



City of Saratoga Springs

Storm Drain Impact Fee Facilities Plan

Project No. 305-20-03

Prepared by:



February 2023

SARATOGA SPRINGS STORM DRAIN IMPACT FEE FACILITIES PLAN

October 2021

(Amended February 2023)

Prepared for:



SARATOGA
SPRINGS
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Prepared by:



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EXECUTIVE SUMMARY

The City of Saratoga Springs has retained Bowen Collins & Associates (BC&A) to prepare an impact fee facility plan (IFFP) for the storm water utility. The purpose of an IFFP is to identify demands placed upon City facilities by future development and evaluate how these demands will be met by the City. The IFFP is also intended to outline the improvements which may be funded through impact fees.

This document has been amended since its October 2021 version. Updates consist of the following:

- *(February 2023) Completed Projects* – Projects that were identified in the July 2021 IFFP or July 2021 Capital Facilities Plan as future projects that have since been completed have been moved from a future project to a completed project and costs updated as part of this IFFP update.
- *(February 2023) Future Projects* – Projects that were identified in the July 2021 IFFP as future projects that have not been completed have had project costs updated to account for inflation or project bid costs.

WHY IS AN IFFP NEEDED?

The IFFP provides a technical basis for assessing updated impact fees throughout the City. This document will address the future infrastructure needed to serve City growth based on current land use planning. The existing and future capital projects documented in this IFFP will ensure that level of service standards are maintained for all existing and future residents who reside within the City. Local governments must pay strict attention to the required elements of the Impact Fee Facilities Plan which are enumerated in the impact Fees Act (Title 11 Chapter 36a of the Utah Code Annotated).

PROJECTED FUTURE GROWTH

To evaluate the use of existing capacity and the need for future capacity, it is first necessary to calculate the demand associated with existing development and projected growth. Using available information for existing development and expected growth, projected growth in developed acreage for the City's 10-year growth projections are summarized in Table ES-1.

Table ES-1: Projected 10-Year Developed Acreage

Year	Increase in Developed Acres	Total Developed Acres	Annual Increase
2021 (Existing)	n/a	4,338	4.2%
2022	233	4,571	5.4%
2023	233	4,804	5.1%
2024	233	5,037	4.9%
2025	233	5,270	4.6%
2026	233	5,503	4.4%
2027	233	5,736	4.2%
2028	233	5,969	4.1%
2029	233	6,202	3.9%
2030	234	6,436	3.8%
2031	242	6,679	3.8%
10-Year Growth	2,341	-	-

EXISTING CAPACITY AVAILABLE TO SERVE FUTURE GROWTH

Projected future growth will be met through a combination of utilizing available excess capacity in existing facilities and the construction of additional capacity in new facilities. The calculated percentage of existing capacities available for use by future growth in facilities constructed by the city is summarized in Table ES-2.

Table ES-2: Existing Facility Capacity Used by Future Growth

Project ID	Project Name	Total Construction Cost	Percent Attributable to Existing Development	Percent Attributable to Growth (2021-2030)	Percent Attributable to Growth (2031 +)
EP.1	Sierra Estates - 400 North	\$261,411	38.4%	21.0%	40.6%
EP.2	Israel Canyon Debris Basin and Flood Mitigation	\$678,970	41.3%	20.0%	38.7%
EP.4	400 N Storm Drain Outfall	\$442,920	42.2%	19.7%	38.1%
EP.6	800 W (Sunrise Meadows to 400 N)	\$172,539	100.0%	0.0%	0.0%
PN1	Storm Drain on Redwood Road from Grandview to Lake View Terrace	\$203,344	48.9%	17.4%	33.7%
PN13	Harvest Moon Dr. 1	\$160,300	100.0%	0.0%	0.0%
PN20	Riverside Drive (to 400 North)	\$665,466	4.1%	32.6%	63.3%
PN21b&c	New pipe in old canal alignment for new outfall to Utah Lake (w/transition structure).	\$173,794	9.1%	30.9%	60.0%
PN4	Talus Ridge Plat B & D	\$0	18.7%	27.7%	53.6%
PN6a&d	Pioneer Crossing to Market St.	\$82,353	8.3%	31.2%	60.5%
PN6c	Market Street	\$426,355	9.3%	30.9%	59.8%
PN7, OCN2, & CN10	Tickville Wash Reimbursements (DR Horton and SLR)	\$3,136,549	13.0%	29.6%	57.4%
PN24	Storm Drain on Redwood Road from Tanner Lane to SSD Outfall	\$52,476	28.8%	24.2%	47.0%
SAR.177 & PN18a	SR 73 Town Center Outfall	\$161,388	50.2%	17.0%	32.8%
SAR.187	Hillside Dr to Grandview Blvd	\$578,243	100.0%	0.0%	0.0%
SAR.219A&B	48" Storm Drain Outfall	\$946,435	47.6%	17.8%	34.6%
DBN5	Orchard Way Pond Upsize	\$81,334	100.0%	0.0%	0.0%
CN11/OCN3	400 North and Riverside Drive	\$172,242	42.7%	19.5%	37.8%

Project ID	Project Name	Total Construction Cost	Percent Attributable to Existing Development	Percent Attributable to Growth (2021-2030)	Percent Attributable to Growth (2031 +)
CN9	1200 N SD Under Pioneer Xing	\$49,000	8.9%	31.0%	60.1%
PE6 & PE7	Outfall at Perelle Meadows	\$49,592	27.3%	24.7%	48.0%
SAR.059	Lake Mountain North Outfall	\$120,506	26.6%	14.4%	59.0%
SAR.060	Lake Mountain South Outfall	\$126,558	26.6%	14.4%	59.0%
EP.7	McGreggor and Windlass Inlet Box and Tie In	\$35,000	26.6%	14.4%	59.0%
EP.8	Eagle Park Storm Drain Outfall	\$19,765	26.6%	14.4%	59.0%
EP.9 / PN6b	City Center Outfall East of Redwood	\$270,219	26.6%	14.4%	59.0%
PN18b	Outfall along Crossroads Blvd and Summer Village to Jordan River	\$0	50.2%	17.0%	32.8%
PE4a	145 North Outfall	\$83,448	17.4%	28.1%	54.5%
EP.11	Lake Mountain Estates Plat I Offsite Storm Drain	\$36,000	26.6%	14.4%	59.0%
EP.12	Lake Mountain Estates Storm Drain in Harbor Parkway	\$93,205	26.6%	14.4%	59.0%
EP.13	400 East Storm Drain	\$28,465	26.6%	14.4%	59.0%
EP.3,14,&15	Storm Drain in Talus Ridge Drive	\$389,970	27.1%	24.8%	48.1%
PE5a & PE5b	Willow Glen Outfall	\$78,938	12.3%	29.9%	57.8%
PN23b	Storm Drain in Crossroads Blvd (Starhaven)	\$103,304	0.0%	34.0%	66.0%
PN6e & PN8c	Storm Drain near Costco Basin and Storm Drain from Market Street up past medical Drive	\$631,598	7.5%	31.5%	61.0%
PE8	Box culvert from Northshore to Utah Lake in Saratoga Road	\$311,638	24.8%	25.6%	49.6%
PN3b	Lexington Green Storm Drain Outfall in 800 West	\$185,977	16.8%	28.3%	54.9%
PN21a	New pipe in old canal alignment for new outfall to Utah Lake	\$302,547	9.1%	30.9%	60.0%
PN16	1900 North / Redwood Road Tie In	\$0	62.8%	12.7%	24.5%
PN2a	Pony Express Outfall (Completed with Widening Project)	\$314,915	83.0%	5.8%	11.2%

Project ID	Project Name	Total Construction Cost	Percent Attributable to Existing Development	Percent Attributable to Growth (2021-2030)	Percent Attributable to Growth (2031 +)
DS1*	Harbor Parkway Detention Basin	\$357,159	0.0%	34.0%	66.0%
OCS2**	Village Parkway and Redwood Road Open Channel	\$166,000	0.0%	34.0%	66.0%
PN19	Extension of line near storage units	\$115,802	20.6%	27.0%	52.4%
PN21d	400 South part 4	\$207,240	9.1%	30.9%	60.0%
PN23a	1400 N Line Extension 2	\$124,180	0.0%	34.0%	66.0%
PN2b	Redwood Road & Pony Express Extension	\$450,000	83.0%	5.8%	11.2%
PN6g	Market Street	\$183,167	0.0%	34.0%	66.0%
PN8c	Redwood Road (1200 N to Market)	\$494,861	8.9%	31.0%	60.1%
PN8e	The Crossing Outfall	\$0	8.8%	31.0%	60.2%
PS1*	Harbor Parkway Basin Conveyance	\$108,150	24.5%	25.7%	49.8%
OCS4	Fox Hollow Reroute	\$0	0.0%	34.0%	66.0%
PE4B	Saratoga Road 2 North Lake Meadows B	\$18,385	17.4%	28.1%	54.5%
PN25	Linear Pond Bypass	\$191,031	32.3%	23.0%	44.7%
Total or Average		\$14,042,739	29.3%	23.50%	47.2%

*The City obtained a grant for projects DS1 and PS1. The costs listed are the City's matched amounts for these projects. These two projects have been accounted for together in City records. They are shown here as separate projects to properly allocate costs between existing and future users using estimated cost breakdowns.

**The City obtained a grant for project OCS2. The cost listed is the City's matched amount for this project.

REQUIRED SYSTEM IMPROVEMENTS

Beyond available existing capacity, additional improvements required to serve new growth are summarized in Table ES-3.

To satisfy the requirements of state law, Table ES-3 provides a breakdown of the percentage of the project costs attributed to existing and future users. For future use, capacity has been divided between capacity to be used by growth within the 10-year planning window of this IFFP and capacity that will be available for growth beyond the 10-year window.

