

RIGHT-OF-WAY DEPARTMENT

Consolidated in 1937, right-of-way, franchises, permits, vacations, and inspections were placed under the direction of Court Engineer N. C. Anderson. This department is a development over a period of years as the securing of right-of-way grew in volume and importance. Not always has it been a problem. In fact, there is very little in early legislation which concerns right-of-way. It would seem that with the pioneers eager to project roads to connect their various claims and settlements, and with most of the territory still public domain, there was plenty of land through which highways might be built without infringing on the rights of property-owners.

The first contingency in connection with proposed road improvements was not right-of-way, but rather damages. Even the earliest legislation in 1854 provided for redress where any person felt himself aggrieved due to roads being located through his land. In such an event three disinterested householders were appointed as viewers to determine the nature and value of damages. The first claim recorded was reported on by D. T. Denny on September 5th, 1863 as one of three viewers who examined the property of George Holt and found that he was damaged to the extent of \$220.00 caused by a road running through his farm. This might also be considered the first right-of-way transaction. Subsequent legislation in 1867, in connection with damages provided that persons aggrieved by the action of any road supervisor in extracting material from his land or building ditches thereon might seek redress. In 1890 it was also provided that in case of relocation of roads due to washouts, persons damaged might claim on the commissioners. In all these cases and until about 1902 the appraisers were always three viewers appointed by the commissioners, who examined the premises, determined damages and reported their findings. On occasion, depending on the law in force at the time, one of the viewers might be the county surveyor.

If the damages assessed were unacceptable to the property owners, the law provided beginning in 1890 that the commissioners might condemn to secure the necessary right-of-way. Later, condemnation was provided for purposes of relocation or widening of roads, where deemed a vital public necessity. In 1901 it was decreed that the commissioners might require waivers of right-of-way to be secured by the principal petitioner, and that the surveyor's report was to consist of a statement of interested parties consenting to the road and either waiving damage or claiming a certain amount. There grew out of these beginnings a definite function of the county engineer's office, charged with right-of-way matters, which developed into the present department.

Encroachments on county right-of-way are another feature which engages the attention of this division. As early as 1866, supervisors were by law authorized to remove obstructions to roads, the county to pay damages (perhaps in lieu of right-of-way), but it was a peculiar condition that buildings could not be removed and that roads had to be relocated around them. The first notice recorded in the proceedings of the county commissioners in connection with encroachments occurred in 1885 where the county auditor was directed to notify a certain John Gove to remove his fence from the county road between his land and the adjoining property, the county owning the said right-of-way by virtue of purchase in 1872 from the former owner Joseph Gilson.

In the earliest days there were many defects in county title probably because roads which were badly needed were just built, without inquiry into right-of-way. Hence, as far back as 1855 the commissioners had to declare highways opened and traveled as lawful county roads, which was re-affirmed by law at various times, in 1879 it being determined by legislation that all roads surveyed and of record were declared to be lawful public highways regardless of defect in procedure. This in 1890

Rattle Feb 5 - 93
 To the Hon. Com. Court of King
 County his having been appointed
 by your Hon. body one of a
 committee of three to examine and
 assess the damage sustained by
~~the land~~ George Holt on account
 of a County road being laid
 along the flume and through
 the land Holts improvements
 I have to say that owing to
 circumstances I have been compelled
 to make my examination alone
 and therefore will make a
 separate report as follows
 to wit,

Damage to orchard	\$ 100-
Extra fencing	50-
Loss of land	40-
	<hr/>
	\$ 220

Amounting to two hundred and
 twenty dollars

J. L. [Signature]

FIRST DAMAGES ALLOWED
 Due to Road Building

was changed to include only such roads used by the public for not less than seven years, and maintained at public expense. In the highway code of 1937 this was re-enacted, and proper county roads were also declared to be those in use for not less than ten years whether maintained at public expense or not.

RIGHT-OF-WAY COSTS

The record in the county engineer's office discloses that the first deeds for right-of-way purposes were acquired in 1861, but the original papers, which would prove to be very interesting, are not available, probably because not until the 1870's were such documents recorded. From that time up to the present a total of 12,876 deeds has been obtained, covering a land area of 20,541 acres, costing \$481,645.12. At that rate the average cost per deed would be approximately \$38.00 and per acre about \$23.00.

During 1939, in addition to 165 easements, deeds secured and recorded for road purposes, excluding purchases of gravel pits, quarries and other such sites amounted to:

Districts	No. of Deeds	Total App. Area	Total Cost
South District No. 2	81	28.62	\$ 346.25
North District No. 3.....	123	42.93	1,534.36
TOTAL.....	204	71.56	\$1,880.61

Those requiring ten or more were:

<i>South District No. 2:</i> Old Military Road.....	29
South 126th Street.....	21
8th Avenue South.....	14
Amelia Schewe Road.....	10
<i>North District No. 3:</i> 10th Avenue N. E.....	34
Gardiner Street	12
Ashworth Avenue	10

FRANCHISES AND PERMITS

First granted by the territorial legislature in each individual case, the county commissioners gradually were empowered to issue franchises for public utilities, the law providing that none were to be exclusive nor to run for more than fifty years, which is in effect today. What might be termed the very first franchise was that granted by the act of January 27th, 1863 to Joseph Cushman to construct a telegraph line from Vancouver, Washington to British Columbia. The next in 1864 provided for the incorporation of the Seattle-Squak Railroad Company. The following year the legislature authorized H. L. Yesler and C. C. Terry to lay down water pipes in the town of Seattle, which is the first such franchise ever recorded. Other firsts were for gas in 1869 to H. L. Yesler and associates, telephone in 1881 to John M. Kollock, electricity in 1881 to Bailey Gatzert and others, horse-cars in 1883 to David T. Denny and George Kinnear, electric-cars in 1886 to Frank H. Osgood. Then followed applications for electric transportation, transmission lines, water systems, etc., which were in time more and more referred to the county engineer's office for recommendation, this eventually becoming one of the functions of the right-of-way department.

From 1881 when the county commissioners began granting them, and up to the end of 1939 there were 261 franchises and 14,555 permits issued. Collections of fees for permits from 1917 to date amounted to \$27,539.38 or an average of approximately \$1,200.00 per year. Issued during 1939 were:

Type	Franchises	Permits	Income From Permits
Pole Line			
Light and Power .....	....	1013	\$3,039.00
Telephone .....	....	56	168.00
Gas .....	....	14	14.00
Water	8	....	....
Water Connections .....	....	49	73.50
Water Service .....	....	730	365.00
Culvert .....	....	106	....
House Moving .....	....	40	....
Miscellaneous .....	....	7	....
TOTAL	8	2015	\$3,659.50

INSPECTIONS

Most of the inspections were made of work performed in connection with permits issued by this office. Again the watchfulness of this service resulted in no accidents being reported during the entire year.

