

CITY OF ARCADIA

City Council Regular Meeting Agenda



Tuesday, November 15, 2022, 7:00 p.m.

Location: City Council Chambers, 240 W. Huntington Drive, Arcadia

Pursuant to the Americans with Disabilities Act, persons with a disability who require a disability related modification or accommodation in order to participate in a meeting, including auxiliary aids or services, may request such modification or accommodation from the City Clerk at (626) 574-5455. Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to assure accessibility to the meeting.

根据《美国残障人法案》，需要调整或提供便利设施才能参加会议的残障人士（包括辅助器材或服务）可与市书记官办公室联系（电话：(626) 574-5455）。请在会前 48 小时通知市书记官办公室，以便作出合理安排，确保顺利参加会议。

Pursuant to the City of Arcadia's Language Access Services Policy, limited-English proficient speakers who require translation services in order to participate in a meeting may request the use of a volunteer or professional translator by contacting the City Clerk's Office at (626) 574-5455 at least 72 hours prior to the meeting.

根据阿凯迪亚市的语言便利服务政策，英语能力有限并需要翻译服务才能参加会议的人可与市书记官办公室联系（电话：(626) 574-5455），请求提供志愿或专业翻译服务，请至少在会前 72 小时提出请求。

How to Submit Public Comment:

Members of the Public who wish to submit public comment may do so using one of the following methods. Public comment is limited to the time and words allotted.

1. **In-Person:** Complete a Speaker Card, indicating the agenda item number and submit it to the City Clerk prior to the meeting, or simply come to the podium when the Mayor asks for those who wish to speak. Speakers shall be limited to five (5) minutes per person. At the Mayor's discretion, the time limit may be shortened to allow all speakers to address the City Council.

Electronic submission of Public Comment is also available via the City's website or by email as noted below. Public Comment submitted electronically will not be read into the record at the posted meeting time but are forwarded to the City Council prior to the meeting for consideration.

1. **Website:** Please submit your comments using our online public comment form at ArcadiaCA.gov/comment. Your comments must be received at least 30 minutes prior to the posted meeting time.
2. **Email:** Please submit your comments via email to CityClerk@ArcadiaCA.gov. Your comments must be received at least 30 minutes prior to the posted meeting time.

如何提交公众评论意见：

公众成员可以使用以下任何一种方法提交公众评论意见。请在时间和字数的限制范围内提交公众评论意见。

1. **亲自出席：**填写一张发言人卡片，注明议程项目编号，然后在会议开始前提交给市书记官，或者在市长询问公众发言时，直接到讲台上发言。每位发言人的发言时间不得超过五（5）分钟。市长可自行决定缩短发言限制时间，以便允许所有发言人向市议会表达自己的意见。

亦可按照以下方法在本市网站上或通过电子邮件以电子方式提交公众评论意见。以电子方式提交的公众评论意见不会在公布的会议期间读入记录，但会在会议开始前转交给市议会，供市议会考虑。

1. **网站：**请使用以下网站中刊载的在线公众评论意见表提交您的评论意见：ArcadiaCA.gov/comment。必须在公布的会议时间前至少提前 30 分钟提交评论意见。
2. **电子邮件：**请将您的评论意见通过电子邮件发送至：CityClerk@ArcadiaCA.gov。必须在公布的会议时间前至少提前 30 分钟提交评论意见。

1. CALL TO ORDER

2. INVOCATION

Reverend John Scholte, Arcadia Community Church

3. PLEDGE OF ALLEGIANCE

4. ROLL CALL OF CITY COUNCIL MEMBERS

Tom Beck, Mayor
Paul P. Cheng, Mayor Pro Tem
Michael Danielson, Council Member
Sho Tay, Council Member
April A. Verlato, Council Member

5. SUPPLEMENTAL INFORMATION FROM CITY MANAGER REGARDING AGENDA ITEMS

6. MOTION TO READ ALL ORDINANCES AND RESOLUTIONS BY TITLE ONLY AND WAIVE THE READING IN FULL

7. PRESENTATIONS

- a. Presentation by the Los Angeles County Department of Public Works regarding the Santa Anita Reservoir Post Fire Restoration Project.
- b. Presentation of gift of \$30,000 from the Friends of the Arcadia Public Library.
- c. Presentation of the United Against Hate Week Proclamation.
- d. Presentation of the Shop Arcadia Season Proclamation.

8. PUBLIC HEARING

Any person wishing to speak before the City Council on a public hearing item is asked to complete a Speaker Card noting the agenda item number and provide it to the City Clerk prior to the start of the public hearing. Separate and apart from the applicant (who may speak longer in the discretion of the City Council) each speaker is limited to five (5) minutes per person unless waived by the City Council. Under the Brown Act, the City Council is prohibited from discussing or taking action on any item not listed on the posted agenda. The applicant may additionally submit rebuttal comments, in the discretion of the City Council.

You are hereby advised that should you desire to legally challenge in court or in an administrative proceeding any action taken by the City Council regarding any public hearing item, you may be limited to raising only those issues and objections you or someone else raised at the public hearing or in written correspondence delivered to the City Council at, or prior to, the public hearing.

a. Adoption of the California Building and California Fire Codes.

Ordinance No. 2394 amending Article VIII of the Arcadia Municipal Code relating to building regulations and adopting by reference the 2022 Edition of the California Building Code, Volumes 1 and 2, and Appendix J, the 2022 California Residential Code, the 2022 California Green Building Standards Code, the 2022 California Plumbing Code, the 2022 California Electrical Code, the 2022 California Mechanical Code, the 2022 California existing Buildings Code, the Uniform Code for the abatement of dangerous buildings, 1997 Edition, and the Los Angeles County Grading Code with additions, amendments, and deletions.

Recommended Action: Adopt

CEQA: Not a Project

Ordinance No. 2395 amending Article III of the Arcadia Municipal Code relating to fire regulations and adopting by reference the 2022 Edition of the California Fire Code in its entirety, including appendices Chapter 4, B, C, D, K, and O based on the 2021 Edition of the International Fire Code published by the International Code Council; together with certain additions, insertions, deletions and changes thereto.

Recommended Action: Adopt

CEQA: Not a Project

9. PUBLIC COMMENTS (5-minute time limit each speaker)

Any person wishing to speak before the City Council is asked to complete a Speaker Card and provide it to the City Clerk prior to the start of the meeting. Each speaker is limited to five (5) minutes per person, unless waived by the City Council. Under the Brown Act, the City Council is prohibited from discussing or taking action on any item not listed on the posted agenda.

10. REPORTS FROM MAYOR, CITY COUNCIL AND CITY CLERK *(including reports from the City Council related to meetings attended at City expense [AB 1234]).*

11. CONSENT CALENDAR

All matters listed under the Consent Calendar are considered to be routine and can be acted on by one roll call vote. There will be no separate discussion of these items unless a member of the City Council, staff, or the public requests that a specific item be removed from the Consent Calendar for separate discussion and action.

- a. Regular Meeting Minutes of November 1, 2022.
Recommended Action: Approve
CEQA: Not a Project
- b. Donation in the amount of \$30,000 from the Friends of the Arcadia Public Library for Library Programming.
Recommended Action: Accept
CEQA: Not a Project
- c. Accept the 2022 Sewer Master Plan Update.
Recommended Action: Approve
CEQA: Not a Project
- d. City Water and Sewer Rates for Calendar Year 2023.
Recommended Action: Receive and File
CEQA: Not a Project
- e. Professional Services Agreement with Urban Graffiti Enterprises, Inc., for Graffiti Removal and Nuisance Abatement Services in an amount not to exceed \$50,000 annually for a period of three years with the option to renew for three additional one-year periods.
Recommended Action: Approve
CEQA: Not a Project
- f. Approve the Annual Development Impact Fee Report for Fiscal Year 2021-22 pursuant to Government Code Section 66006.
Recommended Action: Approve
CEQA: Not a Project

12. CITY MANAGER

- a. Allocate \$215,000 in American Rescue Plan Act (“ARPA”) funds for the following Economic Development programs and projects:
 - A. The 2022 Merry & Bright Holiday Shopping Program in the amount of \$100,000;
 - B. The Arcadia Chamber of Commerce Membership Assistance Program in the amount of \$50,000; and
 - C. A Professional Services Agreement with Design Nine, Inc. for the development of a Downtown Arcadia Broadband Strategic Plan and the evaluation of a Citywide Fiberoptic Broadband Proposal in an amount not to exceed \$65,000

Recommended Action: Approve
CEQA: Not a Project

13. ADJOURNMENT

The City Council will adjourn this meeting to December 6, 2022, 7:00 p.m. in the City Council Chambers.

Welcome to the Arcadia City Council Meeting!

The City Council encourages public participation, and invites you to share your views on City business.

MEETINGS: Regular Meetings of the City Council are held on the first and third Tuesday of each month at 7:00 p.m. in City Council Chambers. A full City Council agenda packet with all backup information is available at City Hall, the Arcadia Library, and on the City's website at www.ArcadiaCA.gov<http://www.arcadiaca.gov/>. Copies of individual Agenda Reports are available via email upon request (CityClerk@ArcadiaCa.gov). Documents distributed to a majority of the City Council after the posting of this agenda will be available for review at the Office of the City Clerk, 240 W. Huntington Drive, Arcadia, California. Live broadcasts and replays of the City Council Meetings are on cable television. Your attendance at this public meeting may result in the recording and broadcast of your image and/or voice as previously described.

PUBLIC PARTICIPATION: Your participation is welcomed and invited at all City Council meetings. Time is reserved at each regular meeting for those in the audience who wish to address the City Council. The City requests that persons addressing the City Council refrain from making personal, slanderous, profane, or disruptive remarks. Where possible, please submit a **Speaker Card** to the City Clerk prior to your comments, or simply come to the podium when the Mayor asks for those who wish to speak, and state your name and address (optional) for the record. Please provide the City Clerk with a copy of any written materials used in your address to the City Council as well as 10 copies of any printed materials you would like distributed to the City Council. The use of City equipment for presentations is not permitted.

MATTERS NOT ON THE AGENDA should be presented during the time designated as "PUBLIC COMMENTS." In general, each speaker will be given five (5) minutes to address the City Council; however, the Mayor, at his/her discretion, may shorten the speaking time limit to allow all speakers time to address the City Council. **By State law, the City Council may not discuss or vote on items not on the agenda. The matter will automatically be referred to staff for appropriate action or response or will be placed on the agenda of a future meeting.**

MATTERS ON THE AGENDA should be addressed when the City Council considers that item. Please indicate the Agenda Item Number(s) on the **Speaker Card**. Your name will be called at the appropriate time and you may proceed with your presentation within the five (5) minute time frame. The Mayor, at his/her discretion, may shorten the speaking time limit to allow all speakers to address the City Council.

PUBLIC HEARINGS AND APPEALS are items scheduled for which public input is either required or desired. Separate and apart from the applicant (who may speak longer in the discretion of the City Council), speakers shall be limited to five (5) minutes per person. The Mayor, at his/her discretion, may shorten the speaking time limit to allow all speakers to address the City Council. The applicant may additionally submit rebuttal comments.