Table ES-3: Impact Fee Facilities Plan – Cost Share Attributable to Future Growth

Project ID	Project Name	Total Construction Cost (2021 Dollars)	Percent Attributable to Existing Development	Percent Attributable to Growth (2021-2030)	Percent Attributable to Growth (2031 +)
CN1	Mountain View Corridor 5	\$103,506	9.3%	30.9%	59.8%
CN3	Foothill Blvd & Tickville Wash	\$611,240	17.1%	28.2%	54.7%
CN6	Saratoga Parkway 1	\$207,011	0.0%	34.0%	66.0%
CN8	Mountain View Corridor 3	\$103,506	0.0%	34.0%	66.0%
DN3	Mountain View Corridor 1 (New)	\$305,573	9.5%	30.8%	59.7%
OCN1	Clay Pit Reroute	\$412,622	0.0%	34.0%	66.0%
OCS1	Village Parkway & Redwood Road	\$624,200	47.3%	17.9%	34.8%
PE3	Saratoga Road 6	\$530,503	6.1%	31.9%	62.0%
PE4C	Saratoga Road 3	\$671,655	17.4%	28.1%	54.5%
PN10a	Wildflower Outlet	\$726,755	4.5%	32.5%	63.0%
PN10b	Pioneer Crossing (DN3 to 1200 N)	\$310,624	4.5%	32.5%	63.0%
PN11	1200 North 3	\$176,207	79.2%	7.1%	13.7%
PN12***	Harvest Hills to Jordan River	\$1,883,780	63.9%	12.3%	23.8%
PN2c	Pony Express Crossing	\$43,944	73.6%	9.0%	17.4%
PN26	400 North Channel Piping	\$739,925	42.7%	19.5%	37.8%
PN3a	Fairfield Road	\$771,176	0.0%	34.0%	66.0%
PN6f	Pioneer Crossing to Exchange Dr	\$189,886	2.2%	33.3%	64.5%
PN8a	1200 N 1	\$726,693	31.4%	23.3%	45.3%
PN8b	1200 N 2	\$1,368,729	9.0%	31.0%	60.0%
Total or Average		\$10,507,535	25.5%	25.34%	49.2%

***Final project alignment for PN12 has not been determined. All alternative alignments are approximately the same cost.

IMPACT FEE FACILITIES PLAN

INTRODUCTION

The City of Saratoga Springs has retained Bowen Collins & Associates (BC&A) to prepare an impact fee facility plan (IFFP) for storm water services provided by the City. The purpose of an IFFP is to determine the public facilities required to serve development resulting from new development activity. The IFFP is also intended to outline the improvements which may be funded through impact fees.

Much of the analysis forming the basis of this IFFP has been taken from the City's Storm Drain Capital Facilities Plan (CFP), which was also prepared by BC&A. The reader should refer to the CFP for additional discussion of planning and evaluation methodology beyond what is contained in this IFFP.

SERVICE AREA

The City's storm drain infrastructure (both existing and planned) is similar throughout the City. Thus, there is no distinction that requires the consideration of separate service areas and the entire City is considered a single service area.

IMPACT FEE FACILITY PLAN COMPONENTS

Requirements for the preparation of an IFFP are outlined in Title 11, Chapter 36a of the Utah Code Annotated (the Impact Fees Act). Under these requirements, an IFFP shall accomplish the following for each facility:

1. Identify the existing level of service
2. Establish a proposed level of service
3. Identify excess capacity to accommodate future growth at the proposed level of service
4. Identify the means by which demands from new development will be met
5. Consider the following additional issues:
 - a. Revenue sources to finance required system improvements
 - b. Necessity of improvements to maintain the proposed level of service
 - c. Need for facilities relative to planned location of schools

The following sections of this report have been organized to address each of these requirements.

EXISTING LEVEL OF SERVICE – UTAH CODE ANNOTATED 11-36A-302(1)(A)(I)

Level of service is defined in the Impact Fees Act as “the defined performance standard or unit of demand for each capital component of a public facility within a service area”. This section discusses the level of service currently being provided to existing users.

Performance Standard

The performance standard defines the level of service the City has established to satisfy City and/or State performance requirements. There are no minimum State standards for storm water conveyance as there are with some other utilities. Every city desires to protect its residents and infrastructure from flooding and to balance the cost of storm water improvements with the amount of flow in the streets. Thus, the performance standard was provided by Saratoga Springs personnel as documented in the City's Storm CFP.

Allowable Runoff

City policy requires that runoff from developed properties be limited in accordance with available capacity in downstream infrastructure. Runoff conveyed in City systems may not exceed 0.2 cfs/acre and may be limited as low as the historic runoff for the pre-developed condition (almost always less than 0.2 cfs/acre) if limiting runoff is needed due to capacity restrictions in downstream infrastructure. Each subbasin has been assigned the highest possible release rate (not to exceed 0.2 cfs/acre) that preserves the integrity of downstream infrastructure.

It should be noted that some areas of the City are located adjacent to Utah Lake or the Jordan River. In these areas, runoff is not limited to a specific release rate since independent local drainage facilities (instead of system-wide planned facilities) are to be used to convey runoff. It should also be noted that the storm facilities within these areas are still required to meet all Saratoga Springs standards, including the requirement to provide safe flood routing and protection for the 100-year design storm, which may still require detention depending on development layout, location, and whether there is a clear overland flow route directly to the lake or the river.

Storm Drain Pipelines

Storm drain pipelines are generally designed to convey the 10-year storm event at full pipe capacity. Storm drain pipes are also not to be smaller than 15 inches in diameter. In the event that storm water discharge is greater than the 10-year event, the pipes will pressurize and eventually flood into the streets. It is important to note that roadways become the major storm water conveyance facility during storms that are larger than the 10-year design event and should be designed to convey flows up to the 100-year storm event.

The exception to this is for pipelines that have replaced natural drainages and convey drainage from Lake Mountain or any other upland areas. In these cases, the pipelines are designed to convey the 100-year storm event.

Open Channels

All open channels should be designed to convey the 100-year storm event with at least 2 feet of freeboard. This includes all manmade channels and enhancements to natural channels. Open channels should also have adequate erosion protection for the 100-year peak velocities. If velocities are less than or equal to 4 feet per second (ft/s), the channel may be stabilized with vegetation if acceptable to the design engineer. However, if the 100-year peak velocity in a channel is greater than 4 ft/s, armoring will be required. The type of armoring will be determined by the design engineer at detailed design; this plan assumes armored channels to require rip-rap armoring, but concrete lining or other armoring may be required. Open channel design should consider maintenance and safety issues.

Culverts

All culverts on reaches of open channel should be designed to convey the 100-year storm event with at least 18-inches of freeboard at the road crossing

Detention Basins

Detention facilities are routinely used in the City to reduce maximum flow rates. In the City of Saratoga Springs, both regional and local detention facilities are used. Regional basins are used to detain flows from all types of developments. Local detention basins have been designated as project level improvements to be constructed by a single developer or consortium of neighboring developers.

Detention facilities need to have capacity for the design storm (see *Design Storm Parameters* in Chapter 3 or the CFP) with at least one foot of freeboard and be designed to safely direct potential overflow toward secondary conveyance facilities, such as a right-of-way or open channel, and away from private property and areas of potential property damage. Release rates for local detention basins need to be limited as described above in *Allowable Runoff*. Release rates for regional detention basins have been optimized to minimize cost between improvements at the detention basins and downstream conveyance facilities.

Design Storm Parameters

The design storm defines how much precipitation falls and at what rate for a projected precipitation event. Rainfall data for system evaluation is based on the National Oceanic and Atmospheric Administration (NOAA) Atlas 14. This data is commonly used by professionals in the industry and has been shown to produce accurate results in studies conducted in neighboring communities. The Farmer Fletcher Storm distribution was used for storm water conveyance and detention facilities to simulate a cloudburst event which is typical to the Wasatch Front area in Northern Utah.

Unit of Demand

The City of Saratoga Springs policy requires all development to be detained to release rates representative of historic pre-development conditions. As a result, all development within a given drainage basin, regardless of type, produces a similar demand on the storm water system on a per acre basis. This means demand for the calculation of impact fees can be on the basis of total gross acres developed.

Level of Service Summary

The existing level of service for the City of Saratoga Springs storm drain facilities can be summarized as follows:

Table 1: Storm Drain Level of Service

Type	Evaluation Criteria
Allowable Runoff	Between historic runoff and 0.2 cfs per acre based on the capacity of downstream infrastructure
Pipelines	Minor: 10-year design storm Major: 100-year design storm
Open Channels	100-year design storm with at least 2 feet freeboard and armoring
Detention Basins	100-year design storm with at least 1 foot freeboard; release rate per <i>Allowable Runoff</i>

Note: See the detailed descriptions above and related City publications for more detailed discussion of City storm drain standards.

PROPOSED LEVEL OF SERVICE – UTAH CODE ANNOTATED 11-36A-302(1)(A)(II)

The proposed level of service is the performance standard used to evaluate system needs in the future. The Impact Fee Act indicates that the proposed level of service may:

1. Diminish or equal the existing level of service; or
2. Exceed the existing level of service if, independent of the use of impact fees, the City implements and maintains the means to increase the level of service for existing demand within six years of the date on which new growth is charged for the proposed level of service.

The level of service is proposed to remain the same except in one respect¹. Saratoga Springs staff has noticed an increase in runoff and debris following wildfires in the Lake Mountain area. It is necessary that debris basins are installed to mitigate the negative impacts of these fires. The level of service for debris basins is addressed below.

Debris Basins

Recent fires in the Lake Mountain area have affected nearly the entire range at some point in time. Fire above the City presents a significant storm drainage risk. In at least one instance, debris flows from burned portions of the mountain drainages have clogged or compromised downstream storm drain infrastructure, resulting in flooding. Therefore, the City has recently worked with the US Army Corps of Engineers to identify alluvial fans coming down into the City from the Lake Mountains and their associated risk. A debris basin must be placed at all the major open channels coming from the Lake Mountains prior to them flowing through the City.

