EAGLE MOUNTAIN CITY

2025 WASTEWATER MASTER PLAN REPORT

Prepared by:

JWO ENGINEERING

1307 N Locust Lane

Provo, UT 84604

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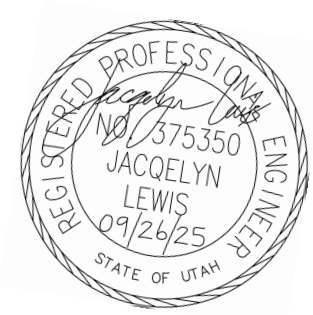

September 2025

JWO ENGINEERING
A Professional Limited Liability Company

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EXECUTIVE SUMMARY

JWO Engineering, PLLC was contracted to complete a wastewater master plan for Eagle Mountain City (EMC). This report will evaluate necessary infrastructure for wastewater conveyance and treatment for the buildout conditions based on projected growth.

The following table is a summary of projects, and their estimated costs that JWO Engineering, PLLC recommends being completed within the next 5 years for EMC. Please refer to the rest of this report for a complete list of recommended projects and their estimated costs. Estimated costs in this table are concept level estimates based on 2025 costs. In the Budgeting section of this report, the costs were adjusted using an assumed inflation rate for each year. Actual costs will be determined by the project details and economic conditions at the time of the work being carried out. Please see the Exhibits within the report depicting the proposed pipeline projects.

An urgent recommendation is to begin designing and constructing the East and West Sewer Trunklines as soon as possible.

Table 1 – Recommended Collection Improvements Within Next 5 Years

Collection Improvement Project	2025 Estimate (Millions)	
East Trunkline	$	24.24
West Trunkline	$	12.14
Pole Canyon Trunkline	$	15.92
Steeplechase LS Upgrade	$	0.40
Annual GIS updates (5yr)	$	0.01
Total for next 5 years	$	52.71

Table 2 - Recommended Treatment Improvements Within Next 5 Years

Treatment Improvement Project	2025 Estimate (Millions)	
WWTP 6 MGD Expansion	$	120.00
Treated Water Disposal	$	15.00
Total for next 5 years	$	135.00

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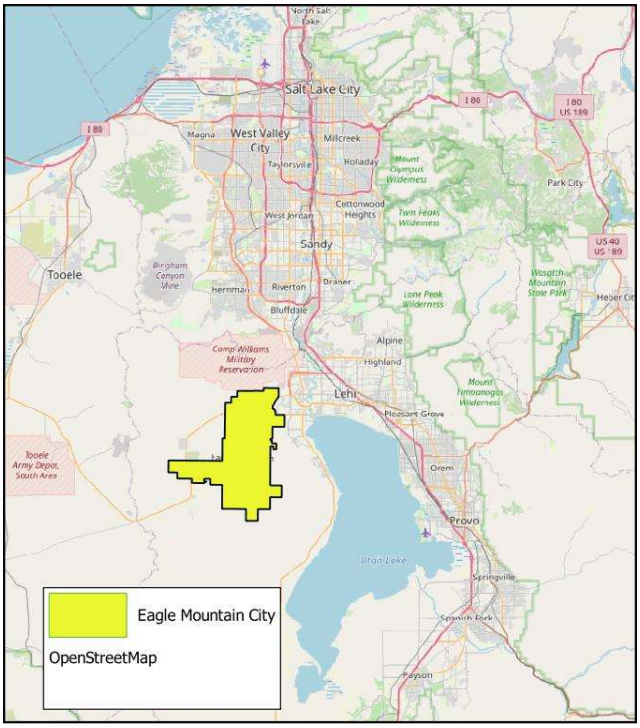

Figure 1 - Vicinity Map

BACKGROUND

Eagle Mountain City (EMC) located in Utah County near Utah Lake as shown in the vicinity map above and is one of the fastest growing cities in the US. Since its incorporation in 1996 it has grown from a population of less than 300 to over 73,000 at the start of 2025, and consequently has undergone rapid development. Recent annual growth rates have averaged 10% and it is anticipated to continue with this growth as numerous new developments have been approved and underway. EMC has also recently annexed adjacent land, just over 300 Acres, which will add to the growth and expected population. The average household size in the state of Utah is 3.09. EMC has an average household size of 4.37 people, one of the highest in the nation.

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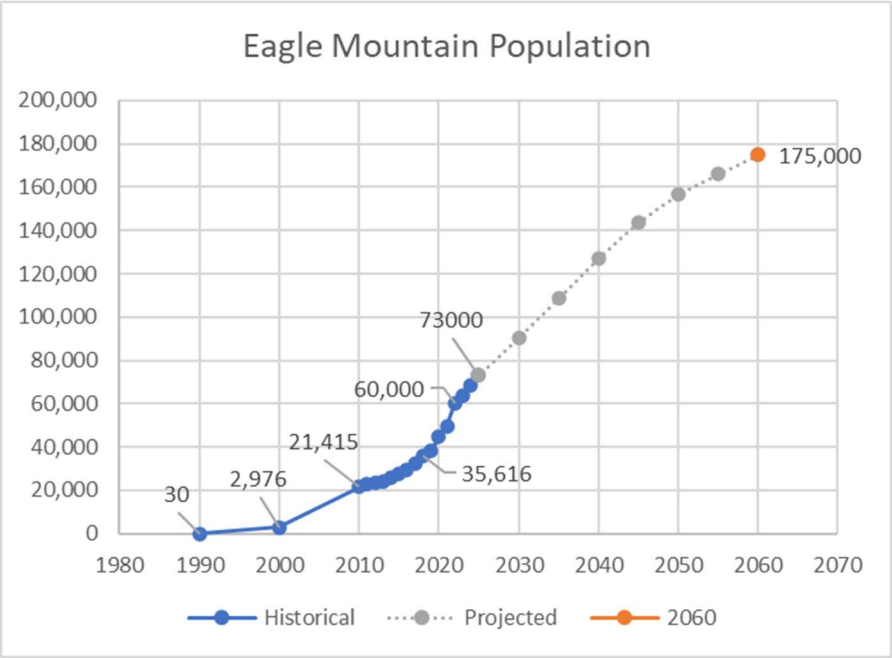

Figure 2 - Eagle Mountain City Population Chart

With only an estimated 19 square miles as being developed of EMC's 50 square miles, there is still much growth anticipated. It is projected that the city will continue to grow rapidly, with a population of 175,000 by 2060. Proper planning of city infrastructure is a crucial component of sustaining this expansion. The last EMC IFFP was completed in 2022, and before that was 2018. The population has more than doubled since 2018. Minimal infrastructure has been added or improved since 2018, but as the population continually increases rapidly, EMC will need to make infrastructure improvements a priority to support this population growth.

EMC's wastewater system contains three separate service areas designated as the North Service Area (NSA) the South Service Area (SSA) and the West Service Area (WSA). These service areas are approximate and may vary with continued development and improvements. The NSA conveys flows to the East and are treated by Timpanogos Special Services District. Flows from the SSA and WSA flow South and East respectively to the existing WWTP to be treated by EMC. The flows treated by EMC are treated and disposed of by means of Rapid Infiltration Basins (RIBs).

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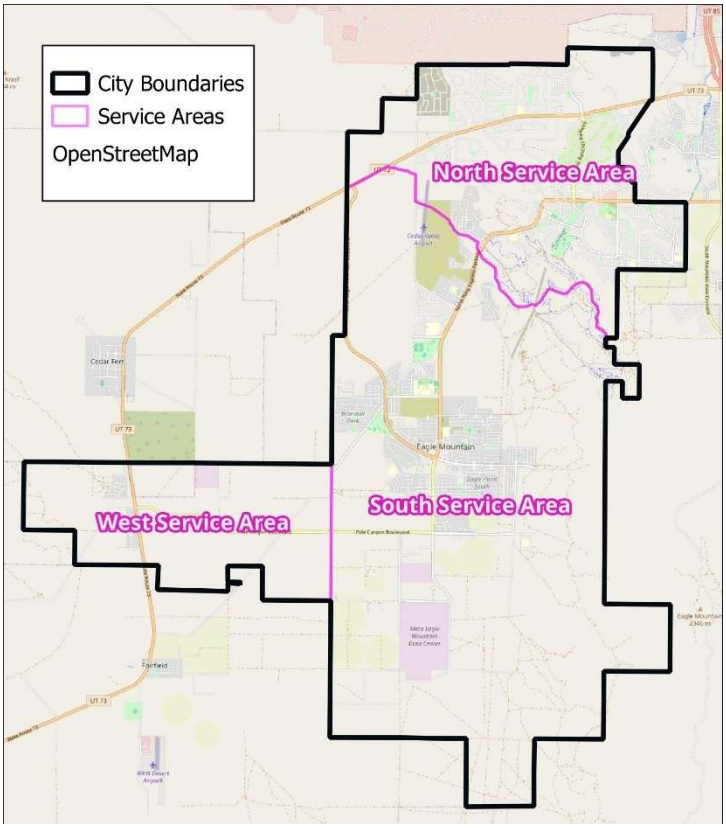

Figure 3 - Service Areas

GEOGRAPHIC INFORMATION SYSTEM (GIS)

EMC provided GIS shape files for their wastewater facilities. These files were used to compare existing facilities with proposed improvements. Field verification is needed as the shape files were not complete. There were main lines missing from the WSA to the WWTP. Numerous pipes were without details such as sizes, materials and depths. It is recommended that EMC update their GIS files to accurately depict the current completed infrastructure of EMC. The GIS files should be kept up to date as new wastewater infrastructure is added to EMC. Some information in this plan may be inaccurate due to omissions in the available GIS information.

EXISTING REPORTS

Current available reports addressing EMC's wastewater situation include the 2024 EMC WSA WW IFFP, EMC Impact Fee Facilities Plan Report from 2012 (IFFP 2012), 2018 (IFFP 2018), and 2022 (IFFP 2022). Eagle Mountain General Plan (2018) was also used for future land use and density populations. Some data from these existing reports was used in our assessment of the existing and proposed EMC wastewater water facility conditions.

EQUIVALENT RESIDENT CONNECTIONS (ERC'S)

An Equivalent Residential Connection (ERC) alternatively referred to as an Equivalent Residential Unit (ERU) represents the design flowrate from one residential connection. The previous report,

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2022 IFFP, recommended an ERC flowrate of 220 gallons per day. Existing water meter data was provided for the winter months throughout EMC. Winter months were used as they would not include water used for irrigation. Actual values of ERUs were calculated and are shown in the table below. While multi-family residences can be smaller households, EMC continues to be at an above average household size implying that even smaller housing doesn't always result in a smaller household. This report will continue to use an ERC value of 220 gallons per day.

Table 3 – Calculated ERU Values

NSA ERU	240 gpd
SSA/WSA ERU	220 gpd

Current ERU's were obtained from EMC and used for the existing wastewater model.

Table 4 - Existing ERU Count

	Current # ERU's
NSA	8,027
SSA	6,744
WSA	134

ERU's per Acre can vary significantly depending on land use. Residential will be on the higher end with values between 8 and 4. On the other end, half acre lots would be a value of 2.0. Industrial and commercial users will generally be on the lower end but also vary greatly depending on the type of industry. As future developments are not yet known a value of 3.4 ERU/Acre will be used.

LEVEL OF SERVICE

EMC's current wastewater system design requirements are defined by the current city ordinances and construction standards. Wastewater pipes shall be lined non-reinforced concrete, lined reinforced concrete, or PVC and have a minimum velocity of 2 foot per second unless otherwise approved by the City Engineer. This report recommends that the standards be updated to require all concrete pipe to be lined and be corrosion resistant. Minimum slopes for pipes consistent with state standards are found in the table below:

Table 5 - Minimum Pipe Slope

Pipe Diameter	Minimum Slope
4"	2.000%
6"	1.000%
8"	0.334%
10"	0.248%
12"	0.194%
14"	0.158%
15"	0.144%
16"	0.132%
18"	0.113%
21"	0.092%
24"	0.077%
27"	0.066%
30"	0.057%
36"	0.045%

Service levels indicate how effectively a piece of infrastructure meets the city's expectations and potential need for improvement. The amount of flow that a sewer pipe can convey is a combination of its size and slope. If the pipe becomes too full, a backup in the system can occur. As pipe diameter increases, the capacity changes significantly with depth of flow. Larger pipes will have a smaller peaking factor as well as the ability to carry additional depth of flow. The level of service (LoS) for pipes in the city is broken into four levels that help determine the need for pipe size upgrades and are defined in the table below.

Table 6 - Level of Service Criteria

Level of Service	Pipe Diameter (in)	% Full with Peak Flow	Design Peak Factor
A	<18"	50%	2.50
	21"-30"	67%	2.25
	30"<	75%	2.00
B	<18"	67%	2.50
	21"-30"	75%	2.25
	30"<	85%	2.00
C	<18"	75%	2.50
	21"-30"	85%	2.25
	30"<	95%	2.00
D	<18"	85%	2.50
	21"-30"	95%	2.25
	30"<	100%	2.00

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LoS D is considered failing. Pipes at 100% full would be a surcharged condition. Pipes at system build-out should be designed for LoS condition A with the associated peak factor.

EXCESS CAPACITY

All sewer pipes within EMC are currently not designed for excess capacity.

PIPE LOADING CAPACITY

EMC requested the maximum capacity of pipe based on minimum slope using 220 gpm as the ERU. Capacity is calculated for each LoS as laid out in the table above. The table below calculates the capacity of a pipe with varied depth of flow or %full with the peak factors applied.

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Table 7 - Pipe Flow Calculator

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Pipe Flow Calculator — Flow/ERU 220 (gpd)

Service level A										
Diameter	% full	Depth	Up Invert	Down Invert	Length	Minimum	Mannings	Peak	Q avg	Capacity
(in)		(in)	(elev)	(elev)	(ft)	Slope	N	Factor	(gpd)	(ERU's)
8	50%	4.00	4500.00	4499.9967	1	0.00334	0.012	4.00	61,115	277
10	50%	5.00	4500.00	4499.9975	1	0.00248	0.012	4.00	95,484	434
12	50%	6.00	4500.00	4499.9981	1	0.00194	0.012	3.00	183,104	832
15	50%	7.50	4500.00	4499.9986	1	0.00144	0.012	3.00	286,029	1,300
18	50%	9.00	4500.00	4499.9989	1	0.00113	0.012	2.50	494,426	2,247
21	50%	10.50	4500.00	4499.9991	1	0.00092	0.012	2.50	672,950	3,058
24	67%	16.08	4500.00	4499.9992	1	0.00077	0.012	2.50	1,387,606	6,307
27	67%	18.09	4500.00	4499.9993	1	0.00066	0.012	2.50	1,758,738	7,994
30	67%	20.10	4500.00	4499.9994	1	0.00057	0.012	2.50	2,164,652	9,839
36	75%	27.00	4500.00	4499.9992	1	0.00082	0.012	2.00	6,096,841	27,712
42	75%	31.50	4500.00	4499.9992	1	0.00082	0.012	2.00	9,196,697	41,803

Service level B										
Diameter	% full	Depth	Up Invert	Down Invert	Length	Minimum	Mannings	Peak	Ave Flow	Capacity
(in)		(in)	(elev)	(elev)	(ft)	Slope	N	Factor	(gpd)	(ERU's)
8	67%	5.36	4500.00	4499.9967	1	0.00334	0.012	4.00	96,479	438
10	67%	6.70	4500.00	4499.9975	1	0.00248	0.012	4.00	150,736	685
12	67%	8.04	4500.00	4499.9981	1	0.00194	0.012	3.00	289,057	1,313
15	67%	10.05	4500.00	4499.9986	1	0.00144	0.012	3.00	451,538	2,052
18	67%	12.06	4500.00	4499.9989	1	0.00113	0.012	2.50	780,523	3,547
21	67%	14.07	4500.00	4499.9991	1	0.00092	0.012	2.50	1,062,350	4,828
24	75%	18.00	4500.00	4499.9992	1	0.00077	0.012	2.50	1,603,064	7,286
27	75%	20.25	4500.00	4499.9993	1	0.00066	0.012	2.50	2,031,823	9,235
30	75%	22.50	4500.00	4499.9994	1	0.00057	0.012	2.50	2,500,764	11,367
36	85%	30.60	4500.00	4499.9996	1	0.00045	0.012	2.00	5,103,764	23,198
42	85%	35.70	4500.00	4499.9996	1	0.00045	0.012	2.00	7,698,703	34,994

Service level C										
Diameter	% full	Depth	Up Invert	Down Invert	Length	Minimum	Mannings	Peak	Ave Flow	Capacity
(in)		(in)	(elev)	(elev)	(ft)	Slope	N	Factor	(gpd)	(ERU's)
8	75%	6.00	4500.00	4499.9967	1	0.00334	0.012	4.00	111,460	506
10	75%	7.50	4500.00	4499.9975	1	0.00248	0.012	4.00	174,141	791
12	75%	9.00	4500.00	4499.9981	1	0.00194	0.012	3.00	333,940	1,517
15	75%	11.25	4500.00	4499.9986	1	0.00144	0.012	3.00	521,649	2,371
18	75%	13.50	4500.00	4499.9989	1	0.00113	0.012	2.50	901,717	4,098
21	75%	15.75	4500.00	4499.9991	1	0.00092	0.012	2.50	1,227,304	5,578
24	85%	20.40	4500.00	4499.9992	1	0.00077	0.012	2.50	1,811,495	8,234
27	85%	22.95	4500.00	4499.9993	1	0.00066	0.012	2.50	2,296,001	10,436
30	85%	25.50	4500.00	4499.9994	1	0.00057	0.012	2.50	2,825,915	12,845
36	95%	34.20	4500.00	4499.9996	1	0.00045	0.012	2.00	5,322,053	24,191
42	95%	39.90	4500.00	4499.9996	1	0.00045	0.012	2.00	8,027,978	36,490

Service level D										
Diameter	% full	Depth	Up Invert	Down Invert	Length	Minimum	Mannings	Peak	Ave Flow	Capacity
(in)		(in)	(elev)	(elev)	(ft)	Slope	N	Factor	(gpd)	(ERU's)
8	85%	6.80	4500.00	4499.9967	1	0.00334	0.012	4.00	125,952	572
10	85%	8.50	4500.00	4499.9975	1	0.00248	0.012	4.00	196,783	894
12	85%	10.20	4500.00	4499.9981	1	0.00194	0.012	3.00	377,359	1,715
15	85%	12.75	4500.00	4499.9986	1	0.00144	0.012	3.00	589,474	2,679
18	85%	15.30	4500.00	4499.9989	1	0.00113	0.012	2.50	1,018,959	4,631
21	85%	17.85	4500.00	4499.9991	1	0.00092	0.012	2.50	1,386,879	6,303
24	95%	22.80	4500.00	4499.9992	1	0.00077	0.012	2.50	1,888,973	8,586
27	95%	25.65	4500.00	4499.9993	1	0.00066	0.012	2.50	2,394,202	10,882
30	95%	28.50	4500.00	4499.9994	1	0.00057	0.012	2.50	2,946,780	13,394
36	100%	36.00	4500.00	4499.9996	1	0.00045	0.012	2.00	4,952,961	22,513
42	100%	42.00	4500.00	4499.9996	1	0.00045	0.012	2.00	7,471,227	33,960

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WASTEWATER SYSTEM ANALYSIS

EXISTING CONDITIONS

The EMC wastewater network consists of approximately 956,000 LF of pipe with nearly 4200 manholes. There are a total of 5 lift stations currently serviced by EMC (Lone Tree, Lakeview, New Park, Pole Canyon, and Steeplechase), and 4 privately operated lift stations (Brylee Farms, Scenic Mountain 1 and 2, and Silverlake). There are potentially four additional lift stations being constructed which will be added to the wastewater system. QTS LS will be serviced by EMC, and Oquirrh Mountain, Pinnacles, and Rose Ranch will be privately owned and operated. Flows to TSSD for the past 2 months have been about 1.75 MGD. Flows to EMC WWTP have been about 1.5 MGD.

