



Oregon

Kate Brown, Governor

Department of Land Conservation and Development

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NOTICE OF ADOPTED CHANGE TO A COMPREHENSIVE PLAN OR LAND USE REGULATION

Date: June 20, 2016
Jurisdiction: City of Brookings
Local file no.: CP-2-14
DLCD file no.: 005-14

The Department of Land Conservation and Development (DLCD) received the attached notice of adopted amendment to a comprehensive plan or land use regulation on 06/16/2016. A copy of the adopted amendment is available for review at the DLCD office in Salem and the local government office.

Notice of the proposed amendment was submitted to DLCD 69 days prior to the first evidentiary hearing.

Appeal Procedures

Eligibility to appeal this amendment is governed by ORS 197.612, ORS 197.620, and ORS 197.830. Under ORS 197.830(9), a notice of intent to appeal a land use decision to LUBA must be filed no later than 21 days after the date the decision sought to be reviewed became final. If you have questions about the date the decision became final, please contact the jurisdiction that adopted the amendment.

A notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR chapter 661, division 10).

If the amendment is not appealed, it will be deemed acknowledged as set forth in ORS 197.625(1)(a). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

DLCD Contact

If you have questions about this notice, please contact DLCD's Plan Amendment Specialist at 503-934-0017 or plan.amendments@state.or.us



NOTICE OF ADOPTED CHANGE TO A COMPREHENSIVE PLAN OR LAND USE REGULATION

FOR DLCD USE

File No.: 005-14 {22335}

Received: 6/16/2016

Local governments are required to send notice of an adopted change to a comprehensive plan or land use regulation **no more than 20 days after the adoption.** (See [OAR 660-018-0040](#)). The rules require that the notice include a completed copy of this form. **This notice form is not for submittal of a completed periodic review task or a plan amendment reviewed in the manner of periodic review.** Use [Form 4](#) for an adopted urban growth boundary including over 50 acres by a city with a population greater than 2,500 within the UGB or an urban growth boundary amendment over 100 acres adopted by a metropolitan service district. Use [Form 5](#) for an adopted urban reserve designation, or amendment to add over 50 acres, by a city with a population greater than 2,500 within the UGB. Use [Form 6](#) with submittal of an adopted periodic review task.

Jurisdiction: City of Brookings

Local file no.: CP-2-14

Date of adoption: 06/13/2016

Date sent: 6/16/2016

Was Notice of a Proposed Change (Form 1) submitted to DLCD?

Yes: Date (use the date of last revision if a revised Form 1 was submitted): 08/01/2014

No

Is the adopted change different from what was described in the Notice of Proposed Change? Yes No
If yes, describe how the adoption differs from the proposal:

No

Local contact (name and title): Donna Colby-Hanks, Planning Manager

Phone: 541.469.1137

E-mail: dcolbyhanks@brookings.or.us

Street address: 898 Elk Drive

City: Brookings

Zip: 97415-

PLEASE COMPLETE ALL OF THE FOLLOWING SECTIONS THAT APPLY

For a change to comprehensive plan text:

Identify the sections of the plan that were added or amended and which statewide planning goals those sections implement, if any:

Text revisions to the Public Facilities Plan and Goal 11 Public Facilities and Services to reflect an updated Storm Water Master Plan.

For a change to a comprehensive plan map:

Identify the former and new map designations and the area affected:

Change from	to	acres.	A goal exception was required for this
change.			
Change from	to	acres.	A goal exception was required for this
change.			
Change from	to	acres.	A goal exception was required for this
change.			
Change from	to	acres.	A goal exception was required for this change.

Location of affected property (T, R, Sec., TL and address):

The subject property is entirely within an urban growth boundary

If the comprehensive plan map change is a UGB amendment including less than 50 acres and/or by a city with a population less than 2,500 in the urban area, indicate the number of acres of the former rural plan designation, by type, included in the boundary.

Exclusive Farm Use – Acres:

Non-resource – Acres:

Forest – Acres:

Marginal Lands – Acres:

Rural Residential – Acres:

Natural Resource/Coastal/Open Space – Acres:

Rural Commercial or Industrial – Acres:

Other: – Acres:

If the comprehensive plan map change is an urban reserve amendment including less than 50 acres, or establishment or amendment of an urban reserve by a city with a population less than 2,500 in the urban area, indicate the number of acres, by plan designation, included in the boundary.

Exclusive Farm Use – Acres:

Non-resource – Acres:

Forest – Acres:

Marginal Lands – Acres:

Rural Residential – Acres:

Natural Resource/Coastal/Open Space – Acres:

Rural Commercial or Industrial – Acres:

Other: – Acres:

For a change to the text of an ordinance or code:

Identify the sections of the ordinance or code that were added or amended by title and number:

For a change to a zoning map:

Identify the former and new base zone designations and the area affected:

Change from to Acres:

Change from to Acres:

Change from to Acres:

Change from to Acres:

Identify additions to or removal from an overlay zone designation and the area affected:

Overlay zone designation: Acres added: Acres removed:

Location of affected property (T, R, Sec., TL and address):

List affected state or federal agencies, local governments and special districts: DLCD

Identify supplemental information that is included because it may be useful to inform DLCD or members of the public of the effect of the actual change that has been submitted with this Notice of Adopted Change, if any. If the submittal, including supplementary materials, exceeds 100 pages, include a summary of the amendment briefly describing its purpose and requirements.

IN AND FOR THE CITY OF BROOKINGS

STATE OF OREGON

ORDINANCE 16-O- 760

IN THE MATTER OF ORDINANCE 16-O-760, AN ORDINANCE ADOPTING REVISIONS TO THE CITY OF BROOKINGS COMPREHENSIVE PLAN, GOAL 11, PUBLIC FACILITIES AND SERVICES AND ADOPTING A NEW PUBLIC FACILITIES PLAN. THIS EFFECTIVELY REPEALS THE PREVIOUS PUBLIC FACILITIES PLAN CREATED BY ORDINANCE 16-O-755 AND ALL SUBSEQUENT REVISIONS.

Sections:

- | | |
|------------|------------------|
| Section 1. | Findings |
| Section 2. | Amendments |
| Section 3. | Severance Clause |
| Section 4. | Effective Date |

The City Council for the City of Brookings ordains as follows:

Section 1: Findings

1. Goal 11 of the Brookings Comprehensive Plan must be amended to reflect the updated Storm Drainage Master Plan. Amended Goal 11 is attached hereto and incorporated by reference.
2. The Public Facilities Plan must be updated to reflect the updated Storm Drainage Master Plan. The updated plan is attached hereto and incorporated by reference.
3. Staff sent a 35 day notice to DLCD as required under ORS 197.610 for post acknowledgment plan amendments for the proposed changes to the Comprehensive Plan and Public Facilities Plan.
4. Staff conducted a public hearing before the Brookings City Planning Commission May 03, 2016. The Commission recommended approval to the City Council.
5. Following public notice, as required by law, the Brookings City Council conducted a hearing on the proposed amendments on June 13, 2016 at 7:00 p.m. at the Brookings City Hall. Approval was given to the Comprehensive Plan and to the Public Facilities Plan that are attached hereto and incorporated by reference.

Section 2: Amendments

The City of Brookings Comprehensive Plan (Ordinance No. 16-O-755, previously the most recent revision) is amended as shown by the attached changes in the Comprehensive Plan and by adopting the attached Public Facilities Plan.

Section 3: Severance Clause

If any section, subsection, sentence, clauses or phrases of this ordinance is, for any reason held to be unconstitutional or otherwise invalid, such decision shall not affect the validity of the remaining portions of this ordinance.

Section 4: Effective Date

This ordinance shall take effect 30 days following its passage.

First Reading: June 13, 2016 Passage: June 13, 2016
Second Reading: June 13, 2016 Effective Date: July 12, 2016

Signed by me in authentication of its passage this 15th, day of June, 2016

ATTEST:

Ron Hedenskog
Mayor Ron Hedenskog

Teri Davis
City Recorder Teri Davis

PUBLIC FACILITIES PLAN

CITY OF BROOKINGS WATER SYSTEM

The City of Brookings acquired the water system serving property within the City in 1973 and operates the water system as a City business enterprise. The City has made substantial improvements to the water system over the years.

The water enterprise consists of the following operating systems:

- **Source of Supply:** The locations where the City takes or has the right to take ground water for municipal purposes, and the system for transmission of the water taken from these locations identified in Table 3.1 to the water treatment plant and distribution system.
- **Treatment:** Filtering and chemically treating water from the sources of supply during river turbidity which DHS has determined the water treatment is not necessary.
- **Distribution:** A system of pipes that delivers water from the treatment plant to storage reservoirs, fire hydrants and individual properties for domestic and industrial use. Distribution includes operation and maintenance of water usage meters.
- **Management and Customer Service:** Overall management of the water enterprise, engineering, planning, meter reading, billing/collections and customer service (new connections, turn-on/turn off, etc).

