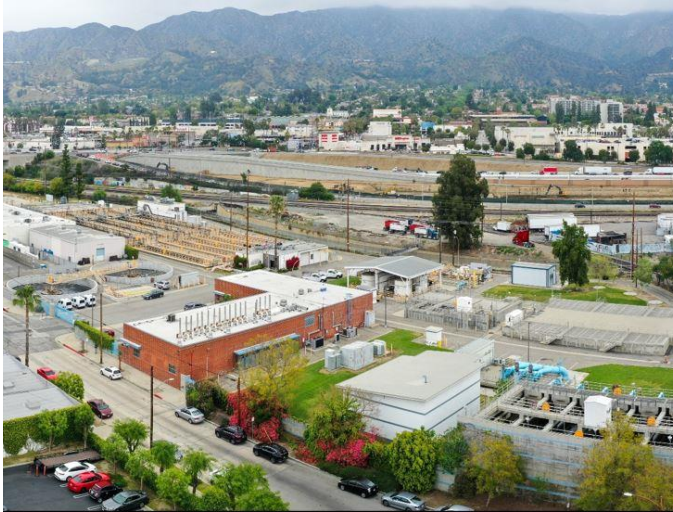


Appendix H

Focused Sewer Capacity Analysis

DRAFT



Technical Memorandum

Focused Sewer Capacity Analysis

Media District Specific Plan

City of Burbank – Public Works Department

September 24, 2025





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1 Introduction and Background

The City of Burbank (City) is planning for the near-term development (over approximately ten years) of three specific plan areas, including the Downtown Transit Oriented Development Specific Plan (Downtown-TOD SP), Golden State Specific Plan (GSSP), and the Media District Specific Plan (MDSP), which is the focus of this study. Collectively, these plans include planned redevelopment of areas within the City to meet the mandated State of California increases in available dwelling units, including the City's 2021-2029 Housing Element Update and Regional Housing Need Allocation (RHNA). The developments envisioned in the specific plans are planned over a 10-year period from 2025 to 2035. The City is working on a fourth specific plan simultaneously, the Burbank Rancho Neighborhood Specific Plan (RNSP). However, the RNSP is too early in the planning stages to be able to indicate what expected outcomes will be, and at this time staff does not anticipate that there will be a significant demand for increased development. Due to the lack of current information, this analysis does not account for any increase of units in the RNSP.

In April 2023, the Burbank Public Works Department (PW), in collaboration with the Community Development Department (CDD), commissioned HDR Engineering, Incorporated (HDR) to evaluate the capacity of the City's sewer system and the feasibility of expanding the system to accommodate additional sewer flows from the specific plan developments over the next 10 years. This technical memorandum summarizes the sewer system capacity analysis and results and is intended to inform the City's environmental analysis to comply with the California Environmental Quality Act (CEQA).

1.1 Specific Plan Development Areas

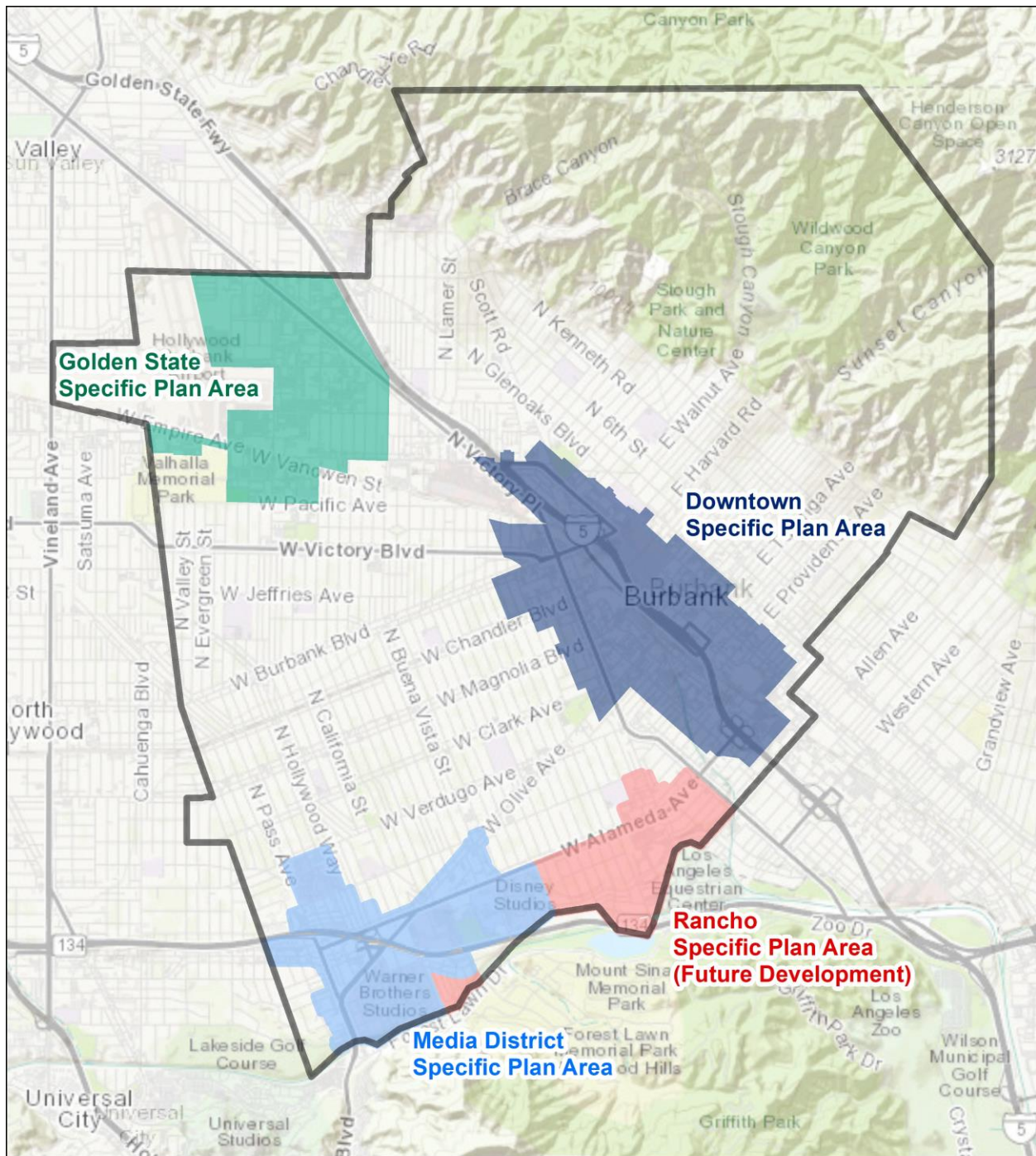
The City is planning for near- and long-term development in four specific plan areas. The locations of the specific plan areas are shown in Figure 1 and include the MDSP, Downtown-TOD SP, GSSP, and RNSP. Redevelopment in the plan areas, with the exception of RNSP, is projected to significantly increase the number of available dwelling units in the City, in furtherance of the Housing Element. At this time staff does not anticipate a significant net increase in dwelling unit count or sewer flows from RNSP, and it is therefore not included in the specific plan sewer flow projections in this analysis.

