

Appendix D:
Infrastructure Report



DRAFT REPORT FOR THE
STOCKTON BOULEVARD PLAN
UTILITY INFRASTRUCTURE

City Agreement #PRC000839

Lead Agency:

City of Sacramento
Community Development Department
Planning Division
300 Richards Boulevard, 3rd Floor
Sacramento, California 95811

Lead Agency Contact:

Elizabeth Boyd
916.808.3540

Project Consultants:

Ascent Environmental, Inc.
455 Capitol Mall, Suite 300
Sacramento, CA 95814

NV5, Inc.
2525 Natomas Park Drive, Suite 300
Sacramento, CA 95833

Project Consultant Contact:

Ascent
Allen Folks
Principal-in-Charge
916.732.3320

NV5
Jay F. Radke
Project Manager
916.641.9139

April 2022



TABLE OF CONTENTS

INTRODUCTION2
WASTEWATER & STORM DRAINAGE4
WATER SUPPLY 21
NATURAL GAS34
ELECTRICAL..... 45
TELECOMMUNICATIONS 55
PROBABLE ESTIMATE OF CONSTRUCTION COSTS..... 56

LIST OF EXHIBITS

Figure 1: Stockton Boulevard Plan Key Map3
Figures 2A – 2K: Wastewater & Storm Drainage 10
Figures 3A – 3I: Water Mains 25
Figures 4A – 4I: Natural Gas36
Figures 5A – 5I: Electrical 46

APPENDIX

APPENDIX A: LAND USE SUMMARY 58



INTRODUCTION

This report is being prepared to support the Stockton Boulevard Plan, a specific plan and strategic neighborhood action plan (SNAP) aimed at transforming Stockton Blvd into a thriving corridor that expands opportunities for, and supports the cultures of, existing residents and small businesses while accommodating growth.

The Stockton Boulevard Plan (SBP) area encompasses approximately 458 acres of commercially zoned property along a 4.8 mile stretch of Stockton Boulevard from Alhambra Boulevard to the southern City boundary. The preliminary Stockton Boulevard SNAP Area generally includes neighborhoods within one mile of the Stockton Boulevard corridor, south of U.S. Highway 50, east of U.S. Highway 99, and north of 65th Avenue, and the City boundary. This Existing Utility Infrastructure report for the Stockton Boulevard Plan is limited to the immediate area of the corridor.

For purpose of planning the SBP area has been divided into five districts along the corridor. On the northerly end of the SBP is the Entry to Midtown (EM) district. Next along the corridor is the Medical Center Campus (MCC) district followed by the Traditional Neighborhoods Commercial Storefronts (TNCS) district, then the Community Commercial Center (CCC) district, and lastly the Little Saigon (LS) district. There are six Pipeline Projects located within the SBP area that currently have submitted a development entitlement application with the City Planning Department. There are an additional 33 proposed Opportunity Sites that have been identified as being likely to redevelop. Each of these total 39 sites are identified with a specific identification number by district.

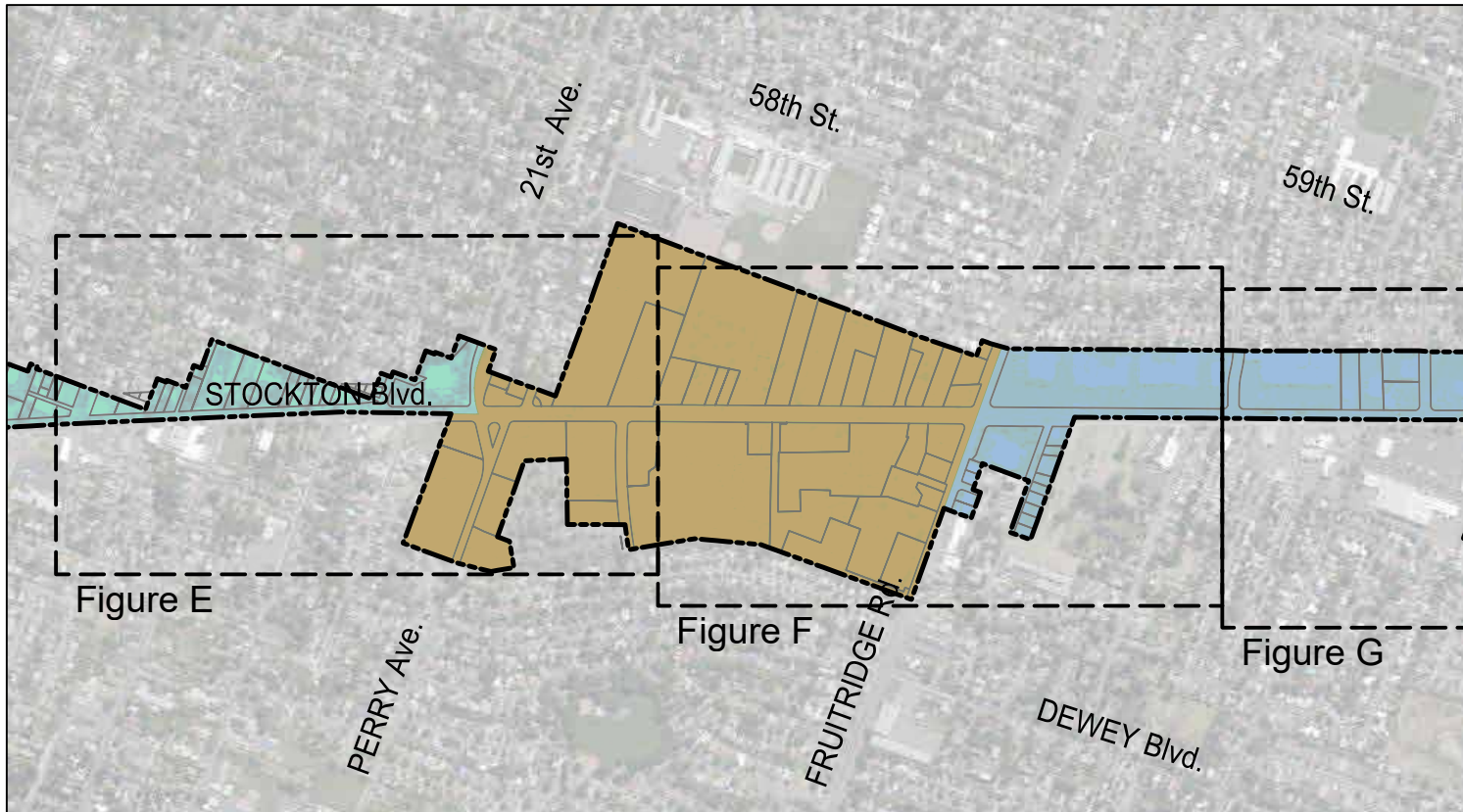
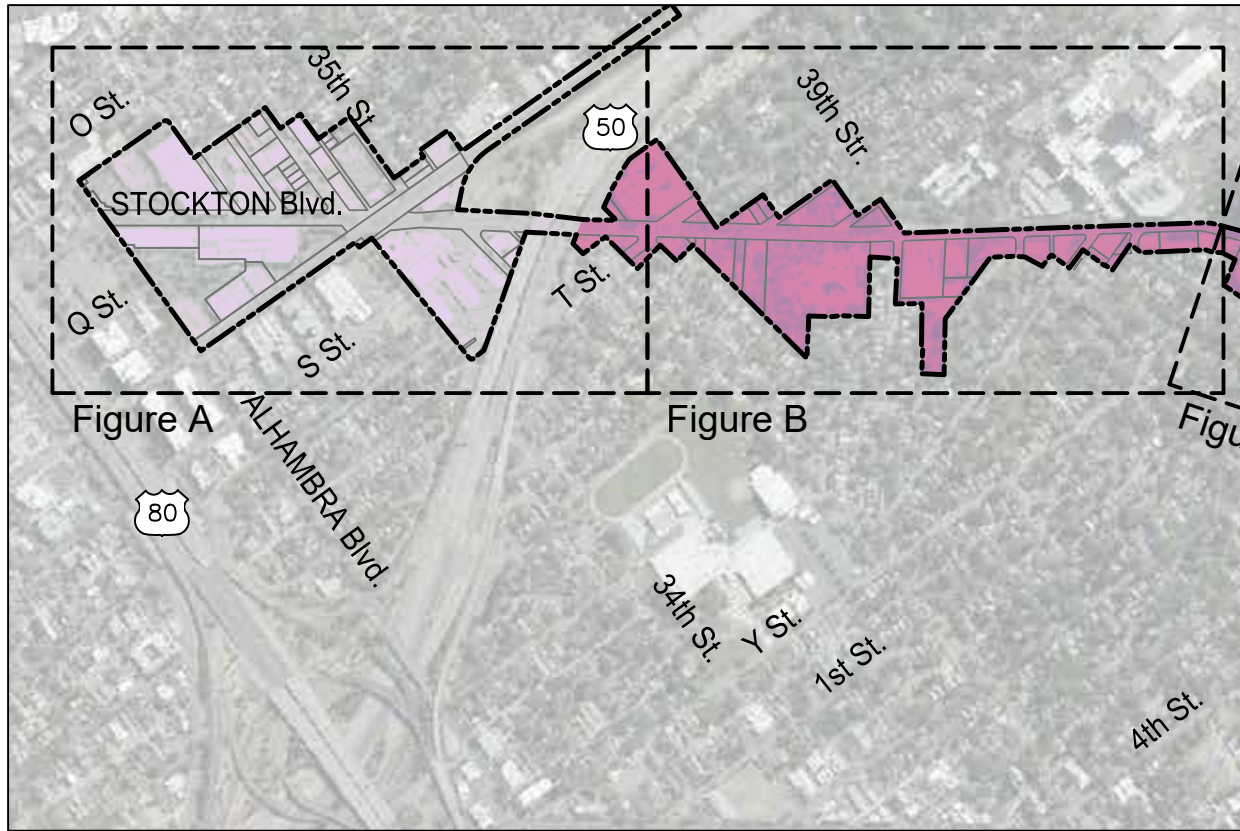
The redevelopment of the existing land uses for the Pipeline Projects and Opportunity Sites is anticipated to bring an additional 4,077 residential dwelling units (du) ranging in density between 18.5 to 95 dwelling units per acre (du/ac) together with 372,115 square feet (sf) of commercial uses to the SBP area. A complete land use and development assumption summary together with a comparison of the existing and planned potential land uses contained in Appendix A.

This Existing Utility Infrastructure report is the first step in understanding any known infrastructure deficiencies in the plan area. This analysis is a preliminary engineering, planning level effort that will ultimately aid the City and developers in creating a development fee structure to share the costs of improvements, attracting development funding assistance, and provide potential developers with information to evaluate their probable infrastructure costs.

The area is served by the City of Sacramento for sanitary sewer and storm drainage together with the Sacramento Area Sewer District (SASD) for sanitary sewer. The northerly portion of the SBP area north of 14th Avenue is served by the City's Combined Sewer System (CSS) for both sanitary sewer and stormwater collection. This legacy system generally works well except during heavy rainfall storm events. The southerly portion of the SBP area south of 14th Avenue is served by the City for storm drainage and the SASD for sanitary sewer.

The area is also served by the City of Sacramento for water supply and distribution. The City has sufficient water supply for development consistent with the growth assumptions envisioned by the City's General Plan. While the existing water system in the Stockton Boulevard Plan is generally adequate, strategic upgrades may be required to serve proposed growth. Future development will most likely be required to upgrade the existing water main grid to provide adequate water for both domestic and fire suppression needs.

The area is served by the Sacramento Municipal Utility District (SMUD) for electrical, PG&E for natural gas, and a combination of AT&T & Comcast for telecommunications services. The majority of the SBP area is served with overhead utility lines. These lines are expected to remain in place.



April 2022

**Stockton Boulevard Plan
 Infrastructure Analysis
 Figure 1 KEY MAP**

LEGEND

- SBP Boundary
- Entry to Midtown (EM)
- Medical Center Campus (MCC)
- Trac
- Com
- Little



WASTEWATER & STORM DRAINAGE

General Information

The Stockton Boulevard Plan (SBP) is served by the Combined Sewer System (CSS) in the northerly half of the area northerly of 14th Avenue. The southerly half of the SBP area is served by collection systems conveying storm drainage and sanitary sewer flows separately.

The CSS is the legacy storm drain and sanitary sewer system that conveys both stormwater and sanitary sewer flows. It encompasses approximately 7,500 acres of the Downtown, East Sacramento, and Land Park areas. Another 3,700 acres including the River Park, California State University, and eastern Sacramento areas utilize the system for sanitary sewer only. The City discontinued constructing combined sewer and storm systems in 1946, although continued connections to the existing CSS were allowed.

There are several small drainage basins in the separated southerly half of the SBP area including Basins 5, 8, 19, 96, 147, G258, and G263. These basins generally discharge through pumped system directly or indirectly into Morrison Creek which flows east to west through the SBP area just south of 47th Avenue. Morrison Creek is an urbanized drainage channel that is an important tributary of the Sacramento River and part of the Sacramento flood control system. Lake House Acres Creek is a tributary to Morrison Creek that is located at the southerly boundary of the City Limits and the SBP boundary. To the east of Stockton Boulevard the creek is an urbanized channel while to the west it is a piped drainage system in a large 120" diameter pipeline.

The southerly half of the SBP area is served by the Sacramento Area Sewer District (SASD). The SASD provides service to 1.2 million people in the Sacramento region including the unincorporated areas of Sacramento County, the cities of Citrus Heights, Rancho Cordova, and Elk Grove; portions of the cities of Folsom and Sacramento, and the communities of Courtland, and Walnut Grove.

The implementation of the sewer and storm drainage improvements necessary to serve a specific project site is typically the responsibility of future developers. City policy is to require the developer to construct any infrastructure necessary to support the project in question without compromising service to the project area. A project specific sanitary sewer and storm drainage studies will be required for any future development. If the existing sanitary sewer and/or storm drainage systems are sufficient to meet the project needs and are not deficient and meet current City standards, no infrastructure upgrades are necessary. If the existing infrastructure is found to be insufficient or deficient or does not meet current City standards for the project's needs, the developer is required to construct necessary infrastructure improvements.

Combined Sewer System

The CSS is a collection system of pipes that convey both sanitary sewage and stormwater in a single pipeline. The piping system is greatly oversized for the sanitary sewer component, but inadequate for the City's current storm drainage design standard of 10-year capacity.

In 2014, the Combined Sewer System Improvement Plan (CSSIP) Update Report was completed which identified several storage improvement projects that would help alleviate outflows and flooding in the CSS area during a 10-year storm event and prevent structure flooding (as well as outflows) during the 100-year event. Outflows happen when surcharges to the CSS flow onto the streets. Outflows can occur during a heavy rain event, such as a 10-year storm event, when the collection system has reached maximum capacity.



On August 14, 2020, the California Regional Water Quality Control Board, Central Valley Region (Regional Board) issued the City’s Waste Discharge Requirements for the City’s Combined Wastewater Collection and Treatment System (Order R5-2020-0039) (Order). Among other items, the Order requires the City to update its Long-Term Control Program (LTCP) and continue implementation of the updated CSSIP. The LTCP has identified the most effective storage improvement projects from the CSSIP. The LTCP uses the adaptive management strategy and starts with implementation of the top 20 percent of prioritized projects from the CSSIP.

The Order also states that the City shall continue to implement the LTCP to manage the flow capacity of the CSS to minimize Combined Sewer Overflows (CSOs) and CSS outflows as new development and redevelopment projects are implemented throughout the CSS service area that have the potential to increase combined sewer system flows. The City shall implement measures to the maximum extent practicable to ensure that new flows from growth within the CSS service area do not result in an increase in CSOs or CSS outflows or reduce the overall percentage of flow routed to the Sacramento Regional Wastewater Treatment Plant. CSOs are untreated and treated flows that discharge to the Sacramento River via Sump 2, Sump 1, Combined Wastewater Treatment Plant (CWTP), or Pioneer Reservoir Treatment Plant (Pioneer).

Currently all flows into the CSS are conveyed westerly to two pumping stations (Sump 2 and 1/1A) located on the Sacramento River. For secondary treatment and disinfection of the flow, the City has a Memorandum of Understanding with the Sacramento Regional Wastewater Treatment Plant (SRWTP) to convey 60 million gallons per day (mgd). This treatment capacity is currently sufficient for dry weather flows and small storm events.

During heavy storms where the capacity is exceeded, the CWTP at South Land Park Drive and 35th Avenue is utilized to provide primary treatment of an additional 130 mgd. Excess flows from SRWTP and CWTP are diverted to Pioneer which can provide primary treatment of 250 mgd and flow capacity of up to 500 mgd depending on the river stage. When all three treatment facilities (SRWTP, CWTP, and Pioneer) have exceeded their treatment capacity of 440 mgd, excess flows may be directly discharged into the Sacramento River without treatment via Sump 2. Sump 1 also has the ability to discharge flows directly to the river.

The City adopted the Combined Sewer Development Fee (City Code 13.08.490) which is an impact mitigation fee that requires mitigation of any increase in wastewater flows over the present level. If a proposed development project is determined to have an impact on the CSS, an acceptable mitigation plan is required by the City. The current CSS Development Fee (effective 7/1/2021) is \$151.36 per Equivalent Single-Family Dwelling (ESD) for up to 25 ESD and \$3,777.20 per ESD for more than 25 ESDs. The payment of the fees mitigates the project’s sewer impacts.

To address the stormwater runoff impacts from a proposed Project within the CSS, the City will consider the following approaches:

1. Pay the proposed CSS drainage impact fee. Contact DOU for current fees. An agreement establishing Project fee shall be required prior to adoption of the impact fee,
2. Directly mitigate the impacts utilizing low impact development BMPs per section 9.4.12,
3. Directly mitigate the impacts via public and/or private storage and other measures in accordance with Section 11 and the Onsite Design Manual. The setup of hydraulic models shall be in accordance with the CSS model user guide. Prior to hydraulic modeling, the Designer shall schedule a meeting with the DOU to review the Project, the modeling parameters, and discuss possible drainage solutions,



4. At the City’s discretion, the Project can share in a City sponsored Project that improves the system in the area that can be upsized to incorporate mitigation of the Project. A separate cost sharing agreement shall be executed for this option.

Sacramento Area Sewer District

The Sacramento Area Sewer District (SASD) levies a Sewer Impact Fee for any parcel connecting to the sewer system for the first time. Incremental sewer impact fees may also be due when a parcel size or use changes. These fees ensure that the capital costs invested by the public utilities in building the sewer system infrastructure are fairly distributed among and shared by all users.

The SBP area south of 14th Avenue is served by SASD for sanitary sewer. This portion of the SASD system is designated as a part of the Relief Area. The SASD Sewer Impact Fee for the Relief Area currently (effective 7/1/2021) is calculated by multiplying the project parcel net acreage by \$4,664 for Single-Family Residential, Multi-Family Residential, and Commercial Users.

Sacramento Regional County Sanitation District

The Sacramento Regional County Sanitation District (Regional San) levies a Facility Impact Fee associated with the sanitary sewer system. This fee pays for planning, designing, construction, and other related costs for wastewater conveyance, treatment, and disposal facilities for system expansion.

The Regional San Facility Impact Fee currently (effective 7/1/2019) is calculated by multiplying the ESDs generated by the development by the fee of \$3,602 per ESD for infill single-family projects and \$2,701 per unit for multi-family projects. It is possible in certain cases to receive a credit of 1 ESD per parcel as credit for previously paid fees. Sacramento County (County) policy determines when the credit is allowed. The County has published the method of calculating the ESDs for the different types of development. Additional information is available online at <http://www.regionalsan.com>.

Existing Conditions

Combined Sewer System

In the SBP area northerly of US Highway 50, the CSS collection system generally flows westerly towards downtown with a large 66” pipeline located in Alhambra Boulevard that flows to the south out of the SBP area. Caltrans owns and operates a storm drainage collection system in the area of the US Highway 50 interchange with a 48-inch storm drainage pipeline along the south edge of the highway.

South of US Highway 50, the CSS generally collects the drainage and sewer flows in smaller 8-inch to 12-inch pipelines located in the street which then increase in size to larger collector pipelines 15-inch to as large as 30-inch and connect to larger diameter pipelines that generally convey the combined flows to the west out of the SBP area. There is a 63-inch pipeline at Sherman Way, a 45-inch and a 66-inch pipelines at Broadway, and a 48-inch pipeline at 13th Avenue.

Combined Sewer System Improvement Plan (CSSIP)

The current CSSIP identifies three projects within or directly adjacent to the SBP area. These recommended projects include:

1. WA2-3: 4th Avenue Park Storage



2. WA4-3: P Street Linear Storage
3. WA4-4: Casita Way Linear Storage

The City will be working on a future LTCP that may create projects in addition to the three listed above.

Separated Storm Drainage System

The SBP area to the south of 14th Avenue to 20th Avenue is served by a separated storm drain system that flow to the CSS. There are several small drainage basins in the separated southerly half of the SBP area including Basins 5, 8, 19, 96, 147, G258, and G263. The area between Fruitridge Road and 47th Avenue is collected and discharge into the County of Sacramento system to the west. Sump 19 gravity flows to Sump 96, but pumps to the CSS during large storm events.

The collection pipelines in the separated storm drainage system generally range in size from 8-inch to 15-inch with larger collector pipelines ranging in size from 18-inch to 36-inch. The pipelines generally follow the roadway alignment sometimes on both side of the road. Development within the SBP area will require the upsizing of the smaller drain lines and inlet leads to a minimum of 12-inch to 15- inch diameter and also replace drainage inlets if they do not meet the current City standards.

Separated Sanitary Sewer System

In the SBP area to the south of 14th Avenue is served by a separated sanitary sewer system served by the Sacramento Area Sewer District (SASD). The collection pipelines in the separated sanitary sewer system generally range in size from 6-inch to 12-inch with larger trunk pipelines ranging in size from 15-inch to 42-inch. The pipelines generally follow the roadway alignment sometimes on both side of the road.

There is a 24-inch sewer pipeline located in Fruitridge Road. The collection system has numerous locations where the pipelines enter and leave the SBP boundary along the alignment of Stockton Boulevard.

Stormwater Quality

The City adopted the Stormwater Quality Design Manual (SQDM) for the Sacramento Region (July 2018), a joint effort of the communities in the greater Sacramento region. This comprehensive manual outlines a consistent set of stormwater quality management design standards for many new and redevelopment and public improvement projects in the urbanized parts of Sacramento County. It provides planning and design tools for use by planners, architects, landscape architects, engineers, and environmental professionals. The manual outlines planning tools and requirements to reduce urban runoff pollution to the maximum extent practicable (MEP) from new development and redevelopment projects. The SQDM uses locally-adapted information for design and selection of five categories of stormwater quality control measures: source control, hydromodification control, low impact development control, treatment control, and full capture trash control. Per the requirements, multi-family and commercial projects exceeding 1 acre or more of impervious surfaces are required to implement the first four categories, while projects less than one acre are only required to implement source control. Full capture trash control is required for all multi-family residential projects with a density greater than 10 dwelling units per acre and commercial projects where the primary activities involve the sale or transfer of goods or services to consumers.

The southerly portion of the SBP area is subject to the requirements of the SQDM only for those areas located with a separated storm drainage system outside of the CSS. All projects that result in creating or redeveloping 1 acre or more of impervious surface areas will be required to comply with the stormwater



quality measures outlined in the SQMD. These measures may include treatment measures such as bioretention planters, bioswales, stormwater treatment vaults, green roofs, etc. – either used as a single treatment or as a combination of several measures. Developers are urged to discuss their project with the Stormwater Quality Section of the City DOU while in the planning stages so that proper permanent post-construction stormwater quality treatment measures can be effectively implemented into the project. A small portion of the southerly area of the SBP will be required to comply with applicable Hydromodification Management Plan (HMP) requirements. This includes the SBP areas within drainage basins 147 and G258.

The northerly portion of the SBP area is located within the CSS, which is under separate permit regulations for stormwater discharges. The stormwater flows from the CSS are treated at the SRWTP, CWTP, and the Pioneer treatment facilities. Therefore, projects within the CSS are not required to have additional stormwater quality control measures.

Proposed Conditions

Anticipated future development in the SBP area is expected to increase sanitary sewer flows due to increases in development density for residential and non-residential uses. The Pipeline Projects and Opportunity Sites in this SBP study are estimated to contain a total of 4,077 new multi-family residential units and approximately 372,115 square feet of new non-residential development. This will affect the existing sewer systems.

Since the majority of the sites are previously developed with highly impervious surfaces (i.e. roof tops, parking lots, sidewalks, etc.), the stormwater runoff flows from the projects are not anticipate to increase with the new development. However, each redevelopment site will need to be evaluated on an individual basis to ensure there is no increase in the stormwater runoff. Any increase will need to be mitigated as described in the General Information section above.

The City of Sacramento Design and Procedures Manual contains standards for sewer generation rates (Section 9 – Sanitary Sewer Design Standards dated 7/24/18), average daily flow rates, and factors for residential and non-residential uses. The standard for sewer generation is 310 gallons per day (gpd) per ESD.

A factor of 0.75 Equivalent Single Family Dwelling Unit (ESD) per residential unit was selected based on the multi-family nature of the residential. This factor when multiplied by 310 gallons per day (gpd) per ESD yields a sewer generation rate of 232.5 gpd per residential unit. For the non-residential uses, a factor of 0.5 ESDs per 1,000 gross square feet is used as an average for anticipated uses.

Given the anticipated development of 4,077 new multi-family dwellings units and 372,115 square feet of new non-residential development in the SBP area and using the ESD factors stated above, this equates to 3,244 ESDs ($= 0.75 \times 4,077 \text{ units} + 0.5/1000 \times 372,115 \text{ s.f.}$). The anticipated increase in the residential Average Dry Weather Flow (ADWF) based on 310 gpd per ESD is 1.01 mgd ($= 3,244 \text{ ESDs} \times 310 \text{ gpd/ESD} / 1,000,000 \text{ gals per million}$).

