

PORTLAND
IMPROVEMENT



Portland Improvement

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Director's Report

November 10, 1943

City of Portland
County of Multnomah
School District No. 1 of Multnomah County
Port of Portland
Commission of Public Docks

Dear Sirs:

You asked me to supervise the activities of engineers and attorneys in the preparation of a general report and recommendations for a postwar program. This program was to apply generally to construction work by the public bodies you represent and to include recommendations concerning arterial and other traffic ways, approaches and feeders, port, airport, rail and bus facilities, approaches thereto and coordination thereof, bridges and bridge approaches, school buildings and other school facilities, methods of financing self-liquidating crossing projects where practical, and any other matters which might in my judgment achieve these objectives.

It will be seen that the scope of the report was limited to certain very definite recommendations, all looking toward the expediting of needed and desirable public works to afford employment, stimulate business and help bridge the gap between the end of the war and the full resumption of private business. Arterial improvements were to head the list, but other objectives were also mentioned. It was not, as some seem to have thought, a responsibility of this group to suggest means of reviving business, new fields of private enterprise, or the expansion of old ones.

It is our understanding that we were asked to come to Portland because of experience in rather large-scale public works, because some of us were identified with recent studies of congested war production areas for the Army and Navy, and others with postwar planning and employment, particularly from the point of

view of public improvements, because practically all of us had been connected in one way or another with the supervision of work relief projects during the depression and had presumably learned some lessons from it, and, finally, because whatever wisdom we may have gained from such a background would not be warped by any local interest.

A quick diagnosis of this kind has, however, its decided limitations. It is as good as the diagnostician and no better. Any metaphor can be worked to death, but it is well always to keep in mind that the diagnostician is not the local family doctor or surgeon, and that he will not be around during the period of convalescence. Probably no operation will be needed. The native strength, resilience, and frame of mind of the patient will no doubt see him through. Public works are good medicine, but no panacea. The diagnostician gives his opinion and goes on his way. If he is a responsible person he is scrupulously careful about the opinion and tests it against all that he has done before, because he wants to leave something behind which will be really useful and will serve as a reliable guide to those who are responsible for determining and carrying out the program.

Portland is not the only community in the United States which will have a postwar employment problem growing out of a large increase in population due to rapidly expanded war industries. There are other cities in which the adjustments will be more complicated and some where they will be easier. Whatever the problem in this instance may prove to be, every citizen of Portland has a right to be proud of the fact that this community is prepared, while there is still time, to face the future with unclouded vision and with a determination to meet the challenge, whatever it may prove to be. The community which meets the problem early, squarely, and with no ducking, dodging and buck-passing and, on the other hand, with

none of the false pride which scorns state and federal aid, will somehow find the answer. Unfortunately very few states or cities have as yet been willing to do this, and the role of the federal government is only now beginning to reach the stage of conclusive debate.

It is a curious fact which impresses itself strongly on those of us who have looked into conditions in other congested war production areas, that the Portland district has stood the strain on its existing facilities very well. Streets, transportation, shops and other services are much less overloaded than in areas like Hampton Roads, Virginia, or San Diego, California. This is due partly to the adequacy of existing facilities and the common-sense handling of the situation. Measured by this extraordinary test the Portland district has shown a flexibility and a capacity to expand which prove that the physical improvements needed for future postwar growth are by no means as comprehensive and numerous as might be supposed.

Portland has always been a conservative town. Founded in 1845, the third generation of descendants of the original settlers are prominent in its affairs today. Sandy Boulevard is the Oregon Trail of less than one hundred years ago. Many of the older residents can remember clearly when the city had only 40,000 inhabitants. Some of them liked it better that way, and there are still honest, conservative and by no means reactionary leaders in the community who are not anxious that it shall grow rapidly or become a great metropolis, who accepted war expansion as a patriotic sacrifice, but believe that it is neither possible nor desirable to keep all of the war workers attracted from other parts of the country in and around Portland when the war is over and the vast construction projects, notably in shipbuilding, have been curtailed or shut down. It is impossible not to sympathize with those who wish that Portland shall keep as long as possible the flavor of a transplanted New England.

There are others in Portland who believe that the future of the entire region is so promising that not only all war workers but many more outsiders can and should be invited into the community to make and share the prosperity which is already on the horizon. It is pointed out by representatives of this group that plastics and plywood are natural products of the forest and that they can best be manufactured near the source, especially if power, transportation, climate and other factors are favorable. There are those who believe that the further rapid development of electric

energy from falling water along the Columbia River will attract industry, which in turn will require great numbers of new people. They concede that there will be a loss of customers right after peace is declared, if war orders are cancelled and new ones from other sources here and abroad are not obtained quickly, but they think that a great North Pacific Empire, with water power as its controlling force, is about to come into being.

These federal power enthusiasts are not without great political and social as well as economic objectives in which private enterprise is to play a comparatively subordinate role. These objectives begin to emerge when we consider, for instance, the publications of the defunct National Resources Planning Board. It is claimed by advocates of the power theory that a vast expansion of the aluminum industry logically belongs in the Oregon, Washington and Idaho area served by Columbia River power. The clay from which alumina can be extracted undoubtedly exists here. Power, rail and other facilities are present also. It seems probable that a pilot or experimental plant will be started immediately. To date, however, the evidence is that we have enough aluminum in hand and sight for war purposes, that no reliable conclusions can as yet be drawn as to the economic practicality of extracting alumina from clay as distinguished from mining bauxite where it is found in large quantities, and that the peacetime use of aluminum is as yet a matter of speculation. Certainly it would be unwise to count on the immediate postwar expansion of power plants or to expect large additional employment on the assumption that aluminum manufacture from the ground up will be the great new enterprise of Oregon or the North Pacific area generally.

There is still another group in the Portland area which believes that since the Kaiser associates have revived shipbuilding in this area at the instance of the federal government, and since they have brought great numbers of people into the area and have settled them there, they must by the same token be held responsible for keeping this population at some kind of work, whether it be shipbuilding or something else. Some think that this is a moral responsibility shared by the Kaiser group, the Maritime Commission and the federal government generally. Others insist, or perhaps merely hope, that the same initiative, inventive genius, and enthusiasm which have

characterized the Kaiser war enterprises will find new outlets on the postwar Pacific Coast as yet uncharted but as sure as salvation.

There is still another variety of public opinion which reasons in this way. The European war is bound to end first. The Japanese war will then be the main thing. The Atlantic ports and industries will be less busy. The six big Pacific ports will become the gateways through which vast quantities of material will be shipped to the Far East. Even if Pacific shipbuilding is cut down, the plants such as those in the Portland area will be used for tremendous stevedoring and embarkation activities and for repair of Navy vessels which will employ many of the workmen now engaged in shipbuilding and related work. By the time this phase is over and the war is finally won there will be orders for new ships from United States, Dutch, Scandinavian, Chinese and other sources, the more inevitable because the flat tops and Liberty ships have no rosier commercial future than the wooden ships after the First World War. There is, however, a serious flaw in this argument. The splendid war record of the Kaiser plants should not blind us to the fact that these yards, no matter what their present output may be, are overloaded and overmanned, and that those which survive will have to be ruthlessly overhauled and cut down if we expect to compete with other nations which have a much lower wage and living standard.

These speculations, prophecies and hopes are interesting and significant. If, however, we were to pursue them very far we would never reach the very limited conclusions as to which our opinion was asked. Nor is very much gained by the familiar device of inventing pretentious equations and formulas so dear to those who hate to exercise judgment. We have no right to assume that there will be full employment in and around Portland immediately after the war, that is employment at high wages sufficient to take care of all the present 137,000 war workers, as well as those discharged from the armed forces. We must assume that there will be a slump, and that at least a large percentage of war workers must retire voluntarily or be laid off.

Retirement of most of the women workers will help. It is much more difficult to figure out how many of the newcomers not previously resident in the community will wish to or ought to go home. Contrary to the general impression, a very large proportion of

all shipyard workers in the Portland area came from west of the Rockies and not from the four corners of the country. Figures on these and other matters are included in the consultants' report which follows. Questionnaires on a subject of this kind are obviously very undependable as sources of accurate information. Casual inquiries at the right times and places and directed to people who are talking frankly and off the record, are much more revealing, but also inconclusive.

In a community with such a conservative background there are bound to be two widely divergent points of view as to the disposition of war workers after the war, and as usual there is a middle ground between two extremes on which the average common-sense citizen can stand and ultimately find himself in a majority. The more conservative and less recent settlers will contend that a community gaited to slow and steady growth should not be swamped with transients whose contribution is doubtful because many will stay through inertia and the hope of an easy life in a pleasant climate amid beautiful surroundings rather than because of any genuine continuing interest. On the other hand, more radical thinkers with a national outlook and less respect for state and municipal traditions and lines will contend that mobility of population is the first principle of democracy. They will urge that a territory which in the early days actually campaigned for settlers and asked only that a man bring a willingness to work, should not now dismiss war workers who were recruited for the emergency, who did their part and who in the end are likely to be just as good settlers as the original ones. They can make a pretty good argument that it is a bit rough to order those who have spent a large part of their war earnings in the Portland area to make tracks as soon as their pockets are empty.

In between these contending philosophies is the attitude of the less articulate run-of-the-mill fellow who sees no reason why the community should not grow, has, on the other hand, no enthusiasm for a succession of booms and depressions, and knows that all of the transients can't stay. He believes that somehow the situation will adjust itself through force of circumstances so that those who really belong elsewhere and have their roots down in other soil will go home, and so that the more adventurous and those better adapted to the Northwest, will stay on. These middle-roaders realize that you can neither push peo-

ple out of a community by main force nor induce them all to remain by empty promises of plenty of work and high pay.

The point which cannot be driven home too hard is that there will be a period of unemployment even if all women in industry retire gracefully, if at least half of the newcomers go back to their homes or elsewhere, and if business revives and expands in answer to insistent unsatisfied consumer demands. For some time a certain number of shipyard workers within the draft age have been released for military service each month and their places have been filled by women or by older men. There is no evidence to justify these replacements.

It seems originally to have been the thought of those who invited us to make this report that we could justify a works program of \$100,000,000 to employ some 30,000 people in the Portland area in the eighteen months after the war. We have found that a \$60,000,000 construction program, employing a varying number up to 20,000 for two years, represents all that the area can afford, all that is necessary and justifiable, and as much as in any event could be completed in this time. \$15,000,000 will be required for land for this \$60,000,000 construction program, thus raising the grand total to \$75,000,000.

Among ivory-tower planners who will accept nothing short of a revolution in urban life, this report is bound to be disappointing because, in accordance with our instructions, we are recommending only limited public improvements in the urgent class which this community, with help from the state and federal governments, can afford to compress and expedite in order to help meet the postwar emergency.

We believe that this program can be financed without too great a strain, especially if, as is to be expected, there will be federal and in part state contributions toward construction and state and county contributions toward land. It happens that there are first-rate projects all ultimately needed on any reasonably high standards. These are projects which, with variations and modifications in detail, would be bound to be undertaken in the Portland area within the five or at most ten years following the war, and which can be telescoped into a period of about two years in order to speed up employment and recovery, if sufficiently energetic public officials, backed by leading citizens and the press, become convinced that such a program is necessary, and in any event are sufficiently im-

pressed to do the designing and preliminary work now.

As a matter of fact, there is no reason to aim at employing 20,000 people all at once on the day after the war ends. The war may end gradually. There will be more pressure for military than for industrial demobilization. There is every indication that the federal authorities, who have studied this matter, understand the dangers of too rapid demobilization and, if anything, will advise that the process be too slow rather than too swift. The best public works program is therefore one which begins with rather small projects requiring a good deal of manual labor and comparatively little skilled labor, equipment and material; which follows with large construction projects requiring time for fabrication and delivery of material and heavy equipment and the selection of skilled or semi-skilled men; and which has in reserve flexible projects which can meet emergency unemployment problems. Graphs indicating the curve of employment on public works in the two-year period following the end of war appear in the consultants' report, along with details of the program which we recommend.

As to these recommendations, many cover ground already broken by competent local public officials, engineers and technicians. We have reviewed these projects, not invented them. Here and there we have suggested changes. If occasionally we have found it necessary to be critical it will be seen that this has occurred rarely and that we have found much more to praise than to take exception to.

The report of the consultants which follows represents the opinion of all those engaged in the study. While I have in no sense dictated their conclusions, I have taken part in the preparation of their report and believe it is sound and trustworthy.

Before summarizing the proposed program, and at the risk of offending a few of the more sensitive citizens, I should like to make some general observations.

The appearance of the city of Portland, in spite of its magnificent surroundings and rather orderly development, is marred by the unnecessary ugliness of certain highly conspicuous places. For example, the Union Station, aside from its location, is old and obsolete. Access to trains is primitive and unworthy of the great railroads which use it, and of the impressive transcontinental service they have inaugurated. There have been suggestions that a high-level

access to trains and other repairs and readjustments in the Union Station are all that is required. We believe that funds expended in this way would be wasted and that an entirely new station should be built by the terminal company. Railroad stations should be as modern as airports. As it is, the first and last impressions of visitors on entering and leaving Portland by rail are bad. Excepting certain joint terminals, the railroads operate their own separate freight facilities, and while these should also be combined, efforts along these lines in other cities, including New York, have been so uniformly unsuccessful and resistance so great that we do not press consolidation as part of the immediate postwar program.

A new long-haul bus terminal is also badly needed and, in view of railroad interest in this form of transportation, efforts should be made to find a location adjacent to the proposed new Union Station. The present area in the triangle which includes the station and the Steel and Broadway Bridge approaches, bounded by Broadway, Flanders Street and the railroads, should be improved. The proposed access drives and ramps leading to the west bridgehead of the Steel Bridge are unnecessarily ugly and complicated and efforts to save a gas tank and other eyesores in this area seem to us to be wasted. There is an opportunity here to clear the triangle from the station to the two bridges and to design within it bridge, railroad, bus, and street approaches which will rehabilitate the entire section.

The rectangle in the vicinity of the City Hall, within which the major public buildings are found, is badly run down. The buildings themselves are architecturally good and have a long and useful life before them, but the area around them should be cleared out and a park and a genuine civic center established there. Some of the cleared area should be permanently under park management, and some of it should be temporarily landscaped but available later for additional public buildings.

Similarly the west Willamette waterfront, probably the most conspicuous place in all of Portland, requires landscaping and some reconstruction. Trees should be planted in the plots along the esplanade. Additional center landscaped malls should be established between the Public Market and Pine Street as indicated in the text and illustrations in the consultants' report. Here again, trees should be planted and there should be beds for roses and other flower exhibits

at the proper time. There should also be a row of trees on the sidewalk facing Front Avenue. These improvements would make an enormous difference in the appearance of the waterfront. It may be stated parenthetically that we have been puzzled by the problem presented by the Market. It is futile to review the steps which brought this building into being, and led into the courts. We have no desire to embarrass the local authorities at a time when a solution is in sight.

We are unable to recommend major improvements of the east Willamette waterfront. Many of the docks are in poor condition, but their improvement must be left to the private owners after the war. A clean-up contract to pull out piles and loose timbers and for minor repairs would not cost very much, but it seems doubtful whether the Port of Portland or the Commission of Public Docks would be justified in spending public money for this purpose. At first blush anyone conversant with urban waterfront improvements would think of a reconstruction of the east Willamette docks, with provision for esplanades between them, readjustment of tracks and streets, and with a proper system of ramps connecting with the bridges. The trouble is that the cost would be prohibitive. Such an improvement is justified along the Hudson or East Rivers on Manhattan Island, or below Brooklyn Heights on New York Harbor, or along the Allegheny and Monongahela Rivers in the Golden Triangle in Pittsburgh; but Portland simply cannot afford it. We have therefore suggested that access to Water Avenue near the municipal terminal, be improved with the railroads continuing to run at grade on it, and that additional space be provided for loading and parking, the expense to be borne by the Commission of Public Docks. As an alternative, the Port of Portland Commission might finance this work after it has provided for the airport improvement recommended hereafter. This might involve expansion of conventional activities of the Commission, but freight handling is a logical part of port development and one which every other port authority places high on the list of its responsibilities.

We are convinced that the new East Side Thruway which will draw away vehicular traffic not destined for the docks and warehouses on East Water Avenue should be located between Seventh and Eighth Avenues, where a first-rate thruway can be built at reasonable cost leading to the extension of McLoughlin

Boulevard on the south and to the proposed new bridge over the Willamette in the vicinity of Skidmore or Fremont Street.

In this and other communities there is always a great deal of talk about a safe, adequate and protected airport. It seems to us that the present airport, with a number of minor improvements, will be reasonably satisfactory if the part in use by the Army is included, and assuming that Army use shrinks after the war, and that the military forces will consent to use the civil airport. The tendency everywhere is to be exuberant and extravagant about future airport developments, in the face of the fact that no one really knows very much about postwar civil airport needs and that the tendency is to exaggerate these needs because of the magnificent part which airplanes are taking in the war. The fact is that the Portland airport, surrounded as it is by the Army property and by additional flat and open country, can be expanded to meet almost any eventuality. When the two present airports are combined, that is, the city and Army fields, and missing land gaps are acquired, a new up-to-date runway system can be laid out fitting into the present runway pattern, and with the control and operations center somewhat nearer the city in the southerly part of the development. This is a task for the Port of Portland Commission, and will require all of the funds available to it without a referendum in the year following the end of the war. The present inadequate approaches to the airport should be improved as outlined in the consultants' report.

We wish we could see in the offing some great new development of the port, but it is not in sight. There is no reason, on the other hand, to assume either a decline or a static condition. Lumber manufacture is Oregon's first industry, but it is no longer Portland's first freightship activity. Petroleum and gasoline products rank first in volume and the Portland area is a distributing center for these products. Lumber is second, and wheat third. Increase in usage will be healthy and gradual, but justifies no immediate large postwar public expenditures. Initiative, energy and enthusiasm will undoubtedly be brought to bear on future port problems, but certain natural advantages of other ports cannot be overcome by slogans or grandiose pronouncements.

The greatest port asset of the area today consists of the three Kaiser yards. The one in Vancouver seems to have a definite future on a limited scale, not for

shipbuilding but for some other manufacturing, possibly involving aluminum. The other two yards have a doubtful future in ship construction but perhaps an intermediate use as ports of embarkation and as ship repair yards, which is by no means certain but a good deal more promising. There is no more important duty to be performed in the Portland area than that of studying the possible shift in the Kaiser yards from construction to embarkation at the end of the first phase of the war, when Portland is likely to be one of the bottlenecks which must be widened for immense concentrated shipments to the Far East. Plans for immediate conversion of the Navy yards from construction to loading are also important, and from them lessons can be learned to guide conversion of the larger Maritime Commission yards later on.

We have examined the school program of District No. 1 of Multnomah County with special reference to immediate postwar construction. Our conclusions may be summarized as follows: The school situation in Portland is exceptionally good when we consider how many war workers are being accommodated. A number of obsolete schools should be replaced, but the School District is in excellent financial condition and can easily carry out the limited program recommended. Specifically we urge the construction of a new high school west of the present Lincoln High School. Maintenance inside school buildings is first-rate, but some funds should be spent on the exteriors, including relandscaping and rehabilitation of athletic fields. When this is done we strongly urge that the City and the School District work out a joint program for the use of the school recreation areas within the City, as outlined in the consultants' report.

These and other conspicuously needed improvements will all fall short of success unless Portland adopts much sounder and stricter zoning regulations. Present regulations are inadequate and their administration ineffective. It is astonishing that a community so progressive in other respects should allow the unregulated mixture of all sorts of commercial, industrial, residential and recreational uses; should fail to segregate and stabilize these uses; and should permit one kind of use to harm and often destroy another. The time for academic debates about the merits of zoning is over. The constitutional aspects of the problem are fairly well settled, and the tendency of courts is to be more and more liberal in upholding even the most stringent zoning regulations on the basis of po-

lice power or otherwise. The whole subject is far beyond the stage of experiment and there are enough precedents all over the country to serve as a guide. It is not too much to say that an adequate zoning system is one of the tests of community vision, cooperation and civic consciousness.

Most war production areas are cursed with miscellaneous badly planned and constructed temporary housing developments. The Portland area has on the whole been fortunate in its war housing. Most of it should be removed within the two-year period provided by federal law. The largest single development, however, at Vanport City, seems to us to be destined for a longer life. These buildings can be kept in repair and be made reasonably comfortable and attractive for some time after the war. It is neither practical nor desirable that all of these buildings be torn down within two years, especially if a substantial part of the war population is to remain and to be properly housed. Probably all of the houses will not be needed. The number to be torn down cannot be determined now. The decision must await future developments as to the number of workers required in the area. Assuming, as we must, that Vanport City is too big for postwar use and that there is no serious housing shortage now, we are completely mystified by the breaking of ground for federal housing of 5000 additional workers at East Vanport City.

We wish that it were possible to recommend several self-supporting projects somewhere within the Portland area to be financed by bonds sold to the public and supported by tolls. Only one such project is practical. This is a new interstate bridge between North Portland and Vancouver. The present bridge is fairly adequate. Its improved approaches in North Portland will be satisfactory. The Vancouver approach through the main street of the city is impossible. The present Interstate Bridge was a toll structure but is now free. It carried before the war some 6,000,000 vehicles a year. A new approach could be built along the west boundary of the Vancouver Barracks if the War Department would give up a narrow strip for the purpose. If this new approach were built, a new low-level bridge could eventually be built just east of the present one. We prefer the alternative, which is to build a new high-level bridge about a half mile to the east, with an approach running along the east boundary of the Vancouver Barracks.

Whichever location were chosen a toll could not be

imposed at the new bridge unless a similar toll were imposed at the existing crossing, and the two bridges would have to be operated together under an interstate arrangement. Adequate approaches to either bridge on the Vancouver side would be included in the financing. On the Oregon side a temporary connection would be provided at Union Avenue. Assuming that traffic over both bridges would not fall below 6,000,000 a ten cent toll for passenger cars and a graduated toll for trucks and buses would support a sound self-liquidating structure if there were a federal subsidy of 30%, as indicated in the consultants' report. There are, however, complications in dealing with people in two states, restoring tolls where they have been eliminated, and other questions of local approval as to which we have little judgment.

Coming now to a summary of the proposed program more fully described in the consultants' report, the construction recommended may be divided into four parts.

The first part includes express arteries to be constructed by the State Highway Commission. This represents no departure from established custom in the state of Oregon, because the state has for some time assumed responsibility for arterial construction in Portland. The state has an able Highway Commission. Its executive, the State Highway Engineer, has followed highway design and construction throughout the country, knows what has been going on and has taken advantage of accomplishments elsewhere which seemed of value at home. This Commission already has plans for several major improvements in the Portland district in various stages of completion. Apparently there is no basic difference between the objectives of the State Highway Commission and the conclusions of our consultants. There are, however, differences, some of them important, in location and scope. My own feeling, looking at this part of the program in perspective, is that it is in good shape. What is required is a prompt decision on the projects still in the stage of discussion, determination of the volume of work in the Portland area and immediate concentration on grinding out detailed plans and scheduling the actual progress of contracts.

The state of Oregon has been exceptionally progressive in its attitude toward urban traffic, and the narrow rural point of view, which has governed so much highway construction in recent years in other states, has had little influence on the distribution of

federal and state highway funds in Oregon. The state highway authorities have apparently kept in mind that the Portland area today has about 40% of the state population, that there are only thirty cities in the United States with a population of over 300,000 and that Portland, even in 1940 before the war expansion, ranked twenty-sixth. It is our earnest recommendation that design funds sufficient for a \$20,000,000 construction program be allocated to the Portland area.

The second part of the program would consist of \$20,000,000 of construction on sanitation, public buildings, port, school, sewer and other major developments. As to some of these projects, there is already local approval, others are being debated or have not as yet been analyzed. Funds are already available for designing a \$10,000,000 sewage disposal system required to eliminate pollution of the Willamette River. It is possible that the federal government may before long provide funds toward design, and later for the construction, of postwar sanitation and health projects throughout the country, paralleling the federal highway program. If this should happen Portland should receive considerable assistance on its sewage disposal program, thereby reducing the cost to the locality.

As to sources of postwar construction funds, it is impossible to anticipate precisely what will happen, but some assumptions based on depression experience must be made. It seems likely that in this and other communities federal subventions, grants or contributions of as much as 50% will be made available, somewhat more than the public works grants of the depression period but less than the federal contribution to work relief. Based on highway experience we see no reason to fear federal dictation because of the matching of funds. To what extent states as distinguished from municipalities will be called on to contribute is a matter of useless speculation until the federal attitude is more clearly defined.

The third part of the program consists of street, park, tree planting and miscellaneous work, running to a total of \$12,000,000. Many miles of streets need repairing and paving, and there is an almost complete absence of a street tree planting program although the climate is one in which trees grow quickly and in great variety. Planting of street trees on a large scale will greatly improve the general appearance of the Portland area. There is an endless amount of work to

be done in the parks and playgrounds which as a whole are not worthy of the community. As to playgrounds, most of them are little more than well-maintained lots. Design of parks in many cases is inferior or nonexistent. There has been a hit-and-miss development. The present Portland Zoo is unworthy of the city and, incidentally, is not in the best possible place. Portland does not require a scientific zoological collection. What it needs is a simple, compact menagerie like the ones in Central and Prospect Parks in New York, easily accessible to the majority of citizens. After considerable searching we have recommended the acquisition of a new area which we believe is admirably suited to the purpose, provided it can be bought at a reasonable figure. If not, we recommend the reconstruction of the zoo at or near the present location in Washington Park.

Most of the street and more than half of the postwar park work should be done by contract, but a good deal of park and playground work might and some of it probably must be done by force account because of the difficulty of preparing detailed specifications for rather fussy small improvements, and the desirability of having some flexibility in the program to insure comparatively large employment of unskilled men if the emergencies require it. Various miscellaneous small projects are outlined in the consultants' report.

The fourth part of the program consists of state work outside of the area, but within commuting distance, on which workers resident in the area would naturally be employed, including, for example, construction of the Wolf Creek and Columbia River Highways, the Wilsonville Cut-off, and the cleaning up of burned-over lands, at a construction cost with work benefit to Portland amounting to \$8,000,000. Here highway planning funds are already available to the State Highway Commission.

It is apparent that design funds for somewhat more than half of the entire \$60,000,000 construction program are presently available, that is for the state highway and sewer work. About \$800,000 will be required immediately for the preparation of detailed specifications for the rest of the program. We recommend that bonds be authorized in this amount at the earliest possible date. A breakdown of this design fund is more fully outlined in the consultants' report.

Let us turn now to the difficult problem of land acquisition. As previously indicated, approximately

\$15,000,000 is needed for the acquisition of land for the \$60,000,000 construction program. Obviously you can't build public improvements on property in private ownership. Moreover, purchases and condemnation of land cannot wait until the war is over if construction is to start without delay. It is natural, on the other hand, for conservative citizens and taxpayers to be skeptical about vesting title now in land not actually needed until later on. The tendency therefore is to postpone this unpleasant subject and leave it in abeyance until it is too late to do anything about it. This is one of the surest ways of scuttling a public works program. Assuming, however, that Portland is ready to face it, there are some difficult problems in the way. It has been the practice of the state, for example, to provide only 40% of the cost of arterial rights of way. The other 60% has been borne by the City. There has been considerable agitation for federal contributions toward right of way acquisition as well as design and construction of highways on the federal program, and federal law now authorizes such contributions. It seems to us, however, very improbable that postwar federal highway appropriations will include provision for payment of federal subsidies toward expensive rights of way within cities.

It is our suggestion that the cost of arterial rights of way in the Portland area be divided equally between the state and the county. We do not believe that the City can afford to contribute if it is to provide its proper share of the cost of other features of the works program. It seems likely that the cost of arterial rights of way, including land for bridge approaches and anchorages, will total \$10,000,000. Land required for other improvements will amount to approximately \$5,000,000, most of which will have to be paid by the City. State appropriations and county and city bond issues will be required to carry out these suggestions as to land acquisition.

Even a limited works program such as we recommend is not easy to carry out. It represents a volume of design and land acquisition, scheduling, contract letting and work on the ground, not to speak of the manufacture and delivery of materials and equipment, never before attempted in the same period of time in this or any other community of comparable size. Competent design forces are scarce and the tendency always is to assume that the permanent engineers, architects and draftsmen can turn out the work with a little

overtime. Actually the projects are filed and saved up to be worked on when these inadequate forces get around to it. As a squirrel buries nuts for future consumption, the tendency of a permanent staff, especially if it is dependent on special design, construction and inspection funds for a livelihood, is to keep plenty of plans in abeyance and not to work itself out of a job. It is almost always opposed to the hiring of any outside consultants, especially if the entire job of design or inspection is handled by contract. This is human nature which is not very different in Portland than in other American governments, with or without civil service.

Progress records on design, especially of emergency work, are notoriously undependable. Practices of engineering executives vary enormously. One executive is so conscientious that he marks progress zero even when major policy questions have been determined by preliminary plans. Another chalks up 50% when he has barked his first order to his subordinates.

The shelf or reservoir of complete plans and specifications does not end the problem for the duration. The projects must be broken down into men, material and equipment so as to find out what work can actually be started, how long it will last, how many it will employ, and what effect it will have elsewhere. It is, after all, the effect on employment and pump priming in other communities which justifies the federal and state contributions without which any major municipal program is destined for failure.

There are other problems which must be worked out in advance. The question of how many contractors are available must be discussed. Soldier preference must be figured out. Someone must decide what part of the work is to be done by hire of men and equipment rather than contract in order to insure sufficient flexibility. There must also be a consideration of state highway and other projects in the open country within commuting distance from Portland. Moreover, not far from Portland along the Wolf Creek Highway is an immense burned-over area from which millions of bare and charred sticks of timber have not been removed. This is one of the most appalling and desolate areas in the West, and miles of it front on a fine highway leading to beautiful recreation spots. A large number of men from the Portland area could be employed under the supervision of the State Board of Forestry in clearing this waste, and a smaller number later on, in reforestation.

Critics will raise the question of the cost, not only of the construction of public works, but also of upkeep. Obviously maintenance is part of the price which any community must pay for useful additions to its plant. The burden which will fall directly on the taxpayers of the community is not small but, we believe, well within their means. Let me at the risk of repetition make this quite clear. The program we propose does not represent mere enthusiasm for public construction. It is no substitute for private enterprise. There may be many more than 20,000 temporarily stranded and out of work in the Portland area in the trough between demobilization and business revival. To these, local public officials can at most promise real, constructive jobs to 20,000 for a limited time. This seems to us the minimum of insurance which a self-reliant community can take if it hopes to escape, or at least minimize, relief expedients.

If such a genuine works program does not materialize or proves inadequate, Portland and other congested war areas must face the threat, or perhaps implication would be a less invidious word, that the long arm of the federal government will reach out from Washington and supply by one means or another the employment which the state and its municipalities seem unable or unwilling to provide.

Make no mistake about it. This alternative is just straight work relief with home relief for those who can't work at all, in a volume and with a concentration never attempted before even in the depth of the depression, together with a tremendous expansion of social security, especially unemployment insurance and large bonuses for veterans. It is hardly necessary to say that every sane person wants to avoid a repetition of the relief system which began with the CWA in the fall of 1933 and lasted in one manifestation or another and under various alphabetical agencies for the better part of seven years. This is not to say that no worthwhile construction came out of work relief or that it was not immeasurably better than a dole or handout. It is, as a matter of fact, astonishing how much was accomplished in the areas of better relief

administration, but the best of them were nothing to boast of and certainly nothing to drift into again through the same sequence of tragic indifference, hectic improvising of miscellaneous projects and boondoggling, leaf raking and desert projects where all else failed.

This program is not self-executing. We recommend that each of the bodies which ordered this report designate a representative to serve on a committee to analyze this report, determine on a program, find ways and means of financing it as suggested by us or otherwise, expedite plans, schedule work, and generally see to it that the program is carried out. This committee should also cooperate with another committee of representative citizens appointed by the Mayor to canvass realistically every prospect of local business stimulation.

Finally, I would suggest that an entirely new name be found for the postwar public works program in the Portland district. In fact, it would be desirable all over the country to get away from anything reminiscent of work relief, which is humiliating and disheartening to all those involved, and certainly no basis for an enthusiastic return to civil life by those in the armed forces and in war industries. Unfortunately, the endless permutations and combinations in which the words "public" and "works" have been used by federal and other agencies during the depression will bring any new combination of these words into disrepute. We ought to invent something which spells unified effort to improve the community, something which will arouse enthusiasm, something with which the worker will be proud to be connected. At the moment, I can think of nothing better than the words "Portland Improvement".

