all but the mildest of conditions. Since the intent of Boardman's storm drainage system is for management of runoff, rather than flood control, it would seem that design criteria based upon average conditions and the maximum storm anticipated every two years would be adequate.

It is the Committee's feeling that occasional flooding of streets for short durations during storms of high intensities, must be tolerated rather than designing for perhaps a 10 year storm frequency, with the resultant larger pipe sizes and increased costs. As an example, if the runoff from an area based on a 2 year storm was 30,000 gpm, a 36 inch storm line at a 1% slope would be required; however, if the same area was designed on a 10 year storm, the runoff would be 52,500 gpm, requiring a 48 inch storm line at the same 1% slope. It must be remembered that designing on a 2 year storm will result in more frequent flooding of streets because smaller pipe sizes will not have the capacity to handle runoff from less frequent, but more intense storms.

The following design criteria was used in establishing storm runoff volumes:

Design storm	2 year
Maximum hour intensity	0.35 in/hr
Runoff coefficients:	
Single family	0.40
Multiple family	0.60
School - park	0.30
Commercial	0.90

The estimated runoff volumes are indicated on Figure 6, page 34, as are major line sizes and locations.

## E. FINANCING PLAN

Financing of storm drainage systems should not be limited to the basis of benefits derived; such as an increase in property value or protection of property. Properties on high ground do not necessarily benefit physically from a downstream storm drainage trunk line, but do contribute storm runoff into the system. The financing of a storm drainage system should be a general obligation of all newly developed properties to meet the social and environmental requirements of the community.

In a defined drainage district, it is reasonable to require financing of the drainage system by all properties within the area, so costs to individual properties may be reduced to a reasonable level and be as equitable as possible. It would be unfounded to have a property owner at the lower end of a 36 inch trunk line pay for the entire cost, while an upstream developer pays only for 12 and 18 inch lines.

### 1. Assessment Policy

Historically, paying for storm drainage construction costs has included general obligation bonds paid off by ad valorem property taxes. However, property value has nothing to do with storm runoff and utilization of such a revenue source should not be considered.

Special assessments levied against benefitting properties, coupled with a development charge to finance City oversizing costs, is perhaps one of the most equitable approaches to financing storm drainage projects. Generally, special assessments are made on an area basis (square foot or acre) against properties actually draining into the portion of the drainage system constructed.

### 2. Oversizing Policy

As with any oversizing policy, the basic philosophy is to have individual developments pay for utility lines required to serve them, with the City paying for the oversizing of lines required to handle flows attributed to larger areas. Extending this concept to storm drainage, it would seem appropriate that a typical 40 acre single family subdivision should pay for the pipe size required to serve it. Based upon the design criteria established previously and the average slope of the terrain in the Planning Area, an 18 inch storm line would be required for such a development. Therefore, it is recommended that any oversizing above 18 inches be paid by the City.

### 3. Development Fee

In order for the City to pay for oversizing of lines, a source of funds must be established to make such payments. Development fees, similar to sewer connection fees, should be charged against newly developed property based upon the development's runoff characteristics; i.e. runoff coefficients. Con-

sequently, developments contributing a greater amount of runoff (commercial) will pay for more of the oversizing cost than those with less runoff (single family residential).

The total estimated oversizing cost, including engineering and contingencies, for the storm drainage system as shown on page 34, is \$205,500.00. With approximately 1031 acres benefitting from the trunk system, the per acre cost is about \$199.30. Reducing this on the basis of 3.5 lots per acre, the cost per each single family residence would be near \$57.00. However, as stated previously, the development fee should be weighted to reflect differing land use runoff coefficients; thus yielding a more equitable apportionment of storm drainage costs.

The following formula is proposed for the determination of development fee:

$$\text{Fee} = \frac{(A)}{(A_t)} \frac{(C)}{(C_t)} (\$205,500.00)$$

Where

A	=	Area of development
A <sub>t</sub>	=	Total area or 1031 acres
C	=	Runoff coefficient of development
C <sub>t</sub>	=	Average weighted runoff coefficient of total benefitting area
	=	0.474

Therefore, the storm drainage development fee for a 40 acre single family subdivision at 3.5 units/acre would be:

$$\frac{(40)}{(1031)} \frac{(0.40)}{(0.474)} (\$205,500.00) = \underline{\$6728.14}$$

or \$42.05/unit

Likewise, for a 40 acre commercial development of relatively impervious surface would be:

$$\frac{(40)}{(1031)} \frac{(0.90)}{(0.474)} (\$205,500.00) = \underline{\$15,138.31}$$

Runoff coefficients used in calculations of development fee should be based on those outlined earlier under design criteria. However, credit should be given for developments with innovative designs which decrease storm runoff to the public system.

The total construction cost base of \$205,500.00 should be revised at the beginning of each year by the increase or decrease in the Engineering News Record Construction Cost Index for sewer lines in the Seattle region.

In the initial years of development, the large line sizes will have to be constructed at a time when the City probably will not have a reserve in the storm drainage fund to defray the cost. Some type of deficit financing of oversizing costs will likely be required initially until the reserve fund builds up. This could include:

- a. Issuing of general obligation bonds to be paid off by future development fees.
- b. Developer paying for oversizing initially and then reimbursed by City as development fees are collected.

## SECTION SEVEN

### TRANSPORTATION

#### A. GENERAL

The transportation system in and around Boardman is characterized by a multi-modal network of major highway, rail and water facilities. With the present availability of alternative transportation facilities, the movement of goods and services is not restricted by or confined to a single transportation method. This is a key advantage to Boardman in its growing role as an industrially oriented full service city in Eastern Oregon.

#### B. MASS TRANSIT

Because of Boardman's small population, a mass transit system would not be feasible at this time or within the near future. At higher population levels, when there are distinct high density areas and concentrated origins and destinations, mass transportation systems should be explored more thoroughly.

A shuttle bus system from centralized residential stopping points to industrial plants and commercial centers could have merit in future years. Also, a county-wide or multi-county busing system for the elderly, handicapped and disadvantaged to commercial and recreational facilities should be encouraged in the future.

Presently, the East Central Oregon Association of Counties has an application submitted for a demonstration grant for a commuter bus service in the Boardman area. The application is for funding of a Rural Mass Transit Demonstration Project, through the Federal Highway Administration, Department of Transportation. Under the Commuter Component of the grant, a commuter bus service from the greater Hermiston area (Hermiston, Irrigon, Umatilla, Stanfield and Echo) to the Port of Morrow industrial site near Boardman would be provided.

An 88 seat bus providing commuter transportation service at each shift change at the industrial site is proposed. The service would be privately owned and operated. Operator of the system would be selected by public bid.

The grant is to demonstrate the feasibility and need of providing this type of service attributed to regional growth in a rural area.