Type of Inspection	District No. 2	District No. 3	Total
Permits—All kinds	1209	806	2015
Water Districts	467	312	779
Complaints—Drainage	109	84	193
Encroachments	19	21	40
Health Conditions	11	28	39
Miscellaneous	37	76	113
TOTAL	1852	1327	3179

VACATIONS

Early legislation dealt with the procedure necessary to authorize vacations, the first one consummated being approved by the county commissioners in 1858 on application of H. L. Yesler to vacate the alley in Block 1, Boren's Plat, Town of Seattle. Beginning in 1867 it was provided that roads were to be declared vacated which after locating were unopened or unworked for three years, changed to four years in 1869 and five years in 1890, with roads in dedicated plats exempted from such vacation by the 1909 session, even if unused five years. Aside from these compulsory vacations, early procedure called for a petition on the part of ten or twelve of the residents desiring such action, upon which the commissioners appointed three viewers to make a report. By 1902 when the use of viewers was discontinued applications for vacation were referred to the county surveyor for examination, which continues to be the method in effect today as confirmed by the highway code of 1937. This provides that on petition of at least ten freeholders, or on a unanimous resolution of the commissioners, the county road engineer is to survey and report. After a hearing, the commissioners must decide by a unanimous vote to either grant or deny the petition. It is further required that roads authorized but unopened and unused for five years are to be automatically vacated, excepting those dedicated in plats or deeded for road purposes. A further provision permits the state highway director to certify back to commissioners as a county road any portion of a primary state highway no longer needed.

All things considered, there have not been so many vacations over the years. From 1858 to 1939 there were a total number of 714 or about nine per year. For 1939 the record on petitions for vacation has been:

Disposition	South District No. 2	North District No. 3	Total
Granted	18	10	28
Rejected	1	1	2
TOTAL	19	11	30

FLOOD CONTROL

The first legislation relating definitely to the authority of counties to regulate and control the flow of waters to prevent floods was passed in 1921. Prior to that, and as early as 1858 there were various statutes regarding drainage, river improvement, and commercial waterways. Since all these phases as a whole constitute the flood control problem, a review of enactments concerning each subject is essential to the proper understanding of the situation in its entirety.

DRAINAGE LEGISLATION

The first law of any kind concerning drainage or flood control was passed in 1858 and provided for applications to be made to the county commissioners to drain marsh and swamp lands by the construction of ditches to be built by the petitioners, costs to be shared in proportion to benefits. Re-enacted in 1865 the measure was enlarged in 1875 to include drains and watercourses, and to authorize the county commissioners to establish and locate them on acceptance of the report of three viewers as to estimated cost, apportionment of benefits and damages, and length of ditch each person benefitted was to construct. On completion, owners were to maintain in proportion to benefits.

In the 1881 code it was enacted that on petition of two-thirds of the ownership of one body of 300 or more acres of tide, swamp, marsh or overflowed lands, three commissioners were to be elected to supervise the construction of dikes or ditches, to estimate damages and benefits, and to make assessments not only for the cost of the improvement, but for maintenance as well. County commissioners were authorized to divide the area into three or more districts, thus establishing for the first time, organization by districts, and election of district commissioners.

This gradually led to a statute passed on March 20th, 1895 which permitted the constituting of diking districts on petition of five or more inhabitants of the area designated. Elections were to decide the question of establishment and the choice of three diking commissioners, under whose direction construction and maintenance were placed and who, if the majority favored it, were authorized to issue bonds, to be retired by proportionate property assessments. For maintenance purposes assessments were also to be levied. By 1913 provisions were made whereby two diking districts might consolidate if so desired. In 1915 dissolution was also made possible on petition of not less than two-thirds of the landowners possessing at least three-quarters of the area.

In addition to diking, another act passed on March 20th, 1895 authorized the formation of drainage districts in the same manner, with the exception that petitions had to be supported by a majority of the acreage. By legislation enacted in 1907, they could be dissolved in the same way as provided above. Modifications in the process of establishment were brought about in 1913 and 1917, and existing diking and drainage districts instituted under the laws of 1895 were in 1917 permitted to reorganize by majority vote, on petition to the county commissioners by their district officials. The law of 1913, without affecting organizations already in existence, provided for areas to be called drainage *improvement* districts. The county engineer was charged with making surveys, estimate of cost and schedule of benefits and damages, and with two elected supervisors was to constitute a board to construct the system, which the county commissioners were to finance by the sale of warrants or bonds, to be retired by assessments against the property in proportion to benefits. The act passed in 1917 included diking *improvement* districts, and provided for consolidation of two or more diking or drainage districts when the county commissioners considered the move economical. It also decreed a change in management whereby in areas of more than 500 acres the majority could choose to elect three supervisors or have the county engineer act in that capacity. In areas of less than

500 acres the law required the county engineer to assume the duties of supervisor.

By 1923 under the same laws which provided for diking and drainage, sewerage *improvement* districts were added, to be formed in the manner provided, on the basis of a petition of four or more persons. Consolidation might also be ordered by the county commissioners for reasons of economy.

All areas, whether for diking, drainage or sewerage, which took in portions of two or more counties, were permitted to organize into joint districts, under certain conditions laid down by various legislative enactments of 1909, 1921, and 1923.

In 1933, due to the depression, the financing of diking, drainage, diking and drainage districts, and diking and/or drainage improvement districts, was permitted under the provisions of the state reclamation act giving the director of the department of conservation and development the necessary authority to advance money to such districts by appropriation from the state reclamation fund.

In this year too, provision was made for any diking or drainage district formed under the act of March 20th, 1895 and reorganized under legislation of 1917 to hold an election to determine on the inclusion of irrigation in their program and their title, after approval of a petition submitted to the county commissioners by their district officials.

Further clarification of the duties and powers of the officials of all diking, drainage, diking and drainage districts, and diking and /or drainage improvement districts, was the subject of statutes in 1935 and 1939.