Our visit has been a unique experience, and we acknowledge a real debt to those who received us so cordially and freely opened their minds as well as their files for our instruction. We have enjoyed greatly the opportunity to compare notes and swap experiences with those who after all have the same objective — a better America after the war.

ROBERT MOSES



Consultants' Report

BASIC DATA AND PROGRAM

Basic Data

As those to whom this report is addressed are familiar with the geography and history of the Portland area, these subjects will be omitted. But before proceeding to a specific discussion of the program, certain basic data must be reviewed.

The population of Portland did not increase materially between 1930 and 1940. Within the city limits it was 305,394 in 1940; while Multnomah County had 355,099 inhabitants and the metropolitan area within the State of Oregon approximated the same figure. This last figure was arrived at by omitting the residents in the easterly end of Multnomah County and adding those outside of the County to the west.

Since the census of 1940 there have been no authoritative population counts, but we estimate from various sources that the population within the City limits has increased to the present time to about 380,000, within Multnomah County to about 469,000 and within the metropolitan area in the State of Oregon to about the same number. Although our population estimates for 1943 are less than those generally talked about in the community, we believe them to be realistic. The population statistics are indicated on charts in this report.

Comparison of the population growth of Portland, Multnomah County, and the whole metropolitan area, with the growth of the population of Seattle, which is the comparable city in the Pacific northwest, shows generally the same characteristics for the two cities. It is interesting to note also that the rates of growth of Portland and of the several states comprising the Pacific northwest show the same pattern, which would emphasize the point that future development of Portland is closely interconnected with the development of the whole area.

The solution of the problem of unemployment between the end of the war and the stabilization in peacetime work begins with recognizing that the

population within the City limits has been increased by 75,000 persons since 1940, and the population of the Portland metropolitan area in the State of Oregon has been increased by 120,000. It should also be recognized that approximately 25,000 former residents of this community are now in the Armed Services. There are about 137,000 men and women directly employed in war industries, of whom approximately 94,000 are in the three Kaiser shipyards. The remainder are employed in local plants engaged in shipbuilding and other war manufacturing.

About 45,000 of these war workers were recruited from peacetime occupations located in the Portland area before the war, about 25,000 were local persons, mostly women, who lived in the community but engaged in no gainful occupation before the war and about 67,000 were brought in from outside.

Of the 137,000 war workers, we assume that the 45,000 people who left jobs for war work will return to peacetime occupations which existed in the community — not necessarily the same individuals, but the same total number. From the 92,000 remaining, we assume that the 25,000 working in the war plants who did not work before will become readjusted to peacetime habits. This leaves 67,000 who will either have to find new jobs or go elsewhere.

There is no accurate way of determining how many of these 67,000 people are going to stay in Portland after the war. We have scrutinized returns from questionnaires on this subject, but we have no confidence in them. Without doubt, good living conditions, the fine climate of Portland and the intelligent manner in which the community has handled its wartime overpopulation will be a considerable factor in keeping many workers in Portland when their war work is done. Shelter has been provided for everyone, hospitals are adequate and the school system has met its problem. The intelligent triple shifting of plant employment has minimized congestion of the City services. There are fewer problems arising from traffic congestion, lack of schools, hospitalization, living

conditions and other sources in the Portland area than in many other overcrowded communities throughout the country.

On the other hand, we have analyzed what we believe is a reliable cross-section of where these new people in the war plants of Portland came from, and conclude that more of them will leave after the war and go back to their old homes than is popularly supposed by most people we have talked to in Portland.

Out of all the war workers in the Portland metropolitan area who have moved into the community since 1940 to swell the normal population figure, the states of Washington, Oregon, Idaho, western Montana and northern California supplied about 62%. Less than 15% appear to have come from the states east of the Mississippi River, and about half of this number were recruited by intensive campaigns in the cities of New York, Chicago and St. Paul alone. The New England states furnished an inconsequential number, less than one-fifth of one per cent. The southern agricultural states provided workers from east of the Mississippi in much higher proportion to their population than the northern industrial states. The remaining workers — about 23%, were recruited from other states west of the Mississippi River. The origin by states of the 137,000 war workers now in the Portland area is shown on a map in this report.

A majority of these people came from small communities or from farms and ranches; many are evidently migrant workers. A big proportion of the shipyard employes have been trained specifically by public authorities and the shipyards themselves to perform a specific part of a skilled craft. For example, most of the welders are not general mechanics. Workers engaged in complicated wiring are not general electricians. Carpenters have been trained only to perform a specific part of a whole task. This system of quick training has been necessary and has been largely responsible for the astonishing number of ships and the quantity of other war production in this area, but when the war work is over, most of these people will not be finished mechanics or artisans, and it must be recognized they will be unskilled or semi-skilled laborers.

It is evident that no community of the normal size of Portland can absorb for permanent residence in a short time these 67,000 workers and their families without destroying its economic, recreational, educa-

tional and public welfare services. The community simply cannot pay for any postwar improvement to take up the slack between the end of war work and the beginning of any probable private employment for these many people.

We, therefore, conclude that the 67,000 war workers who will find themselves out of jobs, augmented by about 5,000 returning service men — since most of the other returning service men will probably fill jobs they left when they went off to the war — make up the total number of 72,000 jobs required in the Portland area after the war, if none of the newcomers return to their distant homes. Assuming that half of the 67,000 want to return to their original homes, a total of about 39,000 jobs will be required. Of these, up to 20,000 will find work under the proposed public works program, and the remaining 19,000 will either have to be absorbed by private industry or go elsewhere.

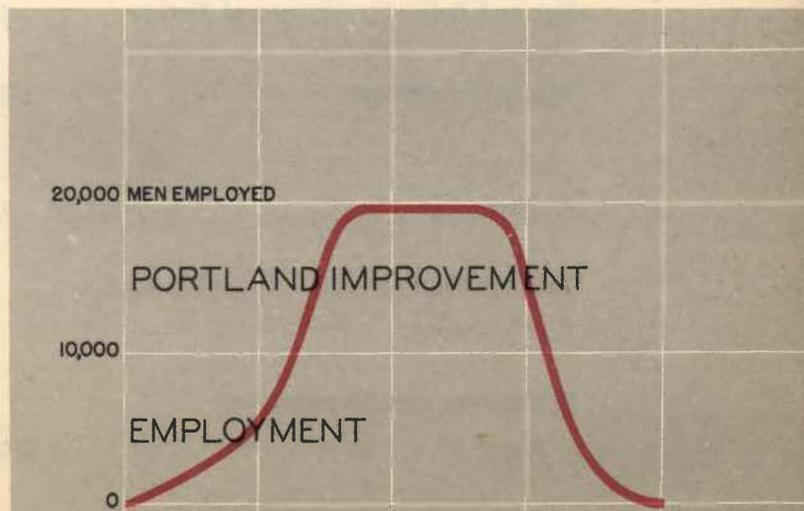
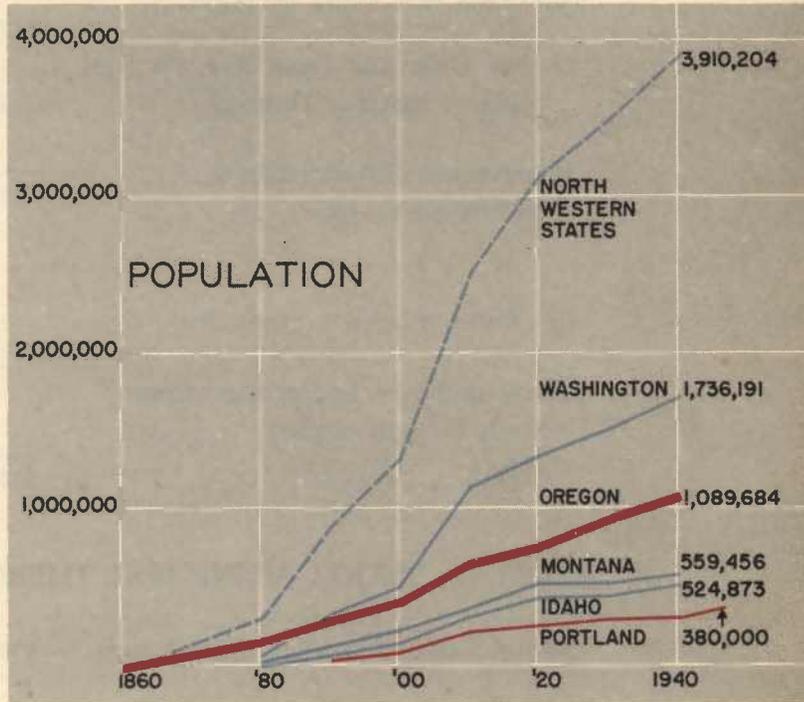
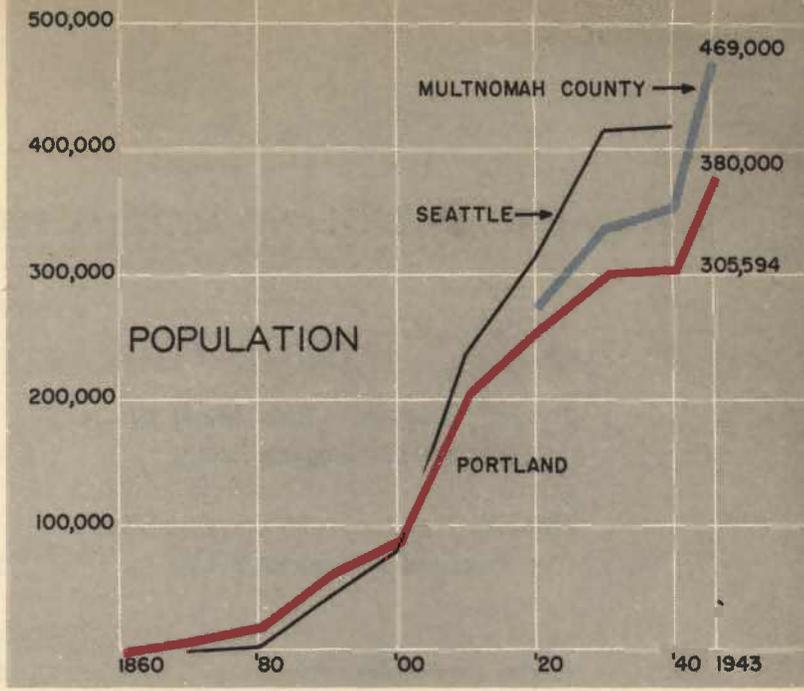
This employment will not occur all at one time. The chart opposite indicates the schedule. It is planned that in the period between the close of the European war and the ending of the Japanese war, employment will reach a maximum of 20,000 people at one time. At this point it levels off and recedes at the end of two years to complete absorption of these 20,000 into private industry, or further return of these workers to their previous homes.

Program

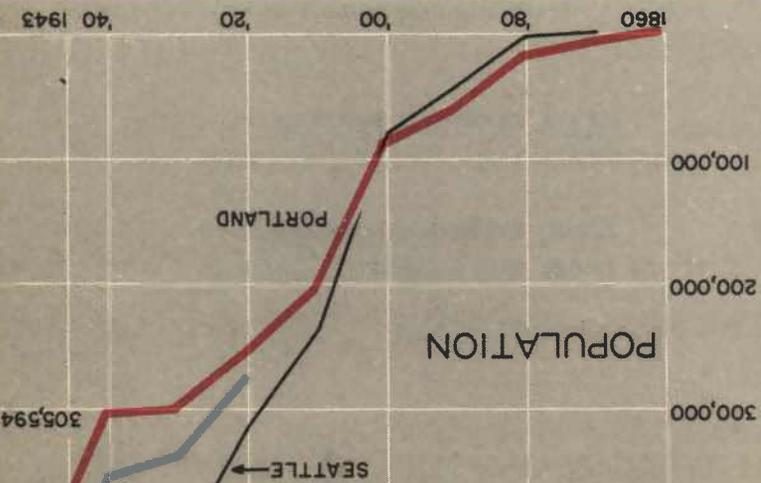
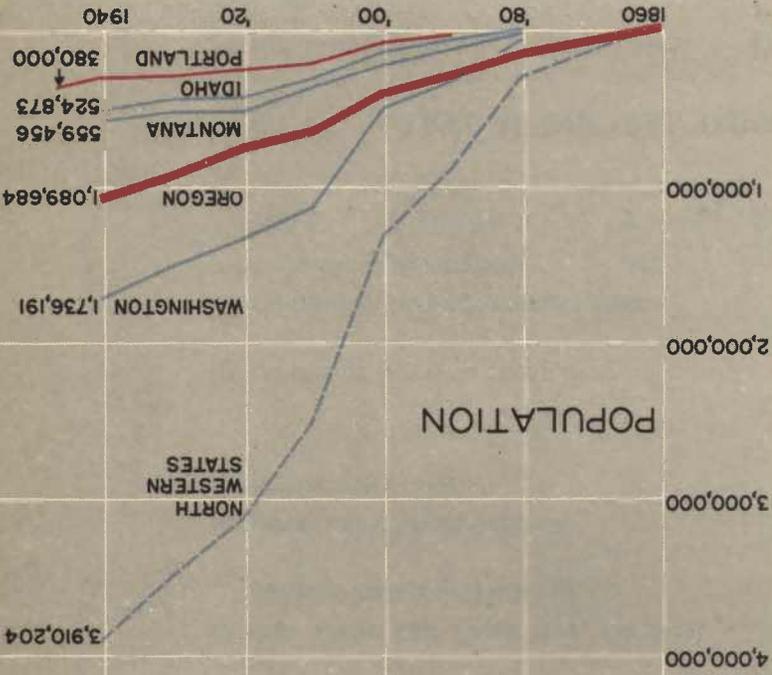
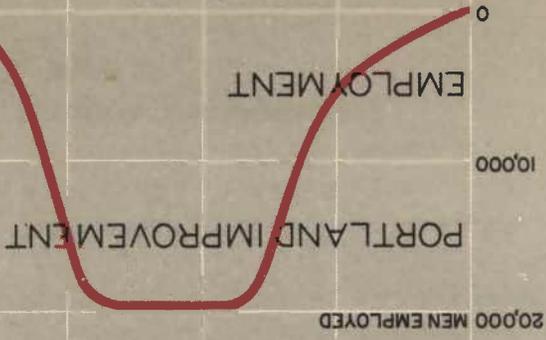
The program of improvements is based on the assumption that the Federal Government will make substantial contributions during the postwar period to projects such as those recommended in this report. The program is predicated on this basic assumption. Without this aid it cannot be financed.

We believe that it is safe to make such an assumption. Federal aid amounting to \$60,000,000, to be matched by the States, has already been appropriated for the design of highways throughout the country to be built during the postwar period, and there is now pending in Congress legislation for construction moneys for these projects. Also under consideration are various bills and plans for the extension of Federal aid covering general public works projects such as sewage disposal systems, parks and other types of projects similar to those which we have selected in this report.

The program follows in five parts:



END OF EUROPEAN WAR
 END OF PACIFIC WAR
 6 MONTHS 12 MONTHS 18 MONTHS 24 MONTHS



PART I PORTLAND ARTERIAL PROGRAM

	CONSTRUCTION COST	LAND COST	WHO PAYS		DESIGN FUNDS REQUIRED
			CONST.	LAND	
Foothill Thruway — Ross Island Bridge to Proposed Willamette Bridge	\$ 4,000,000	\$ 4,000,000	State & Federal	County & State	Available Federal & State
East-Side Thruway — McLoughlin Blvd. to Proposed Willamette Bridge	5,000,000	3,500,000	State & Federal	County & State	Available Federal & State
Bridge over Willamette River	6,500,000	500,000	State & Federal	County & State	Available Federal & State
Widening Ross Island Bridge	100,000	—	State & Federal	County & State	Available Federal & State
Harbor Drive and Front Ave. via Steel Bridge to East-Side Thruway	2,000,000	500,000	State & Federal	County & State	Available Federal & State
Improvement of Approaches to Hawthorne Bridge	650,000	500,000	State & Federal	County & State	Available Federal & State
East Burnside Street to Sandy Blvd.	1,000,000	500,000	State & Federal	County & State	Available Federal & State
Thirty-ninth Ave. Improvement from Sandy Blvd. to Airport	750,000	500,000	State & Federal	County & State	Available Federal & State
TOTAL	<u>\$20,000,000</u>	<u>\$10,000,000</u>			

PART II MAJOR MUNICIPAL IMPROVEMENTS

Sewage Disposal and Treatment System	\$10,300,000	\$ 50,000	City & Federal	City	Available
School Buildings and Improvements	3,800,000	300,000	School & Federal	School	\$150,000 School
Fire and Police Structures and Systems	1,650,000	150,000	City & Federal	City	\$ 65,000 City
Water Distribution	1,750,000	—	City & Federal	—	\$ 70,000 City
Airport	1,500,000	300,000	Port of Portland & Federal	Port of Portland	\$ 60,000 Port
Transfer Platform at Southeast Water Ave.	750,000	500,000	Dock Comm. & Federal	Dock Comm.	\$ 30,000 Dock
North Peninsula Improvement	250,000	200,000	Port of Portland & Federal	Port of Portland	\$ 6,000 Port
TOTAL	<u>\$20,000,000</u>	<u>\$1,500,000</u>			

PART III

MUNICIPAL IMPROVEMENTS BY SMALL CONTRACT AND HIRE AND LABOR

	CONSTRUCTION COST	LAND COST	WHO PAYS		DESIGN FUNDS REQUIRED
			CONST.	LAND	
					\$ 85,000
Street Improvements and Repairs	\$ 4,500,000	\$ 500,000	County City & Federal	—	County \$ 50,000 City
Park and Playground Improvements and Street Tree Planting	6,200,000	1,000,000	City & Federal	City	\$245,000 City
Civic Center Improvements	400,000	1,000,000	City & Federal	City	\$ 12,000 City
Railroad and Bus Plaza and Improvements	400,000	1,000,000	City & Federal	City	\$ 12,000 City
Public Buildings and Ground Repairs	500,000	—	County, City & Federal	—	\$ 15,000 City
TOTAL	\$12,000,000	\$3,500,000			\$800,000

PART IV

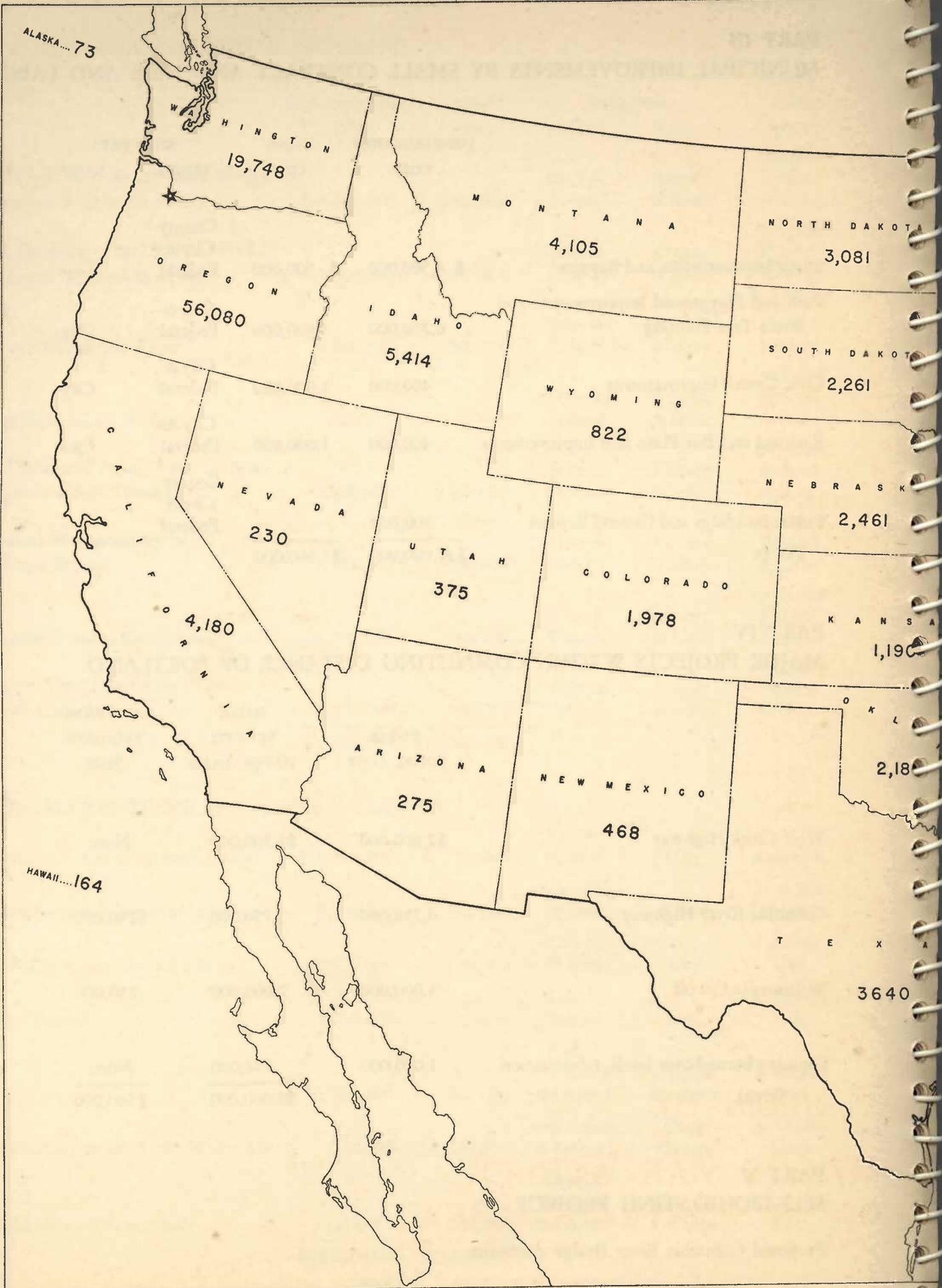
MAJOR PROJECTS WITHIN COMMUTING DISTANCE OF PORTLAND

	TOTAL CONST. COST	WORK BENEFIT TO PORTLAND	LAND FUNDS REQUIRED	DESIGN FUNDS
			State	
Wolf Creek Highway	\$2,000,000	\$1,500,000	None	Available Federal & State
Columbia River Highway	4,750,000	3,750,000	\$250,000	Available Federal & State
Wilsonville Cut-off	3,000,000	2,000,000	250,000	Available Federal & State
Cleaning burned-over lands, reforestation	1,000,000	750,000	None	Available Federal & State
TOTAL		\$8,000,000	\$500,000	

PART V

SELF-LIQUIDATING PROJECT

Proposed Columbia River Bridge Authority





PART I PORTLAND ARTERIAL PROGRAM

EXISTING CONDITIONS

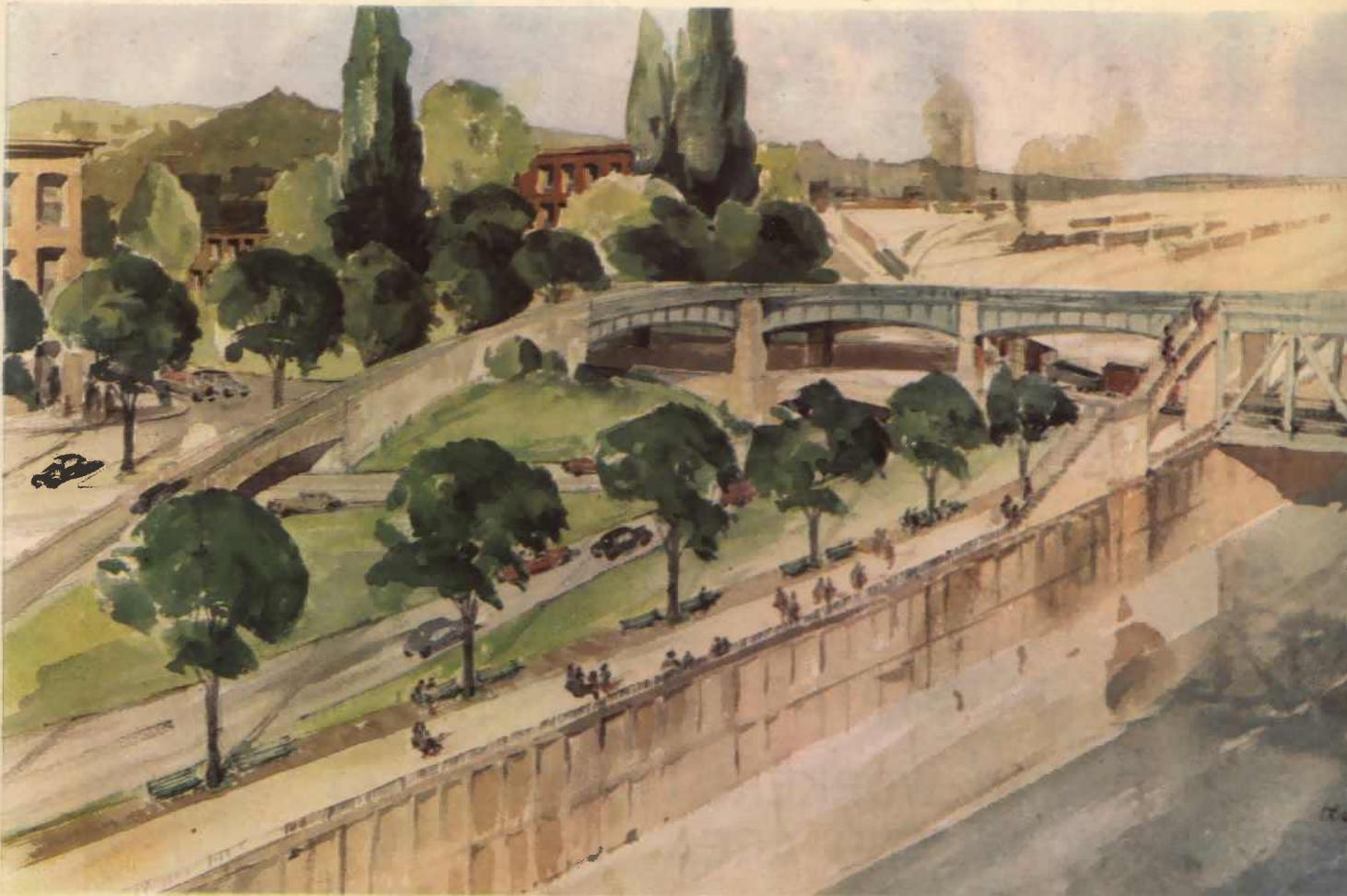
Street Systems:

At the present time most of Portland's streets in the downtown business district, together with the main thoroughfares in other portions of the City, are so congested that free traffic movement is impossible. This condition results mainly from local motor traffic; but through traffic, both commercial and passenger, must use the same streets, thus adding to the difficulty. About 80% of the population live in the residential areas on the east side of the Willamette River, whereas the central business district is located on the west side, and important industrial areas lie on both sides of the river. As a result, traffic converges upon the six downtown bridges, creating many points of serious congestion.

The street system consists mainly of a gridiron pat-

tern of relatively narrow, closely spaced streets, most of the blocks in the busy sections being only 200 feet square. In the past, traffic relief has been sought mainly through street widening programs. These have been expensive as regards right-of-way costs; and while the widened streets have been able to carry larger volumes of cars, traffic has continued to move slowly, on account of the many intersections. A few additional streets should be widened, including West Burnside; but such work has no logical place in a postwar public works program, since it requires large expenditures for property damages with little construction work, hence few jobs. We seriously question the soundness of the general policy of widening streets, which necessitates tearing off the fronts of buildings or destroying the yards of dwellings. The procedure at best is a dubious one as the results in most instances serve only as palliatives. In general, we believe that the streets,

HARBOR DRIVE DEVELOPMENT AND CONNECTION TO STEEL BRIDGE



the avenues and the boulevards of the City are wide enough.

Willamette River Bridges:

There are eight highway bridges over the Willamette River within the City of Portland, one near the extreme north end, six in or near the downtown business section and one near the south end of the City. In addition a railway bridge crosses the river near the north end.

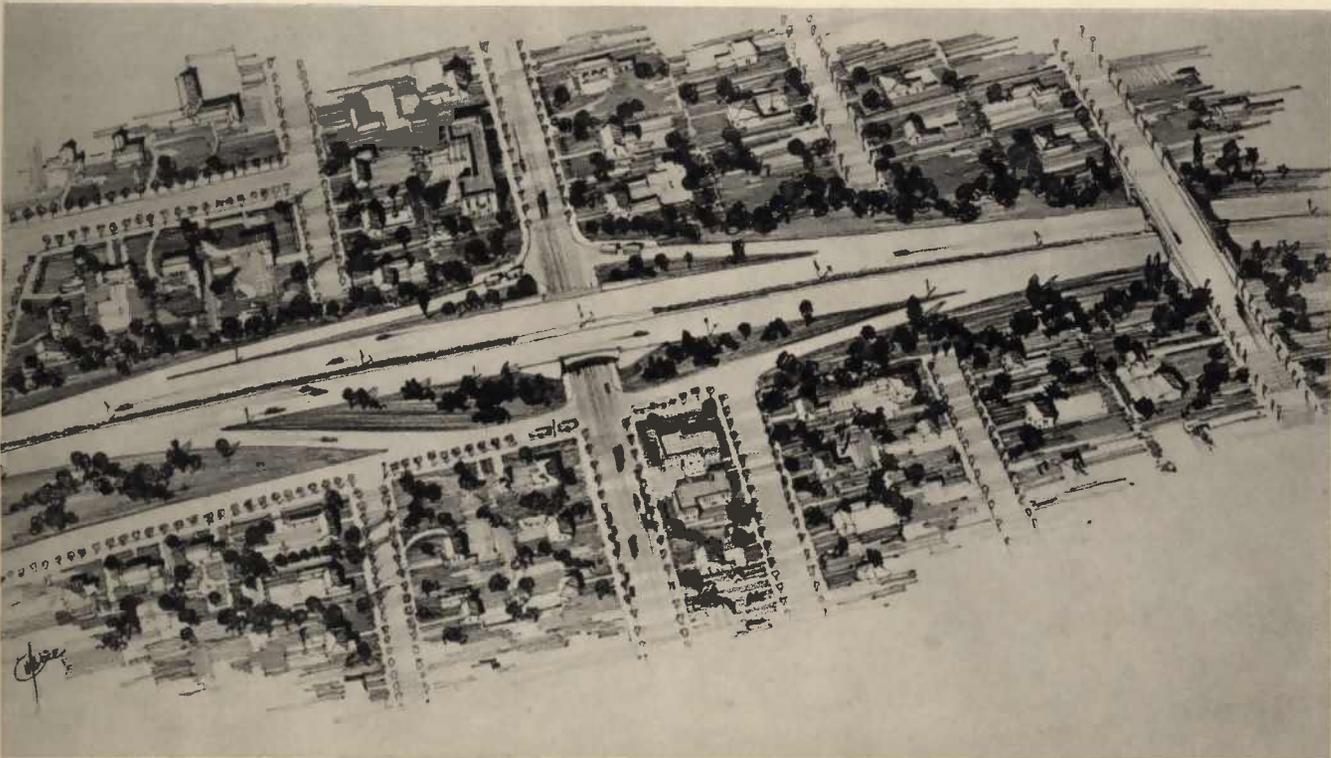
The St. Johns Bridge, near the north end of the City, is a four-lane high-level suspension bridge of about 1,200 foot main span. It performs a useful function for crossings in the northerly portion of the City, but it is too far north to intercept heavy traffic.

The Broadway Bridge—the second highway bridge from the north end—is about six miles from the St. Johns Bridge. A through truss bridge with a double-leaf bascule span, it has a roadway 46 feet wide between curbs, and two sidewalks. On the east side it connects with Broadway and Interstate Avenue, both wide thoroughfares but somewhat congested. The west approach has three ramps leading to Broadway, Tenth Avenue and Lovejoy Street, all well placed to diffuse the traffic. The Broadway ramp has a 45 foot roadway, while the other two ramps are rather nar-

row—only 38 feet wide. The intersections on the west approach are controlled by lights which, during congested periods, back up automobiles on account of left-hand turns. The bridge carries a very heavy traffic, about 40,000 vehicles daily, partly because such a large percentage of the population lies to the north of it, and partly because its approaches are reasonably good. Much of the traffic using it comes from the north. It is obvious that a bridge a mile or more to the north would shorten travel distances for much of this traffic.