#### C. AIR, WATER AND RAIL SERVICE

Air, water and rail services are all adequately provided to Boardman. The Pendleton airport, 45 miles to the east, services large commercial passenger and freight traffic as well as small private planes. The Boeing flight strip, three miles west of Boardman, provides a

more immediate service for small private aircraft. The navigable waters of the Columbia River and the rail service of Burlington Northern and Union Pacific, provide reliable east-west movement of raw materials and products.

#### D. HIGHWAYS, ROADS AND STREETS

Major highway access is provided by Interstate 80-N. The route has recently been completed to interstate standards from western Oregon, through eastern Idaho.

Morrow County and the City should coordinate to link major City arterials to main County routes. This would initially involve Kunze and Wilson Roads and Columbia Avenue.

An interim and ultimate master arterial street plan should be adopted and implemented as growth continues and traffic volumes increase. The arterial street plan should provide for the safe movement of large traffic volumes, connect the central business district with residential areas and provide through traffic from residential areas to the Port of Morrow industrial area.

The interim plan, with narrower streets and simplified traffic control, is intended to provide for adequate movement of traffic at a reasonable level of service for lower volumes of traffic. The ultimate master plan will provide service to high traffic volumes and will be a more sophisticated system of four-lane arterials, left turn and refuge lanes and signalized traffic control.

Figures 7 and 8 show the interim and ultimate master arterials street plans, respectively.

The interim plan would provide for normal 36 foot street widths in residential areas and 48 foot street widths in commercial, industrial and high density residential areas. Future widening programs in accordance with the ultimate plan, to provide for the higher traffic volumes at some future date, should be a coordinated venture with a normal street overlay program.

By adopting an interim plan, a number of advantages will result:

1. Lower initial cost to City.
2. Reserve fund for street oversizing can be accumulated prior to actual construction.
3. High priority streets can be oversized first.
4. Lower initial maintenance costs.

Disadvantages are higher future costs and disruption of front yards during future widening projects.

The following is a summary of major provisions of the proposed master arterial street plan:

1. Require dedication of 70 foot rights-of-way in 48 foot street width areas and 80 foot rights-of-way in areas designated for wider streets.



COLUMBIA

RIVER

CITY LIMITS

PORT OF MORROW  
INDUSTRIAL PARK

MARINA

SCHOOL  
CAMPUS

PARK

INTERSTATE

80 N

Future  
Overpass

WILDLIFE  
REFUGE

8 9  
17 16

39 Acre  
Sink  
Hole

9 10  
16 15

CITY  
LIMITS

B.P.A. EASEMENT

ROAD

SMITH

PAUL

ROAD  
FALER

WILSON

STREET

SOUTH  
MAIN

ROAD

ROAD  
OLSON

KUNZE 17 16

20 21

ROAD

16 15

21 22

IRRIGATION

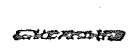
CANAL

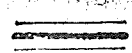
STUDY  
BOUNDARY

EXTENSION

WEST

Page 41

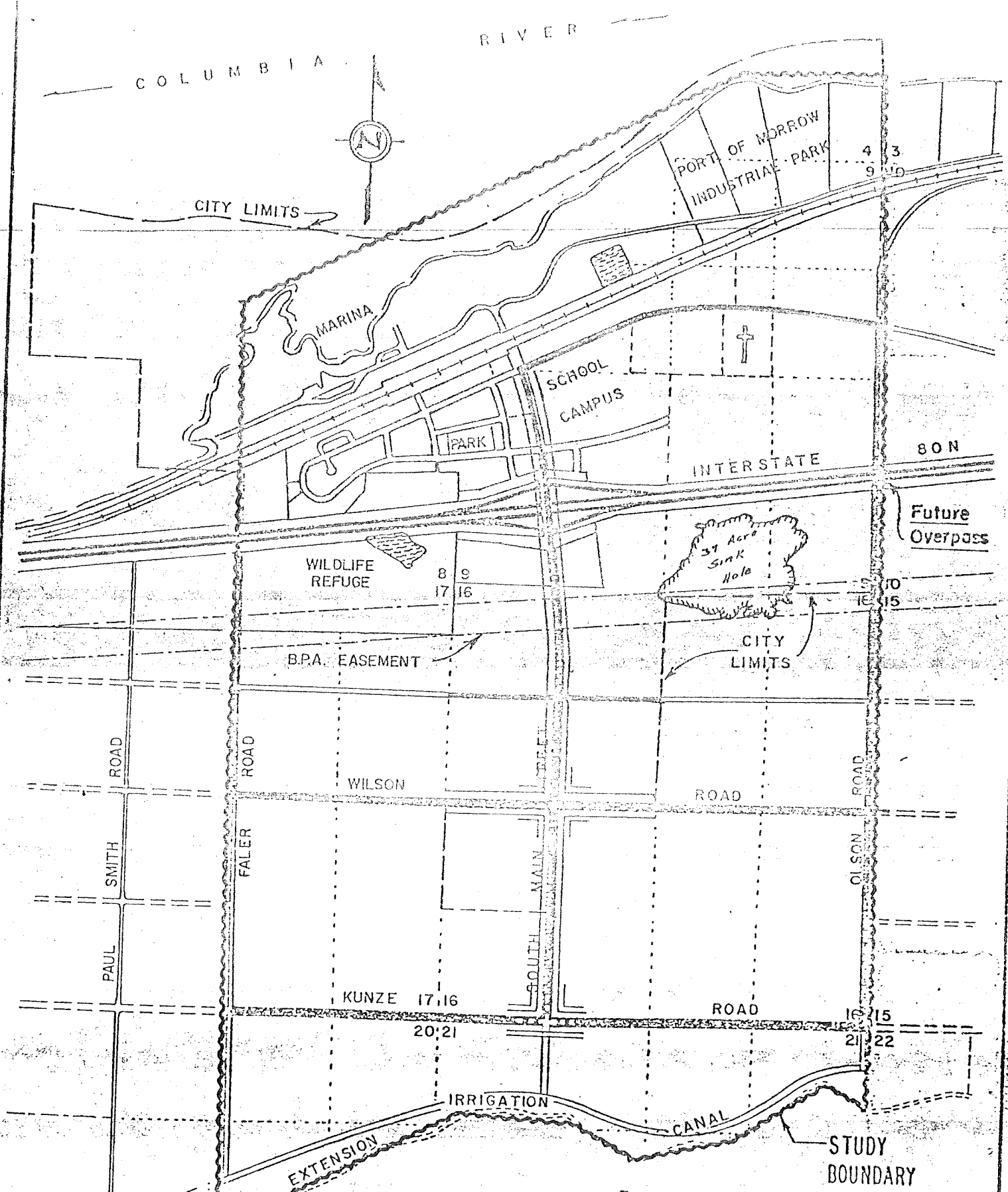
 35' Width (2 lane)

 48' Width (4 lane)