RIVER IMPROVEMENT LEGISLATION

Although legislation providing for the financing of river improvements was not passed until 1907, the commissioners proceedings show that as early as 1866 appropriations for such flood control purposes were being made. The first one of record is an amount of \$400.00 set aside for work on the Cedar River under the direction of the road supervisor, who then and now is in charge of the expenditure of river improvement funds. In the 1870's much was accomplished on the White River, and by 1875 an act was passed authorizing district supervisors to expend road tax monies where needed to improve channels of sloughs, bays and rivers used as highways in their territory. Road funds continued to be used on the Duwamish, White, Green, Snoqualmie, and Cedar Rivers, and by 1903 to relieve the strain on the road operations, river improvement districts were authorized to be formed in somewhat the same manner as those for drainage purposes excepting that five directors were to be elected.

It does not appear that any such districts were organized, for road monies were still being spent on the various rivers until 1907, when the county commissioners were authorized to levy an annual tax not to exceed one mill, to be called the River Improvement Fund, to be expended in the district where raised. Legislation still in effect grants power to acquire right of way to preserve stream banks and prevent overflow, to construct embankments, to remove log jams, and to straighten channels or dredge new ones.

In the same year some \$500.00 was appropriated, to be matched by Pierce County, for preliminary surveys of the White and Stuck River watershed. This was the first action taken by the county authorities, which resulted in the passage of Chapter 54, Laws of 1913, under the provisions of which was formed the existing Inter-County River Improvement Commission of King and Pierce Counties.

COMMERCIAL WATERWAY LEGISLATION

Though drainage and river improvement legislation improved the situation in localized areas and helped conditions along the course of the streams, the discharge of accumulated waters at the outlets furnished quite a problem. The formation of drainage districts with their limited scope was not the answer, and neither could the necessary relief come from the utilization of the small amount of river funds available. The only solution seemed to be the creation of organizations designed to remedy this particular situation. Hence in 1909 a statute was passed enabling the majority of property owners involved to petition the county commissioners for the formation of commercial waterway districts. An election was to determine the question of establishment, at which time three commissioners were to be chosen to have charge of construction and maintenance. By majority vote bonds were to be authorized for the necessary improvements, to be retired by assessments against the property in proportion to benefits. Districts were to have the power of eminent domain; to straighten, widen or deepen stream channels; to construct canals, locks, dikes or other works to prevent overflow; to acquire right of way by purchase or condemnation; to sell or trade abandoned river beds for other needed property. Under this statute, validated in 1911, two such districts were organized, one for the Duwamish and the other for the Cedar River.

FLOOD CONTROL LEGISLATION

All the measures hitherto enacted were of an independent nature, being the outgrowth of local conditions. A successful attack on the flood menace could only be made as the result of a general cooperative movement with state and federal participation. Very early in the history of the county this appeared to be the aim of the pioneers. In 1855, again in 1858, and many more times thereafter the state legislature memorialized Congress for an appropriation to clear the White and Duwamish Rivers in order to permit navigation at all seasons of the year for 35 to 40 miles from Seattle. Since then, of course, the federal government has been assisting the state and the counties in this manner, and although their interest was always based on navigation, their contribution did much to relieve flood conditions.

Again these were isolated moves in the vast program that seemed essential to the elimination of the problem. Yearly the valleys were inundated, and the worst of the earliest floods occurred in December 1867 when the White, Duwamish, Black and Cedar Rivers overflowed their banks. The water stood seven feet deep. Houses, fences and other public and private property were washed away and the farmers sustained great losses. Alarmed by such havoc, the authorities next year petitioned Congress to empower King County to construct a canal between Lakes Union and Washington, lowering the water in the latter body, and granting the county all lands so reclaimed. The lakes were separated by a narrow neck of land, necessitating a portage between the two. Lake Washington's outlet was through the Cedar and Black Rivers and it was very apparent that flood conditions on those streams would be considerably ameliorated with the lowering of its waters. As early as 1854 Thomas Mercer proposed such a canal. In the 1860's Harvey Pike (son of the pioneer John Pike after whom Pike Street is named), who took up a claim which included the portage, proceeded to dig a canal using pick, shovel and wheelbarrow. Though doomed to failure, this was the first attempt ever made to connect the two lakes. In 1867 the U. S. Army Engineers reported the feasibility of such a canal, confirmed by another federal survey in 1871. Assistance from the United States government was sought but proving fruitless, Seattle citizens held a mass meeting at Yesler Hall in 1879 for the purpose of raising funds. Unsuccessful, Congress was again memorialized in 1883 for an appropriation to build a canal to connect the lakes and also Lake Union with Puget Sound. The first actual work was undertaken in the same year by the Lake Washington Improvement Co., which the year following succeeded in completing the project between the lakes. Continuous agitation resulted in the passage of the Rivers and Harbors act, in 1910, appropriating \$2,275,000 for the

federal construction of the locks provided King County built the canal. Work on the locks began in June 1911, and five years later the waters of Salmon Bay were raised, Lake Washington lowered to the level of Lake Union and the canals opened for navigation from Puget Sound to Lake Union, and from that body of water to Lake Washington.

This proved to be the most important individual measure that was executed with the assistance of the United States, which tended to alleviate general flood conditions. For the next ten years no change occurred until in 1921 the first flood control enactment was passed, authorizing counties to regulate and control the flow of waters to prevent floods. But it was not until 1933 that a real flood control policy eventuated.