WATER SOURCE

Following is the current status of the City's various water right development applications and certificates.

Table 3.1: City of Brookings Water Rights

Source /Type	Permit No.	Certificate No.	Priority Date	Quantity
Chetco River (S) (Ranney)	27610	83682	9/14/1961	4.0 cfs
Chetco River (S) (Ranney)	31293	87356	1/21/1966	1.57 cfs
Chetco River (G) ("Tide Rock")	G-5601	64614	8/14/1972	6 cfs
Chetco River (S)	51383		12/12/1990	1.0 cfs Mar 1 - Jun 30]
Chetco River (R)	R11535		5/13/1993	62.3 Ac-ft
Chetco River (R) (10 Reservoirs)	51595		5/13/1993	62.3 Ac-ft
Ferry Creek (S)	1740	2076	8/22/1913	3.0 cfs
Ferry Creek Reservoir (R)	372	1407	8/9/1916	1.5 MG
Ferry Creek Reservoir (R)	408	2071	8/25/1917	28 Ac-ft
Ferry Creek Reservoir (R)	31224	46861	2/10/1966	167.4 Ac-ft
Ferry Creek Reservoir (R)	R4720	46860	2/10/1966	167.4 Ac-ft
Joe Hall Creek (S)	4674	4953	6/23/1920	2.5 cfs
Ransom Creek (S)	18123	20734	2/24/1946	0.83 cfs

Currently, the Chetco River supplies 100 per cent of the City's water needs through a Ranney type groundwater intake collector located along the North Bank Chetco River approximately 4

miles upstream from the Highway 101 bridge. The Ranney Collector is designed for a capacity of 5.7 cubic feet per second (cfs) with all three pumps running, although a portion of the 12-inch AC piping from the intake to the treatment plant is questionably undersized for this flow rate. The Ranney Collector is operated with only 1 pump running rated 1250 gpm or 2.7 cfs. The City installed 9,500 ft of new 16-inch raw water line from the point of diversion to the treatment plant in 2008. There is 4,900 feet of 12-inch AC line between the intake and treatment plant that should be upsized to 16-inch DI in order to operate more than one 1250 gpm (2.7 cfs) pump at the intake.

In 2012, Certificates 83682 and 87358 were obtained as part of a negotiated agreement with Oregon Water Resources Department (OWRD) and Waterwatch, and represent the only water rights currently used by the city for municipal water production.

WATER TREATMENT

The water treatment plant, installed in 1976, is a Neptune Microfloc Aquarius Model AQ-300 that utilizes the conventional rapid sand filtration treatment process. The plant consists of two identical, side-by-side units with a combined capacity of approximately 2.6 mgd. DHS recently downgraded the requirement to operate the treatment plant and water is allowed to be delivered year round with only disinfection. The water treatment plant is also the location of the main distribution pumps which are operated at 2.1 MGD.

WATER DISTRIBUTION

The main line distribution system consists of approximately 26.5 miles of pipe ranging in size from 2 to 16 inches. Pipe materials vary with the most common types being asbestos cement (AC) and polyvinyl chloride (PVC). The distribution system is over-extended in the higher elevation portions of the service area and is not capable of delivering fire flows in some areas. The master plan update has identified over \$6 million dollars in needed distribution pipe upgrades and replacements.

WATER USAGE

Water projection demands in 2013 maximum day demand is 2.1 MGD and expected to increase to 2.3 MGD by 2018. Residential water use has significantly decreased from 96.9 gpcd in 2007 to 96.9 gpcd in 2012. The City began offering water conservation incentives to customers in 2007. Unaccounted for water use has also reduced from 17% loss in 2007 to 10.1% water loss in 2012. The City has contracted an annual leak detection survey to credit for the loss reduction.

FIRE FLOWS

The water system must offer sufficient capacity to furnish water for firefighting while maintaining adequate flows for domestic, commercial and industrial demands. In addition, the required fire flow must be delivered at an accepted residual pressure, which is 20 psi. The City of Brookings has adopted the Oregon Fire Code. The Oregon Fire Code provides the minimum fire flow standard applied to new development. A matrix used to determine fire flow requirements can be

found in Oregon Fire Code, Appendix B, Table 105.1- Minimum required fire flow and flow duration for buildings. There is no community-wide standard, although a basic fire flow of 1,500 gpm for a two hour duration is a minimum in the Oregon Fire Code.

WATER STORAGE

With the completion of the 1.6 million gallon Seacrest reservoir in 2009, the current available storage is 3.6656 million gallons, or 1.78 times the peak day demand. The sizing of the Seacrest reservoir was reduced from a proposed 2.0 mg due to site constraints. The City received a grant to fund installation of a .5 mg water reservoir east of the Brookings Airport. Construction is slated to begin on this project in the fall of 2014. The site will accommodate an additional .5 mg reservoir in the future. In addition, the 2014 master plan update recommends an additional new water storage facility of at least 250,000 gallons in the Old County Road area.

WATER SYSTEM MASTER PLAN

The City adopted a Water System Master Plan Update prepared by PACE, An Engineering Services Company on July 28, 2014.

Harbor Water People's Utility District

WATER SOURCE

Currently the Chetco River supplies the Harbor Water Peoples Utility District (HWPUD) water needs. The river intake is a Ranney collector with a rated capacity of 6 million gallons per day. Four pumps serve the intake; each rated at 2.4 mgd capacity. The pumps alternate, with two operating together to handle peak demands.

The HWPUD currently holds two surface water rights from the Chetco River and has two ground water sources. These are summarized in the following table.

Harbor Rural Water District Water Rights			
Source	Priority Date	Amount	Amount
Chetco River	1966	3.500 cfs	2.26 mgd
Chetco River	1980	7.00 cfs	4.53 mgd
Well G3240	1966	3.50 cfs	2.26 mgd
Well G9438	1980	7.00 cfs	4.53 mgd
Total		21.00 cfs	13.58 mgd

WATER TREATMENT

The Ranney intake is considered equivalent to a ground water system. For this reason, water treatment is not practiced.

WATER DISTRIBUTION

The distribution system is an extensive loop system that extends from the Chetco River to the California border, and consists of approximately 50-55 miles of pipe ranging in size from 2 to 16 inches. Pipe materials vary with the most common types being asbestos cement (AC) and polyvinyl chloride (PVC), and ductile pipe.

WATER USAGE

Current water production data shows that the average daily water demand is 700,000 gallons with the peak day demand being 1,700,000 gallons. Serving an estimated 2,500 persons, the current population, the average daily water usage per person is approximately 280 gallons, with a peak demand of 680 gallons.

FIRE FLOWS

The water system must offer sufficient capacity to furnish water for fire fighting while maintaining adequate flows for domestic, commercial, and industrial demands. Also the required fire flow must be delivered at an accepted residual pressure which is 20 psi. The HWPUD has sufficient storage to meet a demand of 1500 gpm for two hours where necessary. The necessary storage to meet that requirement would be 180,000 gallons. HWPUD has the capacity to deliver fire flows.

WATER STORAGE

There are eleven water storage reservoirs in the HWPUD, which give a total storage capacity of 2,060,000 gallons. The following table summarizes the current water storage for the district.

Harbor Water District Storage			
Reservoir	Bottom Elevation	Overflow Elevation	Storage Capacity
Crown Terrace 1	525.5'	537.5'	10,000 gal
Crown Terrace 2	525.5'	537.5'	10,000 gal
Crown Terrace 3	795'	807'	10,000 gal
Crown Terrace 4	795'	807'	10,000 gal
Crown Terrace 5	1,025'	1,037'	10,000 gal
Crown Terrace 6	1,025'	1,037'	10,000 gal
Hallway 1	201.36'	234.81'	750,000 gal
Hallway 2	203.62'	234.81'	500,000 gal
Coleman	355.18'	388.60'	300,000 gal
Benham	355.18'	386.60'	200,000 gal
Freeman	203.32'	234.74'	250,000 gal
TOTAL			2,060,000 gal

The required storage for the HWPUD is shown in the following table.

Harbor Water Storage Estimate		
Peak Day Demand	1,700,000 gallons	
Twice the Ave Day Demand	1,400,000 gallons	
Larger of the above two		1,700,000 gallons
Fire Storage	1500 gpm x 2hrs	180,000 gallons
Equalization Storage	20% peak	340,000 gallons
Required Storage		2,220,000 gallons

HARBOR WATER PUD MASTER PLAN

Harbor Water PUD adopted a Master Plan in December, 2000 that is incorporated herein by this reference.

CITY OF BROOKINGS WASTEWATER SYSTEM

The original Brookings sewer system was constructed about 1916 and service was initially limited to the downtown area. The City assumed operation of the sewer system soon after incorporation in 1951. The City operates the wastewater system as a City business enterprise. The wastewater enterprise consists of the following operating systems:

COLLECTION

The City accepts domestic sewage from property in the service area that is connected to the sanitary collection system, and transmits the sewage to the wastewater treatment plant. The collection function includes the operation of sewage lift stations installed at various locations within the collection system to assist the flow of sewage to the treatment plant.