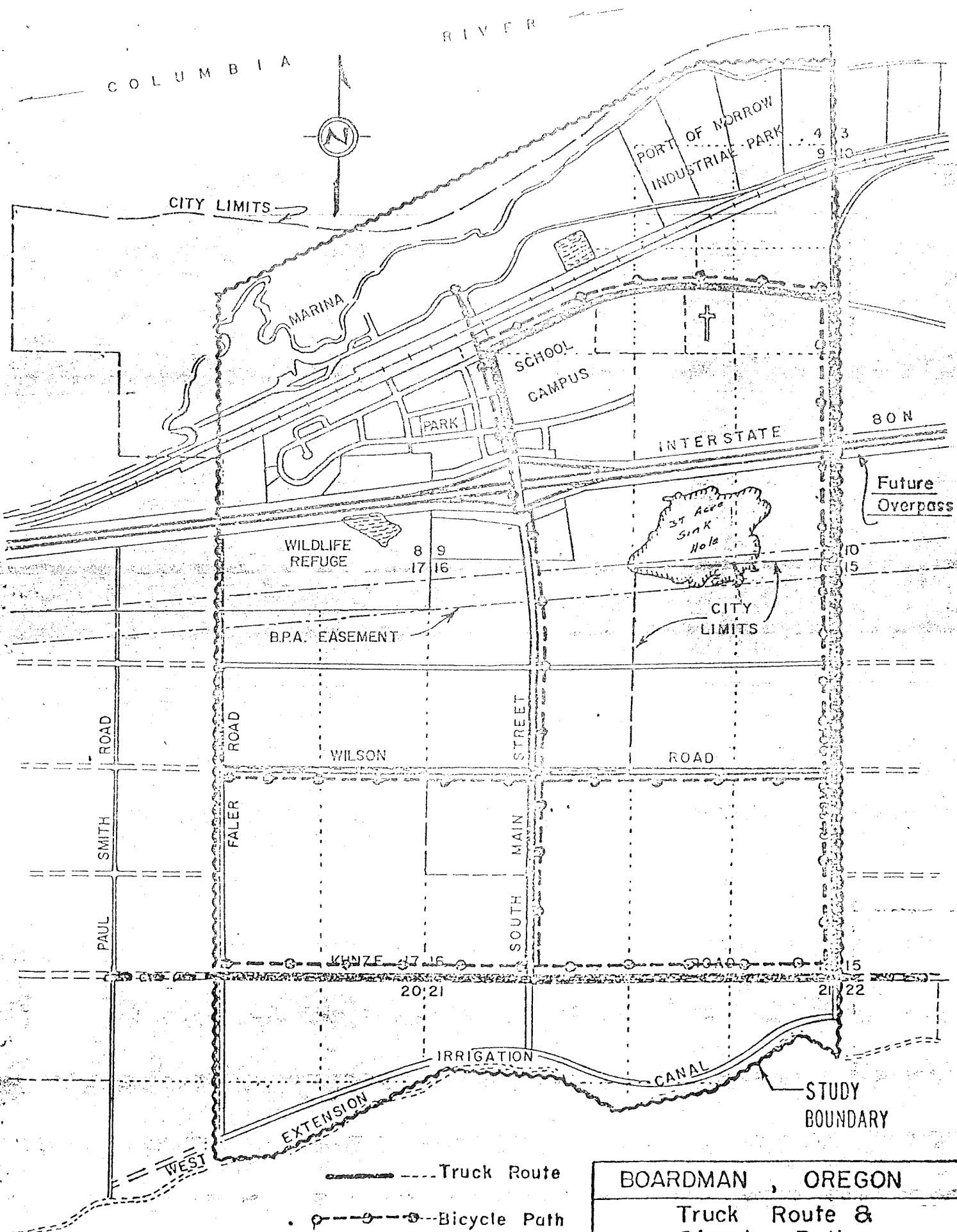
BOARDMAN , OREGON

Interim Arterial  
Street Plan

# 7



- 48' Width (4 lane)
- 56' Width (4 lane)
- w/4' painted median
- 60'-68' (5 lane)



BOARDMAN , OREGON

Truck Route &  
Bicycle Paths

Figure #9

2. Prohibit parking on all arterials.
3. Straight east-west through streets between arterials not be allowed, although some collector type streets should be encouraged.
4. A truck route should be established when necessary. A proposed truck route is shown on Figure 9 which provides for an overpass over the freeway to the Port of Morrow. This will eliminate heavy truck traffic through the central business district.
5. No direct access to residential lots with curb cuts on arterials.

#### E. BICYCLE AND PEDESTRIAN TRAFFIC

Consideration of non-vehicular routes should be given to provide alternative means of transportation to the automobile. Bike paths (8 foot minimum concrete) could be constructed along arterials to the central business district, civic center, major parks and recreation facilities, schools and industrial park. The bike paths would serve a dual purpose - transportation and recreation. A proposed bike path plan is shown on Figure 9.

Residential sidewalks (5 foot width) should be constructed along all other streets.

#### F. SIDEWALK CONSTRUCTION POLICY

Sidewalks shall be required along all City streets as per City standards. However, as an alternative, the sidewalks may be constructed at the time the house is built on a lot, rather than at the same time as street construction. However, at such time that 75% of the sidewalks are constructed within one block or on a cul-de-sac, the remainder must be constructed.

#### G. PROPOSED STREET OVERSIZING AND ASSESSMENT POLICY

The intent of the street oversizing and assessment policy is threefold:

To place a proportionate share of street construction cost on land uses, relative to their actual street width needs.

To assign construction cost of common areas (oversizing and intersections) and other facilities (traffic signals and bike paths) to the City as a whole.

Establish a sinking fund (street construction fund) to pay for City costs.

##### 1. Oversizing

The City should pay for oversizing of streets over 36 feet wide abutting residential areas and over 48 feet wide abutting commercial and industrial areas. Property rezoned from residential to commercial or industrial within three years after the arterial street improvement, should be reassessed at the wider street width basis. Reassessment should be made at current cost difference between 36 foot and 48 foot widths. Also, the City should pay for oversizing (over 5 foot width) for bicycle paths abutting residential areas.

2. Intersections

The City should pay for intersection cost for portion of street between property lines at intersections.

3. Street Construction Fund

In order to generate revenue to pay for the City's share of street construction, a street construction fund should be established. New developments would pay a development fee into the fund, based on a "front-foot" criteria.

At the beginning of each calendar year, the street construction fund fee should be adjusted by the Engineering News Record Construction Cost Index for highway and street construction in the Oregon region.

4. Assessment Policy

Street assessments should be made on a front-foot basis. As stated previously, the City should deny direct access to arterial streets from adjacent properties. However, subdivisions or developments with side street access from arterials in effect do have access from the arterial and directly benefit from it. Therefore, the portion of the non-access arterial abutting the development should be assessed to that development.