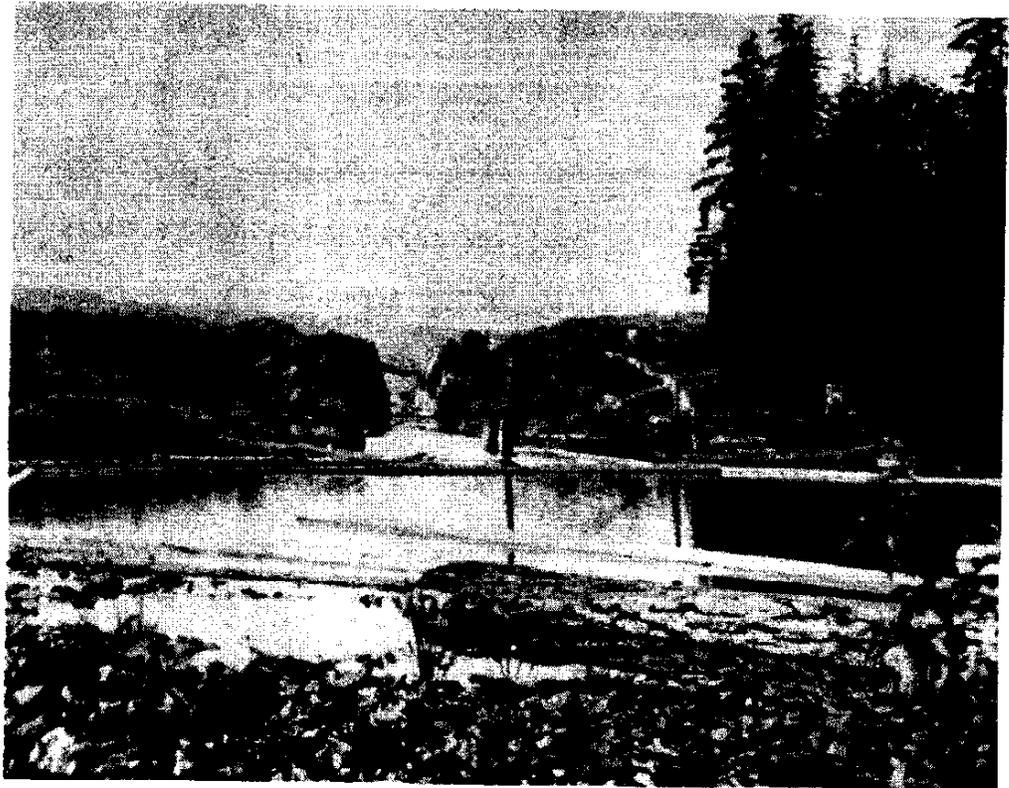
Legislation that year gave the county commissioners authority to request the state supervisor of hydraulics to construct the necessary works, if there were no objection on the part of the majority of property owners involved the cost to be paid by bonds or warrants to be retired by property assessments. On completion of the works, county and city were to maintain them jointly in proportion to the original cost.

In 1935 three statutes were enacted, the first of which provided a state policy for flood control under the director of conservation and development, with state participation in projects only as their interest might be affected, and with permission for flood control districts to contract for the maintenance of existing works with officials of diking, drainage, or waterway districts that might be located within such areas. Another law gave the state regulatory power over all waters within the state through flood control zones to be designated by the supervisor of hydraulics, who was also to have the supervision over construction, operation and maintenance of all flood control works, through issuance of orders and permits. A third enactment provided for the establishment of flood control districts for the whole or a part of a stream system, on petition of not less than ten residents, filed with the department of conservation and development. On approval of the project a commission was created consisting of the conservation and development director, the state supervisor of hydraulics, the state highway director, member of the state planning council and a resident of the region concerned. This commission was to call an election, which if favorable caused the establishment of the district, the powers and the duties of which were to construct and operate flood control works, (subject to the state director's approval) financing them by a general obligation bond issue if an election so decided; to acquire land by purchase or condemnation; to levy an annual tax up to two mills, and up to five mills if by majority vote. District directors were to be ex-officio county commissioners.

In 1937 the last mentioned act was modified in these particulars: Petition to form the district required 50 per cent or more of the acreage; the commission was to consist of the state supervisor of hydraulics, a professional hydraulics engineer, the county agricultural agent, and two residents of the regions concerned; taxing power withdrawn and bonds made payable by means of assessments apportioned according to benefits including public lands, state highways, etc.; three district directors to be elected; empowered to enter into contract with the state or the federal government for the construction and management of necessary flood control works.

PROPOSED LEGISLATION

Along the lines of the legislation outlined above, three measures were prepared under the direction of the Puget Sound Flood Control Council whose membership represents the University of Washington, the State Department of Conservation and Development, King, Snohomish, Whatcom, Skagit, Pierce, Thurston, Lewis, and Klickitat Counties, and the Inter-County River Improvement Commission (King and Pierce Counties). Presented to the last session of the legislature, they failed of



LAKE WASHINGTON CANAL
Built by Private Enterprise in 1883

enactment, but they will again be brought up during the coming year. These proposed acts are:

Repeal of River Improvement District Act: Repealing the inoperative river improvement district law passed in 1905, providing that fifty or more land owners might organize and tax themselves to control flood conditions on a river.

Amendment of River Improvement Act: Amending the present county river improvement law, and changing the name "River Improvement Fund" to "Flood Control Fund," to identify the program more closely with flood control operations. Within that fund an account is set up for maintenance, in harmony with the maintenance act described below. Powers of eminent domain are vested in the commissioners. Retained in the new act is the provision as regards river patrol, but under a state system and policy.

Maintenance Act: Setting up a combined state and local maintenance policy, and providing for systematic and orderly maintenance under the county engineer, supervised by the state, with their contribution of a small portion of the costs. Creating a division of flood control within the state department of conservation and development, which move is warranted by the importance of such operations in the welfare of the different communities.

ZONES AND DISTRICTS

As a result of legislation in former years, many drainage and commercial waterway districts have been organized, and flood control zones created, as follows:

DRAINAGE DISTRICTS

(Organized under Chapter 115, Laws of 1895)

No.	Location	Date Established	Approximate Acreage	Remarks
1	White River Valley (Renton Jct.-Kent)	Oct. 14, 1895	8,320	Operating
2	Vicinity of O'Brien	Dec. 12, 1904	448	Operating
3	Hollywood-Sammamish	Jan. 30, 1911	410	Operating
4	Issaquah-Sammamish	Dec. 6, 1915	928	Operating
5	Vicinity of Enumclaw	Feb. 28, 1916	1,200	Operating
6	Vicinity of Boise Creek, Enumclaw	Aug. 14, 1916	1,800	Operating
7	Cherry Valley	Aug. 12, 1918	850	Operating
8	Algona-Pacific City	July 15, 1919	.....	Abandoned 3/18/24
9	Kenmore-Hollywood	.....	.....	Not organized
10	Duval	Feb. 9, 1920	.....	Abandoned 3/19/23
11	Auburn-Kent	.....	.....	Not organized
12	Vicinity of Bellevue	Mar. 31, 1919	477	Operating
13	Vicinity of Enumclaw	June 16, 1921	800	Operating
14	Vicinity of Snoqualmie	Oct. 22, 1934	300	Operating

COMMERCIAL WATERWAY DISTRICTS

(Organized under Chapter 8, Laws of 1909)

(Validated by Chapter 10, Laws of 1911)

Number	Location	Date Established	Approximate Acreage	Remarks
1	Duwamish River	Feb. 28, 1910	40	Operating
2	Cedar River	Dec. 5, 1910	80	Operating

FLOOD CONTROL ZONES

(Established under authority of Chapter 159, Laws of 1935)