The majority of Pipeline Projects and Opportunity Sites are previously developed parcels with highly impervious structures and/or pavements. However, several of the parcels are now vacant. Current DOU policy requires developers to mitigate increased impervious surface areas from project sites. Credits for existing imperviousness may be given if it is located on the property within three years or less.

Implementation of storm drainage improvements necessary to serve a specific project site is typically the responsibility of future developers. City policy requires the developer to construct any infrastructure necessary to support the project in question. A project specific storm drainage study is required for any future development. If the existing storm drainage system is sufficient to meet the project needs and are not deficient and meet current City standards, no infrastructure upgrades are necessary. If the existing



infrastructure is found to be insufficient for the project’s needs or deficient or does not meet current City standards, the developer is required to construct necessary infrastructure improvements.

Recommended System Improvements:

The anticipated development is spread out along the approximately 4.8 mile Stockton Boulevard corridor. The majority of the anticipated development is within the southerly area of the SBP area in the Community Commercial Center and Little Saigon districts.

The SBP area north of 14th Avenue is well served by the existing CSS collection system. The existing collection mains within the SBP area is adequate to serve the area and the anticipated increase sewer flows with the redevelopment of the area with proper mitigation and contributions to improve the greater CSS system. Each development project will be required to mitigate any impacts to the CSS. There are three CSSIP projects that have currently been identified within or directly adjacent to the SBP area. These recommended projects include:

1. WA2-3: 4th Avenue Park Storage
2. WA4-3: P Street Linear Storage
3. WA4-4: Casita Way Linear Storage

The City will be working on a future LTCP that may create projects in addition to the three listed above.

The SBP area south of 14th Avenue is also well served by the existing SASD collection system. The existing collection mains within the SBP area is adequate to serve the area and the anticipated increase sewer flows with the redevelopment of the area with proper mitigation and contributions to improve the greater SASD system.

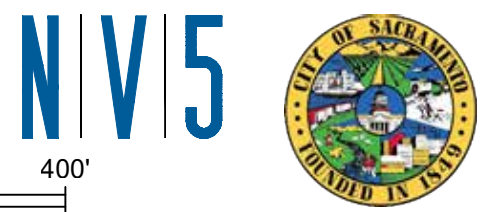
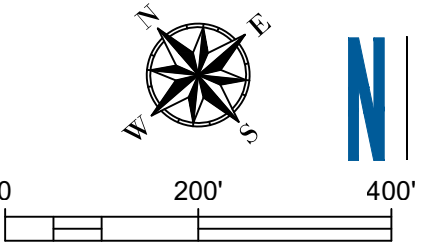
DATE: 4/26/22 TIME: 9:37:37 AM
 DWG NAME: SS-SD01.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL



FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 2A Wastewater & Storm Drainage

LEGEND					
	Opportunity Areas		Sanitary Sewer		Storm Drain
	Entry to Midtown (EM)		Sanitary Sewer County		Storm Drain County
	Medical Center Campus (MCC)		CSS		Storm Drain Private
			CSS County		Storm Drain Caltrans
			CSS Private		SBP Boundary



DATE: 4/26/22 TIME: 9:38:08 AM
 DWG NAME: SS-SD02.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN DEPFYFFER
 XREFS:

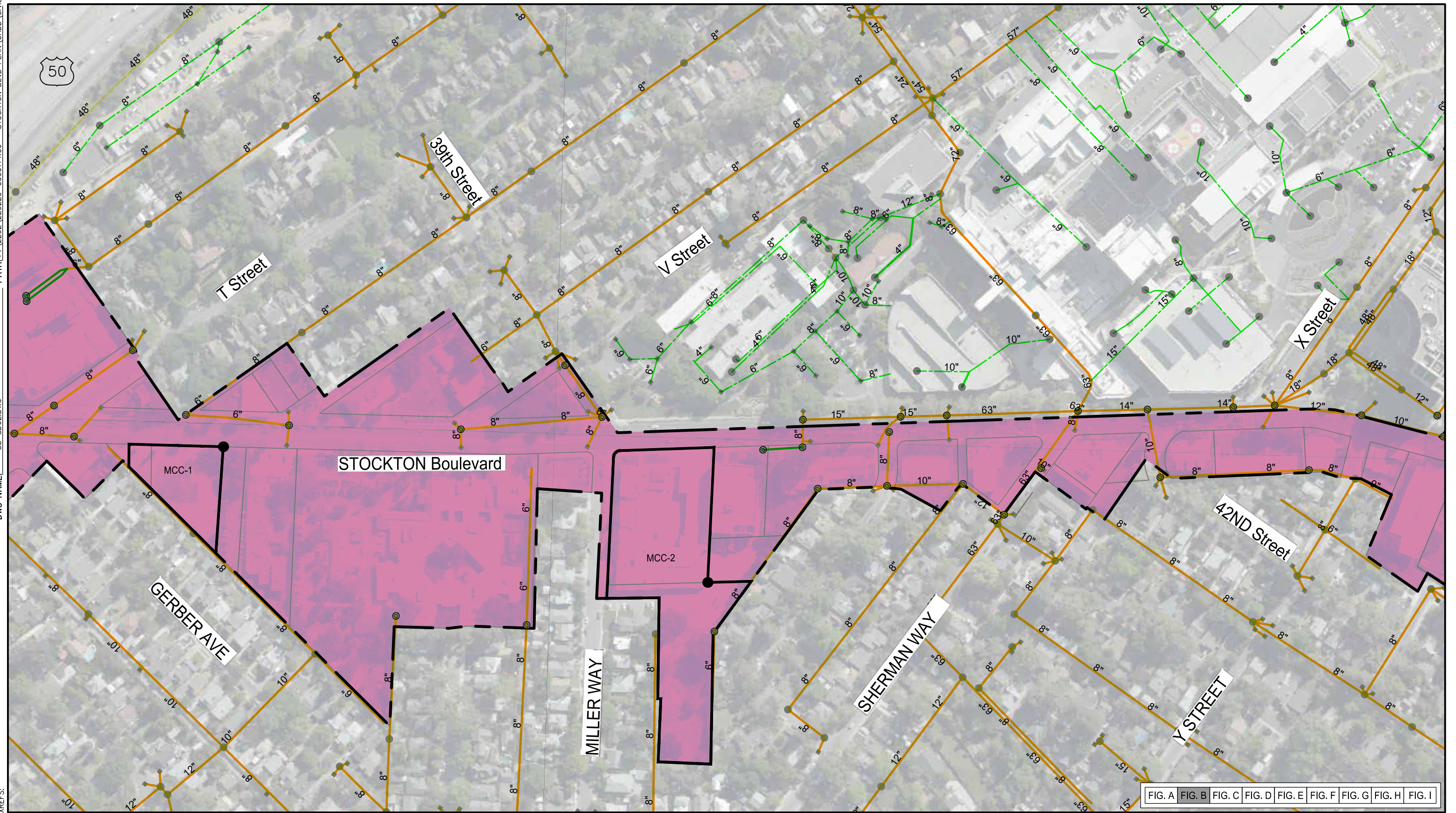


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 2B Wastewater & Storm Drainage

LEGEND					
	Opportunity Areas		Sanitary Sewer		Storm Drain
	Medical Center Campus (MCC)		Sanitary Sewer County		Storm Drain County
			CSS		Storm Drain Private
			CSS County		Storm Drain Caltrans
			CSS Private		SBP Boundary

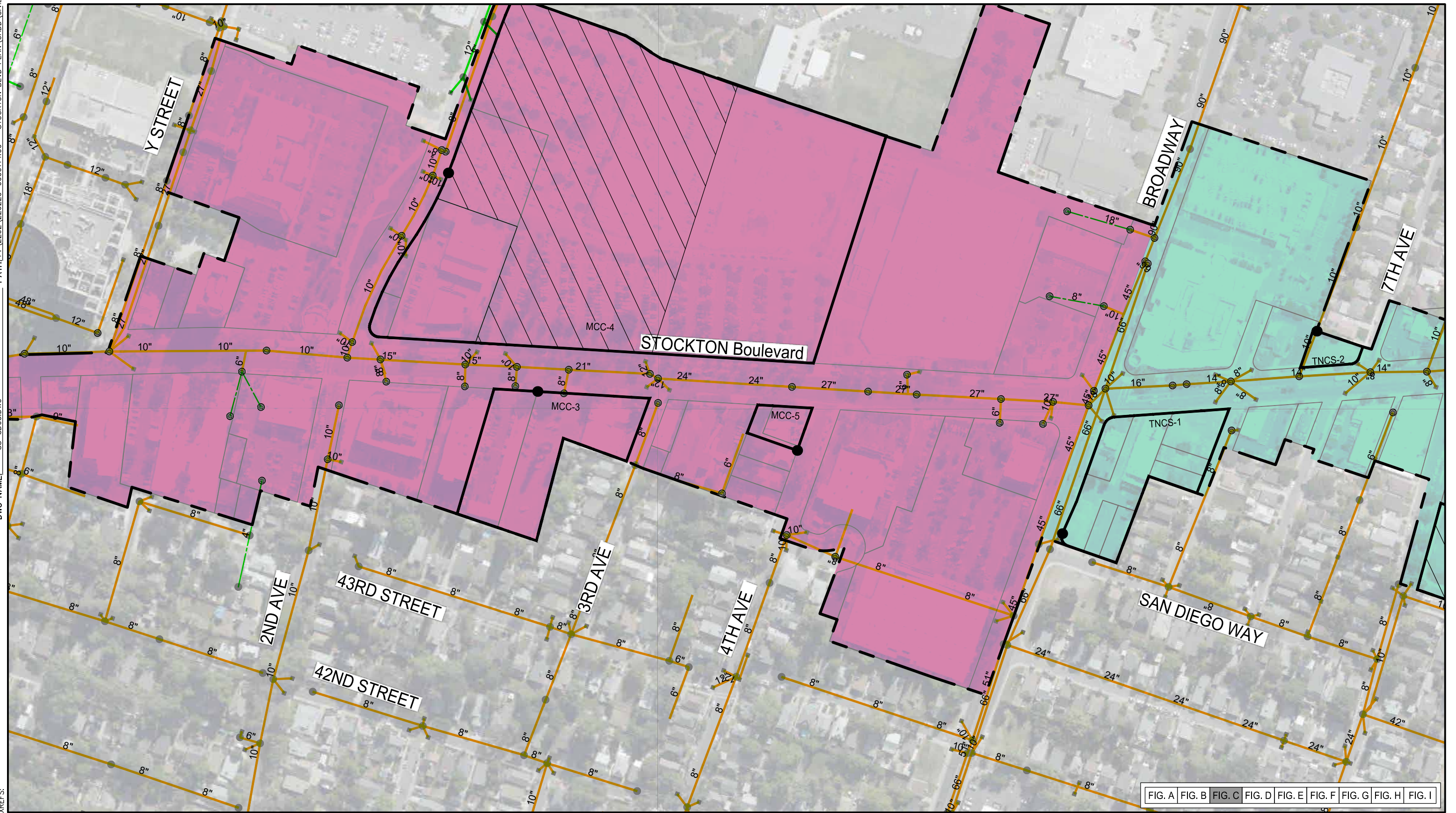


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 2C Wastewater & Storm Drainage

LEGEND					
	Opportunity Areas		Sanitary Sewer		Storm Drain
	Pipeline Project		Sanitary Sewer County		Storm Drain County
	Medical Center Campus (MCC)		CSS		Storm Drain Private
	Traditional Neighborhoods		CSS County		Storm Drain Caltrans
	Commercial Storefront (TNCS)		CSS Private		SBP Boundary



FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 2D Wastewater & Storm Drainage

LEGEND					
	Opportunity Areas		Sanitary Sewer		Storm Drain
	Pipeline Project		Sanitary Sewer County		Storm Drain County
	Traditional Neighborhoods Commercial Storefront (TNCS)		CSS		Storm Drain Private
			CSS County		Storm Drain Caltrans
			CSS Private		SBP Boundary

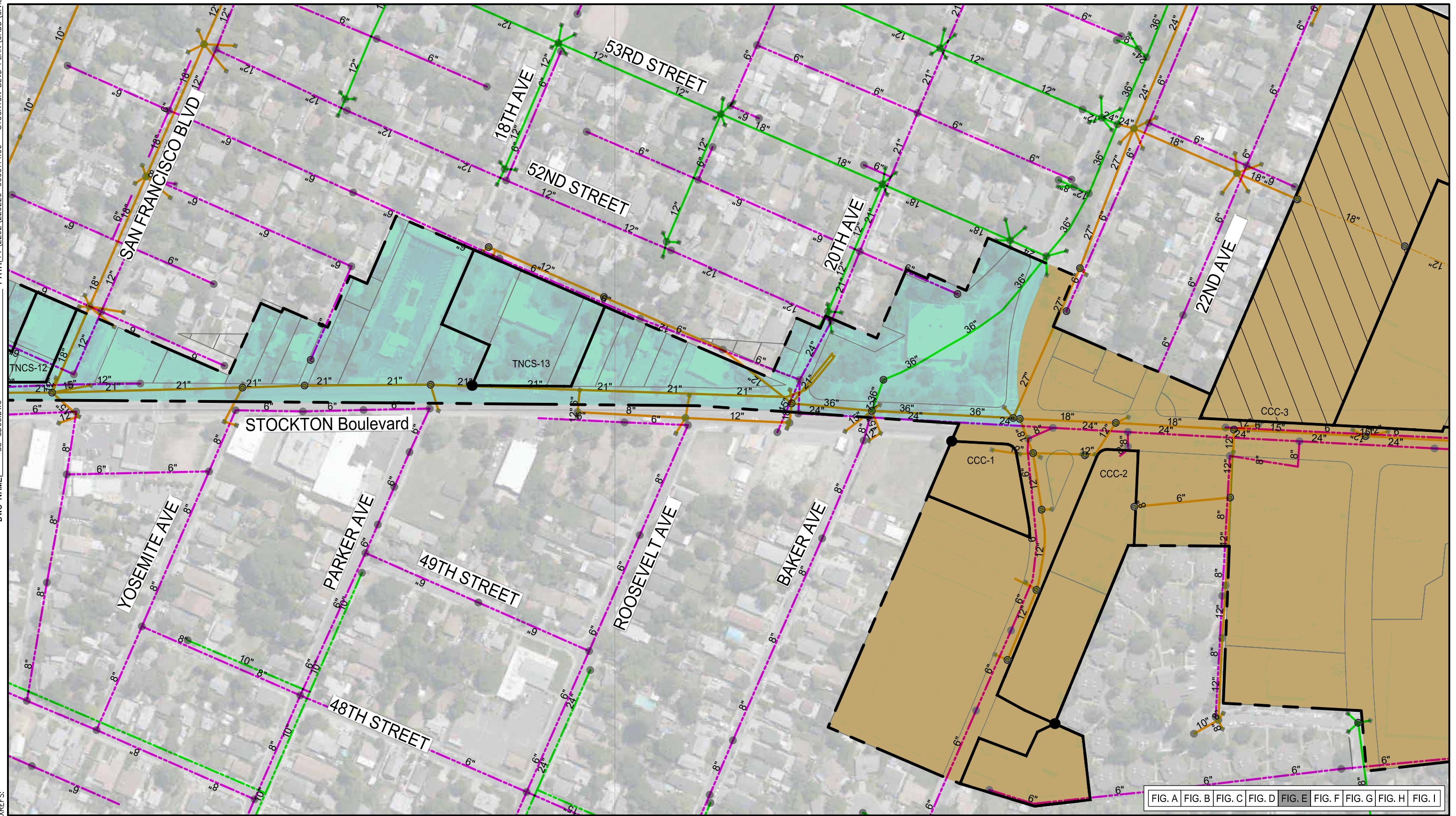
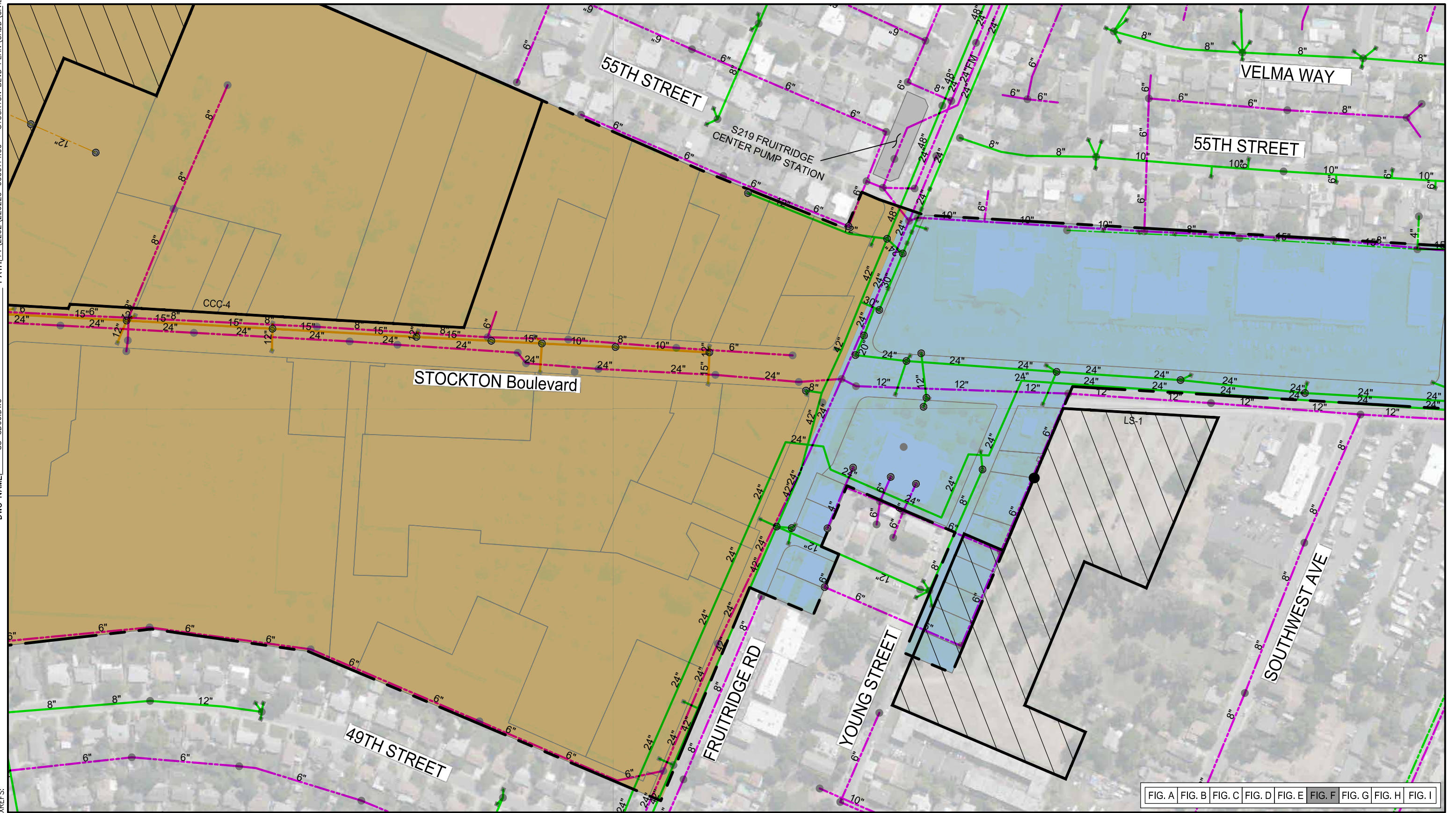


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 2E Wastewater & Storm Drainage

LEGEND					
	Opportunity Areas		Sanitary Sewer County		Storm Drain County
	Pipeline Project		CSS		Storm Drain Private
	Traditional Neighborhoods		CSS County		Storm Drain Caltrans
	Commercial Storefront (TNCS)		CSS Private		SBP Boundary
	Community Commercial Center (CCC)				



April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 2F Wastewater & Storm Drainage

LEGEND					
	Opportunity Areas		Sanitary Sewer County		Storm Drain County
	Pipeline Project		CSS County		Storm Drain Private
	Community Commercial Center (CCC)		CSS Private		Storm Drain Caltrans
	Little Saigon (LS)				SBP Boundary

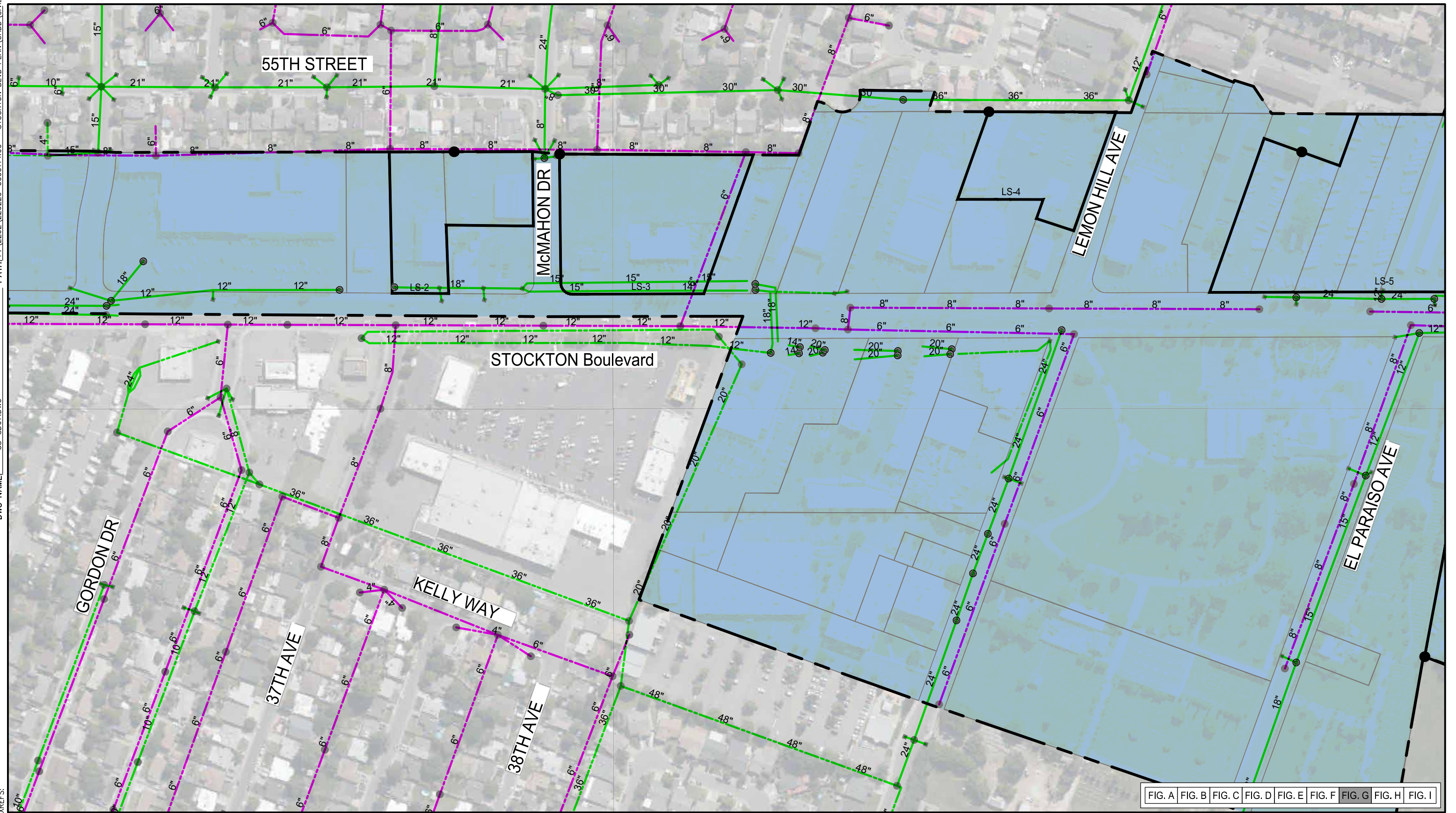


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 2G Wastewater & Storm Drainage

LEGEND					
	Opportunity Areas		Sanitary Sewer County		Storm Drain County
	Pipeline Project		CSS County		Storm Drain Private
	Little Saigon (LS)		CSS Private		Storm Drain Caltrans
					SBP Boundary

