

LIGHT PLANT PLANS  
READY FOR CONSTRUCTION

Mr. Daly's Project Calls for  
Initial Expenditure of \$1,-  
777,000 From Bonds.

VOTE ON JUNE 4 DESIRED

Author's Claim Is That Needed Ex-  
tension of Service Can Be Pro-  
vided for Portland Without  
Any Increase in Cost.

An issue of \$1,777,000 in 22-year 5  
per cent serial bonds, an annual outlay  
of \$37,682 in interest, maintenance  
and operation, and other expenditures  
from the city water funds, are to be  
the financial considerations of the  
proposed municipal street lighting  
plant on which Portland will vote at  
the city election June 4.

City Commissioner Daly yesterday  
filed with City Auditor Barbur his  
final report on a survey made of the  
hydro-electric power development possi-  
bilities in the Bull Run water re-  
serve. Filing of the report is the  
opening gun in a campaign to be con-  
ducted until election day in behalf of  
the project.

The plan as outlined in the report is  
to construct from water revenue a  
dam at Bull Run lake to increase the  
amount of water in the lake during  
the low water periods of the summer.  
From the \$1,777,000 power plant bond  
issue an intake would be constructed  
to a flume 1 1/2 miles above the Bull  
Run headworks and a flume 1.32 mile  
in length on the north side of the  
river to a reservoir near the Bull Run  
headworks.

Two Penstocks Proposed.

From this reservoir the water would  
go in two penstocks to a power house  
on the river near the headworks from  
which the electricity would be trans-  
mitted to Portland a distance of 30  
miles. The water after passing through  
the electric plant flumes, reservoirs  
and machines would go down the  
river to the pipelines supplying Port-  
land with water.

Following are Mr. Daly's estimates of  
cost: Diversion, \$27,000; flume,  
\$288,000; right-of-way, \$157,000; forebay  
and reservoir, \$1,000,000; penstocks,  
\$500,000; wagon road, \$22,000; power house,  
\$49,500; machinery, wiring, etc., \$170,-  
000; transmission, \$82,500; distribution  
system, including transformer station,  
\$1,000,000. Total, \$1,776,820.

The annual expenses of the plant  
are enumerated in the report as fol-  
lows: Operation, \$100,000; mainte-  
nance, \$60,000; interest on investment  
at 5 per cent, \$88,841; sinking fund  
payment to redeem bonds, \$88,841;  
total, \$327,882.

Public Sales Contemplated.

The annual operation and mainte-  
nance figures have been worked out  
so that the water bureau will take  
care of some of the expense. The plan  
as outlined in the report is for the  
development of 6200 horse power for  
municipal lighting and to sell the  
remainder. It is estimated that the  
sale, at the rate of \$100 per horse power,  
of the water surplus in the operating  
plant in Seattle, would net  
\$186,746, provided 30 per cent of the  
available power could be sold.

It is said in the report that the plant  
would enable the lighting of double  
the number of arc lights now in the  
city, furnish light for all public build-  
ings and leave enough electricity to  
net \$186,746 when sold for residence  
or domestic consumption. At this rate  
there would be realized from general  
taxation a total of \$200,000 a year and  
from sale of electricity \$186,746, a total  
of \$386,746 at a cost of \$327,682.

Cost Now \$200,000 Yearly.

The city is dependent upon the  
Portland Railway, Light & Power Com-  
pany has 3553 arc lights on circuits  
entailing an annual cost of \$180,024  
and in addition the city has 1000  
and other public purposes costing \$180,  
000 a year with material reductions for  
arc lights that are out when they  
should be lighted. While the city has  
1000 applications for additional arc  
lights are on file from all over the  
city, no new lights have been installed  
for about the past year. The subject  
has been taken up by the city engineer  
and Mr. Daly's office that the  
only way to get additional lights  
is to vote for the lighting plant.

Street Lighting Big Item.

In submitting this report, embracing in-  
formation and estimates of costs of  
construction and revenue from a municipal  
hydro-electric plant, it is quite proper  
to relate at least the conditions existing  
at the present time.