Currently, the collection system consists of a network of 6, 8, 10 and 12-inch mains connected to 18 and 21-inch interceptors and lift stations. There are approximately 32.7 miles of 6-inch to 21-inch gravity mains and 2.75 miles of 4-inch to 14-inch diameter force mains in the collection system. The system provides service connections to individual properties within the service area. The interconnection with the HSD also functions as a part of the collection system.

LIFT STATIONS

The City currently operates 13 lift/pump stations located to serve areas which cannot be served with gravity-fed sewer mains.

TREATMENT

Treatment involves removal of solids from the sewage received at the wastewater treatment plant, and clarification of processed solids after biological treatment and disinfect using U.V. bulbs in the effluent stream, to meet federal and state standards prior to discharge into the ocean. Treatment includes the processing, reprocessing and disposal of solids removed from the sewage.

The wastewater treatment plant has been located at Chetco Point since the early 1950's. Major modifications to the plant were made in 1973, 1991, and 2000.

Treated water, or effluent, produced by the wastewater treatment plant is discharged to the Pacific Ocean. The Oregon Department of Environmental Quality establishes discharge limitations for discharge to ocean waters. A new Class B sludge dewatering facility was constructed and brought on line in December, 1012 which eliminated the need for sludge trucking to Grants Pass.

RELATIONSHIP TO HARBOR SANITARY DISTRICT

In 1976, the Harbor Sanitary District was formed to serve an area just south of the City. The City and HSD have entered into a series of intergovernmental agreements whereby the City accepts sewage from HSD for treatment. See below for a description of the HSD system.

BROOKINGS WASTEWATER MASTER PLAN

The City adopted a Wastewater Facilities Master Plan in April, 2016. That Master Plan is incorporated herein by reference. A detailed discussion of the treatment system and plant capacity can be found in the Plan. Until sewer service can be extended to properties, interim urban-level treatment systems may be allowed only if specifically provided for in master plans which set forth appropriate standards and conditions and which have been adopted as post-acknowledgement plan amendments or periodic review work task elements.

HARBOR SANITARY DISTRICT WASTE WATER SYSTEM

The community of Harbor is an unincorporated residential, commercial, and industrial area south of the Chetco River and the City of Brookings. The Harbor Sanitary District (HSD) has served this area since June 1976. The HSD operates only a collection system. Wastewater is piped to the Brookings wastewater treatment plant for treatment. The area's land use is predominantly residential, but a regional shopping center and an extensive commercial and industrial complex surround the Brookings-Harbor Boat Basin. The Harbor Bench area south of Harbor, an area experiencing steady growth, currently is out of the sewer service area; however, it is an area that potentially may become part of the service area. In 1979 the Oregon Health Division directed the HSD to annex an adjoining area, the Oceanview Mobile Home Estates, due to wastewater treatment concerns.

POPULATION

The following population data was taken from the "City of Brookings Comprehensive Utilities Plan" dated September 1981. Population projections were based on the 1970s, a growth period.

Harbor Sanitary District Population Growth				
Year	1980	1990	2000	2010
Population	1,968	2,645	3,555	2,770

COLLECTION SYSTEM

In 1976, the HSD was formed. The collection system consists of four pump stations and a network of gravity lines. Wastewater is pumped across the Chetco River to the south portion of the City of Brookings service area. There a 20-inch gravity main conveys the wastewater to the Brookings treatment plant. The daily flow rate is approximately 0.28 mgd.

The collection system consists of 16.5 miles of 8-inch and 12-inch transite pipe.

PUMP STATIONS

Flows from the entire Harbor collection system enter HSD pump station No. 14. Discharge from this station is to the Brookings WWTP by means of an 8-inch force main over the Chetco River or a 12-inch force main under the Chetco River. Space for additional force mains is available. Pump station No. 14 is rated at 2,000 gpm and 125 feet. The other three pump stations are small and serve limited areas.

HARBOR SANITARY DISTRICT MASTER PLAN

HSD completed and adopted a Master Plan in December.

Until sewer service can be extended to properties, interim urban-level treatment systems may be allowed only if specifically provided for in master plans which set forth appropriate standards and conditions and which have been adopted as post-acknowledgement plan amendments or periodic review work task elements.

CITY OF BROOKINGS STORM DRAINAGE

The City of Brookings operates a storm drainage system within the city boundaries. A large portion of the storm drain infrastructure within the city limits is on private property, and is not maintained by the City. The infrastructure crossing Chetco Avenue is owned and maintained by ODOT. Storm water collected within private development and the City is typically conveyed through a series of constructed open channels or piping and is discharged to the nearest natural water body (local streams, Chetco River, Pacific Ocean). Portions of the infrastructure are old and have exceeded their life expectancy.

The existing storm drain system includes approximately 23 miles of gravity piping that range in size from 8 inches to 60 inches in diameter, and is both publicly and privately owned. Pipe materials typically consist of high density polyethylene (HDPE), polyvinyl chloride (PVC), reinforced concrete pipe (RCP), and corrugated metal pipe (CMP). A significant portion of the City's storm water conveyance system consists of natural and constructed open channels.

For storm drain infrastructure design, a storm with a recurrent interval of 25 years is appropriate for city streets and neighborhoods. The rainfall total for a 25-year storm is 8 inches in a 24-hour period. A storm with a recurrent interval of 50 years is appropriate for drainage facilities intersection or passing through Chetco Avenue. The rainfall total for a 50-year storm is 9 inches in a 24-hour period.

STORM DRAINAGE SYSTEM MASTER PLAN

The City adopted a Storm Drainage Master Plan prepared by The Dyer Partnership Engineers & Planners, Inc. on (date of adoption). The plan is hereby incorporated by this reference.

CURRY COUNTY

Curry County services all public storm drainage in the study areas north and south of the Chetco outside City limits. The service level is mainly rural road maintenance that consists of ditch culvert cleaning associated with road maintenance. All other drainage features are privately owned. The Harbor Bench area, which is outside the urban growth area, has

experienced flooding and erosion due to upstream growth and diversion of flows due to culvert placement.

CITY/ COUNTY STORM DRAINAGE MASTER PLAN

On January 12, 2009, the City and the County adopted the "Storm and Surface Water Facilities Plan for Brookings-Harbor Area." In the Plan are design and development standards and proposed improvements to the storm drainage facility. There are also maps depicting the various basin areas in City limits and the Urban Growth Area, hydrologic/ hydraulic analysis, and the discussion of the effects on specific areas in the Plan. The Plan is hereby incorporated by this reference.

The Storm and Surface Water facilities Plan for Brookings Harbor Area" contains the following policies:

- Low impact development is preferred.
- Negative impacts to natural watercourses are to be avoided.
- Piping of natural watercourses is to be avoided, where practicable.
- Protection of ground water sources is critical.
- Proposed facilities should address water quality impacts and mitigation measures.
- Erosion and sediment must be controlled using the City, County, and Department of Environmental Quality requirements.
- Stormwater discharges shall be maintained at current levels.
- A public education program is recommended to disseminate information on the importance of preventing negative impacts from stormwater.

The "Storm and Surface Water Facilities Plan for Brookings-Harbor Area" contains specific design and development standards and proposed improvements to the storm drainage facility. To avoid adverse impacts created by development, the Plan contains five strategies to be generally utilized:

1. There should be no post-development net increase in storm drainage discharge downstream.
2. Low impact development practices as described in the 2007 "Storm and Surface Water Facilities Plan" shall be implemented.
3. The capacity of the downstream drainage infrastructure is improved to convey the increased flow. Usually this means constructing larger culverts and storm drains. Generally, the natural drainage channels are improved, but because of the study area's proximity to the ocean and the steep rocky terrain, these channel improvements may not be necessary.
4. A regional detention facility is constructed to capture the additional runoff and release the flow at a slower natural rate. A regional facility is normally associated with a single drainage way or creek.
5. An onsite detention facility is constructed for each individual development. The goal for a regional or onsite detention facility is that the runoff from the post-development condition be reduced to flow equaling the pre-development condition.

The Harbor Hills Master Plan Area within the UGA is required to prepare a comprehensive surface water management plan prior to any land use approvals. The details required and the review and approval process are described in the "City of Brookings and Curry County Joint Management Agreement", dated June 30, 2010.

