

**Storm Drainage SDC Project Eligibility
Improvement Projects**

Project Number	Description	Master Plan Project No.	Estimate Escalated	% SDC Eligible	SDC Eligible Cost
SD1	525 feet of 24-inch pipe along NE 73rd Street	C1	\$243,075	50%	\$121,537
SD2	124 feet of 30-inch pipe north of NW 60th Street	F1	\$71,442	100%	\$71,442
SD3	270 feet of 12-inch & 18-inch pipe along Lucky Gap Street	K1	\$108,347	10%	\$10,835
SD4	655 feet of culverts crossing Yaquina Bay Boulevard	AC1	\$221,220	100%	\$221,220
SD5	Install 677 feet of 12, 15, and 24-inch pipe along SW Coho, SW 29th and SW 28th Street	AF1	\$679,356	50%	\$339,678
SD6	Drainage ditch development, rehabilitation, and access improvements	AG1	\$1,795,182	100%	\$1,795,182
SD7	55 feet of 24-inch culvert crossing SE 35th Street	AJ1	\$39,385	100%	\$39,385
SD8	170 feet of 36-inch pipe crossing Hwy 101 (Jack & Bore)	AL1	\$108,244	75%	\$81,183

Totals \$2,680,462

Notes: Estimate for project SD5 includes improvements to SW Brant and SW 27th that has been completed. Percentage of project that is SDC eligible has been reduced accordingly.
Cost escalated using Engineer's News Record Construction Cost Index

storm drain component is extended under an existing structure, it is proposed to abandon the pipe in place, fill the pipe with CLSM or sand, and realign the storm drain in a manner that would allow for bypass of the filled line. In general the remediation measures included use of RCP for new or replacement pipe larger than 18” and PVC pipe for any pipe below 18” to prevent future failure of large diameter pipes. Jack and Bore, or directional drilling construction methods were used were possible when installing storm drain pipe under Hwy. 101 to avoid problems associated with open trench construction in the right-of-ways. Duckbill tide gates are employed where installing new or replacement outfalls due to their higher reliability and lower maintenance cost. Also, any catch basin recommended to be installed is to be a water quality type structure.

General system maintenance is discussed within a number of the project developments. The system maintenance referred to for the developed storm drain is catch basin cleaning, execution of a road sweeping program, and removal of shrubbery, large weeds, and other obstructions preventing or restricting storm drain flow along the ditch line.

8.1.1 Basin C



Figure C.1 – Project Area Image

The single point of concern within this basin is ditch line along NE 73rd Street. An area to east of NE 73rd St. and NE Avery St. intersection drains to the north ditch along NE 73rd Street. This area has a peak runoff of approximately 15.62 CFS. However the ditch to which it drains is limited to the conveyance of 3.11 CFS. Either the ditch needs to be increased in size along with the culverts conveying the water under residential driveways or a piped system needs to be put in place to divert the additional flow from that area into the existing piped system. The latter option was chosen as it will better facilitate future growth and require less maintenance. The project’s cost estimate is shown in Table C.1 and depiction is displayed in Figure T.1.

Table C.1 – Cost Estimate

PROJECT C1 COST ESTIMATE					
<i>Item No.</i>	<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total Cost</i>
1	Bonds, Insurance, Overhead, Mobilization Costs	ls	1	\$21,511.80	\$21,511.80
2	Construction Facilities/Temporary Controls	ls	1	\$4,780.40	\$4,780.40
3	Demolition & Site Prep	ls	1	\$9,560.80	\$9,560.80
4	24" RCP Storm Drain Piping	lf	525	\$200.00	\$105,000.00
5	New 60" SD MH	ea	3	\$4,250.00	\$12,750.00
6	AC Pavement Repair/Trench Patching	sf	440	\$4.00	\$1,760.00
Construction Total					\$ 155,363.00
Contingency (20%)					\$31,072.60
Subtotal					\$ 186,435.60
Engineering (20%)					\$37,287.12
Administrative Costs (3%)					\$5,593.07
Total Project Cost					\$229,315.79

8.1.2 Basin F

Project F1-30" Line extending North of NW 60th St.