North Service Area (NSA)

The NSA is estimated to be 80% developed of its nearly 12 square miles of land and accounts for approximately 57% of the total city population. The majority of this service area is residential and all flows are conveyed to be treated with TSSD. It has three lift stations managed by EMC; Lakeview, Lone Tree and New Park, and three private lift stations; Scenic Mountain 1 and 2, and Silver Lake within the system. Each of these lift stations are currently in operation. Septic systems were not included in the existing model.

Improvements have been planned to convert the Lone Tree lift station to an overwatch type facility due to the age and condition of the existing pumps. The new overwatch pump station will continue to discharge to the NSA at this time.

The figure below shows the existing NSA with pipe diameters from the provided shape files, as well as lift stations.

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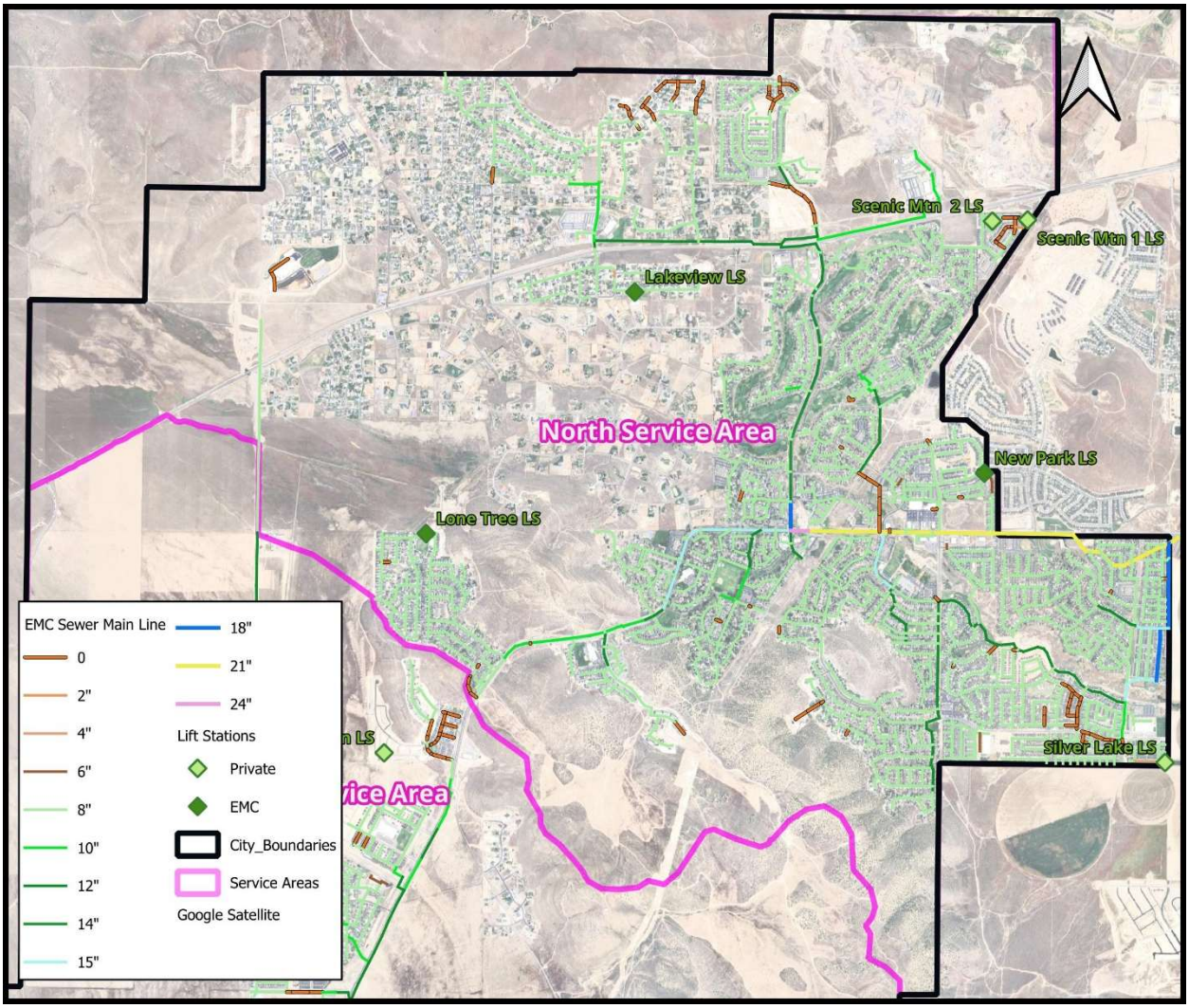

Figure 4 - Existing NSA

South Service Area (SSA)

The SSA is estimated to be 30% developed of its 31.5 square miles of land and accounts for approximately 40% of the total city population. This service area includes the Meta/Facebook sites which each have a lift station, Steeplechase LS. An additional industrial site, QTS is currently being developed and will have its own lift station to convey flows to EMC WWTP. The QTS LS is not yet in service. There are four private lift stations in this service area, Brylee Farms and Oquirrh Mountain, Pinnacles, and Rose Ranch. Only Brylee Farms LS is currently in operation. Several new developments have already been approved and are underway in this service area.

Previous IFFP reports have shown that Pony Express Parkway sewer pipes near the WWTP have been nearly at capacity and will not be able to convey additional future flows with continued development.

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The figure below shows the existing SSA with pipe diameters from the provided shape files, as well as lift stations.

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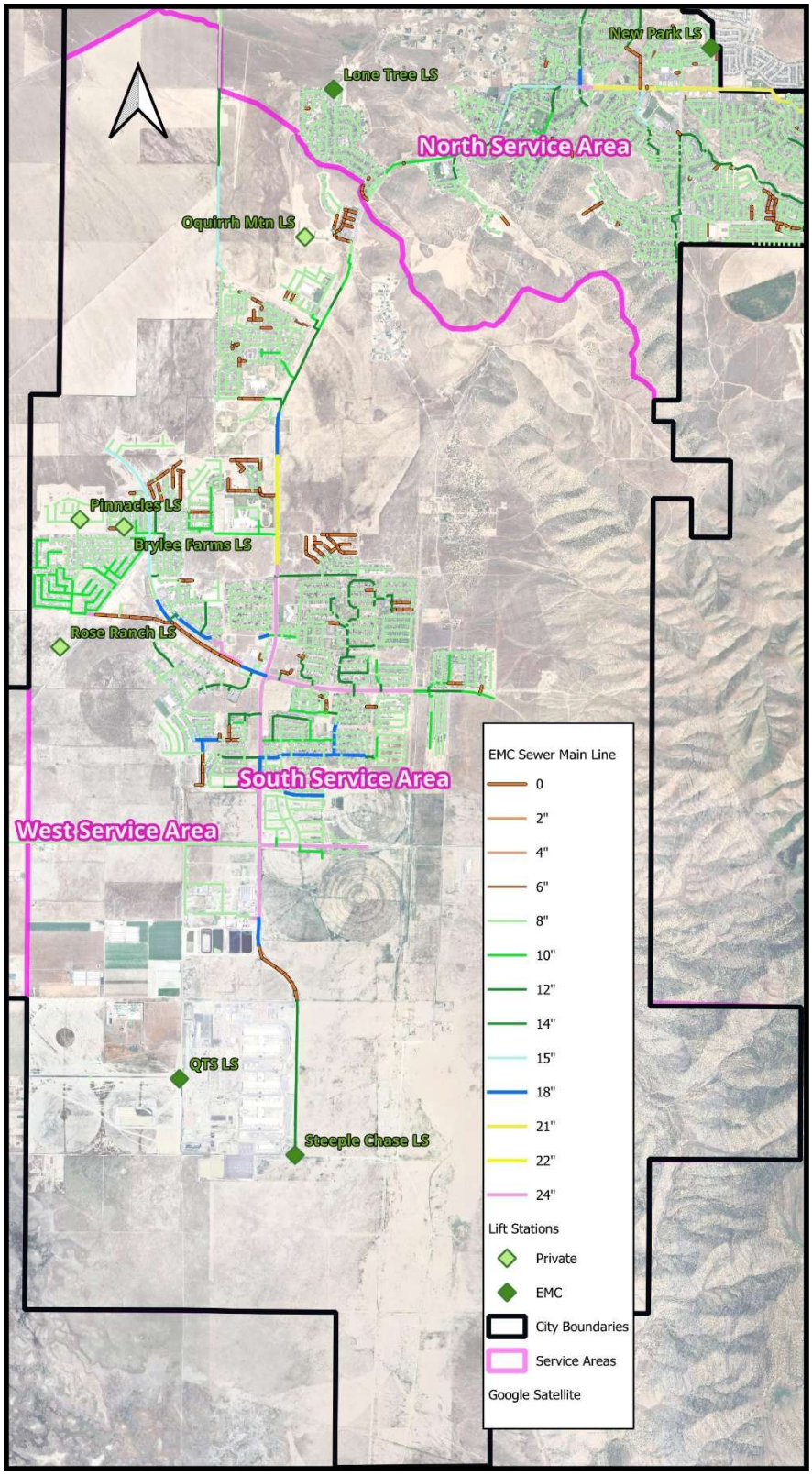

Figure 5 - Existing SSA

West Service Area (WSA)

The WSA is estimated to be less than 10% developed of its 7.4 square miles of land and accounts for approximately 3% of the total city population. More than 90% of the land within the WSA is currently used for farming or has not yet been developed. There is one industrial user, Tyson Foods Plant which has a holding tank to help more evenly distribute flows being discharged. The Firefly development is underway and will occupy just over 4 square miles of the WSA.

The WSA currently contains only a small wastewater network that collects flows from Tyson Foods and White Hills Subdivision and is pumped by means of Pole Canyon LS to EMC WWTP. This is the only LS in the WSA. There has been a temporary line to the LS from Tyson Foods. This line will be replaced once pipes in Pole Canyon Road are upsized with the Firefly development. Partial construction has been completed for a deep Pole Canyon Trunkline to replace the existing LS and have increased future flows from the WSA conveyed by gravity to the EMC WWTP.

The figure below shows the existing SSA with pipe diameters from the provided shape files, as well as lift stations.

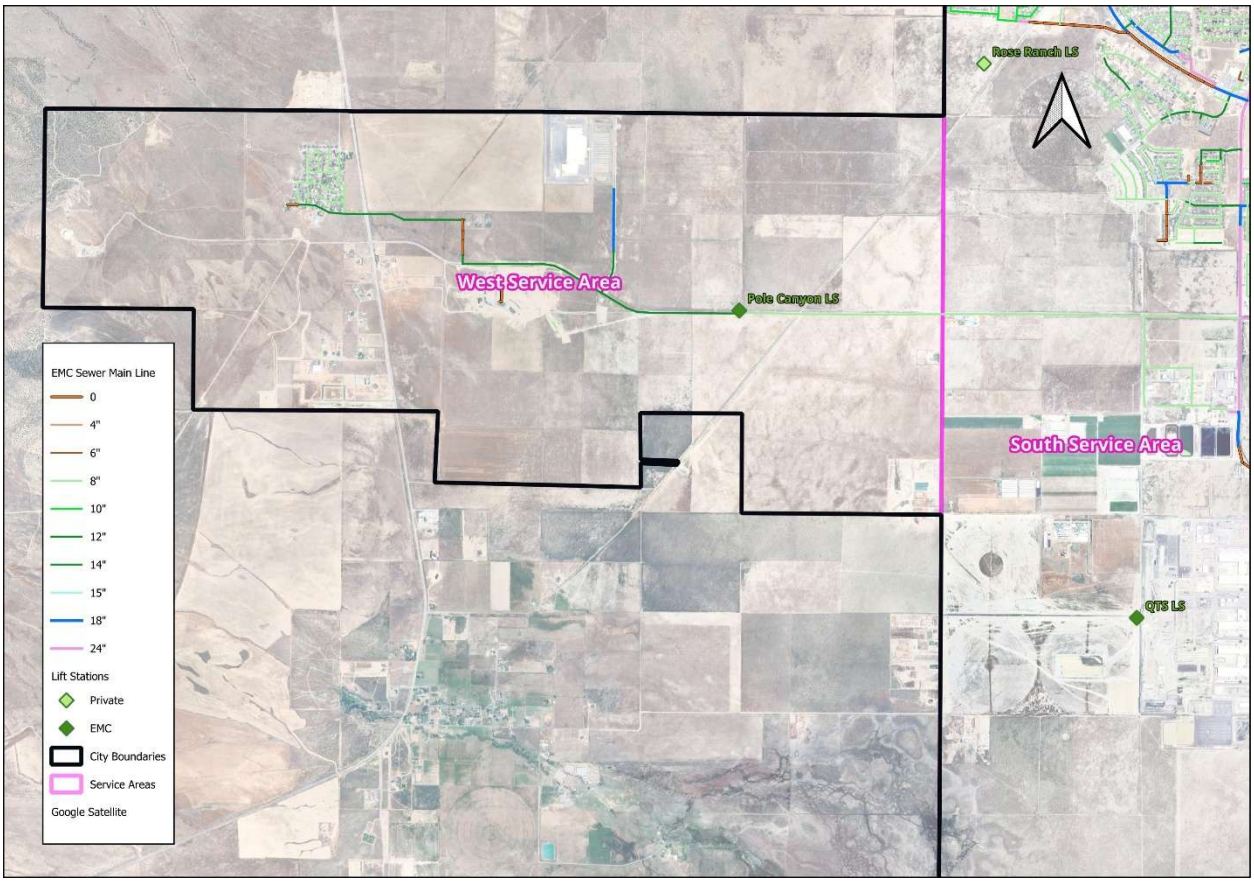

Figure 6 - Existing WSA

Treatment Plant

The EMC WWTP has recently been expanded to accommodate flows of 2.4 MGD with construction being nearly complete. Currently the WWTP is under design for additional capacity to be able to accommodate an additional 6.0 MGD bringing the total WWTP capacity to 8.4 MGD. The average total flows treated by the WWTP for the last 2 months is about 1.5 MGD. While the current capacity is 2.4 MGD by volume it should be noted that for solids loading it is already nearly at capacity necessitating the immediate need for additional capacity as growth continues.

EXISTING CONDITIONS MODEL

Advanced Engineering and Environmental Services, LLC (AE2S) modeled the sewer system using InfoWorks ICM. InfoWorks is able to import existing shape files and its data to create a system model with pipe diameters and elevations. EMC provided the existing shape files for the existing EMC wastewater system to create this model. However, as the model was run and evaluated, it was apparent that the shape files were not complete and fully updated. There were several pipes with no diameter, and many other fields with no information that will be helpful for evaluation such as "Year" (presuming that to be the year the pipe was installed) and "CUTDEPTH" (presuming that is the depth of cover). The manhole shape file appears to have multiple fields for rim and or invert elevations. These fields should be edited to be consistent and complete. Field names should be edited to help understand the difference between "INVERT" and "INVERTELEV", and "Elevation" and "RIMELEV". It was evident that some manholes used "Elevation" for a rim elevation, while others used "RIMELEV" for that information. Fields should be consistently used throughout the shapefile to avoid confusion. Since EMC GIS data provided was incomplete, slopes of existing pipes were either linearly interpolated between upstream and downstream manholes, or for larger gaps in pipe inverts, a minimum slope based on diameter was assumed.

Pipe capacities are of most concern at the confluences of pipes or along main trunklines. While smaller pipes are still included in the model, these pipes generally do not carry significant flows.

The existing wastewater infrastructure was evaluated for their current LoS based on existing discharges during peak flows. EMC provided daily flow data from October to March which determined the average and peak day flows. The calculated peak factor for the NSA was 2.74 and for the SSA/WSA it was 1.82 for existing conditions. The model used a peak factor of 2.0 for both SA in the existing conditions model. The model results discussed below for each service area are based on peak flows. Exhibits showing the existing diameters and model results for each service area based on existing conditions with peak flows are included.

North Service Area (NSA)

Pipes

Of most concern in this service area are pipes within Silverlake. The 21" main trunkline as it conveys flows to TSSD is shown to be at a LoS D. Based on data provided, it has a high point at manhole ID 3455. It is recommended that EMC confirm the invert depths at this manhole and the manholes upstream and downstream from it and update the GIS files. Additionally, the 18" line flowing towards the 21" line is shown at a LoS D. These inverts should also be verified. Two sections of pipe

along the main trunkline towards TSSD are in LoS B categories. The trunkline conveying flows from the far north areas is hovering between LoS A and LoS B. Assuming invert elevations provided are correct, these pipelines are full and should carefully consider any additional flows into these trunklines. All other existing pipes are within the LoS A criteria. As several pipe sections are already exceeding LoS A, adding any additional flows to these pipelines would exceed the recommended capacity based on LoS.

Manholes

There are no known issues with existing manholes, and it is presumed that all existing manholes have a LoS A.

Lift Stations and Force Mains

The peak flow condition for a lift station is the capacity of the pumps. No peak factor was applied to the lift stations.