BROOKINGS HARBOR URBAN GROWTH AREAS

URBAN GROWTH BOUNDARY

Service Provider

North of Chatham River

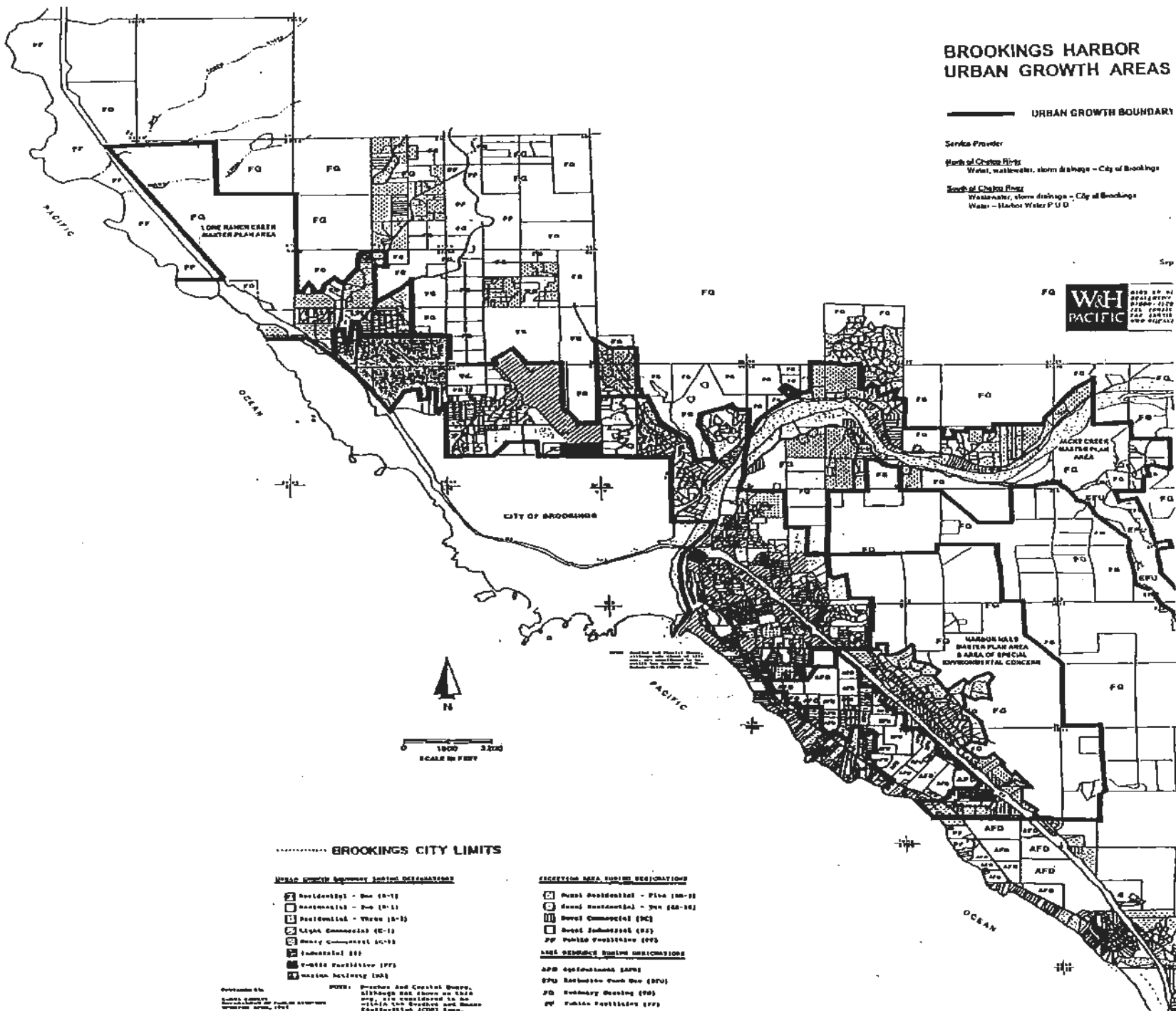
Water, wastewater, storm drainage - City of Brookings

South of Chatham River

Wastewater, storm drainage - City of Brookings

Water - Harbor Water P.U.D.

5/9/16



..... BROOKINGS CITY LIMITS

URBAN GROWTH BOUNDARY (UGB) DESIGNATIONS

- 1 Residential - One (R-1)
- 2 Residential - Two (R-2)
- 3 Residential - Three (R-3)
- 4 Light Commercial (LC-1)
- 5 Heavy Commercial (HC-1)
- 6 Industrial (I-1)
- 7 Office/Professional (OP)
- 8 Medium Density (MD)

Brookings City
Public Facilities
Department
June 1, 2016

NOTES: Harbor and Coastal Areas, although not shown on this map, are considered to be within the Harbor and Beach Reclamation (CBR) Area.

RECREATION AREA DESIGNATIONS

- 1 Rural Residential - One (RR-1)
- 2 Rural Residential - Two (RR-2)
- 3 Rural Commercial (RC)
- 4 Rural Industrial (RI)
- 5 Public Facilities (PF)

LAND DESIGNATION DESIGNATIONS

- APD Agricultural (APD)
- EPD Estuarine Park Use (EPD)
- FD Forestry (FD)
- PF Public Facilities (PF)

GOAL 11 PUBLIC FACILITIES AND SERVICES

GOAL:

To plan and develop a timely, orderly and efficient arrangement of public facilities and services to provide a framework for urban and rural development.

FINDINGS:

1. The City has adopted a Public Facilities and Services Plan that establishes the framework for the distribution of water and sanitary sewer services and storm drainage systems throughout the expanded Urban Growth Boundary.
2. The City has adopted a Water Master Plan/Conservation Management Plan. On July 28, 2014, the City adopted "City of Brookings Water Master Plan Update". This update included data in the appendices from the 2007 "Water System Master Plan Update" regarding the Harbor Water People's Utility District which serves the Brookings Urban Growth Area south of the Chetco River Bridge.
3. The City has adopted a Water Curtailment ordinance that provides the city with the mechanisms to curtail water use in emergencies, including low surface water flows in the Chetco River.
4. On June 13, 2016 the City adopted "City of Brookings Storm Drainage Master Plan". This update included data in the appendices from the "Storm and Surface Water Facilities Plan for Brookings-Harbor Area."
5. On April 11, 2016 the City adopted a Wastewater Facilities Plan developed by the Dyer Partnership dated November 2015.
6. The city currently provides the following facilities and services within the City Limits:

A. Public Works

- 1) Water Treatment - 2.0 to 2.6 mgd capacity.
- 2) Water Distribution, Pumping and Storage - (Total connections 3,354 -3,053 of the connections are residential, 2012).
- 3) The Wastewater service area includes the incorporated area of Brookings plus the Harbor Sanitary District to the South. (Total of 3358 connections within the City limits. The Harbor Sanitary District has approximately 895 connections, which are pumped to the City's treatment plant., November 2015). Current capacity provides for an average dry weather flow of 1.7 MGD, peak day average flow of 10.9 MGD and a peak wet weather hydraulic capacity of 15.5 MGD.
- 4) Wastewater Collection and Pumping - All public facilities within the city limits are the responsibility of the City of Brookings. All such facilities in the Harbor Sanitary District are owned, operated and maintained by that district.
- 5) Street and Infrastructure Maintenance - The City's Public Works Department provides maintenance of City streets, water mains, sewer mains, storm drains, and other infrastructure systems.

B. Solid Waste Removal - is presently done by franchised contract

C. Fire Prevention and Protection Services

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 - Snack shack
 - b. Bud Cross Park
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 - 3 Picnic tables
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- Manley Arts Center

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 - c. The right to furnish the inhabitants of said City with water shall be forever

vested in the City of Brookings, and no franchise, right or privilege shall hereafter be granted to or contract made with any person or corporation by said City to furnish or supply the said City or its inhabitants with water, without the authorization of the legal voters of said City.

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- C. Water Master Plan/Conservation Management Plan. The City will maintain a Water Master Plan/Water Conservation Management Plan, which will be updated as required.

- D. A Backflow Prevention Program was adopted in 2012.
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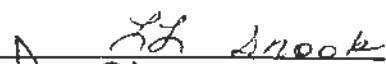
The Chief of Police shall be responsible for continually monitoring the department's facility requirements and operations. In conjunction with the annual preparation of his budget request, a written evaluation shall be prepared for the City Manager, who in turn, may call attention to specific items for consideration by Planning Commission, Council or staff.

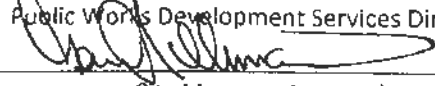
CITY OF BROOKINGS

Council Agenda Report

Meeting Date: June 13, 2016

Originating Dept: PWDS


Public Works Development Services Director


City Manager Approval

Subject: An Ordinance adopting revisions to the City of Brookings Comprehensive Plan Goal 11, Public Facilities and Services and adopting a new Public Facilities Plan.

Recommended Motion: Motion to adopt Ordinance No. 16-O- 760 to implement revisions to the City of Brookings Comprehensive Plan Goal 11, Public Facilities and Services and adopting a new Public Facilities Plan.