The Steel Bridge, about one-third of a mile below Broadway Bridge, is a double-deck bridge with highway traffic on the upper deck and railway traffic on the lower. It has a vertical lift span, and as the lower deck can be lifted independently of the upper, highway traffic is interrupted only a few times each day. The highway deck provides for four lanes, and except for a constriction on a turn on the west approach is wide enough. The west approach connection is poor, since it lands on Glisan Street in a congested area. The east approach is better, as it meets the intersection of Williams Avenue and Oregon Street. The bridge has only a moderate volume of traffic, due to the unsatisfactory approach conditions, and with better approaches could handle much more, thus relieving the

TYPICAL THRUWAY DEVELOPMENT



Broadway Bridge of a portion of its heavy load.

The Burnside Bridge, about one-third of a mile from the Steel Bridge, is a double-leaf bascule carrying a six-lane divided roadway of satisfactory width. Approach conditions at both ends are reasonably good: the broadening of Burnside Street on both sides for several blocks has created some diffusion of traffic over a number of north and south streets. Located near the north side of the active business district, the bridge connects on the east side with Sandy Boulevard. Southbound traffic on Union Avenue is detoured to pass under the bridge approach, thus reducing congestion there. The bridge carries about 30,000 vehicles daily.

The Morrison Bridge is about one-half mile from the Burnside Bridge. It has a swing span with a clearance of only 33 feet above low water. The roadway is a mere 36 feet wide, and the bridge good for 15 ton loading only. The narrow east approach crosses three groups of railway tracks at grade and while the west approach provides a good connection to Front Avenue, beyond that point Morrison Street lacks width and is congested by parking. The bridge, although lo-

cated about opposite the center of the business district, carries only about 20,000 vehicles daily, due to its narrowness and unsatisfactory approaches.

About one-quarter mile from the Morrison Bridge stands the Hawthorne Bridge, a through truss bridge with a vertical lift span. It has a 20 foot roadway between the trusses and a one-lane roadway on each side outside the trusses, together with two sidewalks. The east approach is unsatisfactory, as it crosses two groups of railway tracks at grade. The west approach on Madison Street is better than the one to the Morrison Bridge, since Madison has been widened to 80 feet as far as Second Avenue, and parking is not permitted. The bridge carries about 25,000 vehicles daily. Its timber deck needs replacement, but otherwise the structure is in good condition.

The Ross Island Bridge is nearly a mile from the Hawthorne Bridge. It is a high-level fixed bridge with a narrow four-lane roadway 38 feet wide between curbs, and two narrow sidewalks. It carries about 18,000 vehicles daily and the approaches at both ends can handle existing traffic in a satisfactory manner. If the Ross Island Bridge becomes a part of the

VIEW OF NEW WILLAMETTE RIVER BRIDGE AND CONNECTIONS



TRAFFIC DIRECTION DIAGRAMS

The diagrams for the various interchanges represent the directions of traffic flow and do not attempt to show the physical method of grade separation.

At Interchange #1, the principal traffic to be separated is between U. S. Route 99E and the East-Side Thruway. All other movements may be accomplished via the service roads or adjacent streets.

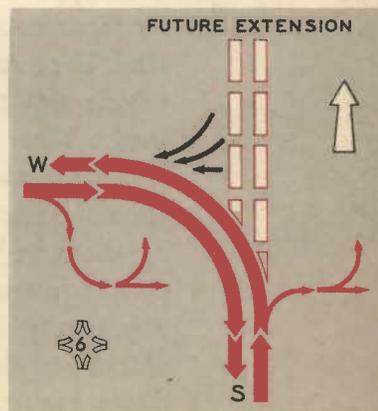
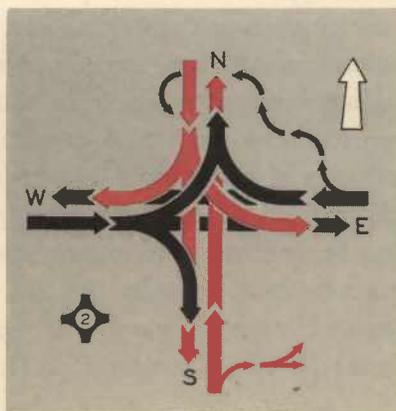
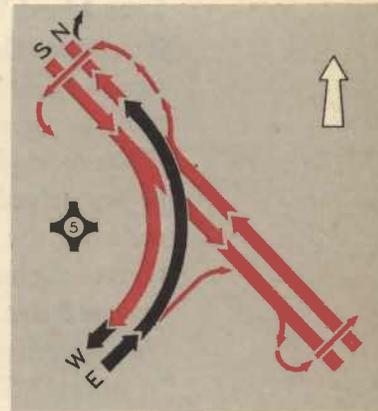
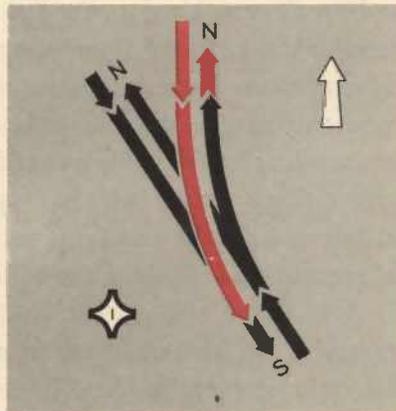
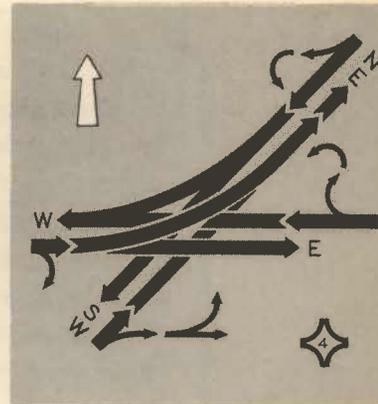
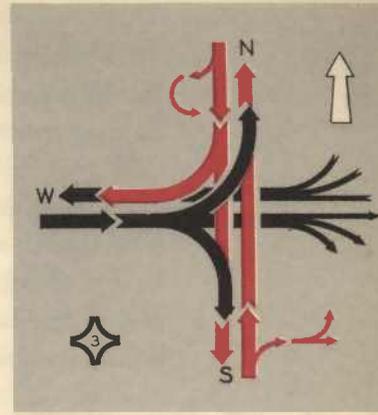
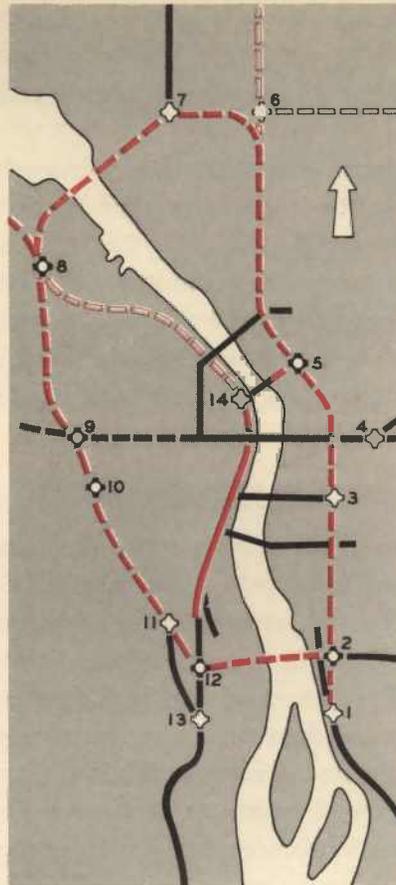
At Interchange #2, the grade separation serves the traffic between the East-Side Thruway and that crossing the Ross Island Bridge. Traffic crossing the bridge will flow without interruption into Powell Boulevard. The remaining movements, except right turns, are accomplished indirectly via the service drive entrances.

At Interchange #3, the main flow of traffic is shown on the diagram, but it is felt that this movement between the Morrison Bridge and the East-Side Thruway may be handled satisfactorily by the service drive type of access.

At Interchange #4, the grade separation will permit traffic moving east on Burnside Street to flow to the easterly stream on Sandy Boulevard, and through traffic on Burnside Street will be uninterrupted.

At Interchange #5, the principal grade-separated traffic will be that coming from the Steel Bridge to the north and south lanes of the East-Side Thruway. The remaining traffic may find accesses via the service roads.

Interchange #6 is not included in the program but is designed to accommodate the northerly extension of the Thruway.



Thruway system, the narrow roadway will not suffice.

The Sellwood Bridge near the southerly City line is a high-level fixed bridge, adequate for present traffic requirements.

While the Willamette River bridges are obviously essential to the life of the community, they interfere considerably with river traffic, excepting the St. Johns Bridge. Obviously any new bridge built to the north of the Broadway Bridge should be a high-level fixed bridge spanning the full width of the river, with a minimum clearance above low water of 164 feet, the height provided by the Steel Bridge.

STUDIES FOR THRUWAYS

We made a study of the existing traffic situation, based upon counts made just prior to the war, taking into consideration the following: (1) the highways approaching the City and the average volume of traffic—both truck and passenger—using these arteries; (2) the street system and the volume of traffic passing over the major streets and avenues within the City; (3) the conditions which obtain at the approaches to the six downtown Willamette bridges. Since this study was based upon traffic counts prepared before the development of the three large shipyards, the Swan Island Yard and the Oregon Yard on the Willamette and the Vancouver Yard on the Columbia, we gained a fair indication of the volume and habits of traffic movement in what may be termed normal times.

We concluded that the motor traffic problem would be best solved by constructing an inner belt thruway enclosing the central business district and large sections of the industrial areas of the City along the Willamette River.

In preceding paragraphs we have referred to a "thruway." Since this term may not be familiar to many who read this report, we shall define the word in its application to one type of traffic artery which we recommend for construction in the City of Portland. The thruway is intended for all classes of motor vehicle traffic, including both passenger cars and trucks. There are two roadways, each 24 feet wide, separated by a central strip of varying width for two lanes of traffic in each direction. All crossings at grade are eliminated, bridges being constructed to carry important intersecting streets over or under the thruway, as may be determined by the topography. Access will be provided only at selected places a considerable distance apart.

Since the thruways we recommend are proposed to be located almost exclusively in the built-up portions of the City and will traverse city blocks, access to lands bordering upon these arteries must be along border streets. When streets at right angles to these border streets are not deemed of sufficient importance to extend across the thruway, they terminate at the border streets. These streets serve a dual purpose: (1) They provide a means of access to or egress from the thruway; (2) they provide frontage to abutting private properties, including a sufficient width of pavement for parallel parking on one side.

In general, the thruway should be depressed below the existing grade of the lands it traverses, since it is usually the most economical method of construction and the noise of traffic moving over it will not be disturbing to residents along the borders of the project. The width of the right-of-way of the thruway may vary, but only in exceptional cases should it be less than 250 feet, including the two border streets.

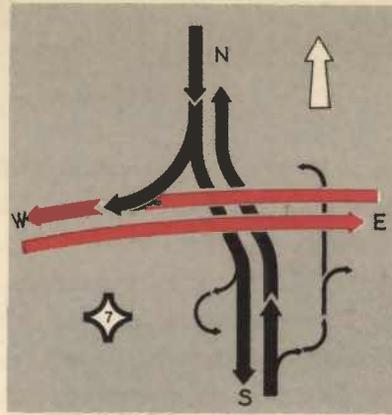
Tree and shrub-planted slopes between the border streets and the thruway roads serve as screens between private properties and the traffic lanes, thus acting as buffer strips of green. These green strips provide a pleasant park-like environment for the motorist and for the resident of borderlands alike. Experience has shown that this treatment of the thruway borders tends to increase rather than to destroy the values of abutting land, and the project itself forms a band of park to separate commercial and residential areas and commercial and industrial areas, thus defining the limits of each and preventing the spreading of one type of land use into another.

The detailed manner in which thruways are constructed is important. For example, experience has shown that attractive bridges, designed with the benefit of an architect's advice, are important elements in the scheme. There is no excuse for ugliness; the engineer should realize that bridges are built to last a long time and he should spare no effort to see that they are appropriately designed and in good taste. We cannot fail to add here that the services of an experienced landscape architect should be obtained to collaborate in the general design, with particular reference to the planting.

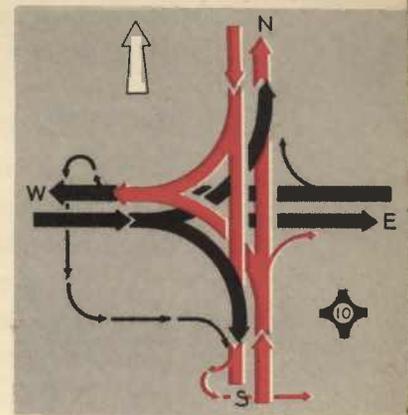
As the State Highway Commission has authority to acquire the right of access from abutting properties, and to acquire and embellish land in addition to what is needed for the paved roadway, no legislation is

TRAFFIC DIRECTION DIAGRAMS

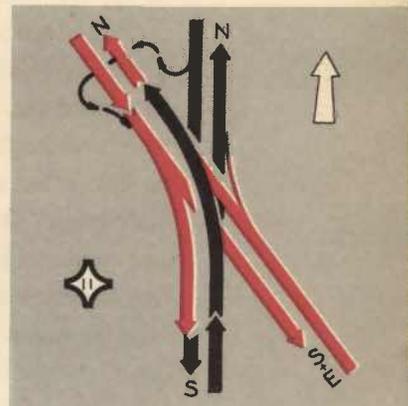
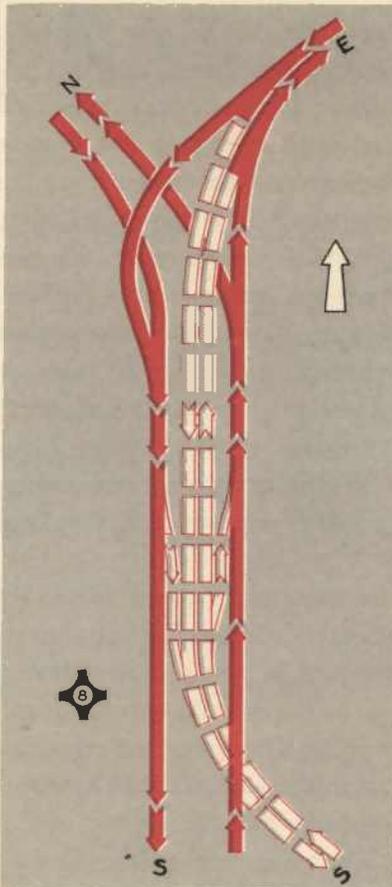
At Interchange #7, the flow from Interstate Avenue to the west-bound stream of the Thruway may be easily accomplished as diagrammed, but it is felt that other traffic will move via service drive entrances.



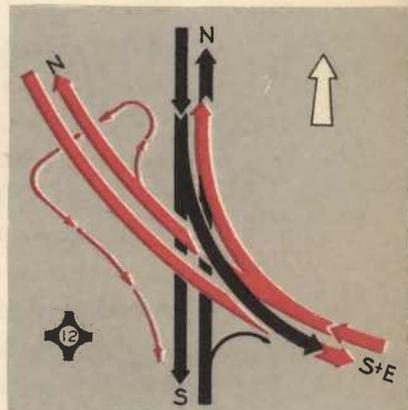
At Interchange #8, the program will include provision for free movement of the Thruway traffic and uninterrupted flow to and from Yeon Avenue. Although the viaduct from Front Avenue is not included in this program, the accesses should be arranged for the future and it is felt that there should be a complete interchange between the traffic on the viaduct, the Thruway, and the Yeon Avenue connection.



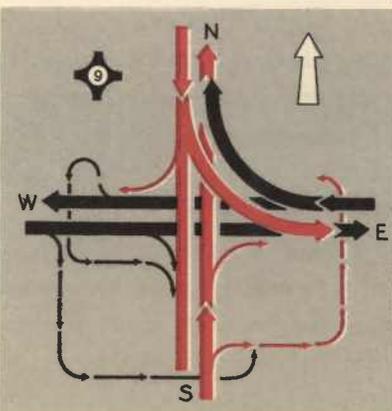
At Interchange #9, the principal traffic to be separated should be that moving between the Foothill Thruway and Burnside Street to the east. This separation will permit uninterrupted flow on Burnside Street. The remaining movements may be accomplished via the service drive entrances.



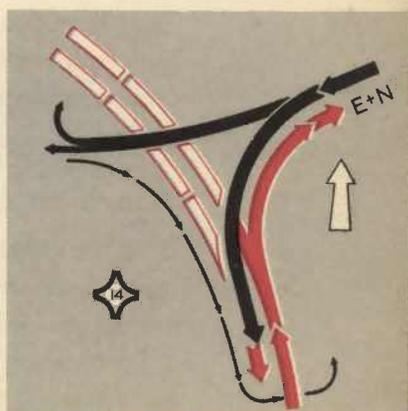
At Interchange #10, a complete elimination of grades may be made to accommodate the flow of traffic between Jefferson Street to the west and the Thruway in each direction. Other traffic may gain access via the service drive entrances.



At Interchange #11, the flow of traffic northerly on Barbur Boulevard (to Fourth Avenue) moving to the northerly stream of the Thruway, as well as through traffic on Fourth Avenue, will move without interruption.



At Interchange #12, the Thruway traffic approaching the Ross Island Bridge will be uninterrupted and there will be a similar free flow of through traffic on Front Avenue.



Interchange #13 (at Barbur Boulevard and Front Avenue) the same in principle as #1, is not illustrated.

Interchange #14 at the west approach to the Steel Bridge is discussed in detail in the text of this report.

necessary for the construction of the proposed thruways.

City Streets and Parking:

The ever present automobile parking problem in the business and industrial areas has been cause for concern and for considerable study on the part of the officials. One effective measure aimed to help the situation, the installation of parking meters, has evidently been successful and has met with public approval. We believe that the traffic and parking problems may be improved by allowing traffic in one direction only on all east-west streets west of the Willamette, except certain streets approaching the bridges; alternate streets being designated for west-bound and for east-bound traffic. We believe that cars may be parked with greater facility on one-way streets, and there is no doubt but that the resultant conditions favor the pedestrian. Every large city has found it desirable, and after trial popular, to designate streets for one-way traffic. Since the east-west streets west of the Willamette will serve as approaches to and as exits from the Foothill Thruway, traffic will move with greater freedom on one-way east-west streets. North-south streets parallel and adjacent to the thruway, which afford connections with this artery via access ramps, should also be designated as one-way streets for convenience and safety.

Parking lots, now an important factor in the downtown areas, may disappear when building becomes active again. Thought should be given to the problem of downtown parking, and the erection by private capital of attractive ramp garages in designated areas, not over three stories above the ground, should be encouraged. In the zoning ordinance of the District of Columbia there is a provision that new buildings in the downtown area must provide, within or adjacent to the property to be improved, sufficient space for parking a certain number of automobiles in a reasonable proportion to the number of occupants of the building. Such a provision warrants serious consideration when revision to the zoning ordinance is undertaken.

Marginal Parks and Playgrounds:

In the purchase of property for thruways, the marginal lands are occasionally wider than necessary for the slopes and for other requirements of the project. In such areas, when located in residential zones, we recommend the construction of marginal parks and

playgrounds. In sections of the City where parks and playgrounds are lacking, we believe that it would be wise to acquire sufficient additional land adjacent to the thruway to serve the recreational needs of the neighborhood. These parks and playgrounds form almost the only benefits which many local residents, not automobile owners, derive from the improvement. The practice of providing such recreational areas has been in effect in the New York area in recent years; they are valuable additions to the public open spaces of the City.

RECOMMENDED THRUWAY SYSTEM

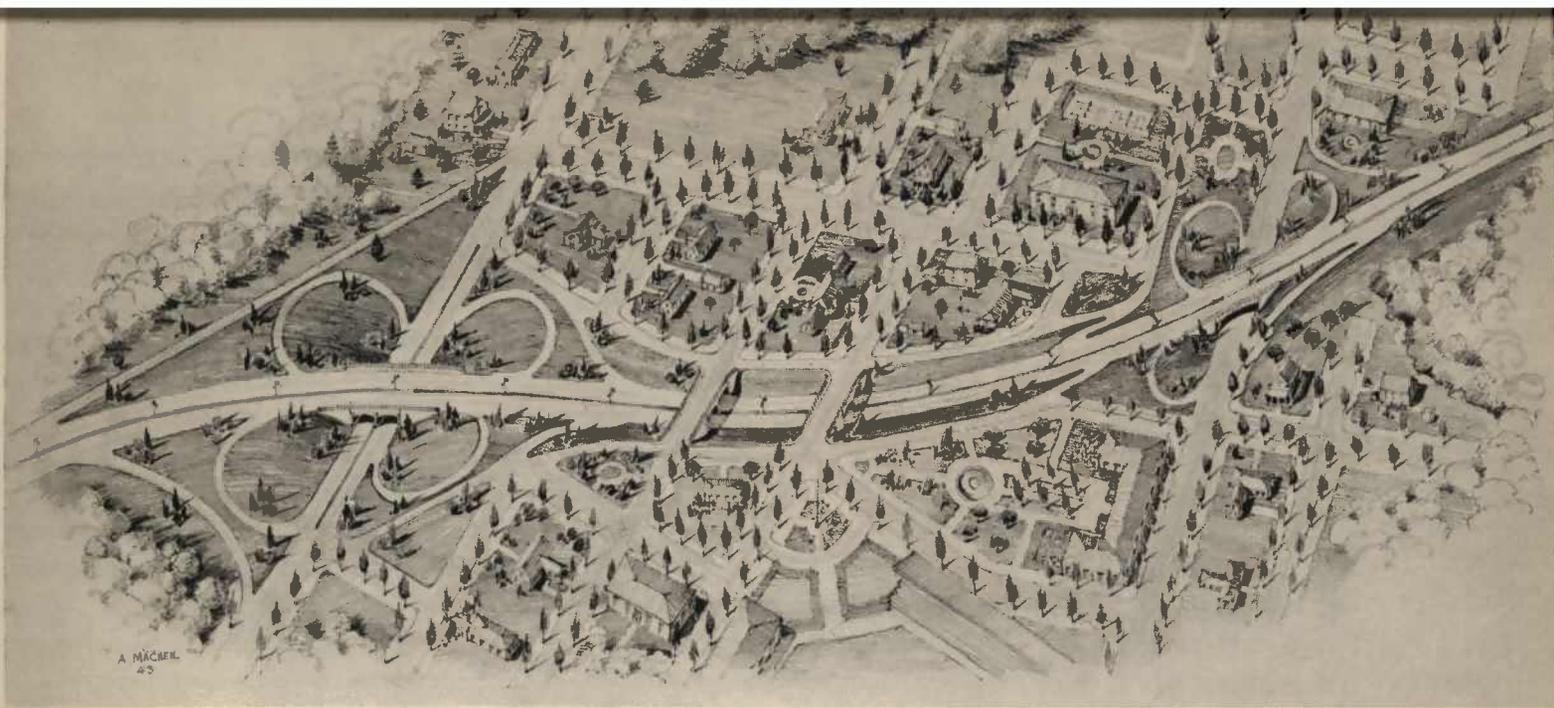
Our recommendations for a belt thruway are divided into four parts, as follows: (1) the Foothill Thruway; (2) the East-Side Thruway; (3) a proposed new bridge crossing the Willamette River; (4) the widening of the Ross Island Bridge.

1. Foothill Thruway:

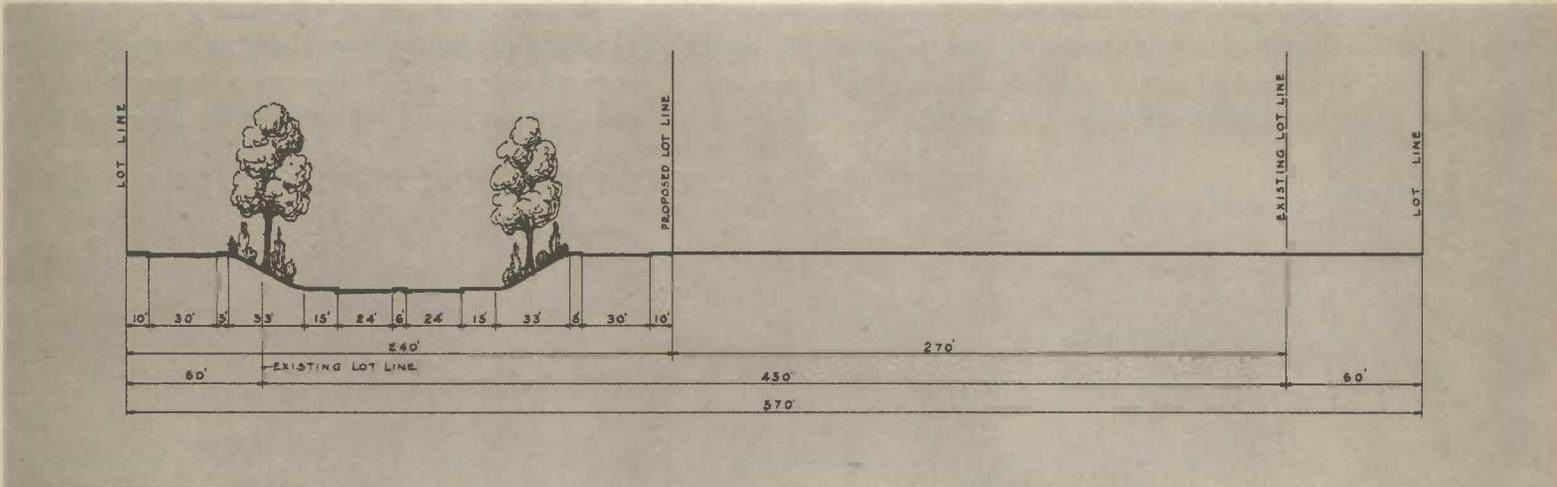
We were impressed with the desirability of clearing the City streets on the west-side of as much of the through traffic as possible, while at the same time providing a north-south artery as close as practicable to the business and industrial areas. Such an artery would, if conveniently situated, serve those who traverse this west-side area bound to and from that portion of the City east of the Willamette River, where the largest number (about 80%) of the people live.

The proposed Foothill Thruway (shown on the map at the end of this report) from the new high-level bridge across the Willamette River passes southerly along the east-side of Twenty-fourth Avenue to the vicinity of Lovejoy Street where it swings southeasterly to effect a crossing of Burnside Street near the intersection with King Street. It continues in the same direction, crossing Jefferson Street between Eighteenth and Nineteenth Avenues. It then skirts the rising ground north of Sam Jackson State Park and crosses Fourth Avenue near Sheridan Street. From this point it swings to an easterly course to connect with the Ross Island Bridge. This location has the advantage of separating business from residential areas, thus forming a buffer strip of land to be treated in the character of a parkway.

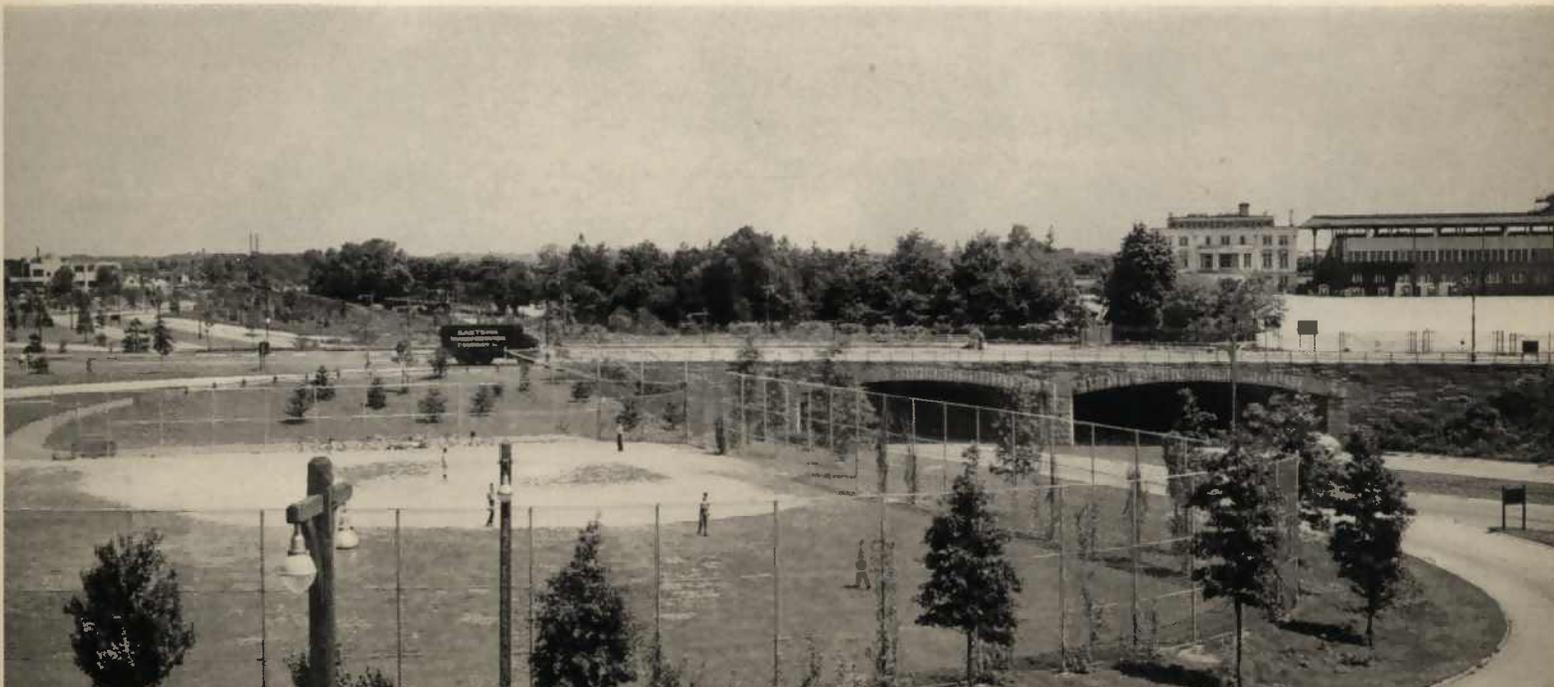
Such an artery, constructed as a thruway, supplemented by a project similar in character on the east side of the river, would materially relieve traffic on the bridges in the center of the City. A considerable



TYPICAL TREATMENT OF FOOTHILL THRUWAY
SECTION THROUGH WIDE BLOCK



BELT PARKWAY, NEW YORK CITY, SHOWING MARGINAL PARK DEVELOPMENT ALONG THRUWAY SECTION



proportion of the traffic originating east of the river would enter the East-Side Thruway and cross the Willamette River via the Ross Island Bridge or via the proposed new bridge at or near Skidmore Street and then continue along the Foothill Thruway west of the business section, entering it by any one of a number of one-way streets from the west. This would lessen the heavy concentration of traffic on the other river bridges and on many of the downtown streets and, in addition, through north and south traffic would be kept off the downtown streets.