AGENDA ITEMS: The Agenda contains the regular order of business of the City Council. Items on the Agenda have generally been reviewed and investigated by the City Staff in advance of the meeting so that the City Council can be fully informed about a matter before making its decision.

CONSENT CALENDAR: Items listed on the Consent Calendar are considered to be routine by the City Council and will be acted upon by one motion. There will be no separate discussion on these items unless a member of the City Council, Staff, or the public so requests. In this event, the item will be removed from the Consent Calendar and considered and acted on separately.

DECORUM: While members of the public are free to level criticism of City policies and the action(s) or proposed action(s) of the City Council or its members, members of the public may not engage in behavior that is disruptive to the orderly conduct of the proceedings, including but not limited to, conduct that prevents other members of the audience from being heard when it is their opportunity to speak or which prevents members of the audience from hearing or seeing the proceedings. Members of the public may not threaten any person with physical harm or act in a manner that may reasonably be interpreted as an imminent threat of physical harm. All persons attending the meeting are expected to adhere to the City's policy barring harassment based upon a person's race, religious creed, color, national origin, ancestry, physical handicap, medical condition, marital status, gender, sexual orientation, or age. The Chief of Police, or such member or members of the Police Department, shall serve as the Sergeant-at-Arms of the City Council meeting. The Sergeant-at-Arms shall carry out all orders and instructions given by the presiding official for the purpose of maintaining order and decorum at the meeting. Any person who violates the order and decorum of the meeting may be placed under arrest and such person may be prosecuted under the provisions of Penal Code Section 403 or applicable Arcadia Municipal Code section.

欢迎参加阿凯迪亚市议会会议！

市议会鼓励公众参与，并邀请您分享对城市管理的看法。

会议：市议会定期会议于每个月第一个和第三个星期二下午七时在市议会会议厅举行。在市政厅、阿凯迪亚图书馆和市政府网站（www.ArcadiaCa.gov）可以找到包含所有相关信息的完整市议会议程。单独的议程报告可应请求通过电子邮件索取（CityClerk@ArcadiaCa.gov）。至于在发布该议程后向市议会多数成员分发的文件，公众可在阿凯迪亚市书记官办公室查阅，地址：240 W. Huntington Drive, Arcadia, California。市议会会议实况将通过有线电视进行现场直播和回放。如在以往的通知中所提示，如果您参加这次公开会议，您的图像和/或声音可能被录下并播出。

公众参与：市议会欢迎并邀请您参加市议会的所有会议。在每次定期会议上都为那些希望在会上发言的市民留出时间。市政府要求在市议会发言的人杜绝个人攻击、诽谤、亵渎或破坏性言论。如有可能，请在发表意见之前向市书记官提交一张**发言卡**，亦可在市长宣布自由发言时直接上台发言，并说出您的姓名和地址（如果您愿意），以便制作会议记录。请向市书记官提供一份您在发言中使用的任何书面材料，以及 10 份您希望分发给市议会的任何印刷材料。不允许把市政府设备用于准备发言内容。

议程之外的事项应当在指定的“公众评议”时间提出。在一般情况下，每位发言者将有五（5）分钟时间向市议会陈述意见，但市长可酌情缩短发言时限，以便让所有希望发言的人都有机会发言。**根据州法，市议会不得讨论或表决未列入议程的事项。此类事项将自动转给工作人员采取适当行动或作出回应，或将其列入未来会议的议程。**

列入议程的事项应当在市议会审议该事项时讨论。请在**发言卡**上标明事项的议程编号。在适当的时间会叫到您的名字，您可以在五（5）分钟时限内发言。市长可酌情缩短发言时限，以便让所有希望发言的人都有机会发言。

公开听证和上诉是为需要或希望征求公众意见的事项安排的日程。除申请人外（市议会可酌情决定延长申请人的发言时间），每位发言人的发言不得超过五（5）分钟。市长可酌情缩短发言时限，以便让所有希望发言的人都有机会发言。申请人还可以另外提交反驳意见。

议程事项：议程包含市议会的例行议题。一般而言，由市政府工作人员在会议前对议程中的事项进行审查和调查，以便市议会在作出决定之前能够充分了解情况。

同意日历：在同意日历上列出的事项被市议会视为例行公事，并将通过一项动议采取行动。除非市议员、工作人员或公众提出请求，否则不会对这些事项进行单独讨论。如果有人提出请求，该事项将从同意日历中删除，单独进行审议和采取行动。

行为规范：尽管市民可对市政府的政策和市议会或其成员的行动或拟议行动自由地提出批评，但不得出现干扰会议正常秩序的行为，包括但不限于在别人的发言时间内阻止别人发言，或妨碍公众听到发言内容或看到议程进展状况。市民亦不得威胁进行身体伤害或以可能被合理理解为作出身体伤害紧迫威胁的方式行事。所有出席会议的人都必须遵守市政府的反骚扰政策，禁止基于个人种族、宗教信仰、肤色、原国籍、祖籍、身体残障、疾病、婚姻状况、性别、性取向或年龄骚扰他人。警察局长或警察局其他成员将担任维持市议会会议秩序的保安官。保安官将执行会议主持人的一切命令和指示，以维持会议秩序和行为规范。对任何违反会议秩序和行为规范的人可执行拘捕，并可能根据《刑法典》第 403 条或《阿凯迪亚市政法典》相关条款提出起诉。



City of Arcadia

PROCLAMATION

WHEREAS, the City of Arcadia celebrates its diversity, multiculturalism, and history as a community of immigrants; and

WHEREAS, the Constitution enshrines equality on all individuals, regardless of race, faith, gender, age, ability, orientation, or political views; and

WHEREAS, Arcadia unequivocally opposes bigotry and all kinds of hate-based violence, and is dedicated to opposing intolerance; and

WHEREAS, anti-Asian rhetoric, bias, and hate have escalated in recent years, furthering anti-Asian stigma and safety concerns for Asian-American and Pacific Islander communities; and

WHEREAS, education, compassion, and cooperation are the key to understanding and embracing differences between all people; and

WHEREAS, Arcadia affirms the national movement to promote safe and inclusive neighborhoods, and to combat racist acts targeting any person of Asian or Asian Pacific Islander ancestry; and

WHEREAS, Arcadia seeks to join other communities in California and Los Angeles County in the *LA vs. Hate* and *United Against Hate Week* declaration as an important step in bridging divisions and strengthening our communities.

NOW, THEREFORE, I, Tom Beck, Mayor of the City of Arcadia, do hereby proclaim November 13th through November 19th, 2022 as

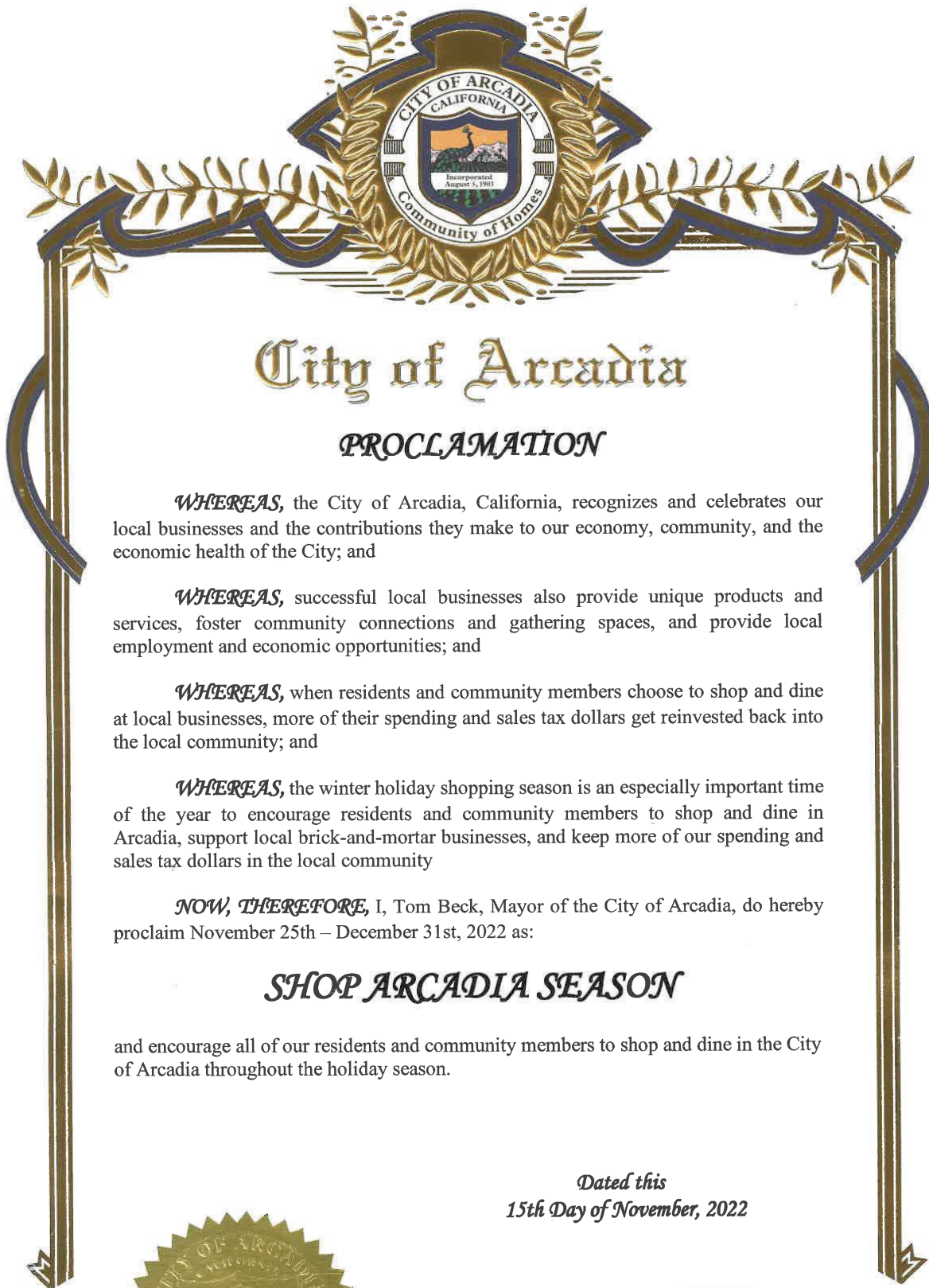
UNITED AGAINST HATE WEEK

and urge all community members to declare with one voice that hate, bias, and intolerance are not welcome here in Arcadia

*Dated this
15th Day of November, 2022*

Tom Beck, Mayor





City of Arcadia

PROCLAMATION

WHEREAS, the City of Arcadia, California, recognizes and celebrates our local businesses and the contributions they make to our economy, community, and the economic health of the City; and

WHEREAS, successful local businesses also provide unique products and services, foster community connections and gathering spaces, and provide local employment and economic opportunities; and

WHEREAS, when residents and community members choose to shop and dine at local businesses, more of their spending and sales tax dollars get reinvested back into the local community; and

WHEREAS, the winter holiday shopping season is an especially important time of the year to encourage residents and community members to shop and dine in Arcadia, support local brick-and-mortar businesses, and keep more of our spending and sales tax dollars in the local community

NOW, THEREFORE, I, Tom Beck, Mayor of the City of Arcadia, do hereby proclaim November 25th – December 31st, 2022 as:

SHOP ARCADIA SEASON

and encourage all of our residents and community members to shop and dine in the City of Arcadia throughout the holiday season.