Street lighting in the City of Portland is  
one of our big problems. With a population  
of about 300,000 and a city covering an area  
of about 90 square miles it will be seen by  
the most casual observer that the residence  
districts are scattered, thereby re-  
quiring more lighting per thousand of popu-  
lation than in most other cities of equal size.

The City of Portland has 3553  
arc lamps—3396 aerial and 157 in the street  
ground district, which, at present contract  
rates, will entail an annual cost of \$180,024  
and in addition the city has 1000  
and other public purposes amounting to \$180,  
000 a year. These figures are for the  
present fiscal year, the city will expend  
a total for the above purposes, in round fig-  
ures, of \$200,000.

There are many difficulties encountered  
in the present scheme of buying public light-  
ing under contract. Under the present agree-  
ment with the Portland Railway, Light &  
Power Company, the city attempts, through  
the specifications and conditions of its con-  
tract, to require a certain efficiency in  
lamp to be determined at the time of  
purchase. This contract has been very  
attempts to provide for outages from a cer-  
tain rebate per lamp of 30 cents exceeding  
which in itself amounts to a penalty. To re-  
quire the efficiency of illumination contem-  
plated in the contract and specifications  
would require the employment of a corps  
of electrical specialists, which would greatly  
increase the cost to the city above present  
contract rates. The method of securing  
reports of outages and resulting rebates is  
naturally abortive.

Outage Check Difficult.  
The city is dependent upon its police or-  
ganization to report lamp outages. In the  
area comprising the residence districts in  
which the pattern has many miles to  
beat to cover. It is a physical impossibility  
for them to report more than a very small  
percentage of the outages. The result has  
been and will continue to be, under a con-  
tract system, that on the whole the illu-  
minating efficiency will be greatly under  
that required by the specifications and con-  
tract and the loss by outages will be very  
of every nature of the system, be much greater  
than shown by the reports. To secure  
anything like a correct check on outages  
would require a very expensive system of  
inspection.

These two considerations as herein set  
out, if the city were to attempt to enforce  
the letter of the contract and to check out-  
ages by inspection, would increase the cost  
of street lighting probably \$150,000 a year.

There is another phase to the lighting  
situation in this city that should not be lost  
sight of by the Council. It is used by  
all of the citizenship. The period when this  
district is lighted is the time when the  
shops are closed and no business is trans-  
acted. Therefore it may well be said that

the citizens, rather than the business men,  
secure the full advantage of this lighting.  
Many cities are adopting plans for light-  
ing their business districts, in which a uni-  
form and efficient system of post lighting  
is designed. In some cities the merchants  
and property owners within the business dis-  
trict are contributing the cost of construction  
of the post lighting system, which is there-  
fore maintained from the lighting fund.  
Other cities have done even better, and, on  
the ground that it is a public responsibility  
and expense, the municipality has financed  
both the construction and maintenance of  
systems.

Uniformity Held Desirable.

The maintenance of post lighting of this  
character in past years has proved such a  
burden to business men and property owners  
that where a few years ago we had long  
continuous lines of post lighting on certain  
streets, from time to time certain prop-  
erty owners have tried of the expense and aban-  
doned the maintenance, with the result that  
our business streets present a most de-  
pressing spectacle. An unlighted post  
lamp creates a most depressing effect upon  
all of the property adjacent. It gives you  
the feeling that something is lacking, some-  
thing has been moved out, or the owner  
where there is a lack of enterprise and  
public spirit. Where post lighting is main-  
tained it should be continuous. The effect of  
a long, continuous line of post lighting on  
any certain street is refreshing and inspiring  
to the pedestrian. The effect of a broken  
line of post lighting impresses you that there  
is a defect in the community which is a  
condition of many vacant buildings and  
shops. If the city is to continue to permit  
the maintenance of a public responsibility  
tained at the city's expense in order that  
uniformity of service may be secured, it  
is necessary for increased installations of  
post lighting. It would seem that good busi-  
ness would demand that an effort be made  
to secure a greater lighting at no greater  
expense to the city. Having this in mind,  
the engineers of the Bureau of Water Works  
have endeavored to make a plan for the  
from explorations and surveys in Bull Run  
lantern to the end that the development of  
the city's water supply shall also con-  
template producing such power as may be  
available as a by-product.