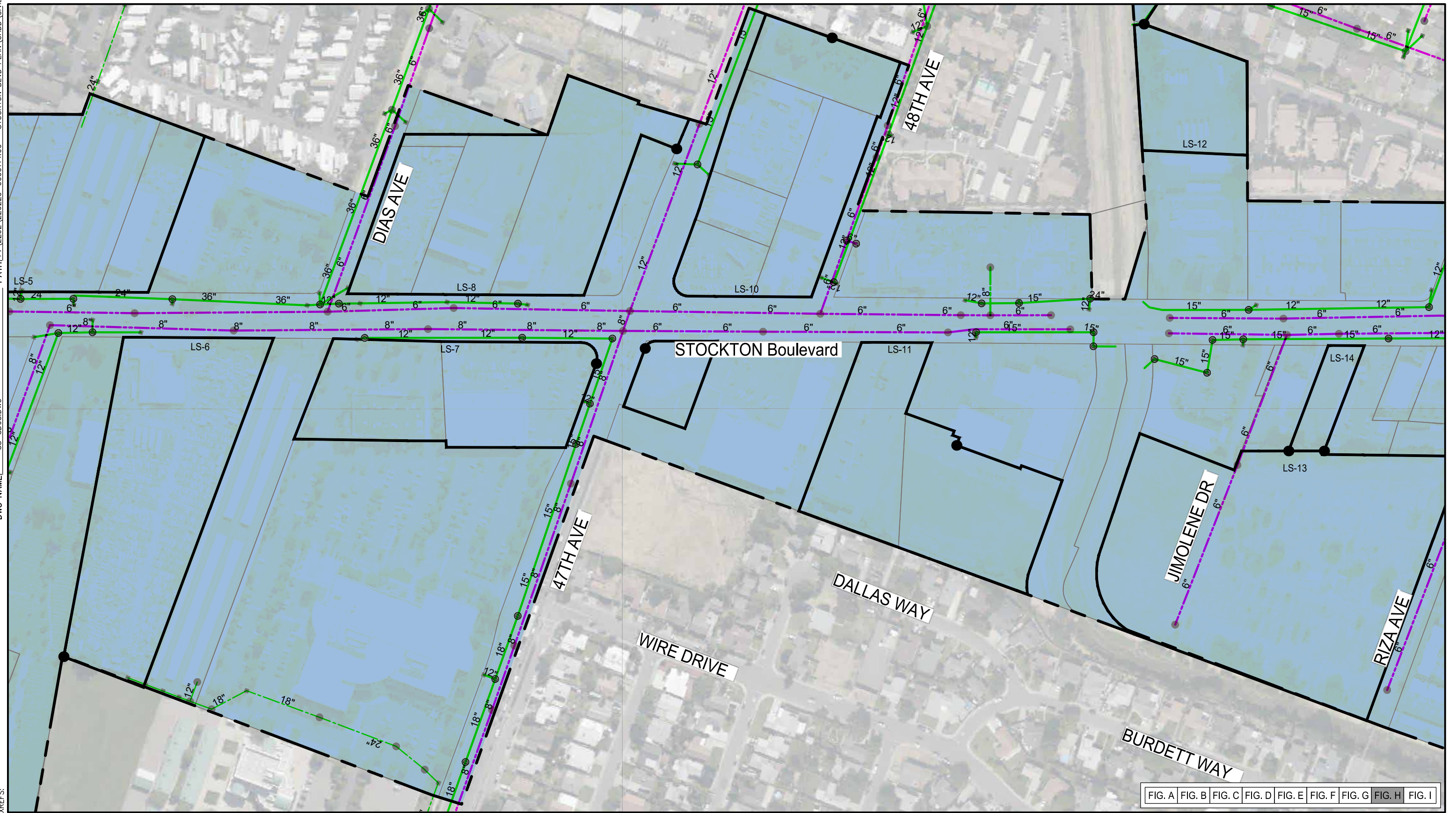


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 2H Wastewater & Storm Drainage

LEGEND					
	Opportunity Areas		Sanitary Sewer County		Storm Drain
	Pipeline Project		CSS		Storm Drain County
	Little Saigon (LS)		CSS County		Storm Drain Private
			CSS Private		Storm Drain Caltrans
			SBP Boundary		

DATE: 4/26/22 TIME: 9:41:44 AM
 DWG NAME: SS-SD09.DWG
 PATH: P:\2262\226220-000014.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPFFYFFER
 XREFS:

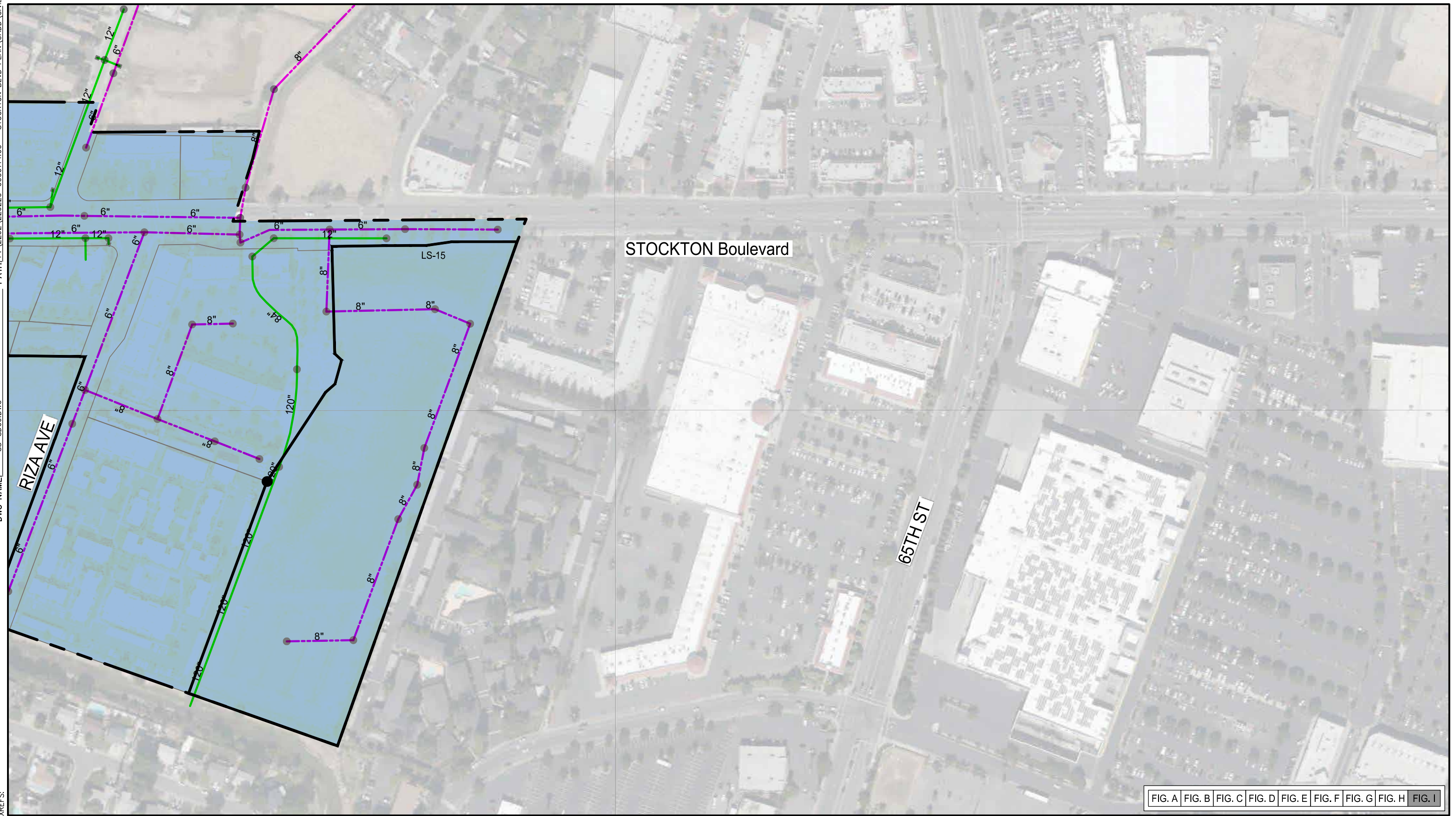
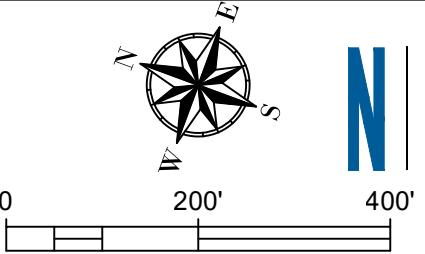
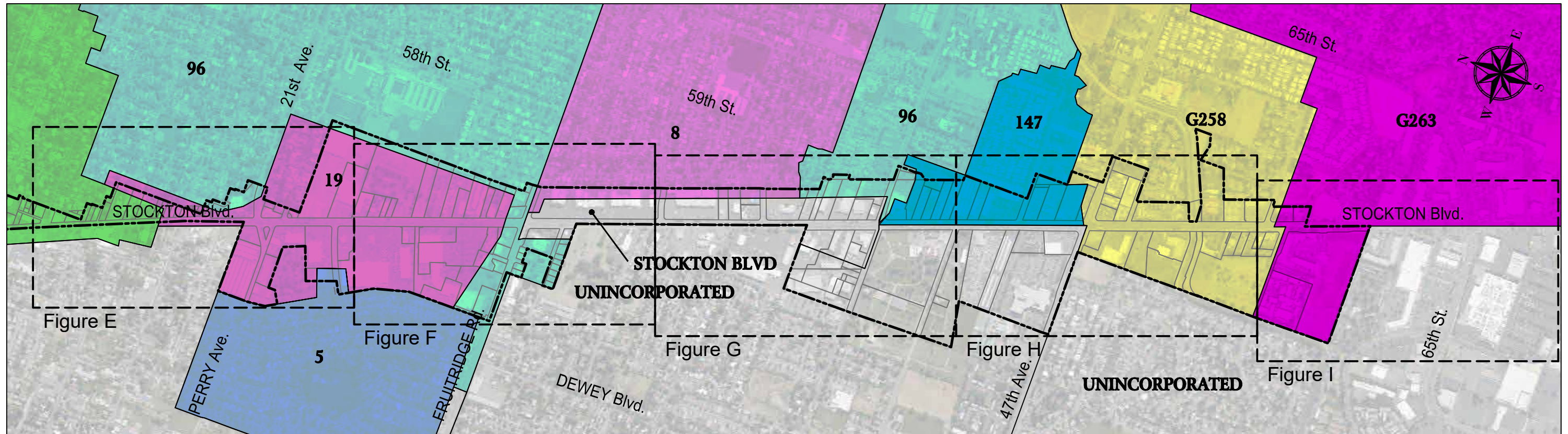
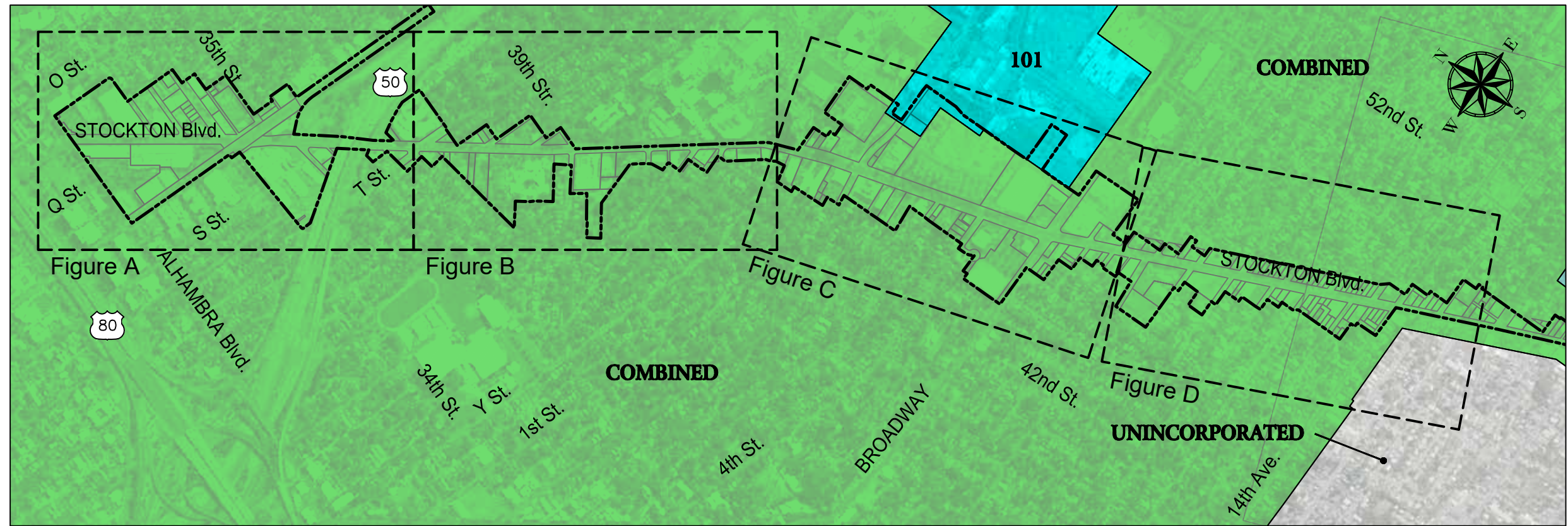


FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

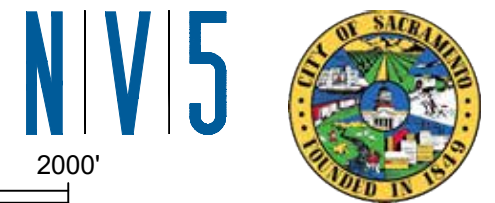
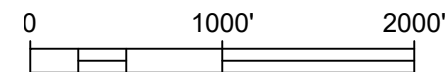
April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 2I Wastewater & Storm Drainage

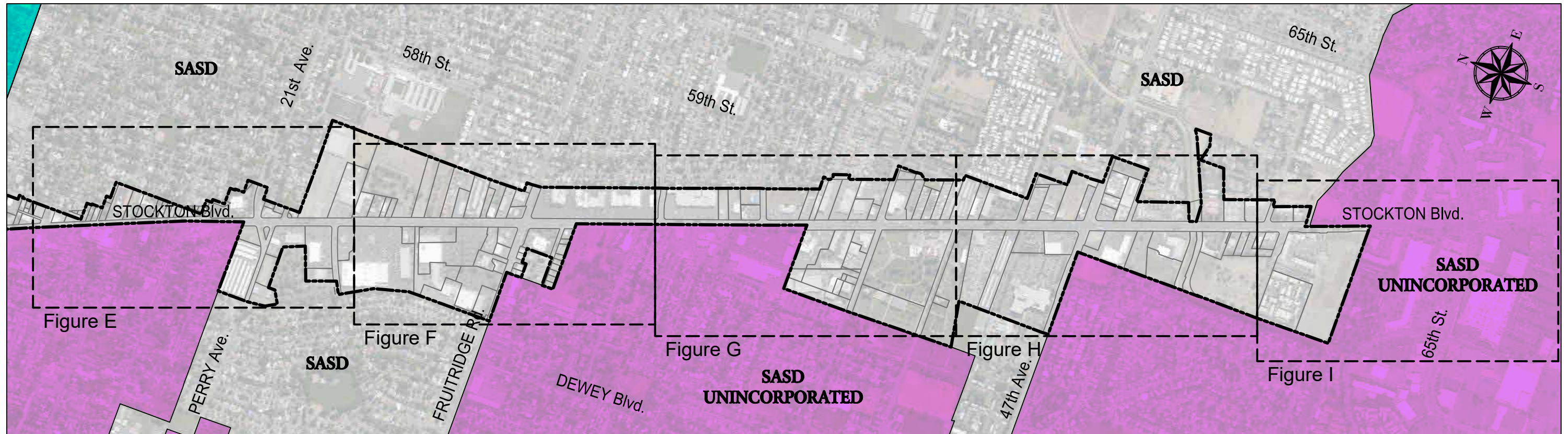
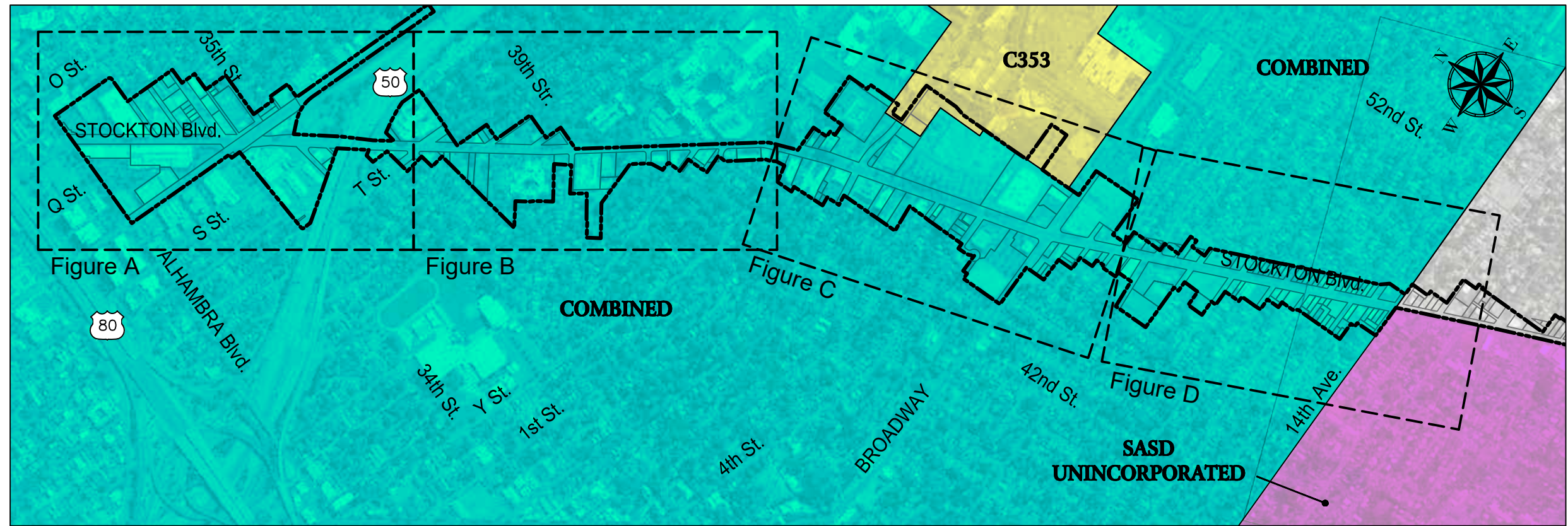
LEGEND			
	Opportunity Areas		
	Pipeline Project		
	Little Saigon (LS)		
	Sanitary Sewer		Storm Drain
	Sanitary Sewer County		Storm Drain County
	CSS		Storm Drain Private
	CSS County		Storm Drain Caltrans
	CSS Private		SBP Boundary










April 2022
 Stockton Boulevard Plan - Infrastructure Analysis
 Figure 2J STORM DRAIN BASINS

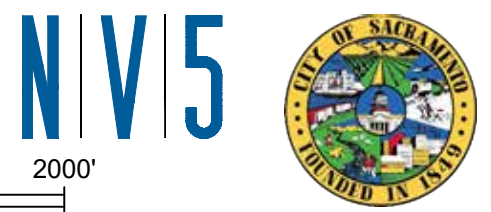
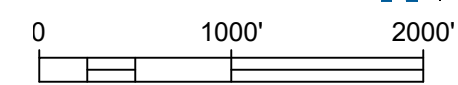




April 2022
 Stockton Boulevard Plan - Infrastructure Analysis
 Figure 2K SANITARY SEWER BASINS

LEGEND

	Sewer Basin Combined		Sewer Basin SASD
	Sewer Basin C353		SBP Boundary
	Sewer Basin SASD Unincorporated		





WATER SUPPLY

General Information

The City provides domestic water to the SBP area. The City utilizes both surface water and groundwater to meet the water demands. The City treats surface water diverted from the Sacramento River and American River through the Sacramento River Water Treatment Plant (SRWTP) and the E.A. Fairbairn Water Treatment Plant (FWTP), respectively. Additionally, the City extracts groundwater from both the North Sacramento and Central Sacramento basins. The current reliable water production capacity is approximately 280 mgd.

Sacramento River Water Treatment Plant: The SRWTP began operation in 1924 with an initial capacity of 32 mgd and treats water diverted from the Sacramento River approximately one-half mile downstream of the confluence of the American River. A new water intake structure, located approximately 700 feet downstream of the old intake structure, was completed in 2003. Other expansions and modifications completed by the City since the 1920s increased the treatment plant design capacity to 160 mgd. The most recent project was completed in 2016, which replaced many of the older facilities at the SRWTP in order maintain the 160 mgd capacity into the foreseeable future.

E.A. Fairbairn Water Treatment Plant: The FWTP is located adjacent the American River approximately seven miles upstream with the Sacramento River. The FWTP began operation in 1964 and has a current diversion limit of 200 mgd following an expansion completed in 2005. Currently, the California Department of Public Health (CDPH) has permitted a capacity of 160 mgd. However, the amount of water diverted is further limited by the so-called Hodge Flow Criteria which restricts diversions from the FWTP under certain low river flow conditions. Hodge conditions have historically occurred about 50% of the time, and can be present in any month of the year. During the time of peak demand, most often in June, July, or August, the Hodge Flow Criteria could limit the diversion rate at the FWTP to 100 mgd. As a result of this constraint, sufficient pipe capacity to move the 160 mgd into the distribution system has not been constructed. The current facility is physically constrained to approximately 130 mgd, when Hodge is not triggered.

Groundwater Wells: The City currently operates 27 municipal groundwater supply wells; 25 wells are located in the northern portion of the City, north of the American River, while the remaining two are located south of the American River. The total pumping capacity of the City's municipal supply wells is approximately 20 mgd, assuming 90% of the production capacity is available. The City has recently completed a well rehabilitation program that improved capacity at a number of existing wells. Overall, the groundwater facilities operated by the City are known to be at or near the end of useful life, and the City is currently preparing a groundwater master plan to help determine the direction and anticipated future capacity of the collective groundwater facilities. The City is nearing completion on two new wells in the southern portion of the system at Shasta Park. The projects are anticipated to supply potable water by 2019-2020. The City anticipates the groundwater pumping capacity to increase to approximately 25 mgd after the activation of the rehabilitated wells and completion of the new groundwater wells.

Distributed Storage: The City maintains eleven enclosed distributed water storage reservoirs together with a total capacity of 45 million gallons (MG). This water is used to meet the water demand for fire flows, emergencies, and peak hours where demands exceed the maximum day supply rates. A new 4 MG distribution storage tank at the Shasta Park Site in the southern portion of the City is anticipated to be completed in 2019-2020, which will increase the total storage to 49 MG. In addition to the reservoirs, the SRWTP and FWTP together maintain a combined on-site storage of over 44 MG.



The City operates pumping facilities throughout the area. There are high lift service pumps at the SRWTP and FWTP to move the treated water from the facility reservoirs into the distribution system. The City also maintains pumping facilities at ten of the City’s storage reservoirs. These pump stations are of varying sizes and capacities.

The City differentiates the water mains into two distinct categories: water distribution mains and water transmission mains. Water distribution mains are smaller pipelines located in the streets and alleys utilized for water services. Water transmission mains are larger pipelines utilized to convey water to the distribution mains.

It is City policy to only utilize the water distribution mains for water services, fire services, and fire hydrants. These pipes are typically 4-inches to 12-inches in diameter. These pipes may be tapped only with the approval of the City DOU. Considering each service tap is a potential weakening of the water main, the City currently has the policy to restrict the installation of service taps until after a project has been reviewed and approved by the City. This is to restrict the number of taps to the mains to those that are in the ultimate location per an approved development plan. This reduces the number of service taps that are abandoned due to changes in the development plans.

Transmission mains are 14-inches and larger in diameter. They are used to convey large volumes of water from the treatment plants to selected points throughout the distribution system. They are also utilized to transfer water to and from the storage reservoirs to meet fluctuating daily and seasonal demands. These mains cannot be tapped for water services, fire services, or fire hydrants.

The City DOU has an active CIP for maintaining and upgrading the water supply system. The implementation of the water improvements necessary to serve a specific project site is typically the responsibility of future developers. City policy requires the developer to construct any infrastructure necessary to support the project in question. To determine if water needs for a project can be met, a water supply test is performed on the existing system. Depending on the location of the project, a water study may also be required of new development to determine if there is sufficient water supply to support the project. If the existing water system is sufficient to meet the needs, no infrastructure upgrades are necessary. If the existing infrastructure is found to be insufficient for the project’s needs, the developer is required to construct necessary infrastructure improvements.

The infrastructure improvements required for all new development will need to meet current City standards. Looped water main systems are typically required due to the unreliability of dead end mains, and the potential for water quality problems as a result of stagnant water. Additional water main installation may also be required depending on the existing system layout. All new water services are required to be metered.

The City’s Water Development Fees are based on the size of the water service(s) necessary for a project with separate fee schedules for either residential or commercial projects. The Water Development fees may be waived upon request only if the conditions of Resolution 87-322 (Residential Infill Lots) or Resolution No. 2018-0428 (Affordable Dwelling Units) are met. Mixed use projects that qualify for these waivers must have a separate water service connection for the residential portion of the project. The current City process for the determining if a project is eligible for the Residential Infill Lots waiver utilizes a GIS based layer and the City’s Accella (planning & building permit program) to automatically determine if a residential project (at building permit application) is in a Designated or Qualifying Water Fee Waiver Area. If the project is in a Designated area, the fee is automatically waived for the residential portion of the project. If the project is in a Qualifying area, planning staff reviews and determines if the fee should be waived per the requirements of the resolution.

Temporary source of water for construction is easily acquired two different ways. First, the contractor can purchase a construction service. This potentially could be the ultimate water service tap for the project. Secondly, the contractor can arrange to purchase water from an adjacent fire hydrant.



The City Design Standards for water (Section 13 – Water Distribution System Design Standards dated 7/24/18) contains the planning and design criteria for water systems.

Existing Conditions

The SBP area is generally served by an extensive system of service mains ranging in size from 6-inches to 12-inches in diameter. These mains are a mixture of steel, PVC, and ductile iron pipelines. There are a few smaller 4-inch pipelines, one located in 32nd Street north of Stockton Blvd., one that crosses under Highway 50 just westerly of Stockton Blvd., one located in 3rd Avenue westerly of Stockton Blvd., and one located in the 51st/52nd Street Alley.

A 36-inch major transmission main serving the East Downtown Sacramento area from the SRWTP passes through the northerly SBP area located in R Street. A 24-inch transmission main connects to this pipeline and follows Stockton Blvd. southerly to 2nd Avenue where it then reduces in size to a 16-inch pipeline to Broadway. At this point the pipeline splits in three directions with 12-inch distribution pipelines to the west and south and a 14” pipeline to the east.

There is a second 36-inch major transmission main within the SBP located in 14th Avenue. An 18-inch transmission main connects to this pipeline and follows Stockton Blvd. southerly to Lawrence Drive where it then turns westerly and leaves the SBP area.

