STORM DRAINGE FACILITIES[1]

The City of Newport (City) provides stormwater collection services for more than 10,000 people and businesses across 43 separate drainage basins. Stormwater collected from within the City is typically piped in developed areas and discharged into the nearest natural water body (i.e. local streams, the bay or sloughs, etc.) In many cases, existing storm drains have been designed and constructed with the intent to serve only specific developing areas within the City, without consideration of future improvements that might occur upstream.

The characteristics of the City's storm drainage system in areas north of the Yaquina Bay are different from what exists to the south. Areas north of the bay are more steeply sloped, with ravines and hilly areas that were excavated and filled to create level areas for development. Within these areas the storm drain system normally was large diameter pipe conveying runoff at the natural elevation and along the original alignment of whichever creek/stream or waterway that was being covered. In many cases, the cover (i.e. fill) was over 25 feet deep.

As the alignment of these systems was not dictated by lot lines, or typical planning parameters, many of these pipes currently run under existing structures. The second type of system is those that were put in place within areas that maintained a similar topography to the natural landscape. The storm drain systems in these areas are typically small diameter pipe networks that follow natural grading flow paths to the nearest hillside, or ravine draining to a nearby creek or stream.

Beginning in the 1970's, the City annexed areas south of Yaquina Bay, commonly referred to as "South Beach." This area extended approximately 5 miles South of Yaquina Bay, and as much as 2.5 miles inland. Significant portions of South Beach are undeveloped, with storm drainage following whatever path the natural ground would dictate to get to Yaquina Bay, or the Pacific Ocean. Given that this area is relatively flat, and that the natural terrain affords many areas for water storage, (wetlands) it can be difficult to model how the storm water flows through these undeveloped areas. The majority of the storm drain system within South Beach is comprised of roadside ditches, culverts along HWY. 101, a piped system which outfalls east of SW 32nd St., and pipes which convey storm runoff under the Airport.

Detailed information on the historical, functional, and environmental factors relevant to the City's stormwater system can be found in the document entitled, "Stormwater Master Plan, City of Newport, Lincoln County Oregon," by Civil West Engineering, dated October 2016 (hereinafter, the "Stormwater Master Plan").

Existing Stormwater System:

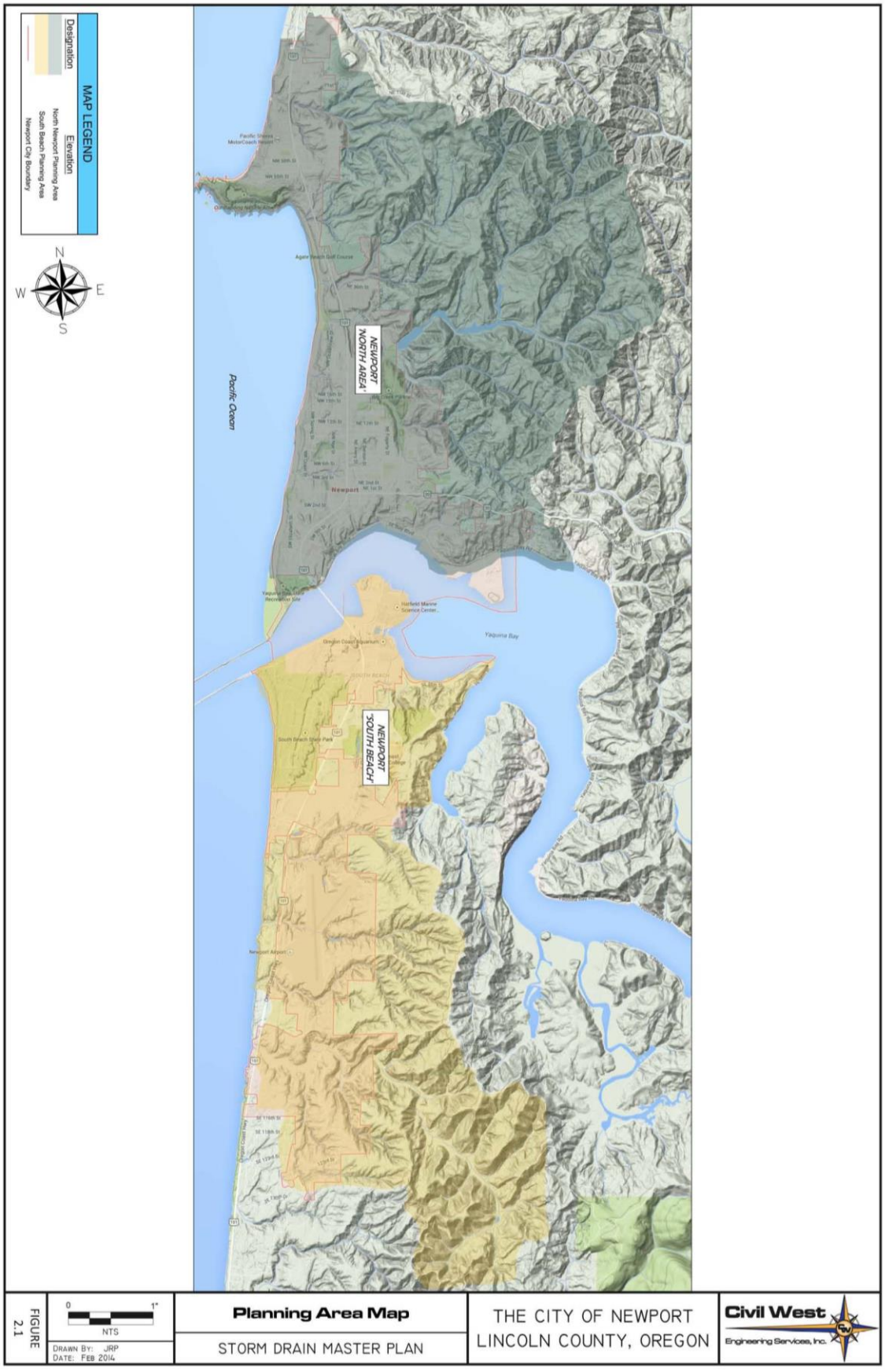
The existing storm drain system within the 43 basins includes approximately 32 miles of gravity piping in a range of sizes from 6-inches to 144-inches diameter and consisting of a variety of materials including concrete, corrugated steel, polyvinyl chloride (PVC), high density polyethylene (HDPE), and others. Detailed information is provided in the Stormwater Master Plan regarding the specific amounts of the various sizes of pipe in the various basins. Systems within the basins are typically one of three types, as listed below:

1. Large diameter pipes following the elevation and alignment of natural drainage ways with significant fill above the pipe.
2. Small diameter pipes which drain straight to a nearby creeks, or streams.
3. Natural topography draining to creeks, and streams which are conveyed under HWY. 101 by means of a large culvert.

The downtown area is mixture of system types 1 and 2, while much of the far north and south are a mixture of system types 2 &3.

[1] Section replaced in its entirety by Ordinance No. 2169 (July 20, 2020).

Study Area


MAP LEGEND
Designation
Elevation
North Newport Planning Area
South Beach Planning Area
Newport City Boundary
N
W
E
S
NEWPORT NORTH AREA
NEWPORT SOUTH BEACH
Pacific Ocean
Yaquina Bay
Newport
Planning Area Map
STORM DRAIN MASTER PLAN
THE CITY OF NEWPORT
LINCOLN COUNTY, OREGON
FIGURE 2.1
NTS
DRAWN BY: JRP
DATE: FEB 2014
Civil West
Engineering Services, Inc.

The timeframe for preparation of this Master Plan was 2013/2014, but due to numerous updates and review periods, the final Master Plan is dated October 2016. The planning period for this Storm Water Master Plan is 20 years. The period must be short enough for current users to benefit from system improvements, yet long enough to provide reserve capacity for future growth and increased demand. Existing residents should not pay an unfair portion for improvements sized for future growth, yet it is not economical to build improvements that will be undersized in a relatively short period of time. Thus, it is appropriate to calculate the storm water flow increase caused by development over the next 20 years, which is a typical planning period for storm water master plans. The end of the planning period is the year 2035.

Identification of Deficiencies and Development of Improvement Alternatives:

All of the existing storm drain system components were analyzed for deficiencies that exist presently. Facilities also have been evaluated for deficiencies that are expected to occur within the 20-year planning period. Deficiencies were identified related to the age of infrastructure, anticipated development, and capacity.

As part of this planning effort, calculations were made to estimate the peak stormwater flows that could be expected from each basin under existing and future development conditions. Runoff calculations for the various storm drainage basins were performed using a method developed by the Soil Conservation Service (SCS) now called the National Resources Conservation Service (NRCS) for relating rainfall to runoff. The method is described in length in Technical Release 20 (TR-20) published by the SCS. The TR-20 method is based upon unit hydrograph theory and the runoff curve number method of calculating direct runoff from the rainfall occurring over specified areas. It considers an entire watershed with a variety of land uses and soil types. The TR-20 method also allows watershed areas (basins) to be divided into sub-basins for analysis purposes, with drainage routes of one or more sub-basins running through other sub-basins downstream. This provides for the calculation of an overall peak discharge from a basin that may or may not equal the sum of the peak discharges from the individual sub-basins.

Recommended Stormwater Projects:

The table on the next page identifies a number of projects to address deficiencies within the storm drainage system over the next 20-years. Individual projects are grouped into three priority classifications. Each classification group is loosely defined as follows:

Group A: These are the highest priority projects that should be undertaken as soon as adequate funding is available. These projects should be undertaken within the next 5 years.

Group B: These projects, while not of the highest priority, should be on the City's capital improvement planning window beyond the 5-year horizon. As Group A projects are completed, Group B projects should be moved to Group A status. System degradation or failures, project coordination, or other occurrence may require the movement of Group B projects to Group A status ahead of schedule. New projects that are developed that are not critical, should be grouped in Group B until funding is available.

Group C: Group C projects are either of low priority or are dependent on development. If development in an area necessitates the implementation of a Group C improvement, the project should be moved to Group A. Some projects may remain in Group C indefinitely if the need for the project or the development requiring it never arises.