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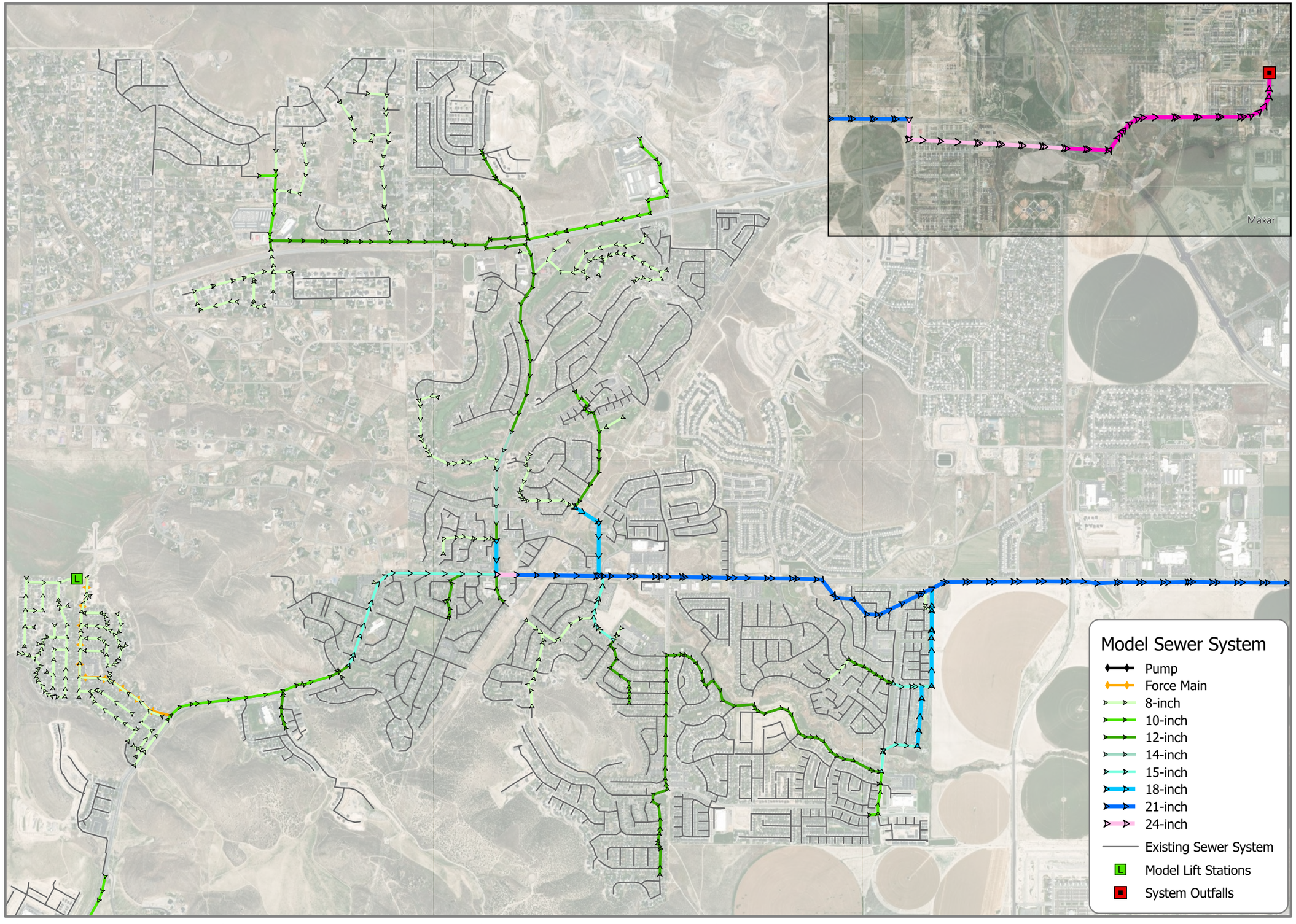

N

0 500 1,000

Feet

1 inch equals 1,874 feet

Locator Map Not to Scale

Eagle Mountain City
Utah, UT

EXISTING WASTEWATER SYSTEM

NORTH SERVICE AREA

DIAMETER (IN)

WASTEWATER SYSTEM MASTER PLAN

Date: 5/8/2025

Information depicted may include data unverified by AE2S. Any reliance upon such data is at the user's own risk. AE2S does not warrant this map or its features are either spatially or temporally accurate.

Coordinate System: NAD 1983 StatePlane Utah Central FIPS 4302 Feet | Edited by: JCalhoon

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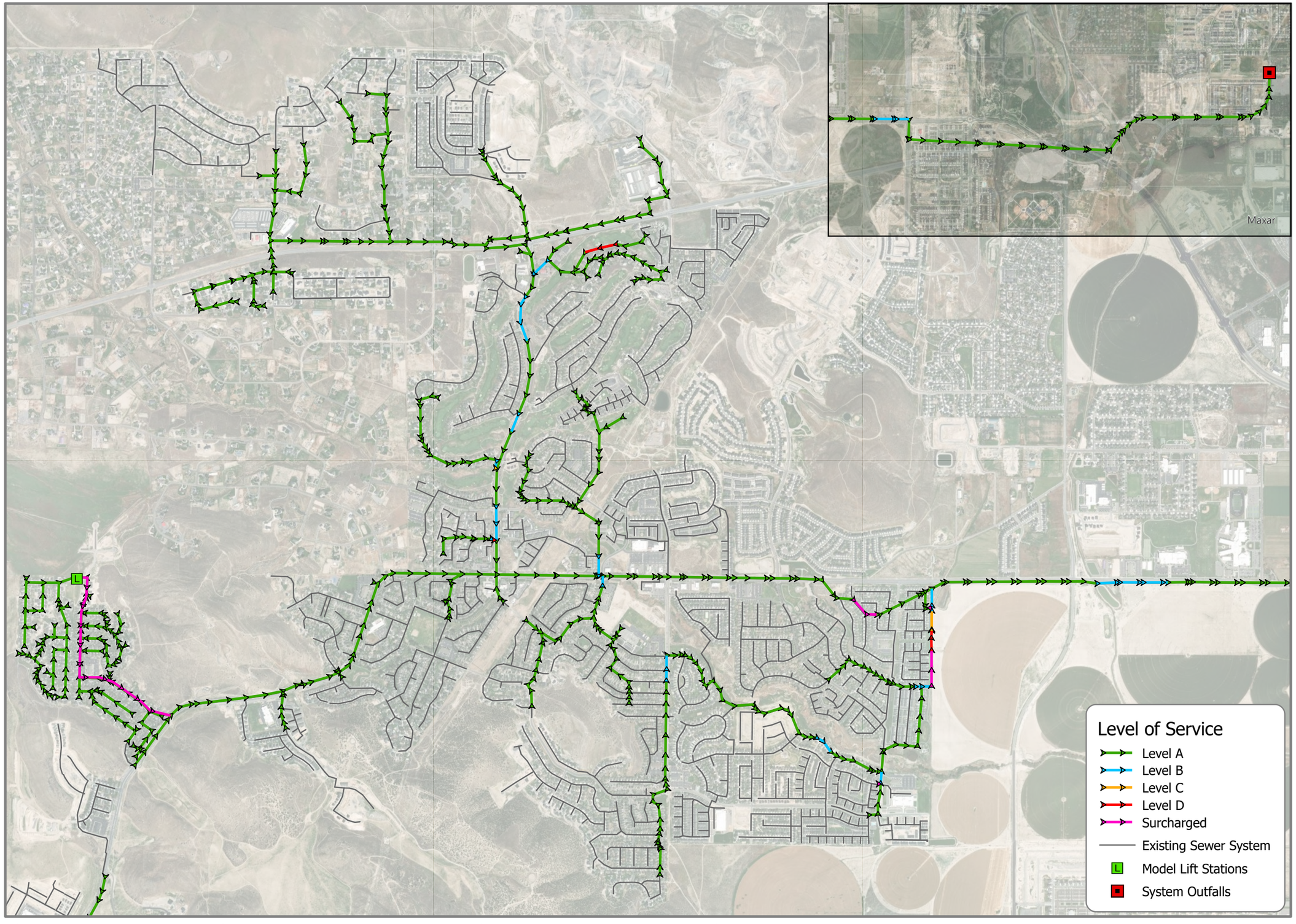

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Locator Map Not to Scale

Eagle Mountain City
Utah, UT

EXISTING WASTEWATER SYSTEM

NORTH SERVICE AREA

LEVEL OF SERVICE

WASTEWATER SYSTEM MASTER PLAN

Date: 6/16/2025

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South Service Area (SSA)

Pipes

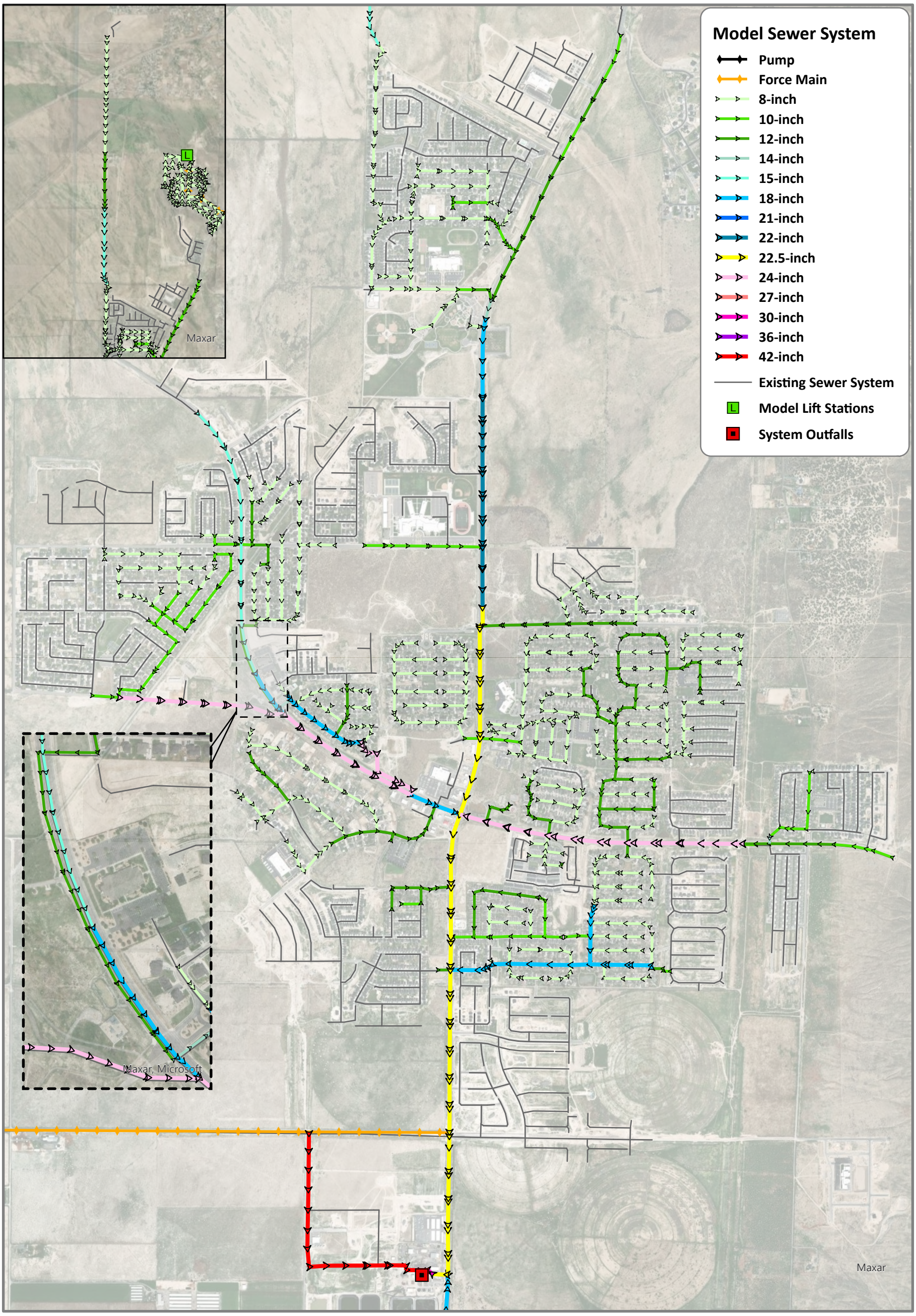
The peak flow model shows that the main trunkline in Pony Express Parkway is at a LoS C south of Pole Canyon Blvd as it approaches the WWTP indicating this trunkline is at capacity. The existing shape files labeled several pipes north of this area as 24" and one section of 18". It was requested to verify this diameter and was determined the nominal diameter was 24" but the actual inside diameter for 22.5". The model was run with these pipes at 22.5" diameter. There are a few lines at confluences that are not at a LoS A. It is expected for this to happen at confluences. These locations should be evaluated to ensure invert elevations are correct. All other existing pipes are within the LoS A criteria.

Manholes

There are no known issues with existing manholes, and it is presumed that all existing manholes have a LoS A.

Lift Stations and Force Mains

The peak flow condition for a lift station is the capacity of the pumps. No peak factor was applied to the lift stations. Brylee Farms LS and Steeple Chase LS are the only operating lift stations in the SSA.



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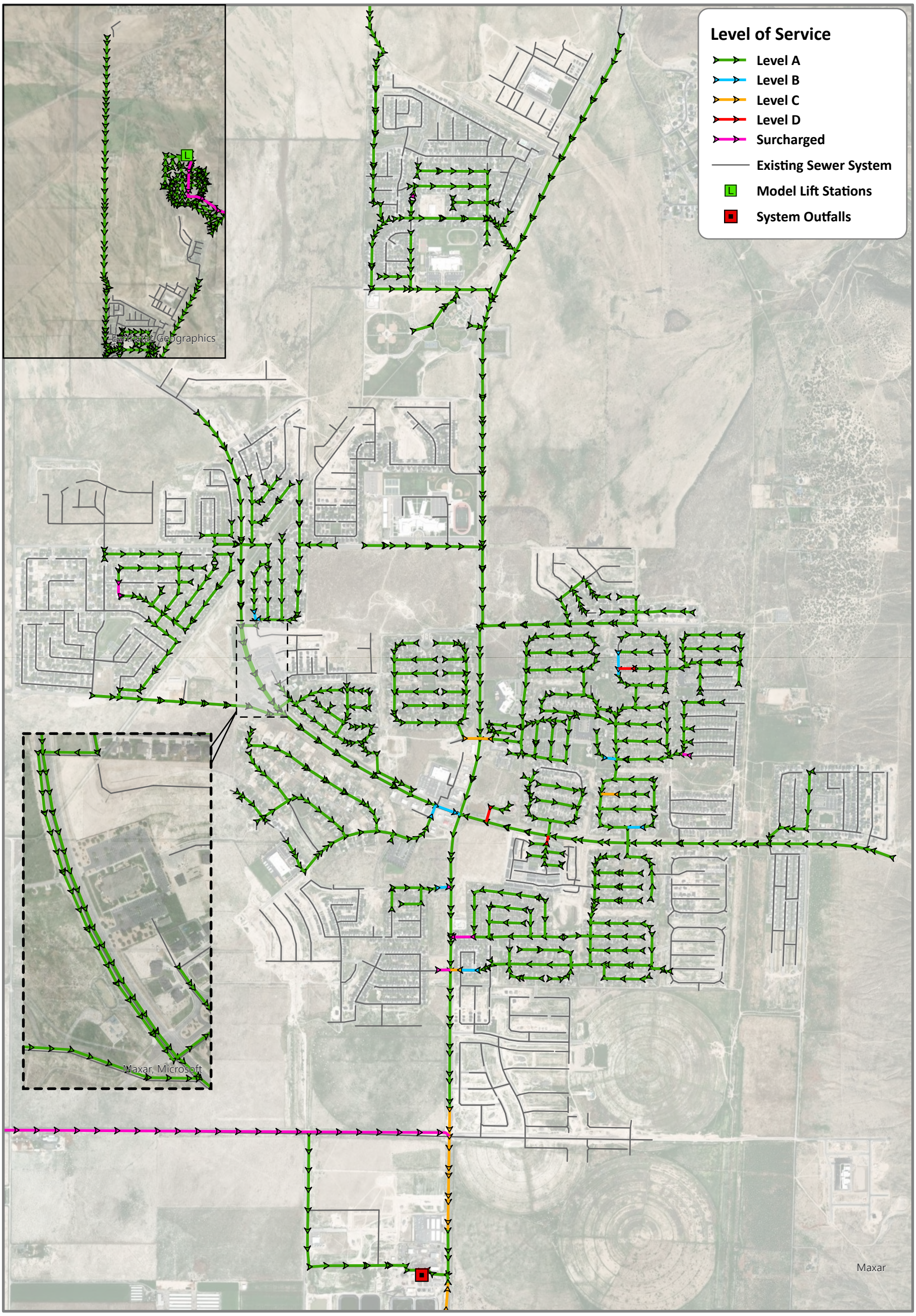
Feet

1 inch = 1,750 feet

EXISTING WASTEWATER SYSTEM SOUTH SERVICE AREA DIAMETER (IN)

WASTEWATER SYSTEM MASTER PLAN
Eagle Mountain City | Utah, UT

Date: 6/17/2025



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Feet

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EXISTING WASTEWATER SYSTEM
SOUTH SERVICE AREA
LEVEL OF SERVICE

WASTEWATER SYSTEM MASTER PLAN
Eagle Mountain City | Utah, UT

Date: 6/17/2025

West Service Area (WSA)

Pipes

All existing pipes are within the LoS A criteria.

Manholes

There are no known issues with existing manholes, and it is presumed that all existing manholes have a LoS A.

Lift Stations and Force Mains

Pole Canyon LS is the only lift station in the WSA. The peak flow condition for a lift station is the capacity of the pumps. No peak factor was applied to the lift stations.