*Dated this
15th Day of November, 2022*

Tom Beck, Mayor



STAFF REPORT

Development Services Department

DATE: November 15, 2022

TO: Honorable Mayor and City Council

FROM: Jason Kruckeberg, Assistant City Manager/Development Services Director
Chen Suen, Fire Chief
By: Kenneth Fields, Building Official
Mark Krikorian, Fire Marshal

SUBJECT: ADOPTION OF THE CALIFORNIA BUILDING AND CALIFORNIA FIRE CODES

ORDINANCE NO. 2394 AMENDING ARTICLE VIII OF THE ARCADIA MUNICIPAL CODE RELATING TO BUILDING REGULATIONS AND ADOPTING BY REFERENCE THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE, VOLUMES 1 AND 2, AND APPENDIX J, THE 2022 CALIFORNIA RESIDENTIAL CODE, THE 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE, THE 2022 CALIFORNIA PLUMBING CODE, THE 2022 CALIFORNIA ELECTRICAL CODE, THE 2022 CALIFORNIA MECHANICAL CODE, THE 2022 CALIFORNIA EXISTING BUILDINGS CODE, THE UNIFORM CODE FOR THE ABATEMENT OF DANGEROUS BUILDINGS, 1997 EDITION, AND THE LOS ANGELES COUNTY GRADING CODE WITH ADDITIONS, AMENDMENTS, AND DELETIONS

Recommendation: Adopt
CEQA: Not a Project

ORDINANCE NO. 2395 AMENDING ARTICLE III OF THE ARCADIA MUNICIPAL CODE RELATING TO FIRE REGULATIONS AND ADOPTING BY REFERENCE THE 2022 EDITION OF THE CALIFORNIA FIRE CODE IN ITS ENTIRETY, INCLUDING APPENDICES CHAPTER 4, B, C, D, K, AND O BASED ON THE 2021 EDITION OF THE INTERNATIONAL FIRE CODE PUBLISHED BY THE INTERNATIONAL CODE COUNCIL; TOGETHER WITH CERTAIN ADDITIONS, INSERTIONS, DELETIONS AND CHANGES THERETO

Recommendation: Adopt
CEQA: Not a Project

SUMMARY

At the October 18, 2022, City Council Meeting, the City Council introduced the attached Ordinance No. 2394 amending Article VIII of the Arcadia Municipal Code relating to Building Codes, and Ordinance No. 2395 amending Article III of the Arcadia Municipal Code relating to Fire Codes and scheduled a Public Hearing for November 15, 2022. The October 18, 2022, Staff Report describes the process and changes, includes all necessary findings and justifications for amendments, and is attached and incorporated herein for reference. The proposed amendments and additions to the 2022 California Building Standards Codes (“CBSC”) were recommended in order to comply with State requirements, and to maintain the current construction standards within the City. The code changes primarily address life safety and energy efficient design and construction.

ENVIRONMENTAL ANALYSIS

The proposed action does not constitute a project under the California Environmental Quality Act (“CEQA”), as it can be seen with certainty that it will have no impact on the environment. Thus, this matter is exempt under CEQA.

FISCAL IMPACT

The adoption of the Codes and Amendments will have no fiscal impact on the City.

RECOMMENDATION

It is recommended that the City Council :

1. Adopt the necessary findings, and adopt Ordinance No. 2394 amending Article VIII of the Arcadia Municipal Code relating to Building Regulations and adopting by reference the 2022 Edition of the California Building Code, Volumes 1 and 2, and Appendix J, the 2022 California Residential Code, the 2022 California Green Building Standards Code, the 2022 California Plumbing Code, the 2022 California Electrical Code, the 2022 California Mechanical Code, the 2022 California Existing Buildings Code, the Uniform Code for the Abatement of Dangerous Buildings, 1997 Edition, and Los Angeles County Grading Code with additions, amendments, and deletions; and
2. Adopt the necessary findings, and adopt Ordinance No. 2395 amending Article III of the Arcadia Municipal Code relating to fire regulations and adopting by reference the 2022 Edition of the California Fire Code in its entirety, including Chapter 4 and Appendices B, C, D, K, and O based on the 2021 Edition of the International Fire Code published by the International Code Council; together with certain additions, insertions, deletions and changes thereto.

Approved:



Dominic Lazzaretto
City Manager

Attachments: Ordinance No. 2394 (Findings of Fact attached as Exhibit "A")
Ordinance No. 2395 (Findings of Fact attached as Exhibit "A")
October 18, 2022, City Council Staff Report

ORDINANCE NO. 2394

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF ARCADIA, CALIFORNIA, AMENDING ARTICLE VIII OF THE ARCADIA MUNICIPAL CODE RELATING TO BUILDING REGULATIONS AND ADOPTING BY REFERENCE THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE, VOLUMES 1 AND 2, AND APPENDIX J, THE 2022 CALIFORNIA RESIDENTIAL CODE, THE 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE, THE 2022 CALIFORNIA PLUMBING CODE, THE 2022 CALIFORNIA ELECTRICAL CODE, THE 2022 CALIFORNIA MECHANICAL CODE, THE 2022 CALIFORNIA EXISTING BUILDINGS CODE, THE UNIFORM CODE FOR THE ABATEMENT OF DANGEROUS BUILDINGS, 1997 EDITION, AND THE LOS ANGELES COUNTY GRADING CODE WITH ADDITIONS, AMENDMENTS, AND DELETIONS

WHEREAS, pursuant to Government Code Section 50022.1 *et seq.* the City may adopt by reference the California Building Standards Code, 2022 Edition as provided in Title 24 of the California Code of Regulations, which includes various codes; and

WHEREAS, the California Building Standards Commission ("Commission") recently adopted the 2022 Edition of the California Building Standards Code; and

WHEREAS, California Health and Safety Code Sections 17958, 17958.5, 17958.7, and 18941.5 authorize cities to adopt the California Building Standards Code with modifications determined to be reasonably necessary because of local climatic, geological or topographical conditions; and

WHEREAS, the City of Arcadia desires to adopt the 2022 California Building Code, the 2022 California Residential Code, the 2022 California Green Building Standards Code, the 2022 California Plumbing Code, the 2022 California Electrical Code, the 2022 California Mechanical Code, the 2022 California Existing Buildings Code, the 1997 Uniform Code for the Abatement of Dangerous Buildings, and the Los Angeles County

Grading Code, together with the necessary amendments determined to be reasonably necessary because of local climatic, geological or topographical conditions; and

WHEREAS, the City Council conducted first reading of this Ordinance on October 18, 2022; and

WHEREAS, notice of a public hearing on this Ordinance was published in the Arcadia Weekly on October 24, 2022 and October 31, 2022; and

WHEREAS, the City Council held a public hearing on November 15, 2022, as required by law, at which time the Council determined that the adoption of the Codes and amendments thereto are in the best interest of the City and are based on the findings required by law; and

WHEREAS, at least one copy of each of the Codes adopted by reference by this ordinance were available for public inspection at the office of the City Clerk fifteen (15) days preceding the public hearing pursuant to Government Code Section 50022.6.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF ARCADIA, CALIFORNIA, DOES ORDAIN AS FOLLOWS:

SECTION 1. The City Council finds that the amendments to the California Building Standards Code herein are supported by Findings of Fact which are attached hereto as Exhibit "A" and incorporated herein as part of this Ordinance.

SECTION 2. Section 8110 of Chapter 1, Part 1 of Article VIII of the Arcadia Municipal Code is hereby amended to read as follows:

"8110. ADOPTION. Subject to certain changes and amendments as hereinafter set forth in this Part, the City Council adopts as the building regulations for the

City, the 2022 California Building Code, Part 2 of Title 24, California Code of Regulations, and State of California amendments applicable to local jurisdictions, together with Chapter 1 and Appendix J, based on the 2021 International Building Code. The Code shall govern, regulate and control all of the activities therein referenced to and the same is made a part of this Chapter as though set forth in this Chapter in full.

One (1) copy of said Code is on file in the office of the Building Official for use and examination by the public.”

SECTION 3. Chapter 1, Part 3, Article VIII of the Arcadia Municipal Code is hereby amended in its entirety to read as follows:

“8130. AMENDMENTS, ADDITIONS AND DELETIONS.

The 2022 California Building Code is amended to read as follows:

8130.1. ADDITION [ADMINISTRATIVE].

Chapter 1, Section [A] 116.6 is added to Volume 1, Chapter 1 of said 2022 California Building Code to read as follows:

[A] 116.6. Attractive Nuisance. Attractive nuisances (those objects which, by their nature, may attract children or other curious individuals) including, but not limited to, unprotected and hazardous ponds, pools or excavations and buildings or structures undergoing demolition, repair, rehabilitation or construction shall be fenced or otherwise secured when required by the Building Official.

8130.2. AMENDMENT [ADMINISTRATIVE].

Chapter 1, Section [A] 113.1 in Chapter 1, Volume 1 of the 2022 California Building Code is amended to read as follows:

[A] 113.1. General. In order to hear and decide appeals of orders, decisions or determinations made by the Building Official or the Fire Chief relative to the application and interpretation of the City's Building and Fire codes, the Planning Commission shall act as the Arcadia Building and Fire Code Board of Appeals. The Planning Commission shall not consider an appeal until the Building Official or the Fire Chief has rendered a decision in writing. An appeal shall be filed with the City within 30 days from the date of his or her written decision; in addition, an appeals fee shall be paid to the City in an amount established by City Council Resolution. The appeal shall be in writing and shall clearly set forth the order, decision or determination being appealed. A hearing shall be scheduled before the Planning Commission as soon as practicable from the date of receipt of the appeal. The Building Official or the Fire Chief, as applicable, shall prepare a written report for the Planning Commission. The decision of the Planning Commission shall be final unless appealed to the City Council. The appeal to the City Council shall be in writing and shall be filed with the City within five (5) working days from the date of the Planning Commission's decision; in addition, an appeals fee shall be paid to the City in an amount established by City Council Resolution. A hearing shall be scheduled before the City Council as soon as practicable from the date of the receipt of the written appeal. The Building Official or the Fire Chief, as applicable, shall prepare a written report for the City Council. The decision of the City Council shall be final.

8130.3. AMENDMENT [ADMINISTRATIVE].

Chapter 1, Section [A] 105.2, Building, item number 1 of the 2022 California Building Code is amended to read as follows:

1. One-story detached accessory buildings used as tool and storage sheds, playhouses and similar uses, provided the floor area does not exceed 120 square feet and the highest point of the roof does not exceed 8 feet, 6 inches above adjacent grade.

8130.4. AMENDMENT [ADMINISTRATIVE].

Chapter 1, Section [A] 109.2 in Chapter 1 of the 2022 California Building Code is amended to read as follows:

[A] 109.2 General. Fees shall be assessed in accordance with the fee schedule set forth by resolution of the City Council.