The City is not planning development within the alluvial fans in the 10-year planning window. However, if a developer wishes to develop land within an alluvial fan, they are responsible for designing and constructing a debris basin prior to developing. The debris basin must be able to filter and pass the 100-year design storm unless otherwise specified by the City.

Proposed Level of Service Summary

The proposed level of service for the City of Saratoga Springs storm drain facilities can be summarized as follows:

Table 2: Proposed Storm Drain Level of Service

Type	Evaluation Criteria
Allowable Runoff	Between historic runoff and 0.2 cfs per acre based on the capacity of downstream infrastructure
Pipelines	Minor: 10-year design storm Major: 100-year design storm
Open Channels	100-year design storm with at least 2 feet freeboard and armoring
Detention Basins	100-year design storm with at least 1 foot freeboard; release rate per <i>Allowable Runoff</i>
Debris Basins	100-year design storm with at least 1 foot freeboard

Note: See the detailed descriptions above and related City publications for more detailed discussion of City storm drain standards.

¹ New development in Saratoga Springs is required to comply with the new MS4 requirement of retaining the 80th percentile storm where feasible. This requirement is accomplished at the development level and is not associated with any City capital projects and thus does not change impact fee calculations.

EXCESS CAPACITY TO ACCOMMODATE FUTURE GROWTH – UTAH CODE ANNOTATED 11-36A-302(1)(A)(III)

The storm water needs of projected future growth will be met through a combination of available excess capacity in existing facilities and construction of additional capacity in new facilities.

Existing Storm Water Infrastructure

Existing storm water infrastructure in the City of Saratoga Springs includes conveyance pipelines, open channels, and detention basins. In areas where existing facilities exist, future growth will utilize a portion of excess capacity in existing facilities.

Existing Demand and Determination of Excess Capacity

To calculate the percentage of existing capacity to be used by future growth in existing facilities, existing and future development patterns were examined. The method used to calculate excess capacity available for use by future development is as follows:

1. **Calculate Potential Drainage Area of the Facilities** – The drainage area contributing to each storm drain facility or group of facilities was calculated for both existing and future development scenarios.
2. **Identify Existing Development** – Based on city records and available aerial photography, the flow rate associated with existing developed areas within each drainage area has been identified.
3. **Identify Growth** – Consistent with system growth projections, the flow rate associated with areas of projected growth in each drainage area has been calculated.
4. **Calculate Percent of Capacity Used by Growth** – The percent of excess capacity available for use in each facility was calculated by dividing the growth in use in the facility (flow rate for projected developed area) by the maximum use of capacity at buildout (total flow rate for the facilities). This was then divided between growth within the 10-year planning window and growth beyond following the same approach.

In considering available capacity in existing storm water facilities, it should be remembered that available capacity can only serve growth in the areas for which it was constructed. In other words, an existing pipeline that has available capacity for future growth in one area of the City can provide no benefit for projected growth in another area of the City. Thus, it is very common for projects to be needed in one area, even though available capacity may exist in another area. By following the procedure to calculate use of capacity as described above, only the existing capacity that will actually be used by 10-year growth has been identified as reimbursable through impact fees.

It should also be remembered that some facilities are paid for by the property owner and oversized for City needs. In these cases, the method to divide capacity between existing and future growth as described above refers to the City's portion of costs only.

Based on the method described above, Table 3 summarizes the excess capacity used by future growth in those storm drain facilities in which the City has available excess capacity and has also expended funds that are eligible for impact fee reimbursement. The location of these projects can be seen in Figure 1. The City has significantly more existing storm drain facilities with excess capacity than those shown in the table. However, in most cases, these existing facilities were built through developer contributions that are not eligible for reimbursement through impact fees.

Table 3: Existing Facility Capacity Used by Future Growth

Project ID	Project Name	Total Construction Cost	Percent Attributable to Existing Development	Percent Attributable to Growth (2021-2030)	Percent Attributable to Growth (2031 +)
EP.1	Sierra Estates - 400 North	\$261,411	38.4%	21.0%	40.6%
EP.2	Israel Canyon Debris Basin and Flood Mitigation	\$678,970	41.3%	20.0%	38.7%
EP.4	400 N Storm Drain Outfall	\$442,920	42.2%	19.7%	38.1%
EP.6	800 W (Sunrise Meadows to 400 N)	\$172,539	100.0%	0.0%	0.0%
PN1	Storm Drain on Redwood Road from Grandview to Lake View Terrace	\$203,344	48.9%	17.4%	33.7%
PN13	Harvest Moon Dr. 1	\$160,300	100.0%	0.0%	0.0%
PN20	Riverside Drive (to 400 North)	\$665,466	4.1%	32.6%	63.3%
PN21b&c	New pipe in old canal alignment for new outfall to Utah Lake (w/transition structure).	\$173,794	9.1%	30.9%	60.0%
PN4	Talus Ridge Plat B & D	\$0	18.7%	27.7%	53.6%
PN6a&d	Pioneer Crossing to Market St.	\$82,353	8.3%	31.2%	60.5%
PN6c	Market Street	\$426,355	9.3%	30.9%	59.8%
PN7, OCN2, & CN10	Tickville Wash Reimbursements (DR Horton and SLR)	\$3,136,549	13.0%	29.6%	57.4%
PN24	Storm Drain on Redwood Road from Tanner Lane to SSD Outfall	\$52,476	28.8%	24.2%	47.0%
SAR.177 & PN18a	SR 73 Town Center Outfall	\$161,388	50.2%	17.0%	32.8%
SAR.187	Hillside Dr to Grandview Blvd	\$578,243	100.0%	0.0%	0.0%
SAR.219A&B	48" Storm Drain Outfall	\$946,435	47.6%	17.8%	34.6%
DBN5	Orchard Way Pond Upsize	\$81,334	100.0%	0.0%	0.0%
CN11/OCN3	400 North and Riverside Drive	\$172,242	42.7%	19.5%	37.8%
CN9	1200 N SD Under Pioneer Xing	\$49,000	8.9%	31.0%	60.1%
PE6 & PE7	Outfall at Perelle Meadows	\$49,592	27.3%	24.7%	48.0%
SAR.059	Lake Mountain North Outfall	\$120,506	26.6%	14.4%	59.0%
SAR.060	Lake Mountain South Outfall	\$126,558	26.6%	14.4%	59.0%

Project ID	Project Name	Total Construction Cost	Percent Attributable to Existing Development	Percent Attributable to Growth (2021-2030)	Percent Attributable to Growth (2031 +)
EP.7	McGreggor and Windlass Inlet Box and Tie In	\$35,000	26.6%	14.4%	59.0%
EP.8	Eagle Park Storm Drain Outfall	\$19,765	26.6%	14.4%	59.0%
EP.9 / PN6b	City Center Outfall East of Redwood	\$270,219	26.6%	14.4%	59.0%
PN18b	Outfall along Crossroads Blvd and Summer Village to Jordan River	\$0	50.2%	17.0%	32.8%
PE4a	145 North Outfall	\$83,448	17.4%	28.1%	54.5%
EP.11	Lake Mountain Estates Plat I Offsite Storm Drain	\$36,000	26.6%	14.4%	59.0%
EP.12	Lake Mountain Estates Storm Drain in Harbor Parkway	\$93,205	26.6%	14.4%	59.0%
EP.13	400 East Storm Drain	\$28,465	26.6%	14.4%	59.0%
EP.3,14,&15	Storm Drain in Talus Ridge Drive	\$389,970	27.1%	24.8%	48.1%
PE5a & PE5b	Willow Glen Outfall	\$78,938	12.3%	29.9%	57.8%
PN23b	Storm Drain in Crossroads Blvd (Starhaven)	\$103,304	0.0%	34.0%	66.0%
PN6e & PN8c	Storm Drain near Costco Basin and Storm Drain from Market Street up past medical Drive	\$631,598	7.5%	31.5%	61.0%
PE8	Box culvert from Northshore to Utah Lake in Saratoga Road	\$311,638	24.8%	25.6%	49.6%
PN3b	Lexington Green Storm Drain Outfall in 800 West	\$185,977	16.8%	28.3%	54.9%
PN21a	New pipe in old canal alignment for new outfall to Utah Lake	\$302,547	9.1%	30.9%	60.0%
PN16	1900 North / Redwood Road Tie In	\$0	62.8%	12.7%	24.5%
PN2a	Pony Express Outfall (Completed with Widening Project)	\$314,915	83.0%	5.8%	11.2%
DS1*	Harbor Parkway Detention Basin	\$357,159	0.0%	34.0%	66.0%
OCS2**	Village Parkway and Redwood Road Open Channel	\$166,000	0.0%	34.0%	66.0%

Project ID	Project Name	Total Construction Cost	Percent Attributable to Existing Development	Percent Attributable to Growth (2021-2030)	Percent Attributable to Growth (2031 +)
PN19	Extension of line near storage units	\$115,802	20.6%	27.0%	52.4%
PN21d	400 South part 4	\$207,240	9.1%	30.9%	60.0%
PN23a	1400 N Line Extension 2	\$124,180	0.0%	34.0%	66.0%
PN2b	Redwood Road & Pony Express Extension	\$450,000	83.0%	5.8%	11.2%
PN6g	Market Street	\$183,167	0.0%	34.0%	66.0%
PN8c	Redwood Road (1200 N to Market)	\$494,861	8.9%	31.0%	60.1%
PN8e	The Crossing Outfall	\$0	8.8%	31.0%	60.2%
PS1*	Harbor Parkway Basin Conveyance	\$108,150	24.5%	25.7%	49.8%
OCS4	Fox Hollow Reroute	\$0	0.0%	34.0%	66.0%
PE4B	Saratoga Road 2 North Lake Meadows B	\$18,385	17.4%	28.1%	54.5%
PN25	Linear Pond Bypass	\$191,031	32.3%	23.0%	44.7%
Total or Average		\$14,042,739	29.3%	23.50%	47.2%

*The City obtained a grant for projects DS1 and PS1. The costs listed are the City's matched amounts for these projects. These two projects have been accounted for together in City records. They are shown here as separate projects to properly allocate costs between existing and future users using estimated cost breakdowns.