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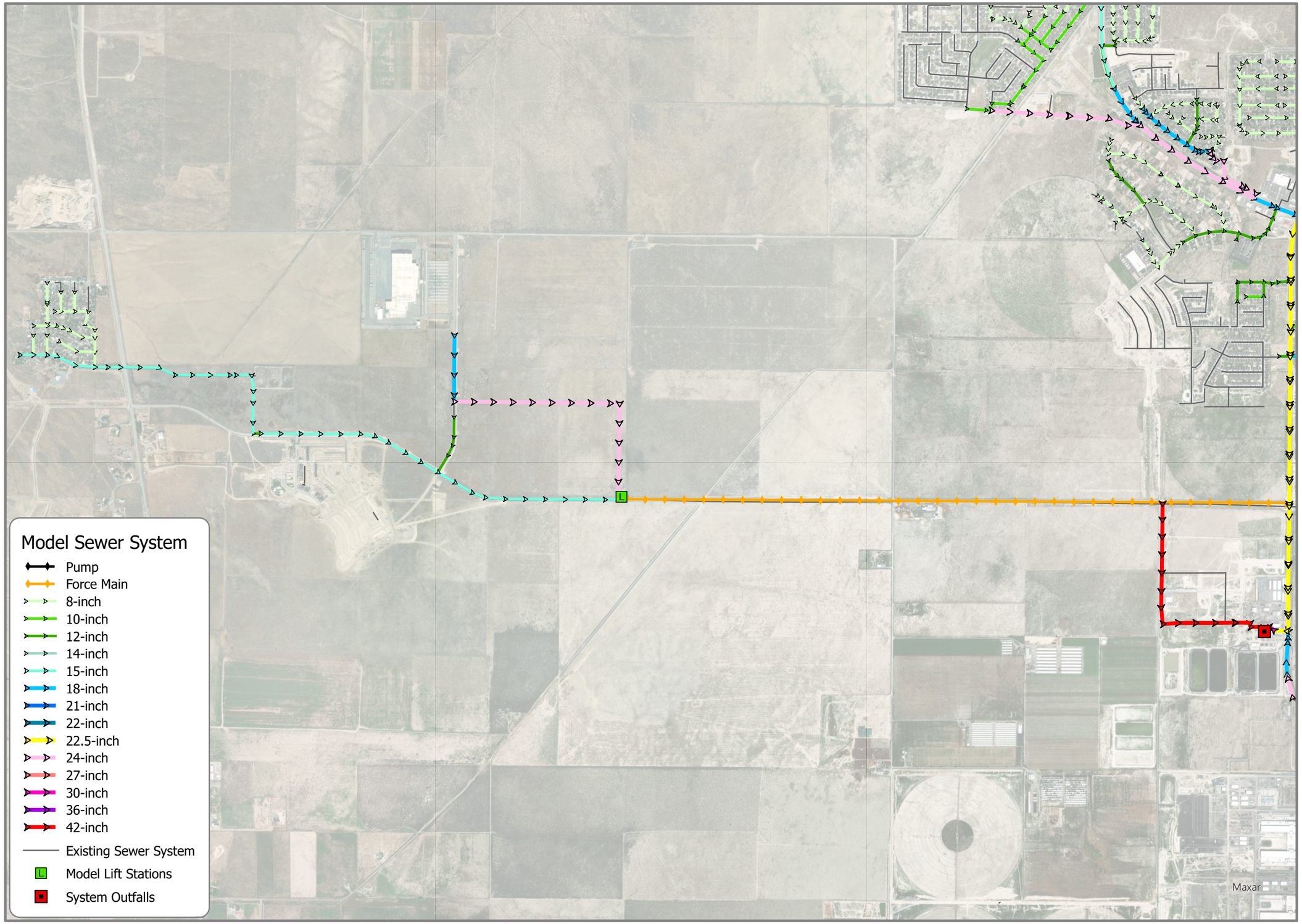

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EXISTING WASTEWATER SYSTEM

WEST SERVICE AREA

DIAMETER (IN)

WASTEWATER SYSTEM MASTER PLAN

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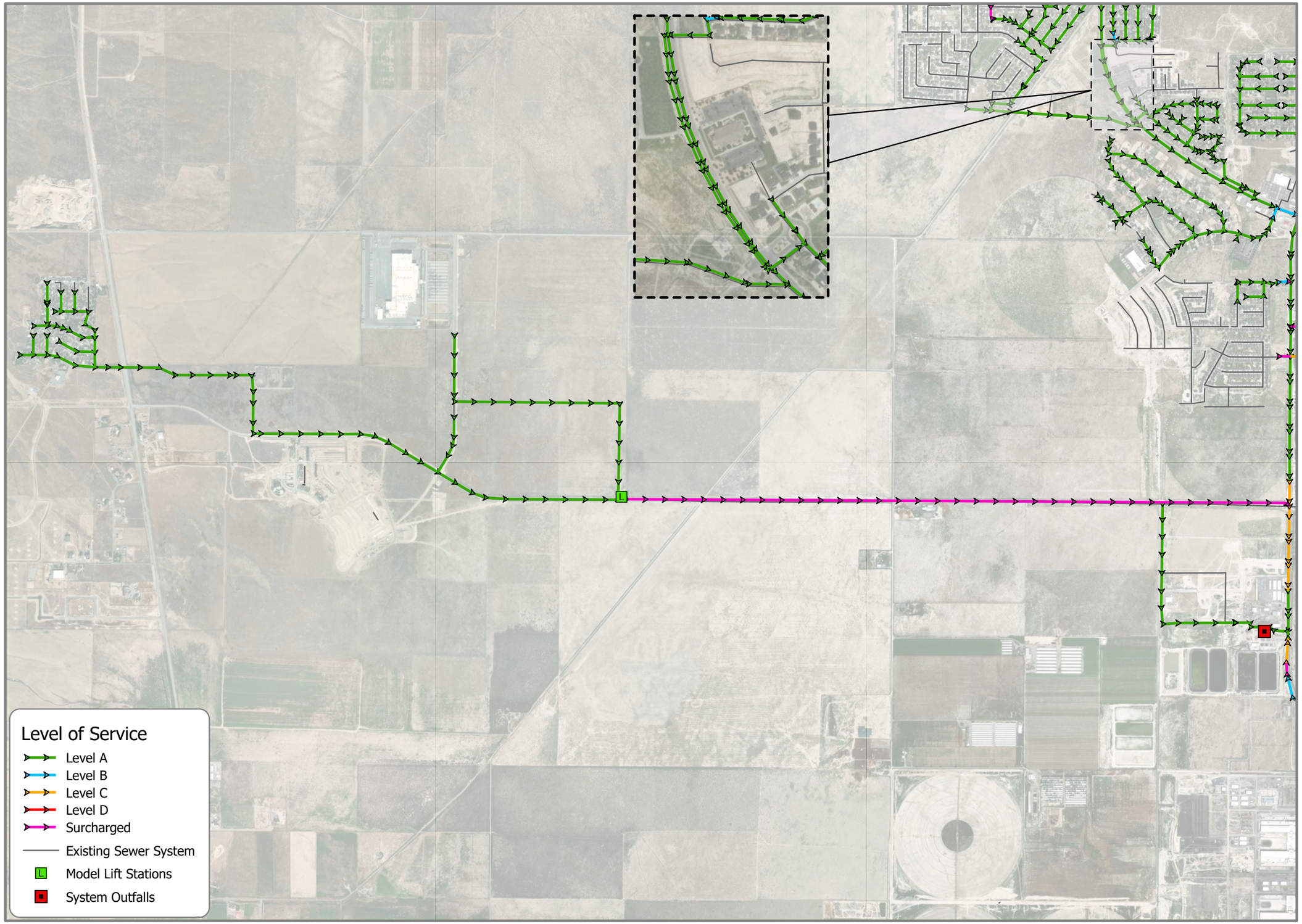

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Utah, UT

EXISTING WASTEWATER SYSTEM

WEST SERVICE AREA

LEVEL OF SERVICE

WASTEWATER SYSTEM MASTER PLAN

Date: 6/17/2025

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PROJECTED CONDITIONS WITH EXISTING INFRASTRUCTURE

The existing infrastructure was evaluated for flows anticipated with future development and growth.

Current septic users were not anticipated to connect to the wastewater system.

New industrial or commercial users should be evaluated on an individual basis as wastewater flows vary significantly depending on the type of industry.

Tyson Foods has an agreement to discharge up to 700 gpm into the wastewater system. Currently they average only 57 gpm. For the projected flows a value of 75 gpm with a peak factor of 2.0 was used. Tyson Foods has a holding tank so that flows are discharged between the hours of 10pm and 5am. This is to ensure that their flows will not compound with residential peak flows.

Generally speaking, the EMC wastewater infrastructure is relatively new. However, with time the infrastructure may experience inflow and infiltration, and pipe and manhole deterioration. It is recommended that EMC monitor their system for these conditions as the infrastructure ages with time. Infiltration is expected to remain low due to percolating soils. Inflow should be minimal with routine maintenance.

All areas south of the existing WWTP are lower in elevation. There is one industrial user in this area that pumps flows north to the WWTP.

Projected ERU's for undeveloped areas that do not have approved plans, were approximated by using a factor of 3.4 ERU/Acre. If areas are known to be planned for a lower or higher density, this value may be revised for given areas which may also reduce the amount of anticipated flows. An increase in ERU counts for a given area will affect the LoS for the wastewater system. A few of the areas have partially been developed. Only the areas where the majority of the area has not been developed are included. See the figure below showing the undeveloped areas ERU counts.

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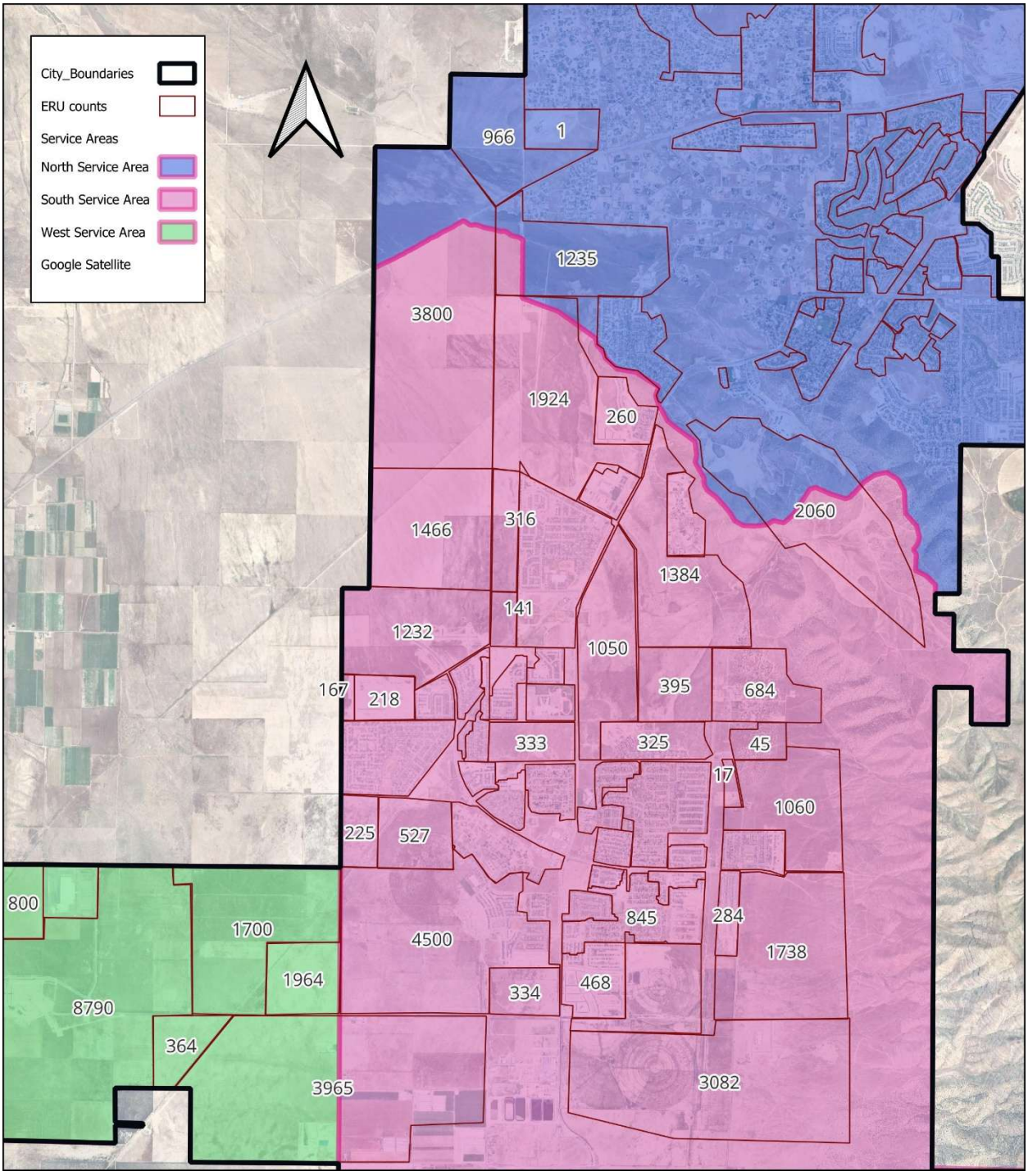

Figure 7 - Future ERU Estimates

The table below shows the added ERU's per service area as shown above. Note that the "other" areas are ones that will not be able to be conveyed by gravity with the existing trunklines and will either need an additional trunkline or lift stations to pump flows to the existing WWTP.

Table 8 - ERU's for Existing Service Areas

	Current ERU's	Added ERU's	Total ERU's at Build-out
NSA	8,027	3,473	11,500
SSA	6,744	26,956	33,700
SSA other		7,900	7,900
WSA	134	13,666	13,800
WSA other		4,000	4,000
Total			**71,000**

North Service Area (NSA)

TSSD Trunkline

All flows from the NSA are conveyed East through the TSSD Trunkline to TSSD. The trunkline diameter pipe as it leaves EMC is 21". As it approaches TSSD it transitions to 24" and 30" pipe. The existing model conditions for this stretch of pipe is approaching LoS B in some pipes which means that it is nearly at capacity now. Additional flows would cause additional pipe segments to exceed LoS A.

South Service Area (SSA)

Pony Express Trunkline

All flows from the SSA are conveyed south through the Pony Express Trunkline to EMC WWTP. The largest diameter pipe is 22.5" with slopes of 0.027% or greater. This slope is determined from the existing shape files and is less than the minimum slope for 24" pipe which is 0.077%. Assuming the shape files are accurate, this means that the 22.5" pipe is at a lesser slope than the minimum slope. The existing model has this trunkline currently conveying 6,744 ERU's which is at a LoS of C according to the model near the WWTP. A 22.5" pipe with 0.027% slope should be able to carry 6,176 ERU's with a LoS A (67% full). The additional anticipated ERU's needed to be conveyed through this pipe for the SSA based on projected growth is nearly 27,000. The existing Pony Express Trunkline cannot accommodate the additional anticipated flows.

West Service Area (WSA)

Pole Canyon Trunkline

Currently flows from the WSA are conveyed west to the EMC WWTP by means of a 12" force main. With planned development in the WSA this force main will be replaced with a deep gravity sewer. The largest pipe diameters being 36" and 42" with a slope of 0.082% or greater. Anticipated development would bring the number of ERU's to be conveyed in this pipeline to 13,755 ERU's. Using the ERU Capacity Table included earlier in this report, the capacity of 36" and 42" pipe would be 27,712 and 41,803 ERU's respectively. The planned pipe diameters for this trunkline are adequate.

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IMPROVEMENTS NEEDED/RECOMMENDATIONS

JWO Engineering, PLLC evaluated the existing model as well as EMC projected growth and development plans for the wastewater system. Several improvements are needed for the wastewater system in order for EMC to continue growing and meet wastewater needs.

Improvement recommendations have been broken down by service area and discussed below. It is also recommended that the service area boundaries be revised with the proposed trunkline additions. Exhibits for build-out or projected conditions with proposed trunklines are included for each service area below.

PROJECTED CONDITIONS MODEL

Advanced Engineering and Environmental Services, LLC (AE2S) modeled the wastewater system with proposed trunklines and projected flows using Infoworks. A standard peak factor of 2.0 was used for projected flow conditions. Peak flows were evaluated for the proposed wastewater system to maintain a LoS A.

Projected ERU's for undeveloped areas that do not have approved plans, were approximated by using a factor of 3.4 ERU/Acre. If areas are known to be planned for a lower or higher density, this value may be revised for given areas which may also reduce the amount of anticipated flows. Once diameters are determined based on anticipated flows and ERU counts, any future development should be within the estimated ERU counts. An increase in ERU counts for a given area will affect the LoS for the wastewater system.

Current septic users were not anticipated to connect to the wastewater system in this model.

New industrial or commercial users should be evaluated on an individual basis as wastewater flows vary significantly depending on the type of industry.

Tyson Foods has an agreement to discharge up to 700 gpm into the wastewater system. Currently they average only 57 gpm. For the projected flows a value of 75 gpm with a peak factor of 2.0 was used. Tyson Foods has a holding tank so that flows are discharged between the hours of 10pm and 5am. This is to ensure that their flows will not compound with residential peak flows.

A new trunkline on the East side (East Trunkline) was added to facilitate flows from the existing 15" sewer line in Airport Road over to the East bench. This trunkline is within the SSA and will not connect to the Pony Express Trunkline, but will go directly to the EMC WWTP. This pipe will accommodate all developments East of this pipeline as well as conveying the flows from Airport Road. Flows from areas to the northwest of Airport Road will also be conveyed in this trunkline with a branch line. This is to help alleviate the flows in the Pony Express Parkway trunkline as it is already nearly at capacity and developments are continuing to be approved and constructed. See the figure below for the area this trunkline will collect from as well as the estimated ERU counts.

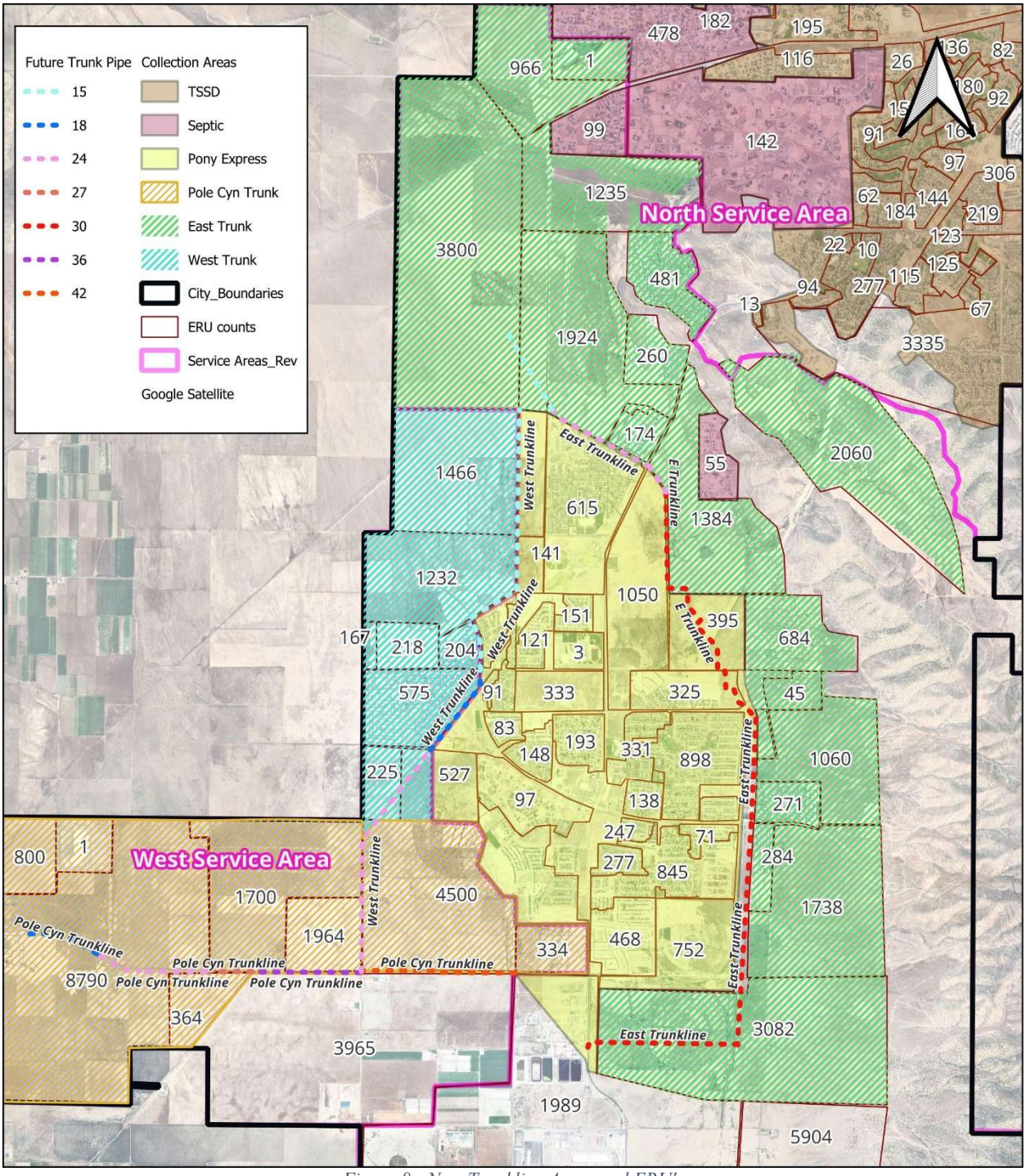

Figure 8 - New Trunkline Areas and ERU's

An additional trunkline was also added on the east side of the WSA (West Trunkline) to intercept flows from Brandon Park and other future developments in the area by gravity to help alleviate the flows into Pony Express Parkway Trunkline. This new trunkline will tie into the new Pole Canyon

Trunkline and be part of the WSA. The new West Trunkline will service the areas west of the trunkline. See the figure above for the collection area of this trunkline. Existing private lift stations remain in this model. If the West Trunkline is desired to accommodate Pinnacles and Brylee Farms by gravity and eliminate the private lift stations, it will need to be at a depth of 20’ at Aviator Avenue. An additional branch line will need to be constructed within Aviator Avenue to both Pinnacles and Brylee Farms lift stations. To eliminate the Rose Ranch lift station, the depth of the proposed sewer lines for that development will need to be known to determine the depth of the trunkline along the Lehi-Fairfield Road. It is estimated that a depth of 11’ will be needed at Williard Peak Drive to collect flows from Brandon Park development.