The State Highway Department made a somewhat similar suggestion, but on the basis of widening certain existing streets and of constructing sections of elevated roadways. It seems appropriate to emphasize the fact that improvements in the arterial system should aim to improve and not destroy adjacent real property values. We believe, therefore, that the construction of elevated structures within cities should be kept to the very minimum and restricted, wherever possible, to industrial zones. Even in such areas, elevated structures should not be built over city streets

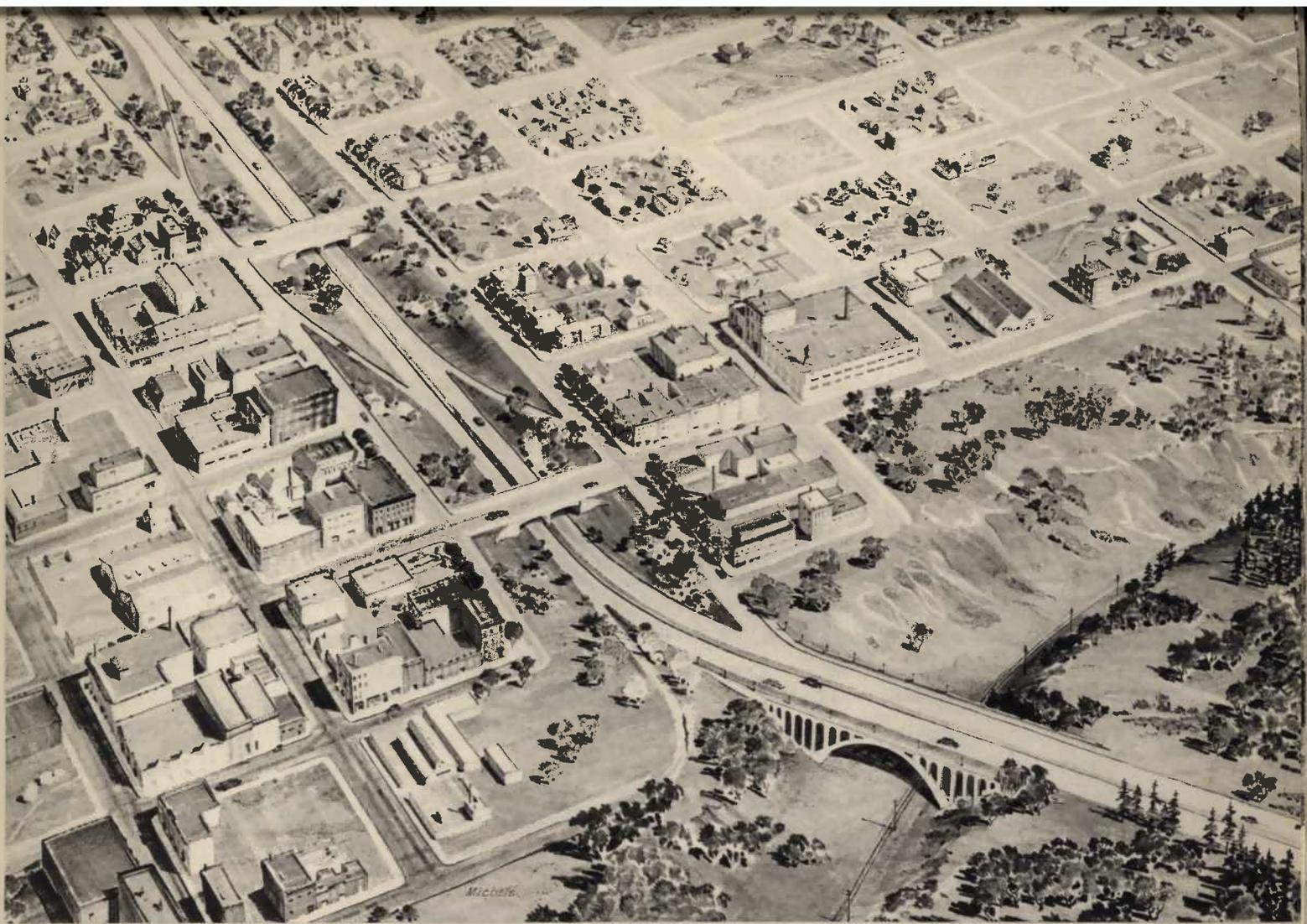
unless the streets are widened sufficiently to provide abutting properties with adequate light and air. Past experience shows that the damages, arising from construction of elevated highways in city streets, are sometimes as costly as it would be to purchase at least one row of lots, thus providing a right-of-way wide enough for a more permanent, a more attractive, and a more economically sound improvement.

The grade crossing elimination structures should provide two 40 foot openings, one for each one-way drive of the thruway where the thruway passes under city streets. Where the thruway passes over streets, the bridges should have a minimum width of 78 feet between parapets. The two additional 10 foot strips along the outside of the two one-way drives will provide space for disabled cars to turn out; if necessary or if required later on, each drive may be widened to 34 feet to provide for three lanes of traffic.

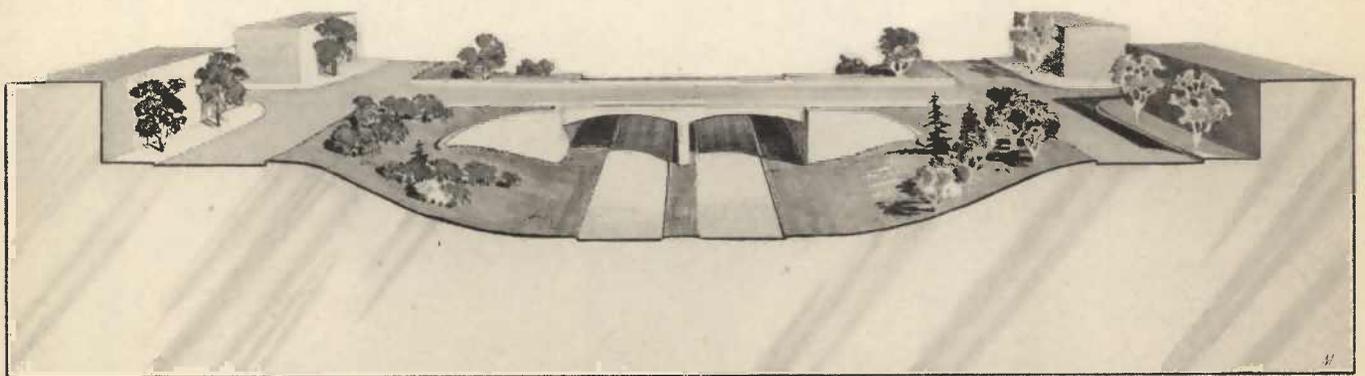
The Foothill Thruway will afford connections with (1) the Oswego Highway (Oregon Route 43) along the west side of the Willamette going south to Oregon City and Salem; (2) the Pacific Highway West

APPROACH TO BRONX WHITESTONE BRIDGE SHOWING DEPRESSED ARTERY

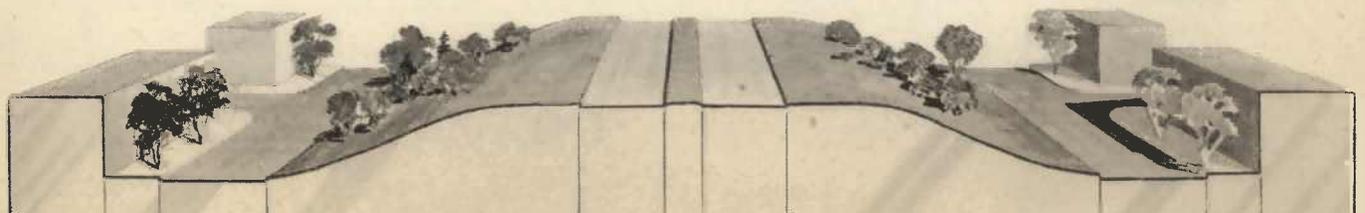




TYPICAL TREATMENT OF EAST-SIDE THRUWAY



SECTIONS SHOWING RAISED AND DEPRESSED TREATMENT IN NARROW BLOCKS



(U. S. Route 99W); (3) the Tualatin Valley Highway (Oregon Routes 2 & 6); (4) Oregon Route 10; (5) the Columbia River Highway (U. S. Route 30) to Astoria at the mouth of the Columbia River.

We also propose the extension of Harbor Drive as a thruway from its present southerly terminus at Caruthers Street to a connection with the Ross Island Bridge, the Foothill Thruway, and Barbur Boulevard.

Where the Foothill Thruway connects with the new bridge over the Willamette, access should be afforded to Yeon Avenue and provision made for a future connection with the contemplated improvement on Front Avenue.

We propose that the entire Foothill Thruway be included in the postwar construction program.

Estimated cost of right-of-way...\$4,000,000

Estimated cost of construction...\$4,000,000

2. East-Side Thruway:

We propose the construction of a thruway on the east side of the Willamette (shown on the map at the end of this report) between Seventh and Eighth Avenues, forming an appropriate junction on the south with the extension of McLoughlin Boulevard at about

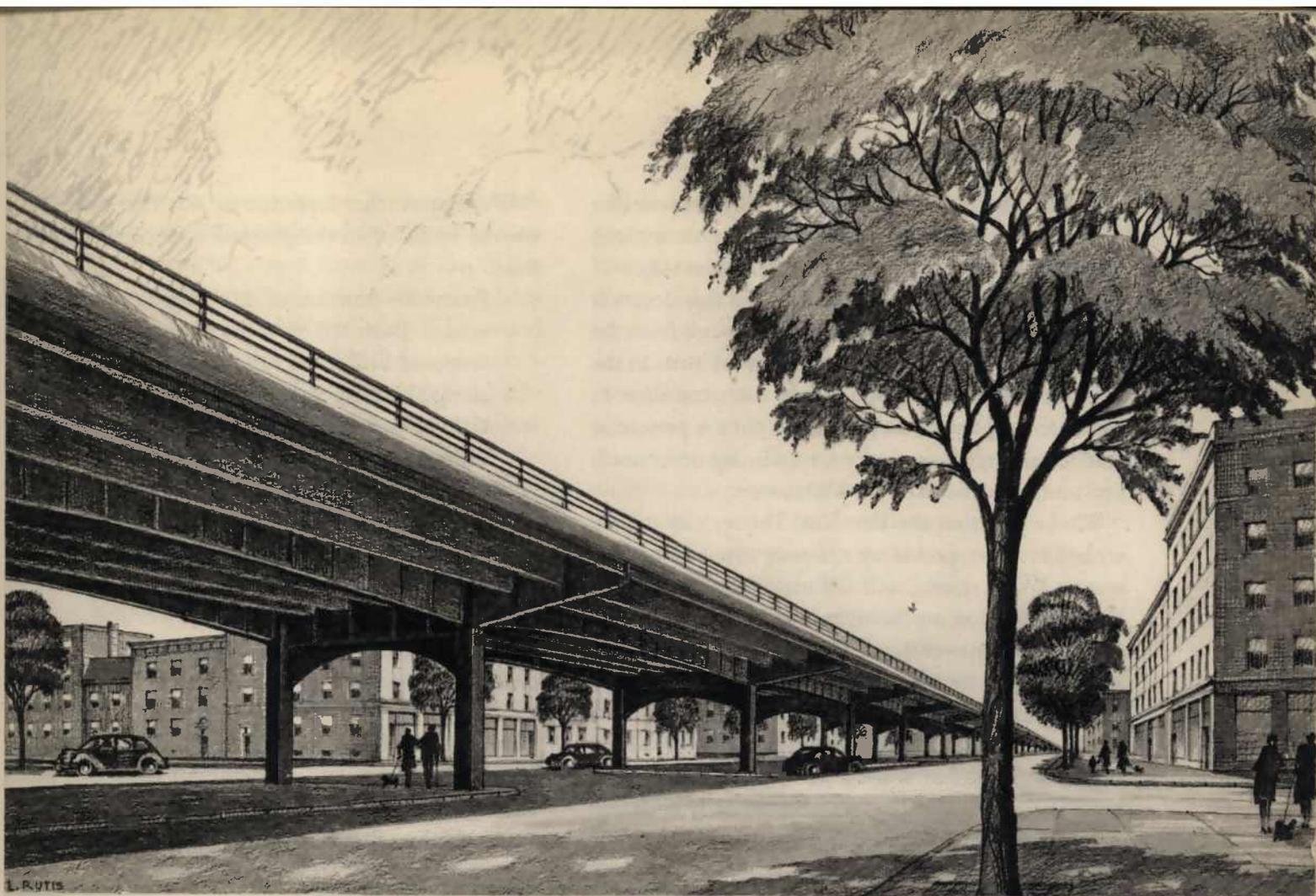
Bush Street, then extending northerly to cross the Union Pacific Railroad main line tracks at about Glisan Street. After that it would cross certain streets and avenues diagonally to follow the blocks parallel and east of Wheeler Street and north between Vancouver and Gantenbein Avenues, to connect with the approach to the proposed new bridge over the Willamette in the vicinity of Skidmore Street.

It is further suggested, at some later date, to continue this thruway north, generally parallel to Vancouver Avenue, to Columbia Boulevard and Union Avenue, there to afford direct approaches to the Interstate Bridge to Vancouver and to the Airport. This proposed extension of the East-Side Thruway northerly to the Columbia River, including recommendations for a new bridge to Vancouver, is taken up subsequently in this report.

The thruway location described above appears practical from the standpoint of property acquisition and provides a direct north and south artery through the east side extending Pacific Highway East (U. S. Route 99E) and the Columbia River Highway (Route 30) through the City. Connections will also be afforded with Powell Boulevard to Route 50 and with Burn-

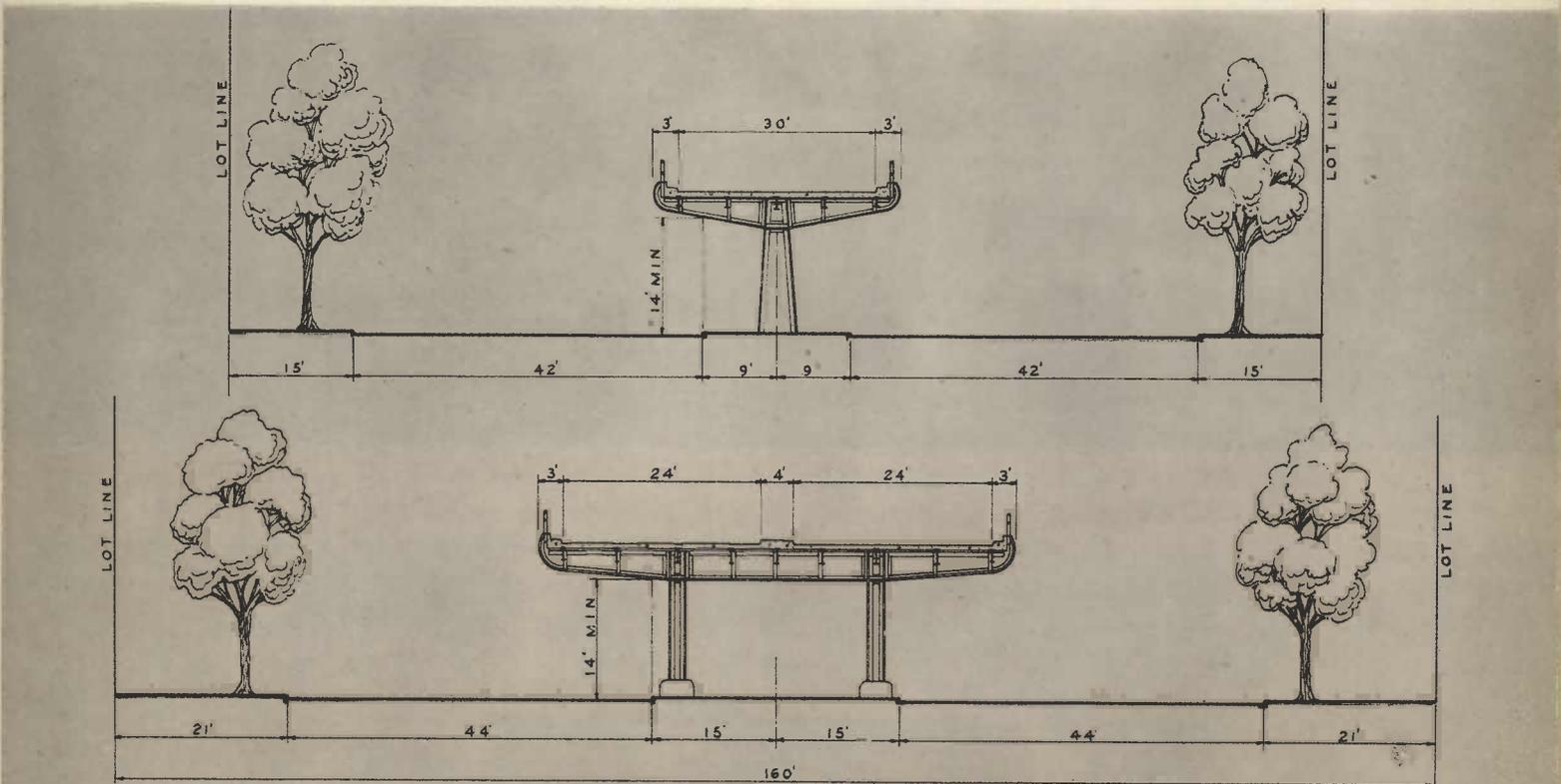
GOWANUS ELEVATED PARKWAY, NEW YORK CITY





TYPICAL TREATMENT OF ELEVATED THRUWAY

SECTIONS OF ONE-WAY AND TWO-WAY ELEVATED



side Street to Alternate Route 30. We propose the same cross-section for this thruway and its connections as obtains for the one proposed on the west side.

The construction of a thruway in this location means that through traffic, and traffic to and from the industrial waterfront and other industrial areas to the east, would be served adequately for some time to come. A thruway so located would, for the present at least, eliminate the necessity for widening other north and south streets east of the Willamette.

We believe that the East-Side Thruway at the described location, providing adequate connections with east and west streets, will aid materially in relieving traffic congestion on the river bridges by distributing it more equally over them. This assumes that the easterly approach to the Hawthorne Bridge will be improved as later suggested herein, so as to eliminate grade crossings of the railroad and of the railroad siding tracks, and that when a new Morrison Bridge is built at some future date, a similar easterly approach will be included.

We propose that a portion of this East-Side Thruway be included in the postwar construction, as follows: —

From the junction of McLoughlin Boulevard at Bush Street to the approach to the proposed bridge over the Willamette River along Skidmore Street.

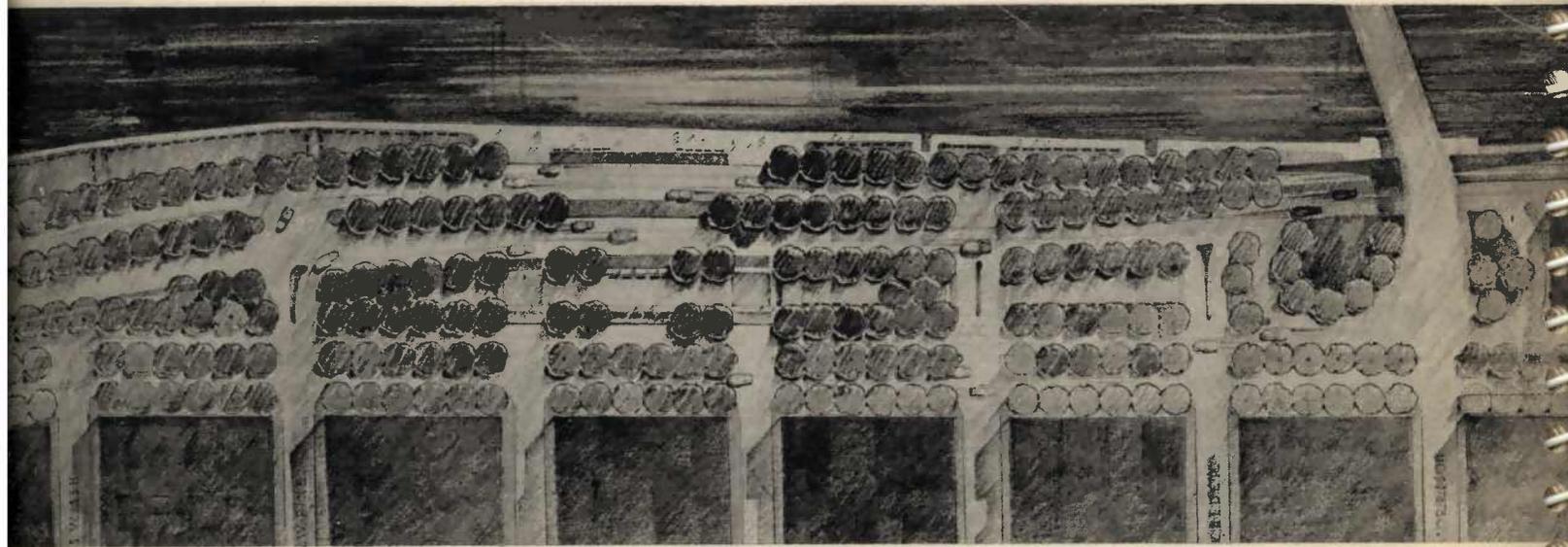
Estimated cost of right-of-way...\$3,500,000

Estimated cost of construction...\$5,000,000

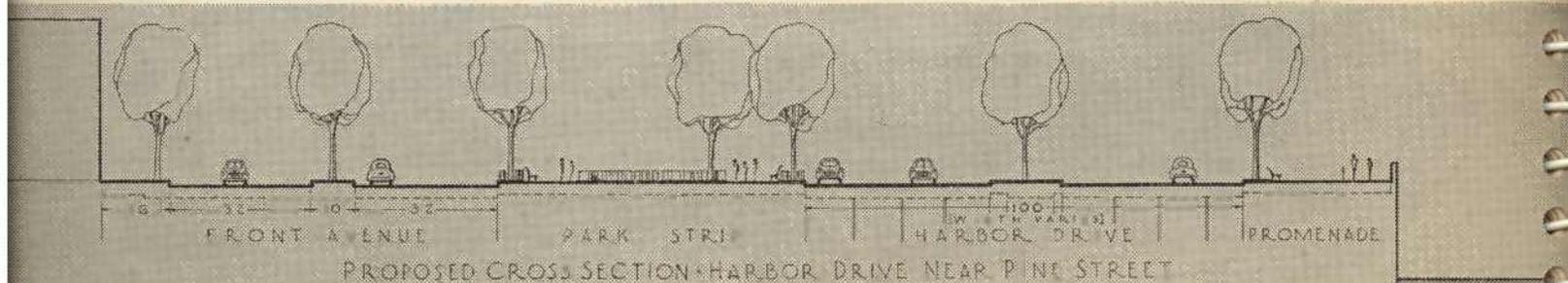
3. New Bridge across the Willamette River:

As previously stated, a new bridge, part of the proposed thruway system, should be built across the Willamette River north of the Broadway Bridge, to carry a four-lane divided highway. It should be connected on the east side to the proposed East-Side Thruway, and on the west side to the proposed Foothill Thruway. It should be a high-level bridge in order to meet the requirements of the Federal authorities, to avoid interference with navigation, and to afford uninterrupted highway traffic.

PARK DEVELOPMENT OF HARBOR DRIVE AND FRONT AVENUE



CROSS SECTION



Two locations for this proposed bridge were studied. One was originally proposed by others who reported on the need for a new crossing of the Willamette; subsequently this general location has been accepted by local, State and City officials. The second location was chosen after we had had an opportunity to study the problem offered by this proposed high-level crossing of the river. We believe that our location is more suitable, for reasons hereinafter set forth.

Location No. 1: The easterly approach to the proposed crossing at this location is from the vicinity of North Fremont Street, thence spanning the river to the west side, passing over Front Avenue and over industrial properties, the elevated roadway reaching the lowest point above grade in the vicinity of northwest Twenty-first Avenue at about Thurman Street. It is proposed to extend the thruway in this location on the west side in and along Twenty-first Street on an elevated structure. In addition, other connecting elevated structures and ramps are planned to afford connections to Front and Yeon Avenues and to certain other streets. This suggested a rather elaborate arrangement for the interchange of traffic, requiring the acquisition of many blocks in the northwest downtown section. In addition to the cost of the property necessary to carry out this scheme, there is the ever present factor related to the undesirable effect, including the inevitable lowering of property values, that any elevated system of roadways and ramps will have upon abutting properties.

In our judgment it is unwise to carve such a relatively large area of land out of this northwest section of the City in order to afford the opportunity to construct adequate bridge approaches.

Location No. 2: The easterly approach to the crossing on this location is from the vicinity of North Skidmore Street, spanning the river to the west side and crossing over Front and Yeon Avenues and Nicolai Street, and over industrial properties to the line of the proposed Foothill Thruway along the east side of Twenty-fourth Avenue as hereinbefore described. This line reaches grade at about York Street. It is proposed, as already indicated, that sufficient land east of Twenty-fourth Avenue be acquired to continue a depressed thruway to the south, passing under certain important cross streets.

This bridge location affords simplified thruway connections with Yeon Avenue for traffic moving north to the industrial areas along the Willamette

and to St. Johns Bridge, as well as to the industrial areas along Front Avenue to the south. A suitable connection with the proposed Front Avenue elevated along the north side of Savier Street, not recommended for immediate construction, is also provided for in this scheme. By keeping the connections between Yeon Avenue and Front Avenue widely separated, only narrow takings of land are required parallel to the Foothill Thruway and exceedingly free flow alignment is provided for traffic movement.

We believe that better and much simpler connections, both existing and proposed, may be afforded on Location No. 2 than on Location No. 1. The area of land required for the approaches to the bridge, as proposed on Location No. 2, is much less costly than for Location No. 1. We further believe that substantial consequential damages to private property will obtain on Location No. 1, due to the fact that elevated roadway and ramp structures are planned to be located over city streets.

It has been suggested that soil conditions on the east side may be less favorable at the Skidmore site than at the Fremont location. If this should prove to be the case, the resulting difference in cost would not be appreciable.

In view of the reasons set forth herein, we believe that the proposed new bridge and approaches across the Willamette River should be located as outlined under Location No. 2; but complete detailed studies will undoubtedly determine the best location.

Estimated cost of land \$ 500,000

Estimated cost of construction . \$6,500,000

4. Widening of the Ross Island Bridge:

The roadway of the Ross Island Bridge should be widened, since this structure is the southerly connecting link between the Foothill Thruway on the west side of the river and the East-Side Thruway. This widening may be accomplished by converting one sidewalk into roadway, providing a width of about 42 feet. The estimated cost is \$100,000.

OTHER ARTERIAL CONNECTIONS

5. Harbor Drive and Connection to East-Side Thruway via Steel Bridge:

The approaches to the Steel Bridge should be improved. The local authorities have proposed an elaborate system of ramps on both ends, which we believe

to be unnecessary. These proposed ramp structures would be, in our considered judgment, unsightly; if built, the resultant effect would be to lower property values and thus prevent rather than encourage the improvement of the rundown areas at the approaches of this bridge and in its vicinity. We believe that this proposal is inappropriate and too complicated for incorporation in the street system of a city the size of Portland.

We recommend the removal of the large gas tank located west of First Avenue, between Glisan and Flanders Streets, on the projected centerline of the Steel Bridge. We believe that this tank must ultimately be removed from the center of the City, and we have no hesitation in recommending its reconstruction elsewhere in order that a proper and dignified approach to the west end of this important bridge may be made possible, as well as to remove this eyesore from the central city area. The approach ramps should then be extended from (a) Harbor Drive and Front Avenue and (b) the west end of the bridge over land to be acquired in the blocks bounded by Glisan and Flanders Streets, extending west to Broadway, where an appropriate connection may be made with the proposed Railroad Station and Bus Plaza.

The belt thruway, including a new bridge crossing the Willamette at or near Skidmore Street, is intended for through and local traffic. We do not believe, therefore, that the proposed ramp schemes at the ends of the Steel Bridge are necessary, since local and through north and south traffic will use the proposed new bridge and the Ross Island Bridge, at each end of the loop, and thus relieve any tendency toward congestion at the Steel Bridge and at the other bridges in the center of the City.

On the east end of the Steel Bridge we propose an elevated connection, extending north on a new right-of-way to the East-Side Thruway. Access would be afforded between the bridge and Northeast Oregon Street for east-bound traffic and between North Williams Avenue for south and west-bound traffic.

The area along the Harbor Drive should be developed as an attractive waterfront park. In order to improve this area in a manner appropriate to its important location in the City, it is proposed to place a 10 foot center mall in Front Avenue and to widen the sidewalk on the west side of Front Avenue to sixteen feet. We also recommend the widening of the existing center mall of the Harbor Drive between the

Public Market and Pine Street, as shown on the plan. In the widened sidewalk areas and the malls, formal rows of trees should be planted more or less as indicated. This would leave a 32 foot pavement in each direction on Front Avenue, which we believe is ample for the traffic this street may be expected to carry.

While the authorities have already contemplated planting these existing malls, as is plainly evident on the ground, we feel that to expand them to provide more adequate park space for additional planting would be thoroughly appropriate. A display of flowers along the waterfront would also seem to be in order.

The present concrete parapet wall on the river side of Harbor Drive should be replaced with an open type metal railing, to afford a view of the River from benches on the promenade in the park area along the drive.

This development will serve to make this section of the waterfront a more attractive feature of the City.

Estimated cost of land \$ 500,000
Estimated cost of construction \$2,000,000

6. Improvement of Approaches to Hawthorne Bridge:

The Hawthorne Avenue Bridge should be improved by carrying a new high-level east approach over the railroad tracks and sidings to Grand Street, with ramps connecting to Water Avenue. A half block of property should be taken on either the north or the south side of Hawthorne Avenue to effect this improvement.

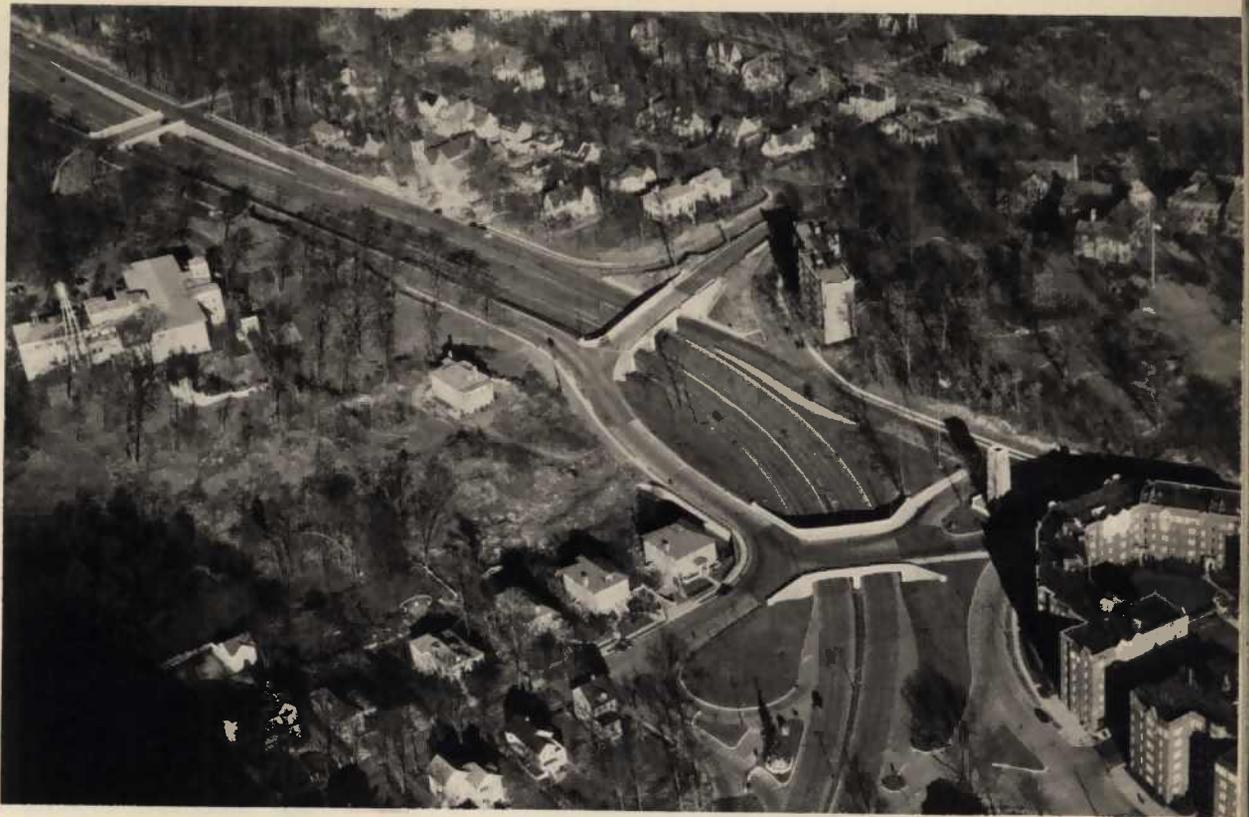
Estimated cost of land \$500,000
Estimated cost of construction \$650,000

7. East Burnside Street to Sandy Boulevard:

We propose the reconstruction of East Burnside Street from the easterly end of the Burnside Bridge to Sandy Boulevard, acquiring one row of lots and constructing an elevated roadway in the center of the widened street. Direct connections with the East-Side Thruway do not appear to be necessary since traffic from the west side may best be accommodated via the connection from the Steel Bridge.