The specific plan data provided by CDD account for a range of development densities for the parcels designated for redevelopment in the specific plan areas. The density ranges are represented by three planning scenario alternatives referred to as the Housing Element Alternative (HEA), the Preferred Project Alternative (PPA), and the Increased Growth Alternative (IGA). The HEA represents near-term flow loading consistent with the Burbank 2035 General Plan (General Plan) Housing Element housing plan to accommodate the development of 10,011 units, inclusive of RHNA housing growth allotment of 8,772 units required for the City. The PPA represents a baseline projection for potential development in the specific plan areas, while the IGA represents the potential for higher density redevelopment.

The CDD developed net sewer flow loading estimates for the HEA, PPA, and IGA at the parcel level, representing the projected increase in flow loading on the collection system for each scenario. Projections are based on net increases in average dry weather flow (ADWF) production per parcel. Peak dry weather flows (PDWF) are estimated at the project level based on a peaking factor of 2.5 times ADWF.



Figure 1. City of Burbank Specific Plan Development Areas



Specific Plan Areas

- Media District
- Downtown
- Golden State
- Rancho
- Service Area





The HEA represents approximately 10,994 new housing units in the Downtown-TOD SP and GSSP areas, which satisfies and exceeds the Housing Element RHNA requirement to accommodate at least 10,011 new units in the City by approximately 2030. In addition to accounting for Accessory Dwelling Units built Citywide, the majority of new housing development envisioned is anticipated to occur within housing opportunity sites located within the Downtown-TOD SP and GSSP areas, with no growth assumed for the MDSP area. Therefore, the HEA scenario results in 3.5 million gallons per day (MGD) net increase in ADWF loading on the sewer collection system, which includes flows from both residential and non-residential development. Table 1 displays the projected HEA net increases in housing units and sewer flows.

The PPA represents approximately 26,000 net new housing units, plus associated non-residential development, resulting in a 9.2 MGD net increase in ADWF loading on the sewer collection system, which includes flows from both residential and non-residential development. The MDSP PPA would add approximately 9,687 net new residential units and would result in an approximate 3.1 MGD increase in ADWF. The Downtown-TOD SP PPA would add approximately 9,944 net new residential units and would result in an approximate 3.9 MGD increase in ADWF. The Golden State SP would add approximately 7,205 net new residential units and would result in an approximate 2.2 MGD increase in ADWF.

Table 2 displays the projected PPA net increases in housing units and sewer flows for all three specific plans.

The IGA represents approximately 44,000 net new housing units, plus associated non-residential development, resulting in a 13.8 MGD net increase in ADWF loading, which includes flows from both residential and non-residential development. The MDSP IGA would add approximately 13,715 net new residential units and would result in a 5.2 MGD increase in ADWF. The Downtown-TOD SP PPA would add approximately 16,977 net new residential units and would result in an approximate 5.3 MGD increase in ADWF. The GSSP would add approximately 9,476 net new residential units and would result in an approximate 2.6 MGD increase in ADWF. Additionally, the IGA includes approximately 3,807 net new residential housing units outside of the SP areas, adding approximately 0.7 MGD increase in ADWF. Table 3 displays the projected IGA net increases in housing units and sewer flows for all three specific plans.

Table 1. Housing Element Opportunity Sites Alternative Net New Development

Specific Plan	Net New Residential Units – Realistic Development Capacity per Housing Element	Net New Residential Units – Maximum Development Capacity	Net Average Sewer Flow Increase Based on Maximum Development Capacity (MGD) ¹
Media District	0	0	0.00
Downtown-TOD	3,415	6,409	2.48
Golden State	2,651	4,535	1.05
All Redevelopment	6,066	10,944	3.52

¹ Net average sewer flow increase values (as provided by CDD) are the only components of this table included in the hydraulic model analysis. The Net Average Sewer Flow Increase was calculated using the Net New Residential Units – Maximum Development Capacity data. Other fields included to provide context only.



Table 2. Preferred Project Alternative Additional Net New Development

Specific Plan	Net New Residential Units	Net New Non-Residential Development (million sq.ft.)	Net Average Sewer Flow Increase (MGD) ¹
Media District	9,687	3,862,588	3.07
Downtown-TOD	9,944	6,083,657	3.93
Golden State	7,205	3,149,623	2.21
All Redevelopment	26,836	13,095,868	9.21

¹ Net average sewer flow increase values (as provided by CDD) are the only components of this table included in the hydraulic model analysis. Other fields included to provide context only.

Table 3. Increased Growth Alternative Additional Net New Development

Specific Plan	Net New Residential Units	Net New Non-Residential Development (million sqft)	Net Average Sewer Flow Increase (MGD) ¹
Media District	13,715	8,221,481	5.17
Downtown-TOD	16,977	6,501,905	5.34
Golden State	9,476	3,149,623	2.62
Redevelopment Outside of SP Areas ²	3,807	0	0.70
All Redevelopment	43,975	17,873,009	13.83

¹ Net average sewer flow increase values (as provided by CDD) are the only components of this table included in the hydraulic model analysis. Other fields included to provide context only.

² Represents housing units distributed City-wide (in addition to units within specific plans). Included in the Burbank Water Reclamation Plant (BWRP) capacity analysis. Not included in collection system hydraulic model analysis (location of development within collection system area currently undetermined).

1.2 Burbank Sewer System & Facilities

The City owns and operates a single collection system, the service area of which includes nearly all of Burbank. Figure 2 shows the geographical service area and the collection system. The City is located at the northern edge of the Los Angeles County Metropolitan Area. The City of Los Angeles borders Burbank to the north, west and south; the City of Glendale borders Burbank to the east.

The collection system is made up of approximately 229 miles of sanitary sewer pipelines, including three miles of force mains and 226 miles of gravity mains ranging in diameter from 8-inches to 30-inches. The system has two pumping stations (PS), including the Mariposa PS and the Beachwood PS. The Mariposa PS conveys flow to the Beachwood PS, which then conveys sewage to the Burbank Water Reclamation Plant (BWRP) for treatment. Table 4 provides a summary of the collection system assets.