A third 30-inch major transmission main passes through the SBP area located in Fruitridge Road. A fourth 30-inch transmission main is located in Elder Creek Road easterly of Stockton Blvd.

There are no active wells or reservoirs within the limits of the SBP area. The nearest reservoirs outside of the SBP is the Alhambra Reservoir located just to the north of SMP area to the east of Alhambra Blvd. and south of J Street, and the UC Med Reservoir located at the UC Davis Medical Center to the south of V street and east of 45th Street.

The City of Sacramento Department of Utilities (DOU) prepared the Capital Improvement Programming Guide in July 2012. The report contains recommendations for improvements to the sewer, storm drainage, and water systems including a Priority List for 50 different Water Transmission Main projects identified to be replaced. Two of these 50 Water Transmission Mains projects are located within the SBP area:

1. Item #27 – Stockton Blvd from 2nd Avenue to Broadway: This is approximately 1672 feet of 16-inch water transmission main that is currently (2021) 105 years old.
2. Item #28 – Broadway from Stockton Blvd. to 53rd Street: This is approximately 2744 feet of 14-inch water transmission main that is currently (2021) 105 years old.

Proposed Conditions

The types of future development envisioned in the SBP Plan area are high-density urban infill type projects, with residential units consisting of townhomes, midrise multifamily/mixed use, urban walk-up mixed use, and garden-style apartments. Domestic water demands for these residential units is anticipated to be similar to the City’s typical multi-family water usage criteria. Fire flow demand for the SBP area is assumed to be 2,500 gpm. Ultimately, the minimum fire flow for a specific building is designated by the fire department during plan review. A Water Supply Test to determine the existing system available fire flow is required for all developing properties.

The adoption by the State of California of SB7–“20 x 2020” Water Conservation Standards requiring a 20% reduction in urban water usage by the year 2020 and the CalGreen Building Code will require reductions in overall water usage through stricter indoor and outdoor usage. These requirements



mandating water conservation will further justify the use of the reduced water rates for the future development in the SBP area.

The City Water Study Design Manual dated January 2018 contains the Water Distribution System Criteria (WDS Criteria) which is a summary of the recommended potable water system performance and operational criteria. The WDS Criteria provides a table of gross unit water use factors for various land uses. The demands are broken into two categories of water use factors, residential and non-residential. The residential factors are based on the acre-feet per year per DU (afy/du) and the non-residential is based on acre-feet per year per employee (afy/employee). For the SBP, all of the anticipated dwelling units are anticipated to be the Residential High category which has a residential factor of 0.12 afy/du. The Non-Residential land use has a factor of 0.09 afy/employee.

With 4,077 new multi-family dwelling units expected in the SBP area, the anticipated increase in the residential average water demand is 489.2 afy (= 4,077 DUs x 0.12 afy/du). Assuming an average of 340 square feet per employee, the anticipated 372,115 square feet of non-residential development would equate to approximately 1,094 employees. The anticipated increase in the non-residential average water is 98.5 afy (= 1,094 Employees x 0.09 afy/employee). The total anticipated increase in the DPB average water demand is estimated to be 587.7 acre-feet per year.

Recommended System Improvements:

The SBP Plan Area is generally well served by the existing water transmission and distribution system. To determine if water needs for a project can be met, a water supply test will need to be performed on the existing system. Depending on the location of the project, a water study may also be required of new development to determine if there is sufficient water supply to support the project. If the existing water system is sufficient to meet the needs, no infrastructure upgrades are necessary. If the existing infrastructure is found to be insufficient for the project's needs, the developer is required to construct necessary infrastructure improvements.

The following improvements are necessary to facilitate development along the corridor:

- Smaller 6-inch water mains in the vicinity of the proposed Pipeline Projects and Opportunity Sites may need to be upsized to 8-inch minimum.
- Extend the existing 8-inch dead end water main located in Stockton Boulevard northerly of Southwest Avenue northerly to the 8-inch water main located in Stockton Boulevard.
- Extend the existing 6-inch dead end water main located in Young Street easterly connect to the new 8" water main in Stockton Boulevard.
- Extend the existing 8-inch dead end water main located in Stockton Boulevard at El Paraiso Avenue northerly to the 12-inch water main located in Lemon Hill Avenue to loop the system.

DATE: 4/26/22 TIME: 9:42:56 AM
 DWG NAME: W101.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPYFFER
 XREFS:

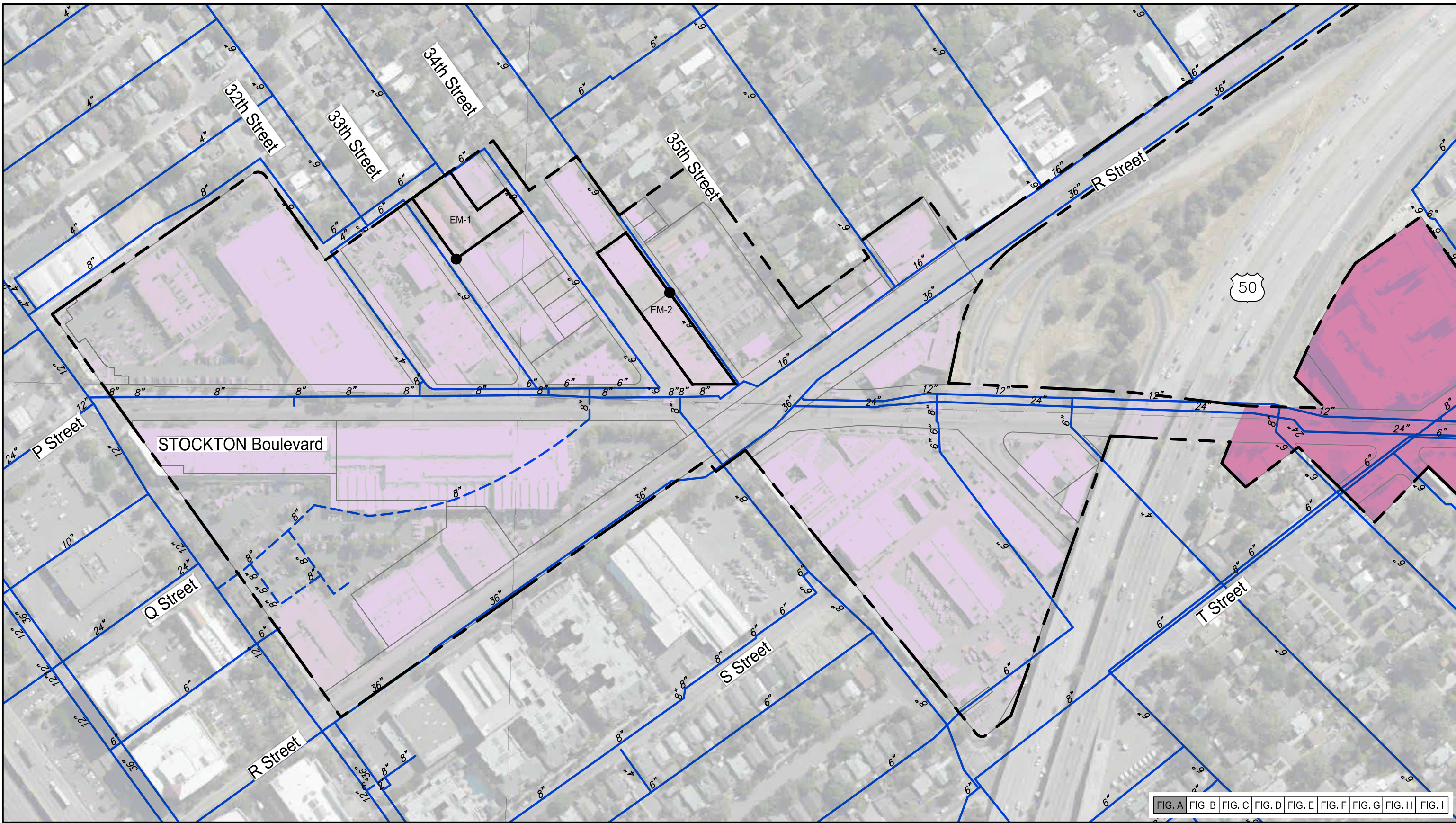
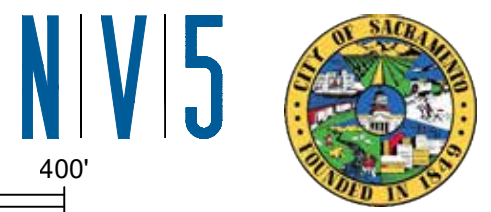
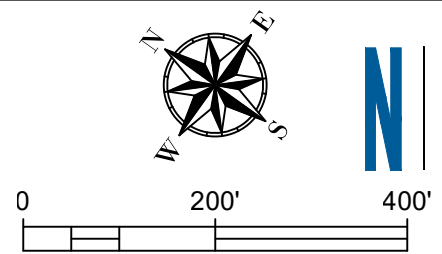


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 3A Water

LEGEND	
	Opportunity Areas
	Entry to Midtown (EM)
	Medical Center Campus (MCC)
	Water Main City
	Water Main County
	Water Main Private
	SBP Boundary



DATE: 4/26/22 TIME: 9:43:21 AM
 DWG NAME: W02.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPYFFER
 XREFS:

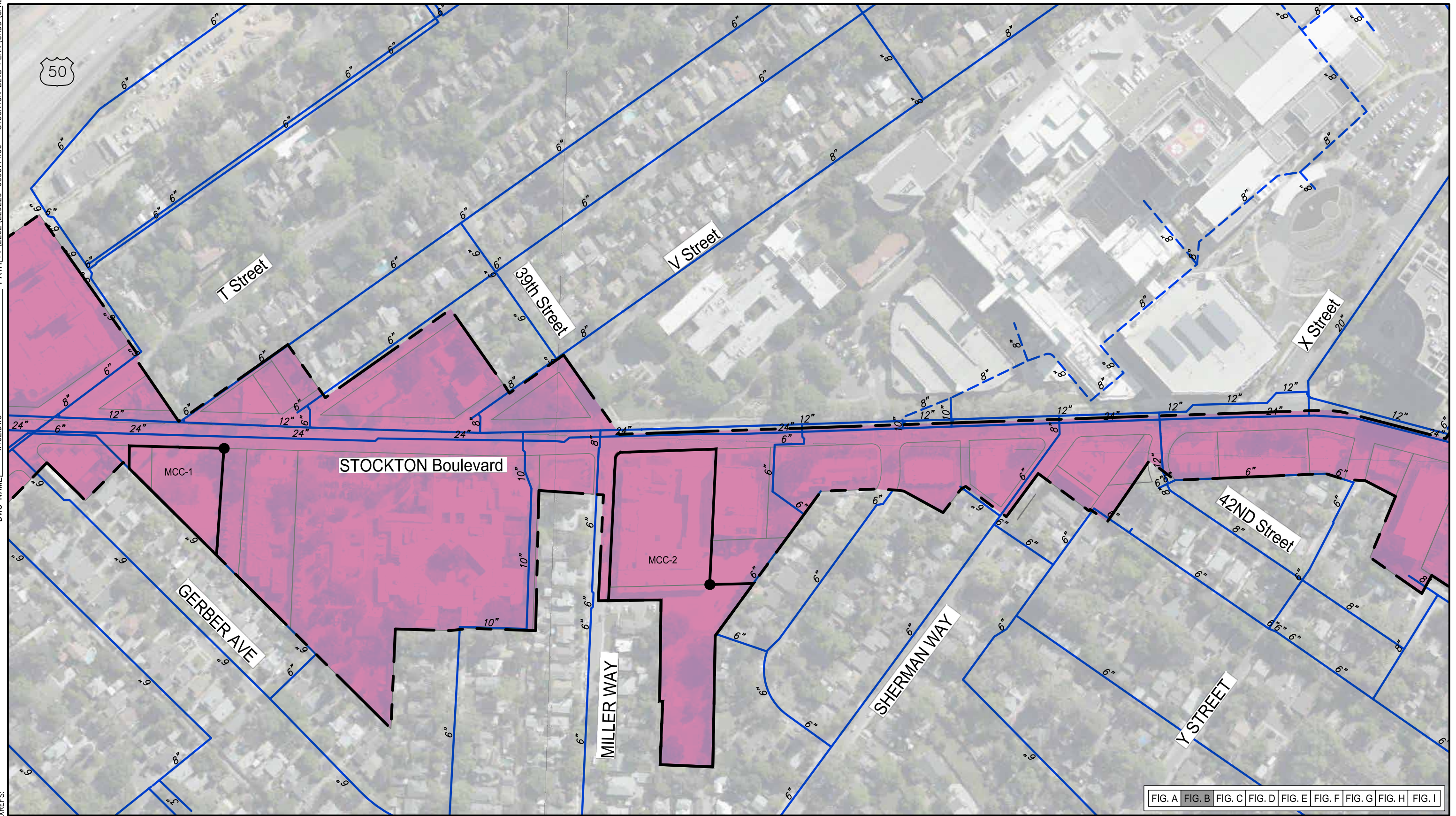









FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
**Stockton Boulevard Plan
 Infrastructure Analysis
 Figure 3B Water**


LEGEND

	Opportunity Areas		Water Main City
	Medical Center Campus (MCC)		Water Main County
			Water Main Private
			SBP Boundary

0 200' 400'



N|V|5



CITY OF SACRAMENTO
 FOUNDED IN 1849

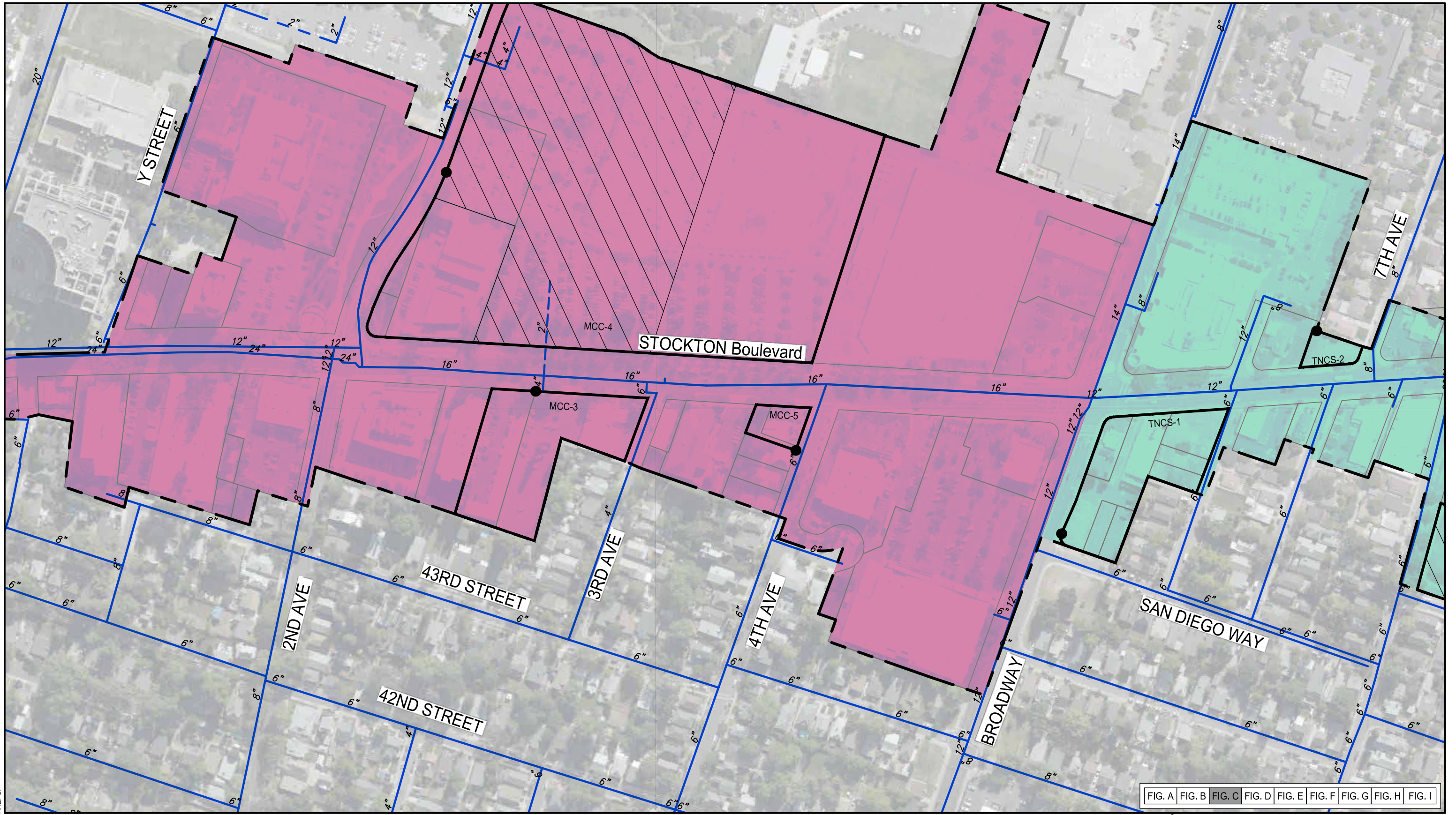


FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

April 2022
**Stockton Boulevard Plan
 Infrastructure Analysis
 Figure 3C Water**

LEGEND	
	Opportunity Areas
	Pipeline Project
	Medical Center Campus (MCC)
	Traditional Neighborhoods Commercial Storefront (TNCS)
	Water Main City
	Water Main County
	Water Main Private
	SBP Boundary

DATE: 4/26/22 TIME: 9:44:12 AM
 DWG NAME: WTD4.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPYFFER
 XREFS:

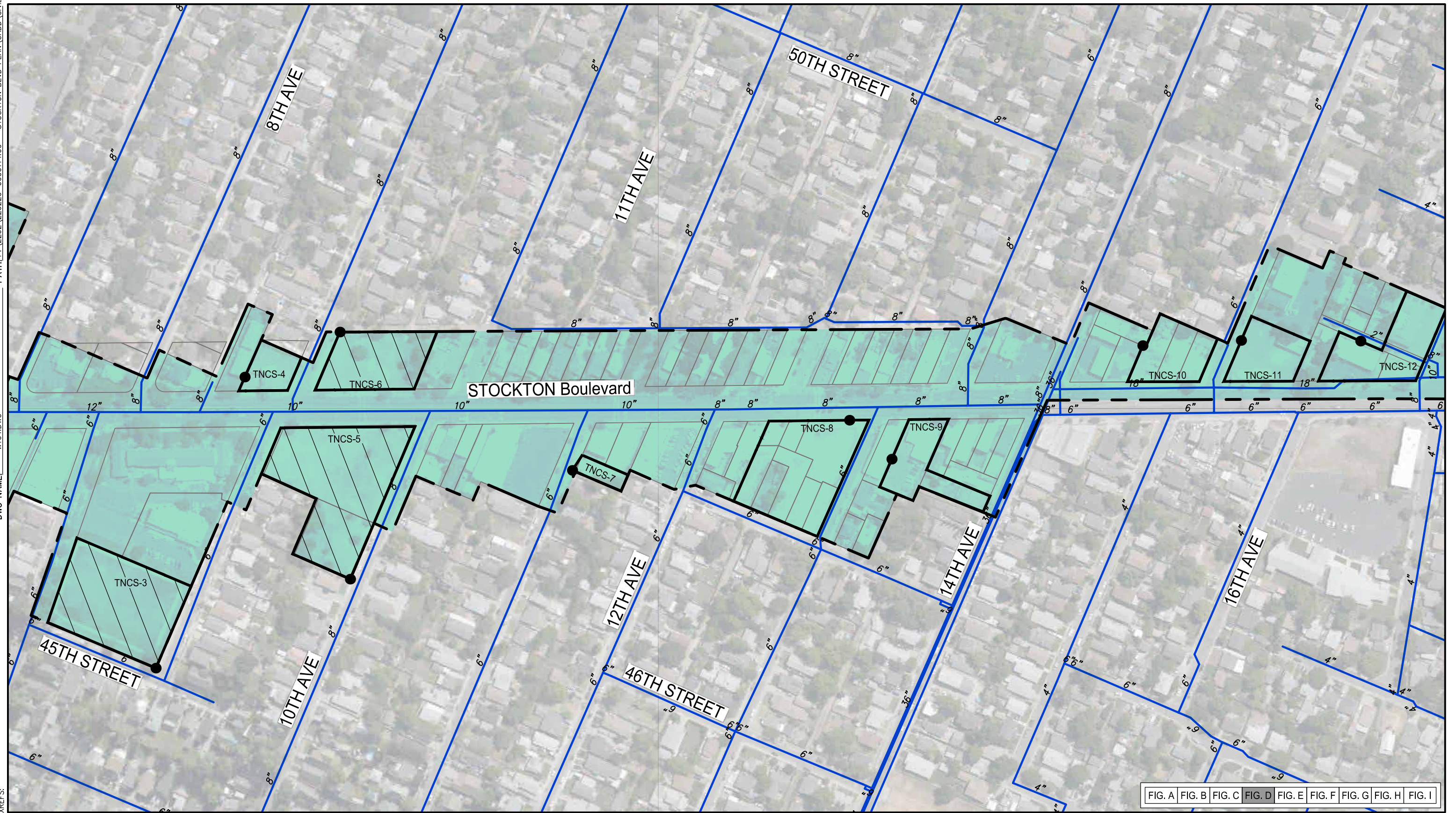

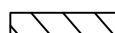
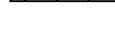




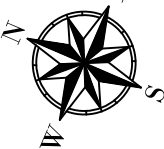
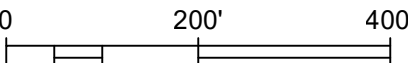



FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I


April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 3D Water

LEGEND	
	Opportunity Areas
	Pipeline Project
	Traditional Neighborhoods Commercial Storefront (TNCS)
	Water Main City
	Water Main County
	Water Main Private
	SBP Boundary









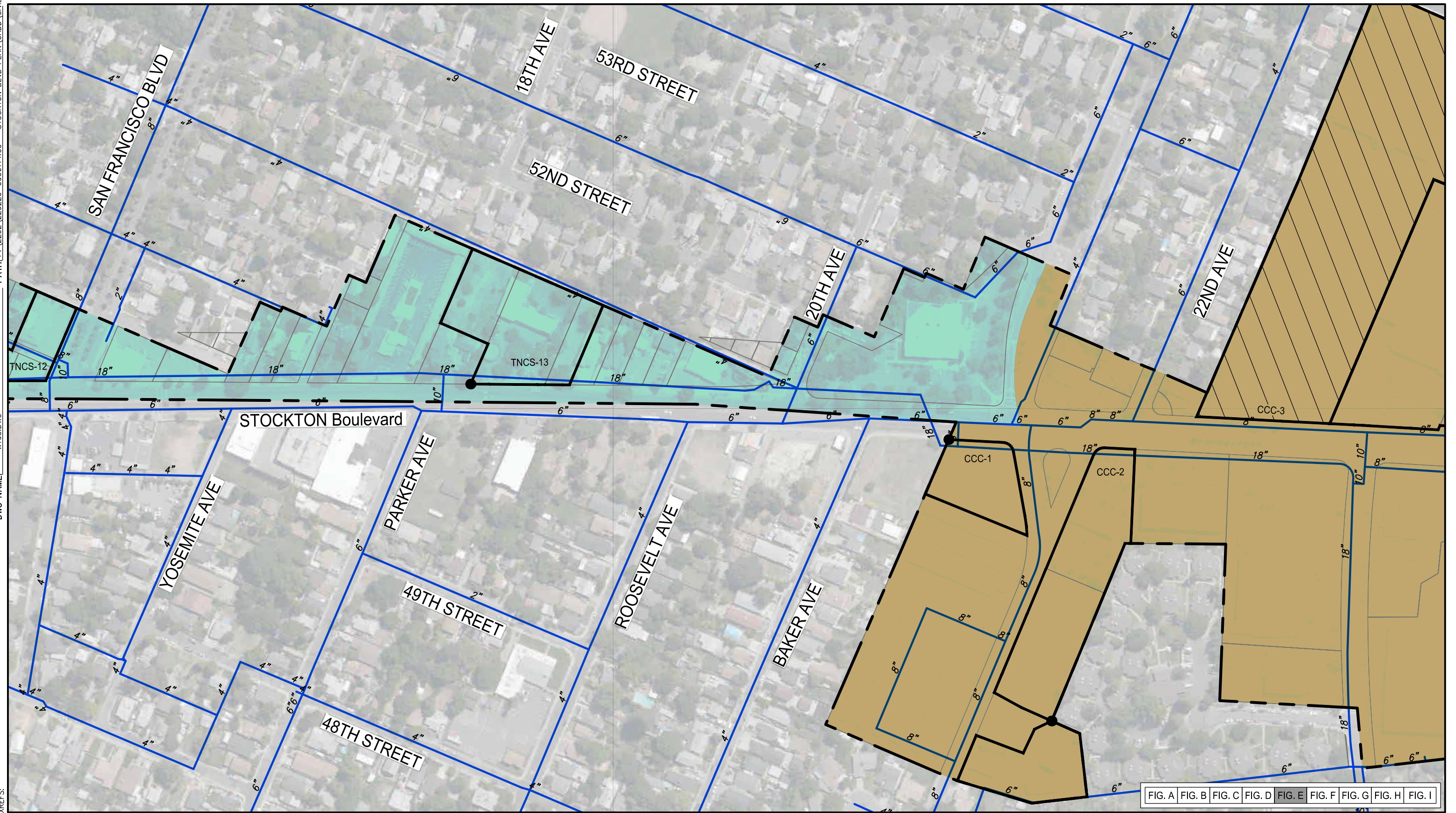


FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 3E Water

LEGEND	
	Opportunity Areas
	Pipeline Project
	Traditional Neighborhoods
	Commercial Storefront (TNCs)
	Community Commercial Center (CCC)
	Water Main City
	Water Main County
	Water Main Private
	SBP Boundary