8130.5. ADDITION [ADMINISTRATIVE].

Chapter 2, Section 202 of the 2022 California Building Code is hereby amended by adding the following definitions to read as follows:

REBUILD as applied to an existing building, is where more than fifty percent (50%) of the existing foundation/floor assembly and more than fifty percent (50%) of the exterior walls of a building are removed. Existing buildings that are classified as a rebuild shall comply with all current City zoning, building and fire regulations and pay building permit fees for a new structure.

REMODEL is an alteration to an existing building where not more than fifty percent (50%) of the exterior walls of a building are removed, repaired or altered, excluding the interior finish wall coverings.

8130.5.1 AMENDMENT [ADMINISTRATIVE].

Section 304.1 of the 2022 California Building Code is amended to read as follows:

Business Group B

Training and skill development not in a school or academic program (this shall include, but not be limited to, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy).

8130.6. AMENDMENT.

Section 903.2 of the 2022 California Building Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

903.2 Where required. Approved automatic extinguishing systems shall be installed:

1. In all new buildings regardless of the type of construction or occupancy.

EXCEPTIONS:

A) Detached private garages, providing the floor area does not exceed 1000 square feet.

B) Pool houses, recreation rooms, workshops, and similar accessory R-3 occupancies providing no portion of the exterior wall of the building is more than 150 feet from a public street.

C) Other minor buildings and/or occupancies as approved by the Fire Chief.

2. In existing buildings with new occupancies as required by other sections of the Fire Code.

8130.7. AMENDMENT.

Section 903.2.18 of the 2022 California Building Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

903.2.18 Group U private garages and carports accessory to Group R-3 occupancies. Carports with habitable space above, detached private garages over 1000 square feet in area, and attached private garages shall be protected by fire sprinklers in accordance with this section. These areas shall have a design density of an Ordinary Hazard Group 1 occupancy with a design area of two (2) heads. Quick-response intermediate temperature commercial type heads shall be used.

8130.8. [RESERVED].

8130.9. AMENDMENT.

Section 903.3.1.2 of the 2022 California Building Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

903.3.1.2. NFPA 13R SPRINKLER SYSTEMS. Where allowed in buildings of Group R, up to and including buildings four stories in height, automatic sprinkler systems shall be installed throughout in accordance with NFPA 13R with the following additions:

A) Attics shall be fully sprinklered with quick-response intermediate temperature heads.

B) Private garages shall be sprinklered and shall have a design density of an Ordinary Hazard Group 1 occupancy with a design area of two (2) heads. Quick-response intermediate temperature commercial type heads shall be used for the garage area.

8130.10. AMENDMENT.

Section 903.3.1.3 of the 2022 California Building Code is amended to read as

follows due to local climatic, geographical, and topographical conditions:

903.3.1.3. NFPA 13D SPRINKLER SYSTEMS. Where allowed, automatic sprinkler systems installed in one-and two-family dwellings shall be installed throughout in accordance with NFPA 13D with the following additions:

- A) Attics containing forced air units shall have one or more quick-response intermediate temperature sprinkler heads adjacent to each unit.
- B) Attached private garages shall be sprinklered and shall have a design density of an Ordinary Hazard Group 1 occupancy with a design area of two (2) heads. Quick-response intermediate temperature commercial type heads shall be used for the garage area.
- C) Detached private garages over 1000 square feet in total area shall be sprinklered and shall have a design density of an Ordinary Hazard Group 1 occupancy with a design area of two (2) heads. Quick-response intermediate temperature commercial type heads shall be used for the garage area.
- D) Residential structures under 5000 square feet in total area shall be designed for two (2) heads flowing in the residential area. Residential structures over 5000 square feet in total area shall be designed for four (4) heads flowing in the residential area.
- E) Attics and basements used for storage purposes shall be fully sprinklered with residential type heads.
- F) A single exterior bell activated by the waterflow switch shall be provided at an approved location.

G) A representative sample of spare heads shall be provided at an approved location.

8130.10. ADDITION.

Section 903.6 of the 2022 California Building Code is added to read as follows due to local climatic, geographical, and topographic conditions:

903.6. EXISTING BUILDINGS. An approved automatic fire sprinkler system shall be installed in existing buildings, including any additions thereto, in the occupancies and buildings as set forth in this section.

1. In all commercial and industrial buildings greater than 5000 square feet in area when enlarged by an addition to the existing structure or as required by the Fire Chief.
2. In all commercial and industrial buildings equal to or less than 5000 square feet in area, when enlarged by an addition to the existing structure, exceeds 5000 square feet or as required by the Fire Chief.
3. In all Group R-1 or R-2 Occupancies when an addition results in additional guestrooms or dwelling units.
4. In all Group R-3 Occupancies greater than 2500 square feet in living area when enlarged by an addition to the living area of the existing structure.

EXCEPTIONS:

- 1) Additions of areas that would not require sprinklers such as closets or bathrooms.
- 2) Additions that occur without increasing the number of stories or

increasing the horizontal projection of the first story roof.

5. In all Group R-3 Occupancies equal to or less than 2500 square feet in living area, when enlarged by an addition to the living area of the existing structure, exceeds 2500 square feet in residential area.

EXCEPTIONS:

- 1) Additions of areas that would not require sprinklers such as closets or bathrooms.
 - 2) Additions that occur without increasing the number of stories or increasing the horizontal projection of the first story roof.
6. In existing buildings for new occupancies as required by other sections of the Fire Code.

8130.11. AMENDMENT.

Section 903.4.2 of the 2022 California Building Code is amended to read as follows due to local topographical conditions:

903.4.2. ALARMS. An approved audible and visible exterior device shall be connected to every automatic sprinkler system. Such sprinkler water-flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall be provided on the exterior of the building in an approved location. Where a fire alarm system is installed, actuation of the automatic fire sprinkler system shall actuate the building fire alarm system. Approved audible notification appliances shall be provided in the interior of the building at locations required by the Fire Chief.

EXCEPTION: NFPA 13D systems serving R-3 occupancies shall be provided with a single exterior bell.

8130.12. AMENDMENT.

Volume 1, Chapter 12, Section 1206.2 of the 2022 California Building Code is amended to read as follows due to local topographical conditions:

1206.2. Air-borne Sound Insulation. All such acoustically rated separating wall and floor-ceiling assemblies shall provide airborne sound insulation equal to that required to meet a sound transmission class (“STC”) rating of 58 based on laboratory tests as defined in ASTM E 90 and E 413. Field-tested assemblies shall meet a noise isolation class (“NIC”) rating of 53 for occupied units and a normalized noise isolation class (“NNIC”) rating of 53 for unoccupied units as defined in ASTM Standards E 336 and E 413.

EXCEPTION: Group R-1 hotel and motel occupancies shall be permitted to meet a minimum sound transmission class (“STC”) of 52, a noise isolation class (“NIC”) of 47, or a normalized noise isolation class (“NNIC”) of 47, as applicable.

ASTM E 597 may be used as a simplified procedure for field tests of the airborne sound isolation between rooms in unoccupied buildings. In such tests, the minimum value of Dn is 53 db for multiple family dwelling units and 47db for hotel and motel occupancies for compliance.

Entrance doors from interior corridors together with their perimeter seals shall have STC ratings not less than 30. Such tested doors shall operate normally with commercially available seals. Solid-core wood slab doors 1 3/8 inches thick minimum or 18 gage

insulated steel slab doors with compression seals all around, including the threshold, may be considered adequate without other substantiating information. Field test of corridor walls should not include segments with doors. If such test is impractical, however, the NIC or NNIC rating for composite wall-door assembly shall not be less than 30. Penetrations or openings for construction assemblies for piping, electrical devices, recessed cabinets, bathtubs, soffits or heating, ventilating or exhaust ducts shall be sealed, lined, insulated or otherwise treated to maintain the required ratings.

8130.13 AMENDMENT.

Volume 1, Chapter 12, Section 1206.3 of the 2022 California Building Code is amended to read as follows due to local topographical conditions:

1206.3. Impact Sound Insulation. All acoustically rated separating floor-ceiling assemblies shall provide impact sound insulation equal to that required to meet an impact insulation class ("IIC") rating of 58 based on laboratory tests as defined in ASTM E 492 and E 989. Field-tested assemblies shall meet a field impact insulation class ("FIIC") rating of 53 for both occupied and unoccupied units as defined in ASTM E 1007 and E 989, with the exception that the measured impact sound pressure levels shall not be normalized to a standard amount of absorption in the receiving room.

EXCEPTION: Group R-1 hotel and motel occupancies shall be permitted to meet a minimum impact insulation class ("IIC") rating of 52 or a field impact insulation class ("FIIC") rating of 47, as applicable. Floor coverings may be included in the assembly to obtain the required ratings. These coverings must be retained as a permanent part of the assembly and may only be replaced by other floor coverings that provide the required

impact sound insulation.

8130.14 ADDITION.

Volume 1, Chapter 15, Section 1505.0 of the 2022 California Building Code is added to read as follows due to climatic and topographical conditions:

1505.0. Fire Classification. The roof covering on any structure regulated by this code shall have a minimum Class A rating in the Wildland Interface Fire Area Boundaries and a class A or B rating in all other areas outside the Wildland Interface Fire Area Boundaries of the City. Pressure treated or untreated wood shakes and wood shingles shall not be installed on any building or structure located in the Wildland Interface Fire Area Boundaries.

8130.15. AMENDMENT.

Volume 1, Chapter 15, Section 1505.1 of the 2022 California Building Code is amended and Section 1505.1.4 of the 2022 California Building Code is added to read as follows due to climatic and topographical conditions:

1505.1. Roof Coverings for Additions within the Wildland Interface Fire Area Boundaries.

The roof covering on any addition made to an existing building or structure located within the Wildland Interface Fire Area Boundaries shall comply with Section 1505.1. The roof covering of an existing building or structure located in said zone shall be made to comply with Section 1505.1 when the cumulative roof area of the addition along with any alteration, replacement, repair or reroof made during the previous 12 months to the existing roof is 25 percent or more of the original roof area.

1505.1.5 Roof Coverings for Additions Outside the Wildland Interface Fire Area Boundaries.

The roof covering requirements for additions made to existing buildings or structures located outside the Wildland Interface Fire Area Boundaries shall comply with the following, as applicable:

- 1. 25% or Less.** The roof covering of an addition made to an existing structure or building may match the existing roof covering on the structure or building being added to providing the cumulative roof area of the addition along with any alteration, replacement, repair, or reroof made during the previous 12 months to the existing roof is 25 percent or less of the original roof area.
- 2. Over 25% But Less than 50%.** The roof covering of an addition made to an existing structure or building shall comply with Section 1505. The roof covering of the existing structure or building being added to may be left in place providing the cumulative roof area of the addition along with any alteration, replacement, repair or reroof made during the previous 12 months to the existing roof is over 25 percent but less than 50 percent of the original roof area.
- 3. 50% or More.** The roof covering of an addition made to an existing structure or building shall comply with Section 1505. The roof covering of the existing structure or building being added to shall be made to comply with Section 1505 when the cumulative roof area of the addition along with any alteration, replacement, repair, or reroof made during the previous 12 months to the existing roof is 50 percent or more of the original roof area.