Table 4. Summary of Collection System Assets

Items	Value
Population (count)	107,000
Total Mains (miles)	229
Gravity Mains (miles)	226
Force Mains (miles)	3
Pump Stations	2
Siphons (count of locations)	3
Wastewater Conveyed (MGD)	8.5
Treatment Facility	Burbank Water Reclamation Plant

The City has contractually authorized flow into the City of Los Angeles’ North Outfall Sewer (LA NOS), which is a pipeline passing through the southern edge of the City. Burbank PW can divert flows to the LA NOS at locations near the pumping stations and at the BWRP. Additionally, a portion of the southern Burbank service area, including the area south of the 134 Freeway (134 FWY), gravity flows directly to the LA NOS.

1.3 Collection System Hydraulic Model

PW maintains a computational hydraulic model of the sewer collection system. The model represents the City’s collection system network, including gravity mains, force mains, maintenance holes, pumping stations, the BWRP, and system connections to the LA NOS. The model includes customer flow loading, represented by ADWF and PDWF, and a rainfall derived inflow and infiltration (RDII) component for modeling peak wet weather flow (PWWF) conditions.

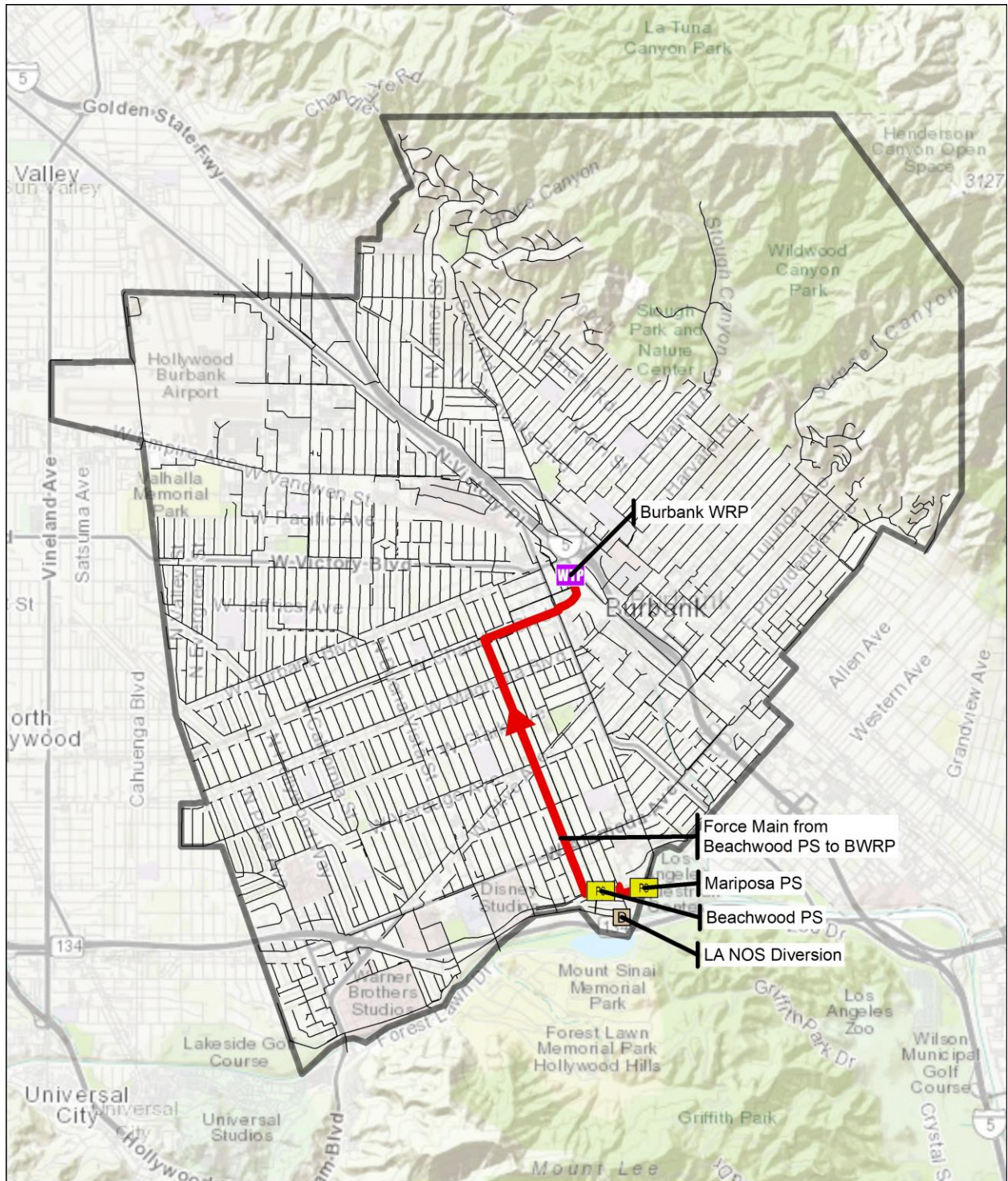
The model is periodically updated by PW staff when new developments or system improvements occur. The model was last comprehensively updated as part of the 2006 Sanitary Sewer Management Plan (SSMP) Update, which included a dry weather flow and RDII update based on a 2003 flow monitoring study.

Currently, the hydraulic model is being updated as part of the System Evaluation and Capacity Assurance Plan (SECAP) portion of the ongoing 2025-26 SSMP Update. As part of this update, flow monitoring studies were conducted in 2023 and 2024 to collect system data, and dry weather flows in the model were revised based on current system conditions. Additionally, wet weather scenarios were updated by adjusting modeled RDII to represent a 10-year, 24-hour rainfall event.

The hydraulic model is currently maintained in the collection system modeling software package InfoSewer GIS Professional Suite 8.0, Unlimited Links version. InfoSewer runs in Esri ArcGIS Desktop (10.8.2) and is distributed by Innovyze, an Autodesk company.



Figure 2. Burbank Sewer Collection System and Facilities



Sewer Collection System

- Gravity Mains
- ➔ Force Mains
- ▭ Service Area

Sewer Facilities

- PS Sewer Pump Station
- WTP Water Reclamation Plant
- D System Discharge





2 Sewer Capacity Analysis

As part of the City's CEQA environmental analysis, a comprehensive assessment of the effects from additional sewer flow loading from the specific plans, including the MDSP on the collection system and treatment plant capacity were evaluated. The analysis considered existing system flows and planned near-term flows from the other specific plan areas.

2.1 Collection System Capacity Analysis

The focus of this analysis is on the effects of projected MDSP flows on the City's sewer collection system, which were evaluated using the City's recently updated hydraulic model.