**The City obtained a grant for project OCS2. The cost listed is the City's matched amount for this project.

DEMANDS PLACED ON FACILITIES BY NEW DEVELOPMENT – UTAH CODE ANNOTATED 11-36A-302(1)(A)(IV)

The planning period to be used for this IFFP is 10 years. Table 4 lists the growth projections for the 10-year planning window.

Table 4: Projected 10-Year Developed Acreage

Year	Increase in Developed Acres	Total Developed Acres	Annual Increase
2021 (Existing)	n/a	4,338	4.2%
2022	233	4,571	5.4%
2023	233	4,804	5.1%
2024	233	5,037	4.9%
2025	233	5,270	4.6%
2026	233	5,503	4.4%
2027	233	5,736	4.2%
2028	233	5,969	4.1%
2029	233	6,202	3.9%
2030	234	6,436	3.8%
2031	242	6,679	3.8%
10-Year Growth	2,341	-	-

It should be emphasized that this is gross developed acres and includes all components of development including lots, open space, and roads, both public and private.

INFRASTRUCTURE REQUIRED TO MEET DEMANDS OF NEW DEVELOPMENT – UTAH CODE ANNOTATED 11-36A-302(1)(A)(V)

To satisfy the requirements of state law, demand placed upon system facilities by future development was projected using the process outlined below.

1. **Existing Capacity** – The capacities of the existing facilities were evaluated for the City of Saratoga Springs area using a hydraulic storm water model as part of the CFP.
2. **Existing Deficiencies** – Existing deficiencies in the system were looked for by comparing defined levels of service against calculated capacities.
3. **Future Demand** - The demand that future development will place on the system was estimated based on development projections as discussed previously.
4. **Future Deficiencies** - Future deficiencies in the storm water infrastructure were identified based on the defined level of service.
5. **Recommended Improvements** – Needed storm water improvements were identified to resolve the projected deficiencies.

The steps listed above describe the “demands placed upon existing public facilities by new development activity at the proposed level of service; and... the means by which the political subdivision or private entity will meet those growth demands” (Section 11-36a-302-1.a of the Utah Code Annotated).

10-Year Improvement Plan

Planned improvements to satisfy level of service requirements for projected demands within the next 10 years have been identified for the City area in the City’s CFP and are summarized in Table 5. These improvements will be constructed in phases as funding becomes available. Only infrastructure to be constructed within a ten-year window will be considered in the calculation of these impact fees to avoid uncertainty surrounding improvements further into the future.

The location of projects to be completed in the next 10 years for the City area is shown in Figure 2. It should be noted that Figure 2 only includes those projects with components of cost that are eligible to be included in the impact fee calculation.

Project Cost Attributable to Future Growth

To satisfy the requirements of state law, Table 5 provides a breakdown of the impact fee facility projects and the percentage of the project costs attributed to existing and future users. As defined in Section 11-36-304, the impact fee facilities plan should only include “the proportionate share of the costs of public facilities [that] are reasonably related to the new development activity.” While some projects from the capital facilities plan are required to meet future growth, some projects also provide benefit to existing users. Projects that benefit existing users include those projects addressing existing capacity deficiencies, maintenance related projects, or projects increasing the level of service for existing users.

For some projects, the division of costs between existing and future users is easy because 100 percent of the project costs can be attributed to one category or the other (e.g. infrastructure needed solely to serve new development can be 100 percent attributed to new growth). For projects needed to address both existing deficiencies and new growth, the costs were divided based on the same method as described for existing facilities in *Excess Capacity to Accommodate Future Growth* above.

It should be noted that Table 5 does not include bond costs related to paying for impact fee eligible improvements. These costs, if any, should be added as part of the impact fee analysis.

Table 5: Impact Fee Facilities Plan – Cost Share Attributable to Future Growth

Project ID	Project Name	Total Construction Cost (2021 Dollars)	Percent Attributable to Existing Development	Percent Attributable to Growth (2021-2030)	Percent Attributable to Growth (2031 +)
CN1	Mountain View Corridor 5	\$103,506	9.3%	30.9%	59.8%
CN3	Foothill Blvd & Tickville Wash	\$611,240	17.1%	28.2%	54.7%
CN6	Saratoga Parkway 1	\$207,011	0.0%	34.0%	66.0%
CN8	Mountain View Corridor 3	\$103,506	0.0%	34.0%	66.0%
DN3	Mountain View Corridor 1 (New)	\$305,573	9.5%	30.8%	59.7%
OCN1	Clay Pit Reroute	\$412,622	0.0%	34.0%	66.0%
OCS1	Village Parkway & Redwood Road	\$624,200	47.3%	17.9%	34.8%
PE3	Saratoga Road 6	\$530,503	6.1%	31.9%	62.0%
PE4C	Saratoga Road 3	\$671,655	17.4%	28.1%	54.5%
PN10a	Wildflower Outlet	\$726,755	4.5%	32.5%	63.0%
PN10b	Pioneer Crossing (DN3 to 1200 N)	\$310,624	4.5%	32.5%	63.0%
PN11	1200 North 3	\$176,207	79.2%	7.1%	13.7%
PN12***	Harvest Hills to Jordan River	\$1,883,780	63.9%	12.3%	23.8%
PN2c	Pony Express Crossing	\$43,944	73.6%	9.0%	17.4%
PN26	400 North Channel Piping	\$739,925	42.7%	19.5%	37.8%
PN3a	Fairfield Road	\$771,176	0.0%	34.0%	66.0%
PN6f	Pioneer Crossing to Exchange Dr	\$189,886	2.2%	33.3%	64.5%
PN8a	1200 N 1	\$726,693	31.4%	23.3%	45.3%
PN8b	1200 N 2	\$1,368,729	9.0%	31.0%	60.0%
Total or Average		\$10,507,535	25.5%	25.34%	49.2%

***Final project alignment for PN12 has not been determined. All alternative alignments are approximately the same cost.

Project Cost Attributable to 10 Year Growth

Included in Table 5 is a breakdown of capacity associated with growth through the next 10 years and for growth beyond 10 years. A challenge with storm drain infrastructure is it is not cost effective to add capacity in small increments. Once a pipeline is being built, it needs to be built to satisfy long-term capacity needs. As a result, the improvements proposed in the impact fee facility plan will include capacity for growth beyond the 10-year planning window. To most accurately evaluate the cost of providing service for growth during the next ten years, added consideration has been given to evaluating how much of each improvement will be used in the next 10 years. This has been done following the same methodology as described above.

Basis of Construction Cost Estimates

The costs of construction for projects to be completed within ten years have been estimated based on past BC&A experience with projects of a similar nature. Pipeline project costs are based on average per foot costs for pipes of a similar nature. Costs include consideration of other components of the storm water system including manholes, catch basins, and surface restoration as appropriate for each project. Details of the cost estimates can be found in the City's CFP.

ADDITIONAL CONSIDERATIONS

MANNER OF FINANCING – UTAH CODE ANNOTATED 11-36A-302(2)

The City may fund the infrastructure identified in this IFFP through a combination of different revenue sources.

Federal and State Grants and Donations

Impact fees cannot reimburse costs funded or expected to be funded through federal grants and other funds that the City has received for capital improvements without an obligation to repay. Grants and donations are not currently contemplated in this analysis. If grants become available for constructing facilities, impact fees will need to be recalculated and an appropriate credit given. Any existing infrastructure funded through past grants will be removed from the system value during the impact fee analysis.

Bonds

None of the costs contained in this IFFP include the cost of bonding. The cost of bonding required to finance impact fee eligible improvements identified in the IFPP may be added to the calculation of the impact fee. This will be considered in the impact fee analysis.

Interfund Loans

Because infrastructure must generally be built ahead of growth, there often arises situations in which projects must be funded ahead of expected impact fee revenues. In some cases, the solution to this issue will be bonding. In others, funds from existing user rate revenue will be loaned to the impact fee fund to complete initial construction of the project and will be reimbursed later as impact fees are received. Consideration of potential interfund loans will be included in the impact fee analysis and should also be considered in subsequent accounting of impact fee expenditures.

Impact Fees

It is recommended that impact fees be used to fund growth-related capital projects as they help to maintain the proposed level of service and prevent existing users from subsidizing the capital needs for new growth. Based on this IFFP, an impact fee analysis will be able to calculate a fair and legal fee that new growth should pay to fund the portion of the existing and new facilities that will benefit new development.

Developer Dedications and Exactions

Developer exactions are not the same as grants. Developer exactions may be considered in the inventory of current and future infrastructure. If a developer constructs a system improvement or dedicates land for a system improvement identified in this IFFP, or dedicates a public facility that is recognized to reduce the need for a system improvement, the developer will be entitled to an appropriate credit against that particular developer's impact fee liability or a proportionate reimbursement.

If the value of the credit is less than the development's impact fee liability, the developer will owe the balance of the liability to the City. If the recognized value of the improvements/land dedicated is more than the development's impact fee liability, the City must reimburse the difference to the developer.

It should be emphasized that the concept of impact fee credits pertains to system level improvements only. For project level improvement (i.e. projects not identified in the impact fee facility plan), developers will be responsible for the construction of the improvements without credit against the impact fee.

NECESSITY OF IMPROVEMENTS TO MAINTAIN LEVEL OF SERVICE – UTAH CODE ANNOTATED 11-36A-302(3)

According to State statute, impact fees cannot be used to correct deficiencies in the City's system and must be necessary to maintain the proposed level of service established for all users. Only those facilities or portions of facilities that are required to maintain the proposed level of service for future growth have been included in this IFFP. This will result in an equitable fee as future users will not be expected to fund any portion of the facilities that will benefit existing residents.