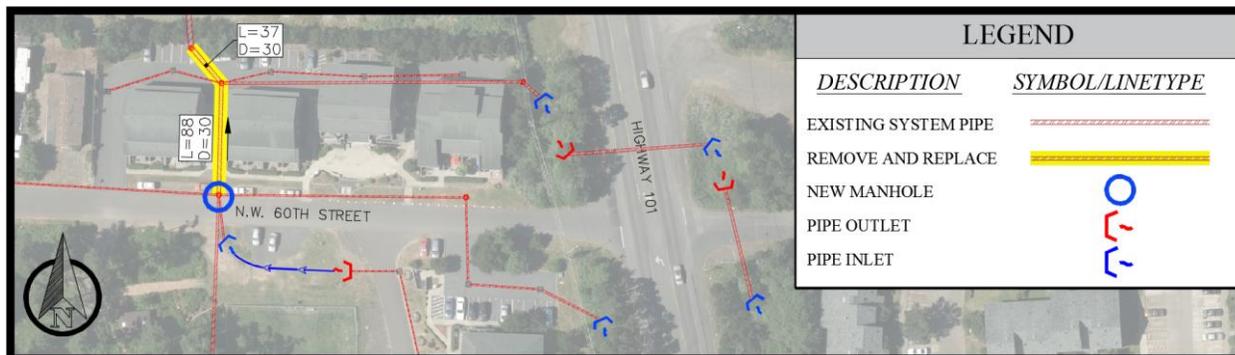


Figure F.1 – Project Area Image

As mentioned in the basin description for basin F and G, residents on the west side of Hwy. 101 have voiced a need for more storm drain infrastructure. This concern could potentially push the development of an Urban Renewal District focused on all infrastructures within the neighborhood. Development of such a district could result in the construction of additional paved roadways using curbs and catch basins to convey storm water. Given the tectonic movement in the area, it would be important to keep the newly developing infrastructure distanced from the edge of the eroding coastal embankment. In an effort to achieve this, it is recommended to drain the basin from the southwest corner of the basin to the northeast toward the 18" line leading to outfall F1. Assuming future improvements do direct the storm water as described, it is recommended that this 18" pipe be increased in size to a 30". In addition, the 37'-24" storm drain pipe downstream of the 18" be increased in size to 30". The project's cost estimate is shown in Table F.1 and depiction is displayed in Figure F.1.

Table F.1 – Cost Estimate

PROJECT F1 COST ESTIMATE					
<i>Item No.</i>	<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total Cost</i>
1	Bonds, Insurance, Overhead, Mobilization Costs	ls	1	\$6,322.50	\$6,322.50
2	Construction Facilities/Temporary Controls	ls	1	\$1,405.00	\$1,405.00
3	Demolition & Site Prep	ls	1	\$2,810.00	\$2,810.00
4	30" RCP Storm Drain Piping (10'+ Cover)	lf	125	\$225.00	\$28,125.00
5	New 72" SD MH	ea	1	\$4,500.00	\$4,500.00
6	AC Pavement Repair/Trench Patching	sf	625	\$4.00	\$2,500.00
Construction Total					\$ 45,662.50
Contingency (20%)					\$9,132.50
Subtotal					\$ 54,795.00
Engineering (20%)					\$10,959.00
Administrative Costs (3%)					\$1,643.85
Total Project Cost					\$67,397.85

8.1.3 Basin G

As mentioned in the recommendations for Basin F, there is potential for future development of an Urban Renewal District within both basin F and G. The formation of such a district would more than likely result in storm drain improvements which re-direct the storm water flow to the northeast. However, as there is no Urban Renewal District currently being developed, the current system is not experiencing flooding, and the hydraulic model predicts no flooding, no improvements are recommended for Basin G.

8.1.6 Basin K

Project K1-12" Line along NE Lucky Gap St.



Figure K.1 – Project Area Image

Basin K delivers approximately 6.82 CFS of peak run-off to a section of 8” pipe with a capacity of 4.09 CFS. As a result these storm drain components running south from the NE 53rd St. and NE Lucky Gap St. intersection to outfall K1 will cause localized surcharging and system flooding. Increasing this pipe size from 8” to 12” will increase the system capacity sufficiently to convey the designated storm events. This construction would require: the removal and replacement of 270’ of pipe, the replacement of 2 manholes, 2 tee connections stemming from nearby catch basins, and a catch basin replacement. The project’s cost estimate is shown in Table K.1 and depiction is displayed in Figure K.1.