2.1.1 Model Update with Specific Plan Area Flows

The City's collection system model, recently updated based on flow monitoring data collected in 2023 and 2024, was updated to include projected MDSP flows. Planned near-term flows from the Downtown-TOD SP and the GSSP were included for a comprehensive analysis of collection system capacity.

Specific plan flows were added to the model based on parcel level net ADWF and PDWF information provided by the CDD and their consultants. Flows were loaded at modeled maintenance hole locations based on flow allocation information provided. Scenarios were created for the PPA and the IGA.

To identify gravity mains in the collection system that could be affected by increased flow from the specific plan areas, the modeling software was used to trace downstream flow paths from each maintenance hole based on updated flow loading. Gravity main flow paths for each specific plan area, including the MDSP, are shown in Figure 3.

Sanitary sewer flows from the MDSP area, which is located south of the 134 FWY, are generally conveyed by gravity to the LA NOS connection shown in Figure 3. The MDSP area north of the 134 FWY gravity flows to the Beachwood PS which then conveys the flows to the BWRP for treatment.

2.1.2 Collection System Evaluation Criteria

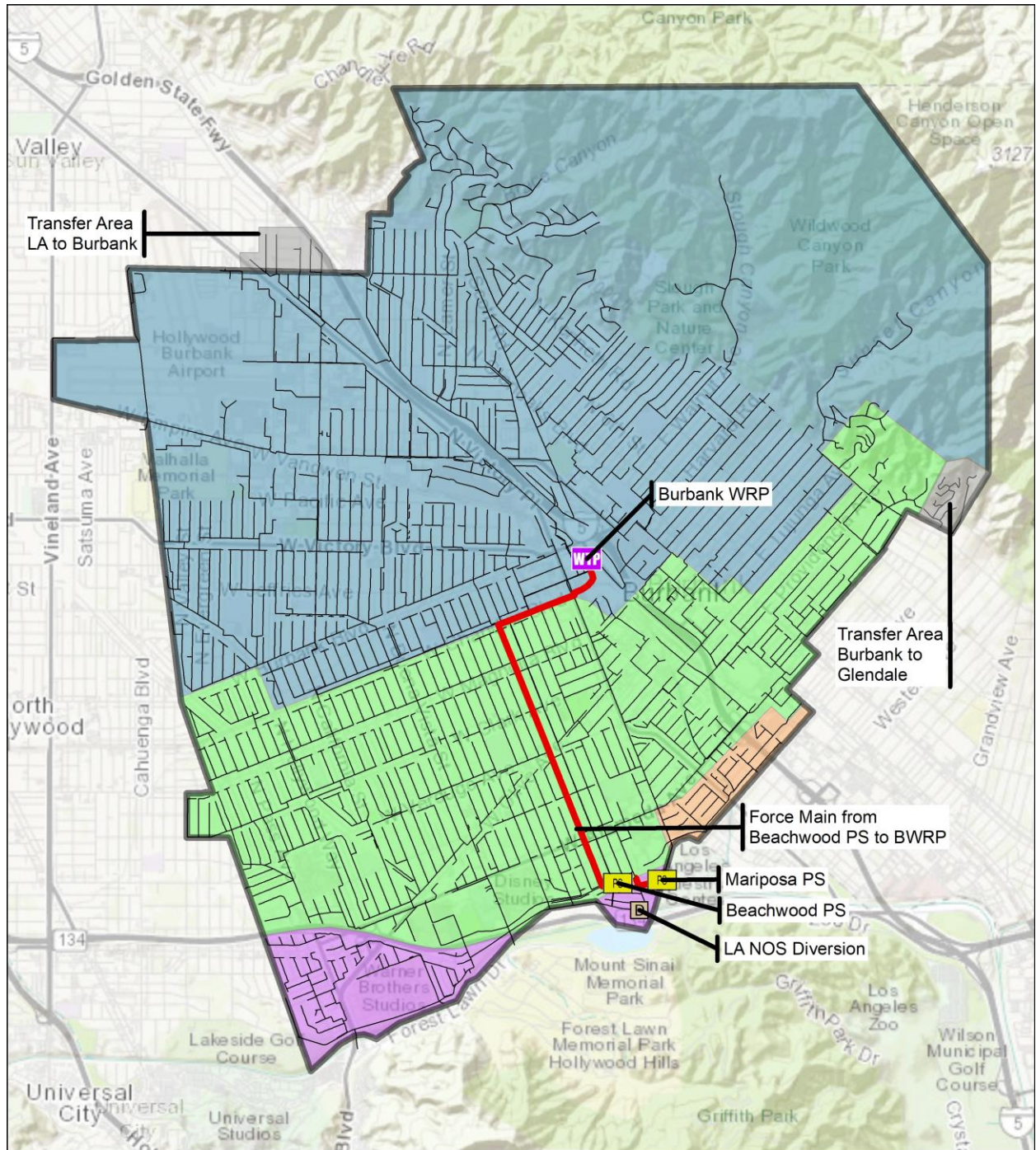
The City's collection system hydraulic model, updated with specific plan flows for the PPA and the IGA, was used to estimate system capacity based on the City's hydraulic evaluation criteria for PWWF conditions.

PWWF criteria include collection system RDII response to a 10-year, 24-hour rainfall event, which is equivalent to 5.21 inches of precipitation falling in a 24-hour period at Hollywood-Burbank Airport [National Oceanographic and Atmospheric Administration (NOAA), Atlas 14 Point Precipitation Frequency Estimates]. To simulate PWWF, the wet weather RDII response is modeled as overlapping the PWDF customer loading to represent peak collection system flow rates.

Gravity main evaluation criteria were based on sewer depth to pipe diameter ratios (d/D). Any gravity mains in the system with d/D exceeding 0.75 in modeled PWWF conditions were considered under capacity.



Figure 3. Specific Plan Area Sewer Collection System Flow Paths



Tributary Areas

- BWRP
- Beachwood PS
- Mariposa PS
- Transfer Areas
- LA NOS (Flows to Hyperion Water Reclamation Plant)

Sewer Collection System

- Gravity Mains
- Force Mains
- Service Area

Sewer Facilities

- PS Sewer Pump Station
- WTP Water Reclamation Plant
- System Discharge



0.5
Miles



Pumping station capacity was evaluated by comparing estimated existing pumping station capacity with the modeled ADWF arriving at the facility. The capacities of the Mariposa PS and the Beachwood PS were estimated in the existing SECAP at 1.3 MGD and 7.2 MGD respectively, and will be evaluated further as part of the ongoing SECAP Update. Pumping station force mains were assumed capable of conveying the required capacity of their associated pumping station.