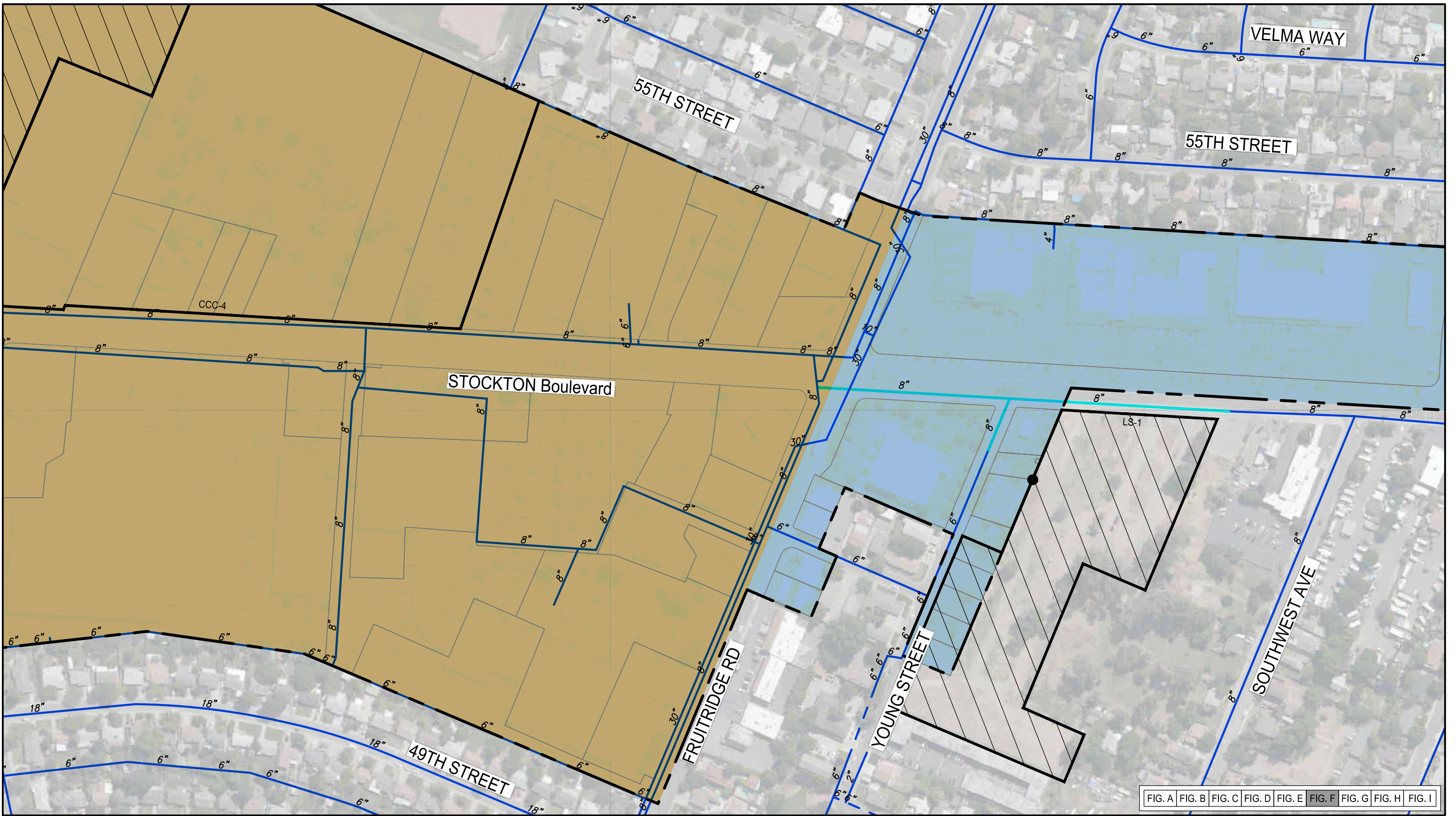


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 3F Water

LEGEND	
	Opportunity Areas
	Pipeline Project
	Community Commercial Center (CCC)
	Little Saigon (LS)
	Water Main City
	Water Main County
	Water Main Private
	SBP Boundary
	Proposed Water Main

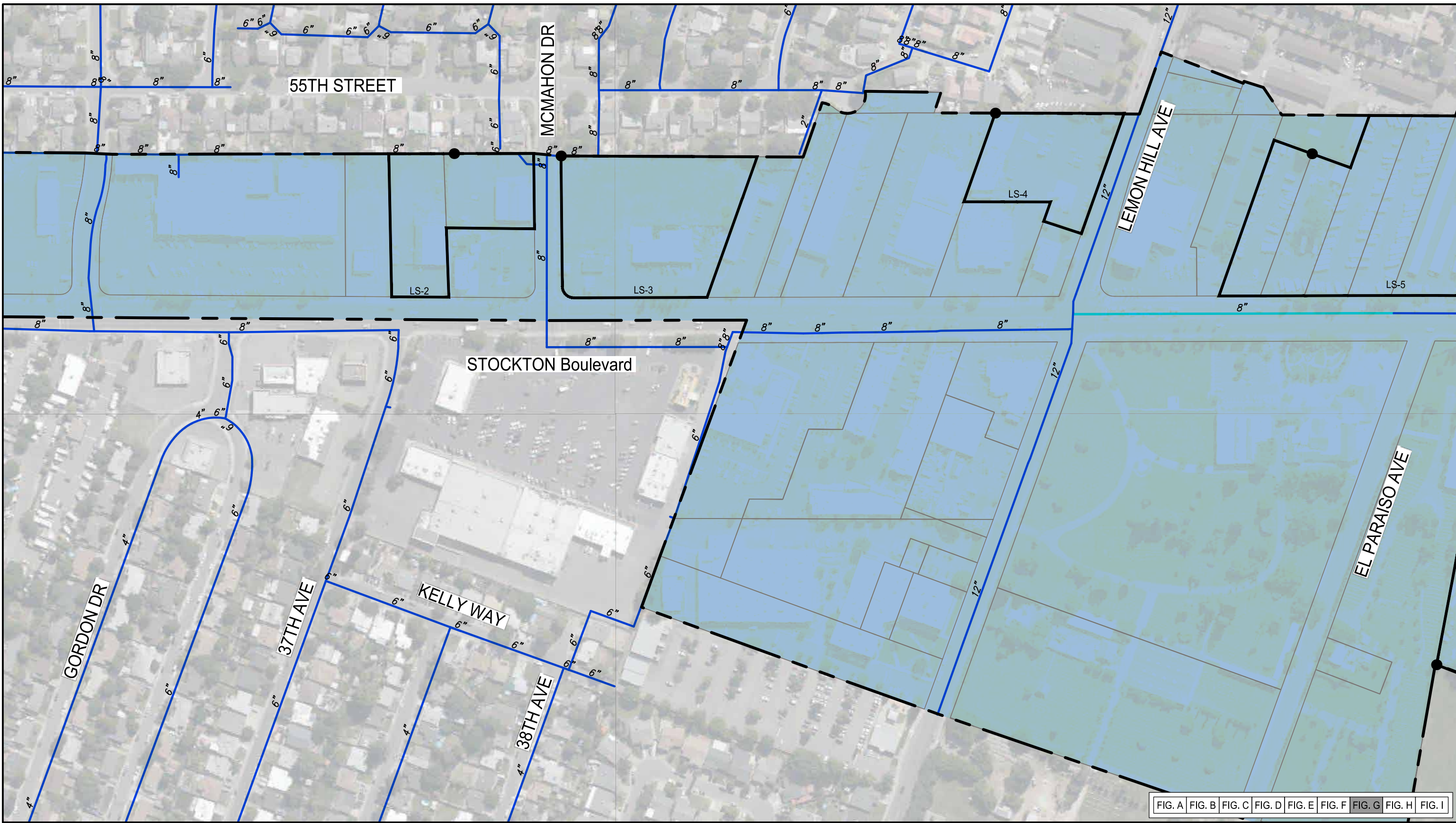
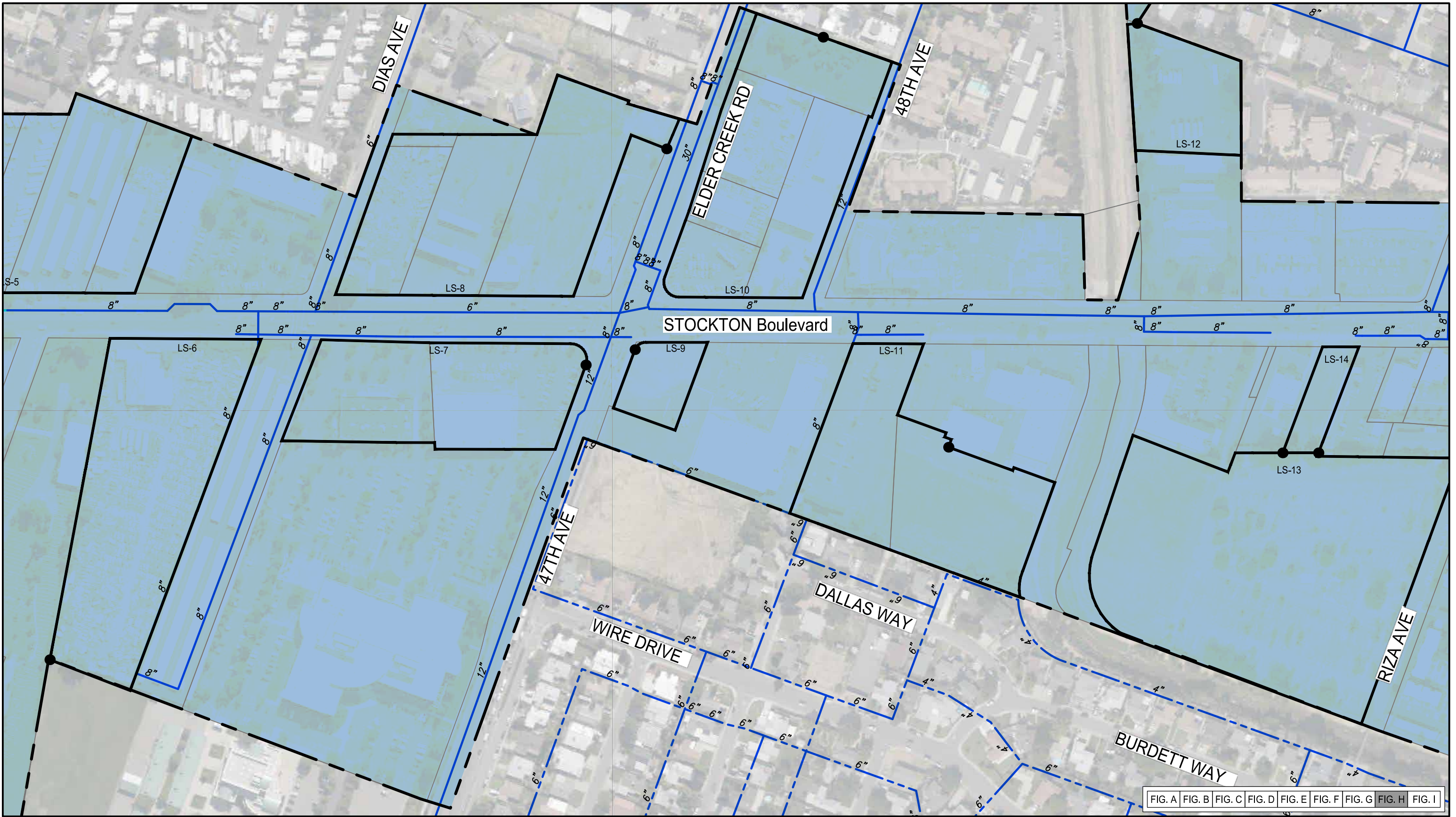


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I


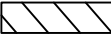





April 2022
**Stockton Boulevard Plan
 Infrastructure Analysis
 Figure 3G Water**

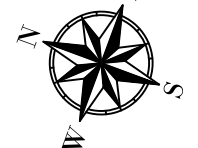
LEGEND	
	Opportunity Areas
	Pipeline Project
	Little Saigon (LS)
	Water Main City
	Water Main County
	Water Main Private
	SBP Boundary
	Proposed Water Main

DATE: 4/26/22 TIME: 9:45:50 AM
 DWG NAME: WTO8.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPYFFER
 XREFS:

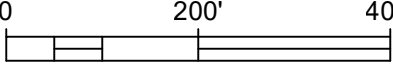



April 2022
**Stockton Boulevard Plan
 Infrastructure Analysis
 Figure 3H Water**


LEGEND	
	Opportunity Areas
	Pipeline Project
	Little Saigon (LS)
	Water Main City
	Water Main County
	Water Main Private
	SBP Boundary

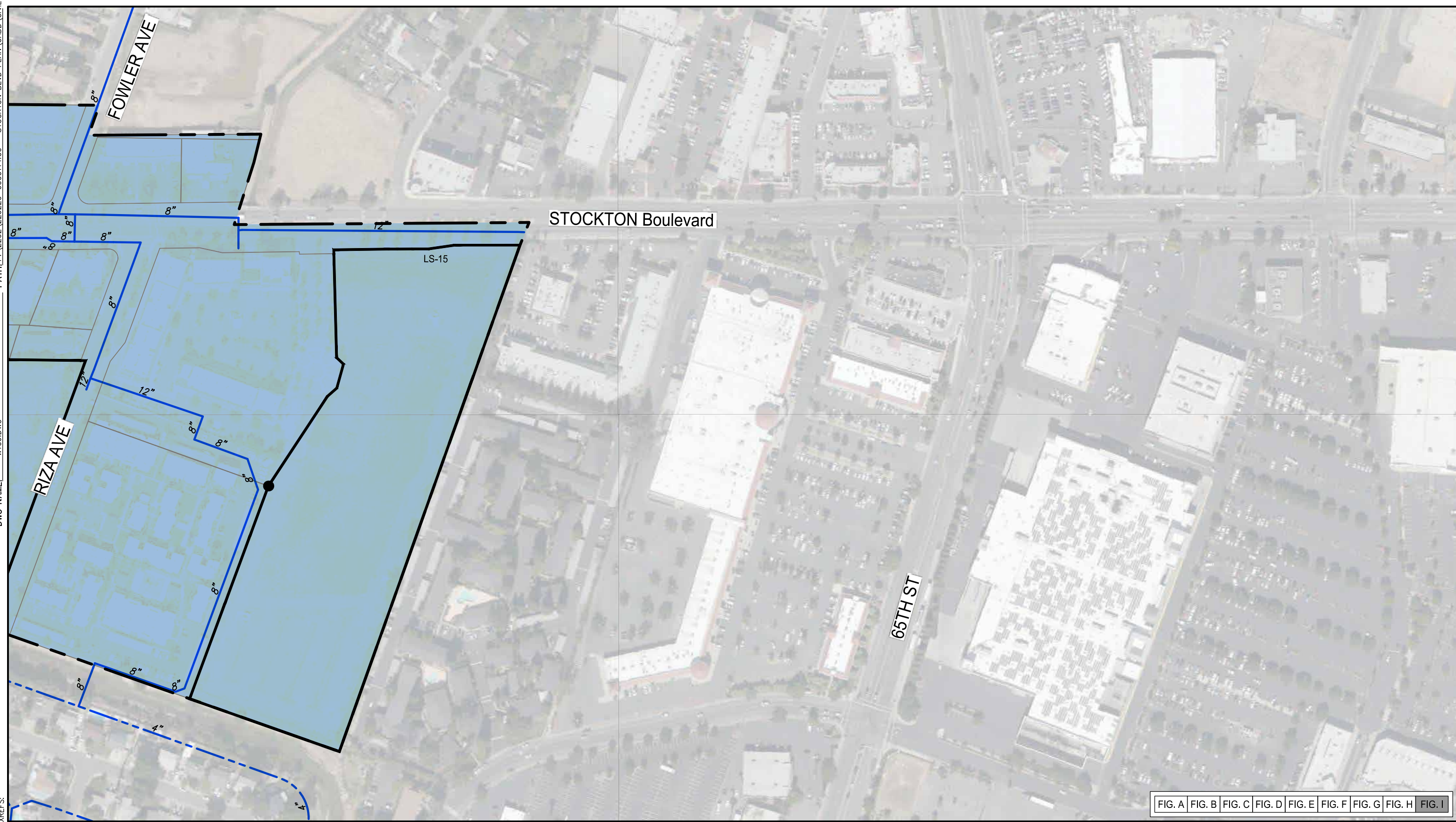


0 200' 400'









April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 31 Water

LEGEND	
	Opportunity Areas
	Pipeline Project
	Little Saigon (LS)
	Water Main City
	Water Main County
	Water Main Private
	SBP Boundary

FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I



NATURAL GAS

General Information

Pacific Gas & Electric Company (PG&E) supplies natural gas to the Sacramento area. During the winter, approximately 70% is imported from Canada and the balance is supplied from California production wells. During the summer, this ratio is reversed. Also during the summer, gas prices are lower so gas is stored in underground reservoirs for use during winter peak use periods.

The PG&E gas distribution system has high and low pressure distribution systems. The high pressure system pipelines are generally 4-inch diameter and larger, carry gas at approximately 40 pounds per square inch (psi). Low pressure system pipelines, generally 2-inch diameter, carry gas at a pressure of 7-inch water column (about 0.25 psi). Service is generally provided from the low pressure system unless usage exceeds about 3,000 cubic feet per hour; however, in the SBP area the system is all high pressure. Regulators are used to reduce high pressure to low pressure.

Existing Conditions

A 6-inch transmission main passes through the SBP area located in T Street to Stockton Blvd. to V Street serving the UCD Medical Center campus. A second major 16-inch gas transmission main passes through the SBP area located in 15th Avenue. A third major 12-inch gas transmission main passes through the SBP located in Fruitridge Road. There is also a 20" SMUD pipeline that passes through the SBP area located in Fruitridge Road.

The high pressure gas system generally is served by a grid system throughout the SBP area. The high pressure system pipelines range in size from 2-inch to 6-inch diameter. These mains are generally located in the streets or occasionally in an alley. There is a 4-inch pipeline located in Stockton Blvd. from Alhambra Blvd. to Broadway. A 2-inch pipeline is located in Stockton Blvd. from Broadway to 16th Avenue. There is a gap in the system along Stockton Boulevard from 16th Avenue to Yosemite Avenue. There is a short approximately 200 foot section of 2-inch pipeline located south of Yosemite Avenue, but then there is another gap in system to mid-way between Parker Avenue and Roosevelt Avenue. From that point a 2-inch pipeline that increases to a 4-inch pipeline at Roosevelt Avenue. This 4-inch pipeline extends southerly along Stockton Boulevard to the SBP southern boundary.

Proposed Conditions

PG&E indicates they are currently making improvements to their system which may negate the need for future improvements when or if the new developments are constructed. PG&E will service the new developments and infrastructure as they are constructed and require service. PG&E would expand/upgrade the natural gas system to extend service to new development on a case-by-case basis with additional information on the actual development square footage and maximum and minimum gas loads.

PG&E was unable to provide a draft of necessary system improvements and/or review of their gas system without specific information regarding gas loads at each potential development site together with an application for service.

If the user is a core (non-interruptible) customer in the service area and will accept service at 7-inch water column pressure, the company is generally obligated by California Public Utilities Commission (CPUC) regulations to provide service without additional cost for service. If the user is a non-core (interruptible) customer or needs an elevated pressure service for large volume use, there are charges for service according to PG&E new business tariffs. Whether a project is a core (non-interruptible) user or a non-core (interruptible) user depends on the type of use for the facility or business. Projects in the DBP Plan Area are most likely to be core (non-interruptible) customers.



The City of Sacramento adopted the Electric Vehicle (EV) Charging Infrastructure Ordinance on April 20, 2021 and the New Building Electrification Ordinance on June 1, 2021. The New Building Electrification Ordinance requires newly constructed buildings that are three stories or less to be all-electric with building permit applications filed on or after January 1, 2023, and newly constructed buildings that are four stories or more to be all-electric with building permit applications filed on or after January 1, 2026. These new requirements will likely lower the new development gas demand and the need for new services in the coming years. The following is a link to the City of Sacramento website with information on these recently adopted ordinances:

<http://www.cityofsacramento.org/SacElectrificationOrdinance>

Recommended System Improvements:








There is an existing gap in the natural gas main line system along Stockton Boulevard between the existing 2” main at 16th Avenue and the existing 4” main at Roosevelt Avenue. However, the existing developed parcels in this gap area appear to receive gas service from the side streets. At PG&E’s discretion, it may be necessary to provide a main line connection between these two points in the system in order to serve future development demands. With the City’s newly adopted New Building Electrification Ordinance it may prove unnecessary to expand the existing natural gas system.


DATE: 4/26/22 TIME: 9:46:51 AM
 DWG NAME: GSO1.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN DEPFYFFER
 XREFS:

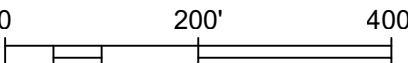



FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I


April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 4A Existing Natural Gas

LEGEND					
	Opportunity Areas		Natural Gas Distribution		SBP Boundary
	Entry to Midtown (EM)		Natural Gas Transmission		SMUD 20"
	Medical Center Campus (MCC)				









DATE: 4/26/22 TIME: 9:47:18 AM
 DWG NAME: GS02.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPFFYFFER
 XREFS:

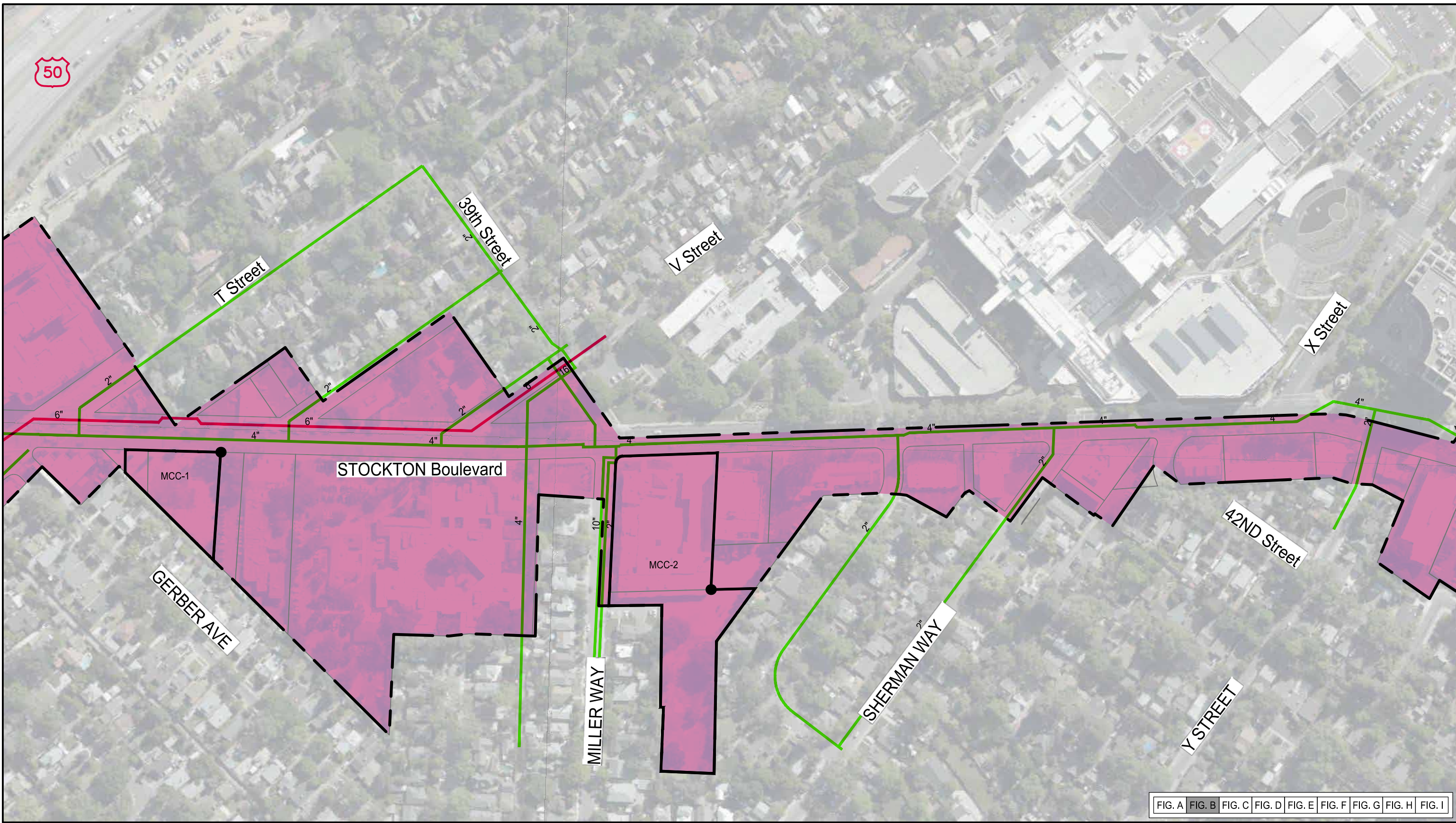


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 4B Existing Natural Gas

LEGEND					
	Opportunity Areas		Natural Gas Distribution		SBP Boundary
	Medical Center Campus (MCC)		Natural Gas Transmission		SMUD 20"