8130.16. ADDITION.

Section 1511.0 is added to the 2022 California Building Code to read as follows due to local climatic and topographical conditions:

1512.0 REROOFING. All reroofing shall comply with Chapter 15 of this Code, as amended by the City of Arcadia.

8130.17. AMENDMENT.

Table 1505.1 in Chapter 15 of Volume 1 of the 2022 California Building Code is amended to read as follows due to local climatic conditions:

**TABLE 1505.1
MINIMUM ROOF COVERING CLASSIFICATIONS
TYPES OF CONSTRUCTION**

IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
B	B	B	B	B	B	B	B	B

8130.18. AMENDMENT.

Volume 1, Chapter 15, Section 1511.1 in the 2022 California Building Code is amended to read as follows due to local climatic conditions:

1511.1 General. All reroofing shall conform to the applicable provisions of Chapter 15 of this Code and as otherwise required in this Chapter.

Roofing materials and methods of application shall comply with the Building Code standards or shall follow manufacturer's installation requirements when approved by the Building Official.

Roof coverings installed on existing buildings or structures shall require the submission of design calculations and plans prepared by an engineer or architect licensed by the State of California when the total installed weight of the finish roof covering material above the wood structural panels and underlayment is equal to or exceeds 6 pound per square foot. The design calculations shall demonstrate that the entire building or structure is adequate to support the vertical forces imposed by the new roofing.

Reroofs in the Wildland Interface Fire Area Boundaries. All reroofing in Wildland Interface Fire Area Boundaries of the City shall comply with Section 1505. The entire roof covering of an existing building or structure located in said zone shall be made to comply with Section 1505 when the cumulative roof area of any addition, alteration, replacement, repair, or reroof made during the previous 12 months to the existing roof is 25 percent or more of the original roof area.

Reroofs in areas outside the Wildland Interface Fire Area Boundaries. All reroofing in areas outside the Wildland Interface Fire Area Boundaries of the City shall comply with the following, as applicable:

1. **25% Or Less.** Up to 25 percent of an existing structure or building may be reroofed with a roof covering that matches the existing, providing the cumulative roof area of any addition, alteration, replacement, repair, or reroof made during the previous 12 months to the existing roof does not exceed 25% of the original roof area.
2. **Over 25% But Less Than 50%.** The roof covering of the area being reroofed shall comply with Section 1505. The roof covering of the existing structure

or building being reroofed may be left in place providing the cumulative roof area of any addition, alteration, replacement, repair or reroof made during the previous 12 months to the existing roof is over 25 percent but less than 50 percent of the original roof area.

3. **50% Or More.** An existing building or structure shall be completely reroofed with a roof covering complying with Section 1505 when the cumulative roof area of any addition, alteration, replacement, repair, or reroof made during the previous 12 months to the existing roof is 50 percent or more of the original roof area.

8130.19. AMENDMENT [ADMINISTRATIVE].

Section 1010.3.4.1 of Chapter 10 of the 2022 California Building Code is hereby amended to read as follows:

1010.3.4.1. Security Grilles. The use of security bars, panels, sliding metal grates, or other similar security devices is prohibited on the exterior of any building openings of all structures in commercial or industrial zones of the City. Subject to obtaining a permit pursuant to California Building Code Section 105.1 and compliance with design review requirements pursuant to Arcadia Municipal Code Sections 9295 et seq. as a prerequisite to the granting of any such permit, security bars, panels, gates, metal grates, or other similar security devices may be installed, in compliance with applicable Building Code requirements, on the interior of a commercial or industrial structure provided that the entire building is equipped with an automatic fire sprinkler system, which has been installed under a permit from the Building Division and inspected pursuant thereto for compliance with the approved plans.

8130.20. ADDITION [ADMINISTRATIVE].

Chapter 35A is added to Volume 2 of the 2022 California Building Code to read as follows:

CHAPTER 35A

MULTIPLE FAMILY CONSTRUCTION STANDARDS

SECTION 3501A - MULTIPLE FAMILY DEFINED

A multiple family building shall be defined as one or more dwelling units located on any property in the City except the R-O, R-1 or the R-M zoned areas.

3501.1A Application. Except where a more restrictive requirement in the California Building Code, State Law or City Ordinance is applicable, each provision of this Chapter shall apply to each multiple family building as defined herein.

SECTION 3502. NOISE REDUCTION STANDARDS

3502.1 General. Attached multiple family dwelling units shall meet the sound transmission control standards specified in Appendix Chapter 12 of the Building Code and this Section.

3502.2 Packing of Voids. All voids surrounding water, drainage, and vent piping shall be packed with rock wool or equivalent approved sound deadening material, and all water, drainage, and vent piping shall be wrapped with an approved material at all points of contact with wood or steel framing members and strap hangers. Plumbing walls shall be a minimum of 2 inch by 6-inch construction.

3502.3 Plans. All required 2 inch by 6-inch plumbing walls shall be clearly identified on the building plans.

3502.4 Mechanical Equipment. All mechanical equipment shall be installed so as to reduce sound transmission to a minimum.

3502.5 Separation of Facilities. Electrical, plumbing and mechanical equipment or systems serving one dwelling unit shall not serve other dwellings units, nor shall such equipment or systems be located within another dwelling unit. Recessed wall fixtures, such as medicine cabinets or electrical, telephone, television and intercom outlets, shall not be located back-to-back or in the same wall cavity.

3502.6 Location of Plumbing and Ducts. Water, drainage, and vent piping and heating and air conditioning ductwork shall not be located within any wall or floor-ceiling sound assembly.

SECTION 3503. COMFORT COOLING SYSTEM

A comfort cooling system shall be provided for each multiple family dwelling unit. The comfort cooling system shall be capable of maintaining a temperature of 78 degrees Fahrenheit three feet above the floor throughout the conditioned space of the building. Water evaporative cooling systems or individual window or wall-mounted units shall not be used to meet the requirements of this Section. The location of the comfort cooling system shall be shown on the building plans.

SECTION 3504. ILLUMINATION

3504.1 Illumination. Public spaces of multiple family buildings including all stairs, ramps, driveways, walkways, corridors and parking areas shall be illuminated with automatic lighting capable of maintaining an intensity of one (1) foot-candle of light at ground level.

SECTION 3505. EXTERIOR REQUIREMENTS

3505.1 Underground Utilities. All utility conductors, cables, conduits and wiring supplying electrical, cable and telephone service to a multiple family building shall be installed underground except risers which are adjacent to and attached to a building or as otherwise approved the City Council.

3505.2 Conductors, Conduit and Piping. All conductors, cables, wires, conduit and piping located outside of a building or structure and within the exterior property lines shall be installed underground except risers which are adjacent to and attached to a building or structure.

SECTION 3506. PARKING AND ACCESS AREAS

3506.1 Paving. All parking, walkway, and driveway areas shall be paved with an approved material, such as concrete, asphalt, brick, or pavers. Paving materials and methods of installation shall be shown on the building plans.

3506.2 Driveway Ramps

3506.2.1 Grade. Driveway ramps shall not exceed a maximum grade of twenty percent (20%). A 20 feet transition area shall be provided at the top of such ramp, as follows: the upper 10 feet of the transition area shall have a maximum grade of four percent (4%) and the lower 10 foot portion of the transition area shall have a maximum grade of ten percent (10%). A 15 feet transition area with a maximum grade of ten percent (10%) shall also be provided at the bottom of such ramp.

SECTION 3507. OPEN PARKING REQUIREMENTS

3507.1 Marking. Open parking spaces, driving aisles, one-way traffic lanes, and turning area shall be identified by approved painted striping.

3507.2 Barriers. Bump rails, curbs or other approved protective barriers shall be installed where necessary to protect buildings, walls, or fences from damage by automobiles.

SECTION 3508. GARAGE AND CARPORT REQUIREMENTS

3508.1 Walls. Where concrete masonry units are used to construct Group U or S Occupancies, the cells shall be grouted solid to height of four (4) feet above the floor level.

3508.2 Frame. Group U or S Occupancies of wood frame construction shall have approved protective barriers located so as to protect the finished wall coverings from damage by automobiles.

3508.3 Concrete Floors. The floor of every covered parking space shall be paved with cement concrete.

8130.21. ADDITION [ADMINISTRATIVE].

Chapter 36 is added to Volume 2 of the 2022 California Building Code to read as follows due to local climatic conditions:

CHAPTER 36

WILDLAND-URBAN INTERFACE FIRE AREA

3601. CREATION. The City shall designate areas within the City boundaries that are at a significant risk from wildland fires. Such areas shall be designated Wildland-Urban Interface Areas.

3601.1. WILDLAND-URBAN INTERFACE FIRE AREA BOUNDARIES. The boundaries of the Wildland-Urban Interface Area shall be the same as the Very High Fire Hazard Severity Map as produced by the California Department of Forestry and Fire.

8130.22 AMENDMENT.

Section 701A.3, Chapter 7A of the 2022 California Building Code is amended to read as follows due to local climatic and topographical conditions:

701A.3. Additions, Remodels, Repairs or Alterations. Additions, remodels, repairs or alterations may be made to any building or structure without requiring the existing building or structure to comply with all the requirements of this code, provided the addition, remodel, repair or alteration conforms to that required for a new building or structure.

EXCEPTIONS:

1. Provisions of this code that specifically apply to existing conditions are retroactive.
2. The Urban-Wildland Interface Code shall apply to any remodel, alteration, addition or repair based on the following:

0% - 50% - Applicable to addition/alteration only.

51% - 100% - Applicable to the entire structure.

All percentages are based on habitable area and pertain to remodel/additions completed within the most recent thirty-six (36) month period.

3. Roof coverings shall comply with Chapter 15 of the Building Code, as

amended by the City of Arcadia.

Additions, repairs, remodels or alteration shall not be made to an existing building or structure that will cause the existing building or structure to be in violation of any of the provisions of this code nor shall such additions or alterations cause the existing building or structure to become unsafe. An unsafe condition shall be deemed to have been created if an addition or alteration will cause the existing building or structure to become structurally unsafe or overloaded; will not provide adequate access in compliance with the provisions of this code or will obstruct existing exits or access; will create a fire hazard; will reduce required fire resistance or will otherwise create conditions dangerous to human life.

8130.23. ADDITION [ADMINISTRATIVE].

Section 701A.6, Chapter 7A of the 2022 California Building Code is added to read as follows:

701A.6 Administration. In order to hear and decide appeals of orders, decisions or determinations made by the Building Official or the Fire Chief relative to the application and interpretation of the City's Building and Fire codes, the Planning Commission shall act as the Arcadia Building and Fire Code Board of Appeals. The Planning Commission shall not consider an appeal until the Building Official or the Fire Chief has rendered a decision in writing. An appeal shall be filed with the City within 30 days from the date of his or her written decision; in addition, an appeals fee shall be paid to the City in an amount established by City Council Resolution. The appeal shall be in writing and shall clearly set forth the order, decision or determination being appealed. A

hearing shall be scheduled before the Planning Commission as soon as practicable from the date of receipt of the appeal. The Building Official or the Fire chief, as applicable, shall prepare a written report for the Planning Commission. The decision of the Planning Commission shall be final unless appealed to the City Council. The appeal to the City Council shall be in writing and shall be filed with the City within five (5) working days from the date of the Planning Commission’s decision; in addition, an appeals fee shall be paid to the City in an amount established by City Council Resolution. A hearing shall be scheduled before the City Council as soon as practicable from the date of the receipt of the written appeal. The Building Official or the Fire Chief, as applicable, shall prepare a written report for the City Council. The decision of the City Council shall be final.