2.1.3 Hydraulic Model Analysis Results

The hydraulic model results indicate several collection system deficiencies resulting from specific plan area flow loading, including deficiencies related to gravity mains and pumping stations. Treatment plant capacity is addressed in Section 2.2.

Gravity Main Deficiencies

Based on the evaluation criteria, model results indicate gravity main deficiencies for both the PPA and the IGA flow loading scenarios. Table 5 shows the number of miles of gravity mains that exceed the 0.75 d/D PWWF criteria and therefore need to be upsized to accommodate specific plan flows.

Gravity main improvements for near-term PPA flow loading scenario are shown in Figure 4. Improvements for the near-term IGA scenario are shown in Figure 6. Improvements were based on PWWF conditions assuming housing opportunity site loading projections for specific plan areas only. The model analysis did not include development outside of specific plan areas.

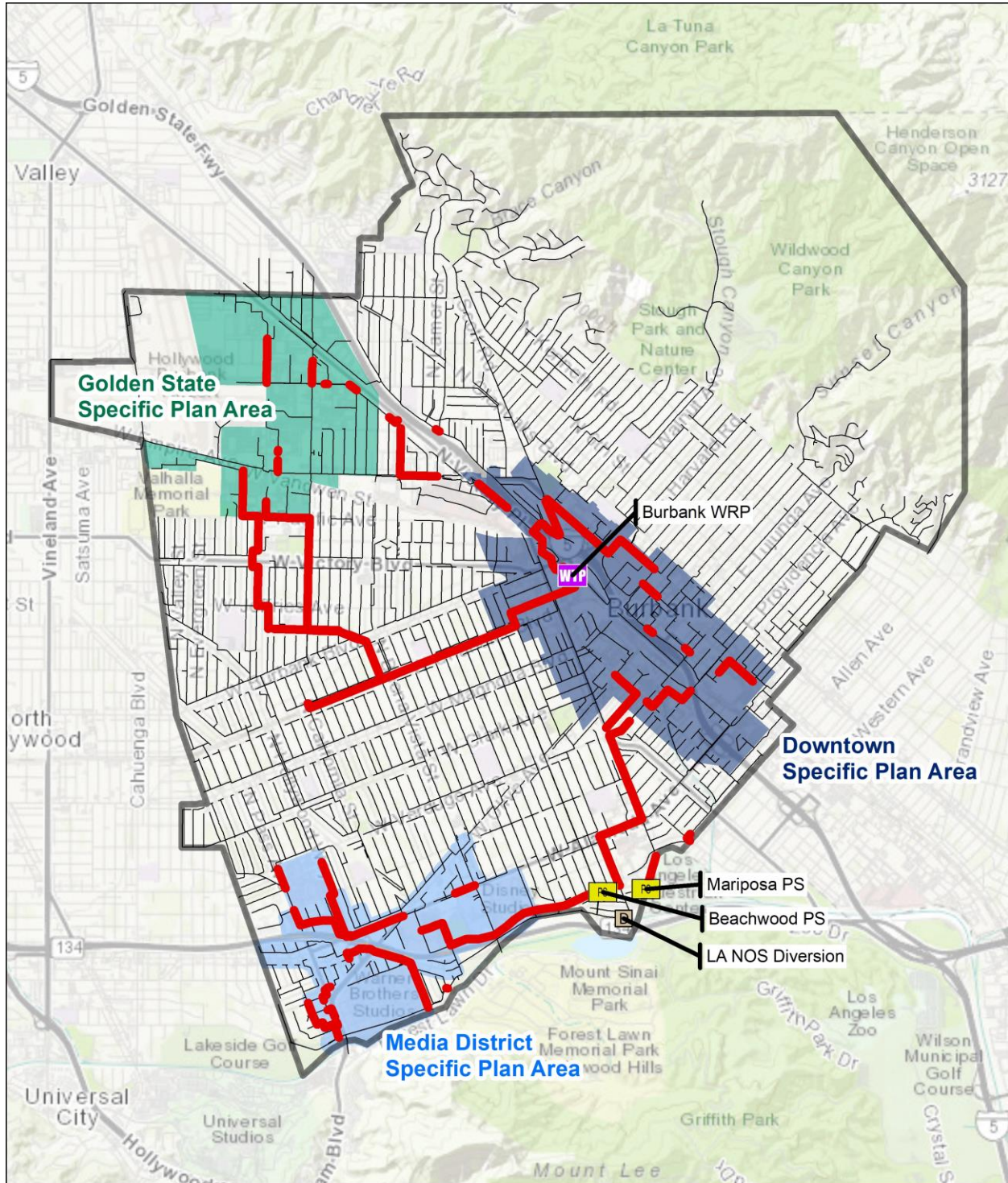
Similarly, MDSP improvements are shown in Figure 5. MDSP area flows result in approximately 3.8 miles of gravity main improvements for the PPA scenario and 4.5 miles of improvements for the IGA scenario. System-wide gravity main improvements are projected at approximately 14 miles and 16 miles for the PPA and IGA scenarios, respectively. (Note: The required gravity main improvements for the Downtown-TOD SP and the GSSP, which are not discussed in this document are included as Attachment 1).

Table 5. Miles of Gravity Mains Requiring Upsizing per Specific Plan

Specific Plan	Gravity Main Improvements (miles)	
	Preferred Project Alternative	Increased Growth Alternative
Media District	3.8	4.5
Downtown-TOD	3.5	4.0
Golden State	6.6	7.06
Overlapping SP Areas	0.4	0.4
All Specific Plan Areas	14.3	16.0