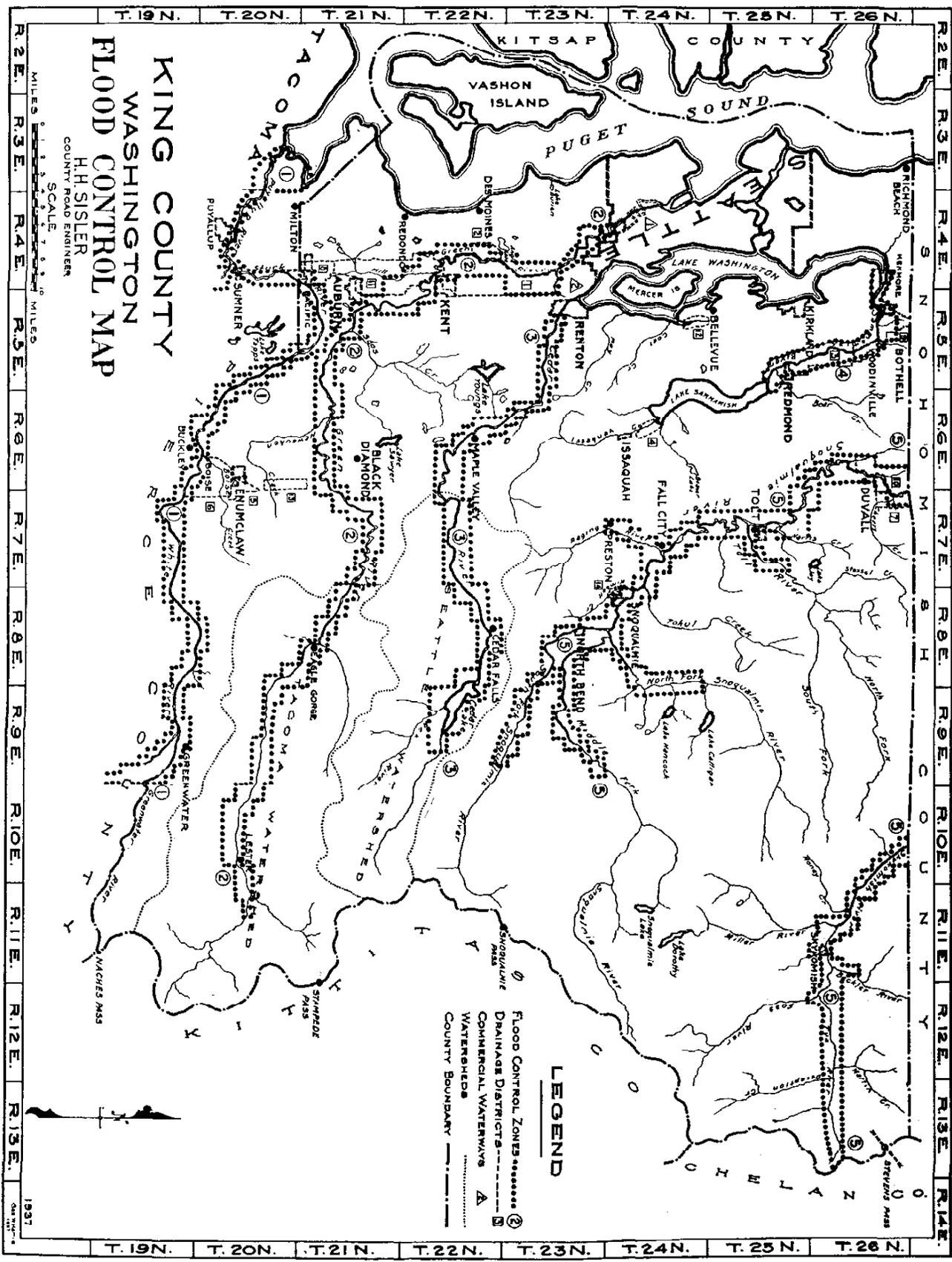
Number	Name	Counties Affected	Principal Rivers
1	Puyallup River	King-Pierce	Puyallup, White, Stuck, Carbon, Greenwater
2	Green River	King	Green, Duwamish, Black
3	Cedar River	King	Cedar
4	Sammamish R.	King	Sammamish
5	Snohomish R.	King-Snohomish	Snohomish, Snoqualmie, Skykomish, Raging, Tolt, Miller, Beckler, Tye, Pilchuck, Sultan

INTER-COUNTY COMMISSIONS

(Formed pursuant to Chapter 54, Laws of 1913)

Name	Year Established	Corresponding to
Inter-County River Improvement Commission.....	1914	Flood Control Zone No. 1
Inter-County Flood Control Commission	1937	Flood Control Zone No. 5

An attempt was made under Chapter 160, Laws of 1935, to organize a flood control district for the Sammamish Basin, replacing Drainage District No. 9, which had remained inoperative. An injunction secured by certain interests, prevented its formation. Districts in other parts of King County have not as yet been proposed.



KING COUNTY FLOOD CONTROL EXPENDITURES

The figures have been compiled from the county auditor's annual reports, including bond and warrant retirement.

Purpose	Years	Amount	Total
Drainage District No. 1.....	1895-1939	\$ 179,432.16	
2.....	1906-1939	58,938.77	
3.....	1912-1939	85,380.47	
4.....	1916-1939	33,646.99	
5.....	1916-1939	60,747.87	
6.....	1916-1939	108,443.56	
7.....	1919-1939	96,958.84	
12.....	1919-1939	74,377.14	
13.....	1921-1937	28,444.12	
14.....	1935-1939	1,409.45	
General.....	1918-1933	134,684.91	
Total Drainage Districts			\$ 862,464.28
Water District No. 1.....	1911-1939	5,240,052.56	
2.....	1911-1939	476,945.80	
East Waterway No. 2.....	1913-1919	3,383,433.22	
Duwamish Waterway	1923-24 1931-33	154,408.45	
Total Waterways.....			9,254,840.03
River Improvement—Districts 2 and 3.....	1907-1939	2,486,201.07	
Inter-County River Improvement	1914-1939	2,192,227.05	
Total River Improvement Funds.....			4,678,428.12
Canals—Government Canal Fund.....	1895-1909	262,971.77	
Lake Washington Canal.....	1901-1919	817,155.46	
Total Canals			1,080,127.23
TOTAL FLOOD CONTROL EXPENDITURES.....			\$15,875,859.66
AVERAGE ANNUAL FLOOD CONTROL EXPENDITURES			\$ 975,153.28



SNOQUALMIE RIVER
Bank Protection Between Fall City and Tolt

SUMMARY OF FLOOD DAMAGES

In the tabulation listed below information was taken from every report which contained figures as to damages and losses. It will be seen that many of the sums stated are at variance with each other, and for that reason no general annual total could be ascertained with any degree of accuracy. However, a summation of such amounts as appear, covering an average of about 20 years, reveals the annual flood damages for all classifications in all flooded areas in King County to be about \$645,000. This sum capitalized at 4 per cent, would fix the maximum limit of expenditures for flood control protection at about \$16,000,000 for 20 years, including the annual cost of operation and maintenance. If interest rates were greater than 4 per cent, the limit of expenditures would be reduced correspondingly. Since King County's total outlay for flood control purposes was approximately \$8,000,000 for the past 21 years, it will be seen that this is far below the capitalized sum of \$16,000,000. It therefore proves that further flood control operations on the part of King County with the assistance of the Federal Government are economically justified and warranted.