## H. FINANCING PLAN

As previously established, street construction will be paid for by the developer-property owner with the City paying for oversizing out of funds generated from development fees. Operation and maintenance should be provided through gas taxes and augmented by general taxes if required.

### Establishment of "Front Foot Development Fee"

The total cost of oversizing, intersections, signalization and bike paths to be paid by the City should be divided by the total anticipated number of front feet in the Planning area, when fully developed. This will yield a typical "front-foot development fee" to be paid to the City at the time of development.

Listed below are costs attributed to each category of City participation, including engineering and contingencies:

Street oversizing	\$356,500.00
Intersections	\$451,800.00
Signalization	\$ 75,000.00
Bike paths	\$ 98,400.00

Assuming that the total Planning area developed as single family residential at 3.5 units per acre, the total front footage would be approximately 354,000 feet. Thus, the front foot cost for each category of City participation is as follows:

Street oversizing	=	$\frac{\$356,500.00}{354,000.00}$	=	\$1.01
Intersections	=	$\frac{\$451,800.00}{354,000.00}$	=	\$1.28
Signalization	=	$\frac{\$75,000.00}{354,000.00}$	=	\$0.21
Bike paths	=	$\frac{\$98,400.00}{354,000.00}$	=	\$0.28
Total				\$2.78

Typical single family lot cost for 80 feet of frontage would be \$222.40.

Naturally, the entire Planning Area will not develop as single family and the total front footage will be less than estimated above. Therefore, it would seem that the total front foot development fee should be higher. However, with development of commercial, schools, parks, etc., the number of intersections will decrease proportionately. Therefore, the \$2.78/front foot development fee should be high enough to offset the City's street construction participation.

In the case of a planned unit development, with private interior streets and only a small frontage on a City street, it might not pay its proportional share of arterial street and intersection costs.

Some adjustments to the development fees being made simply on a front foot basis, should be considered for such a case. The PUD should at least pay for the oversizing, signalization and bike path portions of the front foot development fee. By having private interior streets, the PUD will in effect, be paying for its own intersections. Again, using the basis of an average 80 foot lot frontage, the per lot cost would be \$120.00. This could be assessed against the PUD on a per living unit basis.

As an alternative to the City paying for all intersection costs, the developers could pay for the intersections or the City could pay for only the intersections of arterial streets. In either case the "front foot development fee" should be adjusted accordingly.

## SECTION EIGHT

### HOUSING

#### A. GENERAL

With the increase in construction costs for single family homes in recent years, this type of home is no longer within economic reach of many potential buyers. Alternative types of housing must be provided for and given equal consideration in Boardman's housing scheme. Alternatives to single family detached homes, are mobile homes, modular homes, apartments, condominiums, planned unit developments and other forms of cluster housing. Planned unit developments and cluster housing, which will decrease total construction cost of utilities, save in energy consumption and provide low cost recreational activities (parks, tennis, swimming) within each development, should be encouraged.

It is becoming more apparent that generally accepted types of housing can no longer be zoned out of a city's overall plan. City's have a responsibility to adopt regulations and ordinances that will accomodate adequate housing for the full spectrum of potential future residents.

#### B. HOUSING SURVEY

In order to establish housing needs and desires of the present populace, a confidential housing survey was conducted through a mail-out questionnaire to all Boardman residents. Approximately 25% returned completed questionnaires.

##### 1. Summary

The present housing demand is mainly by younger families for 3 bedroom homes with a cost starting at \$20,000.00. The majority of the middle age group, 36 - 50, currently own their own 3 bedroom homes and are generally satisfied with them. The demand in the young age group stems from new people migrating into the area and not being able to buy a home in this price range.

Apartments and mobile homes appeal to people over 51 who do not have a family at home and would rather not have the up keep associated with a conventional home. This type of housing also appeals to young people moving in without large families.

Families with income less than \$10,000.00 per year feel that there is no choice of housing available to meet their needs. This income group desires smaller 2 bedroom homes between \$15,000.00 and \$20,000.00. People with incomes above \$14,000.00, currently either rent or own a variety of 3 bedroom units

and are generally satisfied with their housing. However, if available, they would rather own a 3 bedroom home.

## 2. Conclusions

The general demand for additional housing lies with young families moving to Boardman and families of low income. It is not possible to acquire a well built 3 bedroom home for \$20,000.00 unless it is subsidized. Both young families and low income, would benefit from alternatives to conventional single family detached homes.

## C. OTHER STUDIES

In May, 1975, Skidmore, Owings and Merrill prepared a housing study, "Housing and Community Facility Requirements", for Portland General Electric Company. The study was to establish the type and amount of housing and community facility construction required to meet the demands of increased population due to PGE power plants, Alumax aluminum plant and other agricultural and industrial activity in the Arlington - Boardman - Hermiston area.

The following is information taken from the study which relates to Boardman's future housing needs:

1. Based upon a construction peak in 1977 for the Carty coal fired power plant, the Pebble Springs nuclear power plant and the Alumax aluminum plant.

	With 10% Bachelors	With 25% Bachelors
1977 Population	3,220	2,569
Housing Units needed	841	636
Single Family	487	368
Apartments	210	159
Mobile Homes	144	109



2. Based upon a construction peak in 1977 for the Carty plant only.

	With 10% Bachelors	With 25% Bachelors
1977 Population	1,309	1,182
Housing Units needed	238	198
Single Family	137	114
Apartments	60	50
Mobile Homes	41	34

3. Based upon a stabilization of construction forces for all projects in 1983.

1983 Population	2,235
Housing Units needed	531
Single Family	356
Apartments	103
Mobile Homes	72

Of course, the actual construction timing of the three major projects will greatly affect the 1977 projected population figures. Because of the possibility of further environmental road blocks for Alumax and possible change in priority from Carty to Pebble Springs, the construction peak is likely to be later than 1977. Historically, it seems such projects run behind schedule. This situation would be of benefit to Boardman in its effort to meet housing and other community facility demands. Although not impossible, the construction of 487 single family units by the end of 1977 seems very unlikely.

Perhaps the most significant piece of information in the Study, is the projected permanent population of 2,235 in 1983. With such a population base, Boardman would be in a financially sound position to capitalize the regional water and sewerage projects as well as extend public facilities and services to new growth areas.

## SECTION NINE

### OPEN SPACE, SCENIC AND HISTORIC AREAS,

### NATURAL RESOURCES AND RECREATION

#### A. GENERAL

The City of Boardman does not have an abundance of pleasing natural amenities or scenic areas, so for those that are present, preservation and enhancement is vital. Also, development of attractive environments from prosaic desertland is desirable.

#### B. CORP OF ENGINEERS WATERFRONT PROPERTY

The single most desirable area for preservation is the Corp of Engineer's waterfront property. This area extends for a distance of more than a mile along the Columbia River, with an average property depth of 1,000 feet.