Figure 4. Preferred Project Alternative Gravity Main Improvements



Gravity Main Improvements

— Preferred Project+ Increased Growth

Sewer Facilities

PS Sewer Pump Station

WTP Water Reclamation Plant

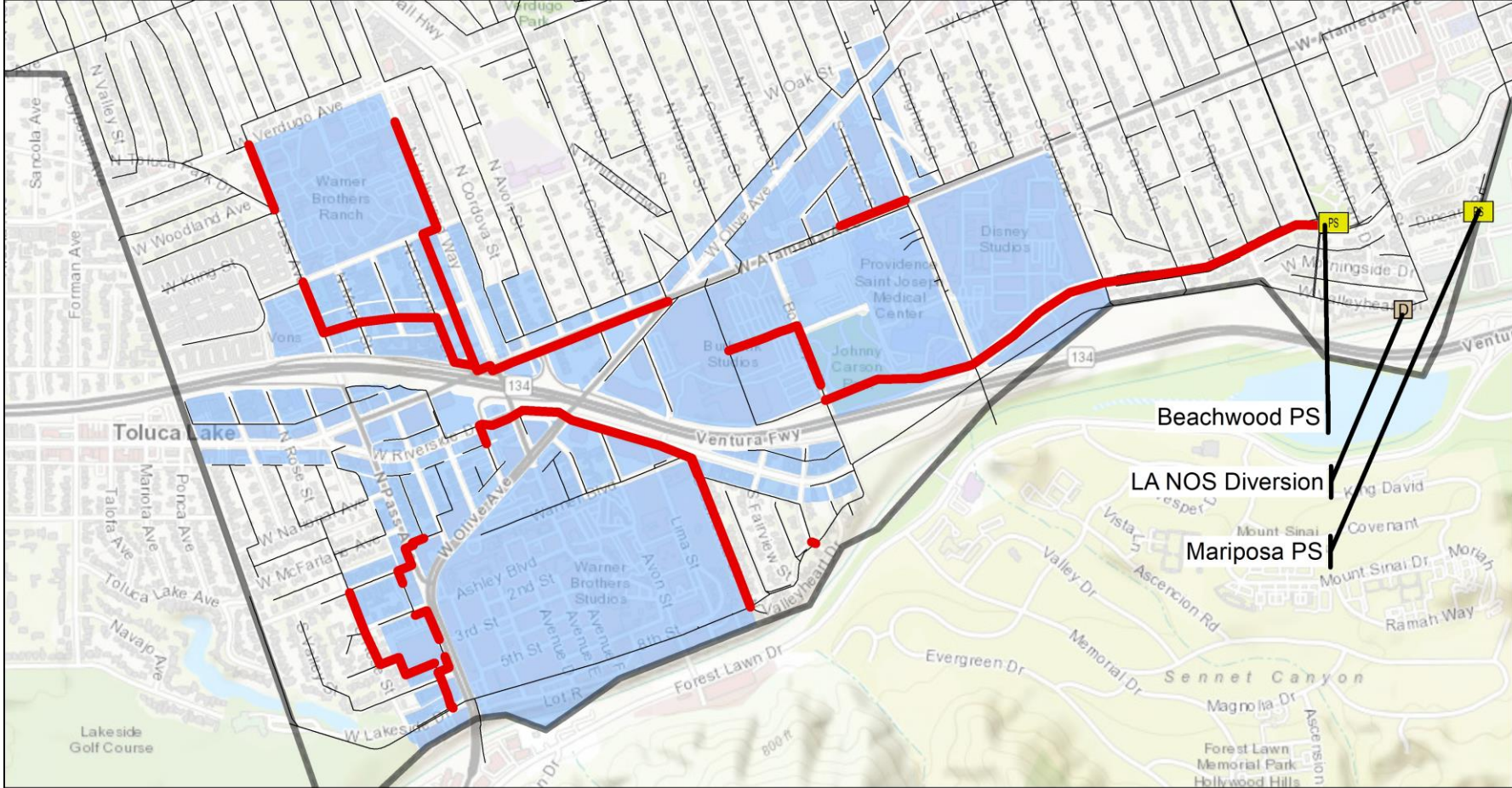
D System Outflow



0.45
Miles



Figure 5. Media District Specific Plan-Related Gravity Main Improvements for Preferred Project Alternative



- | | | |
|----------------------------------|-------------------------|----------------------------|
| Gravity Main Improvements | Sewer Facilities | Specific Plan Areas |
| Preferred Project Alternative | Sewer Pump Station | Media District |
| | Water Reclamation Plant | |
| | System Outflow | |



0.5
Miles

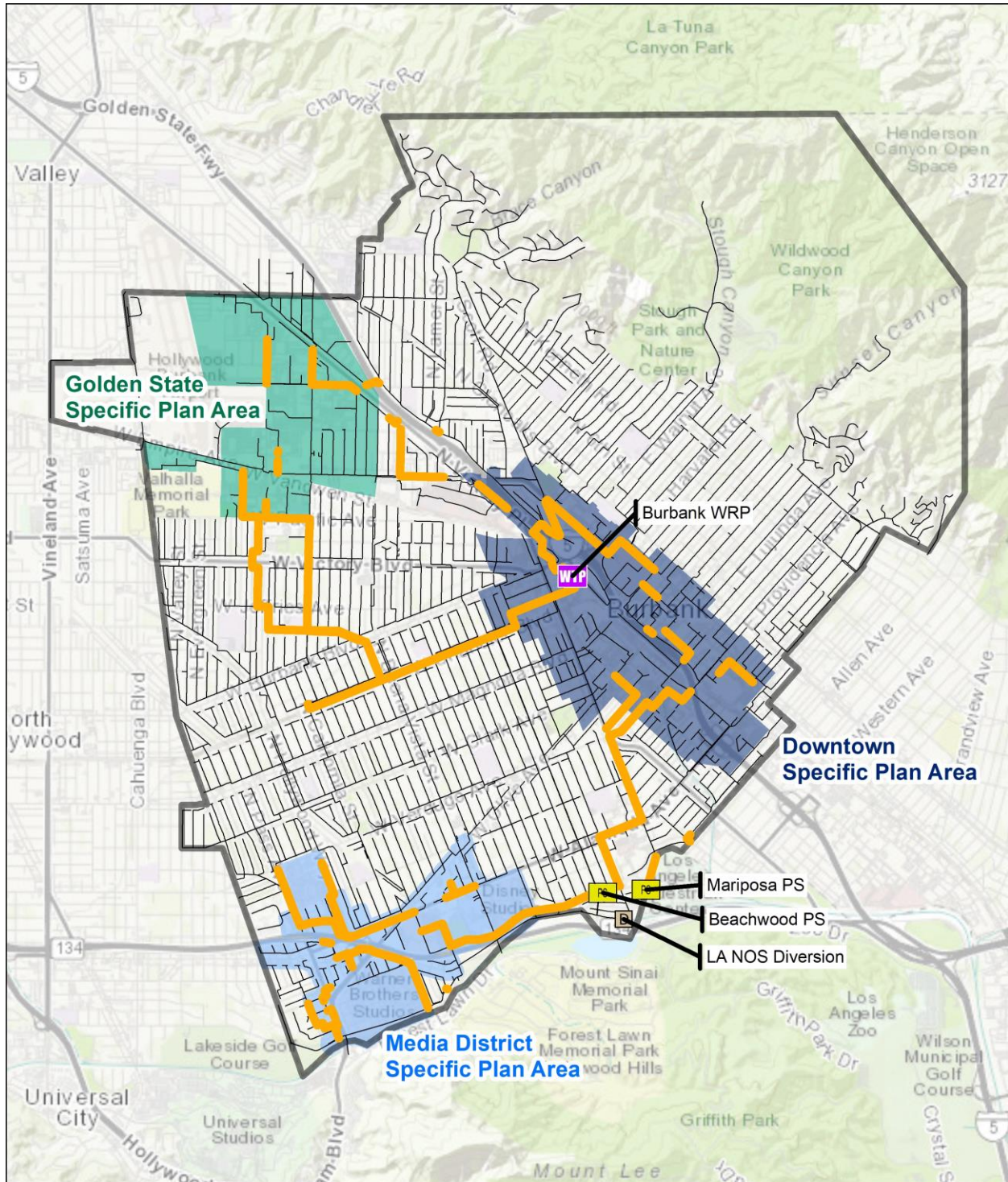


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Figure 6. Increased Growth Alternative Gravity Main Improvements