Power Possibility Estimated.

Through a small experimental dam con-  
structed two years ago at Bull Run Lake it  
was determined that a larger dam at  
the lake outlet will increase the low water  
flow of Bull Run River during the dry  
weather period to 108 cubic feet per second  
at the point of diversion of the power pro-  
ject. This will bring the minimum flow of  
the river proper up to probably 124 second  
feet, thus increasing the available water  
supply sufficiently to provide for a popula-  
tion of 400,000 or more.

The construction of the above con-  
templated dam should properly be charged  
against the Bureau of Water Works for in-  
creasing the available water supply.

It is noted that the present lighting sys-  
tem in use by this city requires approx-  
imately 3500 kilowatts. The number of  
lights now in use number 3553, with ap-  
proximately 1000 arc lamps. The greater  
portion of which should be in-  
stalled, and to which should be added a  
post lighting system for the business dis-  
trict.

On the basis of the foregoing of present  
and prospective lighting, it is estimated that  
a plant having a capacity of 3750 kilowatts  
at the Bull Run Lake will be sufficient to  
meet the present and prospective require-  
ments of the city. The cost of this plant  
is estimated to be \$1,776,820.

Three Sites Investigated.

Project No. 2, located on the south side  
of the main Bull Run River, and project No.  
1, located on the north side of the main  
Bull Run River, will be eliminated from  
the discussion, as project No. 1, with  
which this report will have to do, is shown  
to be the most economical in development  
and operation.

The following tabulation in relation to  
this project will be of interest:

Table with 2 columns: Item and Amount. Includes: Area of watershed (25 1/2 sq. miles), Length of flume (108 miles), Capacity of reservoir (4,000,000 cu. ft.), Effective head (1450 feet), Transmission line (6.380 miles).

This project contemplates diverting  
water from the Bull Run River at a point  
approximately 1 1/2 miles by river above  
the headworks and at an elevation of 1550  
feet. This water will be carried by flume  
a distance of 1.32 miles to the north side  
of the river to an operating reservoir lo-  
cated in the south half of section 18, town-  
ship 36 south, range 6 east. From this  
operating reservoir the water would be  
carried in two penstocks to the power-  
house on the Bull Run River. The eleva-  
tion of the water surface in the operating  
reservoir will be 1450 feet, and with the  
high water surface in the Bull Run River  
814—a difference of elevation between the  
two points of 636 feet. The power devel-  
oped at this point will be transmitted to  
Portland, a distance of 30 miles.

The City of Portland controls all water  
rights on Bull Run River above the head-  
works. Ordinance No. 18,000 of the City  
of Portland gives to the city any rights  
of the Mount Hood Railway & Power Com-  
pany may have secured to these waters in re-  
turn for certain water rights below the  
headworks, transferred by the city to the  
Mount Hood Power Company, and also in  
return for permission granted the power  
company by the city to cross certain prop-  
erty owned by the city.

At the proposed location of the diversion  
the Bull Run River runs over a basaltic  
rock, but the rocks are of a soft nature,  
and a low timber-crib rock-fill dam  
may be constructed. A concrete intake 20 feet wide with  
racks and sluice gates will divert the water  
from the main side of the dam and con-  
vey it to the flume. The dam will have an  
overflow of 1557.50 feet. The overflow  
will be of ample capacity to handle the  
water.