Financial Impact: Estimated cost of \$11.4 million dollars projected over the next 10 years for storm water projects listed in the master plan.

Background/Discussion:

Although Master Plans are developed to assess needs over a 20 year time period, it is prudent to review them on a 5 year schedule to determine that the assumptions used in their development continue to be viable. The last update to the Storm Drainage Master Plan (SDMP) was done in 2008 by former City Engineer, HGE.

The purpose of the SDMP is to provide guidance for the following:

- Identifying potential improvements and management options
- Prioritize the repair of aging infrastructure
- Address current sizing needs
- Serves as a planning document to meet long term growth needs within the City
- Address regulatory requirements for health, sanitation and security
- Identifying funding options for financing

Adoption of the revised Public Facilities and Services Plan adopts the updated SDMP by reference. An updated SDMP is necessary for eligibility for Federal Disaster Funding as well as for other Agency funding opportunities.

Revisions have been made to the Public Facilities Plan and Goal 11, Public Facilities and Services of the Brookings Comprehensive Plan to reflect the information from the SDMP. The Executive Summary of the SDMP is provided as Attachment B of this report. The full document is available at City Hall and can be found on the City's web page as well.

A hearing on this matter was conducted by the Planning Commission on May 3, 2016. The Commission noted several scrivener's errors and inconsistency's in the plan but nothing that would alter or impact the recommendations contained therein. They recommended approval of the plan after implementation of the changes.

Policy Considerations:

In keeping with Council Goal of maintaining updated Master Plans to facilitate long range planning of maintenance and construction of City infrastructure.

Attachment(s):

- a. Ordinance No. 16-O- 760
- b. SDMP Executive Summary
- c. Goal 11, Public Facilities and Services
- d. Public Facilities Plan

CITY OF BROOKINGS PLANNING COMMISSION
STAFF REPORT

SUBJECT: Comprehensive Plan Amendment
FILE NO: CP-2-14
HEARING DATE: May 3, 2016

REPORT DATE: April 21, 2016
ITEM NO: 5.2

GENERAL INFORMATION

APPLICANT: City Initiated.
REPRESENTATIVE: City Staff.
REQUEST: Approval of the Storm Drainage Master Plan (SDMP), as well as text revisions to the Public Facilities Plan (PFP) and Goal 11 Public Facilities and Services to reflect the information from the master plan. City initiated.

PUBLIC NOTICE: Published in local newspaper.

BACKGROUND INFORMATION

Although Master Plans are developed to assess needs over a 20 year time period, it is prudent to review them on a 5 year schedule to determine that the assumptions used in their development continue to be viable. The last update to the SDMP was done in 2008 by former City Engineer, HGE.

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- Identifying potential improvements and management options
- Prioritize the repair of aging infrastructure
- Address current sizing needs
- Serves as a planning document to meet long term growth needs within the City
- Addresses regulatory requirements for health, sanitation and security
- Identifying funding options for financing

Revisions have been made to the Public Facilities Plan (**Attachment B**) and Goal 11, Public Facilities and Services (**Attachment C**) of the Brookings Comprehensive Plan to reflect the information from the SDMP. The Executive Summary of the SDMP is **Attachment A**. The full document is available at City Hall and can be found on the City's web page as well. All documents will be presented to Council for adoption after recommendation of the Planning Commission.

RECOMMENDATION

After careful consideration, and any input the public may provide, Staff supports a Planning Commission recommendation of approval of file CP-2-14, Storm Drainage Master Plan, and revisions to the Public Facilities Plan and Goal 11, to the City Council.

Executive Summary

ES.1 INTRODUCTION

The City of Brookings is located in Curry County on the Southern Oregon Coast. Brookings' current population is 6,450 persons (Portland State Universities Population Research Center, 2013). A large portion of storm drain infrastructure within city limits is on private property, and is not maintained by the City. Storm water collected within private development and the city is typically conveyed through a series of constructed open channels or piping and is discharged to the nearest natural water body (local streams, Chetco River, Pacific Ocean). Portions of the infrastructure are old and have exceeded their life expectancy.

The purpose of this Storm Drainage Master Plan is to provide a comprehensive plan to assist the City in the management of its storm water infrastructure for the next 20 years. The Master Plan will identify piping deficiencies due to sizing, age, and other factors. This study will utilize a previous Stormwater Engineering Study (HGE, 2008) as a basis for renewed evaluation. The City has experienced a significant amount of damage since the previous study, which necessitates an updated plan for the future.

ES.2 EXISTING SYSTEM

The majority of the storm drain infrastructure for the city of Brookings is located along Highway 101 and in the downtown area. The infrastructure crossing Highway 101 is owned and maintained by ODOT. A large portion of storm drain infrastructure within city limits is on private property, and is not maintained by the City. The existing storm drain system includes approximately 23 miles of gravity piping that range in size from 8 inches to 60 inches in diameter, and is both publicly and privately owned. Pipe materials typically consist of high density polyethylene (HDPE), polyvinyl chloride (PVC), reinforced concrete pipe (RCP), and corrugated metal pipe (CMP). A significant portion of the City's stormwater conveyance system consists of natural and constructed open channels.

For the purposes of this Storm Drainage Master Plan, the study area was divided into thirty-eight drainage basins, based on topography and the City's storm drain infrastructure. Large basins were further divided into smaller subbasin areas to increase the level of accuracy of the computer modeling. Additional basin information can be found in Section 6 of this study.

ES.3 IDENTIFICATION OF DEFICIENCIES

For storm drain infrastructure design, a storm with a recurrent interval of 25 years was selected as appropriate for city streets and neighborhoods. The rainfall total for a 25-year storm is 8

inches in a 24-hour period. A 50-year storm event was applied to all drainage facilities intersecting or passing through Highway 101. The rainfall total for a 50-year storm is 9 inches in a 24-hour period.

For purposes of this study, the Rational Method and the Soil Conservation Service Runoff Method (SCS TR-20 model) are used to estimate peak runoff values for existing and future development conditions. Section 6 of this Master Plan summarizes the results for stormwater runoff calculations for the city of Brookings. Data for calculations for basin and subbasin runoff is provided in Appendix D.

The city of Brookings provided a map of problem areas that they patrol during rain events. Most of these problem areas are storm water inlets, catch basins, or abatement issues that the City enforces through notification. The City spends a significant amount of maintenance hours patrolling these areas. A "Hot Spot" map that the City uses for patrol is located in Appendix E.

A wide variety of deficiencies were observed in television inspection tapes of the existing storm water system. Each of the deficiencies has the potential to contribute significantly to the problems within the city of Brookings storm collection system. Pipe inspection results are described in Section 6.5.

ES.4 RECOMMENDED PLAN

Section 7 of this Master Plan identifies multiple projects that address deficiencies within the storm drainage system. The project priorities are ranked from Priority 1 through Priority 3. Each priority group is defined as follows:

Priority 1: These are the highest priority projects that should be undertaken as soon as adequate funding is available. It is recommended that these projects be undertaken within the next five years with highest projects on the list to be addressed in the next year or two.

Priority 2: While not of the highest priority, these projects should be in the City's capital improvement planning window beyond the five-year horizon. As Priority 1 projects are completed, Priority 2 projects should be moved to Priority 1 status. System degradation or failures, project coordination, or other occurrences may require the movement of Priority 2 projects to Priority 1 status ahead of schedule. New projects that are developed that are not critical should be grouped in Priority 2 until funding is available.

Priority 3: Priority 3 projects are either of low priority or are dependent on development. If development in an area necessitates the implementation of a Priority 3 improvement, the project should be moved to Priority 1 status, assuming that adequate funding is available. Some projects may remain in Priority 3 indefinitely if the need for the project or the development requiring it never arises.

Table ES.4.1 includes a summary of project costs. The project numbers with an asterisk indicate a project is on private property or within ODOT rights-of-way. Detailed cost estimates for each project were developed for each site improvement and are located in Appendix D.