Preservation of the property in its natural state would severely restrict its full potential. Preserving the area for open space and recreational activities would be a more fitting goal. A multi-million dollar marina and parksite is situated on 74 acres on the west end of the property. The parksite is equipped with campsites with windbreaks, utilities, restrooms, picnic facilities with shelters, petroglyph display, landscaping, parking, boat launch and dock, and a swimming area. This facility presently serves both tourists and Boardman area residents alike. Further development of the remainder of the property, about 75 acres, into recreational uses such as playfields, beaches, campsites and swimming is encouraged.

#### C. WILDLIFE REFUGE

The other significant natural resource area that should be preserved is the wildlife refuge on the west side of the Planning Area, both north and south of the freeway. The area is low lying marshy land with standing water year-around. The refuge is a habitat for a variety of aquatic life and wild fowl. The area also functions as a natural buffer between the freeway and residential development.

#### D. CONFLICTING USES

In both the waterfront property and wildlife refuge, there are conflicting uses proposed. In the case of the waterfront property, a series of three Ranney Collectors, serving as Boardman's water source, are proposed. Also, a chlorination chamber and pumping station is proposed on the property. However, the facilities will be of an architectural style as compatible as possible with the other uses on the property. The alternatives of deep wells or a water filtration plant at a different location are economically prohibitive.

The wildlife refuge is a natural low area desirable for the discharge of storm drainage from future developments. Costs would be enormous to transport storm drainage to the Columbia River as an alternative. Besides adding significantly to the length of pipe required, construction under the freeway and railroad tracks make this option unfeasible. Installation of dry wells, with no discharge to the wildlife refuge, have historically proven to be unreliable and a considerable added maintenance problem. A storm drainage pre-treatment system to capture road oils, greases, trash, leaves and inorganic solids would be desirable to insure a clean flow of storm runoff into the refuge.

#### E. PARKLAND

Open space in the form of parkland should be maintained in developing areas through a series of small neighborhood parks. Parkland dedication or payment in lieu of dedication, should be required by developers. Also, planned unit developments incorporating recreational open space should be encouraged.

It was the Committee's recommendation that small neighborhood parks as shown on the Land Use Plan, be provided rather than a large (20 acres) community park, south of the freeway. It was recommended that major recreation facilities (ball fields, etc.) be located in the Corp of Engineer's waterfront property.

Below are listed major provisions of a proposed parkland dedication policy:

1. Require open space dedication for parkland at the rate of 0.015 acres per lot or living unit.
2. Make payment in lieu of dedication based upon current residential land values.
3. Funds generated from "in lieu of" payments shall be used only for acquisition of parkland. The parkland would then be developed as a park to benefit the property from which payments were collected.
4. Where a park is indicated within a development, that land shall be reserved until funds are available to purchase it.
5. No more than 40% of a development can be required for dedication to open space and public use including street right-of-way, but not including easements.
6. Land in excess of 40% of development will have to be purchased by the City within two years after development approval.

#### F. RECREATIONAL NEEDS SURVEY

A recreational needs survey was conducted in early 1975, with the use of a mailout questionnaire. The basic results of the survey are as follows:

1. About half of the respondents felt there were adequate recreation facilities for young children and adults, but 90% agreed that there was not for teenagers and senior citizens.
2. A multi-use type recreational hall was the most predominant facility requested.
3. Bicycle paths were the most requested outdoor recreational facility.
4. Requiring parkland dedication by new developments was approved by 75% of respondents.
5. Smaller neighborhood parks (5 - 10 acres) and mini-parks (under 1 acre) were favored over a large community park (25 - 35 acres).
6. The City should encourage and participate in development of the waterfront property with a swimming area most often requested.

#### G. RECREATION DEVELOPMENT POLICY

By developing a series of neighborhood parks south of the freeway, coupled with expansion of waterfront facilities, the City of Boardman will be in a position to adequately meet outdoor recreational needs of its citizens. The type and location of recreational facilities will offer the following advantages:

1. Meet the needs of the low income, by providing low cost recreational activities - swimming, picnicing, etc.
2. Provide a series of easily accessible parks to all neighborhoods.
3. Provide recreational and overnite facilities for tourists and travelers.
4. Utilization of a public waterway, the Columbia River, as a natural recreational facility.

## SECTION TEN

### ECONOMY OF THE STATE

#### A. ECONOMIC GROWTH POTENTIAL

The Boardman area is ideal for economic growth because of a vast amount of agricultural potential and attractive sitings for industrial development. As it becomes economical to irrigate lands farther south from the Columbia River, agricultural development will expand. With the railroad, freeway and Columbia River to provide for the efficient movement of goods and services, the Port of Morrow industrial park is an excellent site for new industrial activity.

The City of Boardman has the advantage of planning for growth without the burden of solving a multitude of problems associated with present public services. Boardman has no deteriorated sewer or water lines to replace; no sanitary-storm sewer separation to accomplish; the street and storm drainage systems are in good condition; and there are no blighted residential or commercial areas to renovate. Instead, the City can concentrate its efforts on sound planning for new growth.

Within the Planning Area, sufficient land exists for commercial, light industrial and residential development. Recently, Boardman demonstrated its willingness to plan for the future by approving major water and sewerage projects vital to new growth.

#### B. NEED FOR ECONOMIC GROWTH

Economic growth is essential to provide and perpetuate public services for Boardman residents already present. Financing of the major sewerage and water projects is premised on new residential growth, as the result of new industrial and commercial activity. With increased population and the resultant increased tax base, the level of public services can be upgraded at a decreasing per capita cost. Besides residential and industrial growth, the expansion of commercial activity will also take place. The level of private services will increase along with additional employment opportunities.

#### C. CONTROL OF GROWTH

With sound planning and policies concerning land use and extension of public utilities, Boardman can control growth and eliminate the intrusion of incompatible land uses into any part of the Planning Area. The Comprehensive Plan provides for logical locations of diverse land uses as well as providing buffers between dissimilar uses.

#### D. REGIONAL DEFICIENCY

By encouraging industrial, commercial and residential growth in Eastern Oregon, the State's economy will become more broad-based and diverse. Presently, Eastern Oregon is underutilized, relative to industrial development. The agri-industry has recently made major commitments in Eastern Oregon and exemplifies the area's role in the State's overall economy.

## SECTION ELEVEN

### PUBLIC FACILITIES AND SERVICES

#### A. GENERAL

The City of Boardman faces a responsibility to provide an adequate level of public services quite unlike most cities of its size. The task is inordinately demanding because of the potential for accelerated, almost over-night, growth of the City. Coupled with its present narrow tax base, the need for immediate and long term planning of municipal services is critical.

The fundamental public services and utilities of water, sewerage, transportation, storm drainage, parks and recreation have been treated in detail in the preceeding sections and will not be elaborated on again. However, consideration of other important public facilities and services is essential.