Table K.1 – Cost Estimate

PROJECT K1 COST ESTIMATE					
<i>Item No.</i>	<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total Cost</i>
1	Bonds, Insurance, Overhead, Mobilization Costs	ls	1	\$9,588.60	\$9,588.60
2	Construction Facilities/Temporary Controls	ls	1	\$2,130.80	\$2,130.80
3	Demolition & Site Prep	ls	1	\$4,261.60	\$4,261.60
4	12" PVC Storm Drain Piping	lf	270	\$125.00	\$33,750.00
5	New 48" SD MH	ea	3	\$4,000.00	\$12,000.00
6	Tee Connections	ea	1	\$600.00	\$600.00
7	Curb & Gutter	lf	130	\$20.00	\$2,600.00
8	Commercial Reinforced Driveway	sf	120	\$9.00	\$1,080.00
9	AC Pavement Repair/Trench Patching	sf	810	\$4.00	\$3,240.00
Construction Total					\$ 69,251.00
Contingency (20%)					\$13,850.20
Subtotal					\$ 83,101.20
Engineering (20%)					\$16,620.24
Administrative Costs (3%)					\$2,493.04
Total Project Cost					\$102,214.48

3rd St. have recently been improved. However the downstream components have not, thus the system actually reduces in size from a 15” pipe upstream to a 12” pipe downstream. These downstream components are insufficiently sized to accommodate runoff from a 25-year storm event. To address this capacity insufficiency 248 and 427 linear feet of pipe shall be replaced with 18”, and 24” pipe. The project’s cost estimate is shown in Table AA.1 and depiction is displayed in Figure AA.1.

8.1.17 Basin AC

Project AC1 - Storm Drain capacity increase along Yaquina Bay Blvd.

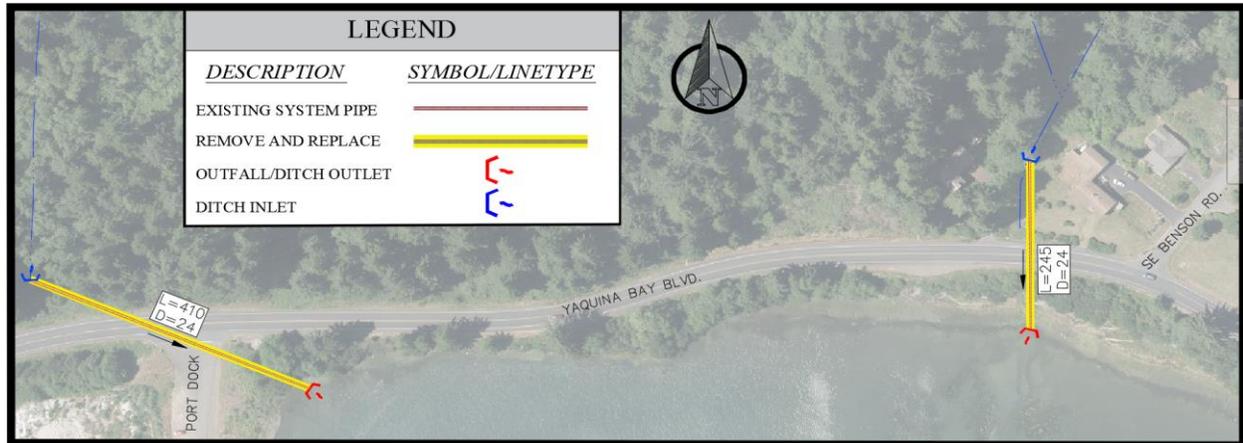


Figure AC.1 – Project Area Image

Amongst the several basins within the area defined as Basin AC there are two points requiring improvements to fully facilitate the conveyance of runoff resulting from the future developments within the area during 25-year storm event. The points of lacking capacity are at the culverts crossing under Yaquina Bay Road just east of the Port Dock, and just west of SE Benson road. Both of these pipes need to be increased in size to 24” pipes.

These culvert replacements were first mentioned in the ‘Public Facilities Plan-City of Newport, CH2MHill, 1990’, and then again mentioned as necessary improvements in the ‘Public Infrastructure System Development Charge Methodology, 2007’. The project’s cost estimate is shown in Table AC.1 and depiction is displayed in Figure AC.1.