Flood Dates	Report	Agri- culture	Roads & Bridges	Towns	Rail- roads	Indus- tries	Miscell- aneous	Total
ZONE NO. 1—PUYALLUP RIVER								
(1) 1917-19	Document 153	(Pierce Co.)						\$ 389,260
(2) Dec. '33	King Co. Pl. Com.	\$ 18,938	(White R)					18,938
ZONE NO. 2 GREEN RIVER								
(3) 1917	Document 286							\$1,000,000
(3) Feb. '32	Document 286							400,000
Dec. '33	C. E. Thomas	\$650,000	\$162,000	\$68,000				880,000
(2) Dec. '33	King Co. Pl. Com.	711,818	52,670	13,000		\$138,055	\$12,600	928,143
Annual	Document 286	59,000	43,000	10,000			24,000	136,000
Annual	Document 377	74,000	43,000	13,000			38,000	168,000
(4) Annual	King Co. Eng.		67,200					342,200
ZONE NO. 3—CEDAR RIVER								
(5) Dec. '33	C. E. Thomas	\$ 25,000	\$ 75,000		\$40,000			\$ 140,000
(6) Dec. '33	C. E. Thomas	100,000	496,000		75,000			671,000
(2) Dec. '33	King Co. Pl. Com.	71,320	30,400			134,090		235,810
ZONE NO. 4—SAMMAMISH RIVER								
(2) Dec. '33	King Co. Pl. Com.	\$194,879	(Includes Issaquah Creek)					\$ 194,879
Dec. '33	King Co. Eng.	500,000	\$280,000					780,000
ZONE NO. 5—SNOHOMISH RIVER								
(7) Dec. '33	C. E. Thomas	\$249,600	\$ 55,000	\$25,000		\$ 20,000		\$ 349,600
(8) Dec. '33	Inter-Co. Flood Control Com.	724,591						724,591
(9) 1933	" " "	381,333						381,333
(9) 1934	" " "	383,466						383,466
(10) Dec. '33	King Co. Pl. Com.	255,060	57,725	2,000	\$69,250	6,000		390,035
(11) Annual	Inter-Co. Flood Control Com.		38,190			94,300		132,490
(7) Annual	King Co. Pl. Com.	50,000						50,000

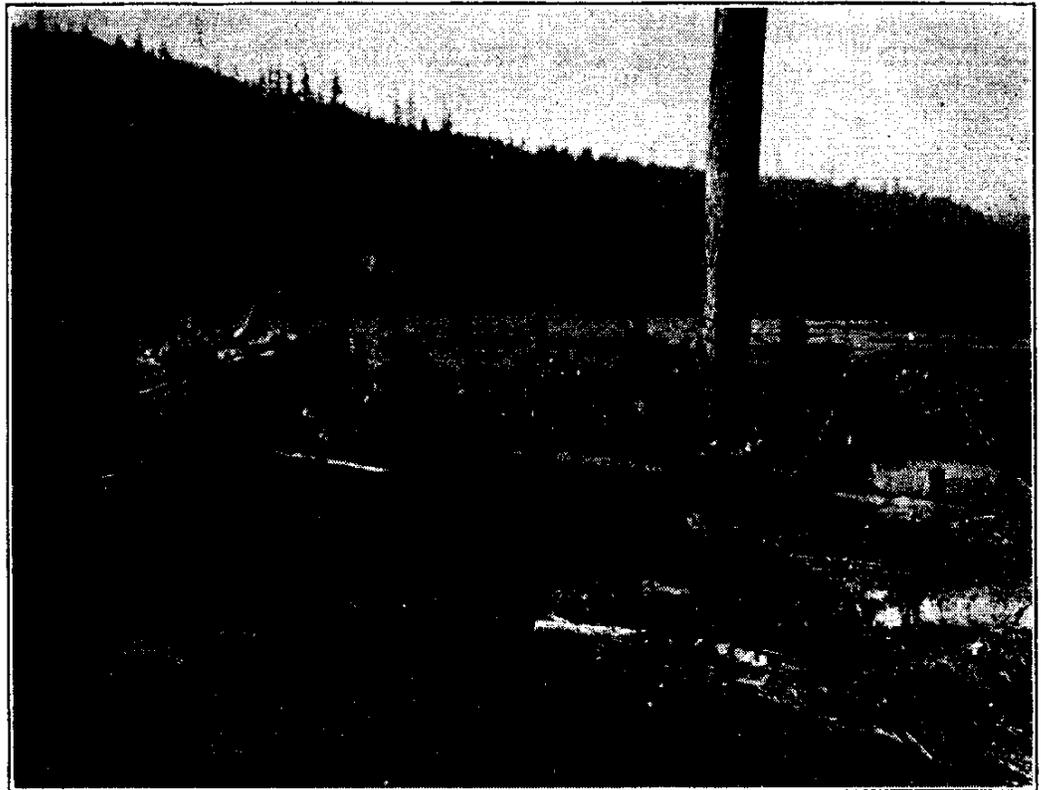
- Notes: (1) Pierce County losses of industries and railroads combined.
- (2) King County Planning Commission Report—July 1935 to July 1938. Based on survey covering 98 square miles containing about 2,000 parcels of land, and interviewing about 1,500 property owners in Zones 2-3-4-5. Loss for all zones equals 16.4 per cent of total state damage.
- (3) All losses not segregated.
- (4) Roads & Bridges \$67,200, balance not specified.
- (5) Engineer C. E. Thomas' own estimate.
- (6) Estimate of King Co. Supervisor of District No. 2.
- (7) Losses for Snoqualmie Valley in King County.
- (8) Divided as follows:
 King County—Snoqualmie River \$255,060.
 Snohomish County—Snohomish River \$230,023;
 Skykomish River \$145,836; Snoqualmie River \$61,315;
 Pilchuck River \$32,357.
- (9) Statement of Snohomish Flood Control Committee.
- (10) King County Planning Commission Report—July 1935 to July 1938, for Snoqualmie Valley.
- (11) Statement of Flood Control Committee, Everett Chamber of Commerce.