Lone Tree LS was previously modeled as conveying flows to the NSA or TSSD as that is the existing condition. EMC had indicated that these flows in the future would be pumped to Old Airport Road and conveyed through the East Trunkline to EMC WWTP. This would happen by constructing a new force main from the existing lift station to Old Airport Road. This project is not anticipated to happen within the next 5 years. The buildout model has moved these flows to the SSA which would be collected by the existing 15” pipe in Airport Road.

All areas south of the existing WWTP will need to be pumped to the WWTP as that area is lower in elevation. It may be favorable to have regional lift stations by geography. This can be determined as these areas are better determined for actual land use and developed.

The area west of the existing WWTP will need to have its own trunkline, which may include a lift station and force main to reach the existing WWTP.

The figure below shows the revised service area boundaries based on the new trunklines and collection areas discussed above.

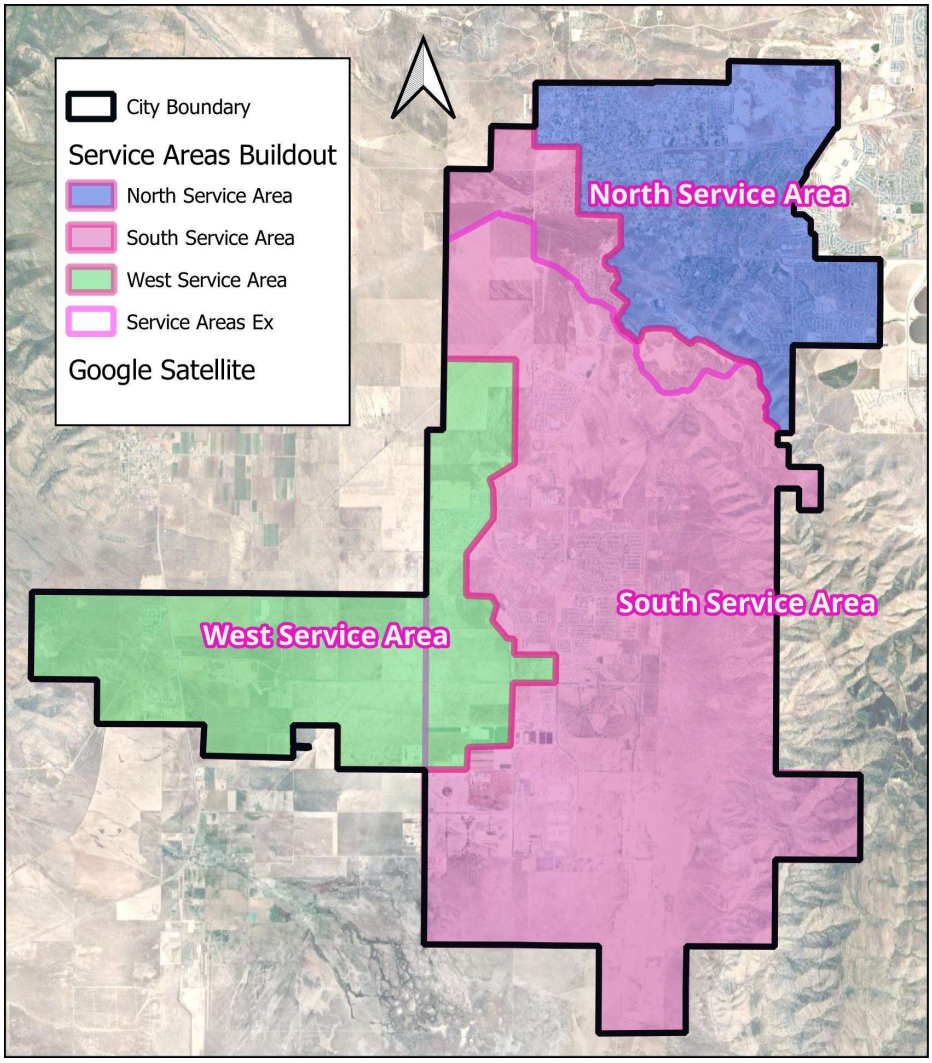

Figure 9 - Buildout Service Area Boundaries

Locations and numbers of manholes will need to follow Utah Administrative Code R317-3-3-Sewers, Section 2.6. Exact number of manholes for proposed pipes will be determined by topography, slopes, curves in the roads, changes in diameter, changes in direction and confluences of pipes. Numbers of manholes were estimated in the model.

As the service area boundaries have been revised, the number of additional ERU's is adjusted as well. The table below shows the number of ERU's added to each service area based on the revised boundaries and trunklines.

The ERU counts that are under "other" will either need to be pumped to the existing WWTP or have a separate trunkline and were not included in the model.

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Table 9 - Projected ERU's per Build-out Service Areas

	Total Aniticipated ERU's at Build-out
NSA	7,800
SSA	28,500
SSA other	7,900
WSA	22,700
WSA other	4,000
Total	**71,000**

North Service Area (NSA)

Pipes

No additional flows were added as this area is considered to be built out. Lone Tree flows were moved to the SSA. If there are any areas where significant growth is expected, these flows should be added and a model run again. The pipes in Silverlake are still a concern to address and verify GIS data is correct. This model does not account for any inflow or infiltration. As the wastewater system ages, it will be necessary to keep inflow and infiltration to a minimum to ensure there are no surcharge conditions. Any industrial or commercial users using large amounts of water should be evaluated and the model run again to ensure LoS A capacities are not exceeded. All other existing pipes are within the LoS A criteria.

Looking forward, it is recommended that EMC consider lining the existing TSSD trunkline in Pony Express with CIPP (cast in place pipe). The timing of this project would be determined by the quality of the existing pipe and or detection of significant inflow and infiltration. It is not anticipated that this project would be necessary within the next 5 years. For Master planning purposes, a CIPP lined pipe would not affect modeling results.

Manholes

There are no known issues with existing manholes, and it is presumed that all existing manholes have a LoS A. Existing manholes should be monitored for signs of deterioration. Manholes exhibiting deterioration should be noted and monitored to be scheduled for future lining or replacement.

Lift Stations and Force Mains

Lone Tree Lift Station flows were modeled in the SSA for buildout. The peak flow condition for a lift station is the capacity of the pumps. No peak factor was applied to the lift stations.

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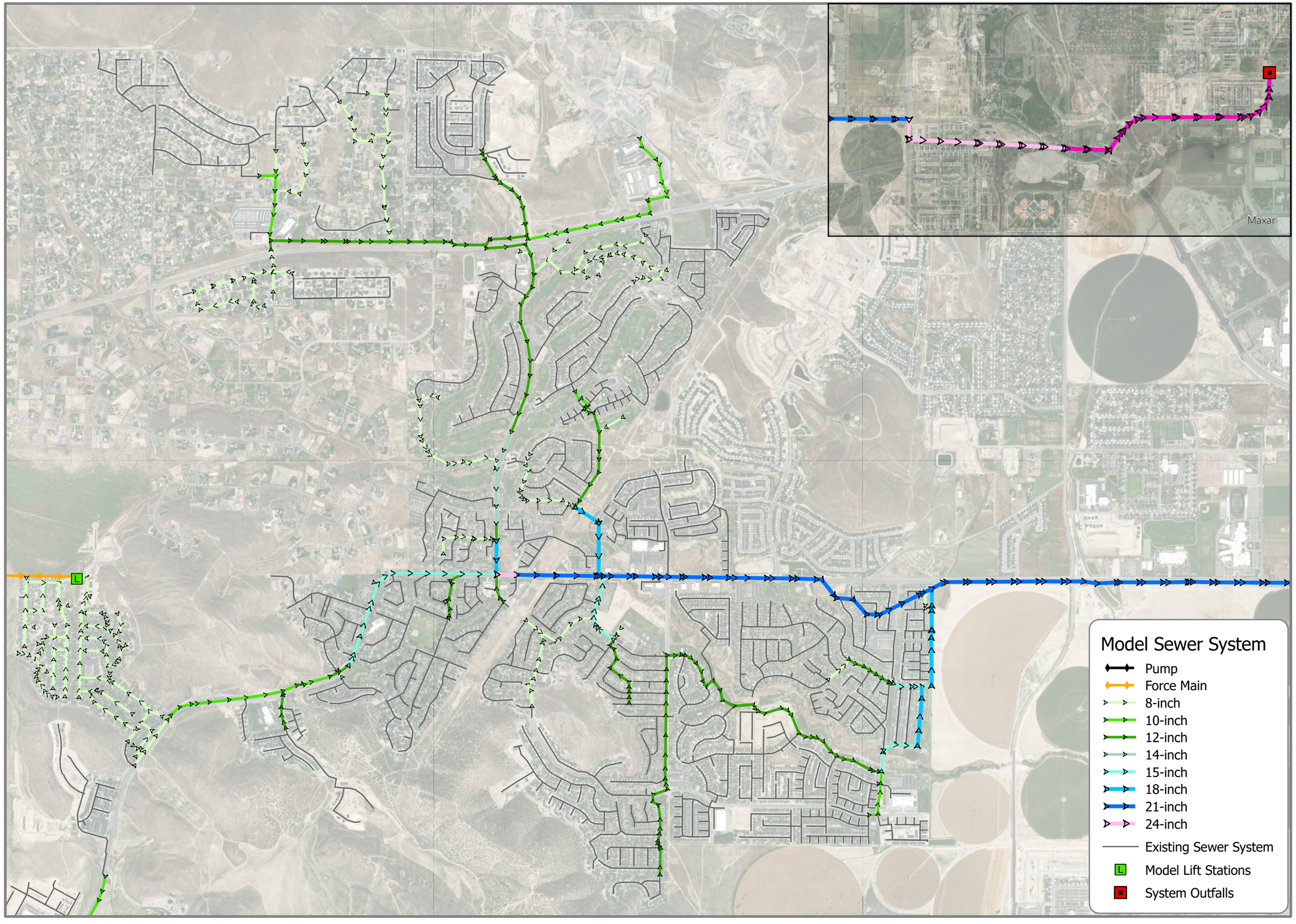

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FUTURE WASTEWATER SYSTEM

NORTH SERVICE AREA

DIAMETER (IN)

WASTEWATER SYSTEM MASTER PLAN

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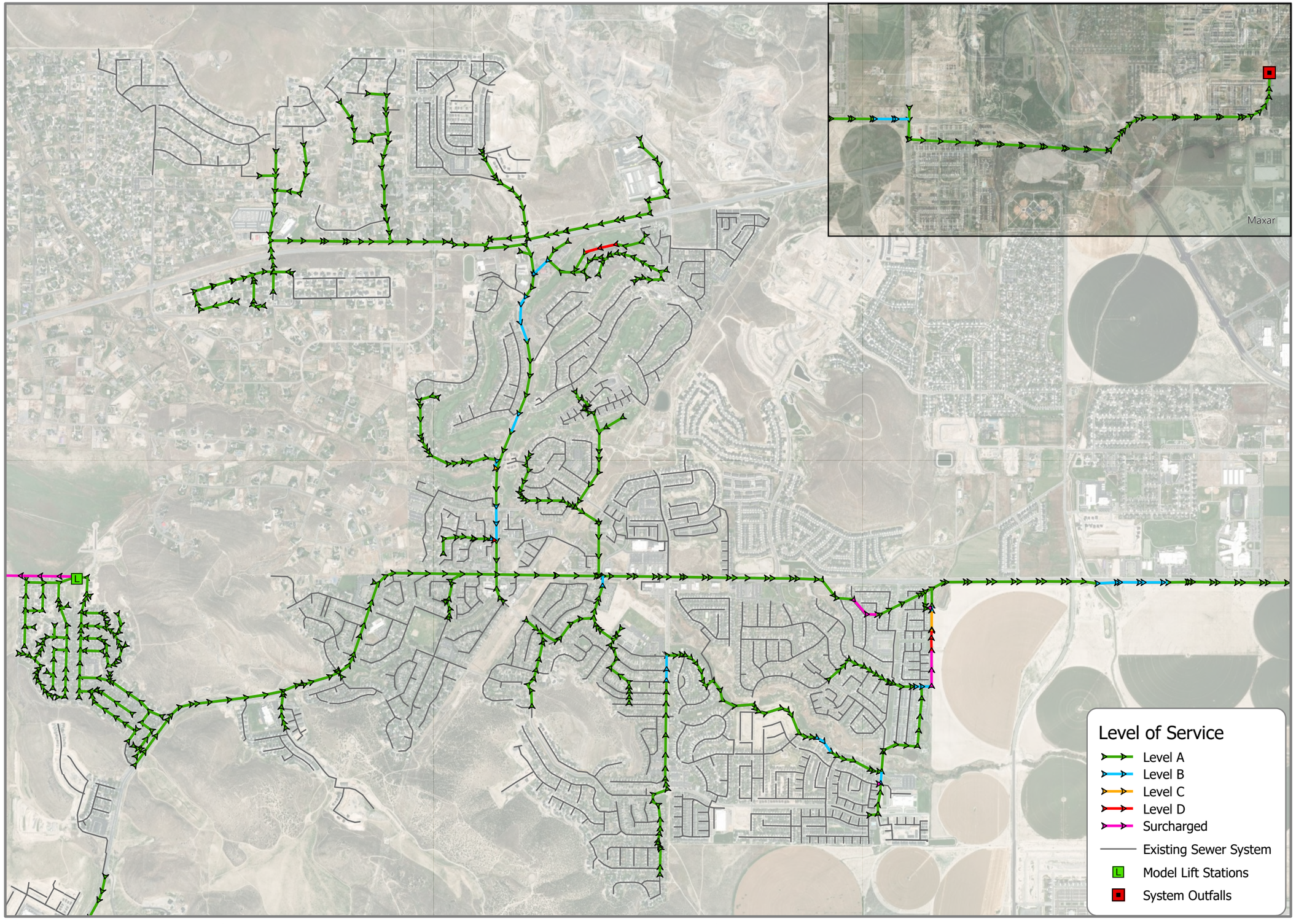

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FUTURE WASTEWATER SYSTEM

NORTH SERVICE AREA

ANTICIPATED LEVEL OF SERVICE

WASTEWATER SYSTEM MASTER PLAN

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South Service Area (SSA)

Pipes

As noted in the existing conditions model, the pipe sections south of Pole Canyon Blvd in Pony Express Parkway are still of concern. With projected flows these same pipes are at LoS C and D. Some existing flows are no longer flowing to the Pony Express Trunkline and have been modeled in the West and East Trunklines. However, there are still undeveloped areas that would contribute to the Pony Express Trunkline. There are still several places of confluence shown at LoS C and should be verified for elevations. All other existing pipes are within the LoS A criteria.

Manholes

There are no known issues with existing manholes, and it is presumed that all existing manholes have a LoS A.

Lift Stations and Force Mains

The West Trunkline picks up the private lift station flows from Brylee Farms, Rose Ranch and Pinnacles. The peak flow condition for the remaining lift stations is the capacity of the pumps. No peak factor was applied to the lift stations.

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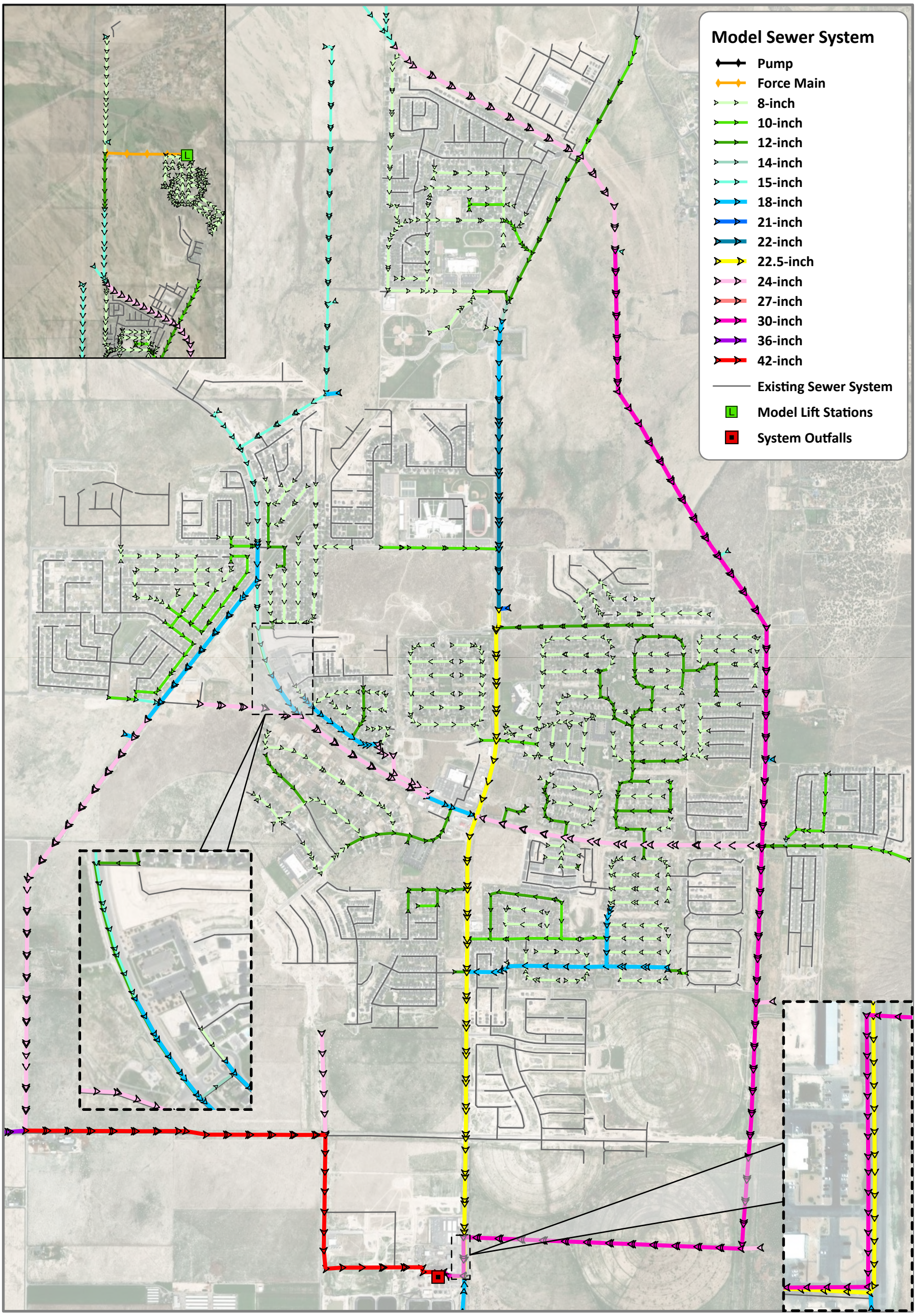