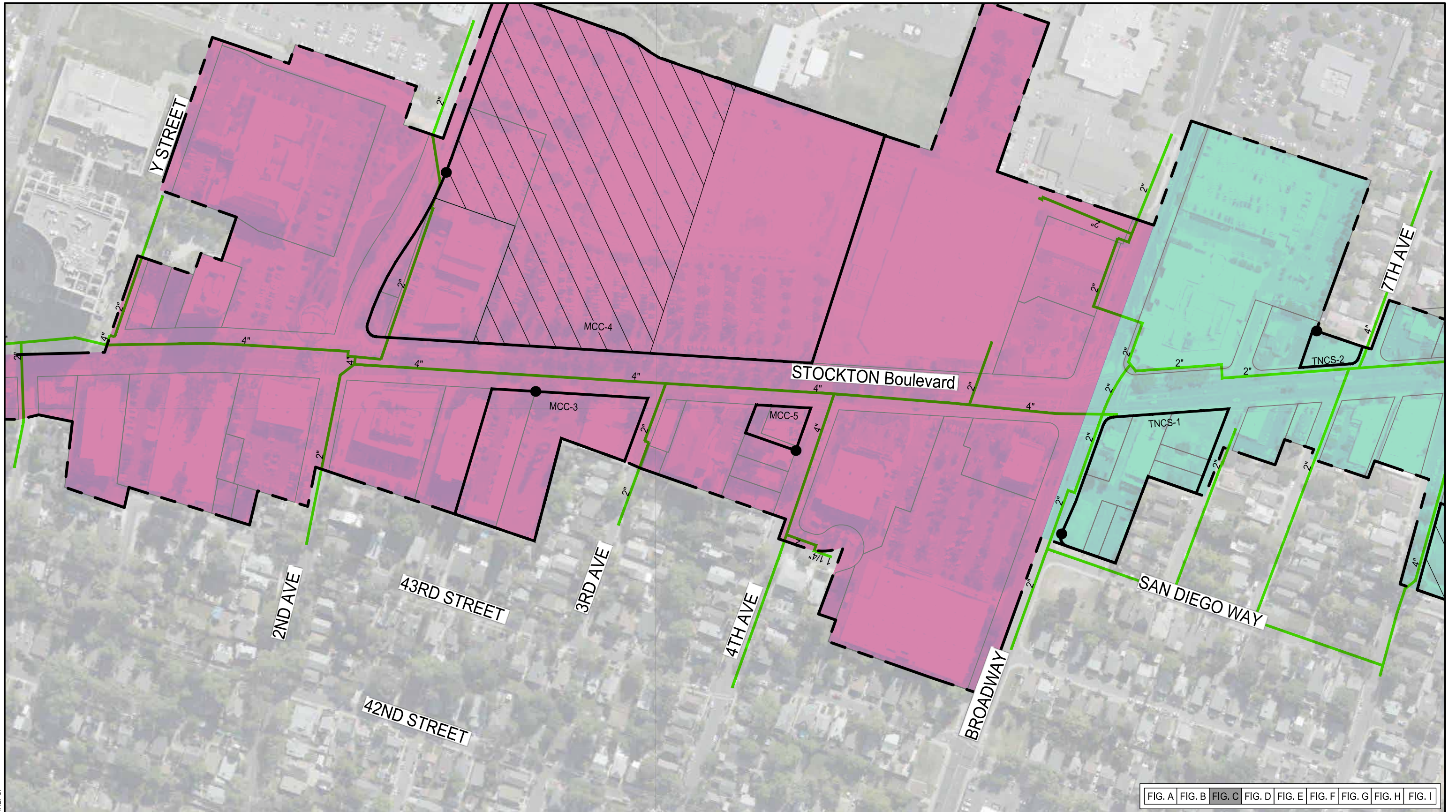
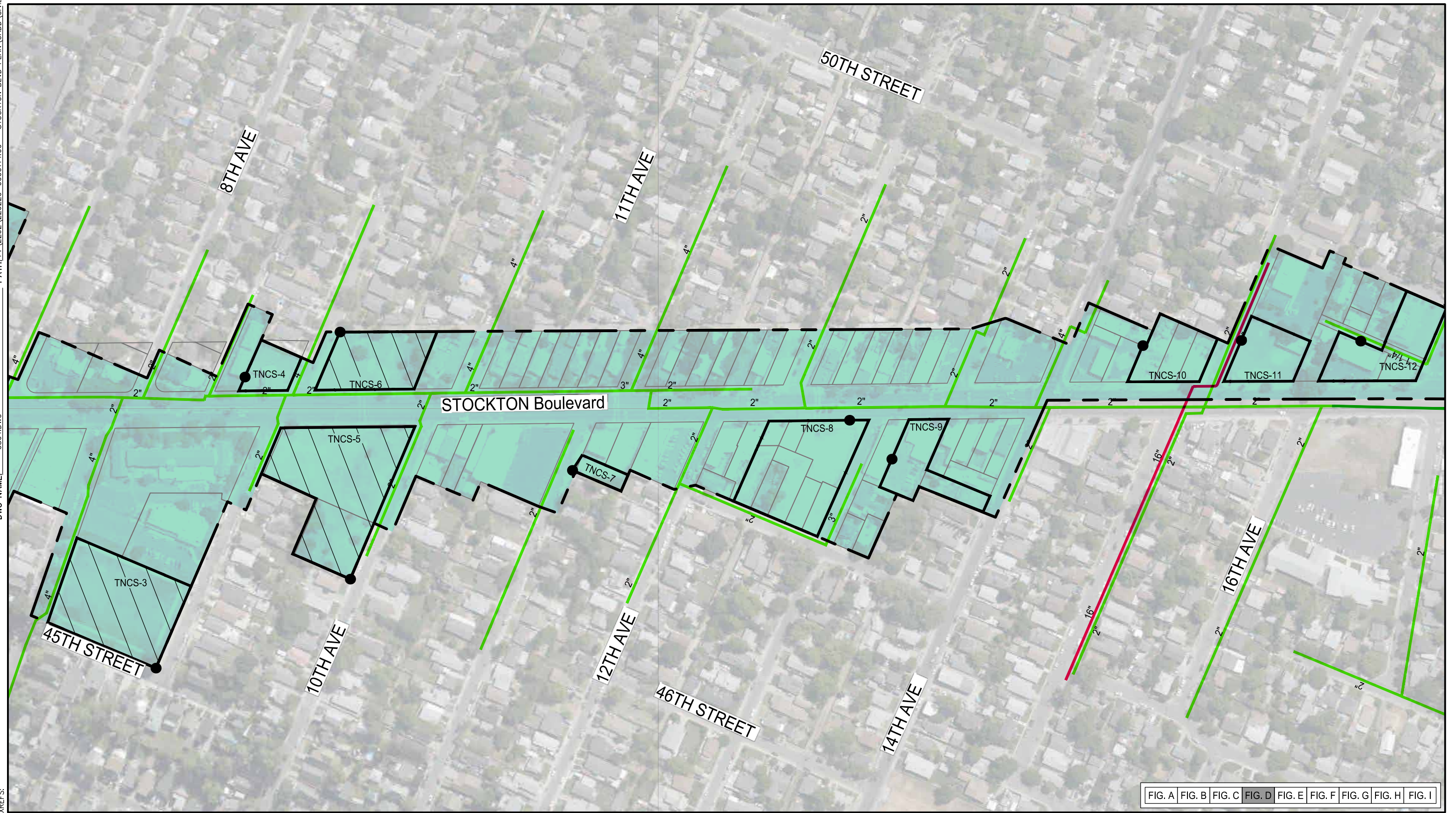


FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 4C Existing Natural Gas

LEGEND	
	Opportunity Areas
	Pipeline Project
	Medical Center Campus (MCC)
	Traditional Neighborhoods
	Commercial Storefront (TNCS)
	Natural Gas Distribution
	Natural Gas Transmission
	SMUD 20"
	SBP Boundary

DATE: 4/26/22 TIME: 9:48:05 AM
 DWG NAME: GSO4.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPFFYFFER
 XREFS:



April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 4D Existing Natural Gas

LEGEND	
	Opportunity Areas
	Pipeline Project
	Traditional Neighborhoods Commercial Storefront (TNCS)
	Natural Gas Distribution
	Natural Gas Transmission
	SMUD 20"
	Proposed Natural Gas Distribution
	SBP Boundary

FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

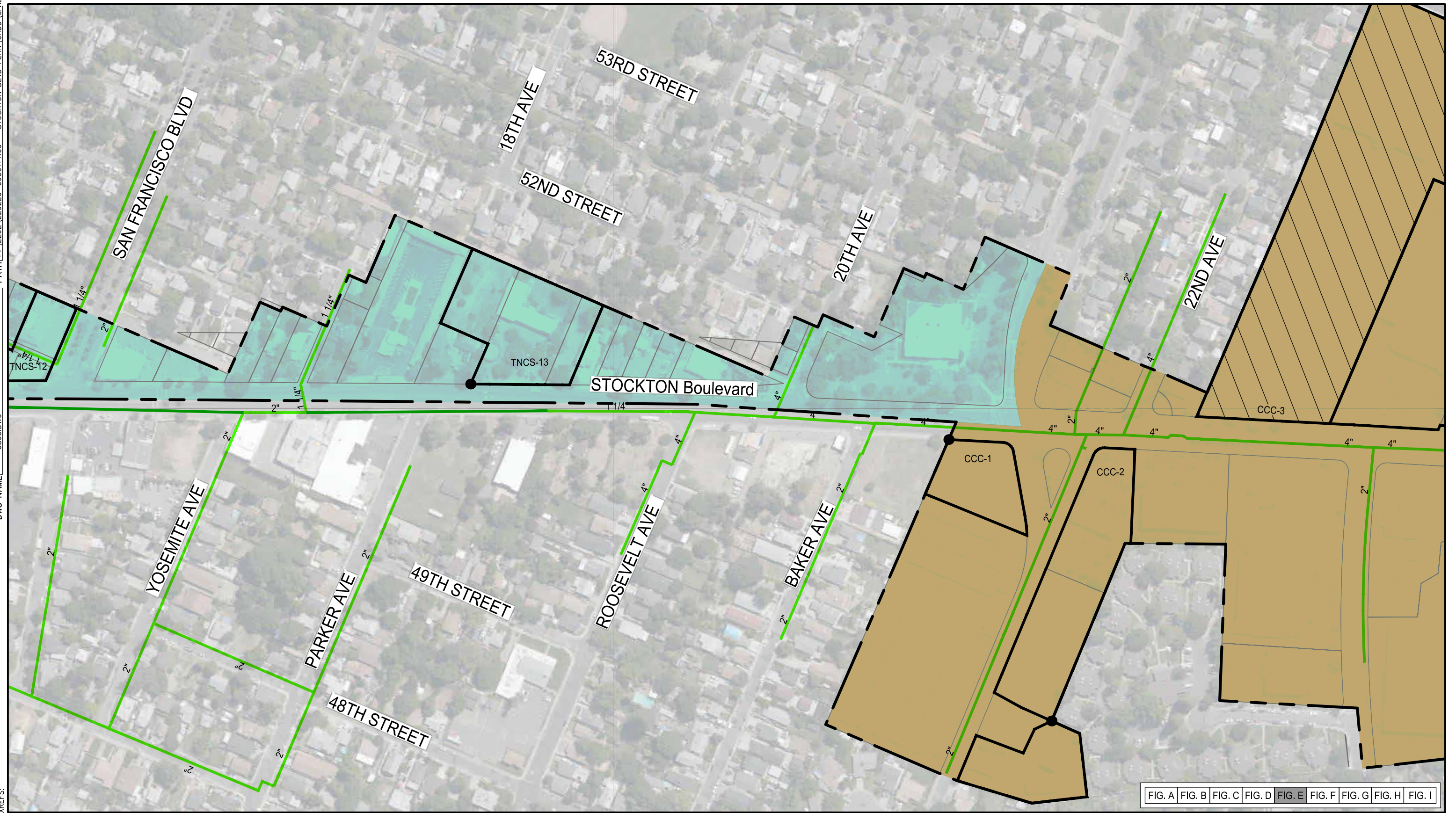


FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 4E Existing Natural Gas

LEGEND	
	Opportunity Areas
	Pipeline Project
	Traditional Neighborhoods
	Commercial Storefront (TNCS)
	Community Commercial Center (CCC)
	Natural Gas Distribution
	Natural Gas Transmission
	SMUD 20"
	Proposed Natural Gas Distribution
	SBP Boundary

DATE: 4/26/22 TIME: 9:49:00 AM
 DWG NAME: GSO6.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPYFFER

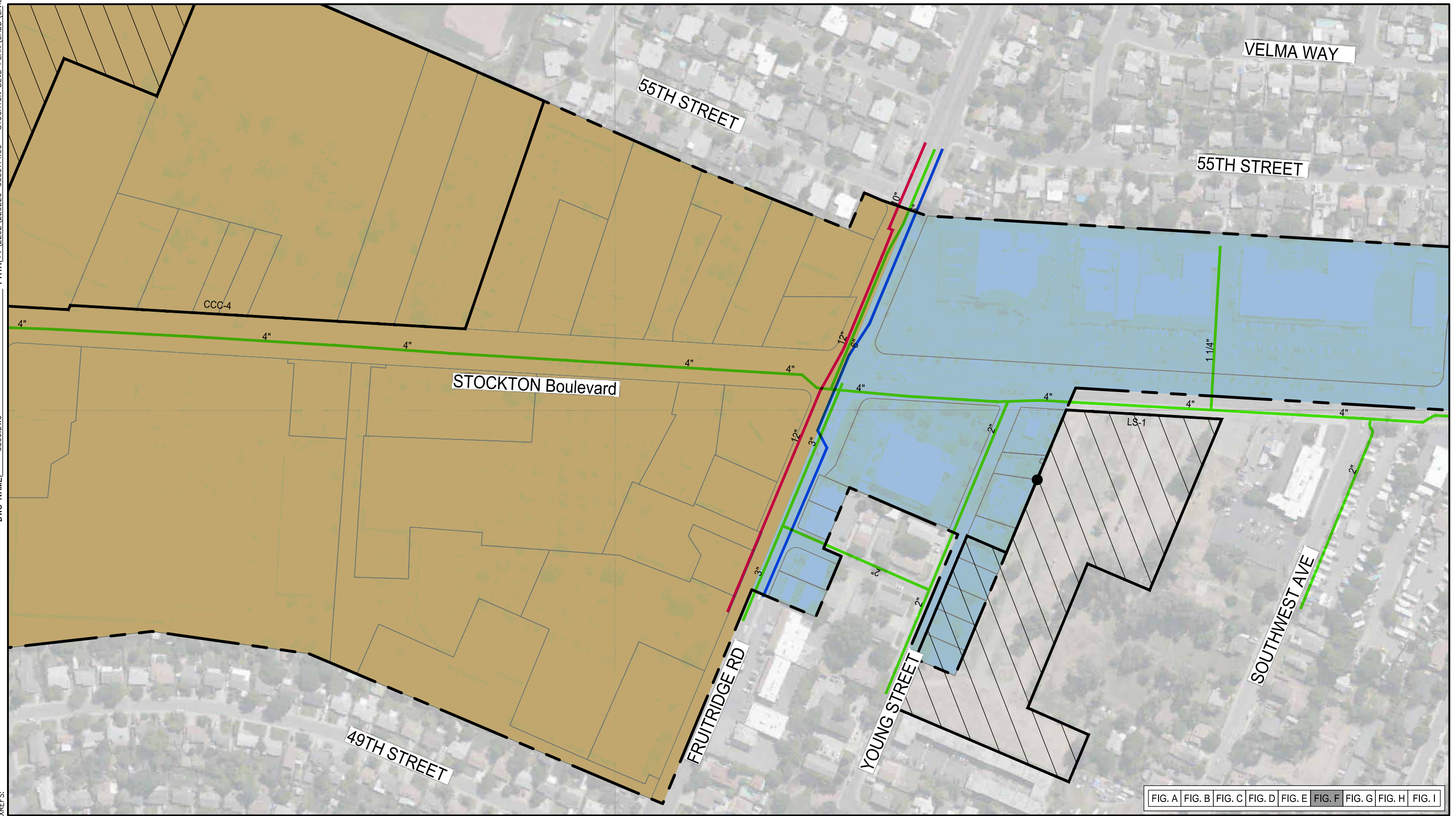


FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

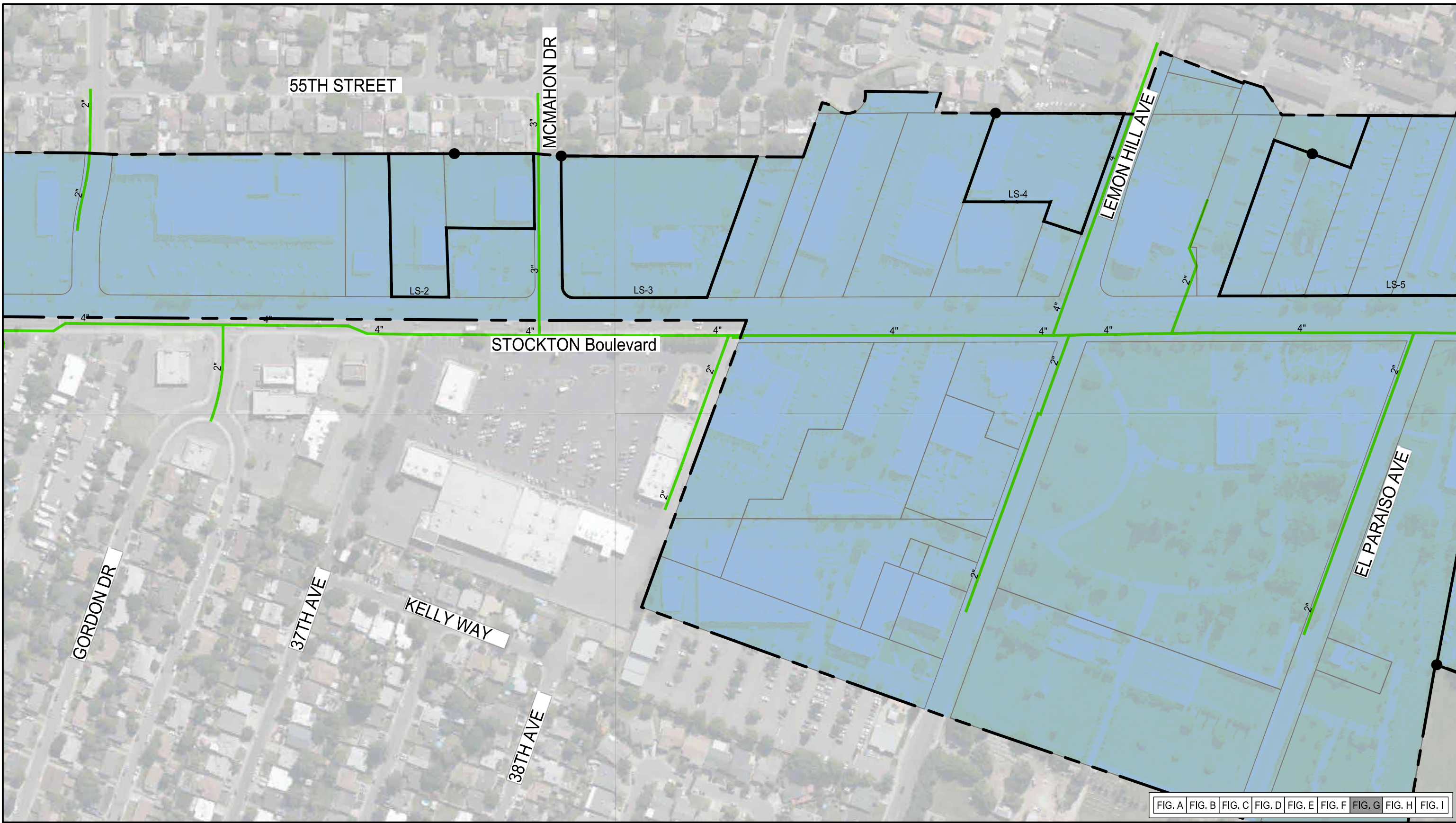
April 2022
**Stockton Boulevard Plan
 Infrastructure Analysis**
Figure 4F Existing Natural Gas

LEGEND

	Opportunity Areas		Natural Gas Distribution		SBP Boundary
	Pipeline Project		Natural Gas Transmission		
	Community Commercial Center (CCC)		SMUD 20"		
	Little Saigon (LS)				

0 200' 400'

N|V|5



April 2022
**Stockton Boulevard Plan
 Infrastructure Analysis
 Figure 4G Existing Natural Gas**

LEGEND	
	Opportunity Areas
	Pipeline Project
	Little Saigon (LS)
	Natural Gas Distribution
	Natural Gas Transmission
	SMUD 20"
	SBP Boundary

0 200' 400'

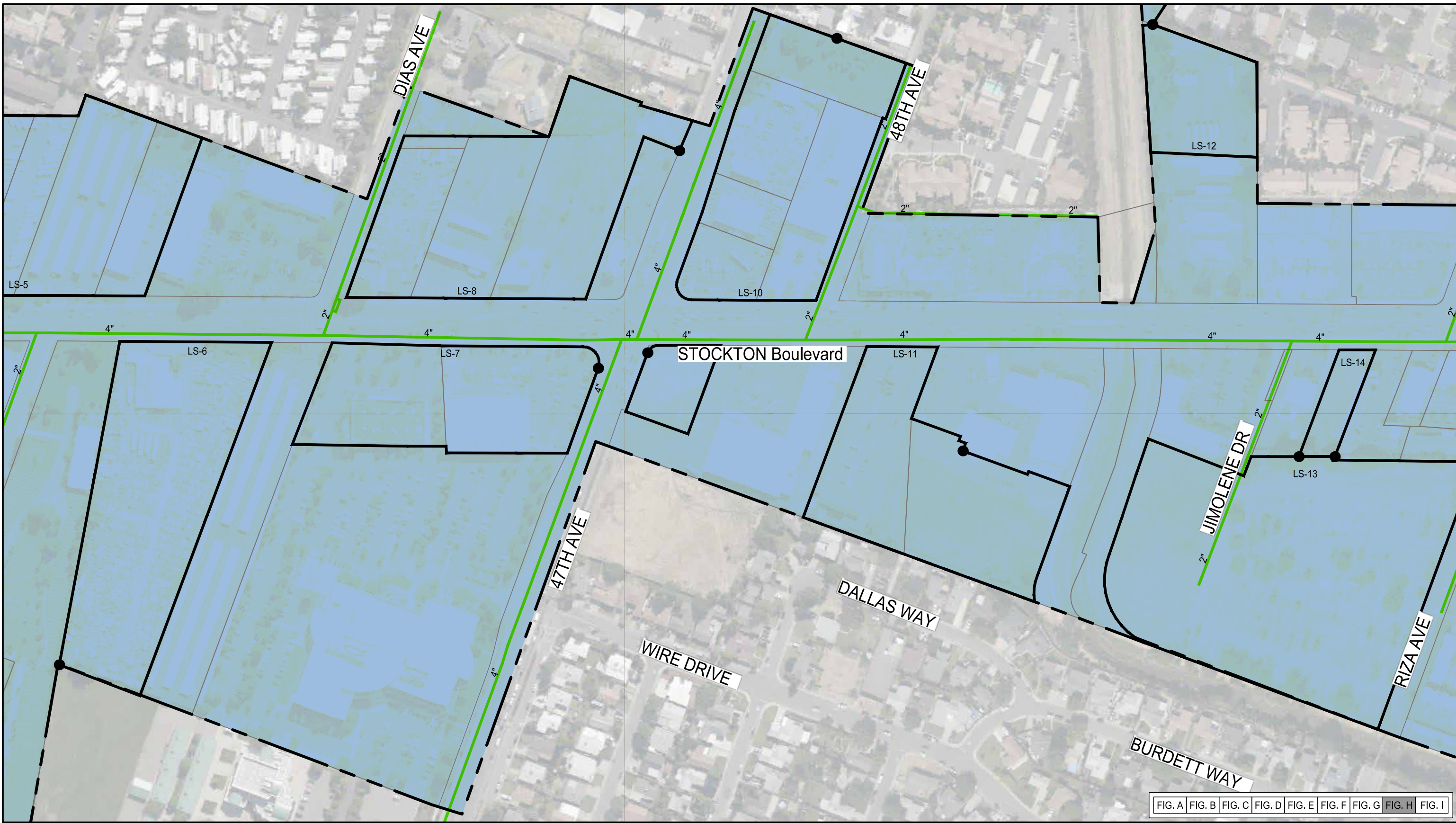


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
**Stockton Boulevard Plan
 Infrastructure Analysis**
Figure 4H Existing Natural Gas

LEGEND	
	Opportunity Areas
	Pipeline Project
	Little Saigon (LS)
	Natural Gas Distribution
	Natural Gas Transmission
	SMUD 20"
	SBP Boundary

DATE: 4/26/22 TIME: 9:50:23 AM
 DWG NAME: GS09.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPYFFER
 XREFS:

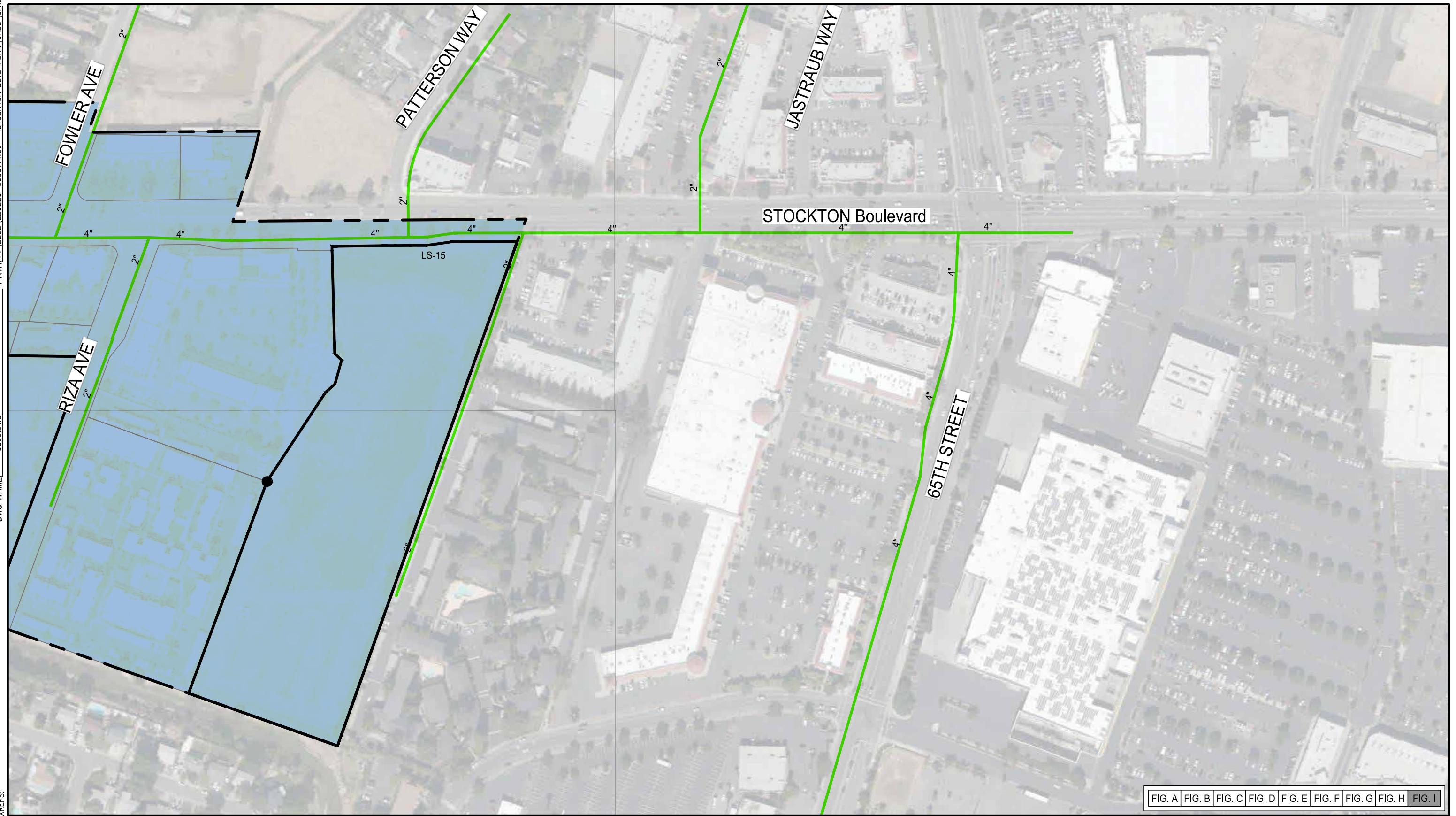

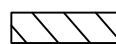






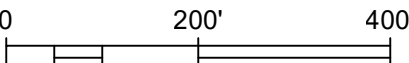



FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I


April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 4I Existing Natural Gas

LEGEND	
	Opportunity Areas
	Pipeline Project
	Little Saigon (LS)
	Natural Gas Distribution
	Natural Gas Transmission
	SMUD 20"
	SBP Boundary











ELECTRICAL

General Information

SMUD provides electrical service to customers located within the SBP area. Power is transmitted to the SBP area by a 12kV and 21kV distribution system. There are 3 different 21kV substations that feed the Stockton Blvd. area. Specifically, SMUD Mid-City substation, East-City substation, and South-City substation. All of these substations step down 115kV to 21kV in order to feed the Stockton Blvd. area. The Mid-City substation is situated along Stockton Blvd. and 34th Street in the northern end of the SBP area.