FLOOD DAMAGES



RAGING RIVER

Showing loss of valuable top soil



SNOQUALMIE RIVER

Debris deposited on road near Tolt

FLOOD CONTROL OPERATIONS

ZONE NO. 1

Boise Creek: This is a tributary of the White River one mile east of Enumclaw. Work was done during 1939, driving piles, planking and rip-rap to the amount of \$2,301.27 from river improvement funds.

ZONE NO. 2

Green River: The survey of the U. S. Army Engineers was completed this year and their report has already been forwarded to Washington, D. C.

Green River: From river improvement funds approximately one mile of dredging was accomplished, included in the projects listed below:

Project No.	Location	Nature	Cost
R.I.C. 1	Titus Pit and River Road south....	Fall trees, powder holes for blasting, gravel bank, fill on River Road.....	\$ 4,604.77
2	Brennan Farm, at Thomas on west bank	Cut brush, deepen channel, protect river bank	4,723.61
4	Ike Evans Farm, at Green River Road	Remove gravel bar, widen channel, protect Green River Road	3,570.26
5	Green River Road, at Ike Evans Farm	Fall trees, cut brush, fill and widen road, install 18 in culvert	13,677.77
6	Hamilton Slough	Cut brush, widen and deepen channel, protect river bank	3,513.93
7	Winters Farm, north of Hamilton Slough	Widen and deepen channel, protect river bank and Green River Rd.....	5,883.60
8	Stanley Egan Farm	Cut and burn brush, remove bar and island to widen river, deepen channel, protect river bank	2,302.58
11	Green River Road—Titus Pit to Porter Bridge	Slash and burn brush on road and river bank	2,921.99
12	South of Titus Pit & River Road near Evans Farm	Snag river, dragline to protect the River Road	10,324.92
13	East of Ely Packing Co.....	Drive and plank 250 piles, dragline.....	734.40
16	O'Brien Bridge to Orillia	Clear brush at ditches	1,100.75
R.I.M. 1 & 3	Green River	Maintenance	4,456.27
TOTAL.....			\$ 57,814.85

Burns Creek: The work planned in 1938 was completed this year, from 8th Avenue South, east to the Duwamish River. The total cost was \$22,252.83 with the W. P. A. contributing \$9,443.90 and the county furnishing \$7,114.58 from river improvement funds under Project R. I. C. No. 3, and \$5,694.35 as part of County Road Project E-34.

Newauken Creek: Project R. I. C. No. 9 was set up for the building of a bulkhead with piles and planks on the Selleck Road one mile east of the Enumclaw-Black Diamond Road. The cost from river improvement funds was \$4,590.78.

ZONE NO. 3

Cedar River: The U. S. Army Engineer's survey is practically complete, with a small amount of field work still to be done.

Cedar River: At Maplewood Farms operations included dragline to remove bars, deepen and widen the channel to protect the river bank, the Pacific Coast Railway and the state highway, also removing stumps and logs. As Project R. I. C. No. 15, there was \$2,728.21 expended from river improvement funds.



OPERATIONS ON
CEDAR RIVER
Dragline Crews
Working at Elliott

ZONE NO. 4

Sammamish River: In the 1938 report the situation was fully described, and mention was made of a survey by the U. S. Army Engineers. Now completed, a full report has been sent to the authorities in Washington, D. C.

Sammamish River: Concerning the W. P. A. project set up in 1938 under No. O. P.-665-93-2-378, formerly No. 17-5-1466, which contemplates the correction of the lower two and one-half miles of the stream, from Lake Washington to Bothell, at an estimated cost of \$189,430.00 of which \$118,534.00 was to be supplied by the federal government, and \$70,896.00 from county funds, the local W. P. A. authorities are unable to furnish the skilled labor required for dredge operations, so that work has not started. Expenditures from the engineer's budget have been \$181.06 in 1939.

The county engineer's office has developed a plan for the entire alleviation of the flood menace, by the widening and straightening of the present channel, taking advantage of the storage possibilities of Lake Sammamish without the use of a dam or any obstruction in the outlet to the lake, and without raising its present flood level. For the entire project from Lake Washington to Lake Sammamish the detailed estimated cost would be:

3,205,000 cubic yards excavation.....	at	\$.20	\$641,000.00	
4 Highway Bridges.....	"	12,000.00	48,000.00	
12 Single Lane Cable Bridges.....	"	3,000.00	36,000.00	
40,000 cubic yards Rock Rip-rap.....	"	2.00	80,000.00	
Trimming and Grading.....			32,000.00	
Right-of-way			13,000.00	\$850,000.00

Issaquah Creek (East Fork): The project set up last year under W. P. A. No. O. P. 665-93-2-327 for an estimated cost of \$17,751.00 of which the county's share is \$4,781.00, was rescinded on September 18th, 1939 both because of a general shutdown of W. P. A. operations and because no labor was available at that time in the vicinity of the job. Survey and working plans were completed in 1939 by the county engineer's office, at an expenditure of \$504.90 from their budget.

Issaquah Creek: Two small jobs were done in 1939 from river improvement funds. Project R. I. No. 23 at Dr. Hillery's place called for the removal of a log jam to clear the channel at a cost of \$65.42, and Project R. I. No. 25 for sloping and rip-rap at Biles place to cost \$198.72, or a total of \$264.13.

Cottage Lake: This proposed drainage project necessitated engineering to the extent of \$372.06 from the engineer's budget.

ZONE NO. 5

Snohomish-Snoqualmie Rivers: The survey of the U. S. Army Engineers has been accomplished, but the final report has not yet been forwarded to Washington, D. C.

Snoqualmie River Area: Project O. P. 65-93-911 continued operations as a W. P. A. job until shut down, on Oct. 31st, 1939. The county, however, proceeded with work on the various portions at locations on the Snoqualmie River, the three forks thereof, Raging River, Tolt River, and the Fall City and North Bend, (Colingswood) Quarries. Up to date the total expenditures have been \$369,778.00, of which the W. P. A. contributed \$213,614.00, the state \$4,227.00 and the county \$151,937.00. During 1939 improvements were made along the Snoqualmie River which include placing of 25,000 cubic yards of rock rip-rap by the W. P. A., being equivalent to 5,000 linear feet of bank protection. County crews placed brush along some 5 miles of bank. On the South Fork a crew of five men with one caterpillar, were engaged in removing jams for a period of three months. Another crew of five men with a caterpillar were engaged in dredging for seven months. About 40,000 cubic yards were excavated from the river channel, being approximately 5,000 linear feet of gravel bars removed. On the Middle Fork, a crew of four men with a caterpillar accomplished 1,500 linear feet of dredging, or 12,000 cubic yards. On the Raging River, operations which were begun in 1938 resulted in the deepening, widening and straightening of the lower one and one-half miles of the stream. In the course of the work approximately 125,000 cubic yards of gravel was taken from the river bed. About 29,000 cubic yards of rock rip-rap was placed, being approximately two cubic yards per linear foot. The total length of channel correction was 7,400 linear feet, the cost of which was about \$50,975.86, with federal assistance, or approximately \$6.88 per foot.