From the diversion the water will be  
carried in a flume having a grade of 1 foot  
per 1000 feet to the power house. The flume  
will be 108 miles long and will be con-  
structed of concrete. The flume will be  
with stringers beginning at the reservoir  
end and a light narrow-gauge track will  
be laid thereon. This track will be used  
to transport the lumber and material for  
the superstructure and will save the cost  
of building a wagon road along the flume line.  
As the superstructure is laid the track can  
be relied on the top of the tie beam,  
giving a good line for the material and  
maintenance service between the reservoir  
and the power house. The flume will be  
cut from the timber on the whole. The  
flume will be cut from the timber on the  
whole. The flume will be cut from the  
timber on the whole. The flume will be  
cut from the timber on the whole.

Most of Right of Way Public.

The right of way for the flume along the  
greater portion of its length will be  
Government land. The total acreage for  
right of way for the flume will be about  
not exceed 31 acres for a 100-foot right of  
way.

The flume will discharge into a concrete  
forebay in the reservoir, the forebay to be  
equipped with racks and controlling gates  
and with standing connections to the pen-  
stocks for air release. The reservoir will  
be made partially in the form of a  
fill; the rolled embankment to have a slope  
of 3:1 on the face and 2:1 on the back  
and a top width of 10 feet. The reservoir  
will have a water surface of six acres and  
a capacity of 4,000,000 cubic feet or 30,000,  
000 gallons. The water surface will be at  
an elevation of 1480 feet, and the berm  
at an elevation of 1485 feet.

10 feet under 108 cubic feet per second  
flow.  
The powerhouse will be 60 feet by 100 feet,  
concrete building, and will contain a gen-  
erator-room, transformer-rooms and switch-  
rooms.  
The generating and transforming machin-  
ery equipment will be designed of a suffi-  
cient number of units so as to enable most  
economical operation of the plant.  
The transmission line will follow the  
county road from headworks to Portland,  
it will carry a current of 66,000 volts and  
consist of a pole line carrying No. 4  
copper wire, Delta system, 72 inches be-  
tween wires. A telephone system will be  
strung on poles 20 feet apart along the  
line. This telephone system will also be  
used by the Bureau of Water Works for  
the operation of the plant at the intake.  
The estimate for transformer station is  
grouped with the estimate for the distribu-  
tion system.

Cost Is Shown.

The cost of this hydro-electric plant, as  
herein contemplated, will be in the aggre-  
gate \$1,777,000, being segregated as fol-  
lows:

Table with 2 columns: Item and Amount. Includes: Diversion (27,000), Flume (288,000), Penstocks (550,000), Wagon road (22,000), Powerhouse (49,500), Machinery (170,000), Transmission (82,500), Transformer station (1,000,000).

Total \$1,776,820  
Annual expenses would be:  
Operation \$100,000  
Maintenance 60,000  
Total 160,000  
Interest on investment at 5 per cent 88,841  
Sinking fund payments to redeem  
bonds, 5 per cent 88,841  
Total 327,882  
The estimate for transformer station is  
grouped with the estimate for the distribu-  
tion system.

Revenue Is Estimated.  
In estimating the revenue to be earned  
by this plant, I have assumed that for mu-  
nicipal requirements there should be 5000  
arc lamps or their equivalent, requiring  
6,077,250 kilowatt hours per year at the  
lamps. (This is about 50 per cent in excess  
over the present number of installed arc  
lamps). Under the present contract the city  
is paying a rate of \$20.00 per kilowatt hour  
for 100 kilowatt arc lamps, a total of  
\$1,200,000. Taking this amount as a basis  
and dividing by 5000 we have struck an  
arbitrary rate of \$24.00 per kilowatt hour  
equal the present contract cost of \$18,024.  
In other words, the municipal plant pro-  
poses to furnish the city nearly 50 per cent  
increase in arc lamps at the same annual cost  
as obtains under the present contract. For  
municipal purposes is also included 750,000  
kilowatt hours in excess of light and power  
at \$2 (the present contract rate) making  
a sum of \$1,500,000, or total cost for municipal  
purposes of \$138,024.

The above appropriation for municipal  
requirements equals about 2500 horsepower, or  
one-half of the capacity of the plant, which  
will be available. Good business would re-  
quire that the balance of available power  
(about 2500 horsepower) should be disposed  
in the most advantageous way. An ef-  
ficiently operated hydro-electric plant  
system is used in estimates of power avail-  
able.