Of these three substations, there are five 21kV feeders serving the SBP area. The five feeders consist of Mid-City 2302, Mid-City 2305, South-City 2302, South-City 2303, and East-City 2302. The existing feeders will likely be used to serve new development located within the 21kV service area along Stockton Blvd.

Existing Conditions (Facilities)

The SBP area is served by the 12kV and 21kV distribution system consisting of mainly overhead facilities. The 21kV system is fed from Mid-City 2302, Mid-City 2305, South-City 2302, South-City 2303, and East-City 2302. The five 21kV feeders total approximately 23MVA of load carrying capacity.

The 12kV distribution system is served with three feeders on the different distribution substations: 14th Ave. & 52nd feeder 1203, Fruitridge 44th St. feeder 1202, and Wire & 4th feeder 1203. There is an existing 69kV underbuilt with 12kV overhead facilities along Stockton Blvd between of 15th Avenue and Fruitridge Road. There is 12kV overhead facilities between Fruitridge Road and Riza Avenue. There are 12kV underground facilities along Stockton Blvd. from Riza Avenue to the SBP southerly boundary.

The existing public utility easements (PUEs) along Stockton Blvd. need to be maintained for the existing and future 12/69kV overhead electrical facilities. New PUEs will need to be provided if the SMUD facilities are relocated.

The amount of available capacity is solely determined by the location of the new development and the available circuits that feed that area. SMUD requires the customer to provide the load usage to forecast the future facilities upgrade to serve the customer proposed project.

Proposed Conditions

The amount of available capacity is determined by the location of the new development and the available circuits that feed that area. SMUD requires the customer to provide the load usage to forecast the future facilities upgrade to serve the customer proposed project.

The City of Sacramento adopted the Electric Vehicle (EV) Charging Infrastructure Ordinance on April 20, 2021 and the New Building Electrification Ordinance on June 1, 2021. The New Building Electrification Ordinance requires newly constructed buildings that are three stories or less to be all-electric with building permit applications filed on or after January 1, 2023, and newly constructed buildings that are four stories or more to be all-electric with building permit applications filed on or after January 1, 2026. These new requirements will greatly affect the new development electric demand in the coming years. The following is a link to the City of Sacramento website with information on these recently adopted ordinances: (<http://www.cityofsacramento.org/SacElectrificationOrdinance>)

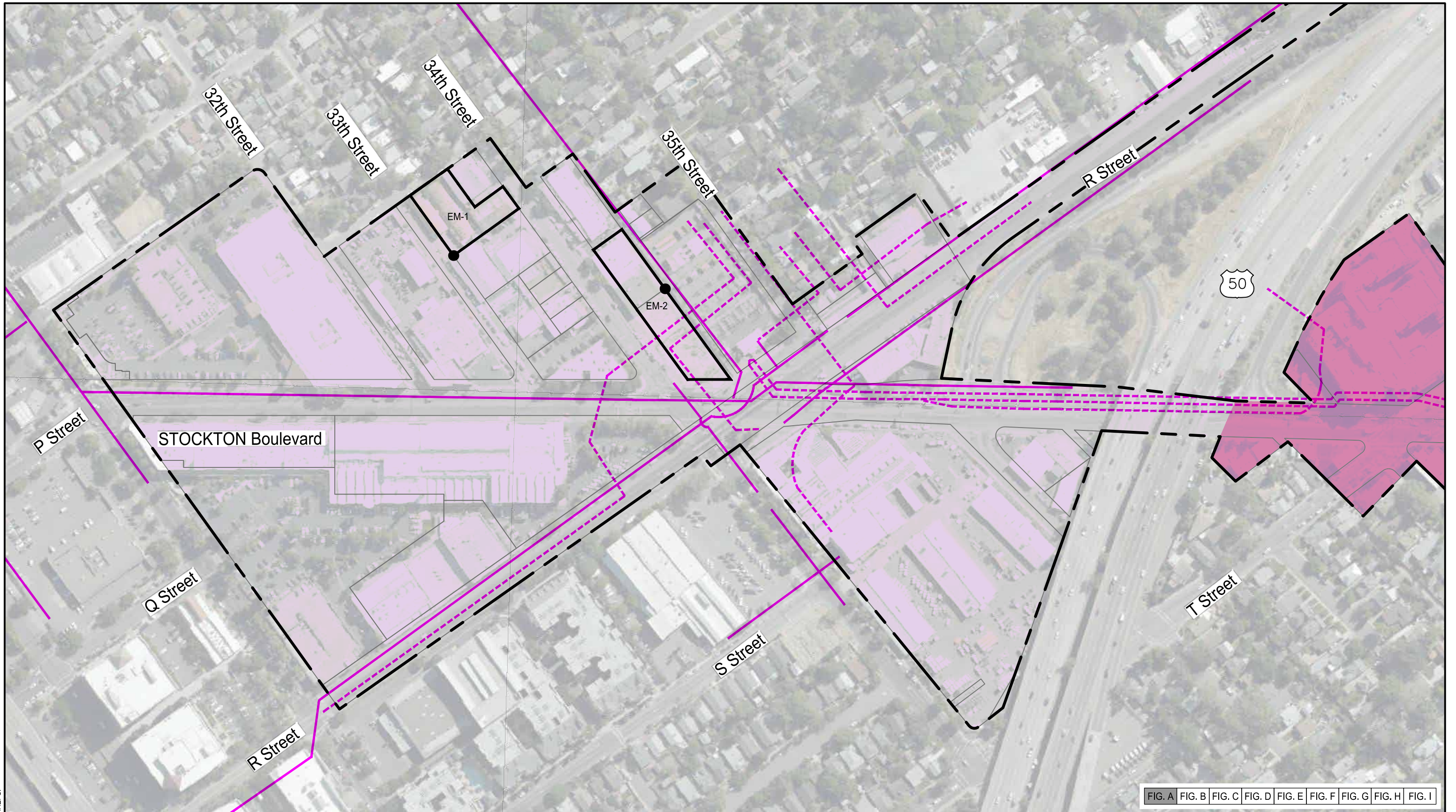
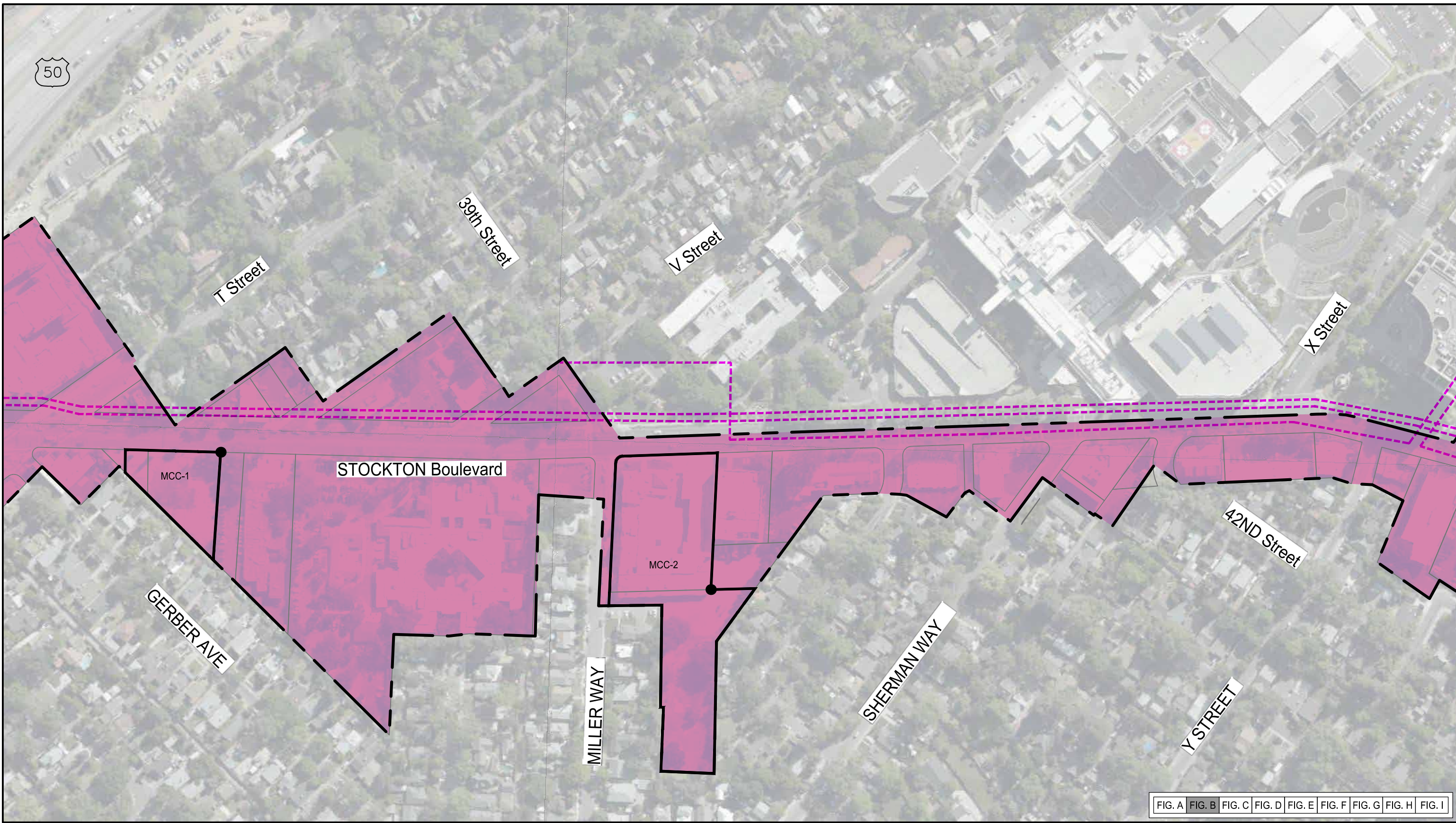


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 5A Existing Electrical

LEGEND	
	Opportunity Areas
	Entry to Midtown (EM)
	Medical Center Campus (MCC)
	12kV Overhead
	12kV Underground
	21kV Overhead
	21kV Underground
	69kV & 12kV Overhead
	69kV & 12kV Underground
	69kV Overhead
	69kV Underground

DATE: 4/26/22 TIME: 9:51:20 AM
 DWG NAME: EC02.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPFFYFFER
 XREFS:



April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 5B Existing Electrical

LEGEND	
	Opportunity Areas
	Medical Center Campus (MCC)
	12kV Overhead
	12kV Underground
	21kV Overhead
	21kV Underground
	69kV & 12kV Overhead
	69kV & 12kV Underground
	69kV Overhead
	69kV Underground

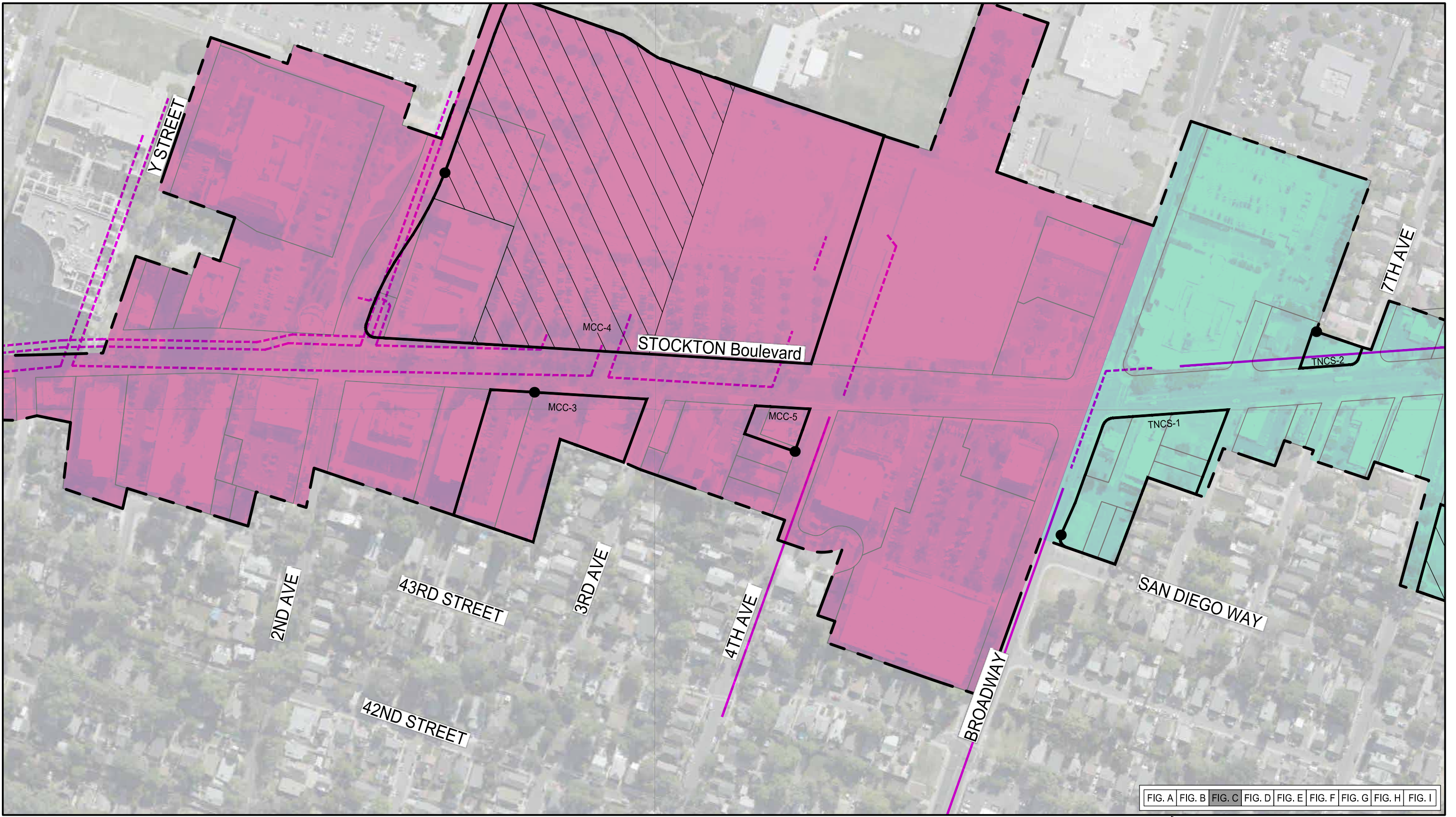


FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

April 2022
**Stockton Boulevard Plan
 Infrastructure Analysis**
Figure 5C Existing Electrical

LEGEND	
	Opportunity Areas
	Pipeline Project
	Medical Center Campus (MCC)
	Traditional Neighborhoods Commercial Storefront (TNCS)
	12kV Overhead
	12kV Underground
	21kV Overhead
	21kV Underground
	69kV & 12kV Overhead
	69kV & 12kV Underground
	69kV Overhead
	69kV Underground

DATE: 4/26/22 TIME: 9:52:28 AM
 DWG NAME: ECO4.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPYFFER
 XREFS:

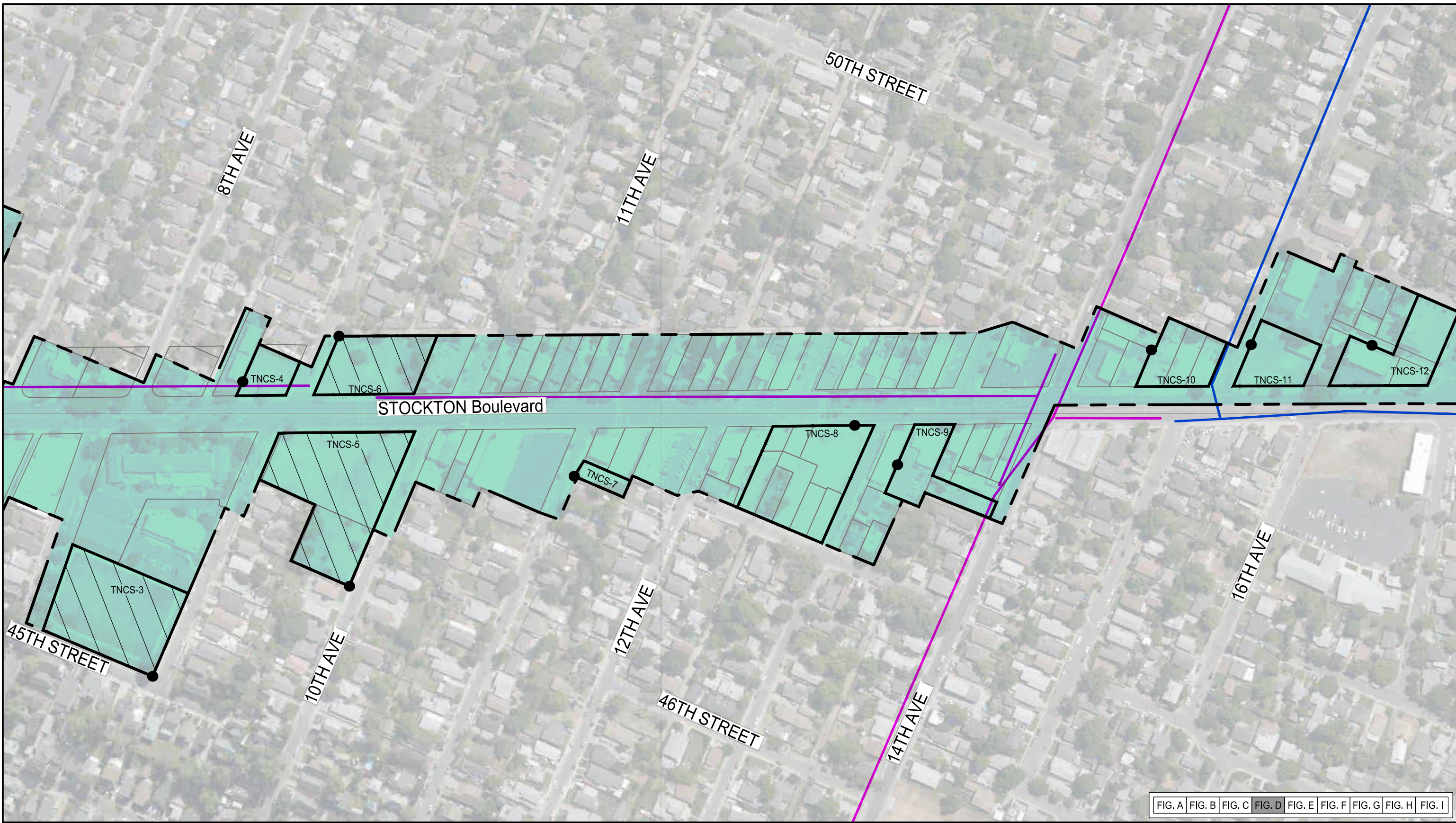
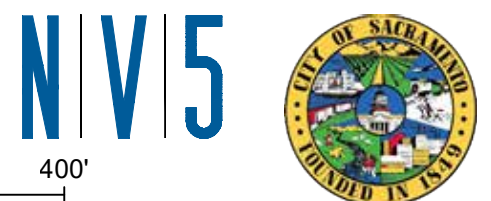
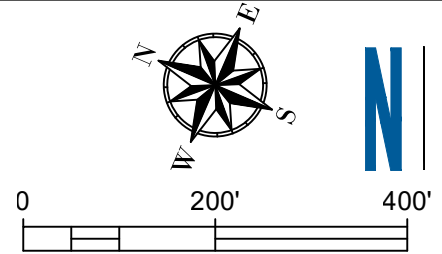


FIG. A | FIG. B | FIG. C | **FIG. D** | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 5D Existing Electrical

LEGEND					
	Opportunity Areas		12kV Overhead		69kV & 12kV Overhead
	Pipeline Project		12kV Underground		69kV & 12kV Underground
	Traditional Neighborhoods Commercial Storefront (TNCS)		21kV Overhead		69kV Overhead
			21kV Underground		69kV Underground



DATE: 4/26/22 TIME: 9:52:58 AM
 DWG NAME: EC05.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPYFFER
 XREFS:

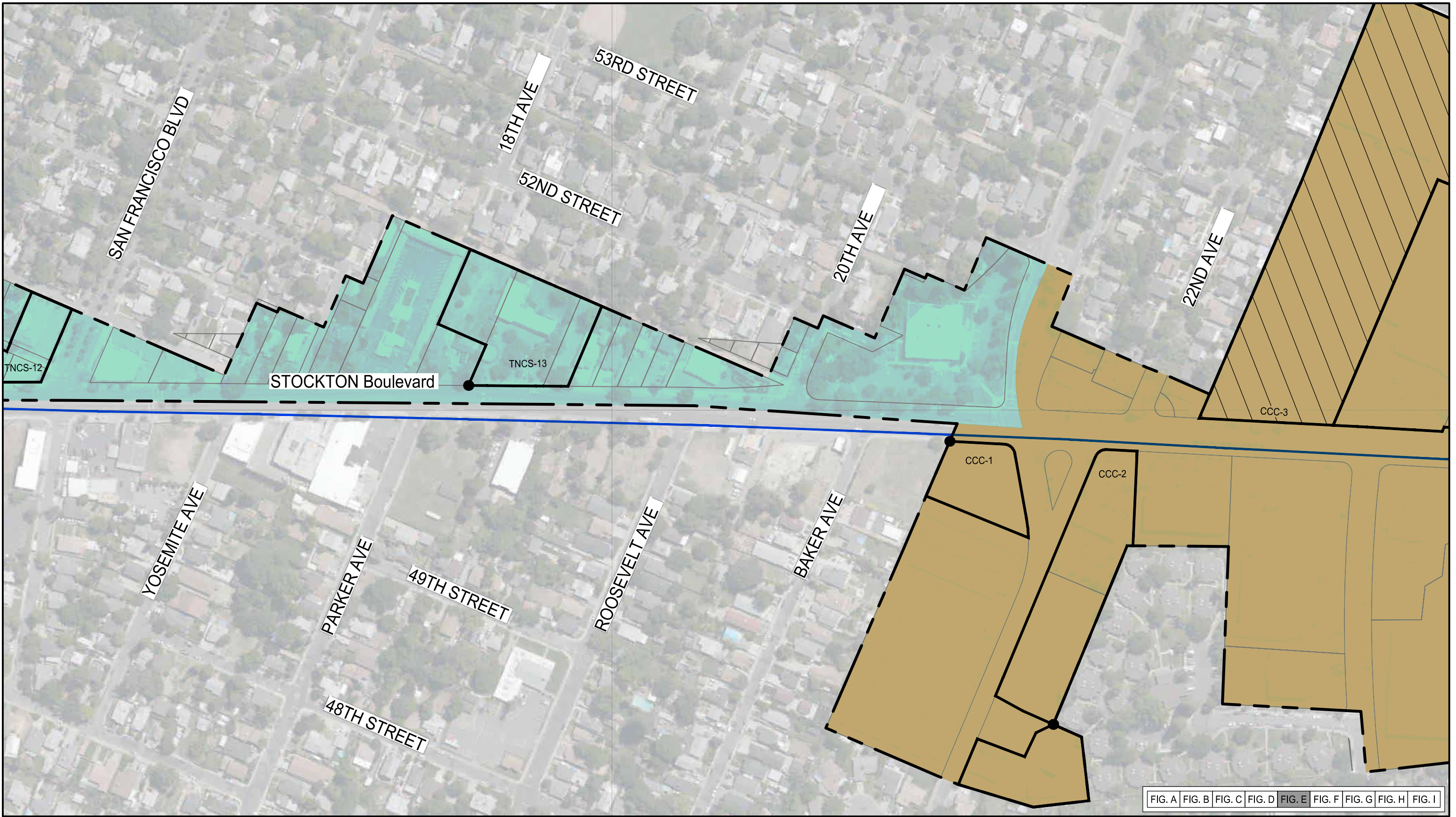
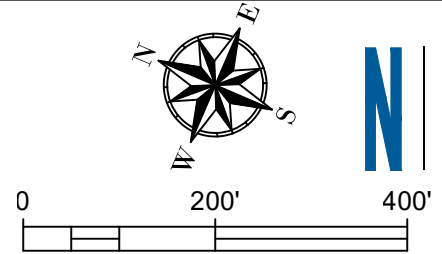


FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 5E Existing Electrical

LEGEND	
	Opportunity Areas
	Pipeline Project
	Traditional Neighborhoods
	Commercial Storefront (TNCS)
	Community Commercial Center (CCC)
	12kV Overhead
	12kV Underground
	21kV Overhead
	21kV Underground
	69kV & 12kV Overhead
	69kV & 12kV Underground
	69kV Overhead
	69kV Underground



DATE: 4/26/22 TIME: 9:53:26 AM
 DWG NAME: EC06.DWG
 PATH: P:\2262\226220-0000114.00 - STOCKTON BLVD PLAN\CADD\CIVIL
 KEVIN.DEPYFFER XREFS:

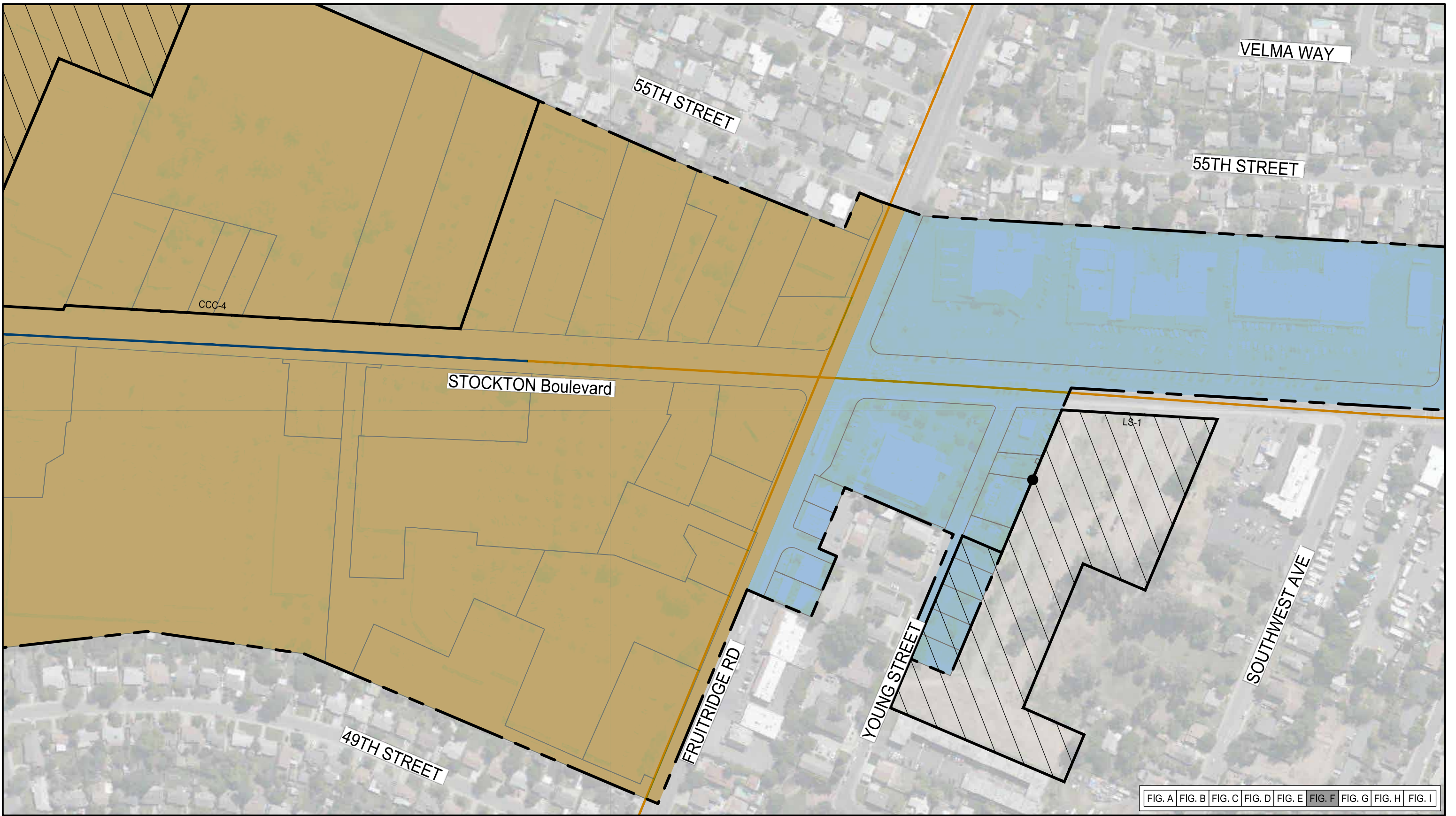
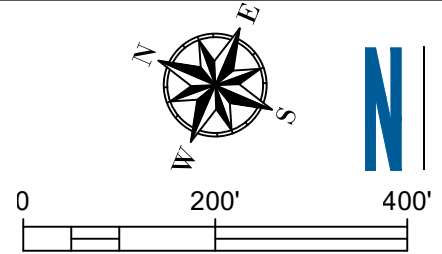


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
Stockton Boulevard Plan
Infrastructure Analysis
Figure 5F Existing Electrical

LEGEND	
	Opportunity Areas
	Pipeline Project
	Community Commercial Center (CCC)
	Little Saigon (LS)
	12kV Overhead
	12kV Underground
	21kV Overhead
	21kV Underground
	69kV & 12kV Overhead
	69kV & 12kV Underground
	69kV Overhead
	69kV Underground



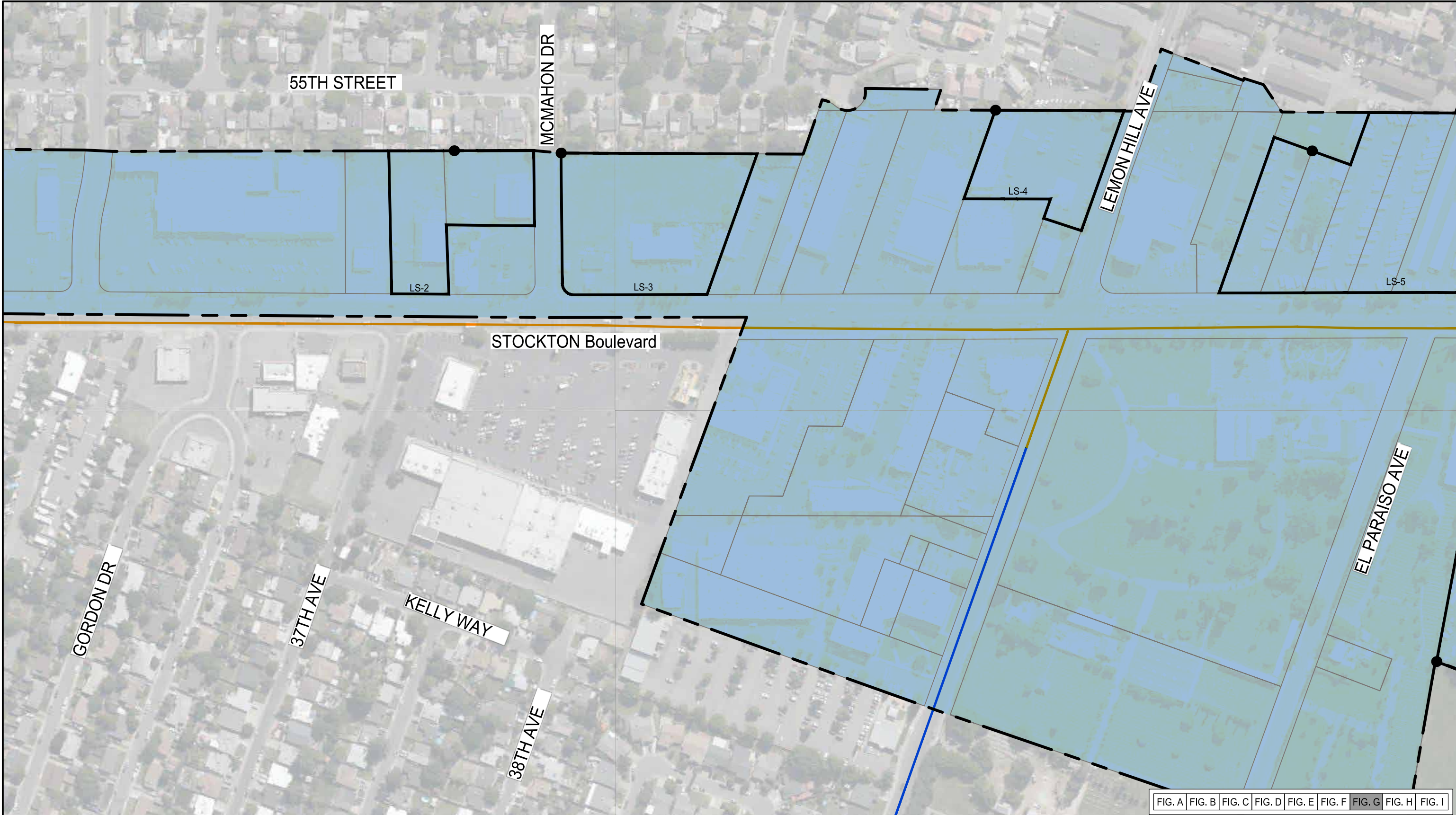
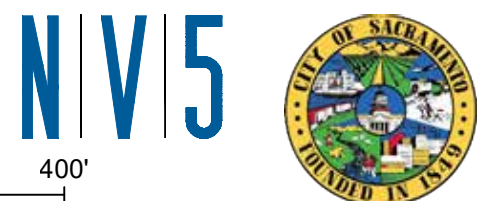
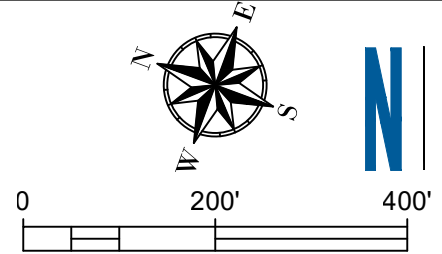


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
**Stockton Boulevard Plan
Infrastructure Analysis
Figure 5G Existing Electrical**

LEGEND	
	Opportunity Areas
	Pipeline Project
	Little Saigon (LS)
	12kV Overhead
	12kV Underground
	21kV Overhead
	21kV Underground
	69kV & 12kV Overhead
	69kV & 12kV Underground
	69kV Overhead
	69kV Underground



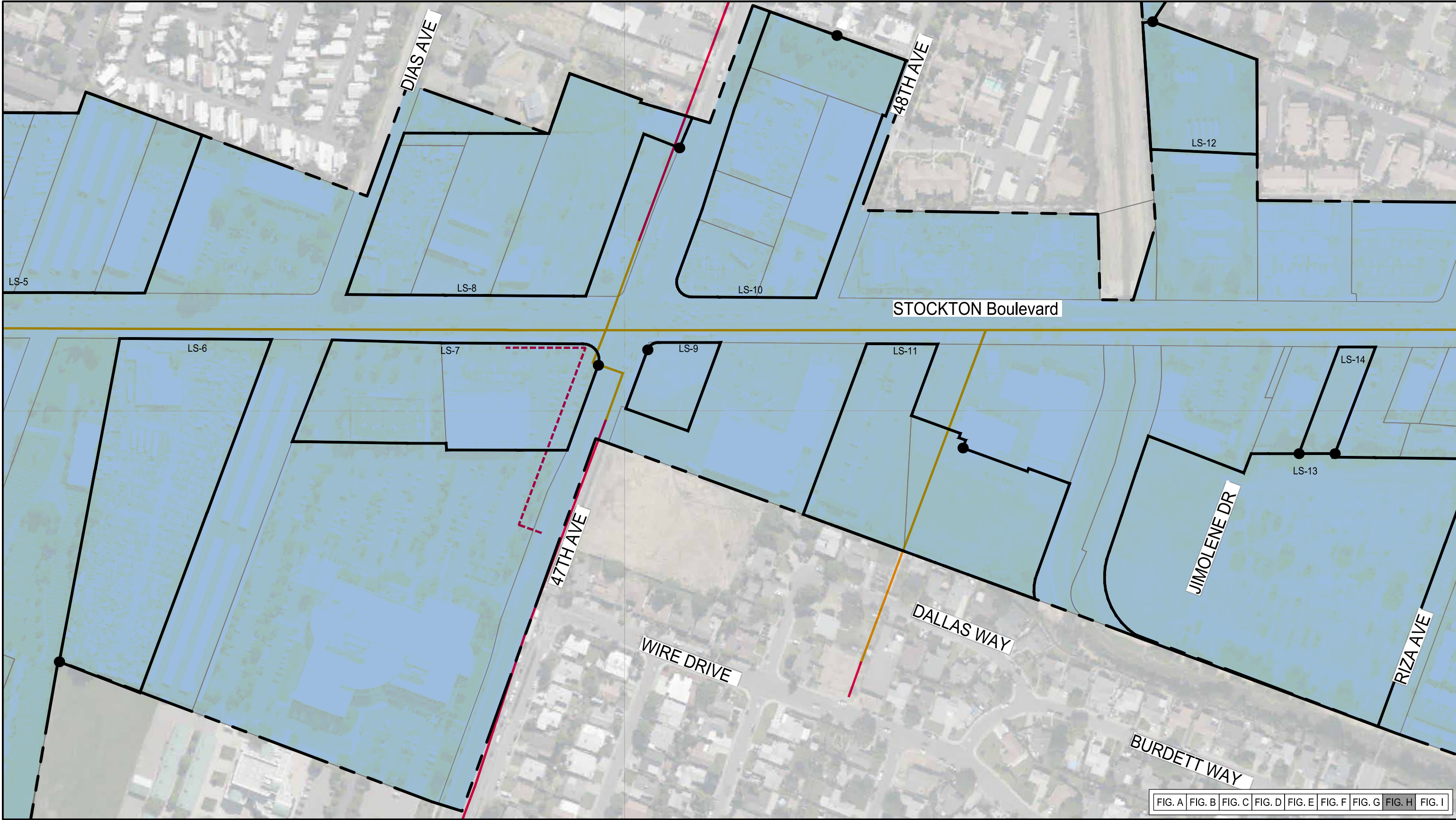
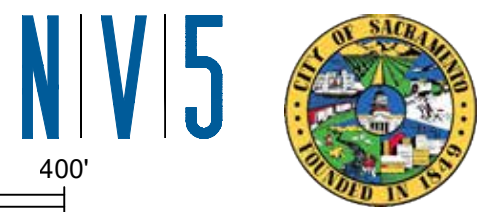
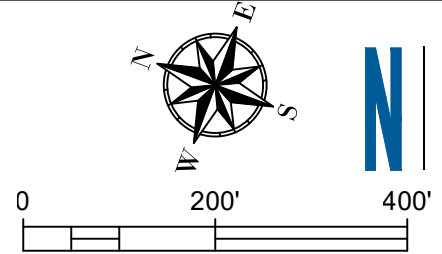


FIG. A | FIG. B | FIG. C | FIG. D | FIG. E | FIG. F | FIG. G | FIG. H | FIG. I

April 2022
**Stockton Boulevard Plan
Infrastructure Analysis
Figure 5H Existing Electrical**

LEGEND					
	Opportunity Areas		12kV Overhead		69kV & 12kV Overhead
	Pipeline Project		12kV Underground		69kV & 12kV Underground
	Little Saigon (LS)		21kV Overhead		69kV Overhead
			21kV Underground		69kV Underground



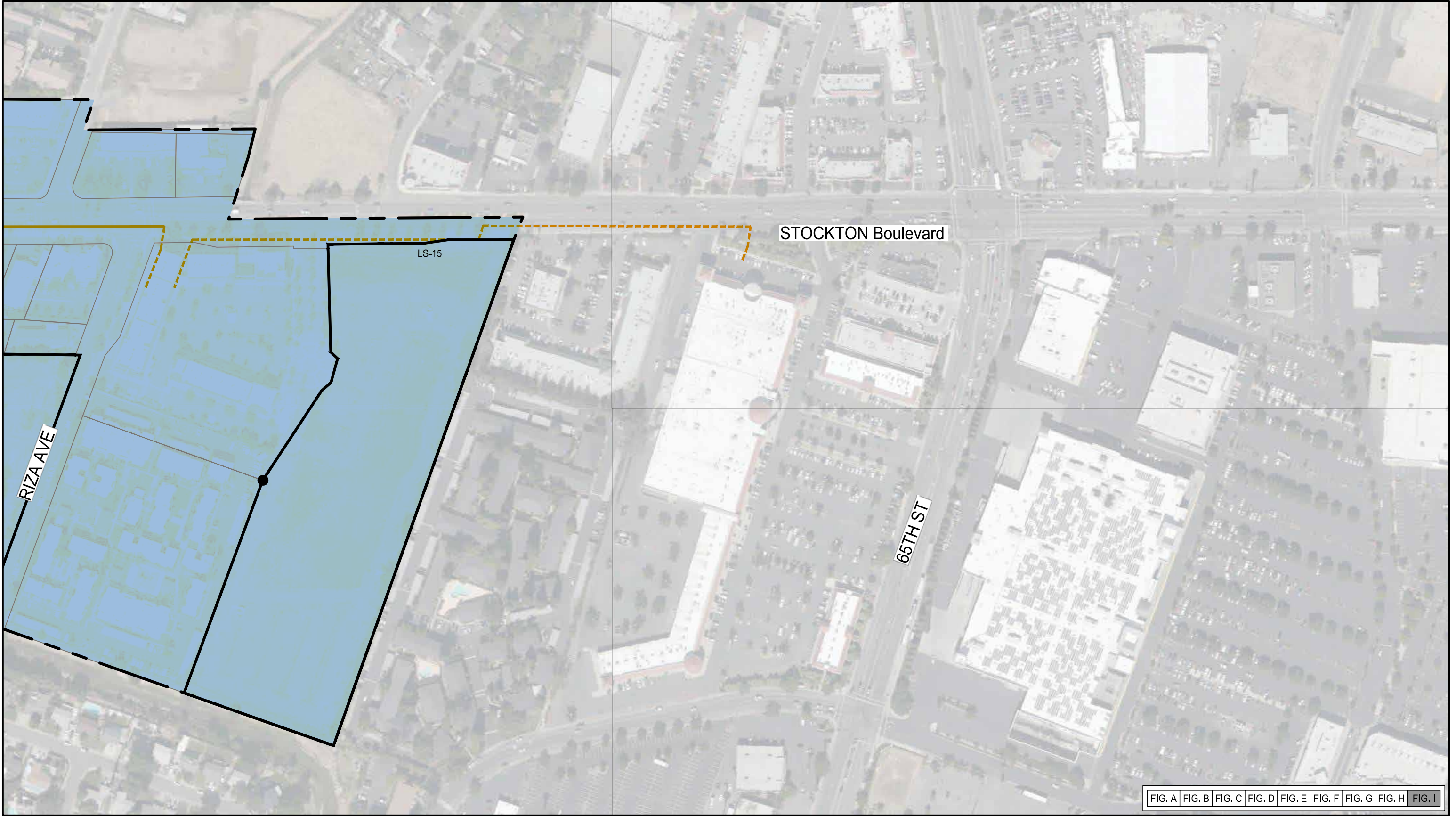
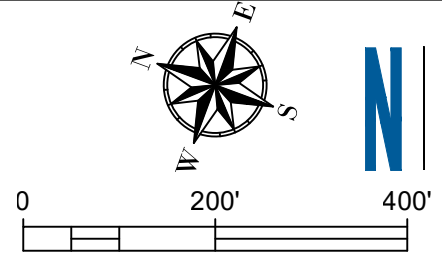


FIG. A FIG. B FIG. C FIG. D FIG. E FIG. F FIG. G FIG. H FIG. I

April 2022
**Stockton Boulevard Plan
 Infrastructure Analysis
 Figure 5I Existing Electrical**

LEGEND	
	Opportunity Areas
	Pipeline Project
	Little Saigon (LS)
	12kV Overhead
	12kV Underground
	21kV Overhead
	21kV Underground
	69kV & 12kV Overhead
	69kV & 12kV Underground
	69kV Overhead
	69kV Underground





TELECOMMUNICATIONS

General

Within the SBP area there are numerous telecommunications providers. The following are the main providers for telephone and cable services.

AT&T – Telecommunications

AT&T supplies local and long distance telephone service, and also data communications, in most of the Sacramento area. The SBP area is served by the Main Wire Center at 14th and J Streets.

AT&T serves the SBP area with a combination of overhead and underground conduit systems. The main lines are generally located in the streets.

Recently-developed properties often place the aerial facilities underground, generally in a joint trench with other dry utilities along the street frontage or in an alley. Cabling in underground conduits can be either copper wire or fiber optic cable.

Comcast/AT&T Broadband

Comcast provides cable television service in the Sacramento area. AT&T Broadband leases conduit space and fiber optic cable capacity from Comcast in the SBP area.

Comcast serves the Sacramento area with a combination of underground and overhead fiber optic and copper coaxial cable. The signal is generated at a downtown site on N Street near the Capitol and is distributed to hub sites throughout the service area, from which local service is distributed.

City of Sacramento

The City currently owns an existing fiber network that provides Municipal and Smart City services. The network provides connections between various traffic signals, utility sumps, reservoirs, and City facilities spread throughout the City. The network consists of approximately 160 miles of underground fiber optic cables and conduits that transverse the main corridors of the City. The fiber network currently enables the City to run efficient operations and reduces operational costs, while expanding capabilities. The telecommunications system consists of single or multiple underground conduits, pull boxes, and utility vaults that are interconnected with the traffic signals, utility services, and various City facilities. Within the SBP area this system is located along the length of the Stockton Boulevard corridor.

The following link shows how the Public Works - Transportation Division utilizes this infrastructure:
<http://www.cityofsacramento.org/Public-Works/Transportation/Traffic-Signals/Traffic-Operations-Center>

Proposed Telecommunications

Telecommunications providers have indicated the existing system within the SBP area should be sufficient to serve the proposed projects and opportunity sites with relatively minor additions. In general, service to each of the new sites will be coordinated with the main electrical service in a common joint trench. Typically, a few 2-inch conduits will be added to the joint utility trench for service to the projects.



PROBABLE ESTIMATE OF CONSTRUCTION COSTS

The costs presented here to construct the infrastructure necessary for the DPB Plan Area are intended for planning level only. They include the general costs for infrastructure to support the overall buildout of the catalyst sites in the DPB Plan Area using today's (2021) dollars.

This estimate is not intended to be utilized for the actual costs for specific projects. The final costs for each specific project will need to be estimated separately and could be considerably different than those shown here due to the uncertainty of the order, timing and scope of the actual development to be constructed. The estimates have been developed solely to give interested parties a magnitude of the scale of the costs of improvements.

The unit costs for the other infrastructure items were based on actual costs of recent development within the Sacramento, planning level costs utilized by various City departments as well as engineering judgment. Final unit costs for each specific project will depend on the actual labor and materials costs for the conditions at the time of construction. These conditions might include the scope of the development and scheduled project completion.

The estimates are generally separated into the corresponding infrastructure report for the different utilities. For each utility the estimates have been divided either along the major boundaries as for sewer and storm drainage, or by the corresponding Station area. Assumptions and clarifications for the costs are noted at the bottom of the individual sheets.



PROBABLE ESTIMATE OF CONSTRUCTION COSTS

WATER DISTRIBUTION SYSTEM COSTS

DESCRIPTION	QUANTITY	UNIT OF MEASURE	UNIT PRICE	AMOUNT
WATER DISTRIBUTION SYSTEM				
1. Water, 8" (Incl. fittings)	1,753	LF	\$210.00	\$368,130
			Subtotal	\$368,130
Mobilization/Demobilization	5%			\$18,407
Subtotal				\$386,537
Contingency	25%			\$96,634
Estimated Construction Cost				<u>\$483,171</u>
Project Delivery	15%			\$72,476
TOTAL WATER DISTRIBUTION				\$555,646



APPENDIX A: LAND USE SUMMARY