Table AC. 1 – Cost Estimate

PROJECT AC1 COST ESTIMATE					
<i>Item No.</i>	<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total Cost</i>
1	Bonds, Insurance, Overhead, Mobilization Costs	ls	1	\$19,577.70	\$19,577.70
2	Construction Facilities/Temporary Controls	ls	1	\$4,350.60	\$4,350.60
3	Demolition & Site Prep	ls	1	\$8,701.20	\$8,701.20
4	24" RCP Storm Drain Piping	lf	655	\$163.00	\$106,765.00
5	AC Pavement Repair/Trench Patching	sf	500	\$4.00	\$2,000.00
Construction Total					\$ 141,394.50
Contingency (20%)					\$28,278.90
Subtotal					\$ 169,673.40
Engineering (20%)					\$33,934.68
Administrative Costs (3%)					\$5,090.20
Total Project Cost					\$208,698.28

8.1.18 Basin AD

No specific storm drain piping deficiencies were identified or projects developed for Basin AD. Future development of the NOAA Marine Operations Center will require the developer to meet any existing City codes or ordinances relating to storm drain systems.

8.1.19 Basin AE

No specific storm drain piping deficiencies were identified or projects developed for Basin AE. As the Hatfield Marine Center expands over the planning period the developer will be required to follow any existing City codes or ordinances relating to storm drain systems when they construct the additional storm drain components for the planned expansion.