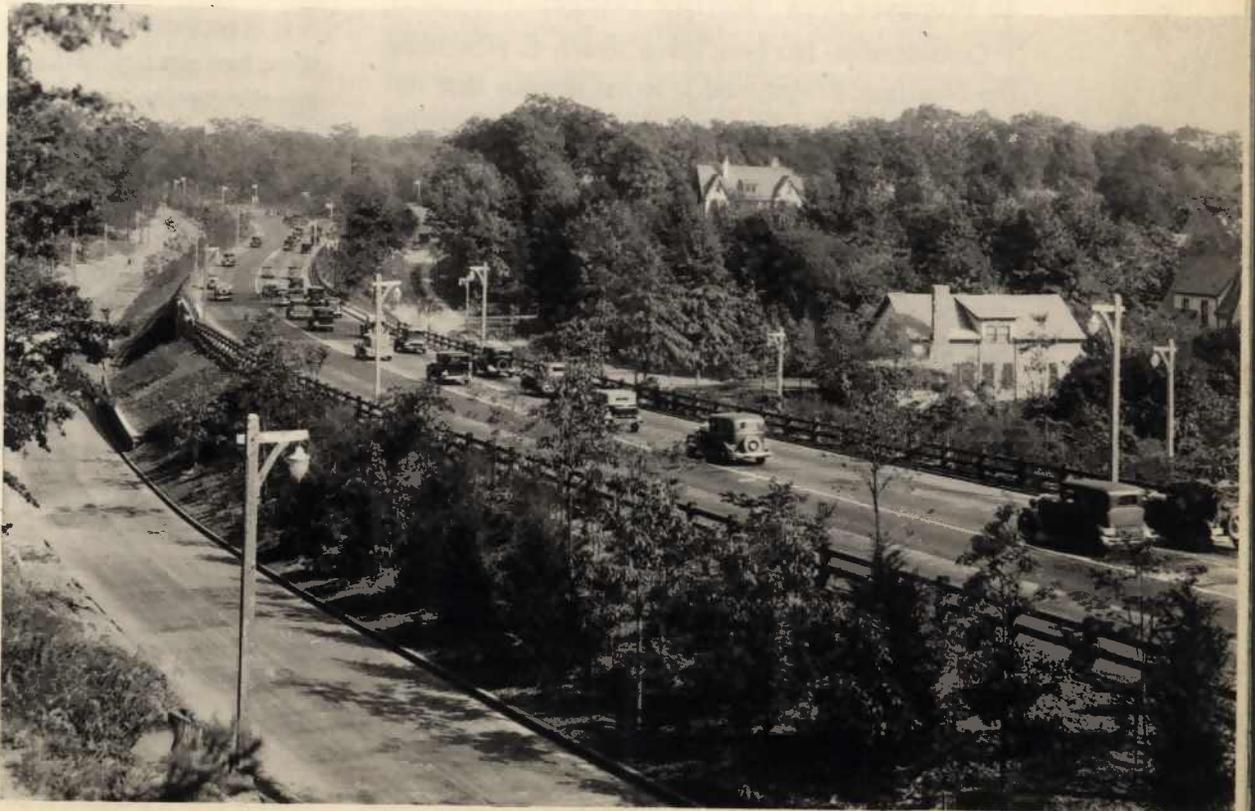
Estimated cost of land \$ 500,000
Estimated cost of construction \$2,000,000

8. Thirty-ninth Avenue Improvement from Sandy Boulevard to Airport:



HENRY HUDSON PARKWAY, NEW YORK CITY, SHOWING TYPICAL DEPRESSED SECTION

GRAND CENTRAL PARKWAY, NEW YORK CITY, SHOWING TYPICAL RAISED SECTION



Thirty-ninth Avenue should be widened and extended northerly from Sandy Boulevard to afford a more adequate access to the airport on the Columbia River.

It is proposed to acquire one row of lots, or the equivalent property, to provide a total width of right-of-way of not less than 120 feet, in order that the resultant boulevard development shall include two one-way roads, each 32 feet wide, separated by a central mall 20 feet wide. Each road will provide for two moving lanes of traffic and one parking lane. Two border sidewalk strips of not less than 15 feet in width should be constructed.

Estimated cost of land \$500,000

Estimated cost of construction . . . \$750,000

FUTURE EXTENSIONS

It has been necessary, in studying the arterial and traffic problems of Portland, to lay out an ultimate scheme for the future development of the City. The most essential features have been taken for the present program from this scheme. The map of the arterial system, at the end of this report, shows these future extensions to the present program; their inclusion in this report is intended merely to show how the present proposal may tie in with future development.

1. Proposed New Morrison Bridge:

Consideration has been given locally to rebuilding the Morrison Bridge, and it seems obvious that this is the best location for a new downtown bridge. One suggestion has been for a four-lane bridge, the east approach being elevated to Grand Street with the west approach at Alder Street, which would be widened for several blocks. Another suggestion involves a double-deck eight-lane bridge with the upper deck connections as suggested above, while the lower deck would connect with Water Avenue on the east side and Front Avenue on the west side. We believe that the four-lane bridge would accommodate the anticipated traffic. Separate ramps could be provided to connect to Water Avenue and Front Avenue, thus securing the advantages of the suggested double-deck layout. At the most, the bridge should have six lanes on a single deck. Connections on the east side should be made by taking a half block width of property in order to provide ample space for the construction of an elevated structure without injuring adjacent property values. This structure should extend easterly to

afford connections with the proposed East-Side Thruway between Seventh and Eighth Avenues, reaching grade at Grand Street. The west approach should cross over Front Avenue and connect with two east-west streets, each one way. In addition, ramps leading to Front Avenue should be provided.

These suggested improvements to the Morrison Bridge and its approaches are not included in the proposed postwar program. Immediate construction of a new connection on the east side of the Morrison Bridge, similar in character to the connection proposed for the Hawthorne Bridge, would in itself not be worthwhile on account of the narrow roadway on the existing structure and the congestion on the westerly approach.

2. Thirty-ninth Avenue Widening:

It is proposed to widen and improve Thirty-ninth Avenue from Sandy Boulevard south to a point near the southerly boundary of the City, and thence continue the improvement in a westerly direction, crossing McLoughlin Boulevard and extending along Southeast Tacoma Street to the Sellwood Bridge. This project is already on a list of proposed improvements by the State authorities.

3. Tacoma Street, McLoughlin Boulevard Grade Crossing Elimination:

It is proposed to eliminate the crossing at grade of these two arteries by the construction of a grade crossing elimination structure with access drives for complete interchange. This project is a part of No. 2 above, and is on the list of proposed improvements by the State.

4. Grade Crossing Elimination of Powell Boulevard with the Southern Pacific Railroad:

It is proposed to construct a bridge to eliminate this dangerous crossing at grade.

5. Jefferson Street Tunnel:

We reviewed the recommendations for a tunnel under the Jefferson Street hill and came to the conclusion that such a project is not warranted for a city the size of Portland. The expenditure of a sum of \$3,750,000, which is the reported cost of the project, should not be made when there are so many other more worthwhile improvements which can be carried out for less money and which would result in considerably greater benefits to the City.

PART II MAJOR MUNICIPAL IMPROVEMENTS

These major municipal improvements amounting to \$20,000,000 for construction and approximately \$1,500,000 for land are proposed to be constructed entirely by regular contract. The work involving most of the expenditure of funds in this part is not original with us. We have gone over the preliminary plans, where they exist, and to a large extent have picked out those projects which are most needed now.

Our construction estimates necessarily are not based on detailed plans because they do not exist. From experience we believe that the sums are adequate. The funds that we recommend for design are calculated at about 4% for preparation of contract drawings and specifications.

SEWERS

At present the sewage of Portland is discharged into the Willamette River. The resulting pollution has created unsatisfactory hygienic conditions and also has had adverse effects on the fish industry.

The Spring run of salmon has not suffered so far, because it coincides with high water periods of the Willamette River when the sewage matter is sufficiently diluted. The Fall run, however, has been stopped completely for some years as a result of this pollution. When the source of pollution is eliminated, it will take a period of years to rehabilitate the Fall run. This anticipated rehabilitation of the Fall run would represent considerable additional income for the fishing industries.

It is to be noted that State legislation has been passed to control the pollution of the Willamette but that Portland, as well as other communities, has not yet complied.

The question of a new sewage system has been under consideration for a long time. The first plans were developed in 1933. Throughout the following years various attempts were made to launch the sewage program, but the efforts failed either because government subsidies could not be obtained or because no purchasers could be found for the City's sewer bonds.

Preliminary studies show that if sewage were to be discharged into the Willamette without causing pollution, it would have to receive at least 90% treatment.

On the other hand, due to a minimum flow of 40,000 cubic feet per second in the Columbia River, sewage

could be discharged harmlessly into that river. However, it is felt that the sewage should be subject to plain sedimentation or primary treatment first.

The general plan developed for the new Portland sewer system provides for interceptor sewers on both sides of the Willamette River. These interceptors finally would reach the primary treatment plant to be erected near the southeast end of Smith Lake, and from there the sewage would flow by gravity into the Columbia River.

The present law permits the City to collect an amount equal to one-third of the water bills as a sewer use tax. The current assessment is less than half of the maximum possible collection from that source.

The City should start immediately to collect the full one-third for sewer use tax. There is sufficient money now to proceed with the detailed plans and specifications. Estimates, prepared in 1936, show that the out-fall and intercepting sewers will amount to \$7,500,000 and the treatment plant to approximately \$2,800,000, making a total of \$10,300,000. Land necessary is estimated to cost \$50,000.

Supplementary studies were made recently by the City Engineering Department involving variations in location of interceptor sewers and river crossings in the area between Sellwood Bridge and Swan Island. The principal purpose of these studies was to prove that the use of gravity interceptor lines would reduce the number of pumping stations, with resultant savings in operating costs which would more than offset the somewhat higher original construction cost.

It is recommended that a bond issue be authorized at the end of the war in an amount sufficient to cover costs of construction minus any federal aid. The amount of this issue will not be subject to the City's debt limit and no additional legislation is required.

SCHOOLS

The permanent school plant, supplemented by some portable structures, is adequate. The practice of accommodating temporary overloads in small portable buildings adjacent to existing schools is economical and appears to have worked very well. There is no serious overcrowding of the schools and it is safe to say that, with one exception, no additional schools will be required for some time to come.

There has been a great fluctuation in attendance during the last ten years. The largest average daily attendance prior to the war boom was 47,078 pupils in 1933. At the present time, the attendance is approximately 46,000 and the school authorities anticipate that this number may increase to as much as 48,000 during the school year.

The School District is in excellent financial condition. The bonded indebtedness at the present time is approximately \$3,100,000 and this will be paid off by 1952. The School District's debt limit is about \$17,000,000. There has been no major school construction since 1928.

The school budget for 1943-44 is \$6,159,378. The construction program recommended in this report will have little or no effect on the cost of maintenance and, as a matter of fact, it may decrease it. Amortization of the cost of construction proposed in this program will not be a serious problem in the budget.

In most of the schools there is a great contrast between the maintenance of the interior of the building and the exterior, including the grounds. The interiors were in fine shape when they were inspected in September. They had been overhauled to start the school year, but they would not be in their present condition if the upkeep had not been satisfactory. The annual maintenance charges throughout the School District are extremely low.

Outside maintenance, however, is poor. In some cases, the buildings are in need of paint and repairs, and school grounds are sadly neglected. No care is given to most of the athletic fields in the summertime, and they are permitted to grow to a point where lawns become hay fields.

Funds should be made available for painting and general repair of the exteriors of many of the structures. A substantial sum will be required to reconstruct and rehabilitate the landscaping around the buildings, the school yards and the athletic fields.

While there is no political connection between the City and the School District, the taxes supporting both groups come from the same people. Of the 94.59 square miles within the district, only 28 square miles are outside of the City of Portland. The school yards and athletic fields are essentially a part of the recreation system of the community and it is not economically sound for the two authorities to continue to duplicate facilities because of this lack of a politi-

cal tie-up. Once the school yards and athletic fields are rehabilitated or reconstructed, an agreement should be reached between the School District and the City covering the operation of these facilities. As an illustration, it would be ridiculous for the City to construct indoor gymnasias when the school gymnasias are available and are used for winter recreation such as basketball, boxing and dancing. At present, this arrangement seems to be working well. All that is needed is expansion to cover outdoor facilities.

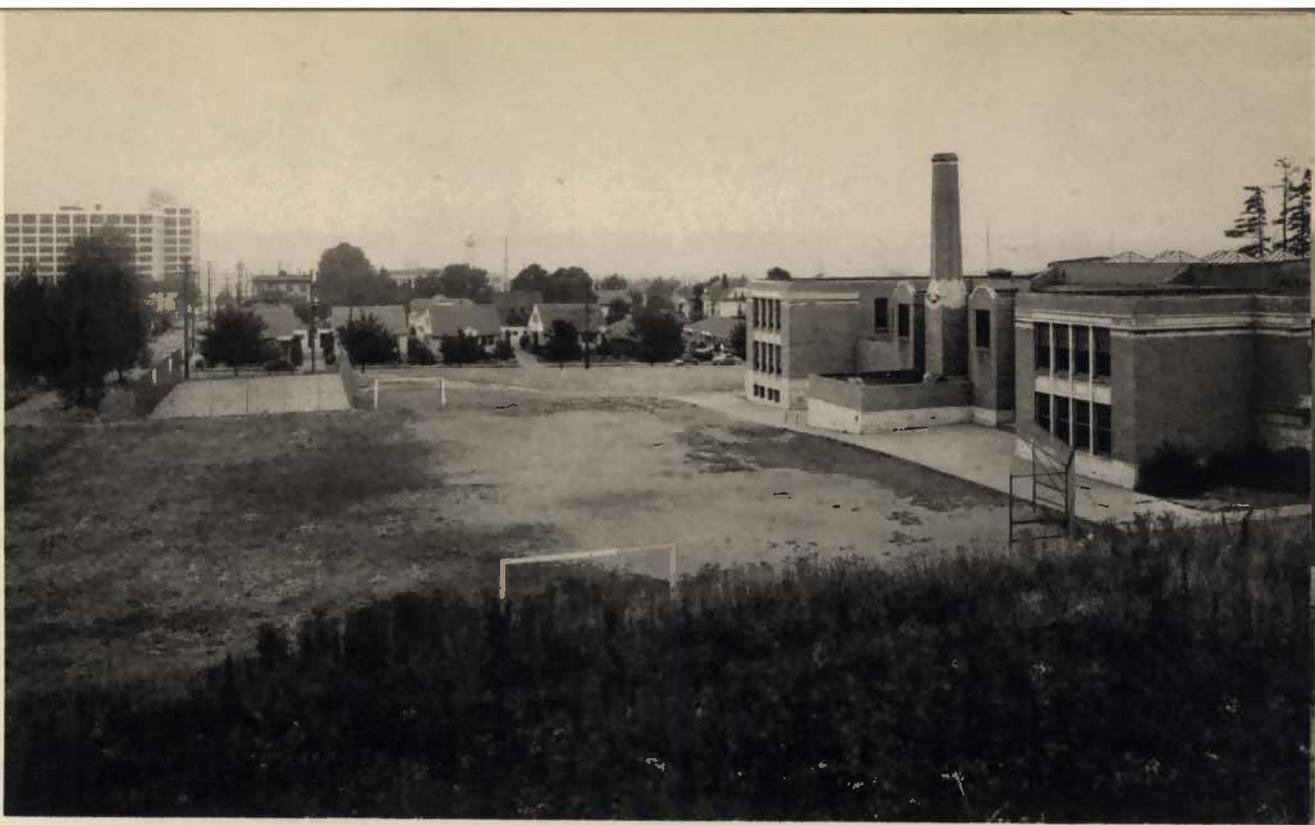
The City Bureau of Parks is best equipped to maintain the school yards and the athletic fields, and could assume this additional burden without any great increase in its maintenance budget. Basically, it makes little difference whether the cost of maintaining this property is collected by the City or by the School District. There will be those on both sides who will think of a number of reasons why such an agreement cannot be made, but we feel it is possible and can be accomplished.

Our recommendations are based on the population figures previously discussed in this report and on the general belief, also heretofore outlined, that a substantial percentage of the war workers will not remain in Portland after the emergency. There is no need at this time for any great expansion of school facilities.

There are six elementary schools of frame construction which we believe should be replaced. Two of the high schools require additions and alterations, and one of the high school athletic fields is badly in need of a field house.

Roosevelt High School, located as it is on the peninsula and between the Vancouver, Swan Island and Oregon Shipyards, is at present overcrowded. The population in this particular district has risen from 12,600 in 1940 to approximately 19,400 in 1943. This school draws students from outside of the area covered by these population figures, but a large part of this 54% increase appears to be permanent. Many of the new houses in this section, including those in the Columbia Villa housing development, are permanent structures. The addition proposed for this school is a gymnasium and the present site is large enough to accommodate it. Increased capacity required at the school will be provided by converting the existing gymnasium into classrooms.

The only other addition recommended is at Benson Polytechnic High School. The district in which this is located has only increased 20% in population in the



UNDEVELOPED SCHOOL PLAYGROUND

TYPICAL DEVELOPMENT OF SCHOOL PLAYGROUND



last three years, but this technical school draws students from a wider area than the academic schools. The proposal here is to provide for an expansion in the curriculum to include more courses in science and aviation. Although it might be possible to construct this addition on the existing site, consideration should be given to the possibility of expanding the site in an easterly or northerly direction, where there is now land available.

Lincoln High School which is located in the downtown section of the City has a listed capacity of 1,020 but at the present time it accommodates 1,278 students. In addition to the overcrowding and lack of adjacent athletic field facilities, this school presents a transportation problem because of its location near the business section and because it draws a large number of students from the other parts of the district. In view of the overcrowding, the steady and fairly rapid growth of that section of the City between 1930 and 1940, the permanent character of the housing in this section, and the unquestioned development toward and in the Tualatin Valley, a new high school will be necessary on the west side in the not too distant future. An adequate site should be acquired and the new school built as a part of the postwar program. This construction should provide for an enrollment which may reasonably be attained in the near future, and the design should be predicated on the addition of supplemental wings at a later date.

Consideration was also given to the advisability of rebuilding Jefferson High School. While this was originally a frame building, a brick veneer was applied and it is now in excellent condition and has an adequate recreation area. It would cost at least \$1,000,000 to replace the school and we feel that this expense is unwarranted. Registration at this school is far above its listed capacity. Other high schools not too far away are operating at or below capacity, and the solution to this problem appears to be one of administration. While it may not be quite as convenient, because of lack of transportation, for the students to go to other schools, we believe that this problem can be solved once the gasoline and rubber restrictions are removed.

At two of the schools (Mt. Tabor and Richmond), concrete wings were added to frame buildings. Neither school is used to capacity and they are both in good condition. Eventually, a decision will have to be made as to whether the whole school is to be replaced or a fireproof structure substituted for the frame portion.

No replacement will be warranted for a number of years.

We considered the advisability of providing a gymnasium and a community center building in connection with the Capitol Hill School. This is a one-story frame structure with a brick façade. Eventually, the school should be replaced and an adequate school provided, when the increase in population in the community justifies it. No gymnasium or other expansion could be justified at present.

At West Portland, a small stucco school with an adjacent gymnasium is used to capacity, but, here again, we feel that a new school should not be planned until the rate of growth of the community is more clearly indicated. At present the need for a new school is not evident.

Following are the essential details on the program recommended for the School District. No new legislation is needed to carry out this program, but a referendum must be held to authorize the issuance of the necessary bonds.

NOTE: *The average daily attendance has been 5% less than registration in past years.*

High Schools:

1. New West Side High School

Estimated cost of construction	\$ 750,000
Cost of site	300,000
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Total	\$1,050,000

2. Roosevelt High School

Original Construction	1921
Capacity	750
Registration	1200

This is a good brick building. The gymnasium should be converted into classrooms and a new gymnasium constructed. The school is greatly overcrowded and many permanent homes are being built in this section. For example, the new Columbia Villa houses, 400 permanent units, are located nearby.

Estimated cost:

Gymnasium	\$150,000
Classroom conversion	50,000
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Total	\$200,000

3. Benson Polytechnic School

Original Construction	1916
Capacity	2070
Registration	1956



TYPICAL NEW YORK CITY SCHOOL PLAYGROUND

UNDEVELOPED SCHOOL PLAYGROUND



Additions to the building, as proposed by the school authorities, in order to handle new courses, are recommended. It is at present operating to capacity. The wing should be located on adjacent property, preferably east or north of the school, but should be kept near the existing shop and other facilities provided in the present school.

Estimated cost \$525,000

4. Commerce High School

The athletic field for this high school is several blocks away from the school and has no shower, toilet, storage or locker facilities. A field house is badly needed and its construction is recommended.

Estimated cost \$25,000

Elementary Schools:

5. Eliot School

Original Construction 1909
Capacity 490
Registration 361

This is a stucco and frame building, well maintained. It should, however, be rebuilt on an adequate site. The present site can be expanded. While the location might be improved, economy dictates that it be rebuilt at the present location.

Estimated cost of replacement . . \$250,000

6. Binnsmead School

Capacity 280
Registration 334

This is a portable school on an adequate site. Existing facilities are overloaded and are temporary. A new school is badly needed. The policy of using temporary buildings in newly developed sections is commendable, but when the need for a permanent school is evident, it should be provided.

Estimated cost \$250,000

7. Lents School

Original construction 1910
Capacity 700
Registration 536

This is a frame building in extremely bad condition which should be replaced. Frame schools like this, if used indefinitely, become dangerous and they are always a maintenance problem.

Estimated cost \$300,000

8. Woodmere School

Original Construction 1912
Capacity 700
Registration 595

This is a frame building with stucco added. The old building should be replaced. Here, as in many other cases, the interior of the building is well maintained, but the exterior is not in good shape.

Estimated cost \$250,000

9. Woodstock School

Original Construction 1910
Capacity 700
Registration 474

All frame construction, this structure is in excellent repair, except for the roof. This should be replaced by a fireproof structure, but the replacement is not as pressing as it is in other schools.

Estimated cost \$250,000

10. Creston School

Original Construction 1902
Capacity 560
Registration 391

This is a frame building in bad condition. While not used to capacity, it is located in a well-developed section and should be replaced.

Estimated cost \$250,000

11. General

General improvement of the exterior of the structures, including deferred maintenance, rehabilitation of the grounds, school yards and athletic fields is recommended, as previously described.

Estimated cost \$750,000

12. Summary of School Program

Estimated Cost of Construction \$3,800,000
Estimated Cost of Land \$ 300,000

FIRE AND POLICE STRUCTURES AND SYSTEMS

Fire:

The Portland Fire Department is modern, well-equipped and well-manned. It has an annual budget of \$1,400,000.

Two of the fire house stations, Nos. 13 and 19, are wooden buildings and should be rebuilt at their present locations. Station No. 26 should be removed from its site since stations Nos. 3, 6 and 17 cover the same area, and rebuilt near the junction of Northeast Thirty-third Avenue for better coverage. The combined Police and Fire Station No. 32 should be evacuated by the police and remodeled for the exclusive use of the Fire Department.

TYPICAL SCHOOLS
OF WOOD CONSTRUCTION
TO BE REBUILT



There is at present no adequate headquarters building for the Fire Department. Activities that should be stationed under one roof are scattered in three or four different buildings. A new fire headquarters should be established. When the Police Department is moved from its present headquarters, this building should be reconstructed for a Fire Department headquarters.

The present cable systems and overhead lines are reported to be overloaded and deteriorated through age to the danger point. With normal growth, 20 boxes a year will have to be installed. No additional boxes or fire stations can be installed, however, until an alarm office and cable facilities have been made available. Storage space is necessary for cable and trucks, if the present system is to be modernized. Cable facilities should include lines for telephones in every fire station for inter-department business and fire lane traffic control.

A high-pressure water system to serve the business district and industrial facilities was studied. The water was to be drawn from the Willamette River and pumped directly into the proposed lines. We believe that any developing shortage of water for fire purposes could be overcome more economically through a system of automatic booster pumps, elevated water tanks, or the possible addition of a limited amount of water mains in the present system. If a high-pressure system were put in, it would require an entirely new system of pipes — first, from the pressure angle, and secondly because Willamette River water could not be introduced into the regular mains due to its contaminated condition. To make the system complete, every street in the business area would have to be ripped up and paved in order to place these mains.

Following is the program of postwar construction proposed by the local authorities and recommended for the Fire Department:

1. 3 new fire stations — Nos. 13, 19 and 26, and one remodeled No. 32	\$125,000
2. 2 fire boat stations	50,000
3. Headquarters (reconstructed police department headquarters)	50,000
4. Complete renovation and new construction of fire alarm system	750,000
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Total	\$975,000

Police:

The Police Department of Portland is progressive and modern and its equipment compares favorably with that of police departments in other large cities. The personnel consists of 445 policemen and 20 clerks. Mobility is provided by 11 motorcycles, 2 police boats and 100 police cars. The police cars and police boats are equipped with two-way radios controlled from a modern receiving and sending station completed just two years ago and located at police headquarters. Police Department buildings and locations are listed below:

Police Headquarters	Second and Oak Streets
Precinct I	Southeast Seventh and Alder Street
St. Johns Precinct	Southeast Plaza of the St. Johns Bridge
Harbor Patrol	Headquarters, foot of Southwest Hoyt Street

The Headquarters Building is a five-story brick building which houses all the activities of the Police Department, the City Jail, the City Court and the Emergency Hospital used for prisoners, minor accidents and emergencies in Portland.

The structure was built in 1911 and is outmoded for present-day police requirements. It was built when the department budget was \$410,000 a year; in 1940 it rose to \$1,125,000, and in 1942-43 to \$1,516,000.

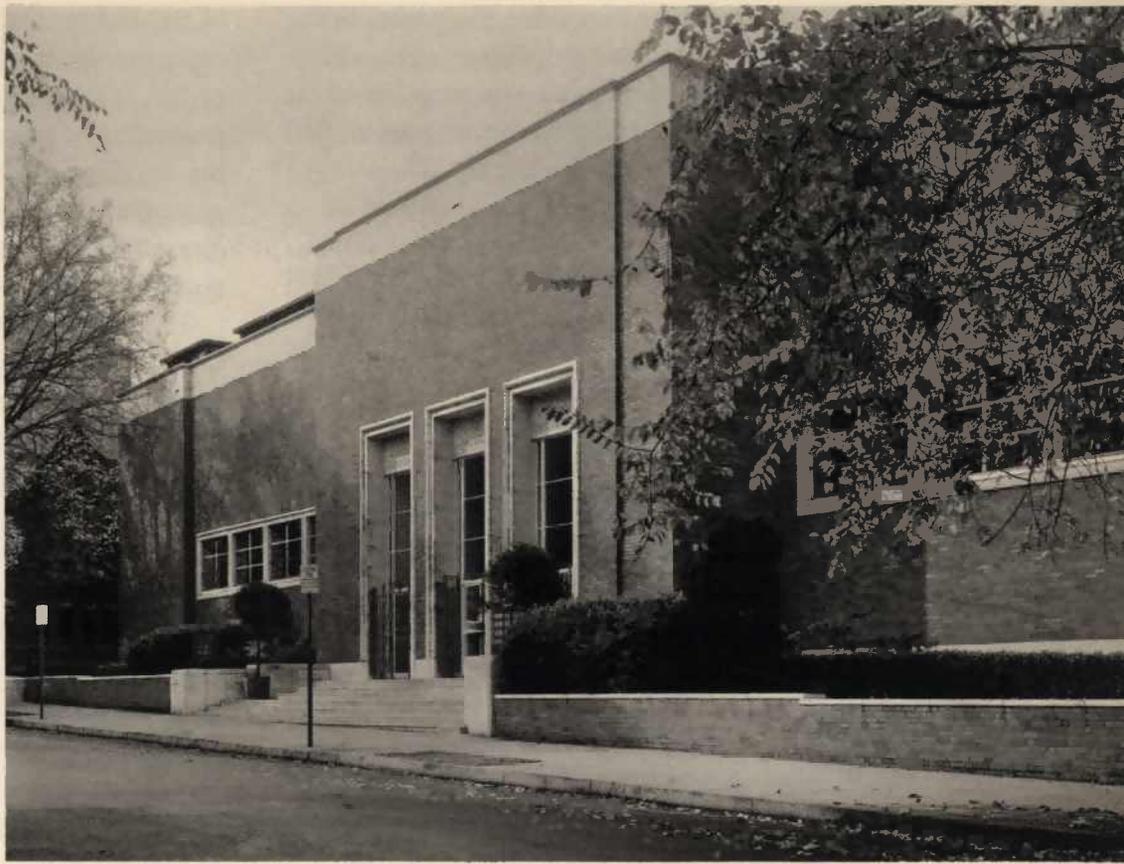
The City Jail which is located on the two top floors is crowded and obsolete, and affords no means for the exercise or recreation of the prisoners who are confined there up to thirty days. The prisoners are practically confined to their cells or a narrow corridor for their entire sentence.

It is recommended that a new headquarters building with facilities for courts and a jail be constructed, the present building being turned over to the Fire Department as previously suggested.

Precinct I, located at Southeast Seventh and Alder Street, is impractical for proper police usage and should be altered and modernized.
St. Johns Precinct

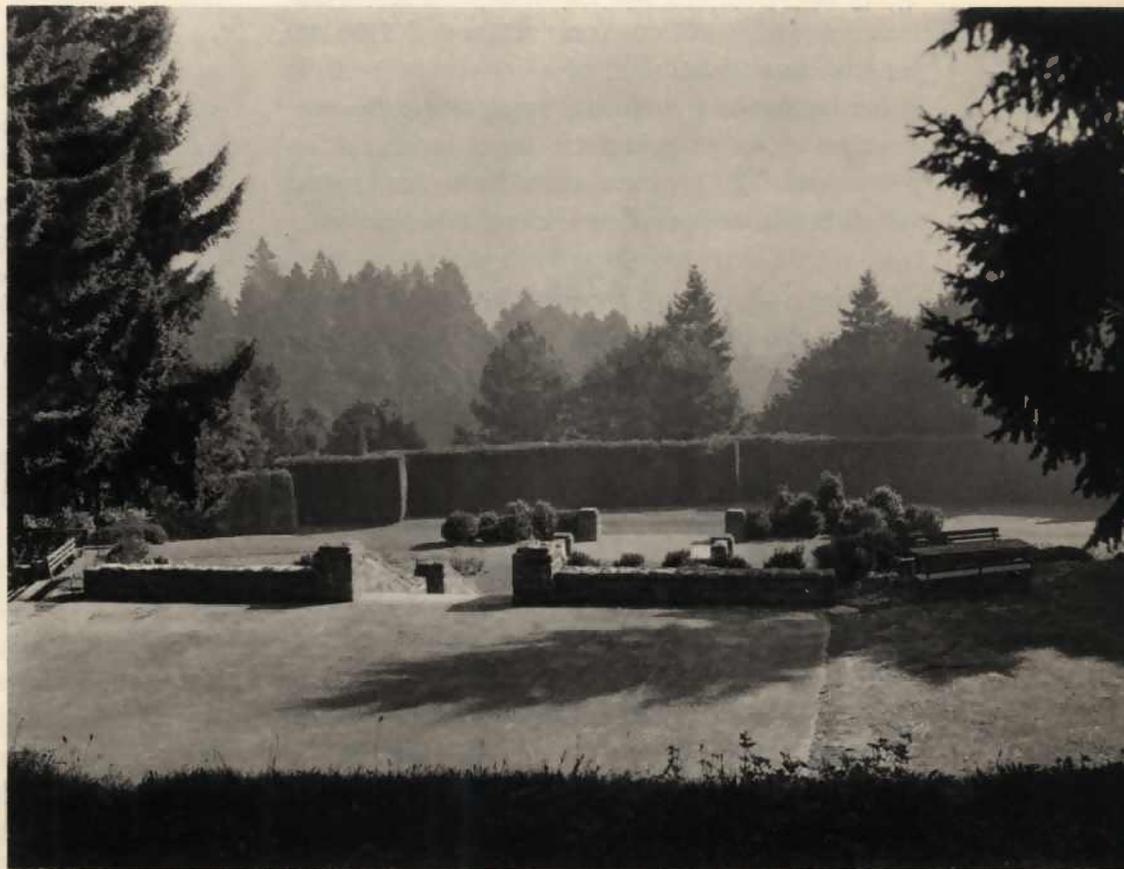
Prior to the incorporation of St. Johns into the City of Portland this building was the St. Johns City Hall. Of brick construction, it houses the Fire Department for this area.