**TABLE ES.4.1
PROJECT COSTS AND PRIORITIES**

Project Number	Description	Cost (Dollars)	Priority
1A*	Elk Drive to Ross Road right-of-way	\$232,700	1
1B	Ross Road right-of-way to north side of Highway 101	\$204,190	1
1C*	North side of Highway 101 to south side of McDonald's	\$356,910	1
1D	South side of McDonald's to Mill Creek Pond	\$520,080	1
2A*	Napa Auto Parts Storm Improvements	\$195,210	1
2B*	Highway 101 crossing at Napa Auto Parts	\$75,480	1
3	Macklyn Creek near the Pacific Ocean	\$11,170	1
4	Ransom Avenue bound by Macklyn Creek & Kevin Place	\$260,490	1
5A*	Floral Drive	\$247,100	1
5B	Railroad Street, Hazel Street and Del Norte Lane	\$1,713,510	1
6	Marina Drive and Old County Road	\$28,460	1
7	Fifth Street and Ransom Avenue	\$76,660	1
8	Ransom Avenue, bound by Third St. & Highland Avenue	\$38,150	1
9	Tanbark Avenue & Railroad Street	\$617,840	1
10	North side of City Hall	\$60,040	1
11	Highway 101 and Mill Beach Road	\$125,250	1
12	Hemlock Street bound by Fern Avenue and Willow Street	\$10,705	1
13	Ransom Avenue and Highway 101	\$38,660	1
14A	Memory Lane and Buena Vista Loop	\$151,450	1
14B*	Memory Lane, west of Cypress Street	\$83,060	1
14C	East side of Buena Vista Loop	\$61,960	1
15	Old County Road bound by Lundeen Road & Fir Street	\$168,090	1
16	Old County Road Reroute	\$1,310,210	2
17	Mendy Street, Art Street, and Pacific Avenue	\$476,990	2
18	Easy Street, west of Pioneer Road	\$108,640	2
19	Alder Street bound by Birch Street and Memory Lane	\$284,010	2
20*	429 & 431 Buena Vista Loop	\$43,220	2
21A	Oxford Street and Maple Street	\$129,870	2
21B	Oxford and Maple St. intersection to Matot St. dead end	\$97,460	2
22*	Highway 101 bound by Ross Road and Hillside Avenue	\$33,510	2
23*	Highway 101 and Fleet Street	\$13,820	2
24	Mill Beach Road, bounded by Railroad St. & Smith Dr.	\$132,300	2
25	Arnold Lane, Rowland Lane, & Smith Drive	\$751,310	2
26	Third Street, bound by Ransom Avenue and Hassett St.	\$26,945	2
27	East Manor Park Outfall	\$110,470	2
28	Ransom Avenue, bound by Paradise Lane & Second St.	\$104,810	2
29	Seventh Street & Hassett Street	\$251,430	2
30	King Street bound by 715 Railroad St. and Wharf Street	\$204,030	2
31	Ransom Avenue, bound by Kevin Place and Pioneer Rd.	\$250,720	2

TABLE ES.4.1
PROJECT COSTS AND PRIORITIES continued

Project Number	Description	Cost (Dollars)	Priority
32	Second Street, west of Bud Cross Park	\$6,180	3
33*	Highway 101, east of Napa Auto Parts	\$92,750	3
34	Easy Street, bound by Fifth Street & Sixth Street	\$12,350	3
35	Macklyn Creek crossing at Easy Street	\$43,450	3
36	Mill Beach Road, west of Fred Myers	\$7,210	3
37	Third Street between Easy Street & Ransom Avenue	\$102,600	3
38	Intersection of Second Street and Easy Street	\$41,670	3
39	1339 Crissey Circle	\$22,050	3
40	Memory Lane and Cedar Street	\$72,170	3
Subtotal Priority 1 Public Projects		\$4,084,705	
Subtotal Priority 1 Private Projects*		\$1,190,460	
Subtotal Priority 2 Public Projects		\$4,239,195	
Subtotal Priority 2 Private Projects*		\$90,550	
Subtotal Priority 3 Public Projects		\$307,880	
Subtotal Priority 3 Private Projects*		\$92,750	
Total Of All Projects		\$10,005,340	

* Project is located on private property

ES.5 PLAN IMPLEMENTATION

The city of Brookings should develop an implementation schedule for the storm drainage projects developed in this study. Funding sources, development pressures, economics, and other variables will affect the implementation of this plan.

It is recommended that the City maintain the three-tiered group priority approach when addressing projects, as discussed in Section 7. By completing the higher priority projects and moving on to the lower priority projects, the City will systematically complete projects necessary to maintain and improve their system. The City should begin developing a plan to finance the selected improvement projects.

ES.6 POTENTIAL FINANCING OPTIONS

Based on recommendations from the Storm Drainage Master Plan, the overall cost for storm drain system improvements is over ten million dollars. Funding assistance is not typically as readily available for storm drain system improvement projects, since public health is not typically at risk. As discussed in Section 8, various funding options are available, including storm drainage system fees, system development charges (SDCs), bonds, loans, local improvement districts (LIDs), and capital construction (sinking) funds.

A financing strategy or plan must provide a mechanism to generate capital funds to pay for the proposed improvements. It is recommended the City complete a financial evaluation to assist in determining what options and capital improvement projects they want to implement.

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GOAL 11 PUBLIC FACILITIES AND SERVICES

GOAL:

To plan and develop a timely, orderly and efficient arrangement of public facilities and services to provide a framework for urban and rural development.

FINDINGS:

1. The City has adopted a Public Facilities and Services Plan that establishes the framework for the distribution of water and sanitary sewer services and storm drainage systems throughout the expanded Urban Growth Boundary.
2. The City has adopted a Water Master Plan/Conservation Management Plan. On July 28, 2014, the City adopted "City of Brookings Water Master Plan Update". This update included data in the appendices from the 2007 "Water System Master Plan Update" regarding the Harbor Water People's Utility District which serves the Brookings Urban Growth Area south of the Chetco River Bridge.
3. The City has adopted a Water Curtailment ordinance that provides the city with the mechanisms to curtail water use in emergencies, including low surface water flows in the Chetco River.
4. **On June 13, 2016 the City adopted "City of Brookings Storm Drainage Master Plan". This update included data in the appendices from the** ~~On January 12, 2009, the City adopted the "Storm and Surface Water Facilities Plan for Brookings-Harbor Area." New policies from this Plan are found in the "Public Facilities Plan for Urban Growth Expansion."~~
5. On April 11, 2016 the City adopted a Wastewater Facilities Plan developed by the Dyer Partnership dated November 2015.
6. The city currently provides the following facilities and services within the City Limits:

A. Public Works

- 1) Water Treatment - 2.0 to 2.6 mgd capacity.
- 2) Water Distribution, Pumping and Storage - (Total connections 3,354 -3,053 of the connections are residential, 2012).
- 3) The **Wastewater** service area includes the incorporated area of Brookings plus the Harbor Sanitary District to the South. (Total of 3358 connections within the City limits. The Harbor Sanitary District has approximately 895 connections, which are pumped to the City's treatment plant., November 2015). Current capacity provides for an average dry weather flow of 1.7 MGD, peak day average flow of 10.9 MGD and a peak wet weather hydraulic capacity of 15.5 MGD.
- 4) Wastewater Collection and Pumping - All public facilities within the city limits

are the responsibility of the City of Brookings. All such facilities in the Harbor Sanitary District are owned, operated and maintained by that district.

- 5) Street and Infrastructure Maintenance - The City's Public Works Department provides maintenance of City streets, water mains, sewer mains, storm drains, and other infrastructure systems.

B. Solid Waste Removal - is presently done by franchised contract

C. Fire Prevention and Protection Services

These services are provided with two paid employees (Operations Chief and Captain) and 24 volunteers. Ratings outlined in the Inventory document show an adequate program with primary need being in the area of improved water system. However, improvements have been made that resulted in the classification being upgraded from a 7 to a 4B.

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Requirements and Standard Specifications for Public Works Infrastructure document.

- C. Water Master Plan/Conservation Management Plan. The City will maintain a Water Master Plan/Water Conservation Management Plan, which will be updated as required.
- D. A Backflow Prevention Program was adopted in 2012.
- E. Wastewater treatment facility. Expansion programs will be funded through the most cost-effective methods utilizing all available federal, state and local funds.
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2. Fire Prevention and Protection

The Fire Operations Chief will continue to serve as the head of prevention and protection services. He will continue to maintain the high level of training and service that the community has come to expect through the conduct of local and regional training sessions and a continued education for himself.

3. Police Protection

The Chief of Police shall be responsible for continually monitoring the department's facility requirements and operations. In conjunction with the annual preparation of his budget request, a written evaluation shall be prepared for the City Manager, who in turn, may call attention to specific items for consideration by Planning Commission, Council or staff.

Original text to be deleted is stricken.

Proposed new text is **bold**

PUBLIC FACILITIES PLAN

CITY OF BROOKINGS WATER SYSTEM

The City of Brookings acquired the water system serving property within the City in 1973 and operates the water system as a City business enterprise. The City has made substantial improvements to the water system over the years.

The water enterprise consists of the following operating systems:

- **Source of Supply:** The locations where the City takes or has the right to take ground water for municipal purposes, and the system for transmission of the water taken from these locations identified in Table 3.1 to the water treatment plant and distribution system.
- **Treatment:** Filtering and chemically treating water from the sources of supply during river turbidity which DHS has determined the water treatment is not necessary.
- **Distribution:** A system of pipes that delivers water from the treatment plant to storage reservoirs, fire hydrants and individual properties for domestic and industrial use. Distribution includes operation and maintenance of water usage meters.
- **Management and Customer Service:** Overall management of the water enterprise, engineering, planning, meter reading, billing/collections and customer service (new connections, turn-on/turn off, etc).