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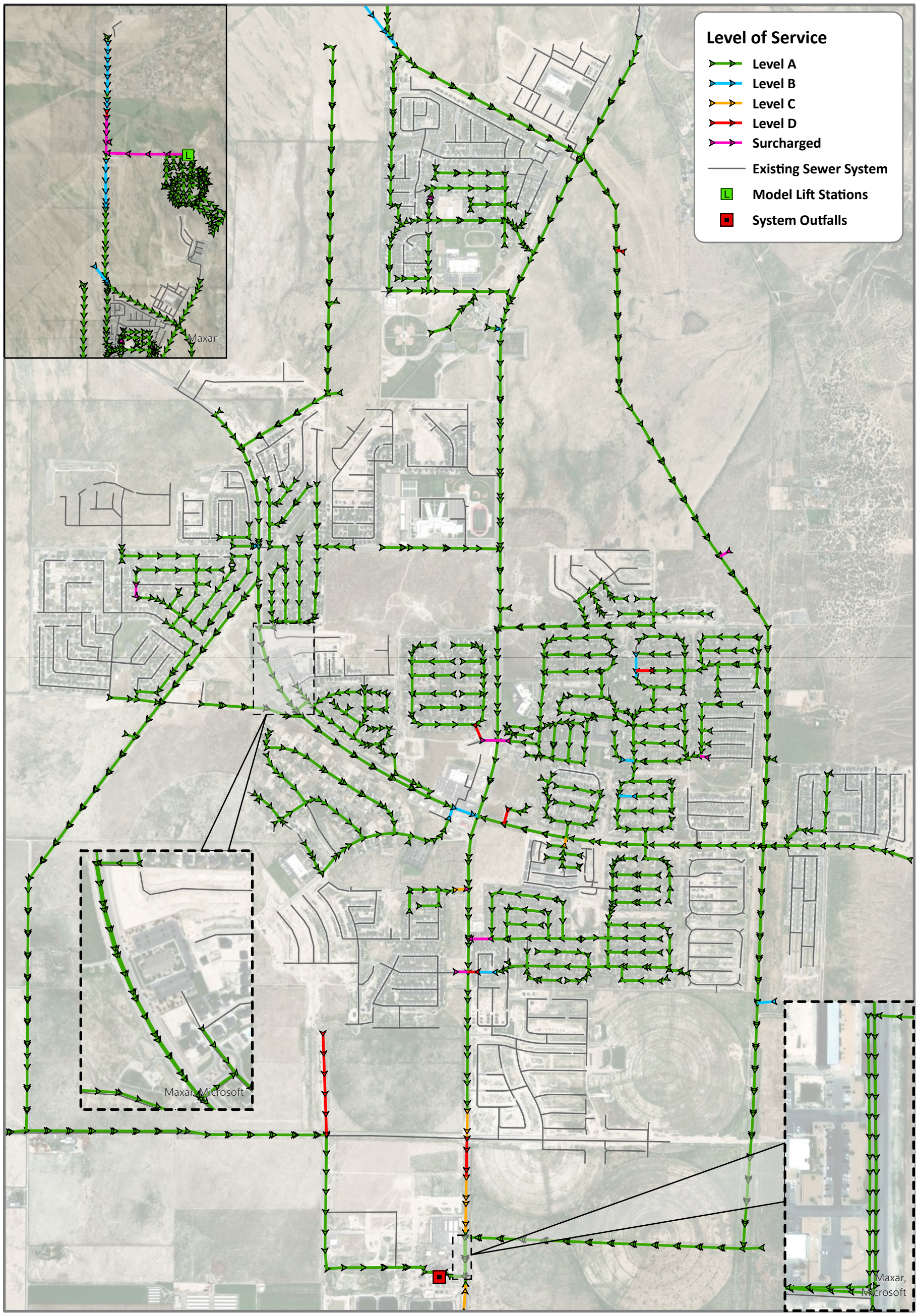
FUTURE WASTEWATER SYSTEM SOUTH SERVICE AREA DIAMETER (IN)

WASTEWATER SYSTEM MASTER PLAN
Eagle Mountain City | Utah, UT

Date: 7/28/2025



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FUTURE WASTEWATER SYSTEM SOUTH SERVICE AREA ANTICIPATED LEVEL OF SERVICE

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West Service Area (WSA)

Pipes

The proposed Pole Canyon Trunkline was designed as a 36" pipe. This was based on peak flows from OWR or Firefly with an ERU of 220 gpd, peak factor of 2.5, and meeting the condition of not exceeding 75% full. This calculation did include the recently annexed 300 Acres and the proposed Tract development and was a peak flow of 5,686 gpm, or average flow of 2,275 gpm. This was defined in the ARMDA agreement though it is not the city standard. If a peak factor of 2.0 is used the peak flow is 4,549 gpm. A 36" pipe flowing 50% full with a slope of 0.00082 and using an N value of 0.013, the capacity is 4,286 gpm, which would require the pipe diameter to be 42". Pipes upstream of 16000 West, where the new West trunkline connects are adequately sized for LoS A criteria.

The build out wastewater model used a 42" diameter pipe downstream of the proposed West Trunkline would be at LoS A with the additional West Trunkline flows. A portion of the 18" Pole Canyon pipeline is at a LoS B, just past 50% capacity. This is due to the alternative design criteria in the ARMDA agreement. As the LoS criteria in this report had not been set forth prior to the Firefly development, the ARMDA agreement criteria will be followed. Additional flows from the Harmony development will enter the wastewater system at a 24" stub as the trunkline turns south to the WWTP. All other pipes are within the LoS A criteria.

Manholes

There are no known issues with existing manholes, and it is presumed that all existing manholes have a LoS A.

Lift Stations and Force Mains

With the Pole Canyon Trunkline, the Pole Canyon LS will no longer be in service. The depth of the West Trunkline will determine if the Brylee Farms, Pinnacles and Rose Park LS are still needed.

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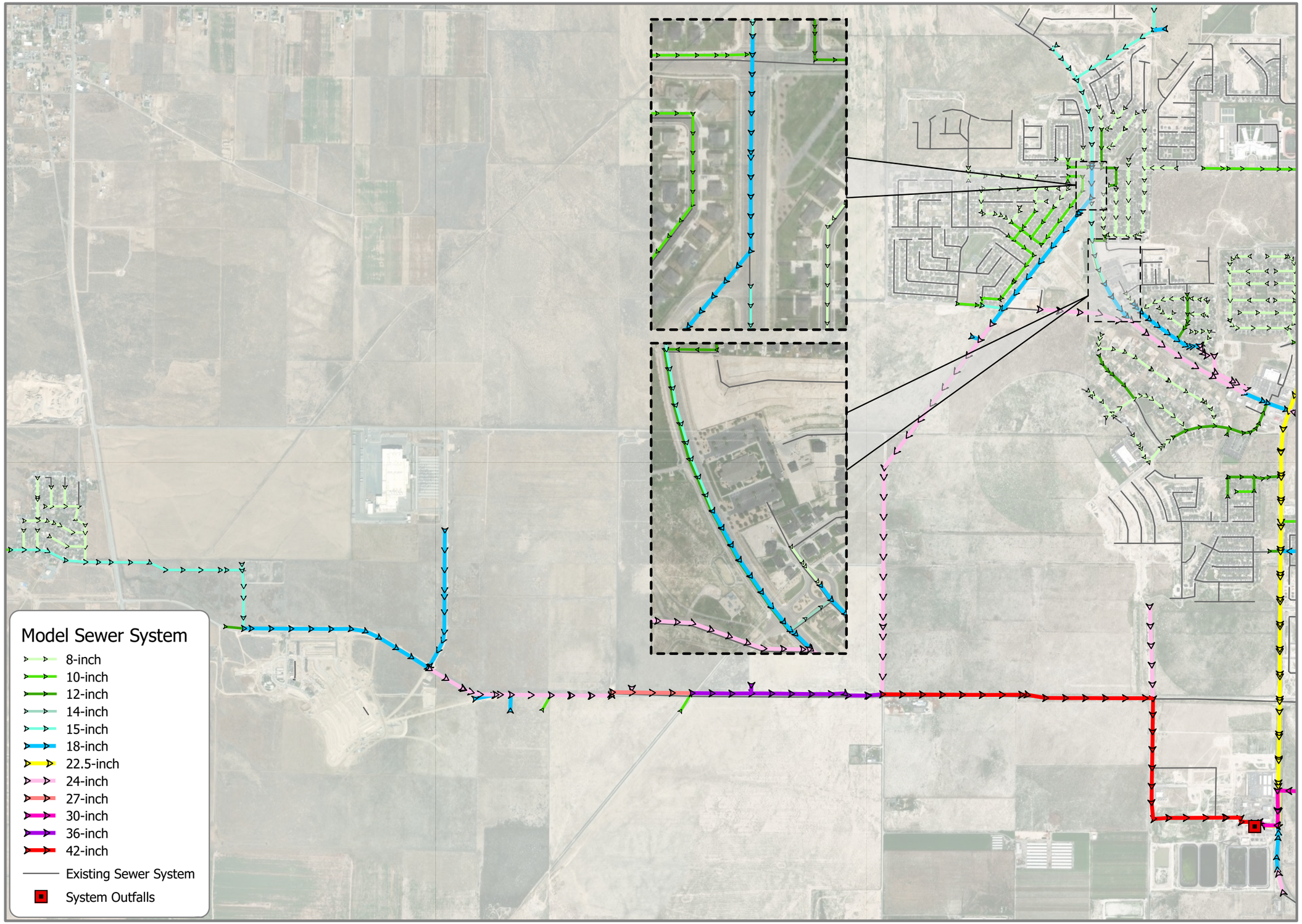

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FUTURE WASTEWATER SYSTEM

WEST SERVICE AREA

DIAMETER (IN)

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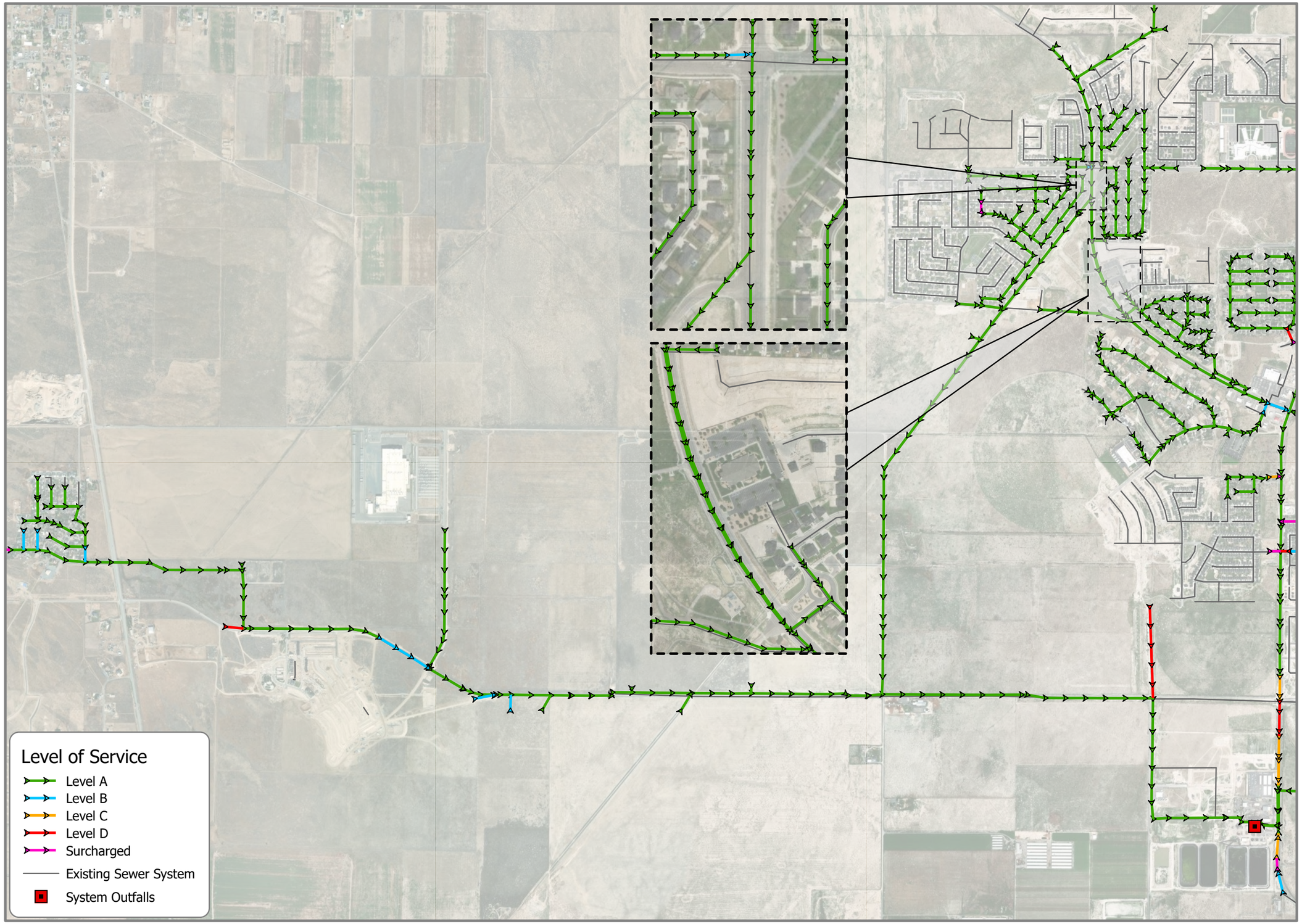

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Treatment Plant

The EMC WWTP has recently been expanded to accommodate flows of 2.4 MGD with construction being nearly complete. Currently the WWTP is under design for additional capacity to be able to accommodate an additional 6.0 MGD bringing the WWTP capacity to 8.0 MGD. The average total flows treated by the WWTP for the last 2 months is about 1.5 MGD. While the current capacity is 2.4 MGD by flow it should be noted that for loading it is already nearly at capacity. With some modifications to the existing oxidation ditch system it is anticipated that the capacity of the existing plant can be 2.0 MGD by flow.

The SSA added an additional 896 ERU's in 2023 and is anticipated to continue growing rapidly. The WSA added 2 ERU's in 2023 but is anticipated to add 500 residential units or ERU's each year with anticipated development beginning in 2025.

The anticipated build-out population for EMC is 240,000. Using a value of 65 gpcd the projected flows to be treated would be 15.6 MGD, or 71,009 ERU's. This is for all of EMC residents. The WWTP will not be treating flows from the NSA. The NSA is nearly at build-out with flows of 1.76 MGD. There are approximately 280 ERU's to be added with residential lots and commercial or industrial areas. With Lone Tree lift station being pumped to the SSA, this removes 481 ERU's from the NSA. The anticipated NSA projected flows based on these conditions would be 1.72 MGD.

There are also several areas that are septic and not anticipated to connect to the wastewater system. It is estimated that there will be approximately 822 lots or ERU's that will remain on septic service. These septic users would account for 0.18 MGD. With the NSA and septic users combined it is nearly 2MGD, leaving approximately 14.0 MGD to be treated by the EMC WWTP for build-out conditions.

The Figures below show these anticipated flows both in ERU's and MGD. The ERU count based on 65 gpcd is 71,009, which is nearly the same as the ERU's calculated by anticipated growth for flows. The total anticipated ERU's at buildout based on areas and a density of 3.4 ERU/Acre was 70,744 ERU's. As these anticipated values are based on alternative methods, they still come very close to the same value. While the values could potentially vary due to actual commercial or industrial users, it shows that both methods come to a similar value. A value of 71,000 ERU's for build-out will be used.

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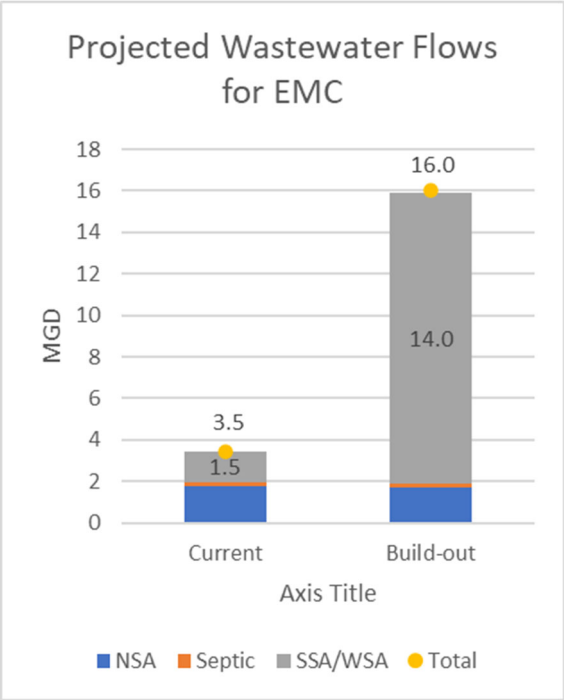

Figure 10 - Projected Wastewater Flows in MGD

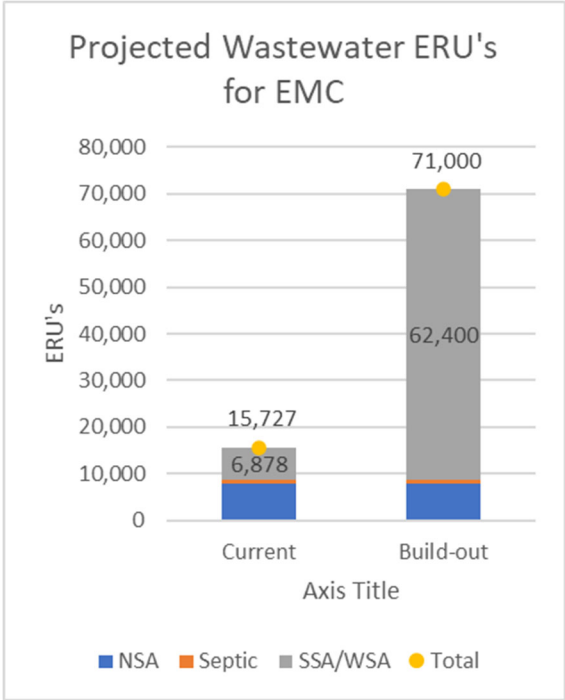

Figure 11 - Projected Wastewater Flows in ERU's

A key issue in treatment plant expansion is the lead time to procure large electrical equipment including transformers and switch gear. These are currently expected to take up to 2 years to obtain. An initial task in the plant expansion design should be determining the electrical power requirement and beginning the process of procuring additional supply from the power company.