The building is too small. A new precinct station should be built to house 100 men and garage 20 cars.



MUSEUM, PORTLAND

WASHINGTON PARK, PORTLAND



It would also be easier to relocate the police, as the fire station would have to remain approximately in its present location to maintain its proper relation to other stations. The building could be remodeled for the exclusive use of the fire station.

Harbor Patrol

The Harbor Patrol headquarters is located on railroad property at the foot of Southwest Hoyt Street. The City leases this property for \$1.00 a year. The buildings are makeshift affairs, possibly because the City Charter does not permit the expenditure of any city monies on land not owned by the City. These headquarters are wholly unsuitable for permanent use.

Recommendations for Postwar Projects

Following is the estimate of cost of the facilities recommended for the Police Department:

1. Police Headquarters building, jail and courts	\$500,000
2. New St. Johns precinct station	100,000
3. Alterations to Precinct I.	25,000
4. New building and general fa- cilities for harbor patrol	50,000
Total	\$675,000

The combined Fire and Police construction is estimated at \$1,650,000 for construction and \$150,000 for land acquisition.

No legislation is necessary to authorize the construction of fire or police stations or incidental improvements. This program should be financed by the sale of bonds, authorized at a referendum election.

WATER

Portland has a good water supply. The system is supplied from the Bull Run River, and back in the hills there is a reservoir of 11 billion gallons, through which flows about 70% of the water from the Bull Run. The average flow of this river is approximately 300 million gallons per day. Portland uses about 43 million gallons per day on the average, so that during the main part of the year the reservoir is full and spilling much more water than is used.

During the months of July and August, however, there develops a peak use of water simultaneous with a low period in the supply from the Bull Run. While the river only supplies about 45 million gallons per day, the consumption jumps to 73 million gallons per day due to the use of sprinklers and increased demands

of the summer. As the system includes numerous supply reservoirs, it can meet the demand, and as a matter of fact it could supply a reserve for over twice the present population. The head of water carried from the Bull Run is sufficient to supply water under adequate pressure, without pumping, to all the City except about 7% of the total users. The water is of excellent quality without treatment.

The Water Department is set up separately from other city financing and derives its revenue from the collection of water fees. It can issue bonds at discretion and finances are in good shape.

The Department has a construction program covering additional supply lines in the City proper and small feed mains which become desirable as the City expands.

The program is detailed as follows:

1. Sellwood Elevated Steel Tank (500,000 gal. capacity) \$	50,000
2. Extension 40" Vernon sup- ply Thirty-third Avenue to Vernon Stand Pipe	95,000
3. West Side Supply Line East Sixtieth and Main to Reser- voir No. 3	590,000
4. 4210 feet of 24" main; 4 street locations	70,000
5. 10,800 feet of 20" main; Yeon Avenue, Nicolai to St. Helens	140,000
6. Replacement West Side High Gravity from Reservoir No. 3 to Southwest Park Avenue and King Street	65,000
7. Northeast intermediate gravity supply (additional supply on Thirty-ninth Ave- nue from Southeast Salmon to Northeast Halsey)	100,000
	<hr/>
	\$1,110,000

In addition improvements to the distribution system in an estimated amount of \$890,000 are planned as a five-year program. It is recommended that contracts selected from this five-year program in the extent of \$640,000 be included with the above schedule, thus bringing the total postwar program to \$1,750,000.

AIRPORT

The present municipal airport, located along the Columbia River, is believed inadequate to meet the demands of postwar air travel. Airport property now owned by the Port of Portland does not permit runways more than approximately 5,500 feet long. Experience in the design of airports now under way in other metropolitan communities, indicates that longer runways are necessary to handle cargo liners as well as large passenger transports.

Use should be made after the war of the present military reservation adjacent to the field as well as the land between the Civilian and Military airports. By increasing the area from Bridgeton Road on the levee to Cornfoot Road, west of Columbia Bottom Road, longer runways can be obtained on the diagonals. The area could be further enlarged to the west by the abandonment of Forty-seventh Avenue and the substitution of Thirty-ninth Avenue extended northerly. In that event, administration and control buildings could be located on the southern edge of the site nearer to the City. There is no reason why the future peacetime military air activity cannot be carried on with the civil air operation on the combined future airport.

As to the future seaplane facilities, these are considered to be of only minor importance. As a matter of fact, good seaplane facilities in the vicinity of Portland are far from obtainable; furthermore, the present trend in air travel is definitely in favor of land equipment.

It is estimated that longer runways can be fitted into the existing layout at a cost of approximately \$1,500,000 for construction, including incidental facilities. Our assumption of land cost is that the additional property needed for enlarging the airport to accommodate longer runways, to round out the missing gaps between the city and army field, together with road relocation and other incidentals, can be acquired for less than \$300,000.

The airport is under the jurisdiction of the Port of Portland which has adequate statutory power to make the proposed improvements.

THE PORT

Navigation in the Columbia and Willamette Rivers from the Pacific Ocean to Portland is served by a channel with a low water depth of thirty-five feet. Seasonal variations of up to twenty-five feet occur

at Portland during flood stages with extreme conditions being experienced every decade or so. Shoal water restrictions to navigation at the mouth of the Columbia River have been corrected. Constant dredging is required in the channels in the Columbia River, at the mouth of the Willamette River and throughout its navigable length, in order to maintain navigation depths.

There are nine bridges of various types and clearances crossing the Willamette River within the port district including the St. Johns Bridge, Seattle, Portland and Spokane Railroad Bridge, Broadway, Steel, Burnside, Morrison, Hawthorne, Ross Island and Sellwood Bridges. The St. Johns Bridge is the only structure downstream of the City with sufficient fixed vertical clearance for navigation. The railroad bridge, the Broadway, Steel, Burnside, Morrison and Hawthorne Bridges all require openings for ships.

Timber rafts are stored in the river for conversion into lumber by the various mills. These storage areas are obtained for a fee in frontages opposite private property. All rafts are required to be kept within the harbor lines.

The policing of the port is performed by the Division of Harbor Patrol of the City Police Department. The patrol assists all departments and bureaus of the City, District and State in connection with the enforcement of ordinances, rules, regulations and laws affecting the use of the harbor, and is also equipped for fighting fires and for the sale of fresh water to vessels.

The waterfront of Portland is served by docks of the quay and pier-slip type. Docks are both open and covered by transit sheds of the one and two-level type, for the trans-shipment of general cargo. Facilities are also afforded for cold storage plants, grain elevators and flour mills, bunkering for coal, concentrates, gas and petroleum products, ship repair and dry docks. One heavy lift crane is available. No provision is made for passenger facilities.

All except three of these docks and facilities are privately owned. The Commission of Public Docks owns and operates Municipal Terminals Nos. 1, 2 and 4, the largest of which is 4, located in the St. Johns district, equipped with grain elevator, cold storage plant, bunkers and other facilities. This terminal is only partly developed, with adequate provision for future expansion.

There are two dry docks under the supervision of

the Port of Portland; one approximately 500 feet long, and one somewhat less in length; both in a poor state of repair. The location, length and capacity of these dry docks are not satisfactory.

Private facilities consist not only of the cargo handling docks and piers but include railroad and private terminals, steamship docks and industrial waterfront installations. A ferry line, with a slip adjacent to the new bulkhead along Harbor Drive to serve the shipbuilding industry from the middle of the City, is operated but infrequently used.

A private towing organization performs most of the normal services in the berthing of ships and the towing of grain barges, timber rafts and lighters.

Water traffic in the Port of Portland prior to the war combined intercoastal and coastwise shipping with certain definite transpacific sailings, both foreign and Hawaiian. In addition, there was considerable local inland waterway traffic. Cargoes consisted mainly of lumber, grain, petroleum products, fruit, canned goods, wool, flour, ore concentrates and general merchandise.

Prior to the war, the commerce of the Port totaled almost 10 million tons per year with a value of \$350,000,000, but its character has been decidedly altered since then. Coastal, intercoastal and foreign shipments, except for lend-lease, have been curtailed. As a result many commodities which were usually cleared through the Port of Portland by water, now move by rail in easterly and southerly directions.

At the present time, Portland has been designated the lend-lease port, Seattle the port for Alaskan territory and San Francisco the one for the South Pacific. It is presumed that after the war, all three ports will revert generally to their prewar status, in which event Seattle will probably retain the Alaskan trade, Portland its coast and intercoastal service, and all three ports their appropriate shares of foreign trade. There is a natural competition between the Ports of Portland and Seattle, both as to tonnage handled and territory served. Portland is the leader in lumber products and grain because of its accessibility to the wheat and lumber areas by inland waterways. This, combined with the fact that Portland is closer than Seattle to southern coastal ports, gives Portland a superiority as a lumber and grain center. Otherwise, both ports are in direct competition, and new business depends largely on the factors of location of territory to be served, trans-shipment points and costs

and, finally, but of equal importance, attractiveness of publicly and privately owned harbors and loading facilities.

Recommendations with Respect to the Future of the Port:

1. Transfer Platform at East Water Avenue:

Near Municipal Terminal No. 2 at the foot of Southeast Stark Street, there is a section of waterfront which congestion and obsolescence have reduced to a point where industry cannot operate properly. It is proposed to improve access to this area by widening Stark Street from Union Avenue to Water Avenue and to construct along the waterfront a marine, railroad and truck transfer platform beginning at Terminal No. 2 and extending in a southerly direction to south of the Morrison Bridge. The area adjacent to Water Avenue and west of it should be improved as a service area for the proposed transfer platform. This development would be a start toward the rehabilitation of the east waterfront of the Willamette River and would stimulate the improvement of the adjacent industrial area. It is estimated that land for the proposed transfer platform and service area can be acquired for approximately \$500,000. Cost of construction, including demolition, reconstruction, bulkheading, filling, paving and erection of platform is estimated at \$750,000.

The improvements provided for under this heading are under the jurisdiction of the Dock Commission except for the widening of Stark Street which must be done by the City under the proposed street improvement program. There is ample statutory authority for the proposed improvements and for the issuance of City bonds pursuant to a referendum election.

2. North Peninsula Improvements:

About two thousand acres of lakes, marshes and lowlands, subject to inundation during river flood stages, are situated on the peninsula north of the St. Johns district near the confluence of the Columbia and Willamette Rivers. At present these serve no useful purpose except as disposal areas for material dredged out of the adjacent channels. In order to prevent haphazard private development of this area, to provide for whatever the future may require, whether it be port, park or beach usage, or a combination of the three, and, finally, in order to create a more logical schedule for reclamation of the area, this



property should be placed in public ownership at this time. One immediate benefit would be the scheduling of disposal operations in such a way as to first complete a levee or dike around the perimeter of the area, where possible using fill dredged from the channels as part of the Federal Government's maintenance of the rivers. This levee should then be topped off with a roadway giving access to the area. Subsequently the large interior could be reclaimed little by little. Other than the cost of surfacing for the roadway, estimated at \$250,000, there would be no expense to the locality for construction, as the filling operations would be accomplished as part of the regular dredging project. Inasmuch as this area is beyond the City limits, it is our recommendation that the Port of Portland acquire this property, the price of which should be comparatively small. Our estimate is that the land, useless in its present state, could be acquired at a cost of \$100 per acre, or a total of \$200,000.

In view of the fact that the reclamation of this land is incidental to the maintenance of channels and

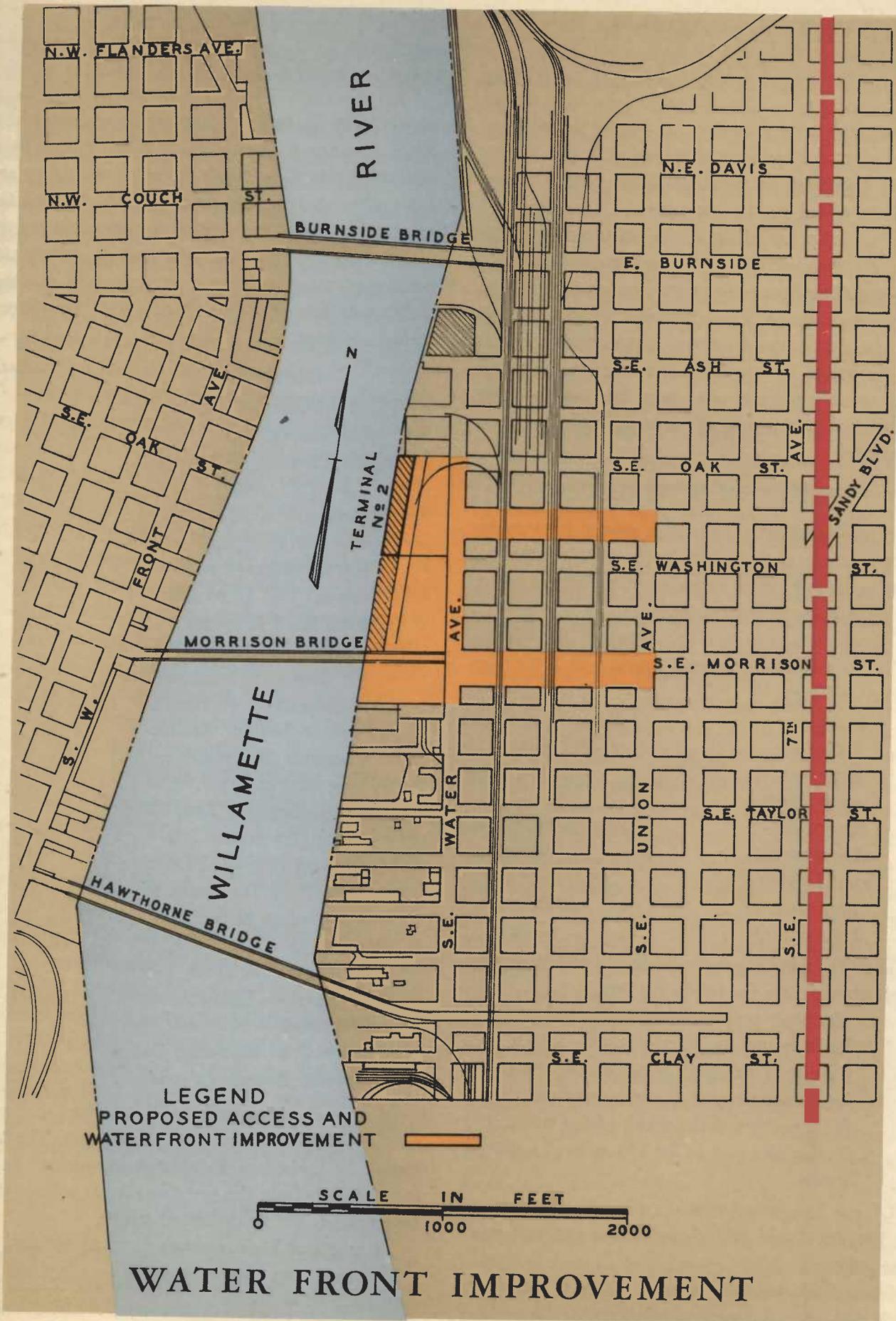
will eventually be useful in connection with the functions of the Port, it would seem that the Port has legislative power to acquire this property.

New dry docks should be installed in the future by the Port of Portland, to be located possibly at Swan Island, now under ownership of the Port Commission. Modern dry docks of larger capacity can undoubtedly be supported in the Portland area if collateral machine shops, ship repair and yard facilities are installed adjacent to the new dry docks.

Every effort should be made to bring about a clean-up of the banks of the Willamette River through the City, calling for the removal of abandoned piers, structures, piles and all unsightly unused waterfront installations. It is recognized that many of these encumbrances are located on private lands, but in the interest of an attractive and useful port, it would appear that the property owners might be persuaded to remove these objectionable features. It is questionable whether public funds should be expended for this purpose.

CONGESTION, WATERFRONT AREA





PART III MUNICIPAL IMPROVEMENTS BY SMALL CONTRACTS AND HIRE AND LABOR

The projects mentioned in this part of the program were selected largely from a list prepared for the future expansion of municipal facilities and to this we have added several suggestions of our own.

All of them could be let as small contracts requiring a minimum of material and simple equipment and less skilled supervision than major construction enterprises demand. The small contracts largely follow the conventional pattern and standards which can be gotten out quickly. The hire and labor or force account projects have been selected for their simplicity of design and the repetition of the use of standards.

STREET IMPROVEMENTS

Fortunately Portland has been able to keep its developed street system in good repair. Nevertheless, there needs to be some surfacing of the streets where trolley cars have been removed.

Other streets have been left unpaved. The following is the status of improved streets within the City of Portland only:

City Streets	
Improved	1065 miles
Unimproved	195 miles
County Roads	
Improved	45 miles
Unimproved	None
State Highways	
Improved	60 miles
Unimproved	None

The City should prepare plans, specifications and contracts covering the following items:

1. Necessary repair of existing paved streets.
2. Re-surfacing of streets where trolley cars have been removed in conjunction with the local transit company which must participate for a portion of the width of the street.
3. Paving of a part of the 195 miles of unpaved streets.

Of the foregoing, work in the total amount of \$1,500,000 should be included in the two-year postwar program.

State roads outside the city limits proper have been covered in the recommendations for the arterial

system. The County of Multnomah, however, has some 63 miles of County roads which require hard surfacing, 118 miles needing a penetration type and 1200 miles of dedicated streets, of which 300 miles are eligible for a light type of pavement costing approximately \$5,000 a mile. Besides the streets already mentioned, there are several other projects to which the County has given consideration. A list of these projects follows:

DESCRIPTION	ESTIMATED COST
County Roads—Hard-surfaced (63 miles)	\$1,260,000
County Roads — Penetration Type (116 miles)	1,160,000
Dedicated Streets (300 miles)	1,500,000
Multnomah Boulevard—Grad- ing & Paving (3 miles)	103,000
Marquam Hill (1.25 miles)	436,000
Cornell Road (2 miles)	129,000
Northeast Thirteenth Avenue — Columbia Boulevard to Marine Drive (0.9 miles)	146,000
Northeast Sixtieth Avenue — Columbia Boulevard to Air Base (0.5 miles)	39,000
Fairview-Gresham Road Wid- ening (2.5 miles)	94,000
Northwest Fifty-third Drive — Cornell to Thompson Road — Grading & Surfacing (2 miles)	60,000
Northwest Sixth Drive — City Channel — Union Avenue	93,000
Elrod Road — Northeast Thir- ty-third to Northeast Forty- seventh Avenue (1 mile)	40,000

We do not recommend that this entire list of projects be included in the postwar program. The total should be limited to \$3,000,000 in work to be selected mainly from the first three items with particular emphasis on the dedicated streets.

City Street Improvements	\$1,500,000
County Street Improvements	3,000,000
Total	<u>\$4,500,000</u>

PARKS

The City of Portland has at the present time 1,668 acres of park and recreation area, while the total area of the City is 45,752 acres.

It is impossible to make a comparison between any two cities on the basis of acres of park and recreation area per person, or percentage of area within the city that is used for park purposes. There are many variable factors, such as type of population served, park distribution, facilities offered, availability and the like, which make such figures mean very little. In many cities the land set aside for park use is concentrated in a few sections and is not within easy reach of the majority of the people.

In Portland, the areas that have been acquired have been fairly well distributed throughout the City. Additional areas are needed and must eventually be added to the park system. When we refer to parks in this report, we mean all types and sizes, from the small overlook to the largest of the landscaped areas, including recreation areas, both large and small. It is impossible to segregate these different park uses entirely. The older people accompany the children to the play areas and passive recreation should be provided for them in and adjacent to playgrounds. Similarly, the young children go to the larger parks with the adults, and some active recreation should be provided there to take care of them.

The City has not taken full advantage of its great natural assets such as the wooded hills and the river front. Wooded hills and valleys in and around Portland have in a large measure been overlooked, probably because good scenery and forests are so plentiful in the northwest.

We believe that the steep wooded hillsides located on the westerly border of the City should be in public ownership. Considerable acreage has already been acquired by the City through tax lien foreclosures, but these areas may not be used for park or other public purposes until such time as the fund which was raised by the issuance of bonds and used for the purchase of these tax delinquent lands, can be reimbursed. This should be accomplished as soon as possible.

The wooded hillsides west of the City are as important to Portland as the Palisades of the Hudson are to the City of New York. One needs only to contemplate the result if these hillsides were completely denuded of the forest growth and were allowed to erode. Steep hillsides cannot be developed

economically for residential or other purposes (where but one side of the street may be used) because of the excessive cost of constructing streets, sewers, and other public utilities. These steep wooded lands are unquestionably best adapted for park purposes.

We also recommend the protection of the wooded slopes adjoining certain streets and roads where they enter the City, including such streets as Burnside Street and Barnes Road, Jefferson Street and Canyon and Patton Roads. These approaches to the City from the west are parkway-like in character and should be kept free from unsightly buildings and billboards. The wooded slopes bordering these approaches are exceptionally important assets in the street system of the City.

It would be difficult to draw the contracts required to clean up these slopes and valleys for permanent park use. In the postwar program, a certain amount of force account work is desirable as a quick and elastic means of employing great numbers of men. A project such as this is eminently suited for force account work. The removal of dangerous rocks, old stumps, dead trees, the installation of drainage ditches and foot paths where they are needed, and reforestation can best be done in this way.

Although not a part of the program, we recommend the ultimate purchase of certain lands bordering Skyline Boulevard which, because of the steep slopes, are inappropriate for residential development, and thus come into the category of typical park lands. The future acquisition of these areas would in effect create an outer parkway and enhance the value of adjacent properties comprising land suitable for house plots. In the same category, we also recommend the extension of Skyline Boulevard south to afford a connection with U.S. Route 99W, thus completing a link in a potential parkway on the hills around the west side of the City. There are certain areas adjacent to the Skyline Boulevard, in addition to the wooded slopes, which would be appropriate for park use. These are narrow points of flat land which project easterly from Skyline Drive, upon which cul-de-sac roads might be built, including parking areas for cars. Picnic areas may be appropriately developed in conjunction with these overlook park areas.

If pollution is eliminated from the river, it is bound to become popular for swimming, boating and other recreation. To date, very little of the waterfront has been utilized for these purposes. The City

now owns a long, narrow strip at the Sellwood Bridge and another area of 21.3 acres north of the bridge. These two parks should be developed for waterfront picnicking and boating, with a promenade connecting them. It is unfortunate that a railroad right-of-way separates the park area from the highway, but this difficulty can be overcome if the northerly area is expanded to the bulkhead line and additional land acquired to provide adequate entrances from Macadam Avenue.

Another project which we believe will be a major asset to the City of Portland is the construction of a new and enlarged zoo. There are two alternate schemes which could be worked out: (1) reconstruct the zoo in Washington Park but spread it out so as to provide adequate exhibit space, and (2) acquire a large plot located so that it is easily accessible to the majority of the people in metropolitan Portland and build the zoo on this site. The latter suggestion is recommended. An adequate site can be found north of Benson Polytechnic School and east of Holladay Park on both sides of the ravine now used by the Union Pacific Railroad. This plot is now a privately owned nine-hole golf course which can be readily developed for park purposes. It should be acquired if it can be purchased reasonably. A substantial part of the area can be used as a zoo. This will tie together Buckman Field, Benson Polytechnic School

and Holladay Park. The railroad ravine can be bridged. Some of the property might be used as a site for the addition to the Benson School. In this instance we do not recommend a large zoo like the Bronx Zoo in New York. The original cost would be too high and the cost of maintenance and operation could not be justified. A smaller zoo similar to those in many other cities would be fully as interesting; would provide a great variety of specimens and could be built and operated for a reasonable sum. New York City's Prospect Park Zoo is a typical example. Such a zoo carefully designed and properly located will be a most popular addition to the park system.

One major improvement which can be made at small cost is the planting of trees along the main traffic arteries. Growing conditions are good in this community, and a street tree planting project should be successful. While it will take time for the smaller trees which must be planted to reach maturity, even these will add greatly to the appearance of the community. Although it is impossible to plant along all of the streets, the major arteries should be provided with trees. This type of work will employ a large amount of labor and requires only a small amount of equipment and material. It is one of the best types of jobs for force account work.

There are some items of a park nature which are

TYPICAL WOODED SLOPES TO BE PROTECTED





PROSPECT PARK ZOO, NEW YORK CITY



WASHINGTON PARK ZOO, PORTLAND

covered in other sections of the report. The development adjacent to the railroad station should be landscaped. Plans for the Civic Center anticipate that a portion of the property acquired should be used for park purposes. Still other sections would be developed temporarily for park use until such time as the land is needed for structures. The arterial highway section describes the improvement of Front Avenue from Pine Street to the market.

While the existing park system is well distributed, the design has not taken full advantage of the property that has been acquired. New adequate designs would materially increase usage and would go a long way toward popularizing the whole system. Many of these projects arising from new design will also lend themselves to the force account type of postwar work. Most of the areas owned by the City are large enough to provide more than an open lawn area, a baseball diamond, and a setting for a few pieces of recreation equipment. There is a great lack of paths, walks, and facilities for passive use in most of the areas. The practice of completely segregating active and passive recreation is, in our opinion, unnecessary and undesirable. Typical sketches of the type of development recommended are included in this report.

The Bureau of Parks has a program of improvements in various park areas throughout the City. All of these projects are of a type which can be used to

put a large number of men to work in a short time. Part of the program is deferred maintenance which has reached the proportions of reconstruction. This program should be progressed as a part of the postwar work.

Expansion of the existing park facilities, including a number of new play areas in sections not already served, has been proposed for a number of years. Such a program was voted by the people in 1938. A .4 mill tax on real estate was authorized and the proceeds were to be used for the acquisition and construction of parks and recreation areas throughout the City. This tax is to be collected for a period of ten years and will produce approximately \$1,000,000. The portion of this fund earmarked for construction, is inadequate. In spite of the ten year schedule proposed in the act, this program of acquisition should be speeded up and a definite decision made promptly as to the areas to be acquired. Once the sites are selected, development plans and specifications should be prepared so that as soon as they are needed, construction contracts will be ready for letting.

The program for the acquisition of land can, however, be accomplished without vitiating the act. We are advised that in some cases, future revenues have already been anticipated by agreements to acquire the property when funds become available. The authorization should be revised to permit the program to pro-



RESIDENTIAL
STREET



RESIDENTIAL STREET WITH TREE PLANTING

ceed at a more rapid rate aimed at the postwar construction period.

The land acquisition program as proposed covers a group of plots averaging three acres each. In general, the sites selected are good, but some of them will not be needed for some time to come, and were apparently put in the program for the purpose of satisfying civic groups in the various sections of the City. Even in cases, however, where the recreation facilities are not needed at present, the sites selected will eventually be required as the districts develop.

In selecting the new areas, the officials responsible have, in a number of cases, located them adjacent to existing schools, so as to eliminate a duplication of facilities and to take advantage of the property already available in the school yards. This is a commendable practice and should be encouraged, as has been indicated in the school report. In some cases within the city limits, the two agencies have duplicated facilities already provided. Such a duplication

cannot be justified and fortunately there are not many of these cases.

In preparing the plans and specifications for the recreation areas adjacent to the school plots, consideration must be given to the school requirements. Some minor compromises will have to be made in the plans to make them work for both departments, but the economy and the results obtained will fully justify these modifications. Maintenance and operation should be worked out jointly by the two groups, as has been indicated in the section of the report covering the school system.

Following is a detailed list of the proposed expansion of the park system with comments on the individual plots:

1. Northwest Pettygrove Street between Northwest Twenty-fifth Avenue and Northwest Twenty-sixth Avenue.

This is a one block addition to an existing recreation area. When completed, the whole park area will

contain about 4½ acres. It is directly opposite a school. At the present time, school children use the park area for recreation as much as they do their own playground, which is in the rear of the school.

To the west of the school, between Northwest Twenty-seventh and Northwest Twenty-eighth Avenues, another two block acquisition is proposed. This is mostly side hill and, while this would be of no use for recreation purposes, it is the type of side hill property which should be in city ownership. There are, however, six houses on the northerly part of the plot and their acquisition would not be warranted.

A plan should be drawn for the development of the combined school and park property for both active and passive recreation. Consideration should be given to closing the street between the school and the park and incorporating this street area as a part of the development. The side hill in the rear of the school should be acquired for park use.

2. Southwest Jefferson Street between Southwest Eighteenth Avenue and Southwest Twentieth Avenue

This is located on a busy thoroughfare, but it is the best available vacant property in the vicinity. It has an area of 4½ acres and should be developed as a combination park and play field. Most of the population is located on the opposite side of Jefferson Street and east of Eighteenth Avenue.

3. Southwest Park Avenue and Southwest College Street

While the present Shattuck School playground is inadequate, the adjacent block is fully developed with houses, and the cost of acquiring the land would seem excessive.

4. Southwest Second Avenue and Southwest Harrison Street

This is a small block approximately 200' x 200' located on the edge of an industrial area. The adjacent houses are fairly old, and the development of such an open area in the center of this community would help the district. It is five blocks from the above-mentioned Shattuck School and will ease the pressure on the existing school playground. This plot should be developed.

5. Southwest Miles Street and Southwest Brier Place

This 3 acre plot is adjacent to Fulton Park School. The development plan should include the school property as well as the park area. Southwest First Avenue

and Southwest Second Avenue should both be closed so that the whole property can be developed as a unit. While this is not densely populated, it is a growing community.

6. Council Crest Park

This is an exceptionally fine park site on a high point reached by winding roads. At present, it is used partially as a picnic area and overlook. It is the location of a large steel water tank. In the development, the present trolley right-of-way should be used as a highway approach to the park. Buses, which will substitute for trolleys, can use the adjacent highway.

It should be developed with special attention to picnicking. The large tank should be encased or otherwise architecturally treated so as to provide a refreshment stand and, if possible, an overlook at the top of the tank. This will give a complete view of the city and the adjacent mountains.

7. On the Willamette River north of the Sellwood Bridge at Southwest Bond and Southwest Vermont

Design funds have been requested for this 21 acre park plot. Eventually, additional property should be acquired between the park and Macadam Avenue for adequate access. This will be an extensive development and will require bulkheading. The development should include picnicking, boating and both active and passive recreation.

8. Southeast Tenth Avenue, Southeast Franklin Street, Southeast Milwaukie Avenue and Southeast Haig Street

Although there are houses on a part of this 4 acre plot, the area should be acquired and developed for recreation purposes.

9. Southeast Milwaukie Avenue and Southeast Reedway Street

There are some houses on the property and a few residences in the adjacent community. It is only a few blocks from the large Westmoreland Park area where adequate recreation facilities are provided. This area is not essential.

10. Southeast Bybee Boulevard, Southeast Thirty-sixth Avenue, Southeast Cooper Street and Southeast Thirty-ninth Avenue

This is an interior parcel with no frontage on Bybee Boulevard, Southeast Thirty-sixth Avenue or Southeast Cooper Street. It is in a well-developed residential area and in spite of its being an interior parcel, will make an excellent 6½ acre park. It should be developed as a combination park and recreation area.