WATER SOURCE

Following is the current status of the City's various water right development applications and certificates.

Table 3.1: City of Brookings Water Rights

Source / Type	Permit No.	Certificate No.	Priority Date	Quantity
Chato River (S) (Ranney)	27610	83682	9/14/1961	4.0 cfs
Chato River (S) (Ranney)	31293	87358	1/21/1966	1.57 cfs
Chato River (G) ("Tide Rock")	G5601	44614	8/14/1972	6 cfs
Chato River (S)	51383		12/12/1990	1.0 cfs Mar 1 - Jan 30)
Chato River (R)	R11535		5/13/1993	62.3 Ac-ft
Chato River (R) (10 Reservoirs)	51595		5/13/1993	62.3 Ac-ft
Ferry Creek (S)	1740	2078	8/22/1913	3.0 cfs
Ferry Creek Reservoir (R)	372	1407	8/9/1916	1.5 MG
Ferry Creek Reservoir (R)	408	2071	8/25/1917	26 Ac-ft
Ferry Creek Reservoir (R)	31224	46861	2/10/1966	167.4 Ac-ft
Ferry Creek Reservoir (R)	R4720	46860	2/10/1966	167.4 Ac-ft
Joe Hall Creek (S)	4674	4959	6/23/1920	2.5 cfs
Ransom Creek (S)	18123	20794	2/24/1948	0.93 cfs

Currently, the Chetco River supplies 100 per cent of the City's water needs through a Ranney type groundwater intake collector located along the North Bank Chetco River approximately 4 miles upstream from the Highway 101 bridge. The Ranney Collector is designed for a capacity of 5.7 cubic feet per second (cfs) with all three pumps running, although a portion of the 12-inch AC piping from the intake to the treatment plant is questionably undersized for this flow rate. The Ranney Collector is operated with only 1 pump running rated 1250 gpm or 2.7 cfs. The City installed 9,500 ft of new 16-inch raw water line from the point of diversion to the treatment plant in 2008. There is 4,900 feet of 12-inch AC line between the intake and treatment plant that should be upsized to 16-inch DI in order to operate more than one 1250 gpm (2.7 cfs) pump at the intake.

In 2012, Certificates 83682 and 87358 were obtained as part of a negotiated agreement with Oregon Water Resources Department (OWRD) and Waterwatch, and represent the only water rights currently used by the city for municipal water production.

WATER TREATMENT

The water treatment plant, installed in 1976, is a Neptune Microfloc Aquarius Model AQ-300 that utilizes the conventional rapid sand filtration treatment process. The plant consists of two identical, side-by-side units with a combined capacity of approximately 2.6 mgd. DHS recently downgraded the requirement to operate the treatment plant and water is allowed to be delivered year round with only disinfection. The water treatment plant is also the location of the main distribution pumps which are operated at 2.1 MGD.

WATER DISTRIBUTION

The main line distribution system consists of approximately 26.5 miles of pipe ranging in size from 2 to 16 inches. Pipe materials vary with the most common types being asbestos cement (AC) and polyvinyl chloride (PVC). The distribution system is over-extended in the higher elevation portions of the service area and is not capable of delivering fire flows in some areas. The master plan update has identified over \$6 million dollars in needed distribution pipe upgrades and replacements.

WATER USAGE

Water projection demands in 2013 maximum day demand is 2.1 MGD and expected to increase to 2.3 MGD by 2018. Residential water use has significantly decreased from 96.9 gpcd in 2007 to 96.9 gpcd in 2012. The City began offering water conservation incentives to customers in 2007. Unaccounted for water use has also reduced from 17% loss in 2007 to 10.1% water loss in 2012. The City has contracted an annual leak detection survey to credit for the loss reduction.

FIRE FLOWS

The water system must offer sufficient capacity to furnish water for firefighting while maintaining adequate flows for domestic, commercial and industrial demands. In addition, the required fire flow must be delivered at an accepted residual pressure, which is 20 psi. The City of Brookings has adopted the Oregon Fire Code. The Oregon Fire Code provides the minimum fire flow standard applied to new development. A matrix used to determine fire flow requirements can be

found in Oregon Fire Code, Appendix B, Table 105.1- Minimum required fire flow and flow duration for buildings. There is no community-wide standard, although a basic fire flow of 1,500 gpm for a two hour duration is a minimum in the Oregon Fire Code.

WATER STORAGE

With the completion of the 1.6 million gallon Seacrest reservoir in 2009, the current available storage is 3.6656 million gallons, or 1.78 times the peak day demand. The sizing of the Seacrest reservoir was reduced from a proposed 2.0 mg due to site constraints. The City received a grant to fund installation of a .5 mg water reservoir east of the Brookings Airport. Construction is slated to begin on this project in the fall of 2014. The site will accommodate an additional .5 mg reservoir in the future. In addition, the 2014 master plan update recommends an additional new water storage facility of at least 250,000 gallons in the Old County Road area.

WATER SYSTEM MASTER PLAN

The City adopted a Water System Master Plan Update prepared by PACE, An Engineering Services Company on July 28, 2014.

Harbor Water Peoples Utility District

WATER SOURCE

Currently the Chetco River supplies the Harbor Water Peoples Utility District (HWPUD) water needs. The river intake is a Ranney collector with a rated capacity of 6 million gallons per day. Four pumps serve the intake; each rated at 2.4 mgd capacity. The pumps alternate, with two operating together to handle peak demands.

The HWPUD currently holds two surface water rights from the Chetco River and has two ground water sources. These are summarized in the following table.

Harbor Rural Water District Water Rights			
Source	Priority Date	Amount	Amount
Chetco River	1966	3.500 cfs	2.26 mgd
Chetco River	1980	7.00 cfs	4.53 mgd
Well G3240	1966	3.50 cfs	2.26 mgd
Well G9438	1980	7.00 cfs	4.53 mgd
Total		21.00 cfs	13.58 mgd

WATER TREATMENT

The Ranney intake is considered equivalent to a ground water system. For this reason, water treatment is not practiced.

WATER DISTRIBUTION

The distribution system is an extensive loop system that extends from the Chetco River to the California border, and consists of approximately 50-55 miles of pipe ranging in size from 2 to 16 inches. Pipe materials vary with the most common types being asbestos cement (AC) and polyvinyl chloride (PVC), and ductile pipe.

WATER USAGE

Current water production data shows that the average daily water demand is 700,000 gallons with the peak day demand being 1,700,000 gallons. Serving an estimated 2,500 persons, the current population, the average daily water usage per person is approximately 280 gallons, with a peak demand of 680 gallons.

FIRE FLOWS

The water system must offer sufficient capacity to furnish water for fire fighting while maintaining adequate flows for domestic, commercial, and industrial demands. Also the required fire flow must be delivered at an accepted residual pressure which is 20 psi. The HWPUD has sufficient storage to meet a demand of 1500 gpm for two hours where necessary. The necessary storage to meet that requirement would be 180,000 gallons. HWPUD has the capacity to deliver fire flows.

WATER STORAGE

There are eleven water storage reservoirs in the HWPUD, which give a total storage capacity of 2,060,000 gallons. The following table summarizes the current water storage for the district.

Harbor Water District Storage			
Reservoir	Bottom Elevation	Overflow Elevation	Storage Capacity
Crown Terrace 1	525.5'	537.5'	10,000 gal
Crown Terrace 2	525.5'	537.5'	10,000 gal
Crown Terrace 3	795'	807'	10,000 gal
Crown Terrace 4	795'	807'	10,000 gal
Crown Terrace 5	1,025'	1,037'	10,000 gal
Crown Terrace 6	1,025'	1,037'	10,000 gal
Hallway 1	201.36'	234.81'	750,000 gal
Hallway 2	203.62'	234.81'	500,000 gal
Coleman	355.18'	388.60'	300,000 gal
Benham	355.18'	386.60'	200,000 gal
Freeman	203.32'	234.74'	250,000 gal
TOTAL			2,060,000 gal

The required storage for the HWPUD is shown in the following table.

Harbor Water Storage Estimate		
Peak Day Demand	1,700,000 gallons	
Twice the Ave Day Demand	1,400,000 gallons	
Larger of the above two		1,700,000 gallons
Fire Storage	1500 gpm x 2hrs	180,000 gallons
Equalization Storage	20% peak	340,000 gallons
Required Storage		2,220,000 gallons

HARBOR WATER PUD MASTER PLAN

Harbor Water PUD adopted a Master Plan in December, 2000 that is incorporated herein by this reference

CITY OF BROOKINGS WASTEWATER SYSTEM

The original Brookings sewer system was constructed about 1916 and service was initially limited to the downtown area. The City assumed operation of the sewer system soon after incorporation in 1951. The City operates the wastewater system as a City business enterprise. The wastewater enterprise consists of the following operating systems:

COLLECTION

The City accepts domestic sewage from property in the service area that is connected to the sanitary collection system, and transmits the sewage to the wastewater treatment plant. The collection function includes the operation of sewage lift stations installed at various locations within the collection system to assist the flow of sewage to the treatment plant.