8130.24. AMENDMENT.

Subsection 2 of Section 704A.3 of Chapter 7A of the 2022 California Building Code is hereby amended to read as follows due to local climatic, geographical, and topographical conditions:

- 2. Heavy timber construction per Chapter 6 of the 2022 California Building Code.

8130.25. [RESERVED].

8130.26. AMENDMENT.

Section 8130.26 is hereby deleted in its entirety and marked as “Reserved.”

8130.27. AMENDMENT.

Section 709A.2 of Chapter 7A the 2022 California Building Code is hereby amended to read as follows due to local climatic, geographical, and topographical

conditions:

709A.2. Where Required. The walking surface material of decks, porches, balconies and stairs shall comply with the requirements of this Section when any portion of such surface is within fifty (50) feet of the building.

8130.28. AMENDMENT.

Item 3 of Section 402.6.2(3) of Chapter 4 of the 2022 California Building Code is hereby amended due to local climatic, geographical, and topographical conditions:

402.6.2(3). Kiosks.

3. The minimum horizontal separation between kiosks or groupings thereof and other structures within the mall shall be twenty (20) feet (6096 mm).

EXCEPTION: Horizontal separation between kiosks or groupings thereof and other structures within the mall may be reduced to fifteen (15) feet in area protected by smoke detection and quick response type sprinkler heads.

8130.29. Construction Site Fencing. A six (6) foot tall construction fence with approved privacy screening shall be installed on all construction sites as required by the Building Official. All required construction fencing shall be located on private property and shall be maintained for the duration of the project.”

SECTION 4. Section 8210 of Part 1 of Chapter 2 of Article VIII of the Arcadia Municipal Code is hereby amended to read in full as follows:

“8210. ADOPTION.

Subject to certain changes and amendments as hereinafter set forth in this Chapter, the City Council adopts, by reference, as the plumbing regulations for the City

the California Plumbing Code, 2022 Edition, including Chapter 1 and with appendices, installation standards, published and adopted by the International Association of Plumbing and Mechanical Officials. The Code shall govern, regulate, and control all of the activities therein referred to and the same is made a part of this Chapter as though set forth in this Chapter in full.

The 2022 Edition of the California Plumbing Code is adopted with no amendments.

One (1) copy of said Code is on file in the office of the Building Official for use and examination by the public.”

SECTION 5. Chapter 3 of Article VIII of the Arcadia Municipal Code is hereby amended as follows:

**“CHAPTER 3
ELECTRICAL CODE**

**PART 1
ADOPTION**

8310. ADOPTION.

The City Council adopts, by reference, as the electrical regulations for the City the California Electrical Code, 2022 Edition, including Article 89 and with appendices, indices, tables, and State of California amendments applicable to local jurisdictions, published and adopted by the National Fire Protection Association. The Code shall govern, regulate, and control all of the activities therein referred to and the same is made a part of this Chapter as though set forth in this Chapter in full.

One (1) copy of said Code is on file in the office of the Building Official for use and examination by the public.

**PART 2
PURPOSE**

8320. PURPOSE.

The purpose of this Code is to provide minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use or maintenance of any electrical system within the City.

**PART 3
ADDITION, DELETIONS, AND AMENDMENTS**

8330. ADDITION, DELETIONS, AND AMENDMENTS.

8330.1 AMENDMENT.

Article 609.13(A) of the 2022 California Electrical Code is amended to read as follows due to local climatic and geographical conditions:

609.13(A) Location. The PV system disconnecting means shall be installed at a readily accessible location. A single, visible-open, lockable AC disconnect shall be provided within 3 feet of the meter on the exterior of the building. Where disconnecting means of systems above 30 V are readily accessible to unqualified persons, any enclosure door or hinged cover that exposes live parts when open shall be locked or require a tool to open.”

SECTION 6. Section 8410 of Part 1 of Chapter 4 of Article VIII of the Arcadia Municipal Code is hereby amended to read in full as follows:

“8410. ADOPTION.

Subject to certain changes and amendments as hereinafter set forth in this Chapter, the City Council adopts, by reference, as the mechanical regulations for the City the California Mechanical Code, 2022 Edition, including Chapter 1 and with appendices, installation standards and State of California amendments applicable to local jurisdictions, published and adopted by the International Association of Plumbing and Mechanical Officials. The Code shall govern, regulate, and control all of the activities therein referred to and the same is made a part of this Chapter as though set forth in this Chapter in full.

The 2022 Edition of the California Mechanical Code is adopted with no amendments.

One (1) copy of said Code is on file in the office of the Building Official for use and examination by the public.”

SECTION 7. Part 3, Chapter 5, Article VIII of the Arcadia Municipal Code is hereby amended to read as follows:

“PART 3

**ADDITIONS, DELETIONS AND
AMENDMENTS**

8530. AMENDMENTS, ADDITIONS AND DELETIONS.

Chapter 31, Section 3109 of the 2022 California Building Code is amended to read as follows due to local climatic and topographical conditions:

8530.1. ADDITION.

The definition of a safety barrier is added to Section 3109.2 Act 115921 in Chapter 31 of the 2022 California Building Code to read as follows:

Safety Barrier. Every person in possession of land, either as owner, purchaser under contract, lessee, tenant or licensee, upon which is situated a swimming pool, spa, or hot tub shall at all times maintain a safety barrier as hereinafter specified completely surrounding said swimming pool, spa or hot tub.

Exception: Safety barriers for public pools shall comply with Chapter 31B, Division 1 of the California Building Code.

8530.2. ADDITION.

Sections 3109.4.4.2.1, 3109.4.4.2.1.1, 3109.4.4.2.1.2, and 3109.4.4.2.1.3 are added to Chapter 31 of the California Building Code to read as follows:

3109.4.4.2.1. Swimming Pool, Spa and Hot Tub Permit Fees. Every applicant for a permit to install, alter, or repair a swimming pool, spa, hot tub or part thereof, shall state in writing on the application form provided for that purpose, the character of work proposed to be done and the amount and kind in connection therewith, together with such information pertinent thereto as may be required.

A fee for each swimming pool, spa or hot tub, including for plumbing and electrical systems, shall be paid to the City in an amount established by City Council Resolution. Any person who shall commence any swimming pool, spa or hot tub work for which a permit is required by this Code without having obtained a permit therefore shall, if subsequently permitted to obtain a permit, pay double the permit fee fixed by resolution of the City Council for such work, provided, however, that this provision shall not apply to emergency work when it shall be demonstrated to the satisfaction of the Building Official that such work was urgently necessary and that it was not practical to obtain a permit

therefore, before the commencement of the work. In all such cases, a permit must be obtained as soon as practical to do so, and if there be an unreasonable delay in obtaining such permit, a double fee shall be charged.

3109.4.4.2.1.1. Reinspections. A reinspection fee may be assessed for each inspection or reinspection when such portion of work for which inspection is called is not complete or when required corrections have not been made.

This provision is not to be interpreted as requiring reinspection fees the first time a job is rejected for failure to comply with the requirements of this Code, but as controlling the practice of calling for inspection before the job is ready for reinspection.

Reinspection fees may be assessed when the approved plans are not readily available to the inspector, for failure to provide access on the date for which the inspection is requested, or for deviating from plans requiring approval of the City. To obtain reinspection, the applicant shall file an application therefore in writing upon the form furnished for that purpose and pay the reinspection fee in accordance with the amount set by City Council Resolution. In instances where reinspection fees have been assessed, no additional inspection of the work shall be performed until the required fees have been paid.

3109.4.4.2.1.2. Plan Review Fees. Whenever plans, calculations or other data are required to be submitted, a plan review fee shall be paid to the City at the time of submitting documents for plan review in an amount set by City Council Resolution. When plans are incomplete or changed so as to require an additional review, a fee shall be paid to the City in an amount established by City Council Resolution.

3109.4.4.2.1.3. Board of Appeals. Appeals of orders, decisions or determinations made by the Building Official relative to the application and interpretation of the code shall be as specified in Arcadia Municipal Code Section 8130.2.

8530.3. AMENDMENT.

The definition of "Swimming Pool" in Section 202 of Chapter 2 of the 2022 California Building Code is amended to read as follows:

Swimming Pool - A swimming pool may be either: (a) a private swimming pool, or (b) a public swimming pool.

(a) A private swimming pool shall mean any constructed or prefabricated structure that contains water eighteen (18) inches or more in depth, used in connection with a single-family residence and available to only the resident(s) of such residence or their private guests, whether designed, intended or used exclusively or principally for swimming or not. This includes any in-ground, aboveground, or on-ground swimming pools, hot tubs, spas or any open container or artificial body of water permanently or temporarily constructed or maintained upon any property, used in connection with a single-family residence and available to only the resident(s) of such residence or their private guests, whether designed, intended or used exclusively or principally for swimming or not.

(b) A public swimming pool shall include any constructed or prefabricated structure that contains water eighteen (18) inches or more in depth, other than a private swimming pool, that is used exclusively or principally for swimming."

8530.3.1. ADDITION.

The definition of a "Wading Pool" in Section 202 is added to Chapter 2 of the 2022 California Building Code to read as follows:

Wading Pool - Any constructed or prefabricated pool used for wading which is less than eighteen (18) inches in depth.

8530.3.2 ADDITION.

Section 3109.4.4.3 of the 2022 California Building Code is added to read as follows due to local climatic and topographical conditions:

3109.4.4.3. Access gates shall be equipped to accommodate a locking device. Pedestrian-access gates shall open outward away from the swimming pool, spa or hot tub and shall be self-closing and self-latching. The release mechanism of the self-latching device shall be located not less than the sixty (60) inches above adjacent finished grade. Access gates shall not be constructed across a driveway, and double gates or motor operated gates shall not be used. A weather-proof, durable sign of not less than ½ inch high letters stating, "POOL AREA KEEP GATE CLOSED", shall be posted at all times on every access gate, for all public pools.

8530.4. ADDITION.

Section 3109.7 is added to Chapter 31 of the 2022 California Building Code.

3109.7. Barrier Required

3109.7.1. The top of the barrier shall be at least sixty (60) inches above finished grade, as measured on the side of the barrier that faces away from the swimming pool, spa or hot tub. The maximum vertical clearance between finish grade and the bottom of

the barrier shall be two (2) inches, as measured on the side of the barrier that faces away from the swimming pool, spa, or hot tub. Where the top of the pool structure is above grade, such as an aboveground pool, the barrier may be at ground level or mounted on top of the pool structure. Where the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be two (2) inches.