#### B. SOLID WASTE

Presently Boardman receives solid waste disposal services from a private disposal firm in Hermiston. A tentative solid waste disposal site for Boardman is situated east of the City and south of the freeway. The Navy Bombing Range to the south and other private lands utilized for grazing, offer a broad variety of alternative sites and merit future consideration.

#### C. POLICE PROTECTION

Boardman has no municipal police department. The service is provided by the Morrow County Sheriff's Department and the Oregon State Police. The protection has proven inadequate, particularly in the recent past with an increased number of property thefts reported.

The community should continue soliciting assistance from the County and State and should establish a City Police Department in the near future. As the population increases, so will the need for police protection. The tax base will also expand with population to make the City Police Department affordable.

#### D. FIRE PROTECTION

Currently, the City of Boardman has a volunteer fire department comprised of 16 active firemen. The rural fire department is staffed by the same volunteers. The City and rural departments share common building facilities at City Hall with the City owning one pumper and the rural fire district owning an additional pumper and a tanker. The Fire Departments hold a regularly scheduled training session every other week.

However, to assure the City at least the minimum fire protection as recognized by the Grading Schedule for Municipal Fire Protection as compiled by the Insurance Services Office, a full-time, paid fire department should be established when feasible. As residential, commercial, and industrial growth occurs, this will be a prerequisite to a respectable fire protection classification and tolerable insurance premiums.

A well established and operated, full time fire department will provide the organizational unit necessary to provide the basic fire protection services. Proper training, apparatus and communications are all vital keys to fire protection capabilities also. In addition to fire fighting, a full time department will be able to implement fire protection programs and survey the City for fire hazards.

As an alternative to separate police and fire departments, a combined force utilizing "public service officers" may be of more benefit to Boardman. Under this concept, the personnel would function as both firemen and policemen. Savings as the result of less duplication of equipment and quicker response times to fires are major advantages to such a system.

#### E. HEALTH SERVICES

Public health services such as mental health and public health nurse, children's services and public welfare should continue to be administered through Morrow County and the State of Oregon.

#### F. ENERGY AND COMMUNICATION

Local utility companies should be advised of land use planning, densities, master sewerage, storm drainage, water and transportation planning. The utilities (electricity, gas, telephone, T.V. - cable) should begin long range planning of major facilities to service future growth.

The City should require underground installation of all utilities within new developments, as well as main utility feeder lines.

#### G. COMMUNITY GOVERNMENT

As Boardman's population grows and demand for City services increases, the present staff will have to be increased to properly provide and administer the services.

The City staff will have to become multi-departmental, coordinate activities and use common facilities to reduce costs for providing services. Prior to ultimate development within the Planning Area, the following departments will probably be required to provide a high level of municipal service: Administration, Finance, Engineering, Maintenance, Water, Sewer, Building, Parks and Recreation, Planning, Fire, Police, Ambulance, Solid Waste.



## SECTION TWELVE

### ENERGY CONSERVATION

Energy conservation will be achieved in part, by the following:

- a. Locating high density residential along arterial streets and close to schools, parks and shopping.
- b. Employing lagoon sewage treatment facilities rather than mechanical plants with high energy consumption.
- c. Utilizing spray irrigation of effluent rather than tertiary treatment and disposal of sludge.
- d. Reduction of minimum lot size to decrease cost and energy requirements of utilities.
- e. Encourage planned unit developments with innovative thinking around energy consumption.
- f. Providing for alternate modes of travel to the automobile, such as bike paths.
- g. Providing low cost and low energy consuming recreational activities - swimming, picnicing, parks, playfields, etc.

## SECTION THIRTEEN

### AIR, WATER AND LAND RESOURCES QUALITY

#### A. AIR

The quality of air in Boardman is good and the carrying capacity of the air shed is substantial. Emissions from potential industrial activity will be strictly regulated by the Department of Environmental Quality to prevent air pollution problems from occurring. Air pollution due to vehicular emissions is remote because of the characteristics of the local air shed and the low density profile foreseen for Boardman.

The Boardman area is occasionally overcome by blow sand and dust generated from strong winds over undeveloped areas and bare agricultural fields. This condition will diminish as more areas are developed.

#### B. WATER

With the proposal to tap the Columbia River as a water source for Boardman, the water resource of the area will actually be improved. Boardman is on the fringe of a critical ground water area and is experiencing a continual drawdown of the water table. By eliminating dependence on deep wells for water supply, this condition will diminish.

Effect on the Columbia River will be negligible, because the volume of water Boardman requires relative to the flow volume in the river, is insignificant.

The current proposal for sewage treatment will result in zero-discharge to the Columbia River as a receiving stream. Other sewage treatment sites have been investigated and should receive further study when the proposed site reaches its capacity. All sites utilize land application of sludge and effluent; resulting in "zero discharge" to any streams.

Solid waste disposal is currently contracted by Hermiston. At such time that the waste volume reaches a significant level, study of a possible site located in the Boardman area, should be undertaken.

#### C. LAND RESOURCE

Additional land resources will be required for further development and for lagoon-type sewage treatment and effluent irrigation. However, the Boardman area contains vast expanses of undeveloped lands, consisting of blow sand and sage brush. Sacrifice of this type of land will be inconsequential when related to the area as a whole.

Conversion of rural farm land to urban use will be unavoidable. However, alternative areas for residential development are not available without creating leap-frog development and very costly extension of municipal services.

## SECTION FOURTEEN

### ENVIRONMENTAL ASSESSMENT

#### A. SUMMARY

##### 1. Land Use

Provide for a variety of residential housing types; tourist and business commercial; and light industrial with ultimate population of 12,500 in Planning Area.

##### 2. Sewerage

Construct sewage treatment facilities and pump stations for 4,000 people; construct sewage transmission lines for 7,000 people with future treatment expansion or additional site.

##### 3. Water

Install Ranney Collector to serve a 4,000 population with additional collectors or storage reservoir in future.

##### 4. Storm Drainage

Installation of underground storm drainage as development takes place with trunk lines sized for ultimate population.

##### 5. Transportation

Future construction of oversized (48 foot to 56 foot) arterial streets when traffic volume warrents.

#### B. ENVIRONMENTAL IMPACT

##### 1. Land Use

The Land Use Plan will provide for controlled growth and separation of incompatible uses. Within the Planning Area, the conversion of agricultural land to other uses will result. Potential for growth outside the Planning Area and distant from City facilities and services will diminish.

2. Sewerage

Construction of the sewerage facility will increase the potential for growth in Boardman. The facility will result in zero-discharge of effluent to a receiving stream; location of lagoon farther from populated areas; and re-use of effluent to produce a crop.

3. Water

Installation of a Ranney Collector will almost eliminate demand for diminishing groundwater supply by Boardman. Like the sewerage project, growth potential will be increased by having a reliable quality and quantity of water.