Currently, the collection system consists of a network of 6, 8, 10 and 12-inch mains connected to 18 and 21-inch interceptors and lift stations. There are approximately 32.7 miles of 6-inch to 21-inch gravity mains and 2.75 miles of 4-inch to 14-inch diameter force mains in the collection system. The system provides service connections to individual properties within the service area. The interconnection with the HSD also functions as a part of the collection system.

LIFT STATIONS

The City currently operates 13 lift/pump stations located to serve areas which cannot be served with gravity-fed sewer mains.

TREATMENT

Treatment involves removal of solids from the sewage received at the wastewater treatment plant, and clarification of processed solids after biological treatment and disinfect using U.V. bulbs in the effluent stream, to meet federal and state standards prior to discharge into the ocean. Treatment includes the processing, reprocessing and disposal of solids removed from the sewage.

The wastewater treatment plant has been located at Chetco Point since the early 1950's. Major modifications to the plant were made in 1973, 1991, and 2000.

Treated water, or effluent, produced by the wastewater treatment plant is discharged to the Pacific Ocean. The Oregon Department of Environmental Quality establishes discharge limitations for discharge to ocean waters. A new Class B sludge dewatering facility was constructed and brought on line in December, 1012 which eliminated the need for sludge trucking to Grants Pass.

RELATIONSHIP TO HARBOR SANITARY DISTRICT

In 1976, the Harbor Sanitary District was formed to serve an area just south of the City. The City and HSD have entered into a series of intergovernmental agreements whereby the City accepts sewage from HSD for treatment. See below for a description of the HSD system.

BROOKINGS WASTEWATER MASTER PLAN

The City adopted a Wastewater Facilities Master Plan in April, 2016. That Master Plan is incorporated herein by reference. A detailed discussion of the treatment system and plant capacity can be found in the Plan. Until sewer service can be extended to properties, interim urban-level treatment systems may be allowed only if specifically provided for in master plans which set forth appropriate standards and conditions and which have been adopted as post-acknowledgement plan amendments or periodic review work task elements.

HARBOR SANITARY DISTRICT WASTE WATER SYSTEM

The community of Harbor is an unincorporated residential, commercial, and industrial area south of the Chetco River and the City of Brookings. The Harbor Sanitary District (HSD) has served this area since June 1976. The HSD operates only a collection system. Wastewater is piped to the Brookings wastewater treatment plant for treatment. The area's land use is predominantly residential, but a regional shopping center and an extensive commercial and industrial complex surround the Brookings-Harbor Boat Basin. The Harbor Bench area south of Harbor, an area experiencing steady growth, currently is out of the sewer service area; however, it is an area that potentially may become part of the service area. In 1979 the Oregon Health Division directed the HSD to annex an adjoining area, the Oceanview Mobile Home Estates, due to wastewater treatment concerns.

POPULATION

The following population data was taken from the "City of Brookings Comprehensive Utilities Plan" dated September 1981. Population projections were based on the 1970s, a growth period.

Harbor Sanitary District Population Growth				
Year	1980	1990	2000	2010
Population	1,968	2,645	3,555	2,770

COLLECTION SYSTEM

In 1976, the HSD was formed. The collection system consists of four pump stations and a network of gravity lines. Wastewater is pumped across the Chetco River to the south portion of the City of Brookings service area. There a 20-inch gravity main conveys the wastewater to the Brookings treatment plant. The daily flow rate is approximately 0.28 mgd.

The collection system consists of 16.5 miles of 8-inch and 12-inch transite pipe

PUMP STATIONS

Flows from the entire Harbor collection system enter HSD pump station No. 14. Discharge from this station is to the Brookings WWTP by means of an 8-inch force main over the Chetco River or a 12-inch force main under the Chetco River. Space for additional force mains is available. Pump station No. 14 is rated at 2,000 gpm and 125 feet. The other three pump stations are small and serve limited areas.

HARBOR SANITARY DISTRICT MASTER PLAN

HSD completed and adopted a Master Plan in December

Until sewer service can be extended to properties, interim urban-level treatment systems may be allowed only if specifically provided for in master plans which set forth appropriate standards and conditions and which have been adopted as post-acknowledgement plan amendments or periodic review work task elements.

CITY OF BROOKINGS STORM DRAINAGE

The City of Brookings operates a storm drainage system within the city boundaries. **A large portion of the storm drain infrastructure within the city limits is on private property, and is not maintained by the City. The infrastructure crossing Chetco Avenue is owned and maintained by ODOT. Storm water collected within private development and the City is typically conveyed through a series of constructed open channels or piping and is discharged to the nearest natural water body (local streams, Chetco River, Pacific Ocean). Portions of the infrastructure are old and have exceeded their life expectancy. ~~Drainage basins flow to the ocean or the Chetco River. Generally local area flows are conveyed via pipes to discharge points at surface drainage ways. The majority of the existing piping system is located in the western old portions of the city draining to the Chetco. Highway 101 presents a major flow obstruction to natural drainage pattern, requiring culvert crossings. Some limited historical flooding has occurred, but the problems are related to site-specific causes.~~**

The existing storm drain system includes approximately 23 miles of gravity piping that range in size from 8 inches to 60 inches in diameter, and is both publicly and privately owned. Pipe materials typically consist of high density polyethylene (HDPE), polyvinyl chloride (PVC), reinforced concrete pipe (RCP), and corrugated metal pipe (CMP). A significant portion of the City's storm water conveyance system consists of natural and constructed open channels.

For storm drain infrastructure design, a storm with a recurrent interval of 25 years is appropriate for city streets and neighborhoods. The rainfall total for a 25-year storm is 8 inches in a 24-hour period. A storm with a recurrent interval of 50 years is appropriate for drainage facilities intersection or passing through Chetco Avenue. The rainfall total for a 50-year storm is 9 inches in a 24-hour period.

STORM DRAINAGE SYSTEM MASTER PLAN

The City adopted a Storm Drainage Master Plan prepared by The Dyer Partnership Engineers & Planners, Inc. on (date of adoption). The plan is hereby incorporated by this reference.

CURRY COUNTY

Curry County services all public storm drainage in the study areas north and south of the Chetco outside City limits. The service level is mainly rural road maintenance that consists of ditch culvert cleaning associated with road maintenance. All other drainage features are privately owned. The Harbor Bench area, which is outside the urban growth area, has experienced flooding and erosion due to upstream growth and diversion of flows due to culvert placement.

CITY/ COUNTY STORM DRAINAGE MASTER PLAN

On January 12, 2009, the City and the County adopted the "Storm and Surface Water Facilities Plan for Brookings-Harbor Area." In the Plan are design and development standards and proposed improvements to the storm drainage facility. There are also maps depicting the various basin areas in City limits and the Urban Growth Area, hydrologic/ hydraulic analysis, and the discussion of the effects on specific areas in the Plan. The Plan is hereby incorporated by this reference.

The Storm and Surface Water facilities Plan for Brookings Harbor Area" contains the following policies:

- Low impact development is preferred.
- Negative impacts to natural watercourses are to be avoided.
- Piping of a natural watercourses is to be avoided, where practicable.
- Protection of ground water sources is critical.
- Proposed facilities should address water quality impacts and mitigation measures.
- Erosion and sediment must be controlled using the City, County, and Department of Environmental Quality requirements.
- Stormwater discharges shall be maintained at current levels.
- A public education program is recommended to disseminate information on the importance of preventing negative impacts from stormwater.

The "Storm and Surface Water Facilities Plan for Brookings-Harbor Area" contains specific design and development standards and proposed improvements to the storm drainage facility.

To avoid adverse impacts created by development, the Plan contains five strategies to be generally utilized:

- 1 There should be no post-development net increase in storm drainage discharge downstream.
- 2 Low impact development practices as described in the 2007 "Storm and Surface Water Facilities Plan" shall be implemented.
- 3 The capacity of the downstream drainage infrastructure is improved to convey the increased flow. Usually this means constructing larger culverts and storm drains. Generally, the natural drainage channels are improved, but because of the study area's proximity to the ocean and the steep rocky terrain, these channel improvements may not be necessary.

4. A regional detention facility is constructed to capture the additional runoff and release the flow at a slower natural rate. A regional facility is normally associated with a single drainage way or creek.
5. An onsite detention facility is constructed for each individual development. The goal for a regional or onsite detention facility is that the runoff from the post-development condition be reduced to flow equaling the pre-development condition.

The Harbor Hills Master Plan Area within the UGA is required to prepare a comprehensive surface water management plan prior to any land use approvals. The details required and the review and approval process are described in the "City of Brookings and Curry County Joint Management Agreement", dated June 30, 2010.

[illegible]

Brookings Public Facilities Plan –April, 2016