8.1.20 Basin AF

Project AF1- Future development storm drain infrastructure

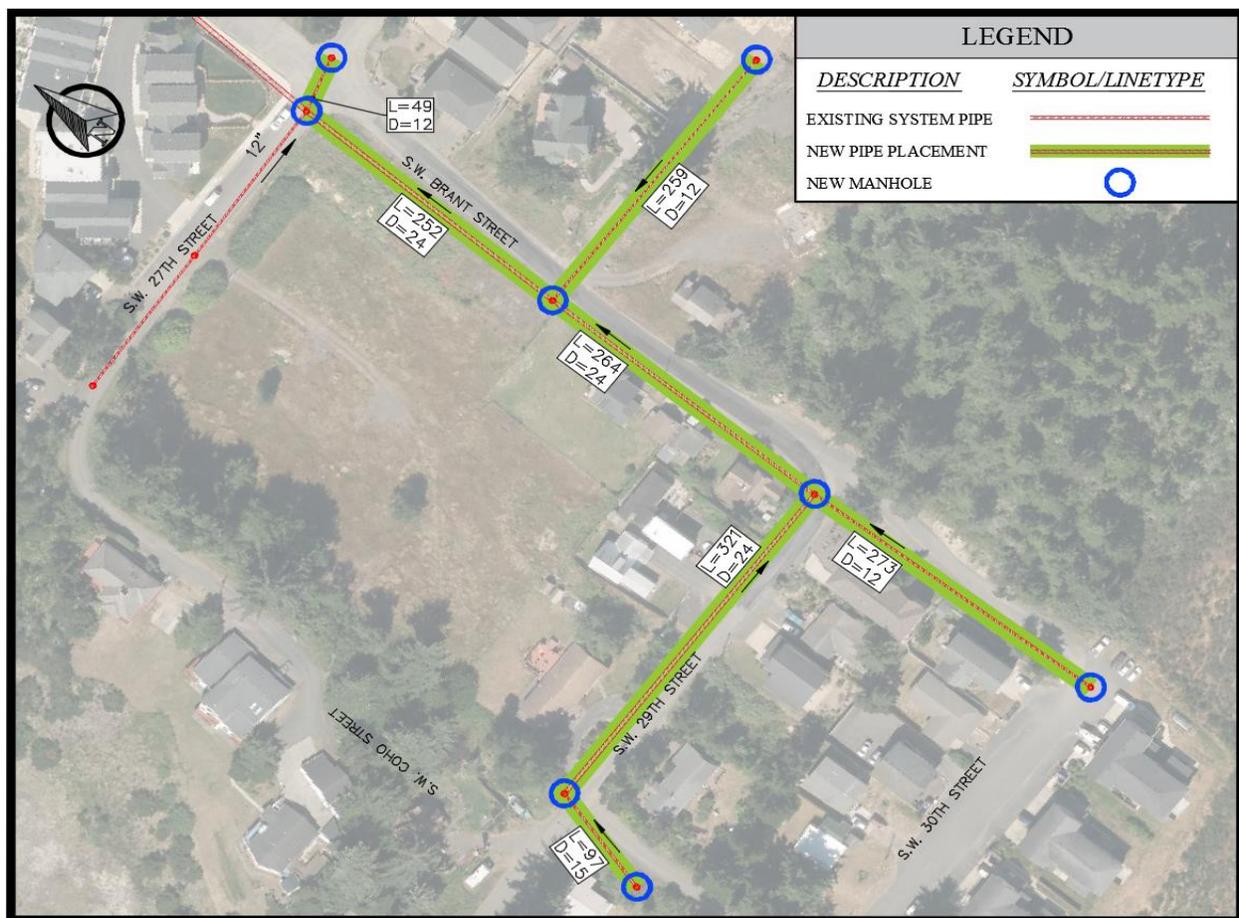


Figure AF.1 – Project Area Image

Currently the system within basin AF is limited. Most of the basin is drained through roadside ditches or natural landscape from the south end of the basin toward the bay. The first component of the existing hard piped storm drain system is located at the intersection of SW 27th St. and SW Brant Street. The system runs along SW Brant and outfalls to the Bay through a 36” storm drain line. To better serve the current residents and future 131 EDUs that will be added during the planning period, it is recommended to

expand the existing system. These new components will pick up runoff that is currently draining across private property, or ponding and infiltrating. The additional components collect runoff along the south end of SW Brant St., SW 29th St., and SW 30th Street.

These improvements were originally laid out in the ‘Newport Coho/Brant, Infrastructure Refinement Plan’, Cameron MCarthy, June 2012’, and include: 581’ of 12”, 97’ of 18”, and 837’ of 24” storm drain pipe. The project’s cost estimate is shown in Table AF.1 and depiction is displayed in Figure AF.1.

Table AF.1 – Cost Estimate

PROJECT AF1 COST ESTIMATE					
<i>Item No.</i>	<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total Cost</i>
1	Bonds, Insurance, Overhead, Mobilization Costs	ls	1	\$60,122.16	\$60,122.16
2	Construction Facilities/Temporary Controls	ls	1	\$13,360.48	\$13,360.48
3	Demolition & Site Prep	ls	1	\$26,720.96	\$26,720.96
4	12” PVC Storm Drain Piping	lf	581	\$125.00	\$72,625.00
5	18” RCP Storm Drain Piping	lf	97	\$136.00	\$13,192.00
6	24” RCP Storm Drain Piping	lf	837	\$163.00	\$136,431.00
7	New 48” SD MH	ea	7	\$4,500.00	\$31,500.00
8	Water Quality Catch Basin (2’ x 2’)	ea	10	\$5,500.00	\$55,000.00
9	AC Pavement Repair/Trench Patching	sf	6316	\$4.00	\$25,264.00
Construction Total					\$ 434,215.60
Contingency (20%)					\$86,843.12
Subtotal					\$ 521,058.72
Engineering (20%)					\$104,211.74
Administrative Costs (3%)					\$15,631.76
Total Project Cost					\$640,902.23

8.1.21 Basin AG

There is one area of lacking capacity within this basins piped system. The pipe runs east along SE 32nd Street. The excess runoff delivered to the SE 32nd St. system will back up into a ponding/wetland area which will drain when the storm dissipates, thus leaving no need for a recommended project. However, if future developments fill the described area, then this stretch of pipe will need to be upsized to a 24” pipe.