Seattle Rate Taken.

Assuming that the greatest benefit to the  
city would be the sale of this power for  
residence or domestic consumption, the rate  
adopted for this estimate the rates charged  
by the Seattle municipal lighting plant,  
which are as follows:

Table with 2 columns: Item and Rate. Includes: Residence lighting, 45 kilowatt hours at 5 1/2 cents; Business lighting, 100 kilowatt hours at 4 1/4 cents; Power, 100 kilowatt hours at 5 1/4 cents.

Under these rates the average return per  
kilowatt hour for all power disposed of by  
the Seattle municipal plant, as reported  
Using this as a basis, the \$138,024 kilowatt  
hours at \$24.00 will be \$3,312,576. The  
annual revenue of \$3,312,576 less the cost  
of \$138,024 (This estimate is on the  
assumption that 50 per cent of this  
power can be disposed of at the average  
rate received by the Seattle plant.) It will  
be more illuminating, and submitted here-  
with:

Table with 2 columns: Item and Amount. Includes: Municipal requirements (5000 arc lamps or equivalent at \$18,024.00), Total annual revenue (\$3,312,576.00), Annual expense (\$37,682.00), Surplus and profit (\$3,274,894.00).

Saving Is Predicted.

Expenditure of the City of Portland for  
street lighting and electric power for  
1917, at contract rate:

Table with 2 columns: Item and Amount. Includes: 3553 arc lamps—157, at \$62.00; 1000 K. W. hours, at \$21.00; Incandescent lights and power, 750,000 K. W. hours, at \$15.00.

Total \$1,938,024  
From the above report it is seen that after  
increasing the number of arc lamps by  
almost 50 per cent, furnishing incandes-  
cent lights and power at \$21.00 per kilowatt  
at present contract rates of two cents,  
and after making an average rate for 50  
per cent of the balance of available cur-  
rent at the extremely low rates charged by  
the Seattle municipal plant, after all ex-  
penses are paid, together with interest on  
investment and sinking fund for the re-  
servoir, the plant will show a surplus  
and profit of \$3,274,894.00. The surplus  
on the basis that only 50 per cent of this  
power can be disposed of at the average  
rate received by the Seattle plant. This  
might be sold at a very low rate to  
heavy floor for domestic purposes, more  
than 13,000,000 kilowatt hours.

Worse Situation Impends.

"The effect of it all will likely be  
to intensify the unfavorable situation  
that now confronts us in the Pacific  
Northwest," said J. N. Teal yesterday.  
Unless the blockade is broken, the  
effect will certainly be felt here. All  
that will be required will be a little  
time for the piling up of the traffic  
to make itself noticed here."

INTEREST REFUND IS ASKED

Laurelhurst Residents Make De-  
mand and Error Is Found.  
What appears to have been a series  
of mistakes by the old City Council in  
refunding assessments on water mains  
constructed by private contractors has  
been uncovered as a result of demands  
made by some of the residents of the  
Laurelhurst district that the city  
should refund assessments in that district  
also should refund about \$70,000 ac-  
crued interest on the assessments.  
The city charter says that the amounts  
of the assessments shall be refunded  
when the property owners pay revenue  
amounting to 6 per cent of the cost of  
the work. It does not say that the  
provide for relieving the property owner  
of accrued interest.

BLOCKADE IS FELT  
Movement of Oregon Products  
Is Seriously Affected.

are themselves used for temporary  
warehouses to hold the goods that  
cannot be unloaded because there are  
no ships in which to place the goods  
and the warehouses are already full.  
How long this piling up of exports  
at the Atlantic ports will continue, the  
only be surmised. But until there is  
again an outlet for shipments, the sit-  
uation here in Oregon, it is said, can-  
not improve materially.

CAR SHORTAGE HANDICAP  
Congestion of Traffic at Eastern  
Terminals and Halting of Ocean  
Shipping Works Hardship  
on Western Trade.