SCHOOL RELATED INFRASTRUCTURE – UTAH CODE ANNOTATED 11-36A-302(4)

As part of the noticing and data collection process for this plan, information was gathered regarding future school district and charter school development. Where the City is aware of the planned location of a school, required public facilities to serve the school have been included in the impact fee analysis. Table 6 shows the best available information regarding existing and planned schools.

Table 6: Existing and Planned Schools

School Name	Location / Address
Planned Junior High	Parcel 58:023:0274
Harvest Elementary	2105 N Providence Dr
Riverview Elementary	273 Aspen Hills Blvd
Planned Charter School	Wildflower Development; Parcel 58:033:0544
Planned Elementary School	Mt Saratoga Development; Parcel 58:034:0737
Lakeview Academy	527 W 400 N
Thunder Ridge Elementary	264 N 750 W
Horizon Special Needs School	682 W 210 N, Marie Way
Mountain Sunrise Academy	1802 E 145 N
West Lake High School	99 N 200 W
Vista Heights Middle School	484 Pony Express Pkwy
Planned Elementary School	Jordan Promenade Development; Parcel 58:035:0112
Springside Elementary	694 S Highpoint Dr
Planned High School	Parcel 58:041:0234
Lake Mountain Middle School	1058 S Old Farm Rd
Saratoga Shores Elementary	1415 S Parkside Dr
Sage Hills Elementary	3033 W Swainson Ave
Harbor Point Elementary	Parcel 16:003:0043

The planned schools in the table above will directly result in the need for additional improvements to public facilities. The cost share attributable to new growth per gross developed area as documented above is based solely on the proportionate share of facility use by new growth. Therefore, impact fees for schools calculated based on gross developed area and will cover only the school's proportionate share of the cost of system improvements (Utah Code Annotated 11-36-202(2.a.iii)).

NOTICING AND ADOPTION REQUIREMENTS - UTAH CODE ANNOTATED 11-36A-502

The Impact Fees Act requires that entities must publish a notice of intent to prepare or modify any IFFP. If an entity prepares an independent IFFP rather than include a capital facilities element in the general plan, the actual IFFP must be adopted by enactment. Before the IFFP can be adopted, a reasonable notice of the public hearing must be published in a local newspaper at least 10 days before the actual hearing. A copy of the proposed IFFP must be made available in each public library within the City during the 10-day noticing period for public review and inspection. Utah Code requires that the City must post a copy of the ordinance in at least three places. These places may include the City offices and the public libraries within the City's jurisdiction. Following the 10-day noticing period, a public hearing will be held, after which the City may adopt, amend and adopt, or reject the proposed IFFP.

IMPACT FEE CERTIFICATION - UTAH CODE ANNOTATED 11-36A-306(1)

This IFFP has been prepared in accordance with Utah Code Annotated Title 11, Chapter 36a (the "Impact Fees Act"), which prescribes the laws pertaining to the imposition of impact fees in Utah. The accuracy of this report relies upon the planning, engineering, and other source data, which was provided by the City and their designees.

In accordance with Utah Code Annotated, 11-36a-306(1), Bowen Collins & Associates makes the following certification:

I certify that this impact fee facility plan:

1. Includes only the costs of public facilities that are:
 - a. allowed under the Impact Fees Act; and
 - b. actually incurred; or
 - c. projected to be incurred or encumbered within six years after the day on which each impact fee is paid;
2. Does not include:
 - a. costs of operation and maintenance of public facilities;
 - b. costs for qualifying public facilities that will raise the level of service for the facilities, through impact fees, above the level of service that is supported by existing residents; or
 - c. an expense for overhead, unless the expense is calculated pursuant to a methodology that is consistent with generally accepted cost accounting practices and the methodological standards set forth by the federal Office of Management and Budget for federal grant reimbursement; and
3. Complies in each and every relevant respect with the Impact Fees Act.



Keith Larson, P.E.

Sheet Legend

The map shows the outline of the United Kingdom, including Great Britain and Ireland. It is divided into four regions, each labeled with a large pink letter and enclosed in a dashed pink box. Region A covers the north and central parts of England. Region B covers the south and central parts of England. Region C covers the east of England. Region D covers the south of England and Wales.















Project Labels

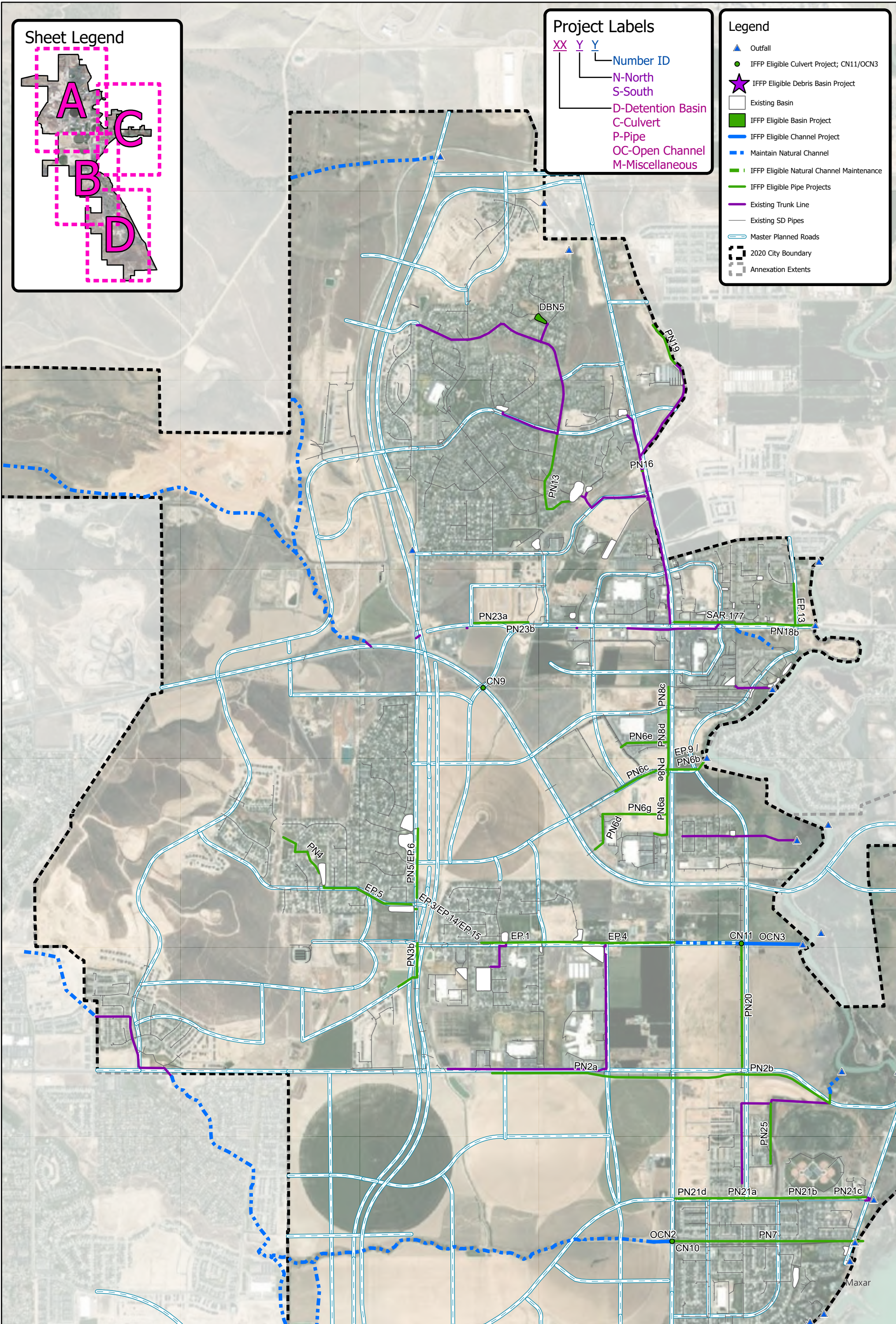
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Number ID

N-North
S-South
D-Detention Basin
C-Culvert
P-Pipe
OC-Open Channel
M-Miscellaneous

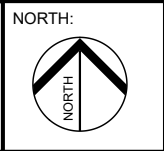
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-  Outfall
-  IFFP Eligible Culvert Project; CN11/OCN3
-  IFFP Eligible Debris Basin Project
-  Existing Basin
-  IFFP Eligible Basin Project
-  IFFP Eligible Channel Project
-  Maintain Natural Channel
-  IFFP Eligible Natural Channel Maintenance
-  IFFP Eligible Pipe Projects
-  Existing Trunk Line
-  Existing SD Pipes
-  Master Planned Roads
-  2020 City Boundary
-  Annexation Extents