	Project Rating	Project Number	Project Description	Improvement Conditions			Total Project Cost
				Overflow	*Under Structures*	*Future Develop.*	
	1	X1	1456' of 12", and 18" SD pipe along SW 9th St.	X			$526,162
	2	X2	571' of 18", and 24" pipe along SW 10th St.	X			$213,816
	3	X3	1663' of 12", 24", 30", and 36" SD pipe along SW Minnie St.	X			$793,155
	4	U4	Re-alingment of Pipe under Cash and Carry	X	X		$2,710,875
A	5	U2	739' of 54" SD pipe along NW 3RD Street & NW Coast St.	X			$612,539
	6	T2	921' of 36" SD pipe along NW Coast St.	X			$490,012
	7	T4	Re-alignment of Pipe under Sunwest Honda/Mazda building		X		$1,109,013
	8	AL1	170' of 36" SD pipe crossing Hwy. 101 (Jack and Bore)	X			$102,117
	9	N1	1200' of 12", 24", 30", and 35" SD Pipe along Hwy. 101	X			$553,428
	10	Q1	890' of 12", 18" , and 24" SD pipe along NW Nye St.	X			$291,848
	11	T6	Re-alignment of Pipe under Church of the Nazarine building		X		$598,801
	12	T5	Re-alignment of Pipe under Ford Dealership building		X		$271,188
	13	U5	Re-alignment of Pipe under local residence	X	X		$79,355
	14	C1	525' of 24" along NE 73rd St.	X		X	$229,316
	15	AA1	675' of 18", and 24" SD pipe along SE Avery St.	X			$212,022
	16	AF1	1515' of 12", 18", and 24" pipe along SW 29th and SW Brant St.			X	$640,902
B	17	F1	124' of 30" SD pipe North of NW 60th St.	X		X	$67,398
	18	T3	665' of 12", 18", and 24" SD pipe along NW Spring St.	X			$264,614
	19	U3	1699' of 18", and 24" pipe along SW Cliff Street	X			$664,079
	20	U6	553' of 12", and 18" SD pipe along SW 2nd St.	X	X		$169,797
	21	AJ1	55' of culvert crossing SE 35th St.	X			$37,156
	22	U1	753' of 18", and 24" SD pipe along NE Douglas Street	X			$304,978
	23	R1	675' of 12", and 18" SD pipe along NW Spring St.	X			$227,522
	24	Y1	497' of 12" SD pipe along SW 13th St.	X			$163,653
	25	V1	533' of 18" and 24" SD pipe along SW Fall St.	X			$308,322
	26	AG1	Drainage ditch development and Rehabilitation	X		X	$1,693,568
	27	K1	270' of 12" & 18" SD pipe along NE Lucky Gap St.	X			$102,214
	28	H1	305' of 12" and 18" SD pipe along NW 54th St.	X			$103,677
C	29	N2	240' of 18" SD pipe along NE Iler St.	X			$86,500
	30	T1	161' of 12" SD pipe along NW Nye St.	X			$50,766
	31	AC1	655' of Culverts crossing Yaquina Bay Blvd.			X	$208,698
	32	AG2	1551' of 15", 18", and 24" SD pipe along SW 35th St.			X	$459,808
		Total					**$14,347,295**

Project Prioritization:

When considering stormwater conveyance projects, priority should be given to the following:

1. Areas where there is an identified lack of capacity within the system to handle flows attributed to existing and future conditions.
2. Components of the storm drainage system run-off (controlled or otherwise) has repeatedly caused problems for the City and for residents.
3. Opportunities to relocate public storm drainage components from underneath existing structures.
4. Age related deficiencies that could result in structural failure of piping sections.
5. The extent to which a project aligns with available funding.
6. Coordination with other planned improvements (water, sewer, streets, etc.).

Although all of these factors were taken into account when formulating the priority of projects, three carried the most weight in the development of priorities. These three dominant influences were listed as 1 through 3, and were weighed so heavily because flooding and large pipe failures under structures will have the largest impact on public safety and welfare.

Financing:

There are a number of potential sources of funding. The City has a monthly 'Stormwater Utility' fee that is designated to pay for stormwater services, including the operation, maintenance, repair, necessary replacement, and improvement of the system. That fee is based upon the amount of impervious surface on a given property. Federal, state and local gas taxes can also be used to improve stormwater facilities when such work is in conjunction with street projects. The current fees do not have the capacity to pay for all of the capital improvements outlined above. Property owners that benefit from a potential stormwater improvement may petition for the formation of a local improvement district, whereby they would be assessed a proportional share of the project cost. The City Council may also initiate a local improvement district on its own motion.

Additionally, grant and non-grant sources of funding are potentially available, including but not limited to FEMA Pre-Disaster Mitigation Program, FEMA Flood Mitigation Assistance Program, Clean Water State Revolving Loan Fund, general obligation bonds, revenue bonds, and system development charges (SDCs). Although grant programs exist, there is no way to guarantee that grant funding will be available to fund needed projects. Revenue bonds supported by user fees and complimented by SDCs are a more reliable means of programming needed funding over a series of years.