TYPICAL NEW YORK
CITY PARK FOR
PASSIVE RECREATION

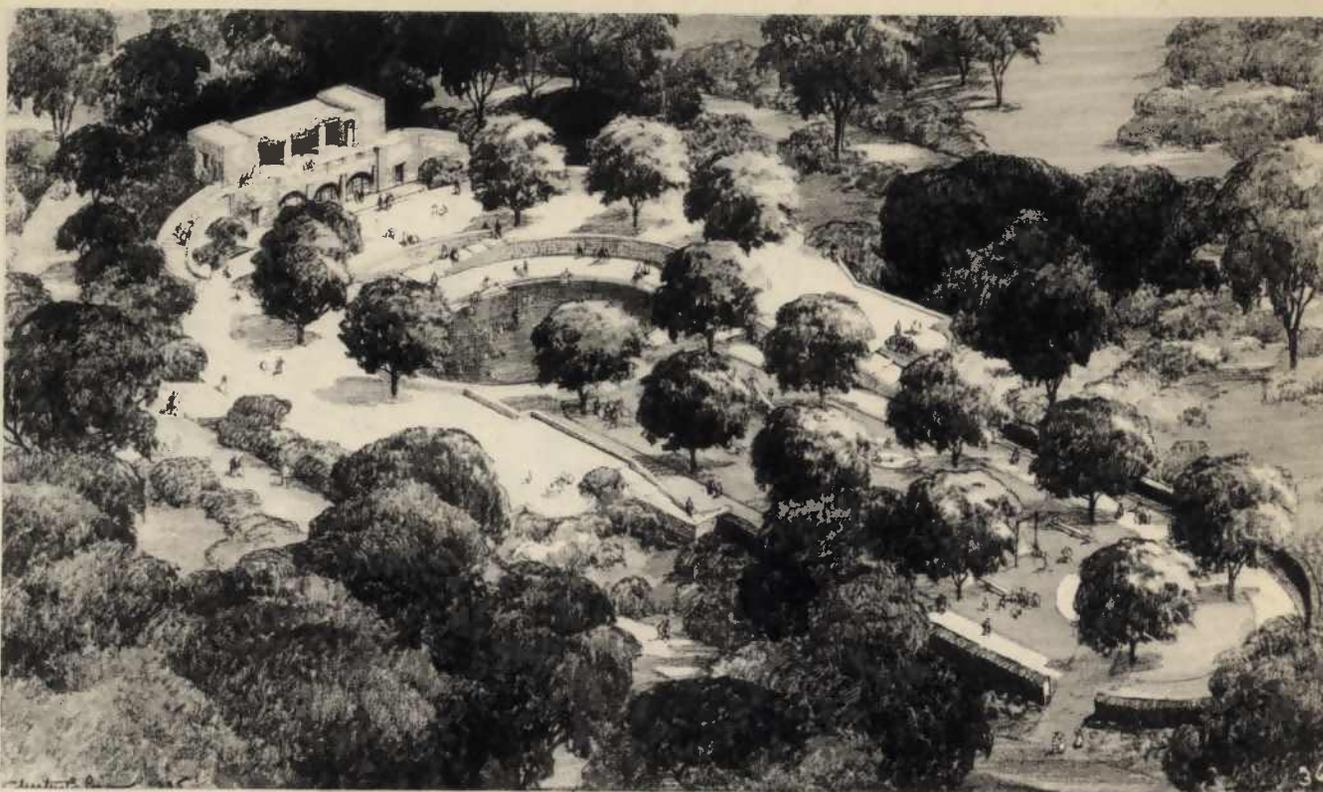


TYPICAL NEW YORK
CITY NEIGHBORHOOD
PARK



TYPICAL NEW YORK
CITY PARK FOR
ACTIVE RECREATION





TYPICAL MARGINAL PLAYGROUND ON HENRY HUDSON PARKWAY, NEW YORK CITY

11. Southeast Sixty-second Avenue, Southeast Knight Street, Southeast Sixtieth Avenue, Southeast Ramona Street

This is in a sparsely settled community and the reason for immediate development is not apparent. It should be delayed until the further growth of the neighborhood requires it.

12. Southeast Eighty-seventh Avenue and Southeast Claybourne Street

This is in a sparsely settled section and development is not necessary at the present time.

13. Southeast One-hundredth Avenue and Southeast Steele Street

Although design funds have been requested by the Bureau for this plot, it is in a sparsely settled district and will not be needed for a long time.

14. Southeast Seventy-sixth Avenue to Southeast Seventy-ninth Avenue at Southeast Center Street

This is in a sparsely settled community and will not be needed for some time.

15. Southeast Sixty-seventh Avenue and Southeast Center Street

This is in a partially developed community and, while an intensive development is not needed, there could be some improvement made so the area could

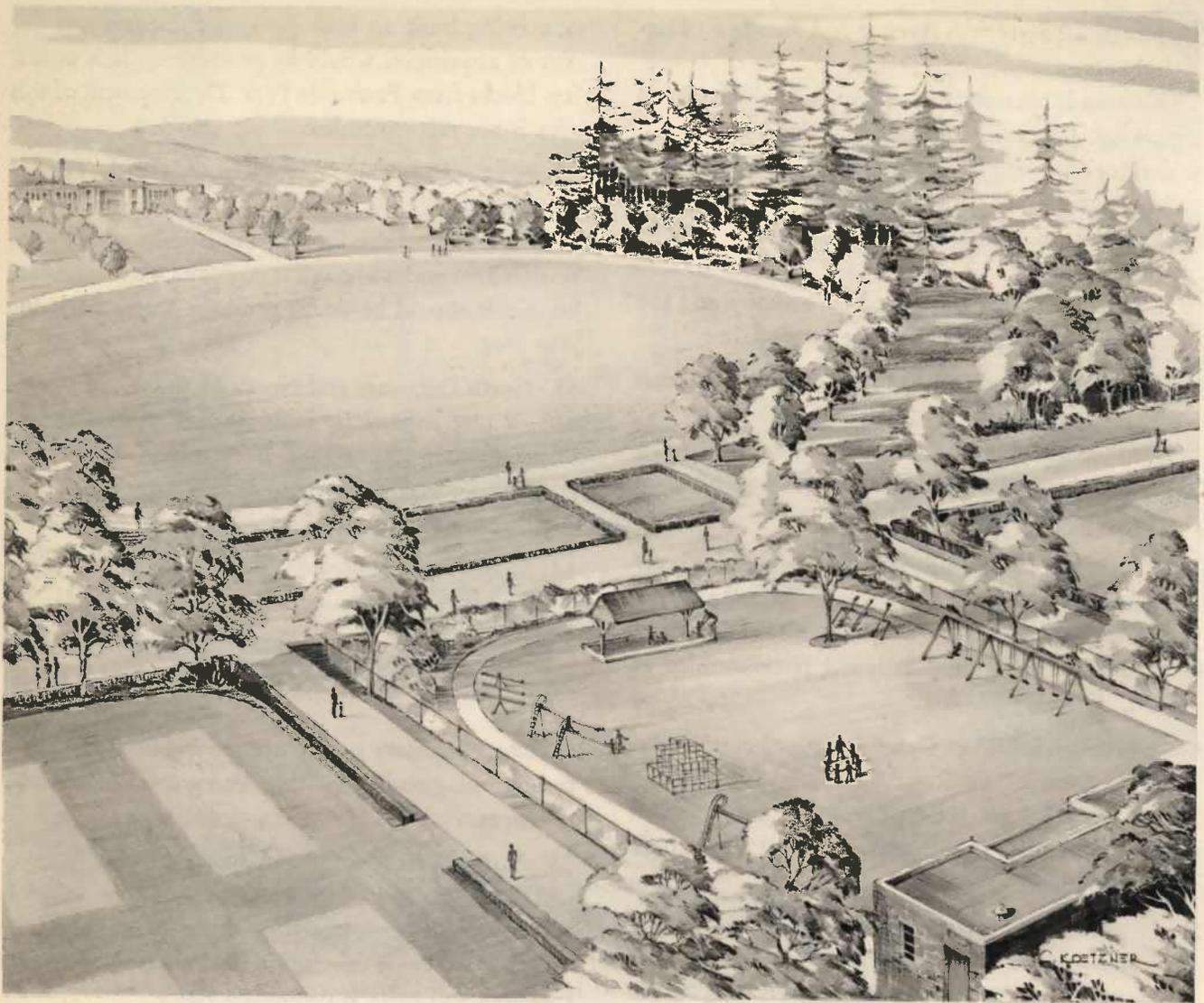
be used. This 2 acre area is recommended for development.

16. Southeast Fifty-eighth Avenue and Southeast Division Street

This is adjacent to Franklin Lane High School, which already has a large athletic field. The new area, which contains 14 acres, should be designed and constructed with recognition of the existing facilities in the athletic field. The whole area should be maintained

UNDEVELOPED PARK





TYPICAL NEIGHBORHOOD PARK DEVELOPMENT

by the City Park Bureau and used jointly with the School District. The adjacent area is not densely populated, but is developed. This plot, together with the school property, will make a fine park and recreation area.

17. Southeast Kelly Street, Southeast Tibbett Street, from Southeast Thirty-fifth Avenue to Southeast Thirty-sixth Avenue

This is only two blocks from a high school athletic field and the acquisition and development cannot be justified.

18. Southeast Thirty-second Avenue and Southeast Stephens Street

This is a good 4 acre plot in a well-settled district. It should be developed.

19. Southeast Division Street and Southeast Twenty-sixth Avenue

This is a 3 acre plot adjacent to the Hosford School. It should be developed in conjunction with the school yard and will make a fine area.

20. Northeast Twenty-ninth Avenue and Northeast Oregon Street

This 3 acre plot is located in a section which is in need of recreation facilities. It should be developed.

21. Northeast Wasco Street and Northeast Fifty-fifth Avenue

This is a good spot for a combination park and recreation area. It contains 10 acres and should be developed.

22. Southeast Sixtieth Avenue and Southeast Ash Street

This is adjacent to a school and in the development the school area should be added to the 3 acre plot.

23. Northeast Sixty-fifth Avenue and Northeast Hasalo Street

This area is sparsely settled, but the neighborhood is growing. It is recommended that this 15 acre plot be developed. Design for the whole area should be made as a combined park and recreation area.

24. Northeast Tillamook Street and Northeast Ninteth Avenue

This is in a thinly populated community and the area need not be developed at the present time.

25. Northeast Seventy-second Avenue and Northeast Siskiyou Street

This 8 acre plot is adjacent to the Gregory Heights School. It should be developed in conjunction with the school property.

26. Northeast Sixty-ninth Avenue and Northeast Skidmore Street

This is in a sparsely settled community and will not be needed for some time. It is not recommended at present.

27. Northeast Skidmore Street and Northeast Thirty-third Avenue

This is a good site and will be a real improvement in the community. It will make a fine 15 acre park and playground.

28. Northeast Alberta Street and Northeast Thirtyninth Avenue

This section still has few inhabitants and, while there is some question about the necessity at the present time, the community is growing in this direction and the plot should be developed as a park and recreation area.

29. Northeast Holman Street and Northeast Thirtysventh Avenue

This is in a sparsely settled community and, while it will make a good future 20 acre park, it is not needed at the present time.

30. Northeast Holman Street and Northeast Ninth Avenue

Although this area has not been acquired, it is in a section where a recreation area is needed. It contains approximately 5 acres and should be acquired and developed.

31. Northeast Alberta Street and Northeast Vancouver Avenue

This plot is adjacent to Jefferson High School, which has an adequate recreation area. The plot is

now being built up with permanent houses and the cost of acquisition would be prohibitive. It is only a few blocks from Peninsula Park. Development of this area is not recommended.

32. North Delaware Avenue and North Dekum Street

This is a good site for a combination park and recreation area and, although it is occupied by temporary houses, it should be developed as a 5 acre park and play area.

33. North Delaware and North McClellan

This plot is partially built up, but an area should be acquired in this section. Even though it does not cover a whole block, it would appear that a 2 acre plot could easily be acquired and developed.

34. North Houghton and North Hamlin

This area would service only some temporary houses and is not needed.

35. North Depaw Street and North Stanford Avenue

Some temporary houses are located here. The area is developing and this will make a good 3 acre recreation area.

36. North Wall Avenue and Syracuse Street

This is the site of some temporary houses and is only six blocks from the site mentioned above. However, the section is developing and a park and recreation area will help. It contains 4 acres.

37. North Newark Street near North Wall Avenue

This is a good plot but is in a sparsely settled community adjacent to some temporary houses. It is not needed at the present time.

38. North Central Street and North John Avenue

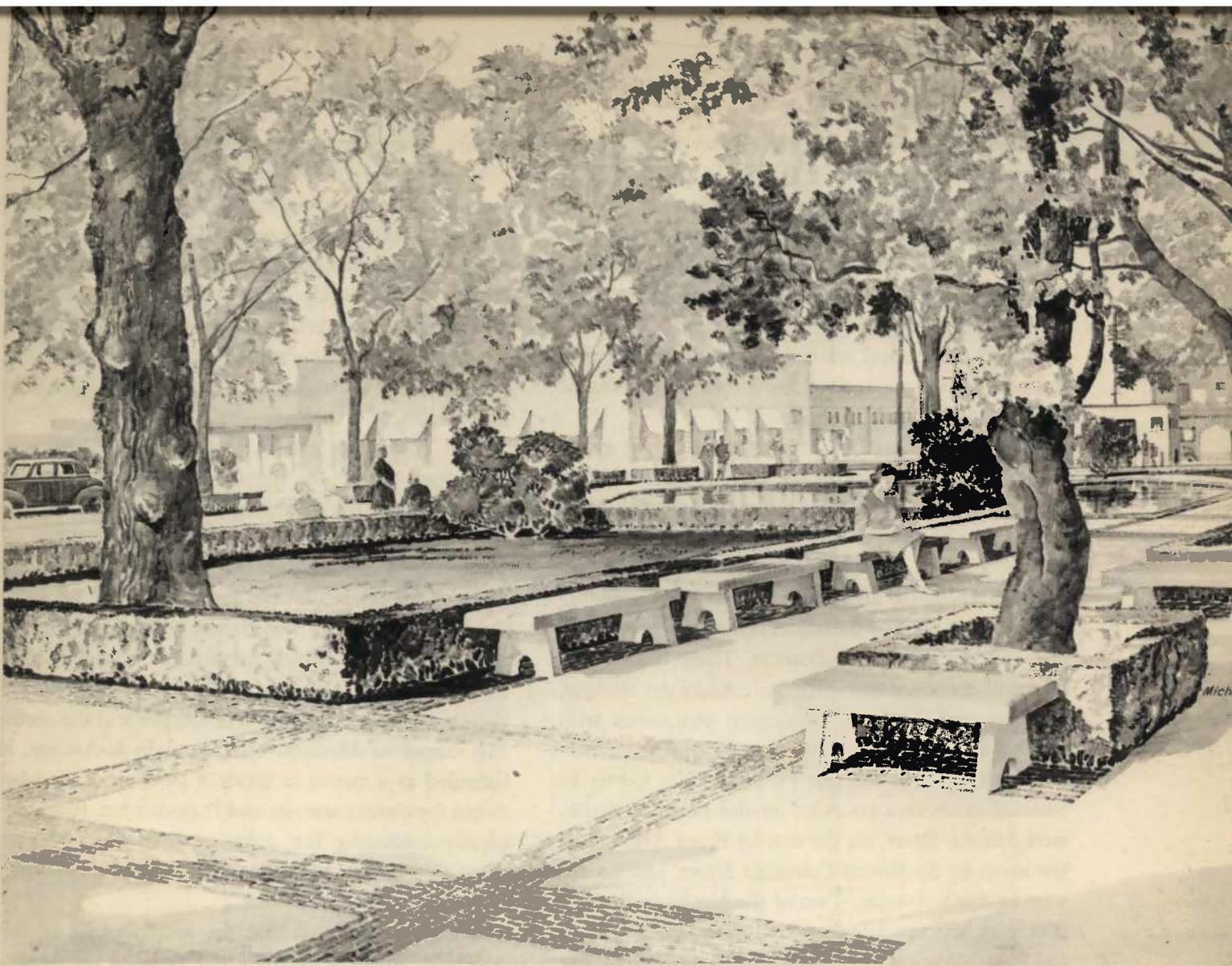
This 5 acre plot is in a growing community and, although it is only one block from the Leonard School, it should be developed as a combination park and recreation area.

Summary of Cost:

Total estimated cost of	
construction	\$6,200,000
Total estimated land cost	\$1,000,000

CIVIC CENTER

There is no unified civic center in the City of Portland. Three important public buildings occupy sites on the high ground west of Broadway, between Sal-



TYPICAL TREATMENT OF CITY PARK

UNDEVELOPED CITY PARK



mon and Jefferson Streets; the County Court House between Salmon and Main Streets, Fourth and Fifth Avenues; the City Hall, between Madison and Jefferson Streets, Fourth and Fifth Avenues; and the Federal Building, between Main and Madison Streets, Sixth Avenue and Broadway. These buildings were evidently not constructed for the purpose of a harmonious architectural relationship; nevertheless, they form an important nucleus for a future grouping of public and quasi-public buildings.

All three of these buildings represent good examples of the architecture of the periods in which they were built, and they further represent an expenditure on the part of the Federal Government, the County, and the City, of several million dollars. They are situated in a blighted area, since the blocks surrounding them are in a zone of transition between new commercial and old residential districts. These blocks, and others in the immediate vicinity, contain gas stations, garages, parking lots, obsolescent tenements with ground floor stores, and other rundown structures.

We recommend that the Portland Civic Center be situated in an area bounded on the north by Southwest Salmon Street, on the east by Front Avenue, on the south by Southwest Columbia Street, and on the west by Sixth Avenue. Two of the blocks in this district lying between Salmon and Madison Streets, Third and Fourth Avenues, are already park area. We believe that the remaining blocks, not already occupied by the three public buildings, should be acquired ultimately for the purpose of developing a civic center, and that this area be designed in a manner to provide park areas as well as sites for additional public buildings.

In addition to the blocks described above, we suggest that consideration be given to the acquisition of the square lying north of the auditorium between Second and Third Avenues. The addition of this block would serve to relate the auditorium to the civic center. We further suggest that consideration be given to the purchase of a portion of the square lying west of the Federal Building not, however, including the church at the northeast corner of Madison Street and Park Avenue.

There are three important reasons for the establishment of a genuine civic center in the City of Portland:

(1) To provide an appropriate and effective setting for public and quasi-public buildings normally

grouped together for convenience in carrying on the business of government, and to provide sites for museums and other semi-public institutions customarily housed in buildings monumental in character.

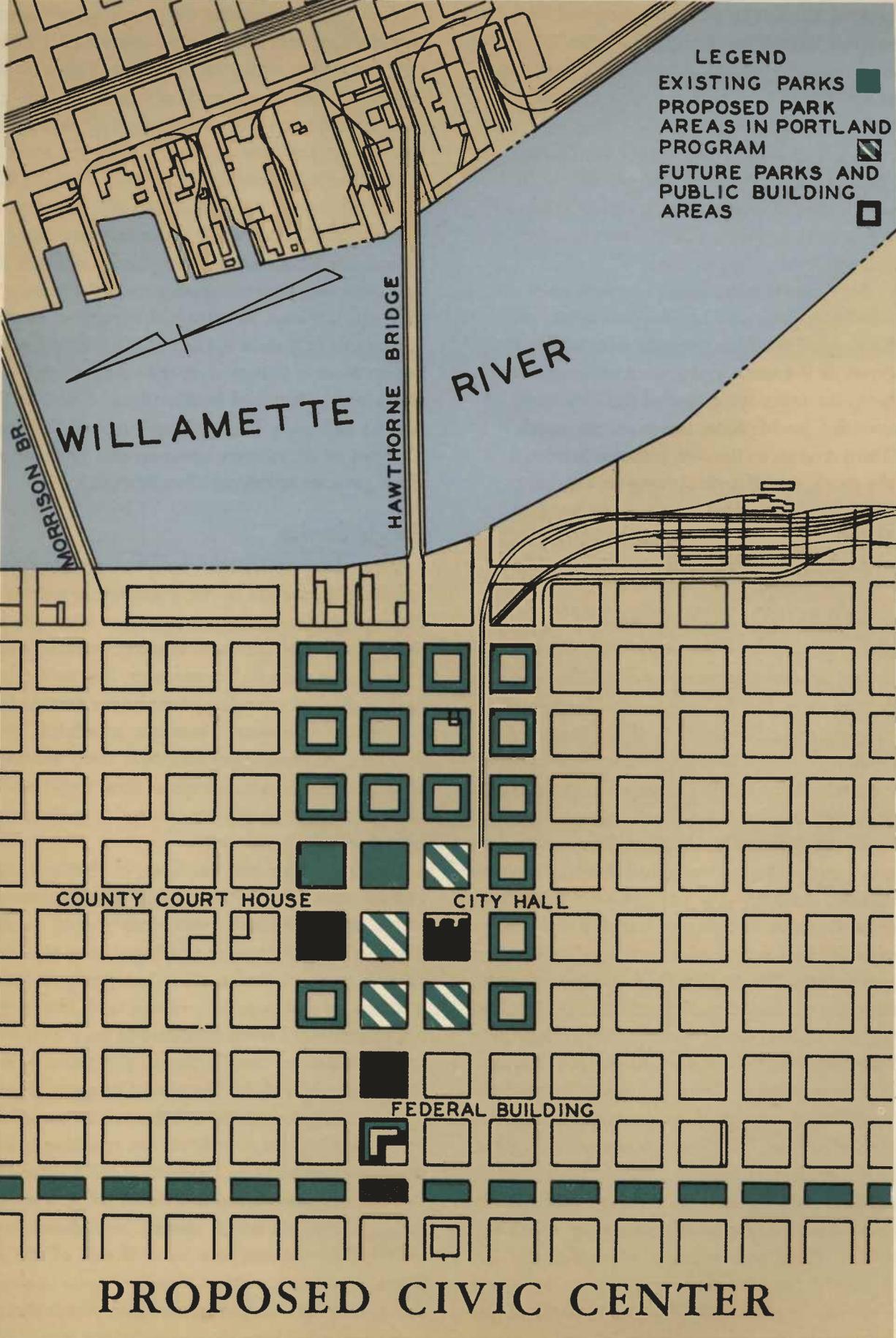
(2) To provide a park space open to the river and situated in the thickly built-up business section of the City where there is little park area at the present time, affording an attractive spot where office workers and others may sojourn during the midday period and at other hours.

(3) To provide a buffer strip which will prevent, or at least retard, the spread of the commercial district further to the south, thus strengthening the zoning ordinance. This will check the infiltration of incompatible commercial uses of land into areas best adapted for residential purposes. It should be noted that Park Avenue, a wide street with a central park strip, has already helped prevent the spread of commercial uses of land to the west of it. The recommendation to purchase a portion of the block at the northeast corner of Madison Street and Park Avenue, is intended as a means to create a park connection between the civic center site and Park Avenue, thus completely insulating the commercial district. Further discussion of zoning follows in detail later in this report.

We were informed that the local chapter of the American Institute of Architects recently prepared a study for a civic center to be located between Front and Fourth Avenues, Market to Burnside Streets. The principal purpose these gentlemen had in mind in locating it in this area was to attempt to rescue this and the immediately adjoining sections of the City from the blighted conditions which now obtain. We reviewed these recommendations and came to the conclusion that too large an investment in public buildings has already been made in the area south of Salmon Street to justify abandoning it as a potential civic center area.

We believe that locating the civic center at the southerly edge of the central business district will go a long way toward preventing the spread of this district to the south. If land values are to be maintained, the expansion of the commercial district should be to the north, rather than to the south, over lands that are now blighted and which are ready for new commercial development.

It is evident that sufficient funds will not be available to purchase all of the lands which have been



recommended for inclusion in the proposed civic center area. We believe, however, that the City is justified in the immediate purchase of four of the most important blocks in the vicinity of the three existing public buildings, as follows:

(a) Two blocks lying east of the Federal Building, bounded by Main Street on the north, Fourth Avenue on the east, Madison Street on the south, and Sixth Avenue on the west.

(b) Two blocks, one lying west of the City Hall, bounded by Madison Street on the north, Fifth Avenue on the east, Jefferson Street on the south, and Sixth Avenue on the west; the other lying east of the City Hall, bounded by Madison Street on the north, Third Avenue on the east, Jefferson Street on the south, and Fourth Avenue on the west.

Estimated cost of land \$1,000,000
Estimated cost to improve four blocks for park purposes . . \$ 400,000

RAILROAD, BUS AND TRUCK FACILITIES

Portland is served by the Union Pacific, Southern Pacific, Northern Pacific, and Great Northern Railroad systems as well as by the Spokane, Portland and Seattle Railroad, and by some minor electric lines. On the west side of the Willamette River the North Pacific Terminal Company functions as a terminal operating organization for all lines. The various connections between the carriers afford Portland a physical beltline, although it is not operated as such. A larger beltline was in existence but this was discontinued with the removal of a section of railroad in the construction of the Harbor Drive on Front Avenue.

Trunk line passenger traffic in Portland is handled through the Union Station, located about a half mile from the center of the business district. The expense involved in resituating the station would be prohibitive as it would necessitate an enormous amount of trackage relocation. It is therefore not recommended. A new Union Station, however, should be erected by the terminal company in place of the present entirely unsatisfactory structure. The new station should be designed to afford an impressive entrance to the City and it should provide adequate space for taxis and other vehicles, together with up-to-date facilities for satisfactory handling of passengers.

It is recommended that the City acquire the necessary land to form an attractive approach to the new station together with a station plaza. This additional acquisition will also provide adequate access to a site for a new bus terminal, to take care of the long-haul buses which are now crowded in with the short-haul buses at the badly congested terminal located at Taylor Street. At present there are about 650 buses entering and leaving the City daily and a new bus depot near the railroad station for the long-haul buses will eliminate the severe congestion not only at the present Taylor Street terminal, but also in the approach streets.

The property to be taken for the railroad and bus station plaza is indicated on the map included in this report and is bounded by Broadway, Flanders Street and the railroads. It is estimated to cost \$1,000,000. The cost of demolition, clean-up and preparation of plaza grounds is estimated at \$400,000.

Freight Service

Industrial plants, docks and piers are available for handling the freight of the trunk line carriers, either directly by the owning company or through interchange points by the usual terminal switching operations. Under normal circumstances, the capacity of the yards and tracks is adequate to serve Portland. Unfortunately, emergency wartime schedules for the shipment of lend-lease materials have resulted in certain dislocations in storage of these materials. Naturally, this practice did not exist prior to the war, nor is it expected after the war.

Freight service and facilities in Portland are in general satisfactory, although minor physical improvements and additional connections should be made. These rail facilities were developed over a period of years in step with Portland's industry prior to the war. There is no reason to believe that such facilities will not be expanded when necessary to cope with the increased industrial installations of the future by broadening the scope of the Terminal Company. That rail service will be adequate is indicated by the effective handling of the increased tonnage resulting from the enormous shipbuilding program in the Portland area.

There are a number of individual L.C.L. (less-than-carload) stations which should be reduced to two joint L.C.L. stations; one on each side of the river. These joint L.C.L. stations should operate in conjunction with motor freight terminals of which there are six at present. These six motor freight terminals are

CIVIC CENTER AREA



TYPICAL RESULTS OF
FAULTY ZONING



scattered throughout the City and it is recommended that all of those on the east side be consolidated with a joint L.C.L. freight station and a similar combination be placed on the west side of the river. This facility requires long narrow transfer platforms and sheds with adequate off-street back-ups and adjacent area for idling, repair and storage of trailers.

PUBLIC BUILDING AND GROUND REPAIRS

A great deal of work should be done on the public buildings and structures aside from schools, park structures, police and fire houses and other municipal

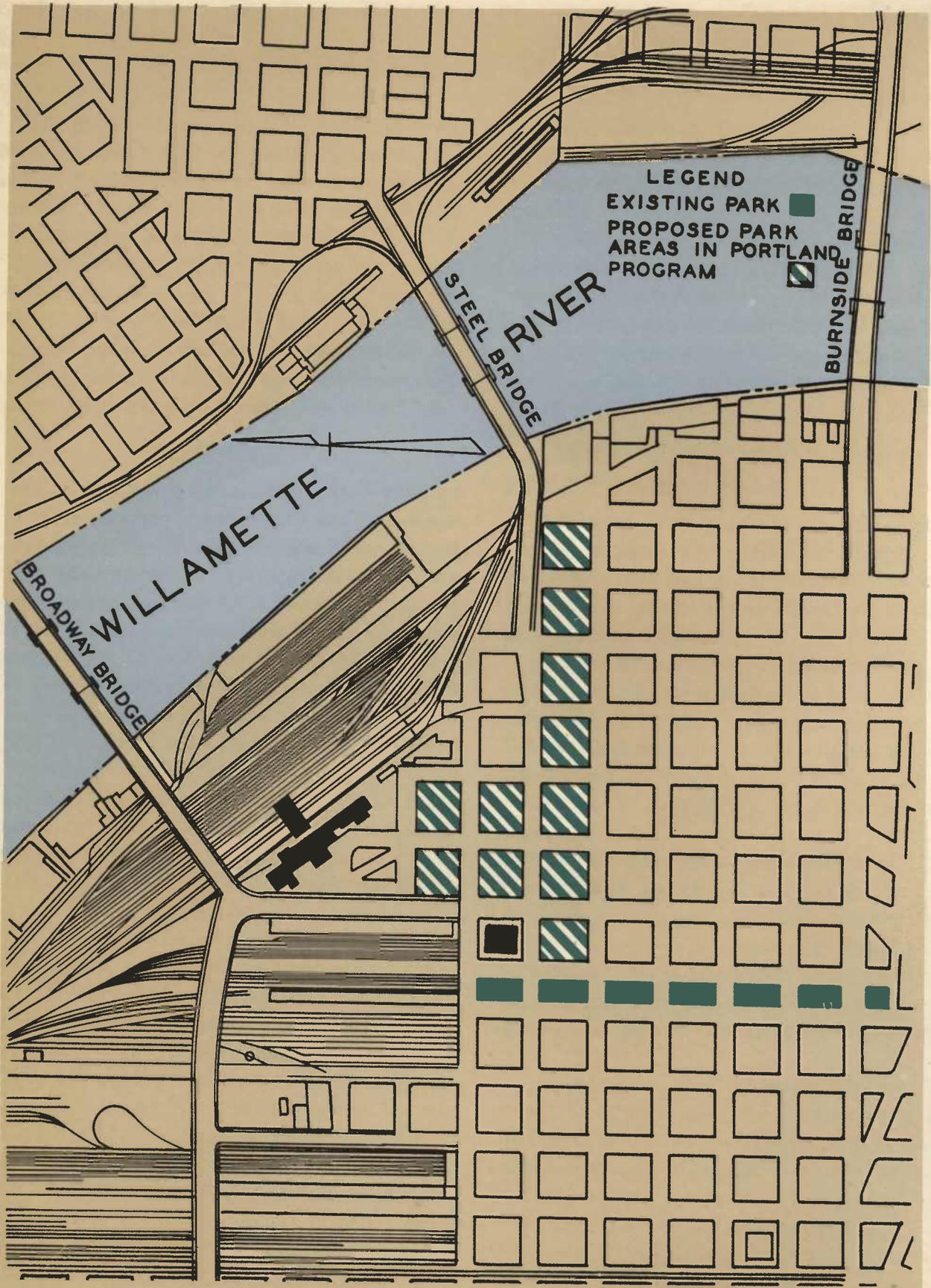
improvements specifically mentioned in this report. We have included in the program \$500,000 to be used entirely to perform small projects by force account requiring a minimum of material and equipment.

The work under this category will consist of rehabilitation and alteration of buildings and building equipment, and the general improvement of the property around the public buildings such as fences, walls, steps, walks and similar projects.

In addition, the County has a program of bridge maintenance projects which will be held until after the war if practicable, although it may be necessary to undertake some of the items before that time.

RAILROAD STATION PLAZA





PROPOSED UNION STATION PLAZA

PART IV MAJOR PROJECTS WITHIN COMMUTING DISTANCE OF PORTLAND

These projects are outside of the metropolitan section of Portland but are either within commuting distance or close enough so that men can be recruited even if they are required to live on the site of the work in contractors' or force account camps.

There are many projects throughout the State of Oregon, including much of the State highway program, which will contribute indirectly to the relief of unemployment in the Portland metropolitan area, but we have listed as part of this program only those large projects which actually come very close to the City.

HIGHWAYS

Within commuting distance of Portland are three major State highway projects which will furnish jobs to residents of the metropolitan area in the postwar period. These projects, all important additions to the highway system, are the Wolf Creek Highway, the Columbia River Highway and the Wilsonville Cut-off estimated to cost a total of \$9,750,000. All three have been given priority by the State Highway Department in the preparation of plans and specifications.

The Wolf Creek project involves the construction of a new highway from Portland to a connection with the present Wolf Creek Highway, Oregon State Route 2, about twenty-two miles to the west. The right-of-way for this new location has been acquired and plans are about 90% complete. Construction is estimated to cost approximately \$2,000,000.

Also under preparation by the State Highway Department is the new low-level location of the Columbia River Highway from Portland to Cascade Locks. Construction of sections of this route has already been started, and when completed, the new highway will afford a safe water level route to serve through traffic in place of the existing scenic but dangerous highway along the cliffs of the gorge. Where possible, the old road should be retained for sightseers and for local usage. Approximately \$250,000 for additional right-of-way is necessary for this project. Plans are about 80% complete; construction cost is estimated at \$4,750,000.