STORM DRAIN IMPACT
FEE FACILITIES PLAN

CONSTRUCTED STORM DRAIN
PROJECTS



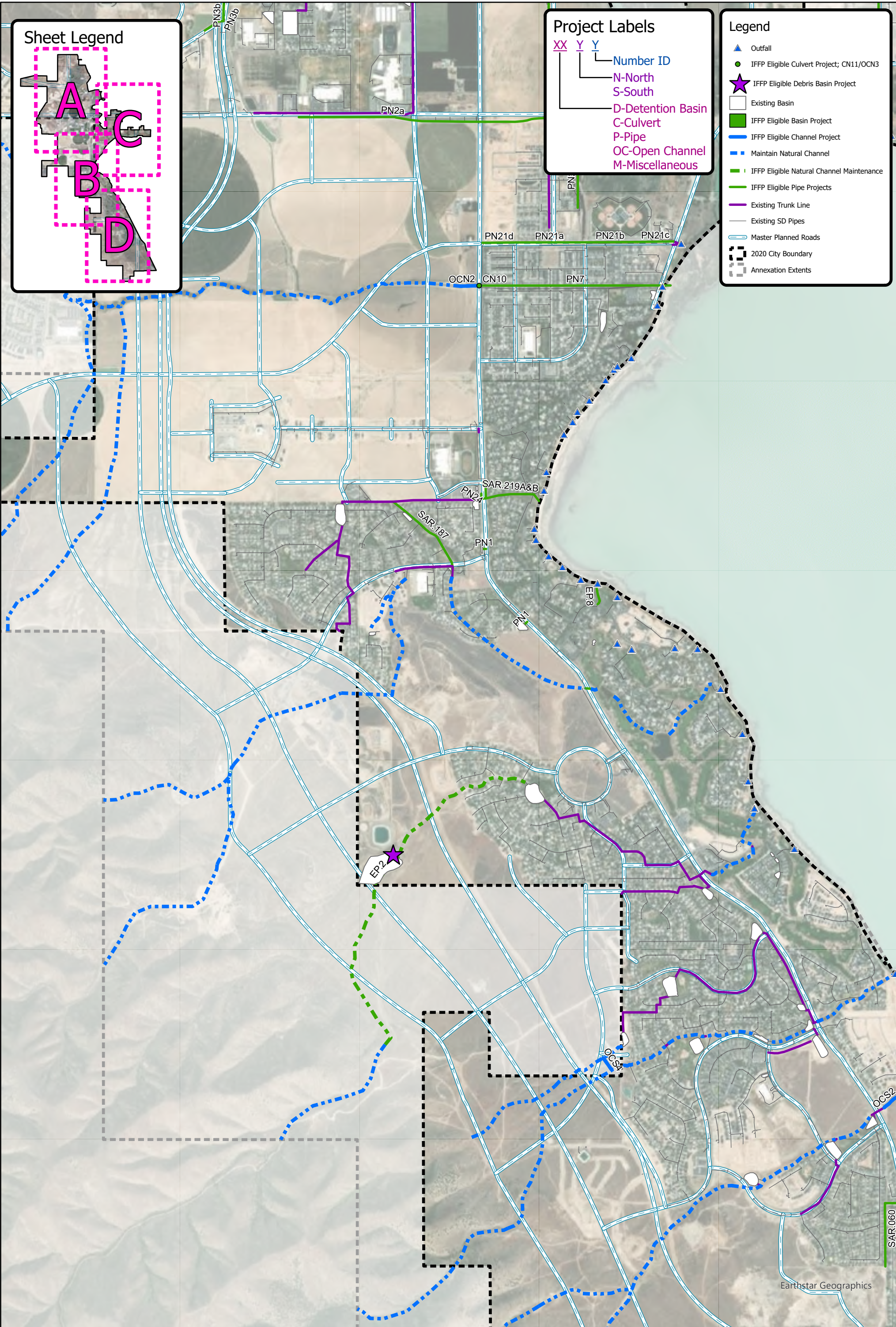
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FIGURE NO.

1A



Sheet Legend

A map showing the grid layout of the map sheets. The grid is labeled with letters A, B, C, and D, and numbers 1, 2, 3, and 4. The current sheet is highlighted in pink.

Project Labels

XX Y Y

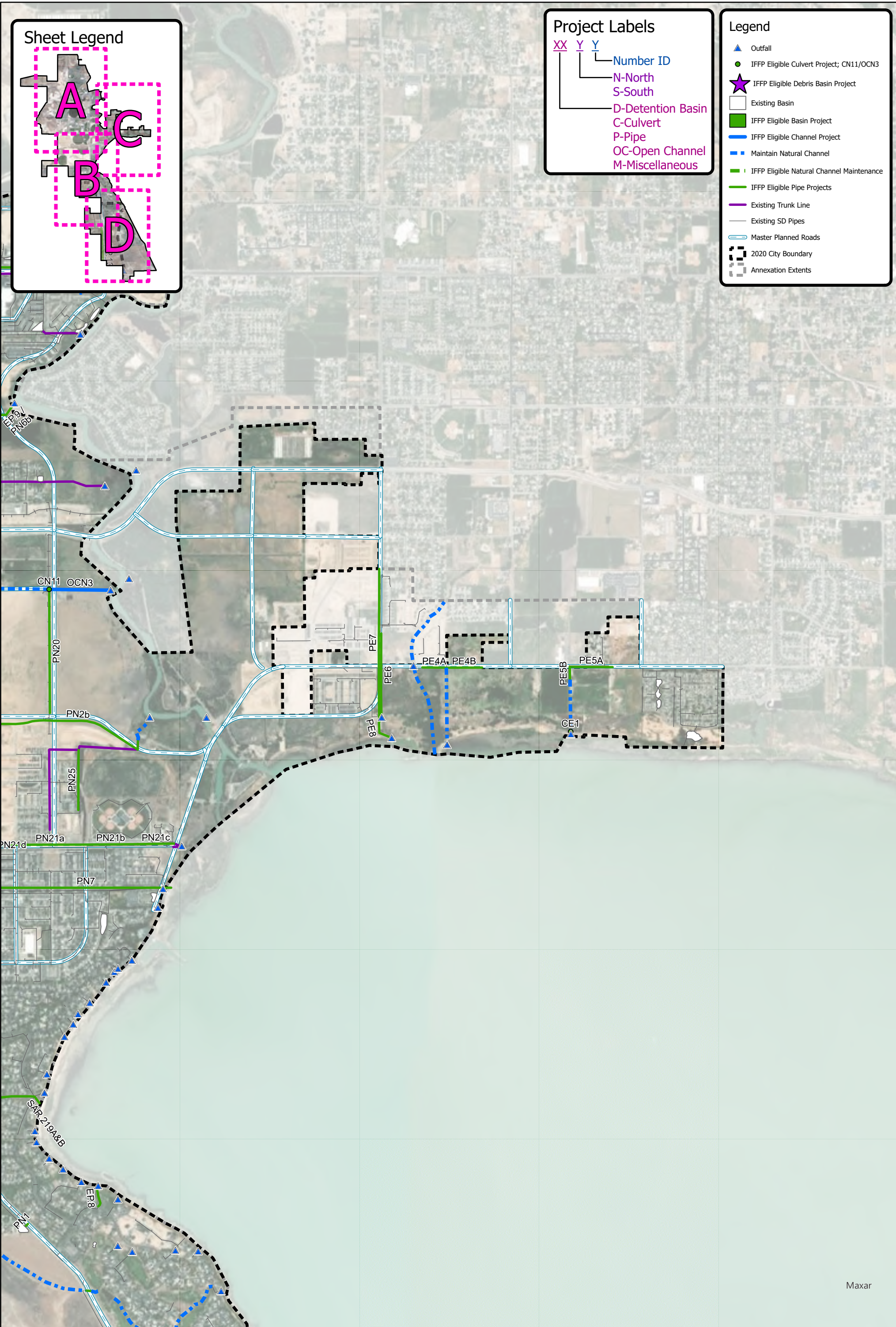
Number ID

N-North
S-South

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C-Culvert
P-Pipe
OC-Open Channel
M-Miscellaneous

Legend

- ▲ Outfall
- IFFP Eligible Culvert Project; CN11/OCN3
- ★ IFFP Eligible Debris Basin Project
- Existing Basin
- IFFP Eligible Basin Project
- IFFP Eligible Channel Project
- Maintain Natural Channel
- IFFP Eligible Natural Channel Maintenance
- IFFP Eligible Pipe Projects
- Existing Trunk Line
- Existing SD Pipes
- Master Planned Roads
- 2020 City Boundary
- Annexation Extents



Sheet Legend

A

B

C

D

Project Labels

XX

Y

Y

Number ID

N-North

S-South

D-Detention Basin

C-Culvert

P-Pipe

OC-Open Channel

M-Miscellaneous

Legend

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 Outfall

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 IFFP Eligible Culvert Project; CN11/OCN3

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 IFFP Eligible Debris Basin Project

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 Existing Basin

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 Maintain Natural Channel

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 IFFP Eligible Pipe Projects