4. Storm Drainage

The proposed storm drainage system will result in "point-sources" of wastewater and potential pollution of receiving streams. The system will enhance the livability and environmental quality of all developed areas by eliminating surface storm drainage systems.

5. Transportation

The arterial street system will provide for movement of high volume-through traffic away from residential areas and adjacent to high density, commercial and industrial areas. Bike paths will encourage use of non-automobile travel.

C. UNAVOIDABLE ADVERSE EFFECTS

1. Land Use

Conversion of undeveloped and agricultural lands to urban uses will increase storm runoff; place additional pressures on conversion of farm land to other uses; and increase demand on the City to provide public facilities and services.

D. ALTERNATIVES

1. Land Use

A variety of land use plans could be adopted, each having a different impact on Boardman's future. No land use planning, would result in completely uncontrolled growth and defiance of Oregon statutes.

2. Sewerage

A mechanical treatment plant could be constructed at more cost with discharge to the Columbia River and no re-use of effluent. Scope of project

could be reduced to limit growth or no action could be taken to even further limit growth.

3. Water

Alternatives include a water filtration plant with much higher construction, maintenance and operations costs; developing more deep wells which would further deplete groundwater source or no action which would subject the City to an unreliable water source and a no-growth potential.

4. Storm Drainage

Smaller storm lines could be installed which would result in the system not being able to handle the runoff and more frequent flooding of streets. A surface drainage system of ditches could be installed, but would detract from character of the City and add more maintenance costs and problems.

5. Transportation

The alternative of relying on normal residential and commercial street widths would result in future congestion of City streets, more fuel consumption and the potential for more accidents.

E. SHORT TERM USE OF MAN'S ENVIRONMENT VERSUS LONG TERM PRODUCTIVITY

Short term uses will mainly be limited to noise, dust and congestion in construction areas and the conversion of agricultural lands to urban uses, prior to development of alternative farm land. In the long term, Boardman will have a plan of action for its accelerated growth potential and by implementing the public works projects, will be able to provide orderly extensions of public facilities within the economic constraints of the community. The plans and policies will encourage orderly development to expand the economic base of the area and increase the type and variety of services, both public and private.

F. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The single most significant irreversible commitment of resources is the conversion of agricultural and undeveloped lands to urban uses. Also, potential irreversible commitments of land resources for utility system structures (sewage lagoon, pump stations, Ranney Collector, streets, etc.) is likely. Although the facilities could be abandoned and the land reclaimed, the likelihood is remote.

## APPENDIX

### PAGE NO.

PROJECT COMPLETION REPORT

A-1 thru A-10

REFERENCES

## REFERENCES

1. "Regional Water System Feasibility Study for Hermiston - Boardman, Oregon, Part C"; by Wallulis and Associates; December, 1974
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11. "John Day Lock and Dam Master Plan"; Design Memorandum No. 25 B; by John Graham and Company, Architects, Planners and Engineers; March, 1975



PROJECT COMPLETION REPORT

CITY OF BOARDMAN, OREGON

WALLULIS & ASSOCIATES  
Engineering & Planning  
213 S.W. Emigrant Avenue  
Pendleton, Oregon 97801

August, 1975

Contract No. 74 - 12 - 02

CITY OF BOARDMAN, OREGON

COMPREHENSIVE PLAN

Land Use - Sewerage - Water

Storm Drainage - Transportation - Housing

Prepared By:

WALLULIS & ASSOCIATES  
Engineering and Planning  
213 S. W. Emigrant Avenue  
Pendleton, Oregon 97801



The preparation of this report was financed in part through a Comprehensive Planning Grant from the Department of Housing and Urban Development.

August, 1975

## EVALUATION OF OBJECTIVES

### A. LAND USE AND ZONING ELEMENT

#### 1. OBJECTIVE

- a. Utilization of the present Boardman Comprehensive Plan as a basis for review and to establish land use classifications, supplemental zoning and open space requirements.
- b. Develop a Land Use Plan to provide for present development needs and to identify long range community objectives.

#### 2. PROGRESS IN OBJECTIVE ACHIEVEMENT

- a. Development of a Land Use recommendation by the Planning Committee to provide for a wide range of land uses while maintaining overall compatibility of uses within Planning Area. The Land Use Plan was subsequently approved in concept by the Planning Commission and City Council with public hearings set in September, 1975, for further Plan consideration.
- b. Formulation of general community policies and goals with specific objectives to attain goals.
- c. Encouragement of planned unit developments utilizing higher density housing resulting in more open space in the development.
- d. Formulation of a policy to require dedication of park land or payment in lieu of dedication, by new developments.

### B. SEWERAGE STUDY ELEMENT

#### 1. OBJECTIVE

- a. Identify needs to provide sewer service to undeveloped lands within the Planning Area.
- b. Develop a master sewerage plan with system financing method.

#### 2. PROGRESS IN OBJECTIVE ACHIEVEMENT

- a. Completion of a master sewerage plan locating and sizing trunk lines.
- b. Identifying capacity of regional treatment facility and its possible service

area; and alternative treatment sites for future development.

- c. Proposed assessment policy and changes in current connection fee and use fee policy to finance construction, operation and maintenance of sewerage system.

The City Council has currently taken the proposed changes in the connection fee and use fee policy under consideration and will approve changes as needed to meet the EPA requirement of having use fees based on "total wastewater loading".

- d. The City has obtained a DEQ design loan and has authorized design of a regional sewage treatment facility designed initially for 4,000 people. Project completion is scheduled for late 1976.

## C. WATER STUDY ELEMENT

### 1. OBJECTIVE

- a. Identify deficiencies of present water system and needed improvements.
- b. Identify requirements to provide water service to undeveloped lands in the Planning Area.
- c. Develop a master water source, storage and distribution system with system financing method.

### 2. PROGRESS IN OBJECTIVE ACHIEVEMENT

- a. Completion of a master water system with distribution line size of major mains; and source and storage requirements at different population levels.
- b. Identified present system deficiencies and needed improvements.
- c. Formulated alternative financing methods of water system through assessments, connection fees and use fees.
- d. Recently the City received an EDA grant for development of a new water source, chlorination facility and transmission line. The design has been authorized and project completion is scheduled for early 1977.

## D. STORM DRAINAGE ELEMENT

### 1. OBJECTIVE

- a. Determine impact to storm drainage runoff due to change in land use.
- b. Develop a master storm drainage plan with location and size of trunk lines and location of discharge points, with system financing method.

2. PROGRESS IN OBJECTIVE ACHIEVEMENT

- a. ~~Selection of runoff factors associated with change from undeveloped or agricultural lands to other land uses.~~
- b. Developed a master storm drainage system with approximate line sizes and locations
- c. Proposed a financing method utilizing assessments for laterals and development fees for costs associated with oversizing of trunk lines.