3109.7.2. Openings in the barrier shall not allow the passage of a four- (4) inch diameter sphere.

3109.7.3. Solid barriers that do not have openings, such as masonry or stonewalls, shall not contain indentations or protrusions except for tooled masonry joints.

3109.7.4. Where the barrier is composed of horizontal and vertical members and the distance between each of the horizontal member is less than 45 inches, the horizontal members shall be located on the swimming pool, spa or hot tub side of the fence and the spacing between each vertical member shall not exceed $1\frac{3}{4}$ inches.

3109.7.5. Where the barrier is composed of horizontal and vertical members and the distance between each of the horizontal members is 45 inches or more, the spacing between each vertical member shall not allow the passage of a four- (4) inch diameter sphere. Where there are decorative cutouts within vertical members, spacing within the cutouts shall not exceed $\frac{3}{4}$ inches in width.

3109.7.6. Where chain link fencing is used, the maximum mesh size shall be $1\frac{1}{4}$ inch square unless the fence is provided with slats fastened in place which reduces the openings to no more than $1\frac{3}{4}$ inches. The chain link fence fabric shall be not less than

11-gauge material. Solid or dense landscaping shall not be used to meet the requirements of this section.

3109.7.7. Where the barrier is composed of diagonal members, such as a lattice fence, the maximum opening formed by the diagonal members shall be not more than 1- $\frac{3}{4}$ inches.

3109.7.8. Access gates shall comply with the requirements specified in Section 3109.6.1 —3109.6.7 above and, in addition, shall be equipped to accommodate a locking device. Pedestrian-access gates shall open outward away from the swimming pool, spa or hot tub and shall be self-closing and self-latching. The release mechanism of the self-latching device shall be located not less than the sixty (60) inches above adjacent finished grade. Access gates shall not be constructed across a driveway, and double gates or motor operated gates shall not be used. A weather-proof, durable sign of not less than $\frac{1}{2}$ inch high letters stating, "POOL AREA KEEP GATE CLOSED", shall be posted at all times on every access gate.

3109.7.9. A building wall that serves as part of the barrier and allows access to the swimming pool, spa or hot tub through door openings shall comply with one of the following requirements:

An alarm installed on all doors with direct access (1) to the swimming pool, spa or hot tub. The alarm shall sound continuously for a minimum of 30 seconds immediately after the door is opened and be loud enough to be heard throughout the house during normal household activities. The alarm shall automatically reset under all conditions. The alarm system shall be equipped with a manual means, such as a touch pad or switch, to

temporarily deactivate the alarm for a single opening; such deactivation shall last for no more than 15 seconds. The deactivation switch shall be located at least 54 inches above the floor adjacent to the door opening. An alarm, which is incorporated into a general house alarm system, may be used to meet the requirements of this section providing the alarm is not connected to a central monitoring station and cannot be disabled.

Self-closing and self-latching devices installed on (1) all doors with direct access to the swimming pool, spa or hot tub with the release mechanism located a minimum 54" above adjacent finished grade.

3109.7.10. Inspection. The swimming pool, spa or hot tub barrier, including pedestrian access gates and door alarms, shall be installed, inspected and approved prior to plastering or filling the swimming pool, spa, or hot tub with water.

3109.7.11. Indoor Swimming Pool, Spa or Hot Tub. An exterior door with direct access to an indoor swimming pool, spa, or hot tub shall comply with section 3109.6.9 above.

3109.7.12 LEGAL NON-CONFORMING SWIMMING POOLS, SPAS OR HOT TUBS. Every person in possession of land, either as owner, purchaser under contract, lessee, tenant or licensee, upon which is situated a swimming pool, spa, or hot tub for which a permit was issued prior to June 19, 1992, shall at all times maintain a safety barrier completely surrounding said swimming pool, spa or hot tub, as follows:

A substantial fence or other solid structure not (1) less than four (4) feet in height, as measured from the side of the fence that does not enclose the swimming pool, spa or hot tub area, shall be provided. The openings in the barrier shall not allow the passage of

a four- (4) inch diameter sphere and horizontal pickets that act as a latter shall not be used.

Pedestrian access gates or door openings through the (2) barrier shall be equipped to accommodate a locking device and be self-closing and self-latching. The release mechanism of the self-latching device shall be located not less than forty-eight (48) inches above the adjacent finished grade. Access gates shall be not less than 48 inches in height and openings in the gate shall not allow the passage of a four- (4) inch diameter sphere. This section shall not apply to any door of the main dwelling unit located on the same legal lot as the swimming pool, spa or hot tub. Access gates shall not be constructed across any driveway and double gates or motor operated gates shall not be used. A weatherproof, durable sign of not less than one-half (½) inch high letters stating, "POOL AREA KEEP GATE CLOSED", shall be posted at all times on every access gate, for all public pools.

3109.7.12. DRAINAGE. A 3" P-trap shall be required on the premises for drainage of the pool.

3109.7.13. PLAN COMPLIANCE. All plans submitted to the City for the construction of a new swimming pool, spa or hot tub shall show compliance with the requirements of this Chapter, including the location and height of fencing and gates required by this Chapter.

3109.7.14. FINAL INSPECTION. Final approval of all swimming pools, spas, and hot tubs hereinafter constructed shall not be granted until all of the requirements specified in this chapter have been complied with.

8530.10. ADDITION [ADMINISTRATIVE].

Section 3109.8 is added to Chapter 31 of the California Building Code to read as follows:

3109.8. Demolition of a Swimming Pool, Spa or Hot Tub. A demolition permit shall be obtained from the City prior to the demolition of any swimming pool, spa, or hot tub. The permit applicant shall submit a plot plan indicating the location of the swimming pool, spa or hot tub and its associated equipment. Upon issuance of the demolition permit, the following requirements shall apply:

1. Gas piping serving the swimming pool, spa or hot tub equipment shall be terminated at the source of supply and removed.
2. Plumbing piping serving the swimming pool, spa, hot tub or equipment shall be terminated at the source of supply and removed.
3. Electrical wiring and conduit serving the swimming pool, spa, hot tub, or equipment shall be terminated at the source of supply and removed.
4. Electrical, plumbing and mechanical equipment serving the swimming pool, spa or hot tub shall be removed.
5. The sidewalls of the swimming pool, spa or hot tub shall be removed to a minimum depth of 6 inches below adjacent grade.
6. Two (2) 18-inch diameter holes shall be provided at the lowest elevation of the swimming pool, spa or hot tub floor.
7. The swimming pool, spa or hot tub shall be filled with clean soil or other approved material.”

SECTION 8. Section 8930 of Part 1, Chapter 11, Article VIII of the Arcadia Municipal Code is hereby amended to read as follows:

**“CHAPTER 11
RESIDENTIAL CODE**

**PART 1
ADOPTION**

8930. ADOPTION.

Subject to certain changes and amendments as hereinafter set forth in this Chapter, the City Council hereby adopts, by reference, as the residential building regulations for the City, the 2022 Edition of the California Residential Code (California Code of Regulations, Title 24), including Chapter 1. The Code shall govern, regulate and control all of the activities therein referred to and the same is made a part of this Chapter as though set forth in this Chapter in full.

One (1) copy of said Code is on file in the office of the Building Official for use and examination by the public.”

SECTION 9. Section 8950 of Part 3, Chapter 11, Article VIII of the Arcadia Municipal Code is hereby amended in its entirety to read as follows:

“8950. AMENDMENTS, ADDITIONS AND DELETIONS.

The 2022 California Residential Code is amended to read as follows:

8950.1. AMENDMENT.

Section R313.1 of the 2022 California Residential Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

R313.1 Where required. Approved automatic extinguishing systems shall be

installed:

1. In all new R-2 occupancies.

EXCEPTIONS:

A) Detached Group U occupancies, providing the floor area does not exceed 1000 square feet.

B) Pool houses, recreation rooms and similar accessory occupancies providing no portion of the exterior wall of the building is more than 150 feet from a public street.

C) Other minor buildings and/or occupancies as approved by the Fire Chief.

2. In all existing Group R-2 Occupancies greater than 2500 square feet in living area when enlarged by an addition to the living area of the existing structure.

EXCEPTIONS:

A) Additions of areas that would not require sprinklers such as closets or bathrooms.

3. In all existing Group R-2 Occupancies equal to or less than 2500 square feet in living area, when enlarged by an addition to the living area of the existing structure, exceeds 2500 square feet in residential area.

EXCEPTIONS:

A) Additions of areas that would not require sprinklers such as closets or bathrooms.

8950.2. AMENDMENT.

Section R313.1.1 of the 2022 California Residential Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

R313.1.1 Automatic residential sprinkler systems for R-2 occupancies shall be designed and installed in accordance with NFPA 13D or NFPA 13R as amended by the Arcadia Municipal Code.

8950.3. AMENDMENT.

Section R313.2 of the 2022 California Residential Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

R313.2. One- and two-family dwellings automatic fire systems.

1. In all new R-3 occupancies.

EXCEPTIONS:

- A) Detached private garages, providing the floor area does not exceed 1000 square feet.
- B) Pool houses, recreation rooms, workshops, and similar accessory R-3 occupancies providing no portion of the exterior wall of the building is more than 150 feet from a public street.
- C) Other minor buildings and/or occupancies as approved by the Fire Chief.

2. In all existing Group R-3 Occupancies greater than 2500 square feet in living area when enlarged by an addition to the living area of the existing structure.

EXCEPTIONS:

A) Additions of areas that would not require sprinklers such as closets or bathrooms.

B) Additions that occur without increasing the number of stories or increasing the horizontal projection of the first story roof.

3. In all existing Group R-3 Occupancies equal to or less than 2500 square feet in living area, when enlarged by an addition to the living area of the existing structure, exceeds 2500 square feet in residential area.

EXCEPTIONS:

A) Additions of areas that would not require sprinklers such as closets or bathrooms.

B) Additions that occur without increasing the number of stories or increasing the horizontal projection of the first story roof.

8950.4. AMENDMENT.

Section R313.2.1 of the 2022 California Residential Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

R313.2.1 DESIGN AND INSTALLATION. Automatic residential fire sprinkler systems shall be designed and installed in accordance with NFPA 13D as amended by the Arcadia Municipal Code.

8950.5. AMENDMENT.

Section R313.3 of the 2022 California Residential Code is deleted in its entirety and amended to read as follows due to local climatic, geographical, and topographical

conditions:

R313.3. DWELLING UNIT FIRE SPRINKLER SYSTEMS. Dwelling unit fire sprinkler systems shall be designed and installed in accordance with NFPA 13D or NFPA 13R as amended by this section.

R313.3.1 NFPA 13R SPRINKLER SYSTEMS. Where allowed in buildings of Group R, up to and including buildings four stories in height, automatic sprinkler systems shall be installed throughout in accordance with NFPA 13R with the following additions:

- A) Attics shall be fully sprinklered with quick-response intermediate temperature heads.
- B) Private garages shall be sprinklered and shall have a design density of an Ordinary Hazard Group 1 occupancy with a design area of two (2) heads. Quick-response intermediate temperature commercial type heads shall be used for the garage area.