Treated Water Disposal Options

With additional water being treated plans need to be made for what to do with additional treated water. Currently the treated water is sent to rapid infiltration basins (RIB's). Construction is currently underway to further treat the treated effluent to meet type 1 water standards for reuse. This water can be used for irrigation of parks. EMC does not yet have the permit or infrastructure to allow additional type 1 water to be used at parks or by residents. The RIB's will not be able to handle the additional treated effluent.

Deep well injection is recommended for treated effluent disposal but requires sample wells and a permit approval from the State. This will take some time for approval.

Another option would be to convey treated effluent to the sinks that are south of the WWTP, just outside the EMC boundary. EMC already has an easement to the city boundary. To flow by gravity it would be minimal slope and large pipe diameter for 3 miles. It would be recommended to pump a low head and decrease the pipe diameter for these 3 miles. EMC would need to acquire property to discharge at this location. EMC would also need to obtain permit approval from the state.

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A third option would be to convey treated effluent up to Tickville Gulch on Airport Road, which would ultimately discharge to Utah Lake. This would require pumping the treated effluent 7.5 miles. The alignment could follow the East Trunkline to Airport Road and then continue North until Tickville Gulch. This option would again require permit approval from the state.

As all disposal options will require permit approval and it is unknown which would be approved the quickest, it is recommended that EMC pursue each of these options as the need for disposal will be within the next 6 months.

PROPOSED FEATURE COSTS

Estimated costs for the proposed improvements are shown in the tables below. All costs are shown in 2025 dollars. Numbers of manholes are estimated and may vary from the number shown in the table below. Cost will be affected by pipe depth and these additional costs are accounted for in the estimates below. All projects are recommended to be completed within the next five years to support continued growth rates.

Pipe Segments and Manholes

Pipe segments for each trunkline are listed by reach.

Table 10 –Estimated Improvement Costs for East Trunkline

East Trunkline		Pipe	DS MH			Est		Mobilization	Traffic	Contingency	Engineering	Total
REACH	LF	Dia	Depth	Slope	Piping Cost	#MH	MH cost		Control			
Airport Rd to Pony Express	3,800	24"	10'	0.718%	$1,368,000	11	$121,000	$ 148,900	$ 98,274	$ 434,044	$ 325,533	$ 2,495,750
Pony Express to turn	1,155	24"	10'	0.077%	$ 415,800	4	$ 44,000	$ 45,980	$ 30,347	$ 134,032	$ 100,524	$ 770,682
south to Eagle Quest	3,334	30"	8'	0.265%	$1,283,590	9	$ 99,000	$ 138,259	$ -	$ 380,212	$ 285,159	$ 2,186,220
east to Eagle Quest	718	30"	23'	0.057%	$ 987,250	2	$ 48,000	$ 103,525	$ -	$ 284,694	$ 213,520	$ 1,636,989
south into EQ	578	30"	16'	0.057%	$ 311,542	2	$ 26,000	$ 33,754	$ -	$ 92,824	$ 69,618	$ 533,738
diagonal east in EQ	684	30"	16'	0.057%	$ 553,356	2	$ 36,000	$ 58,936	$ -	$ 162,073	$ 121,555	$ 931,919
diagonal west in EQ	247	30"	12'	0.057%	$ 133,133	1	$ 13,000	$ 14,613	$ -	$ 40,187	$ 30,140	$ 231,073
diagonal east in EQ	1,106	30"	15'	0.057%	$ 596,134	3	$ 39,000	$ 63,513	$ -	$ 174,662	$ 130,996	$ 931,919
south to Aviator Way	832	30"	9'	0.057%	$ 320,320	3	$ 33,000	$ 35,332	$ -	$ 97,163	$ 72,872	$ 558,687
east on Aviator Way	286	30"	12'	0.057%	$ 154,154	1	$ 13,000	$ 16,715	$ 11,032	$ 48,725	$ 36,544	$ 280,171
south into Sunset Flats	590	30"	8'	0.119%	$ 227,150	2	$ 22,000	$ 24,915	$ -	$ 68,516	$ 51,387	$ 393,968
east in Sunset Flats	235	30"	12'	0.057%	$ 90,475	1	$ 11,000	$ 10,148	$ -	$ 27,906	$ 20,929	$ 160,457
south diagonal east in SF	533	30"	10'	0.057%	$ 205,205	2	$ 22,000	$ 22,721	$ -	$ 62,481	$ 46,861	$ 359,268
diagonal east out of SF	263	30"	16'	0.057%	$ 212,767	1	$ 18,000	$ 23,077	$ -	$ 63,461	$ 47,596	$ 364,900
diagonal across util	492	30"	22'	0.057%	$ 676,500	2	$ 48,000	$ 72,450	$ 47,817	$ 211,192	$ 158,394	$ 1,214,353
south to EM Blvd	3,662	30"	8'	0.478%	$1,409,870	10	$110,000	$ 151,987	$ -	$ 417,964	$ 313,473	$ 2,403,294
from EM Blvd South	7,325	30"	8'	0.124%	$2,820,125	20	$220,000	$ 304,013	$ -	$ 836,034	$ 627,026	$ 4,807,198
west to Pony Express	5,300	30"	8'	0.429%	$2,040,500	15	$165,000	$ 220,550	$ -	$ 606,513	$ 454,884	$ 3,487,447
south to WWTP	705	30"	8'	0.057%	$ 271,425	2	$ 22,000	$ 29,343	$ 19,366	$ 85,533	$ 64,150	$ 491,817
											Total	$24,239,852

Table 11 –Estimated Improvement Costs for West Trunkline

West Trunkline		Pipe	DS MH			Est		Mobilization	Traffic	Contingency	Engineering	Total
REACH	LF	Dia	Depth	Slope	Piping Cost	#MH	MH cost		Control			
south to E Desert Rd	6,274	15"	12'	0.711%	$1,568,598	17	$187,000	$ 175,560	$ -	$ 482,789	$ 362,092	$ 2,776,039
SW on E Desert Rd to EM Blvd	1,861	15"	12'	0.635%	$ 465,218	5	$ 55,000	$ 52,022	$ 34,334	$ 151,643	$ 113,733	$ 871,950
south on EM Blvd to Aviator Way	1,809	15"	12'	0.642%	$ 587,948	5	$ 65,000	$ 65,295	$ 43,095	$ 190,334	$ 142,751	$ 1,094,422
south on EM Blvd to Lehi-Fairfield	660	18"	12'	0.330%	$ 184,822	2	$ 22,000	$ 20,682	$ 13,650	$ 60,289	$ 45,217	$ 346,660
SW on Lehi-Fairfield to Williard Pea	2,737	18"	11'	0.432%	$ 766,357	8	$ 88,000	$ 85,436	$ 16,916	$ 239,177	$ 179,383	$ 1,375,269
SW on Lehi-Fairfield to 4000 N	3,107	24"	12'	0.213%	$1,118,610	9	$ 99,000	$ 121,761	$ 24,109	$ 340,870	$ 255,652	$ 1,960,002
SW on Lehi-Fairfield to boundary	850	24"	13'	0.077%	$ 428,178	3	$ 39,000	$ 46,718	$ 9,250	$ 130,787	$ 98,090	$ 752,023
south to Tiffany lane	4,626	24"	14'	0.262%	$2,331,554	13	$169,000	$ 250,055	$ 33,007	$ 695,904	$ 521,928	$ 4,001,450
											Total	$13,177,814

Table 12 –Estimated Improvement Costs for Pole Canyon Trunkline

Pole Canyon Trunkline		Pipe	DS MH			Est		Mobilization	Traffic	Contingency	Engineering	Total
REACH	LF	Dia	Depth	Slope	Piping Cost	#MH	MH cost		Control			
to Tyson conn	2,569	18"	10'	0.728%	$ 719,186	7	$ 77,000	$ 79,619	$ 52,548	$ 232,088	$ 174,066	$ 1,334,507
to straight Pole Canyon	1,521	24"	10'	0.366%	$ 547,409	5	$ 55,000	$ 60,241	$ 39,759	$ 175,602	$ 131,702	$ 1,009,712
to Pole Canyon LS	2,307	27"	10'	0.129%	$ -	7	$ 77,000	$ 7,700	$ 5,082	$ 22,446	$ 16,834	$ 129,062
to Lehi-Fairfield conn	1,639	30"	10'	0.143%	$ 631,027	5	$ 55,000	$ 68,603	$ 45,278	$ 199,977	$ 149,983	$ 1,149,866
to 1600 W/West Trunkline	3,878	36"	10'	0.376%	$1,648,095	3	$ 33,000	$ 168,109	$110,952	$ 490,039	$ 367,529	$ 2,817,725
to Magnolia	5,332	42"	18'	0.071%	$5,598,600	3	$ 54,000	$ 565,260	$373,072	$ 1,647,733	$1,235,800	$ 9,474,464
											Total	$15,915,336

Lift Stations and Force Mains

The Pole Canyon Trunkline is already under construction and should be complete before needing to upsize the Pole Canyon LS. In the case that the trunkline is not online in time, the estimated cost of adding a new upsized generator, additional pump and upgrading the impeller and motors on the 2 existing pumps at Pole Canyon Lift Station would be approximately $500,000. This cost includes materials as well as mobilization, engineering, and contingency costs.

The existing Steeplechase wastewater lift station will also need to be upgraded due to other entities sending flows there. This will need to take place in 2026 and is estimated to be approximately $400,000 for the necessary improvements.

Treatment Plant

The cost of increasing the WWTP capacity using MBR treatment for an additional 6.0 MGD is estimated to be about $120,000,000 depending on peaking factors and what treatment level is required. As the WWTP will service both WSA and SSA, growth in each service area would need to be evaluated to determine the cost sharing proportions. This cost includes labor, materials, engineering, and contingency as well as additional electrical source capacity.

Disposal costs will vary depending on which option is selected. However, it is recommended that EMC plan for about $15 M to address this need.

EAGLE MOUNTAIN CITY

2025 WASTEWATER IFFP REPORT

Prepared by:

JWO ENGINEERING

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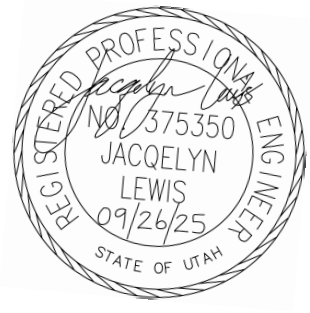

September 2025

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A Professional Limited Liability Company

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EXECUTIVE SUMMARY

JWO Engineering, PLLC was contracted to complete a wastewater Impact Fee Facilities Plan (IFFP) Eagle Mountain City (EMC). This report uses information from the 2025 Wastewater Master Plan and will evaluate costs for necessary infrastructure for wastewater conveyance and treatment within the next five – ten years for EMC as well as a budget for these projects. As EMC is experiencing high growth rates, JWO Engineering, PLLC recommends that this IFFP focus on 5 years as the rapid growth rate in the city may bring additional needs to light in the next 5 years. This IFFP is based on projected growth as explained in the 2025 Wastewater Master Plan.

An IFFP fills the requirements established by Utah code Title 11 Chapter 36a, the "Impact Fees Act," and will assist EMC in determining impact fees to fund necessary capital improvements for future anticipated growth.

The following table is a summary of projects, and their estimated costs that are listed in the 2025 Wastewater Master Plan to be completed within the next 5 years for EMC. Please refer to the 2025 Wastewater Master Plan for a complete list of recommended projects and their estimated costs. Estimated costs in this table are concept level estimates based on 2025 costs. In the Budgeting section of this report, the costs were adjusted using an assumed inflation rate for each year. Actual costs will be determined by the project details and economic conditions at the time of the work being carried out. Please see the Exhibits within this report depicting the proposed pipeline projects.

Table 1 – Recommended Collection Improvements Within Next 5 Years

Collection Improvement Project	2025 Estimate (Millions)	
East Trunkline	$	24.24
West Trunkline	$	12.14
Pole Canyon Trunkline	$	15.92
Steeplechase LS Upgrade	$	0.40
Total for next 5 years	$	52.70

Table 2 - Recommended Treatment Improvements Within Next 5 Years

Treatment Improvement Project	2025 Estimate (Millions)	
WWTP 6 MGD Expansion	$	120.00
Treated Water Disposal	$	15.00
Total for next 5 years	$	135.00

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Table 3 - Recommended EMC Wastewater Improvements Within Next 5 Years

EMC Wastewater Project	2025 Estimate (Millions)
Administration Building	$ 6.00
Annual GIS updates (5yr)	$ 0.01
Total for next 5 years	$ 6.01

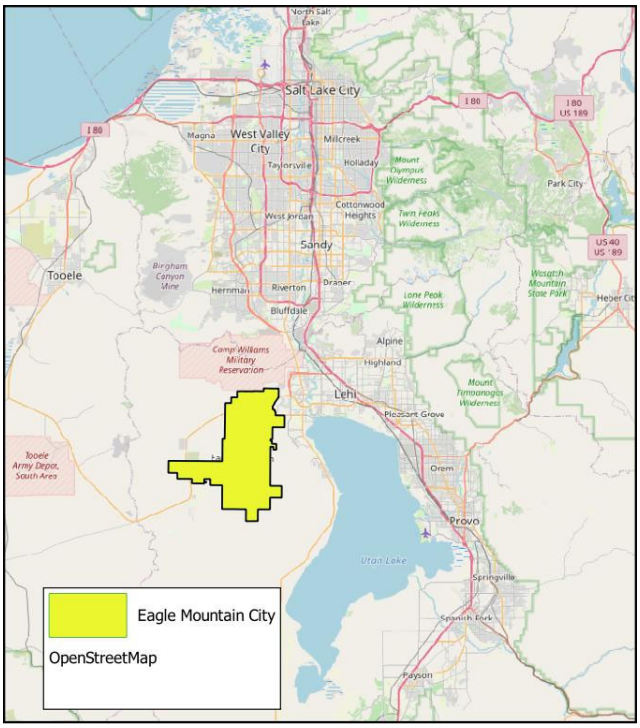

Figure 1 - Vicinity Map

BACKGROUND

Please see the 2025 Wastewater Master Plan for more detailed information. Eagle Mountain City (EMC) located in Utah County near Utah Lake as shown in the vicinity map above and is one of the fastest growing cities in the US. The average household size in the state of Utah is 3.09. EMC has an average household size of 4.37 people, one of the highest in the nation.

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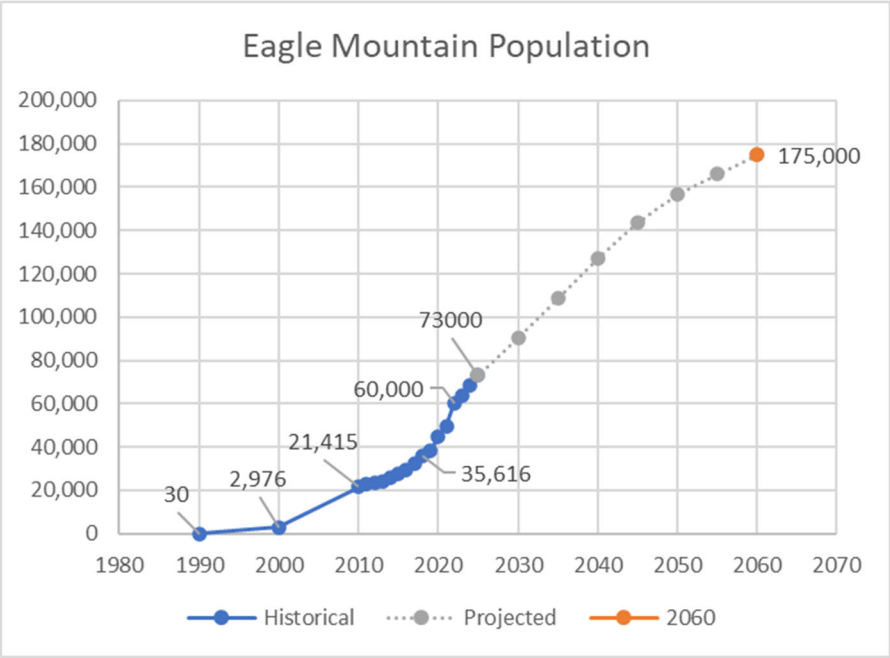

Figure 2 - Eagle Mountain City Population Chart

The figure above depicts the anticipated growth of EMC with a population of 175,000 by 2060. The buildout population is expected to be 240,000.

EMC's wastewater system contains three separate service areas designated as the North Service Area (NSA) the South Service Area (SSA) and the West Service Area (WSA). These service areas are approximate and may vary with continued development and improvements. The NSA conveys flows to the East and are treated by Timpanogos Special Services District. Flows from the SSA and WSA flow South and East respectively to the existing WWTP to be treated by EMC. The flows treated by EMC are treated and disposed of by means of Rapid Infiltration Basins (RIBs). These service areas were recently adjusted with the 2025 Wastewater Master Plan and are shown in the figure below.