On top of the car shortage that has  
crippled Oregon industries, prevented  
the shipment of a big part of last  
year's wheat crop to market, and in-  
directly played its part in forcing up  
prices of goods brought here for con-  
sumption, looms now added grief for  
the producer and shipper of the Pacific  
Northwest because of the virtual  
freight blockade that has come as the  
result of the vexed international situa-  
tion.

It is true, say those in close touch  
with industrial affairs, that conditions  
as regards the shipment and export of  
Oregon products could not be much  
worse than they are now; nevertheless,  
they are apprehensive that the prom-  
ised relief will be delayed interminably  
and perhaps the situation will grow  
even worse.

"The effect of it all will likely be  
to intensify the unfavorable situation  
that now confronts us in the Pacific  
Northwest," said J. N. Teal yesterday.  
Unless the blockade is broken, the  
effect will certainly be felt here. All  
that will be required will be a little  
time for the piling up of the traffic  
to make itself noticed here."

SHOES MEN'S, MISSES' AND CHILDREN'S SHOES

Misses' School Shoes, Children's, sizes to 8, \$1.75 val., pr. 98c  
Values \$2.25 pair..... \$1.39  
MEN'S HEAVY CHROME WORK SHOES, Blucher, regularly \$4.50..... \$2.98

SIMON'S SALVAGE STORE

CORNER FIRST AND ALDER STREETS

Announcement

The  
Portland Motor Car Company  
wish to announce to the people of Portland and Oregon that they have taken over the business of Frank C. Riggs Company, distributors of

Packard Motor Cars and Trucks

Temporarily we are located in the Wemme Building, Broadway and Burnside Street, where we will be pleased to meet all PACKARD customers and prospects and continue to render PACKARD service. Permanent location will be announced shortly.

Portland Motor Car Company  
Broadway and Burnside St. Phone Bndwy 521  
Cameron Squires, President Elmer J. Clark, Vice-President  
L. A. Howard, Sec. and Treas.

LADIES! DARKEN YOUR GRAY HAIR

Use Grandma's Sage Tea and Sulphur Recipe and Nobody Will Know.

The use of Sage and Sulphur for restoring faded, gray hair to its natural color dates back to grandmother's time. She used to keep her hair beautifully dark, glossy and attractive. Whenever her hair took on that dull, faded or streaked appearance this simple mixture was applied with wonderful effect.

But beware at home is mussy and out-of-date. Nowadays, by asking at any drugstore for a 60-cent bottle of "Wyeth's Sage and Sulphur Compound," you will get this famous old preparation, improved by the addition of other ingredients, which can be depended upon to restore natural color and beauty to the hair.

WYETH'S SAGE AND SULPHUR COMPOUND

ANY TWO OF THE FOLLOWING GROCERY SPECIALS

Table with 2 columns: Item and Price. Includes: 9-lb. sack of FLOUR, 32c; 1/2-lb. can ROYAL BAK'G POWDER, 17c; 5 bars Crystal White SOAP, 25c; 8 cans LIGHT-HOUSE Cleaner, 25c.

SEVERAL BOLTS OF DRESS GOODS. Good assortment of colors. Values to \$1 YARD, to close out, yard..... 28c

MEN'S COLLARS, the dozen..... 25c  
A Special Lot—Arrow and Other Brands

BOYS' PANTS, to close out, at..... 19c  
Slightly soiled. Formerly to \$1. Sizes 5 to 14.

SHOES MEN'S, MISSES' AND CHILDREN'S SHOES

Misses' School Shoes, Children's, sizes to 8, \$1.75 val., pr. 98c  
Values \$2.25 pair..... \$1.39  
MEN'S HEAVY CHROME WORK SHOES, Blucher, regularly \$4.50..... \$2.98

SIMON'S SALVAGE STORE

CORNER FIRST AND ALDER STREETS

For sale at all druggists  
Insist on Genuine in Red Cartons