Project AG1 – Drainage ditch development and rehabilitation

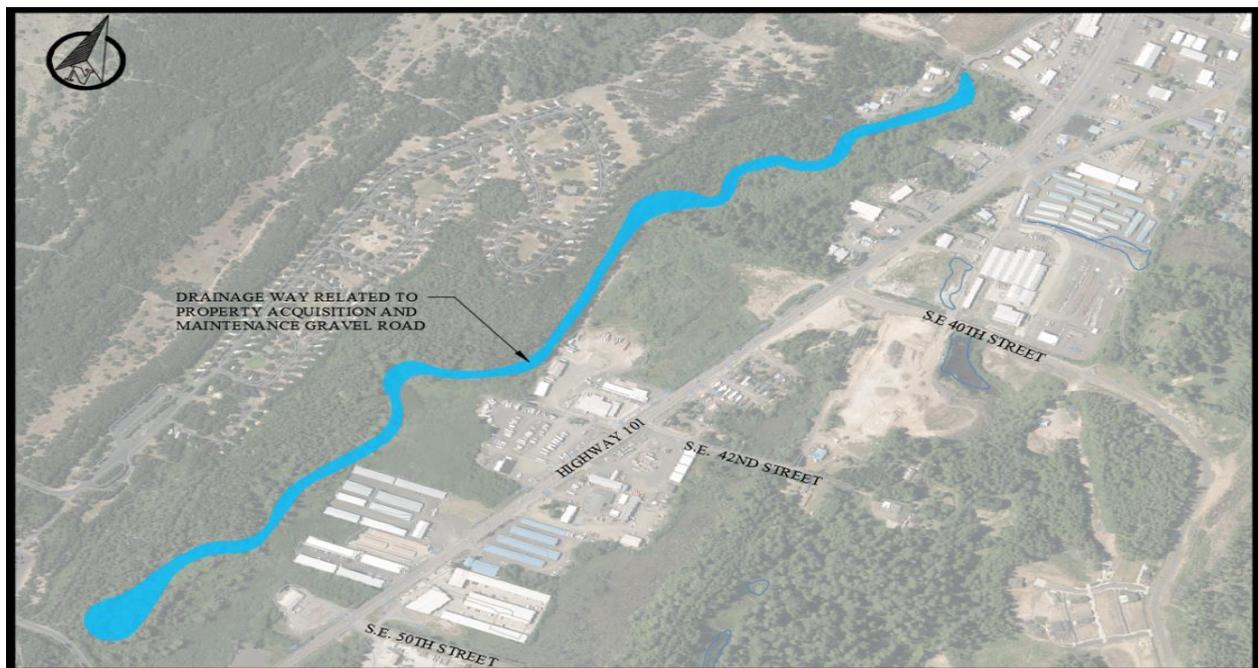


Figure AG.1 – Project Area Image

Limited access to a City’s drainage ways can make maintenance and general operation of the storm drain system very difficult. Currently the natural drainage way conveying water from the south west corner of basin AG to the northwest corner is lacking adequate access. No road or trail is available to facilitate, inspection, removal of obstructions, or other general maintenance activities. It is recommended that the a 10’ wide maintenance road be built along this stretch of ditches and culverts, and that public ownership of the drainage channel including adequate right-of-way for access should be pursued. The project’s cost estimate is shown in Table AG.1 and depiction is displayed in Figure AG.1.

Table AG.1 – Cost Estimate

PROJECT AG1 COST ESTIMATE					
<i>Item No.</i>	<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total Cost</i>
1	Bonds, Insurance, Overhead, Mobilization Costs	ls	1	\$67,347.00	\$67,347.00
2	Construction Facilities/Temporary Controls	ls	1	\$29,932.00	\$29,932.00
3	Land Acquisition	sf	138,750	\$2.10	\$291,375.00
4	Clear and Grub	acre	2	\$5,500.00	\$10,450.00
5	Ditch Rehabilitation	lf	5,550	\$20.00	\$111,000.00
6	10' Wide Maintenance Road (Excavation & Grading)	cy	20,400	\$12.00	\$244,800.00
7	Road Surfacing	sf	55,500	\$7.00	\$388,500.00
8	Pipe Culvert Installation	lf	100	\$40.00	\$4,000.00
Construction Total					\$ 1,147,404.00
Contingency (20%)					\$229,480.80
Subtotal					\$ 1,376,884.80
Engineering (20%)					\$275,376.96
Administrative Costs (3%)					\$41,306.54
Total Project Cost					\$1,693,568.30

Project AG2 – Future development storm drain infrastructure

The ‘Newport Coho/Brant, Infrastructure Refinement Plan, Cameron McCarthy, June 2012’ discusses a southward extension of SW Abalone Street and a westward extension of SW 35th St. to facilitate better traffic to the growing neighborhood, as well as provide access to the new OMSI environmental learning center. The plan proposes extending the storm drain system from the SW 35th St and SW Anchor Way intersection northward and westward along the ‘to be’ extended streets. The project’s cost estimate is shown in Table AG.2 and depiction is displayed in Figure AG.2.