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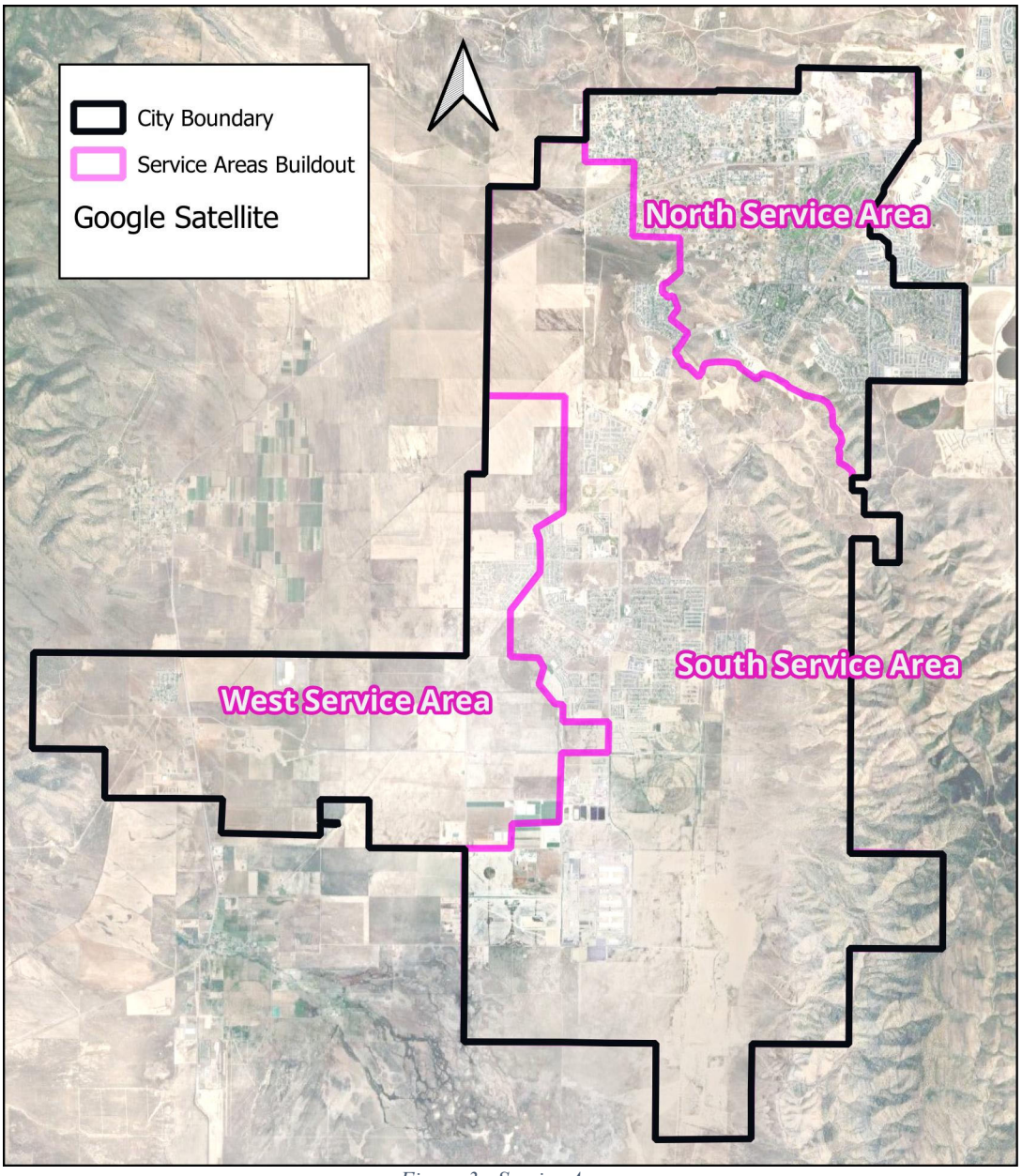

Figure 3 - Service Areas

EXISTING REPORTS

Current available reports addressing EMC's wastewater situation include the 2025 Wastewater Master Plan, EM WWTP Flows and Loads Report, 2024 EMC WSA WW IFFP, EMC Impact Fee Facilities Plan Report from 2012 (IFFP 2012), 2018 (IFFP 2018), and 2022 (IFFP 2022). Eagle Mountain General Plan (2018) was also used for future land use and density populations. Some data from these existing reports was used in our assessment of the existing and proposed EMC wastewater water facility conditions.

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EQUIVALENT RESIDENT CONNECTIONS (ERC'S)

An Equivalent Residential Connection (ERC) alternatively referred to as an Equivalent Residential Unit (ERU) represents the design flowrate from one residential connection. The 2025 Wastewater Master Plan established an ERC value of 220 gallons per day.

Current ERU's were obtained from EMC and are shown in the table below.

Table 4 - Existing ERU Count

	Current # ERU's
NSA	8,027
SSA	6,744
WSA	134

Industrial and commercial users will vary significantly with the number of ERU's they would need. New Industrial and commercial users should be evaluated individually to determine the number of ERU's needed and the capacity of the system to accommodate their need.

IMPACT FEE FACILITIES PLAN

Impact fees look up to 5 years ahead for what infrastructure will be needed based on anticipated growth. With impending continual growth, all improvement projects should begin as soon as possible to alleviate capacity concerns for the existing wastewater system. Improvements were organized into potential improvements projects. Exact project items included in each project may vary as deemed appropriate or necessity warrants. The table below shows the projects needed for anticipated growth as well as the estimated needed capacity within the next 5 years. Actual needed capacities may vary and require additional projects to be completed earlier than shown. An anticipated construction year is also listed for each project. Projected costs are shown for each year assuming 4% inflation for each year after 2025. These construction costs include materials, mobilization, traffic control, engineering and contingency. These construction costs do not include right-of-way acquisition and if needed for a project would be an additional cost to the project.

Table 5 - Total Improvement Costs

Improvement Project	2025 Estimate (Millions)	Estimated Construction Year	Cost with Inflation (Millions)	Anticipated %Capacity Needed in Next 5 years
East Trunkline	$ 24.24	2025	$ 24.24	15%
West Trunkline	$ 12.14	2026	$ 12.63	50%
Pole Canyon Trunkline	$ 15.92	2026	$ 16.55	30%
Steeplechase LS Upgrade	$ 0.40	2026	$ 0.42	
WWTP 6 MGD Expansion	$ 120.00	2026	$ 124.80	

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There is not a % Capacity needed for the wastewater treatment plant. This is due to a difference of flows vs solids. Generally speaking the capacity of a WWTP is determined by the amount of flows coming in. However, there is also a capacity for loading, or solids. The existing WWTP is nearly at capacity for solids despite it being a 2.4 MGD capacity and having an average of 1.9 MGD of flows. This is discussed in greater detail in EM WWTP Flows and Loads Report. There is an immediate and urgent need to increase the capacity of the WWTP. The capacity needed can be evaluated by ERU's being served. With the increased capacity of 6 MGD serving ERU's of 220 gpd, each ERU would need 0.036% of the WWTP.

Pole Canyon Trunkline will be constructed as part of the Firefly Development. EMC will need to construct the East and West Trunklines. The Steeplechase LS upgrade cost would include transitioning to an overwatch system, interconnect existing 3" and 4" force mains with a valve vault and achieve a capacity of around 200 gpm. If additional capacity is needed, a new force main will need to be constructed. The costs included in this report do not account for a new force main. It is not yet determined what the exact needs are for this upgrade, however, it is known that the existing LS is at capacity and that any additional flows will require an upgrade. As this upgrade is specific to the industrial/commercial user, these costs would not be attributed to residential user impact fees.

There are not any EMC WW construction needs for the NSA. This is because the NSA is nearly built out and the trunklines have been constructed. This does not mean that there would be no impact fee for the NSA. The NSA WW flows are conveyed to Timpanogos Special Service District (TSSD). The NSA impact fee should meet the TSSD impact fee requirement. At the time of this report, the TSSD general sewer impact fee is nearly $6,000 and expected to increase. Actual impact fee would be determined by the type of user or connection. The existing agreement between EMC and TSSD does not allow for additional land areas to be added to the NSA and treated by TSSD.

The figure below shows the 2025 Wastewater Master Plan proposed trunklines with the recommended diameter.

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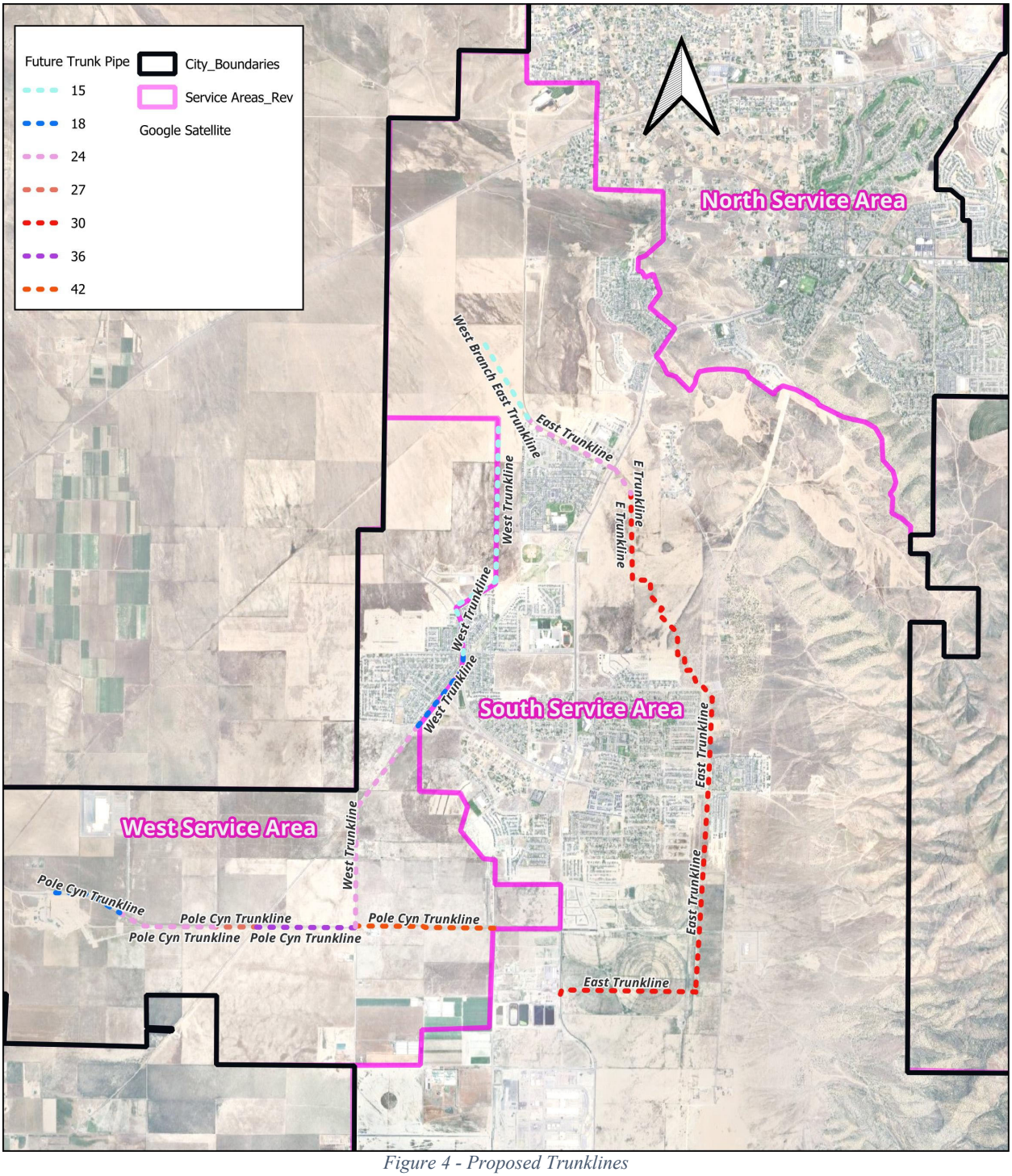

Figure 4 - Proposed Trunklines

To help understand what areas are included with each trunkline, the following exhibit shows each area as well as estimated ERU's for sub-areas for build-out conditions. Areas that have approved plans show the number of ERU's based on those plans. Areas without approved plans

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were estimated by the area and a value of 3.4 ERU/Acre as established in the 2025 Wastewater Master Plan. Industrial and Commercial users will be evaluated on an individual basis as those demands will vary significantly depending on the type of industry.

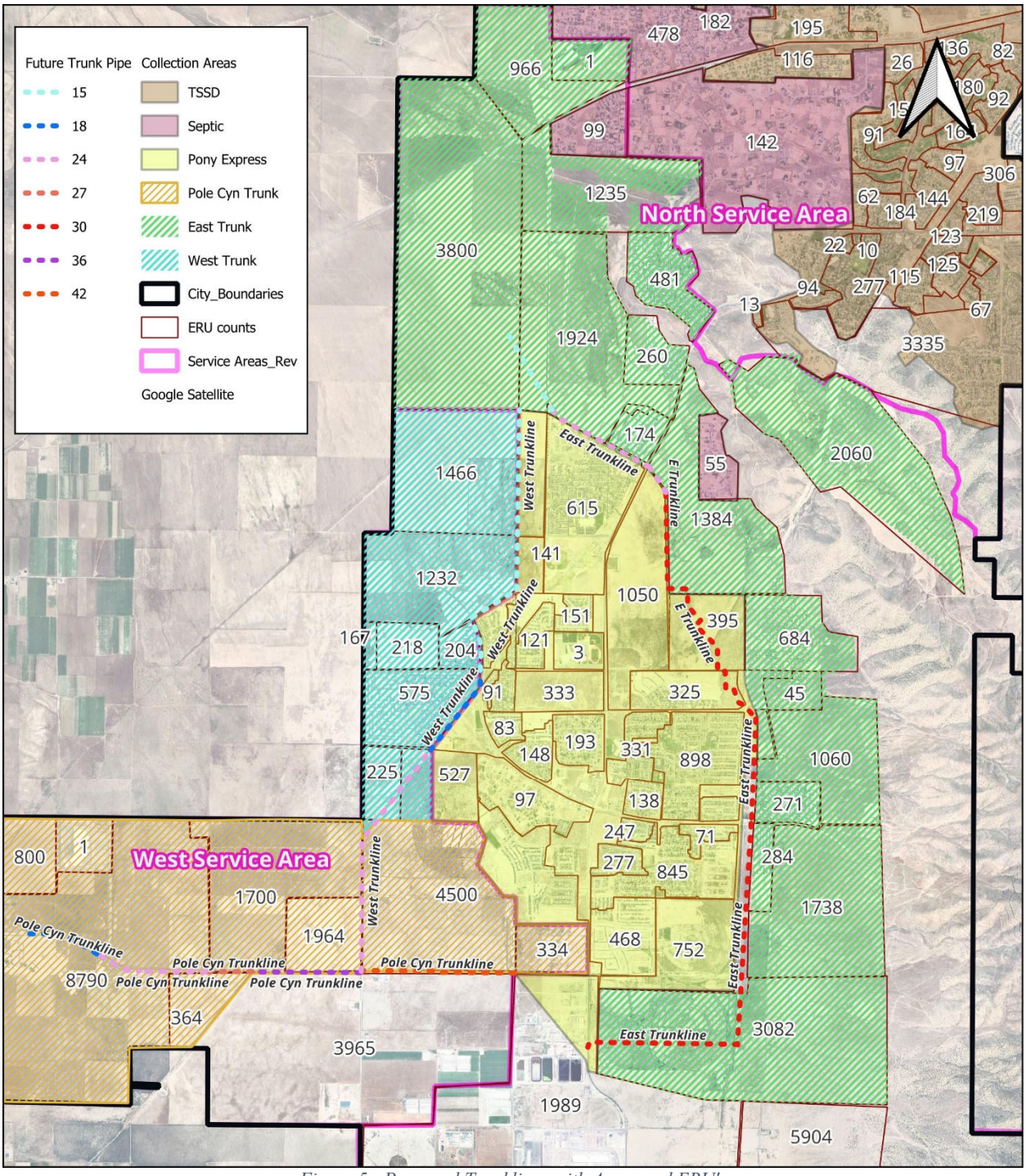

Figure 5 - Proposed Trunklines with Areas and ERU's

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The table below shows the estimated ERU's at build-out for each trunkline that conveys flows to EMC WWTP. "Other" ERU's are not able to be conveyed by the existing or proposed trunklines. These areas will require their own trunkline and or lift stations to be conveyed to the existing WWTP. It is assumed that existing septic homes will remain on septic systems. Pole Canyon Trunkline will also convey West Trunkline flows.

For additional details on projected flows to the EMC WWTP, please see the Technical Memorandum Report titled, "EM WWTP Flows and Loads" by AE2S.

Table 6 - ERU's per Trunkline for Build-out

SA	Trunkline	Total Aniticipated ERU's at Build-out
SSA	Pony Exp Trunk	9,000
SSA	East Trunk	19,500
SSA	Other	7,900
SSA	Septic	55
WSA	Pole Cyn Trunk*	18,600
WSA	West Trunk	4,100
WSA	Other	4,000
WSA	Septic	48
Total		**63,000**

To better facilitate the needs of wastewater conveyance and treatment within EMC a new administration building is needed. The estimated cost for this new building, which would be located at the wastewater treatment plant facility, is estimated to be $12,000,000. As this building would house water as well as wastewater personnel, only 50% of the construction costs would be attributed to wastewater costs. Construction is anticipated to begin in 2026.

BONDS AND REIMBURSEMENTS

EMC has notified JWO Engineering, PLLC with existing bond and agreement information. They are listed below and should be accounted for in impact fee analysis.

Table 7 - EMC Agreement Information

Number	Agreement Name	Description	Balance Remaining
2020-67	Monte Vista Ranch L.C.	42" sewer trunkline	$ 1,944,791.48

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Table 8 - EMC Bond Information

Bond Name and Description	Details	Outstanding principal as of 6/30/2025
Water and Sewer Revenue Bonds 2008	wastewater treatment plant	$ 1,369,000.00
Water and Sewer Refunding Bonds 2014	57% wastewater portion	$ 4,939,050.00
Water and Sewer Refunding Bonds 2108-A	57% wastewater portion	$ 162,450.00

BUDGETING

In order to have funds available for the projects anticipated within the next 5 years, a budget needs to be established. The table below shows the estimated cost each year with inflated costs. While actual construction years and projects may vary, using these costs will help Eagle Mountain City plan for continued growth at an accelerated rate.

Table 9- Annual Budgets

Construction Year	Budget (Millions)
2025	$ 24.24
2026	$ 154.39
2027	$ -
2028	$ -
2029	$ -
2030	$ -
Average Annual Budget	$ 29.77

RECOMMENDATIONS

It is recommended that EMC update their GIS files to accurately depict the current completed infrastructure of EMC. The GIS files should be kept up to date as new wastewater infrastructure is added to EMC. Efforts should also be made to update the existing GIS files to reflect actual elevations and pipe diameters as new pipes and infrastructure are added to the system. A budget of $2,000/year is included in the EMC Wastewater fees.

Improvement projects to be completed within the next 5 years are shown in the tables below.

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Table 10 - Next Five Years Collection Project Estimates

Collection Improvement Project	2025 Estimate (Millions)
East Trunkline	$ 24.24
West Trunkline	$ 12.14
Pole Canyon Trunkline	$ 15.92
Steeplechase LS Upgrade	$ 0.40
Total for next 5 years	$ 52.70

Table 11 - Next Five Years Treatment Project Estimates

Treatment Improvement Project	2025 Estimate (Millions)
WWTP 6 MGD Expansion	$ 120.00
Treated Water Disposal	$ 15.00
Total for next 5 years	$ 135.00

Table 12 - Next Five Years EMC Wastewater Project Estimates

EMC Wastewater Project	2025 Estimate (Millions)
Administration Building	$ 6.00
Annual GIS updates (5yr)	$ 0.01
Total for next 5 years	$ 6.01

The estimated average annual budget is just under $30 million for the collection improvement projects. The construction and costs will be necessary in the next year so the average is not representative of how the funding will be needed. JWO Engineering, PLLC recommends that Eagle Mountain City break the treatment plant and treated water disposal costs out due to the size of those items. 6MGD with an ERU of 220 gal/day should provide for an additional 27,000 ERU's. An impact fee cost would be in the $20 per gallon range or $4400 per ERU. The treatment portion of the fee would account for the treatment costs and treated water disposal and the impact fee for the other wastewater improvements should be evaluated based on the number of units anticipated to be completed in each service area vs the costs for the infrastructure. Annual GIS updates and the administration building costs would be applied to each household connected to EMC wastewater system. The annual budget for all costs other than the treatment plant would be $12 million.

It is recommended that within 5 years Eagle Mountain City re-evaluate the wastewater improvement needs as well as anticipated construction years and costs.