RAGING RIVER
PROJECT
Fall City Quarry

RAGING RIVER OPERATIONS



D-8 Caterpillar
Operating Upstream



Dragline Operations
From Bridge



Project Completed
East of Fall City
Bridge

From river improvement funds, the following projects were completed, many being included in the outline of work performed, as related above.

Project Number	Location	Nature	Cost
R.I.C. 1	South Fork Snoqualmie River (at Cedar Falls Bridge, Maloney's Grove, Bridge No. 405A, and Sunset Highway)	Remove log jams, dredge channel	\$10,453.30
2	North Fork Snoqualmie River .....	.....	792.54
3	Raging River (at bridge No. 615A)	Clear right of way, remove bars, straighten channel and rip-rap banks	35,644.04
4	Middle Fork Snoqualmie River (at Norman's place)	Remove log jams, dredge and straighten channel	2,812.64
5	Colingswood Quarry .....	.....	28.65
6	Snoqualmie River (at Peterson's and Colson's places)	Slope and bank rip-rap	5,097.80
7	Beaver Creek	Clear brush & debris, rip-rap channel	164.24
8	Tolt River Dike .....	.....	1,002.37
9	Fall City Quarry	Install pump & pipe line for sluicing	1,562.34
10	Snoqualmie River (at Peterson's place).....	Slope and rock rip-rap	4,162.52
11	Snoqualmie Flood Gates (at Vincent).....	Remove debris, repair seals and fit up pump	115.81
12	Patterson Creek	Clear log jams, remove abandoned bridge No. 927R	126.99
13	Snoqualmie River (at Carnation Farms).....	Slope and rip-rap	627.14
14	Snoqualmie River (at Ford's place)	Slope and rip-rap	359.38
15	Snoqualmie River (at Davidson's place).....	Slope and rip-rap	2,568.05
16	Snoqualmie River (at Sato's place).....	Slope and rip-rap	1,806.17
17	Snoqualmie River (at Westman's place).....	Slope and rip-rap	2,245.47
18	Raging River (at Samuelson's place)	Cut brush and danger trees, remove log jam, enlarge channel and rip-rap	811.11
19	Snoqualmie River (at mouth of Raging River)	Remove gravel bar, rock rip-rap the banks	8,334.32
20	Falls City Powder Magazine	Materials only, WPA labor	266.05
21	Snoqualmie River (at Guptil's place).....	Slope and rip-rap	2,991.41
22	Snoqualmie River (at Alexander's place).....	Gravel roadway, slope and rip-rap	500.19
26	North Bend Quarry	Shooting test holes	22.71
28	Snoqualmie River (at Bulb Farm).....	Construct rock dike	326.91
30	Snoqualmie River (at Adair's place)	Construct rock dike	673.52
RIM 1	Snoqualmie River (between Tolt and County line)	Cut brush and remove danger trees	503.23
2	Snoqualmie River (at Adair's place)	Rip-rap bank	1,181.97
3	Snoqualmie River (at Vincent)	Repair flood gate	31.00
TOTAL.....			\$ 85,211.87

Engineering from the county engineer's current expense budget called for the expenditure of \$2,506.16 on the Raging River, \$1,746.55 on the Snoqualmie River and \$2,500.59 on the Tolt River, or a total of \$6,753.30.

MISCELLANEOUS

Lake Burien: Set up in the latter part of 1938, it was completed this year as river improvement project R. I. C. No. 14, with the county contributing \$1,635.25, and the W. P. A. the balance.

River Improvement Projects: All in North District No. 3, the following projects from river improvement funds, not in any of the flood control zones enumerated above, have been done:

Project Number	Location	Nature	Cost
RIC 29	Lyons Creek	Slope and rip-rap	\$ 308.61
31	25th NE at E. 175th St.	Place tiling at intersection	325.43
32	E. 179th St. at Meridian	Place tiling at street end	245.89
33	E. 179th St. at 1st NE	Place tiling	105.71
34	Monohon Road	Construct ditch	234.85
35	Durland Drive	Back-fill washout	291.98
36	15th NE at E. 117th St.	Place tiling at corner	20.33
37	23rd NE at E. 70th St.	Place tiling	204.34
38	E. 147th St. at 35th NE	Place tiling	83.37
39	Linden Ave. at N. 90th St.	Place tiling	26.43
40	39th NE at E. 135th St.	Install tiling and catch basin	36.60
41	Haller Lake District	Rip-rap at intersections and stock-pile rock	653.86
42	68th NE at NE 183rd St.	Install tiling	151.21
43	View Ave. (W. 95th St.-Alvin Pl.)	Fill in slide and gravel	285.21
45	E. 107th St. at 21st NE	Install tiling and catch basin	40.69
48	Rd. No. 1079, Factoria Rd.	Replace wooden culvert with tile	37.60
RIM 5	Solberg Road	Ditching	408.93
TOTAL			\$ 3,461.04

PROPOSED FOR 1940

Snoqualmie River: Work planned on the existing project which will continue to operate with W. P. A. assistance, includes 29,000 cubic yards of rock rip-rap equalling approximately 5,000 linear feet of bank protection, and nineteen miles of snag removal from Fall City to the county line.

Raging River: To protect the town of Preston and to eliminate the continual erosion of gravel banks which forms a deposit in the lower reaches of the river, channel correction is proposed for one and one-half miles upstream from Preston.

Tolt River: With the county and the W. P. A. cooperating, the lower three miles of permanent channel construction will be done, necessitating 40,000 cubic yards of excavation and 20,000 cubic yards of rip-rap. From the mouth of the river to the forks seven miles of snagging and jam removal work will be accomplished.

Snoqualmie—South & Middle Forks: Surveys and plans are being made for the proposed diversion of flood waters from the South Fork to the Middle Fork of the Snoqualmie River.