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 Existing Trunk Line

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 Existing SD Pipes

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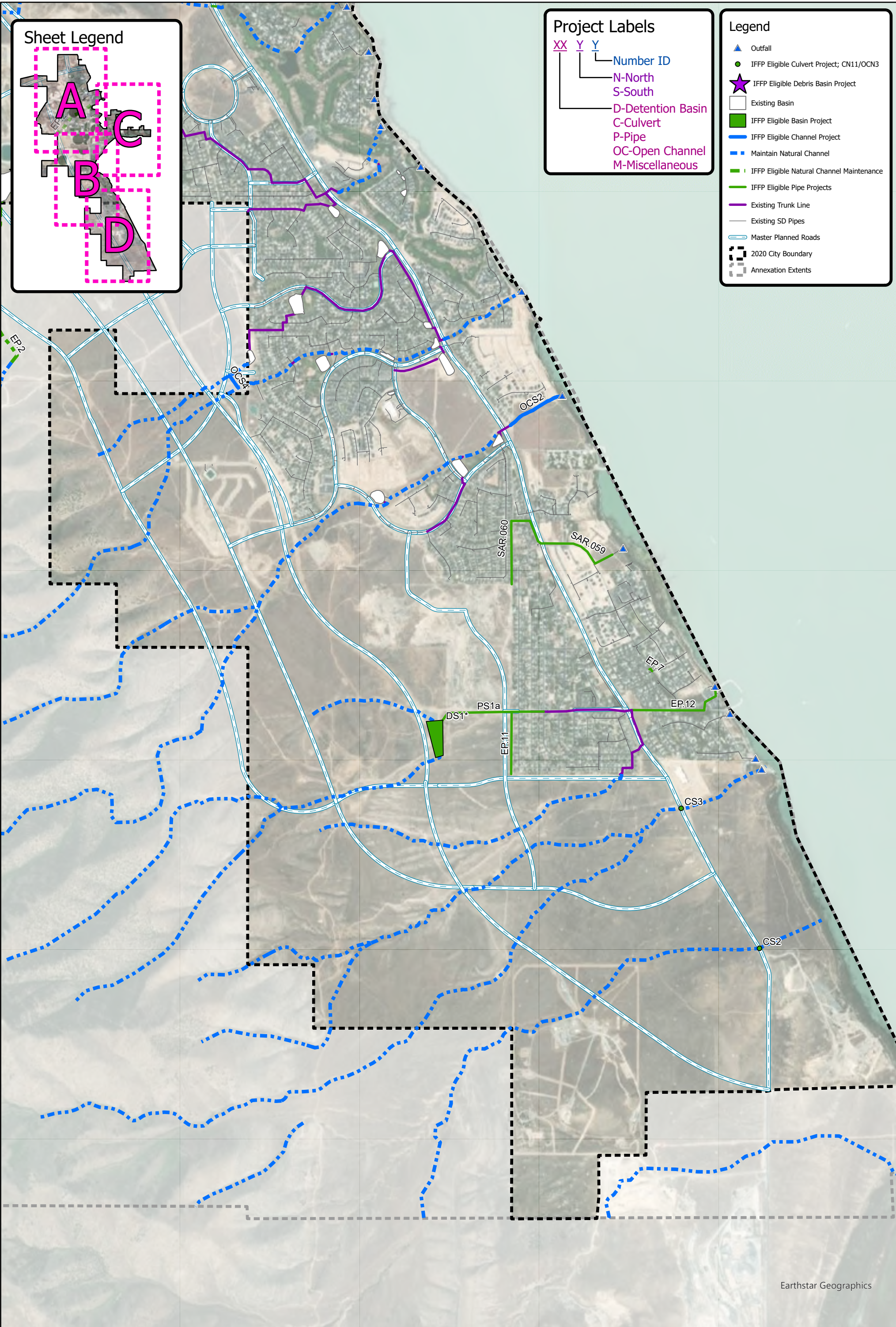
 Master Planned Roads

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 2020 City Boundary

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 Annexation Extents



Sheet Legend

A

B

C

D

Project Labels

XX

Y

Y

Number ID

N-North

S-South

D-Detention Basin

C-Culvert

P-Pipe

OC-Open Channel

M-Miscellaneous

Legend

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 Outfall

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 IFFP Eligible Culvert Project; CN11/OCN3

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 IFFP Eligible Debris Basin Project

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 Existing Basin

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 IFFP Eligible Channel Project

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 Maintain Natural Channel

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 Existing Trunk Line

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 Existing SD Pipes

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 Master Planned Roads

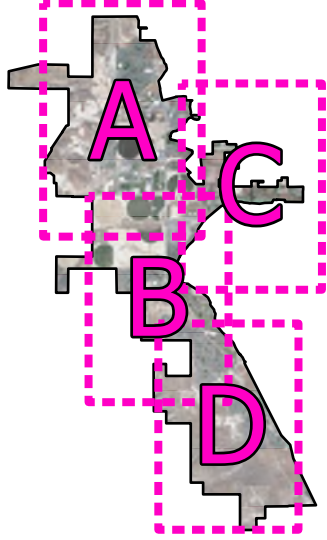
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 2020 City Boundary

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 Annexation Extents

Sheet Legend

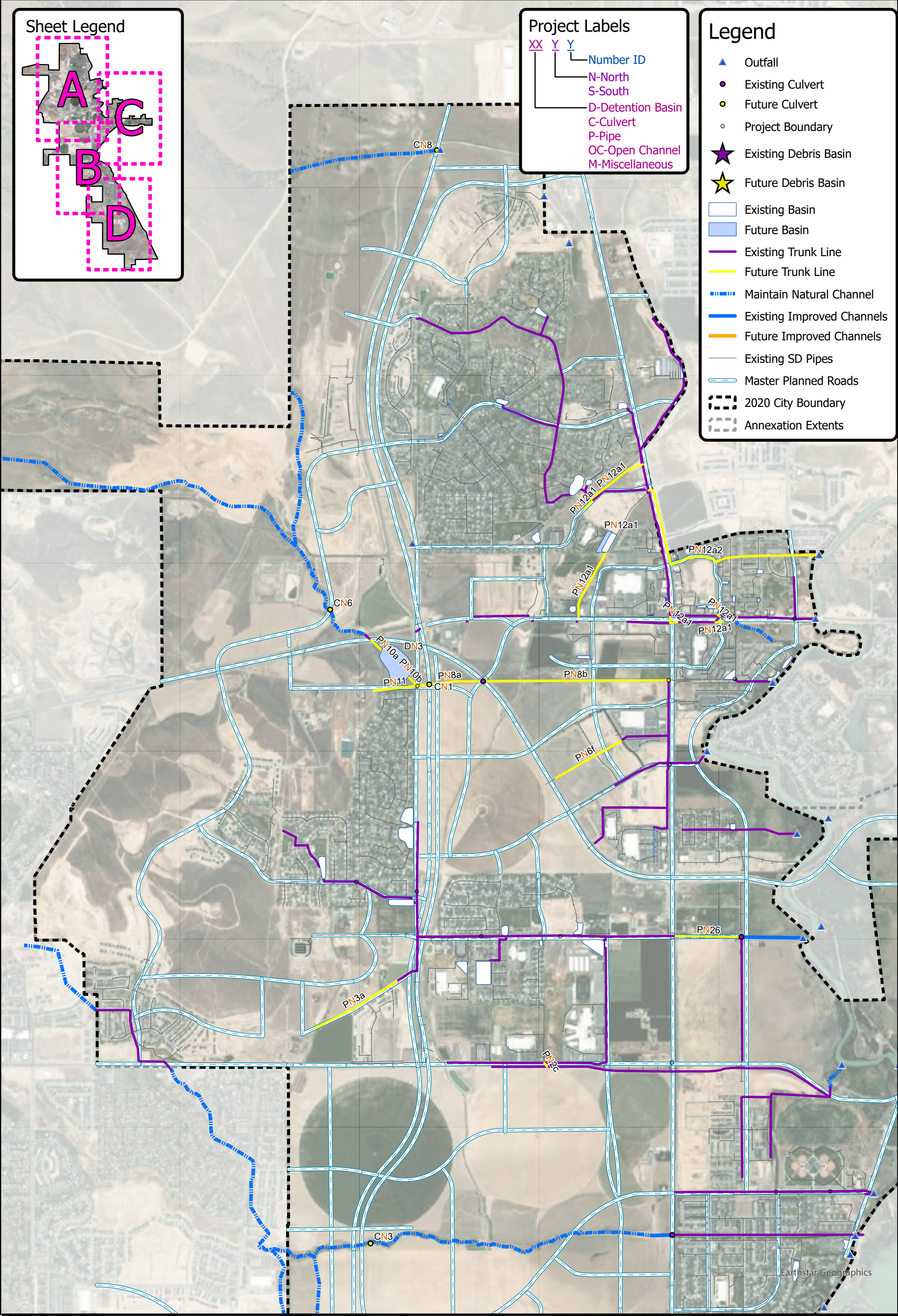


Project Labels

- XX Y Y
- Number ID
- N-North
- S-South
- D-Detention Basin
- C-Culvert
- P-Pipe
- OC-Open Channel
- M-Miscellaneous

Legend

- ▲ Outfall
- Existing Culvert
- Future Culvert
- Project Boundary
- ★ Existing Debris Basin
- ★ Future Debris Basin
- Existing Basin
- Future Basin
- Existing Trunk Line
- Future Trunk Line
- Maintain Natural Channel
- Existing Improved Channels
- Future Improved Channels
- Existing SD Pipes
- Master Planned Roads
- 2020 City Boundary
- Annexation Extents