E. HOUSING ELEMENT

1. OBJECTIVE

- a. Conduct housing survey and review other studies to determine housing needs.
- b. Provide for the wide range of housing needs as required by present and future Boardman residents.

2. PROGRESS IN OBJECTIVE ACHIEVEMENT

- a. A confidential housing survey was conducted to establish housing needs and desires of present residents.
- b. Other current studies were reviewed to determine impact of PGE, Alumax and other industrial activity on Boardman housing needs.
- c. The City is currently working with two developers on major housing projects. One is a large mobile home park and the other is a combination single family subdivision and multiple family project.

F. LCDC ELEMENTS

1. OBJECTIVE

- a. Incorporate applicable LCDC goals into the Study to meet their planning requirements prior to 1976.

- b. Emphasize the transportation goals and objectives because of its public works aspect.

## 2. PROGRESS IN OBJECTIVE ACHIEVEMENT

- a. LCDC goals relating to open space, recreation, economy of the State, public facilities and services, energy conservation and air, water and land resource quality were treated and included in the Study.
- b. Interim and ultimate arterial street plans were formulated along with proposed sidewalk and bicycle path policies.
- c. A proposed financing plan and oversizing policy for arterial streets was presented as well as financing for sidewalks, bicycle paths and future signalization.

## G. SUMMARY OF STUDY

### 1. ENVIRONMENTAL PLANNING

Environmental planning has been accomplished through treatment of applicable LCDC goals and with the Environmental Assessment section of the Comprehensive Plan.

### 2. EQUAL OPPORTUNITY

Discrimination in housing and employment has not appeared to exist in the past. The housing needs of the present residents were obtained through the use of a housing survey. Although no discrimination was indicated, there was a need for more adequate housing for low income and new residents moving into Boardman. Equal employment opportunities for minorities must be provided on the Federally funded water and sewerage projects.

### 3. CITIZEN INVOLVEMENT

With the support of the 17 member Planning Committee, the Planning Commission and City Council, the Comprehensive Plan received approval of a wide range of Boardman's population. In addition, public hearings and study sessions will be held prior to adopted specific Plan policies, as recommended.

## STATEMENT OF OUTSTANDING ACHIEVEMENTS

### A. LAND USE PLANNING

Review of the present Comprehensive Land Use Plan and incorporation of diversified land uses, was a vital step in planning for Boardman's future. The proposed Land Use Plan should result in Boardman becoming a full service city as growth takes place. A full spectrum land use from single family residential through industrial is provided to meet the needs of future growth. Particularly important, is the realization of the Planning Committee, Planning Commission and City Council that provisions must be made for a wide range of housing to meet the needs of all income levels. Also, the Land Use Plan as proposed, is policy oriented, which adds flexibility for change as needed in the future.

### B. MASTER UTILITY PLANNING

Prior to the completion of the "701" Comprehensive Plan, Boardman had no master plan for any of its utilities. With the potential for growth now apparent in the Boardman area, this would be disastrous. A series of uncoordinated and independent systems could have resulted without the benefit of a master plan. This would inevitably result in more costs to developers and the City alike. Now, a logical extension of utilities can be made to the benefit of all parties.

In addition, the financing plans proposed will give Boardman a sound fiscal basis for utility extensions. The emphasis is for new developments to pay for their own utility costs with the City to pay for oversizing of utilities required to serve a large area. However, development fees will be charged to new developments to defray the City's oversizing costs. Under this concept, new developments are paying their own way, without additional burden on existing taxpayers to finance additional utility construction.

### C. LCDC GOALS

By incorporation of applicable LCDC goals in the planning effort, Boardman was able to meet LCDC planning requirements at the same time the "701" Comprehensive Planning was conducted. This will result in Boardman meeting the January 1, 1976 deadline for LCDC requirements without expending additional funds on a separate study.

PROGRAM DOCUMENTS

CITY OF BOARDMAN, OREGON COMPREHENSIVE PLAN

Land Use - Sewerage - Water

Storm Drainage - Transportation - Housing



## LOCAL GOVERNMENT INVOLVEMENT

<u>DATE</u>	<u>ACTIVITY</u>
1 - 13 - 75	Initial Planning Committee meeting. The overall scope of the Planning effort was discussed as well as interrelationship of Plan elements. Status of Boardman's proposed major water and sewer projects was reviewed. Concern was voiced by some committee members of actual need for another study in Boardman. The requirement of Comprehensive Land Use Planning was pointed out as well as the need for master utility planning.
1 - 20 - 75	Discussion of developer responsibilities to City in the installation of public improvements within a development.  Recommended park land dedication or payment in lieu of dedication by new developments. Directed planner to investigate methods of acquiring park land through dedication.  Discussion of master street plan, and street assessment and oversizing policy.
1 - 27 - 75	Discussion of storm drainage element. Recommended designing on a 2 year storm frequency. Review of possible assessment and oversizing policies.  Discussion of sanitary sewerage system relative to capacity of present and proposed treatment facilities, assessment policy and connection and user fees.
2 - 3 - 75	Status of planning effort reviewed by Planner with City Administrator and Mayor. Decision was made to expand scope of study to include applicable LCDC goals and guidelines.
2 - 24 - 75	Discussion of present failing water system, proposed Ranney Collector source and requirements to serve new developments. Long range water needs relative to additional collectors and storage was reviewed.  Review of the present Land Use Plan and comments and suggestions on changes to Plan to meet Boardman's present needs.
2 - 26 - 75	Advised Morrow County Planner of Comprehensive Planning study and requested comments on possible City - County land use conflicts.
3 - 7 - 75	Confidential housing and recreational survey sent to Boardman residents.
4 - 28 - 75	Presented master utility maps showing location and sizes of facilities. Re-

DATE

ACTIVITY

viewed maps and policies relative to master utility plans as established in previous meetings.

Discussed results of housing and recreational survey.

Considered a number of proposed land use changes and concepts. Included were faith and medical centers; parks; mobile homes; planned unit developments. Emphasis in land use was to remain as relatively low density.

7 - 21 - 75

Final review of Comprehensive Plan made. Changes were made relative to medical, faith and civic centers, community park, mobile home subdivisions and master street plan. Plan was approved by the Committee, subject to changes being made in final draft. Committee directed Planner to submit the Comprehensive Plan to the Planning Commission and City Council for their review and approval.

7 - 23 - 75

Review of Comprehensive Plan by Planning Commission. The overall Plan and its general policy guidelines was approved in concept. Comments received were to keep the Land Use Plan flexible and considerable discussion time was spent on the sewerage element.

8 - 19 - 75

Review of Comprehensive Plan by the City Council. The Plan was approved in concept with direction given to the Planner to submit the Plan to the State. The Council voted to continue the planning effort by holding public meetings and hearings to review and adopt specific policies as presented in the Plan. A public hearing on the land use element was set for September, 1975.