Table AG.2 – Cost Estimate

PROJECT AG2 COST ESTIMATE					
<i>Item No.</i>	<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total Cost</i>
1	Bonds, Insurance, Overhead, Mobilization Costs	ls	1	\$43,133.94	\$43,133.94
2	Construction Facilities/Temporary Controls	ls	1	\$9,585.32	\$9,585.32
3	Demolition & Site Prep	ls	1	\$19,170.64	\$19,170.64
4	15" RCP Storm Drain Piping	lf	900	\$70.00	\$63,000.00
5	18" RCP Storm Drain Piping	lf	400	\$136.00	\$54,400.00
6	24" RCP Storm Drain Piping	lf	251	\$163.00	\$40,913.00
7	New 48" SD MH	ea	5	\$4,500.00	\$22,500.00
8	Water Quality Catch Basin (2' x 2')	ea	6	\$5,500.00	\$33,000.00
9	AC Pavement Repair/Trench Patching	sf	6455	\$4.00	\$25,820.00
Construction Total					\$ 311,522.90
Contingency (20%)					\$62,304.58
Subtotal					\$ 373,827.48
Engineering (20%)					\$74,765.50
Administrative Costs (3%)					\$11,214.82
Total Project Cost					\$459,807.80

Table AJ.1 – Cost Estimate

PROJECT AJ1 COST ESTIMATE					
<i>Item No.</i>	<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total Cost</i>
1	Bonds, Insurance, Overhead, Mobilization Costs	ls	1	\$4,593.75	\$4,593.75
2	Construction Facilities/Temporary Controls	ls	1	\$735.00	\$735.00
3	Demolition & Site Prep	ls	1	\$1,470.00	\$1,470.00
4	24" RCP Storm Drain Piping	lf	75	\$225.00	\$16,875.00
5	AC Pavement Repair/Trench Patching	sf	375	\$4.00	\$1,500.00
Construction Total					\$ 25,173.75
Contingency (20%)					\$5,034.75
Subtotal					\$ 30,208.50
Engineering (20%)					\$6,041.70
Administrative Costs (3%)					\$906.26
Total Project Cost					\$37,156.46

8.1.23 Basin AL

Project AL1 - Storm Drain capacity increase crossing Hwy. 101

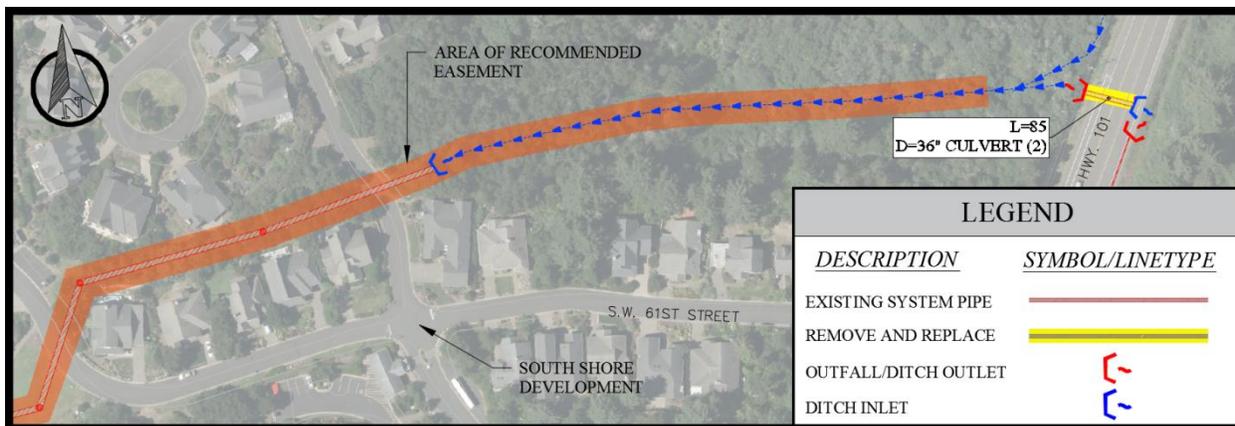


Figure AL.1 – Project Area Image

The existing dual 24” culverts crossing under Highway 101 north of SW 62nd Street have a combined capacity of approximately 39 CFS (1% assumed slope). This is not sufficient to convey the pre-development flow of 66.86 CFS resulting from a 50-year storm event. The pipe will need to be sized to accommodate the post development flows of 76.7 CFS. It is recommended to replace the 85’ long 2-24” pipes with two 36” culverts. The Jack and Bore method is recommended for pipe placement as trenching across Hwy. 101 would not save a great deal of money, but would require much more time for construction, permitting and review.