Gravity Main Improvements

— Increased Growth Alternative

Sewer Facilities

- PS Sewer Pump Station
- WRP Water Reclamation Plant
- D System Outflow



0.5

Miles

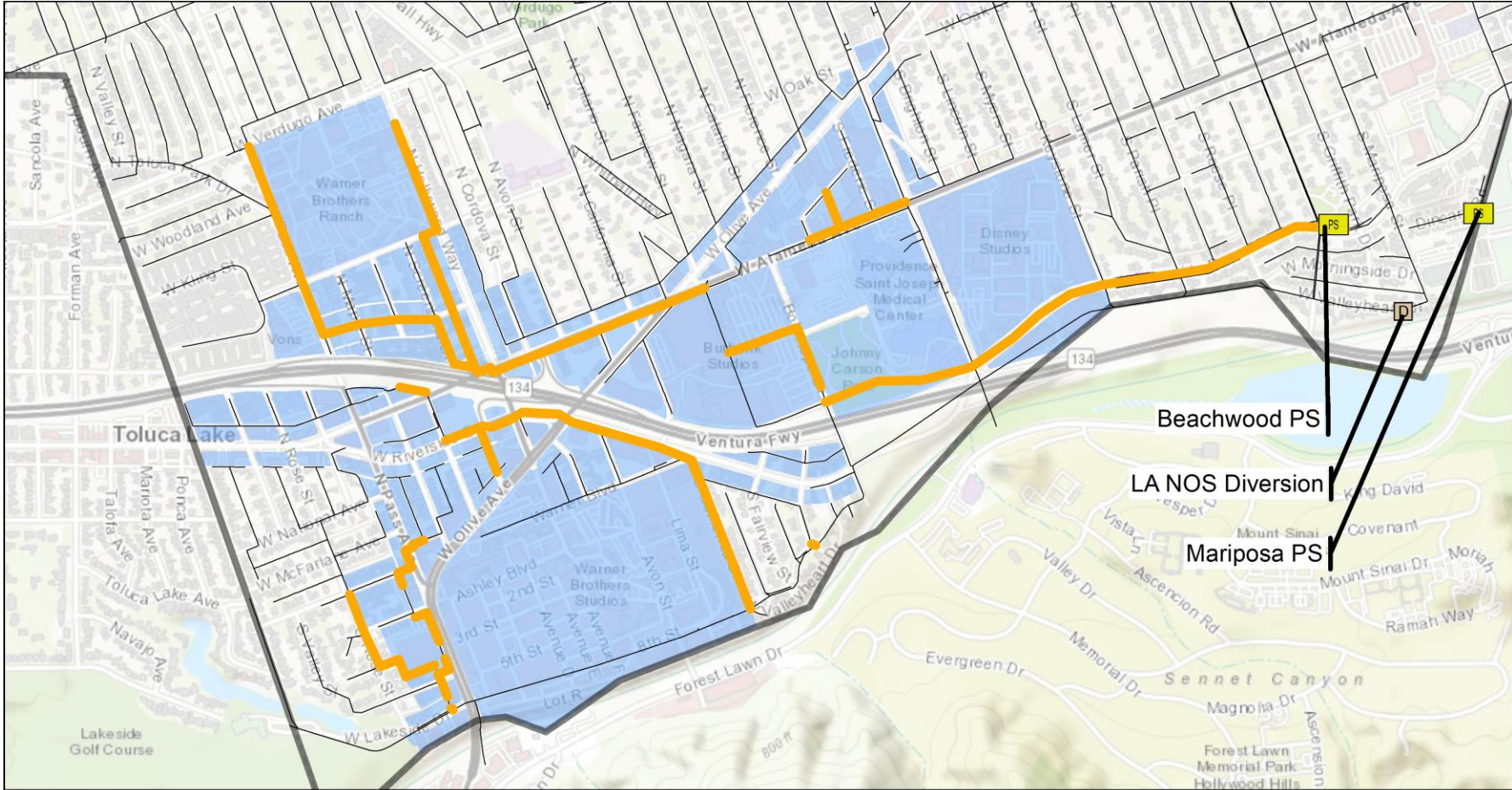


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Figure 7. Media District Specific Plan-Related Gravity Main Improvements for Increased Growth Alternative



- | | | |
|----------------------------------|-------------------------|----------------------------|
| Gravity Main Improvements | Sewer Facilities | Specific Plan Areas |
| Increased Growth Alternative | Sewer Pump Station | Media District |
| | Water Reclamation Plant | |
| | System Outflow | |



0.5
Miles



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Pumping Station Deficiencies

Model results indicate increased flow loading to the Beachwood PS related to projected MDSP (and the other specific plans) development for the PPA and IGA scenarios. The Beachwood PS capacity was previously estimated in the existing SECAP at approximately 7.2 MGD, and will be evaluated further as part of the ongoing SECAP Update. The model results indicate projected Beachwood PS inflow rates of approximately 10.8 MGD for the PPA scenario and 11.3 MGD for the IGA scenario, respectively under ADWF conditions. In addition, the PWWF would be 26 MGD and 28 MGD respectively, which includes PDWF and RDII. Conveying the projected modeled peak flows through the pumping station would require significant upgrades and peak flows could not be accommodated at the current BWRP.

The parcels within the three specific plans (MDSP, GSSP, and Downtown-TOD SP) tributary to the Mariposa PS are not anticipated to be redeveloped as part of the PPA and IGA scenarios. Therefore, initial model results for the PPA and the IGA do not demonstrate a significant increase in sewer loading conveyed to the Mariposa PS. However, this will be further evaluated as part of the City-wide SECAP Update, which will also include potential effects of the RNSP and may result in impacts on the Mariposa PS.