Another important addition to the State highway system, the Wilsonville Cut-off, will provide an alternate to U. S. Route 99. It will serve as a cut-off for

north and south traffic between Salem and Portland. Construction is estimated to cost about \$3,000,000 and right-of-way about \$250,000. Plans are about 50% complete.

The above three projects will be ready for letting immediately after the war, and because of the fact that these projects will draw workers from and around the City of Portland, it is estimated that the work benefit to the metropolitan area will be approximately three-quarters of the total cost of these improvements — or \$7,250,000.

CLEARING BURNED-OVER LANDS: REFORESTATION PROJECTS

The forests provide one of the most important natural resources of the State of Oregon. Their proximity to Portland is one important contributory factor in the growth of this City as one of the important Pacific Coast ports.

Estimates worked out by the National Forest Service show that various reforestation projects could provide employment for a very large number of men. The practical execution of such vast projects under Federal auspices would involve a set-up of the work relief type in force during the depression of the 1930s.

While the scope of work outlined in such tentative programs undoubtedly is of a magnitude far beyond practical realization in the immediate future, this potential source of employment should be kept in mind in case it becomes necessary to resort to projects beyond the scope provided for in municipal and state programs for the immediate employment of men.

The program worked out by the National Forest Service is in the character of an inventory of work that could be done by the Federal, State, or Municipal Governments, or by private interests. No attempt has been made to go into details or sources of financing. State-owned forest lands are principally areas which were turned over to the State for maintenance by counties. They consist mostly of narrow park strips along State Highways.

A major problem in reforestation exists about 40 to 50 miles from Portland, where the Tillamook

forest area of 260,000 acres was ruined by fire in 1933 and 1939. The Wolf Creek Highway, the shortest connecting route between Portland and the Pacific seashore, traverses this burned area. These timber lands were almost completely in private ownership, and after the fire the County took over most of the property because of tax delinquency. The County now owns 60 to 70% of this area, and this percentage is still on the increase as many private owners are only now completing their salvage operations. They then abandon or deed over the land to the County.

The Oregon State Board of Forestry, as well as the National Forest Service, are preparing plans for the rehabilitation of this area. Such work would consist of (1) building of roads for fire protection and to create access for clearing purposes, (2) eliminating dead trees, (3) replanting.

The remaining privately owned land, not in the hands of the County, should be brought under public ownership. Rehabilitation of this burned area, then, would make a logical project to be carried out under

the general auspices of the Oregon State Board of Forestry.

No time should be lost in getting this program under way. Scientific forestry methods will advance the time when mature timber may be grown, and the effort necessary to make such a program effective is adequately justified, first, from the economic standpoint of the timber supply of the State and of the Nation; second, from the standpoint of the effect that neglect on the part of the people of Oregon has upon visitors; and, finally, from that of the conservation of water and of other natural resources.

To neglect the program of reforestation, of cut and burned-over areas where there are no seed trees, as is the case over a vast number of acres in the Tillamook Burn, means that worthless hardwoods will replace the fir and make replanting of the valuable fir more difficult and more costly.

The requirements for lumber during this war have increased the demands upon the forests, and the output for the States of Oregon and Washington has been stepped up to 10 billion feet per year. Prewar output

TILLAMOOK BURN



for the same region was between 8 and 9 billion feet annually.

The sustained yield capacity is estimated at about 9 billion feet per year, assuming good forestry practices. It is evident that every effort should be made to conserve this great national resource of the State by developing a plan to reforest cut and burned-over lands.

PART V SELF-LIQUIDATING PROJECT

COLUMBIA RIVER BRIDGE AUTHORITY

The Interstate Bridge connecting Portland, Oregon, with Vancouver, Washington, is the only highway bridge crossing the Columbia River between the Longview Bridge, about 45 miles downstream, and the Bridge of the Gods, about 45 miles upstream. It contains eleven through truss spans over the main river and several deck plate girder spans over Oregon Slough, and is a low-level bridge with a vertical lift span. It has a rather narrow four-lane roadway 38 feet wide. On the south side it connects with Union Avenue and Denver Avenue, which are well located to pick up Portland traffic. Congestion which has existed in the past at the intersection of these two avenues will be relieved by a grade separation structure that is now nearing completion. The arterial approaches, however, are city streets and congestion of through traffic can never be completely eliminated.

The present layout at the north end of the bridge does not provide a satisfactory traffic solution, as the only connections are with the congested downtown business streets of Vancouver. Since bridge traffic cannot exceed the capacity of its approaches, the usefulness of the structure has been seriously impaired. Conditions would be improved considerably by the construction of a new approach in Vancouver, connecting with a new highway along the west side of Vancouver Barracks. If the War Department will agree to release a strip of property for the purpose, this highway should be constructed on land now in the Government Reservation. This would connect with the new improvement of U. S. Route 99 now proposed by the Washington State Highway Department.

In order to provide a more complete solution for the needs of interstate traffic, it is recommended that consideration be given to construction of a new bridge east of the existing one.

We urgently recommend the clearing of the burned-over public lands in the Tillamook Burn under the direction of the Oregon State Board of Forestry, and that, as a beginning, at least \$1,000,000 be set apart for this purpose in the State postwar program for reforestation.

Of this amount \$750,000 is estimated to be of direct benefit to Portland labor.

One solution is a low-level bridge with a vertical lift span just east of the present structure, with approaches connected to the proposed highway along the west side of the Army Reservation. It would not be desirable to build a high-level bridge in this location. A crossing at this point, moreover, would connect with the same approaches as serve the existing bridge, thereby retaining one of the principal causes of congestion. This would be entirely unsatisfactory.

We therefore recommend a high-level bridge located about one-half mile to the east of the present structure, which would afford the opportunity of building a new approach highway along the east side of the Army Reservation, connecting with U. S. Route 99 at a point north of the Vancouver city limits, and with the East-Side Thruway in Portland. Such a facility would tie into the general arterial plan, it would allow an uninterrupted flow of vehicular traffic, and it would not interfere with navigation on the Columbia River.

The estimated cost of this project, with approaches, is \$7,500,000, a figure which includes temporary connections with Union and Denver Avenues. The existing bridge then would serve primarily the local traffic between Vancouver, Jantzen Beach and Portland. It is our opinion that this project could be financed by a bond issue of \$5,250,000 and a federal grant of not more than 30% of the total cost. The bonds would be secured by placing a ten cent basic toll on the existing bridge and the new bridge. Both bridges should be placed under the control of a bi-state authority, which would collect tolls on both crossings. The permanent connections with the East-Side Thruway can either be constructed with the aid of a federal grant or delayed until other financing can be accomplished.

The foregoing calculations take into account the prewar traffic on the existing Interstate Bridge of

something over 6,000,000 vehicles per year, or an average of 17,000 per day. The effect of the toll on traffic volume will tend to be counteracted by the improvement in the thruway facilities provided and by the expected increase of motor vehicles after the war.

To provide the organization to carry out this project we propose a compact between the States of Oregon and Washington with the consent of Congress (as required by Section 10 of Article 1 of the Federal Constitution) under which a single body would be created in the nature of a bi-state authority, like the Port of New York Authority, with complete jurisdiction over construction and operation and the issuance of bonds for capital costs. We do not believe that the present Oregon legislation on interstate bridges is adequate.

There are, of course, many problems of law which will have to be solved in carrying out this proposal, among others that arising from the constitutional provision against creating corporations by special act. We believe that none of these difficulties are such as would prevent carrying out our proposal in substance.

The legislation which must be adopted by both states must provide for a binding covenant against the erection of any vehicular bridge or other vehicular crossing closer to the bridges under consideration than the Long View Bridge downriver and the Bridge of the Gods upriver. Such a covenant should expire, however, when the bonds issued for the construction of the new bridge are paid or payment thereof is provided for. In order that it may be possible at any time to relieve the states from the restriction of such a covenant against competing bridges, the legislation should contain a requirement that any bonds maturing more than ten years from their date should be subject to redemption. A premium for redemption should be authorized, as otherwise the price of the bonds would be affected or the interest rate borne by the bonds would be increased.

It is proposed that the bonds to be issued should be strictly revenue bonds payable only out of the tolls and other revenues derived from the two bridges. We do not propose that the bonds should have a lien or mortgage on the bridges. Revenue bonds secured by tolls are now so well established as a proper form of investment that no such lien is necessary in order to make the bonds marketable. It seems to be well-established law in Oregon that revenue bonds which do not impose any obligation on the issuer are not within

the various constitutional and statutory limitations on the issuance of bonds.

The legislation authorizing the revenue bonds must contain certain provisions for the security of the bonds permitting:

(a) The pledge of the tolls and revenues of the bridges to secure the payment of the bonds;

(b) A covenant as to the rates of the tolls to be charged and the amounts to be raised in each year by tolls and the use and disposition of the tolls and other revenues;

(c) The setting aside of reserves or sinking funds and the regulation and disposition thereof;

(d) Limitations on the purpose to which the proceeds of sale of bonds may be applied and pledging such proceeds to secure the payment of the bonds pending their use for construction;

(e) Limitations on the issuance of additional bonds, the terms upon which additional bonds may be issued and secured;

(f) The procedure by which the terms of any contract with bondholders may be amended or abrogated, the amount of bonds the holders of which must consent thereto, and the manner in which this consent may be given;

(g) Limitations on the amount of moneys derived from the bridges which may be expended for operating, administrative or other expenses.

Provision should also be made for the appointment of a fiscal agent or trustee to which may be granted such rights, powers and duties in trust or otherwise as may be necessary for the protection of the bondholders. Such agent or trustee must be appointed at the time of the issuance of the bonds with the duty to act as paying agent and as trustee of sinking funds. In case of default a trustee, either the same institution that acts from the beginning, or one appointed by the bondholders, should have power to represent the bondholders on request of a stipulated number, with the right by mandamus or other form of action to enforce all the rights of the bondholders, to bring suit upon the bonds, to require an accounting, to enjoin unlawful acts or acts in violation of the rights of the bondholders and to declare the bonds due and payable and to annul such declaration and its consequences. The bondholders should be given the right to have a receiver appointed by the court, who should, under the direction of the court, take over construction and operation of the bridges, and carry out

the public duties of the Authority and its contractual obligations.

The legislation must provide for acquiring land by purchase or condemnation, and because the machinery for the acquisition of land by the State Highway Commission and by the Counties is well established, it would be wise to authorize these bodies to act as the agency for the acquisition of land, the cost and expense or any agreed portion thereof to be defrayed from the proceeds of sale of the revenue bonds.

The custody and disbursement of funds should be provided for, and it should be made clear that the Authority has the right to make disbursements without pre-audit by any official, because pre-audit by public officials is too often made the basis for the assumption of supervisory powers. Some official of each state should, however, be given the right to audit disbursements previously made. Funds set aside for the protection of the bonds, including the proceeds of sale, should be free from the limitations concerning the custody and disbursement of general funds so that they may be placed in the hands of the fiscal agent or trustee and be available for application for the benefit of the bondholders without risk of official delay.

The bi-state authority, the nature of which has been outlined, follows in general form the Triborough Bridge Authority which was established in New York State in 1933 and which constructed five large crossing projects and issued nearly \$100,000,000 of bonds. Due to its success, the Triborough Bridge Authority has been copied many times both in that state and all over the country, with variations to meet local needs and local constitutional provisions. Undoubtedly, the impetus for this type of public agency was given by the desire during the depression to find a way to ob-

tain federal loans with the grants that accompanied such loans for the construction of great public improvements, without increasing taxation and free from the debt limitations to which counties and municipalities were subject. As the depression cleared and private capital became available, the same authority form of organization commended itself to the underwriters of bonds.

Advantages not originally anticipated have been found in this form of agency. Among other things, it has provided a public body primarily interested in the success of the particular project under its jurisdiction and therefore capable of devoting time and attention to its promotion. Again, these authorities have generally been free from the statutory red tape and bureaucratic paper work which traditionally hamper the energetic public officer and make public work, on the whole, slower and less efficient than private work.

The revenues from these authorities have, in a number of cases, so exceeded the conservative original estimates that it has been possible to extend the powers of the authority to the financing of additional related improvements financed by the same sources of revenue without burdening the taxpayers. The method pursued in such cases is to refund the bonds by the issuance of new bonds in an increased amount, thereby providing additional moneys for construction. It is, of course, not necessary and is probably not advisable to give an authority unlimited power from the beginning to refund and extend the maturity of its bonds, because that would give the members of the authority the power to collect tolls indefinitely, but such additional power can easily be granted by subsequent legislation at any time.

ADDITIONAL CONSIDERATIONS

The \$60,000,000 program which we have outlined above includes all of the projects which we believe can be undertaken by the various local public agencies and the State with Federal aid. In selecting these projects we necessarily scrutinized many public activities, not mentioned in this report, because they do not relate directly to the employment of men between the close of the war and the stabilization of private employment. Nothing is to be gained by enumerating a list of projects which might be considered necessary

by the city-planning perfectionist. Those that we have selected can be designed following conventional standards, with no experimentation or lengthy preliminary investigations. In this way the engineers and architects can prepare their plans without delay, and prompt employment on the projects is insured.

The projects which we have included entail the use of materials and will require the equipment of contractors which will be available in the area.

We think we should state, however, the results of

our investigation in several fields. While these do not result in projects for the employment of men, they should be called to the attention of the local officials.

HOUSING

While an acute housing shortage existed throughout 1942, this has been adequately relieved by the opening of additional facilities in 1943. The population increase of the Metropolitan Area, not including Vancouver, between the census of 1940 and September 1943, is estimated at 120,000. During the same period almost 28,000 dwelling units and 7,000 dormitory units were constructed. At a generally rated average of 4 to a dwelling unit and one to each dormitory unit, the capacity practically equals the entire increase. The 28,000 dwelling units probably averaged less than 3½ people per unit, but the existing housing in Portland before 1940 was not overcrowded and did absorb a considerable number of new wartime people. The total effect has been that there are still vacancies in the dwelling units already constructed.

We do not expect any further material increases in the total number of war plant workers. As a matter of fact, actual employment in some establishments decreased slightly during August and September.

The following table shows the new construction since 1940:

1. *Within city limits:* On basis of building permits, the following new construction took place between 1940 and 1943:

FHA & Privately Financed

Housing: 5791 Units

Government Housing: 7302 Units

Total within city limits: 13,093 Units

2. *Metropolitan Area outside city limits but not including Vancouver:*

FHA & Privately Financed

Housing: 2500 Units

Government Housing including Vanport: 12,250 Units

Total: 14,750 Units

Total new housing 1940 to

September 1943: 27,843 Units

More than 50% of these units became available for occupancy after January 1, 1943.

Further proof that housing can meet wartime needs

is evidenced by the fact that only 4,000 units out of a total of over 7,000 dormitories built by the Maritime Commission on Swan Island are presently occupied.

In appraising the housing requirements after the war, we find that of the 28,000 new units, over 8,000 are FHA and privately financed units which may be safely assumed to be permanent. A great part of the federal housing, all of which is temporary, should be torn down within the two years provided by Federal Law after the end of the war. To allow them to remain too long would certainly contribute to numerous blighted areas. Some temporary housing will be needed for a somewhat longer period and the Vanport development could easily take care of the added population remaining in the Portland area, pending final stabilization of the population. We do not recommend that Vanport should be kept permanently, but there is no question that it has been built more substantially than most of the temporary war housing found in other parts of the country. At its best, however, it is only semi-permanent. The inside layouts and plans of the various units are very restricted as to space and number of rooms. The units could be retained for several years after the war without excessive maintenance and they will last long enough to meet any demand outside of existing permanent housing through the postwar period. They should be torn down section by section as the demand decreases.

The figures quoted above do not include the totals for added housing in Vancouver on the Washington side of the Columbia River or the new housing known as East Vanport, for which ground has just been broken.

In the course of our investigation we found reference to six blighted areas in Portland. We made inspections of these areas and came to the conclusion that Portland has no slums which cannot be overcome by normal private reconstruction. As a consequence, we cannot recommend any organized postwar project for permanent homes or apartments built by governmental agencies.

HOSPITALS

We have made a study of the number and types of hospitals, clinical facilities, and the number of beds available in the entire area and conclude there is no need of any increased facilities. A check of clinics shows no serious lack of service in any particular type.

POWER

Electric power is supplied by the large scale federal hydro-electric developments in the Columbia Valley and by two local privately owned power companies. The Bonneville Power Administration, an independent authority under the Department of the Interior, is trusted with the construction of a regional power network and the sale of power from Bonneville and Grand Coulee Dams. At the present time the plant at Bonneville, located within 30 miles of Portland, is operated at capacity with a rated output of approximately half a million kilowatts. The Grand Coulee project, about 350 miles from Portland, now produces approximately 600,000 K.W., and will have an ultimate capacity of 1,300,000 K.W. The private companies have a generating capacity of about 240,000 K.W.

As to the availability of power — present and

future — and the possibilities of demand, it is interesting to note that the entire consumer list in August 1940, before the Bonneville Dam was supplying power, was 152,000 K.W. In 1943 the entire load sold by the private companies was 282,000 K.W. of which 110,000 was purchased from Bonneville. To this must be added a total of 420,000 K.W. supplied directly by the Bonneville Power Administration to consumers in the Portland area. It may be seen by this that the war load, including newly created aluminum and other metal plants in the area, is well over four times the prewar use of metropolitan Portland. In addition, the Bonneville-Grand Coulee combination will increase from its present capacity of about 1,100,000 K.W. to 1,850,000 K.W. by February 1944, on present schedules.

It therefore becomes clear that in the postwar period there will be an excess of power at cheap rates.

MOUNT TABOR PARK, PORTLAND



ZONING

1) We recommend that the City take immediate and vigorous action aimed toward formulating a new zoning ordinance: to aid in the stabilization of real estate values; to establish an orderly procedure with respect to the control of the use of land and of buildings; to govern the bulk and height of buildings and the density of the population. It is evident to any one who has made a study of the development of the City that a very considerable economic loss has resulted from the failure of the ordinance now in force to function as a guide in the orderly growth of the community. Residential, business and industrial uses of land are not properly segregated, and the encroachments of business and multiple dwellings into single family residential areas have destroyed the value of many private homes.

Altogether too much land has been zoned for business. The business classification, strung out along major traffic arteries, has fostered the so-called ribbon developments — Sandy Boulevard for example — which cause a loss in land values. This results in a serious lowering of the value of adjacent residential properties. The excessive areas of land over which business is allowed to expand, under the present zoning ordinance, leads to the vacating of one section in favor of another, creating business slums, ribbons of unsightly shacks, and the construction of cheap "tax-payers," all of which seriously depreciate land values in the whole City.

Therefore, we believe that business zoning should be very materially decreased, and that large areas now in the business classification should be zoned for residential uses. The total percentage of business area to that of the entire City should not exceed approximately 3%. '1

The zoning law should prohibit advertising signs in residential districts and should restrict their use, character, size and height from the ground in business districts. They should also be prohibited in all districts within a certain distance from the proposed thruways. New York City has accomplished this by a provision in the recently amended zoning ordinance which reads as follows:-

"Sec. 21-B. *Restrictions on Location of Advertising Signs.* No advertising sign shall hereafter be erected or structurally altered in any use district within 200 feet of a highway designated by

the City Planning Commission as an express highway to which the provisions of this section shall apply, or within 200 feet of a public park of one-half acre or more in area, if within view of such highway or park."

Provision should be made for neighborhood shopping centers. These have proved to be convenient for shoppers, particularly when they are properly planned to include adequate space for car parking. The grouping together of stores in conjunction with the residential neighborhoods has been thoroughly tested and found to be practical, convenient and financially sound.

Excessively large areas have been zoned for apartments, occupying 40% of the total area of the City. Portland is a city of single family homes. We are therefore of the opinion that only a very small percentage of the area of the City should be set apart for multiple dwellings. We noted many instances where multiple dwellings have invaded areas occupied by single family houses, thus taking away light and air from the smaller buildings with a consequent loss of value to these owners and discouraging the construction and reconstruction of single family dwellings within a considerable radius of the apartments.

The zoning ordinance does not regulate the density of the population, which is an important and accepted method for controlling the growth of the City. This provision of controlling the number of people within a given area of land is desirable and aids in the planning of public utilities such as water and sewers, and in the development of the public school system.

11 We believe that the City Planning Commission, so far as possible, should give particular attention to the more orderly development of the lands at the outer fringes of the City, including the adjacent areas outside of the city limits. The outskirts of the east side of the City, in many places, are rapidly deteriorating into rural slums with a consequent depreciation of property values and with an increased burden to the taxpayers to defray the cost of providing streets, public utilities, police and fire protection and schools. It is easy to understand why people move into these fringe areas; the lands are cheap, the restrictions are either limited or entirely lacking; and for the first few years, until these areas are built up, there is a certain measure of openness.

The solution of this problem is not simple, but we believe that one may be found with the cooperation of the county authorities. A state zoning enabling act could be adopted applying to Multnomah County, as this is the only county with a large metropolitan population.

While a revision to the zoning ordinance would not provide work for a large number of persons, it is nevertheless an important phase of the development of the City and should be undertaken at the earliest possible date if the economic value of land is to be

retained at normal levels. A lowering of land values will adversely affect the tax structure of the City. It is futile to spend millions of dollars for the construction of new projects, unless the investment in the resultant public improvements is properly protected. This means that the present zoning ordinance must be abandoned in favor of a new ordinance. This will take courage on the part of the City Planning Commission; but, if they accomplish the task in an adequate and thoroughly appropriate manner, they will have made an outstanding contribution to the future of Portland.

The following special consultants have been associated with us in this work:

J. J. DARCY, *District Engineer, New York State Department of Public Works*

JAMES F. EVANS, *Director of State Parks, New York State Department of Conservation*

JOHN C. EVANS, *Chief Engineer, Port of New York Authority*

ARTHUR E. HOWLAND, *Chief Engineer, Long Island State Park Commission*

SIDNEY M. SHAPIRO, *Deputy Chief Engineer, Long Island State Park Commission*

GEORGE E. SPARGO, *Executive Officer, New York City Department of Parks*

HENRY A. STRECKER, *New York State Department of Public Works*

HARRY TAYLOR, *Assistant General Manager, Triborough Bridge Authority*

CLINTON F. LOYD, *staff chief of the technicians of all of our engineering organizations*

CHESTER R. BLAKELOCK, *executive secretary to both the engineering and legal consultants*

We wish to acknowledge the generous assistance given us by public officials and others who have cooperated to the fullest extent in furnishing data and facilitating our work in many ways.

MADIGAN-HYLAND

W. EARLE ANDREWS

GILMORE D. CLARKE

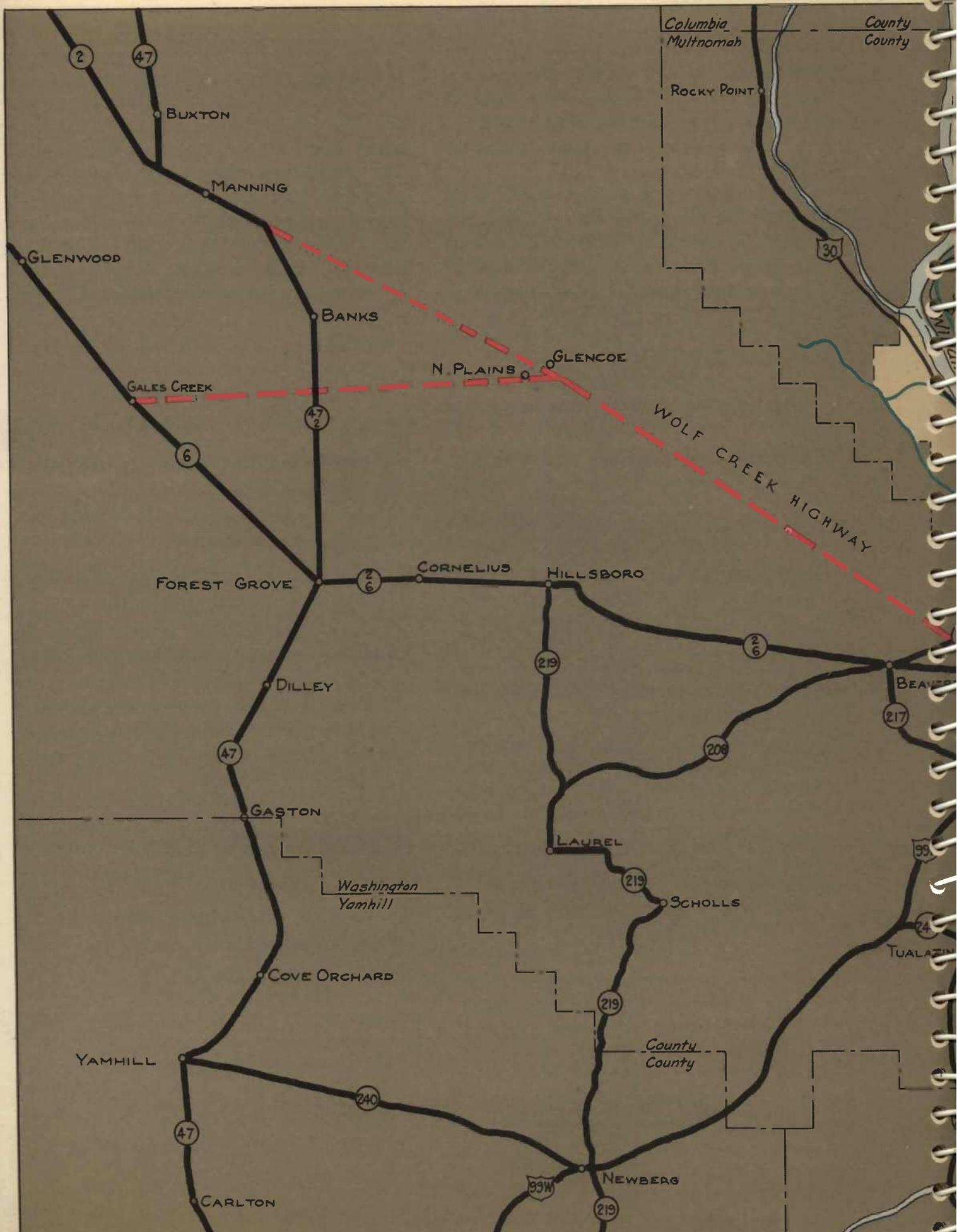
WADDELL & HARDESTY

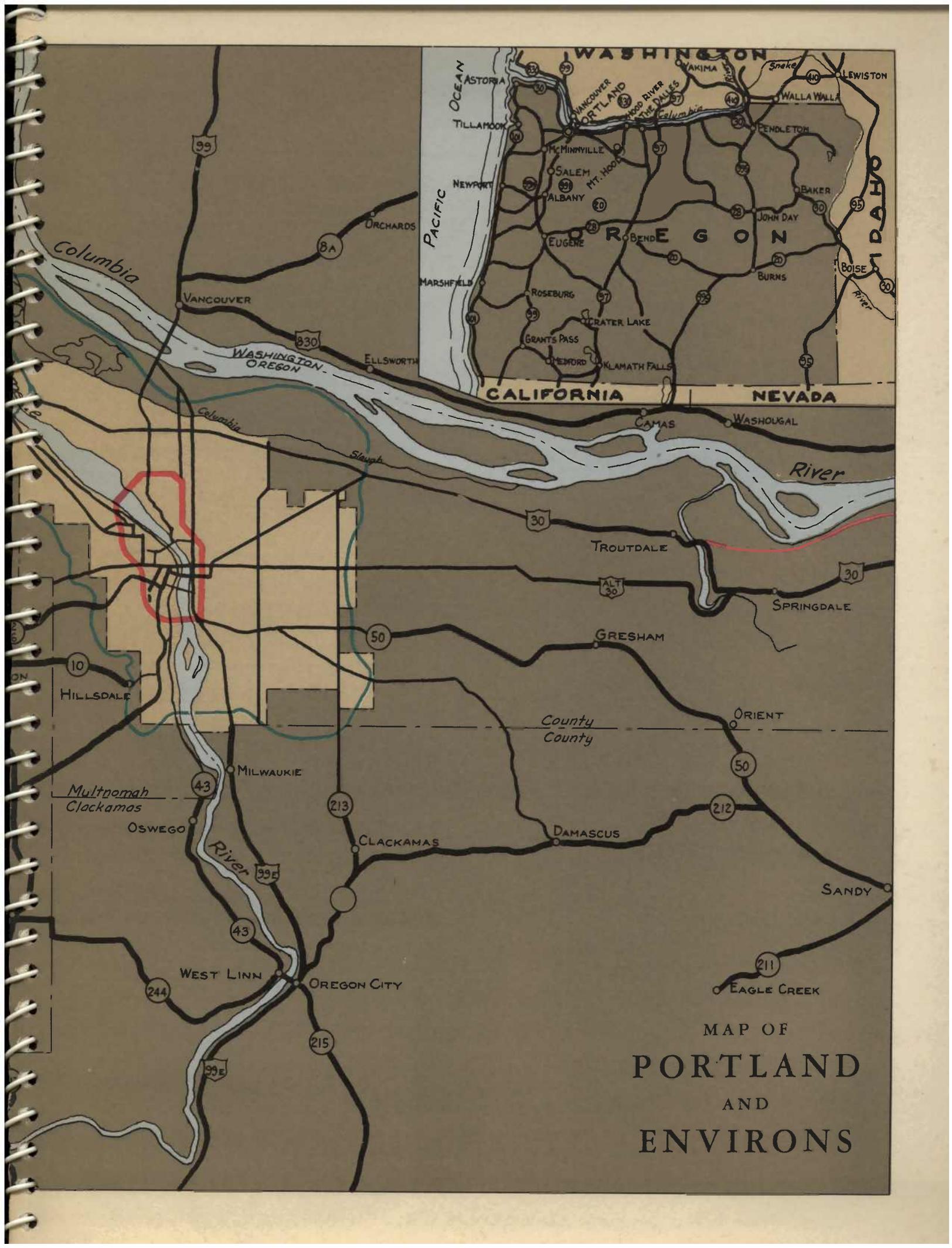
Approved as to legal matters:

HAWKINS, DELAFIELD & LONGFELLOW

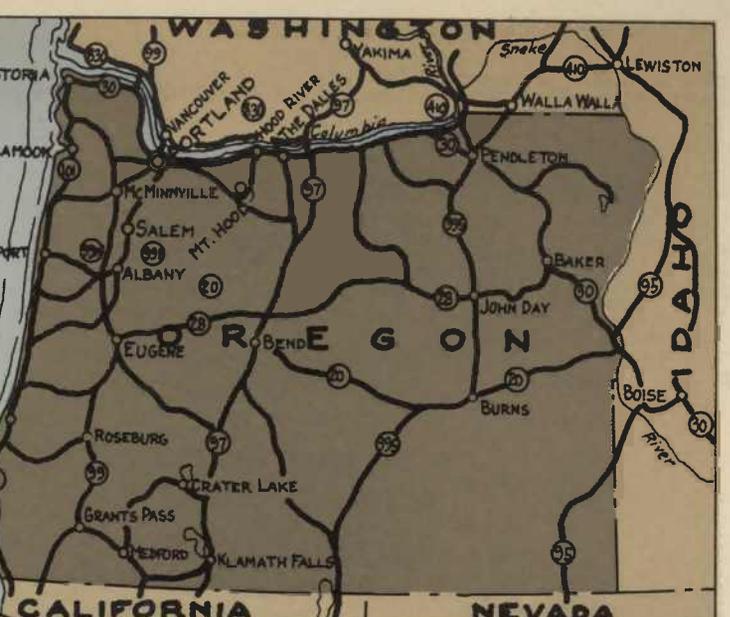
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RAYMOND P. McNULTY





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NEVADA
IDAHO

VANCOUVER

WASHINGTON OREGON

Columbia

Slough

CAMAS

WASHOUGAL

River

30

TROUTDALE

ALT 30

30

SPRINGDALE

50

GRESHAM

HILLSDALE

ORIENT

County
County

50

Multnomah
Clackamas

MILWAUKIE

213

CLACKAMAS

DAMASCUS

212

OSWEGO

River

99E

SANDY

WEST LINN

OREGON CITY

EAGLE CREEK

244

215

211

99E

MAP OF
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AND
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