Downstream of the 2-24” pipes discussed above, the storm drain system continues west through natural drainage ways to a 60” culvert. This culvert conveys the water through the South Shore Development to the Ocean. Currently this portion of the public storm drain system travels through privately owned land. It is recommended that the City acquires an easement along the 60” culvert. The pipe currently resides under 4 tax lots that are free of structures and are designated ‘Common Areas’ for the South Shore Development residents. As the pipe is not currently under any existing structures, and in giving an easement, the private developer would no longer have any liability related to the existing storm drain system, procuring an easement should not be a difficult process. The project’s cost estimate is shown in Table AL.1 and depiction is displayed in Figure AL.1.

Table AL. 1 – Cost Estimate

PROJECT AL1 COST ESTIMATE					
<i>Item No.</i>	<i>Description</i>	<i>Units</i>	<i>Quantity</i>	<i>Unit Cost</i>	<i>Total Cost</i>
1	Bonds, Insurance, Overhead, Mobilization Costs	ls	1	\$12,625.00	\$12,625.00
2	Construction Facilities/Temporary Controls	ls	1	\$2,020.00	\$2,020.00
3	Demolition & Site Prep	ls	1	\$4,040.00	\$4,040.00
4	36" HDPE (Jack and Bore)	lf	170	\$250.00	\$42,500.00
5	Easement Documents (Through South Shore Dev.)	Per Lot	4	\$2,000.00	\$8,000.00
Construction Total					\$ 69,185.00
Contingency (20%)					\$13,837.00
Subtotal					\$ 83,022.00
Engineering (20%)					\$16,604.40
Administrative Costs (3%)					\$2,490.66
Total Project Cost					\$102,117.06

8.2 Cleaning and Televising

The City should develop a program to regularly and systematically televise the entire system. Through this approach, the entire storm drain system will be cleaned and deficiencies can be discovered and corrected over a period of time.

All television inspection tapes should be provided to the engineering staff at the City for review. Deficiencies should be noted and catalogued for potential improvement projects. Serious deficiencies should be corrected immediately.

8.3 Storm Drain System Management and Maintenance

A program of regular investment in system maintenance will do much to eliminate major system overhauls, replacement projects, and costly system breakdowns. The storm drain system is continuously deteriorating. The state of deterioration is unique to each section of pipe based on the age of the pipe, soil conditions, and characteristics of flows within the pipe.

The City has begun developing system maps of all its infrastructures including storm drain. The software of choice is Arc GIS. Currently the system maps hold basic display information as well as minimal component information. It is recommended that the City continue to develop the GIS mapping for the storm drain system, and add to the GIS database more specific information related to system components. Such as: age, component condition, and descriptions of any possible failure points (Cracks, pipe sag, obstructions...etc). ArcGIS also has the capability of adding links to system components that will bring up associated pictures and videos. As system components are televised, and/or examined and documented with pictures, these files should be added to the GIS mapping. These additions to the current mapped system will aid in the organization and management of system maintenance efforts.

Legend

-  City Limits
-  Urban Growth Boundary
-  Storm Main
-  LWI Wetlands
-  Future Storm Drainage Projects

Storm Drainage SDC Project Eligibility Improvement Projects	
Project Number	Description
SD1	525 feet of 24-inch pipe along NE 73rd Street
SD2	124 feet of 30-inch pipe north of NW 60th Street
SD3	270 feet of 12-inch & 18-inch pipe along Lucky Gap Street
SD4	655 feet of culverts crossing Yaquina Bay Boulevard
SD5	Install 677 feet of 12, 15, and 24-inch pipe along SW Coho, SW 29th and SW 28th Street
SD6	Drainage ditch development, rehabilitation, and access improvements
SD7	55 feet of 24-inch culvert crossing SE 35th Street
SD8	170 feet of 36-inch pipe crossing Hwy 101 (Jack & Bore)