Table 6. Pumping Station Capacity & Specific Plan Alternative Flows (ADWF)

Pumping Station	Pumping Station Flows (MGD)		
	Estimated Capacity	Preferred Project Alternative	Increased Growth Alternative
Mariposa	1.3	1.2	1.2
Beachwood	7.2	10.8	11.3

2.2 BWRP Capacity Analysis

The BWRP currently has limited remaining capacity with the ability to treat sewer inflows at an average rate of approximately 8.5 MGD, which is due to the impacts of water conservation resulting in more concentrated influent at the plant. Additional capital improvement projects will be needed to increase capacity to handle the majority of future flows from the proposed housing development under the HEA, PPA, and IGA. During certain periods when the capacity enhancements are being constructed at the plant, it may be necessary to divert flow to the LA NOS. However, long-term diversion to the LA NOS is not feasible due to regulatory and contractual constraints, as well as the increased diversion cost, which would include both sewer facilities charges and annual charges and is estimated to be approximately \$60 million over ten years.

Consistent with identified mitigation measures to address sewer infrastructure capacity needs noted in the 2021-2029 Housing Element Environmental Impact Report's Mitigation Monitoring and Reporting Program (EIR MMRP), future improvements to increase the treatment capacity of the plant would require upgrades to the headworks, the addition of new primary clarifiers, modifications to the secondary treatment process, and expansion of the equalization basins (beyond the near-term 10-year planning horizon). Options for improving the secondary treatment processes could include either conversion to a membrane bioreactor or expansion of the plant's conventional secondary treatment facilities. The plant's tertiary sand filters and chlorine contact tanks have relatively more capacity than



the processes listed above and are currently not the limiting processes in the treatment train. Treatment plant expansion will likely require the City to acquire new land to build some of these improvements due to limited space in the current BWRP property. Burbank PW is currently working with a consultant to advise on how to phase capacity upgrades. This effort has resulted in preliminary plans for treatment plant expansion over approximately ten years to accommodate HEA inflows.

Additional flows from the PPA and IGA scenarios in the specific plan areas, including the MDSP, would result in inflows far exceeding current BWRP capacity. The PPA scenario is expected to result in approximately 9 MGD of net additional ADWF loading to the BWRP, while the IGA scenario is expected to result in approximately 14 MGD of additional ADWF to the plant. Required treatment capacity to accommodate these new flows, while also processing existing plant inflows, would far exceed the current BWRP capacity of 8.5 MGD.

Due to limited space at the plant, and the inter-reliability of the treatment train processes, upgrades to expand BWRP capacity to accommodate any additional inflows would require significant facility improvements beyond those already planned for under the HEA. Incremental or piecemeal improvements to expand plant capacity can come at a significantly high cost, create operational challenges, and would be incompatible with long-term facility planning. Therefore, practical and cost-effective expansion of capacity at the BWRP would require substantial facility improvements addressing all near-term flow projections for specific plan areas tributary to the plant.

With this approach in mind, improvements required for the BWRP to handle the additional flow loading from the specific plan areas for the HEA scenario as noted in the Housing Element EIR MMRP would require upgrades to the headworks, the addition of new primary clarifiers, and modifications to the secondary treatment process (aeration basins and secondary clarifiers), with an estimated cost of approximately 115 million dollars.

Expanding the BWRP capacity to handle flows from the PPA and IGA scenarios would require significantly larger improvements beyond those that are needed for the HEA scenario. To expand the existing BWRP capacity to accommodate the estimated average sewer flow for the PPA scenario of approximately 17.5 MGD would require additional plant upgrades to the headworks, primary clarifiers, equalization basins, aeration basins/blowers, secondary clarifiers, filters, and chemical treatment (chlorine contact tanks). In addition, larger upgrades to the same treatment processes/equipment would be required to expand the plant capacity to accommodate the estimated average sewer flow for the IGA scenario of approximately 22.5 MGD.

Furthermore, improvements for both the PPA and IGA would require the acquisition of additional property to expand the footprint of the existing BWRP, including approximately 48,000 square feet for the PPA scenario, and approximately 98,000 square feet for the IGA scenario.

Finally, the preliminary cost estimates to expand the plant to treat the aforementioned additional flows, including acquiring the required additional property, are approximately 430 million dollars for the PPA scenario and approximately 775 million dollars for the IGA scenario. These larger improvements for the PPA and IGA would be infeasible within a 10-year period; it would require approximately 22 years to implement the PPA-related plant improvements and approximately 32 years to implement the IGA-related plant improvements.



3 Conclusions

The sewer capacity analysis indicates that the specific plan area flows, projected by the PPA and the IGA result in significant collection system and treatment plant deficiencies that would be infeasible to address within a near-term, 10-year planning horizon.

The capacity at the BWRP is limited, and the plant is considered to be close to capacity relative to current inflows. Due to the inter-related nature of the treatment train processes, improvements to increase plant capacity require large-scale upgrades to several treatment train components. Due to limited space at the plant, incremental plant improvements proportional to flows from individual parcels or separate specific plan areas is not possible. To be economical and serve the best interests of the City, treatment plant improvements should be made with the goal of providing capacity for all projected near-term flows. Beyond the current envisioned capital improvements to meet the projected flows from the HEA, the BWRP improvements required to accommodate projected specific plan flows for the PPA and the IGA scenarios would be major and infeasible to implement over the near-term 10-year period.

Additionally, pumping station upgrades would need to coincide with BWRP capacity improvements to maintain continuity in the sewer conveyance and treatment process. Like treatment plant improvements, pumping station upgrades must be made on a relatively large scale to justify the capital and operational costs of additional capacity. The Beachwood PS conveys flows from the MDSP and the Downtown-TOD SP areas to the BWRP, which would experience a significant increase in flows for both the PPA and the IGA scenarios. The near-term Beachwood PS improvements, in addition to large-scale improvements at the BWRP, would be infeasible to implement over a near-term 10-year period.

Furthermore, gravity main improvements required to convey specific plan area flows would be extensive and are projected at about 14 miles for the PPA scenario and 16 miles for the IGA scenario. Improvements directly related to the MDSP are estimated at about 3.8 miles and 4.5 miles for the PPA and IGA respectively, but to assess feasibility, the near-term City-wide flows must be considered. Furthermore, the improvements are associated with large-diameter trunk mains, which would require the temporary diversion of high flows, resulting in significant traffic disruption on major roads and higher improvement project costs. The social impact of extensive construction, plus the concurrent costs of BWRP and Beachwood PS upgrades, and the temporary operational challenges, would make achieving the required gravity main upgrades over a near-term 10-year period infeasible.



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