Earthstar Geographics



STORM DRAIN IMPACT
FEE FACILITIES PLAN

PROPOSED STORM DRAIN
PROJECTS 2021-2030

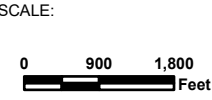
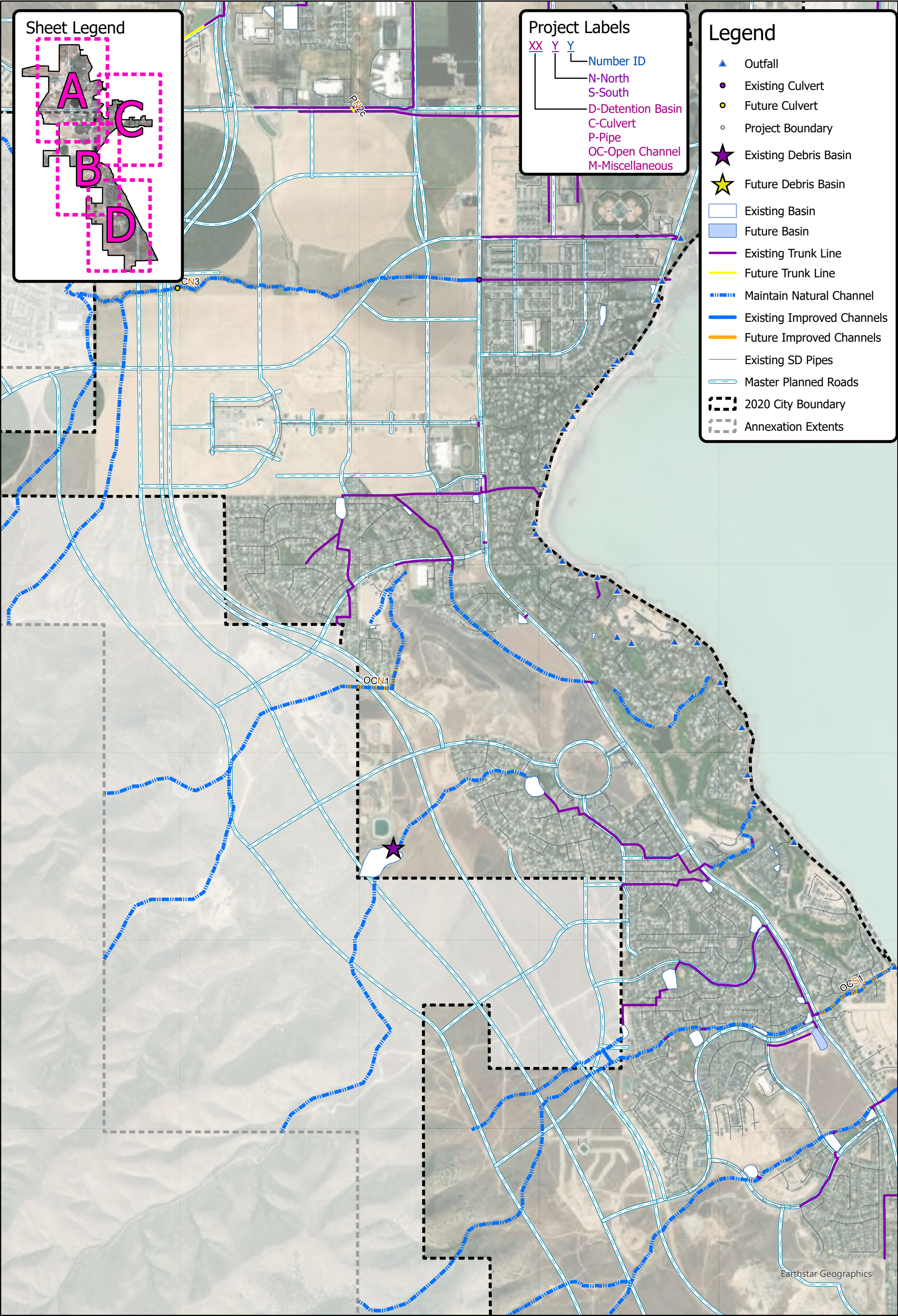
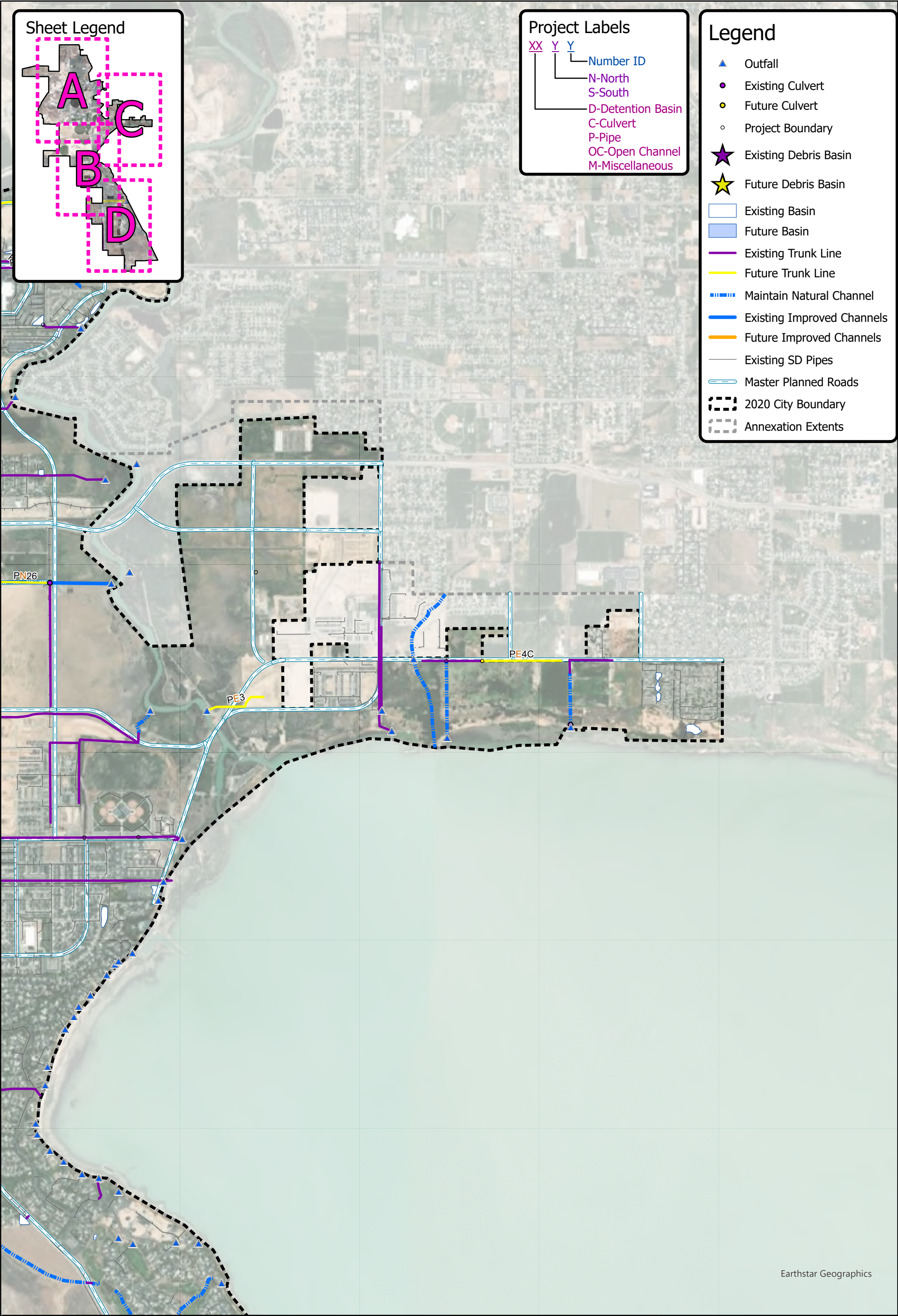
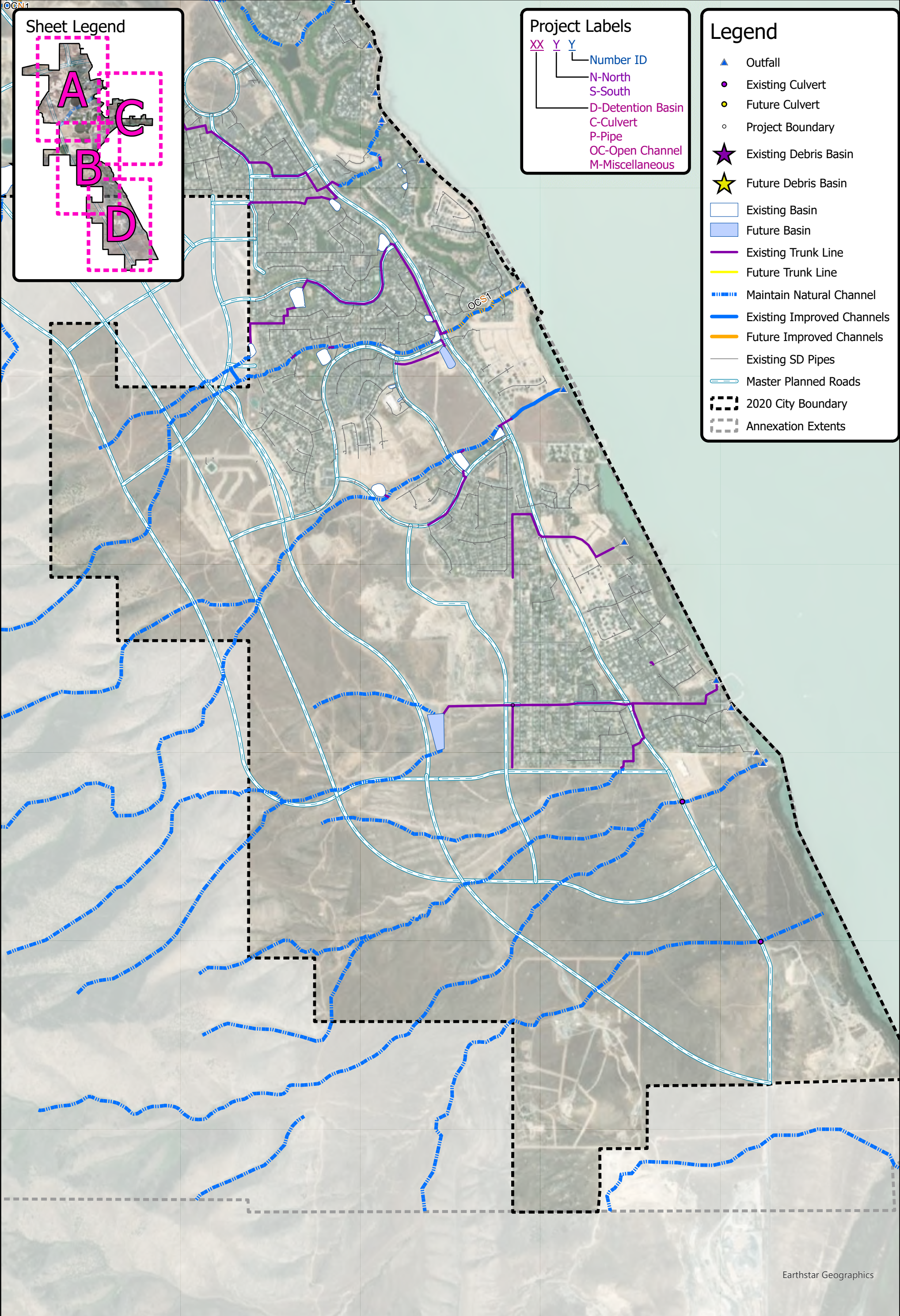


FIGURE NO.
2A



Earthstar Geographics





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