R313.3.2 NFPA 13D SPRINKLER SYSTEMS. Where allowed, automatic sprinkler systems installed in one-and two-family dwellings shall be installed throughout in accordance with NFPA 13D with the following additions:

- A) Attics containing forced air units shall have one or more quick-response intermediate temperature sprinkler heads adjacent to each unit.
- B) Attached private garages shall be sprinklered and shall have a design density of an Ordinary Hazard Group 1 occupancy with a design area of two (2) heads. Quick-response intermediate temperature commercial type heads shall be used for the garage area.

- C) Detached private garages over 1000 square feet in total area shall be sprinklered and shall have a design density of an Ordinary Hazard Group 1 occupancy with a design area of 2 heads. Quick-response intermediate temperature commercial type heads shall be used for the garage area.
- D) Residential structures under 5000 square feet in total area shall be designed for two (2) heads flowing in the residential area. Residential structures over 5000 square feet in total area shall be designed for four (4) heads flowing in the residential area.
- E) Attics and basements used for storage purposes shall be fully sprinklered with residential type heads.
- F) A single exterior bell activated by the waterflow switch shall be provided at an approved location.
- G) A representative sample of spare heads shall be provided at an approved location.

8950.5.1. AMENDMENT.

Item 2 of Section R337.4.3 of the 2022 California Residential Code is hereby amended to read as follows:

- 2. Heavy timber construction per Chapter 6 of the 2022 California Building Code.

8950.5.2. AMENDMENT.

Section 8950.5.2 is hereby deleted in its entirety and marked as "Reserved."

8950.5.3. ADDITION.

Section R337.9.2 of the 2022 California Residential Code is hereby amended to read as follows:

R337.9.2. Where Required. The walking surface material of decks, porches, balconies and stairs shall comply with the requirements of this Section when any portion of such surface is within fifty (50) feet of the building.

8950.8. AMENDMENT.

Section R902.1 of the 2022 California Residential Code is amended as follows due to local climatic, geographical, and topographical conditions:

R902.1. ROOFING COVERING MATERIALS.

Roofs shall be covered with materials as set forth in Section R904 and R905. A minimum Class A or B roofing shall be installed in areas designated by this Section. Classes A or B roofing required by this Section to be listed shall be tested in accordance with UL 790 or ASTM E 108.

EXCEPTIONS:

1. Class A roof assemblies include those with coverings of brick, masonry and exposed concrete roof deck.
2. Class A roof assemblies also include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile, or slate installed on noncombustible decks.

8950.7. AMENDMENT.

Section R902.1.3 of the 2022 California Residential Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

R902.1.3. ROOF COVERINGS WITHIN ALL OTHER AREAS.

The entire roof covering of every existing structure where more than fifty (50%) percent of the total roof area is replaced within any one-year period, the entire roof covering of every new structure, and any covering applied in the alteration, repair or replacement of the roof of every existing structure, shall be a fire-retardant roof covering that is at least Class B.

8950.8. AMENDMENT.

Section R902.2 of Section R902 of the 2022 California Residential Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

R902.2. FIRE-RETARDANT-TREATED SHINGLES AND SHAKES.

Fire-retardant-treated wood shakes and shingles are wood shakes and shingles complying with UBC Standard 15-3 or 15-4 which are impregnated by the full-cell vacuum-pressure process with fire-retardant chemicals, and which have been qualified by UBC Standard 15-2 for use on Class A or B roofs.”

SECTION 10. Chapter 11.2 of Article VIII of the Arcadia Municipal Code is hereby added as follows:

“CHAPTER 11.2 ELECTRIC VEHICLE CHARGING STATIONS

PART 1 APPLICABILITY

8957. APPLICABILITY.

This chapter applies to applications for expedited building permits for electric

vehicle charging stations consistent with California Government Code section 65850.7.

PART 2 DEFINITIONS

8958. DEFINITIONS.

The following definitions shall apply for purposes of this chapter:

Electric vehicle charging station or **charging station** means any level of electric vehicle supply equipment station that is designed and built in compliance with Article 625 of the California Electric Code, as it read on the effective date of this Chapter, and delivers electricity from a source outside of an electric vehicle into a plug-in electric vehicle.

Electronic submission means a submission of an application utilizing email, the Internet, and/or facsimile transmission.

Specific, adverse impact means a significant, quantifiable, direct, and unavoidable impact, based on objective, identified, and written public health or safety standards, policies, or conditions as they existed on the date an application was deemed complete.

PART 3 PROCESS

8959. PROCESS.

A. The building official shall adopt a checklist of all application requirements for expedited building permits for electric vehicle charging stations. The checklist shall substantially conform to the most current version of the "Plug-In Electric Vehicle Infrastructure Permitting Checklist" found in the "Zero-Emission Vehicles in California: Community Readiness Guidebook" published by the Governor's Office of Planning and

Research. The checklist, application form, and any other documents required by the building official shall be published on the city's website.

B. Anyone seeking to install an electric vehicle charging station at any site within the city shall apply to the building official for an expedited nondiscretionary building permit.

C. An application for an expedited building permit for an electric vehicle charging station, and all associated documentation, may be submitted to the building official in person, by mail, or by electronic submission. Electronic signatures may be used in lieu of wet signatures.

D. An application that, in the opinion of the building official, satisfies the information requirements of the checklist adopted by the city shall be deemed complete.

E. If an application for an expedited building permit is deemed incomplete, the building official shall provide a written correction notice of the deficiencies and the additional information required to complete the application.

F. If the building official determines that an application for an expedited building permit is complete, the building official shall review the application. If the building official determines that the proposed charging station meets all health and safety requirements of state and federal law, and would not have a specific, adverse impact upon the public health or safety, the application shall be approved and a building permit shall be issued.

G. If the building official finds, based on substantial evidence, that a proposed charging station could have a specific, adverse impact upon the public health or safety,

the city may require the applicant to apply for an electric vehicle charging station use permit in order to install the proposed charging station.

H. An application for an electric vehicle charging station use permit shall be reviewed by the building official. The building official shall not deny such an application without making written findings, based upon substantial evidence in the record, that the proposed charging station would have a specific, adverse impact upon the public health or safety which could not feasibly be satisfactorily mitigated or avoided. The written findings required for rejection of an electric vehicle charging station use permit application shall include the building official's basis for rejecting any potentially feasible alternatives that could mitigate or prevent the alleged adverse impact. Pursuant to Government Code section 65850.7, the building official's review shall be limited to health and safety issues. Aesthetic concerns, or other items not related to public health or safety may not be considered.

I. A decision of the building official made pursuant to subsection F, G, or H of this section may be appealed to the planning commission. The planning commission's review shall also be limited to health and safety issues.

J. Any condition imposed on an application for an expedited building permit or electric vehicle charging station use permit shall be designed to mitigate the specific, adverse impact upon health and safety at the lowest possible cost."

SECTION 11. Chapter 12 of Article VIII of the Arcadia Municipal Code is hereby amended to read as follows:

**"CHAPTER 12
DANGEROUS BUILDINGS**

**PART 1
ADOPTION**

8960. ADOPTION

Subject to certain changes and amendments as hereinafter set forth in this Chapter, the City Council hereby adopts, by reference, the 1997 Edition of the Uniform Code for the Abatement of Dangerous Buildings as published by the International Code Council. The Code shall govern, regulate and control all of the activities therein referred to and the same is made a part of this Chapter as though set forth in this Chapter in full.

One (1) copy of said Code is on file in the office of the Building Official for use and examination by the public.

**PART 2
PURPOSE**

8970. PURPOSE

The purpose of this Code is to provide minimum standards to safeguard life or limb, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures within the City of Arcadia and certain equipment specifically regulated herein."

SECTION 12. Chapter 13 of Article VIII of the Arcadia Municipal Code is hereby amended as follows:

**“CHAPTER 13
LOS ANGELES COUNTY GRADING CODE**

**PART 1
ADOPTION**

8980. ADOPTION.

Subject to certain changes and amendments as hereinafter set forth in this Chapter, the City Council hereby adopts, by reference, Appendix J of the Los Angeles County Building Code amending the 2022 California Building Code. The Code shall govern, regulate and control all of the activities therein referred to and the same is made a part of this Chapter as though set forth in this Chapter in full.

One (1) copy of said Code is on file in the office of the City Clerk for use and examination by the public.”

SECTION 13. Chapter 14 of Article VIII of the Arcadia Municipal Code is hereby amended as follows:

**“CHAPTER 14
CALIFORNIA GREEN BUILDING STANDARDS CODE**

**PART 1
ADOPTION**

8990. ADOPTION.

Subject to certain changes and amendments as hereinafter set forth in this Chapter, the City Council hereby adopts, by reference, the California Green Building Standards Code. The Code shall govern, regulate and control all of the activities therein referred to and the same is made a part of this Chapter as though set forth in this Chapter in full.

One (1) copy of said Code is on file in the office of the Building Official for use and

examination by the public.

PART 2 PURPOSE

8991. PURPOSE.

The purpose of this Code is to improve public health, safety and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact or positive environmental impact and encouraging sustainable construction practices in the following categories:

1. Planning and design.
2. Energy efficiency.
3. Water efficiency and conservation.
4. Material conservation and resource efficiency.
5. Environmental quality.”

SECTION 14. The City Council finds that it can be seen with certainty that adoption of this Ordinance will not have a significant adverse effect on the environment and is therefore exempt from California Environmental Quality Act pursuant to Section 15061(b)(3) of the CEQA Guidelines. City staff is directed to file a notice of exemption within five (5) days of the adoption of this Ordinance.

SECTION 15. Transmittal. The Building Official shall transmit a copy of this Ordinance to the California Building Standards Commission, pursuant to Health and Safety Code Section 17958.7.

SECTION 16. Recession. All former ordinances or parts conflicting or inconsistent with the provisions of this Ordinance or of the codes adopted by this

Ordinance and any other ordinance in conflict herewith are hereby repealed.

SECTION 17. Severability. If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this ordinance, or any part thereof is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portion of this ordinance or any part thereof. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause or phrase thereof, irrespective of the fact that any one or more section, subsection, subdivision, paragraph, sentence, clause or phrase be declared unconstitutional.

SECTION 18. Incorporation of Recitals. The above recitals are true and correct and are incorporated herein by this reference.

SECTION 19. The City Clerk shall certify to the adoption of the Ordinance and shall cause a copy of same or summary thereof to be published in the official newspaper of said City within fifteen (15) days after its adoption. This Ordinance shall take effect on the thirty-first (31st) day after its adoption.

[SIGNATURES ON THE NEXT PAGE]


Passed, approved and adopted this _____ day of _____, 2022.

Mayor of the City of Arcadia

ATTEST:

City Clerk

APPROVED AS TO FORM:



Stephen P. Deitsch
City Attorney

EXHIBIT "A"

FINDINGS OF FACT

Pursuant to the 2022 Edition of the California Building Code Preface, the repost contained herein shall be submitted as the Findings of Fact document with regard to Article III of the City of Arcadia Municipal Code, Ordinance No. 2394 as adopted by the City of Arcadia. Under this Ordinance specific amendments have been established, which are more restrictive in nature than those sections adopted by the California Building Standards Code.

The amendments to the California Building Code, 2022 Edition have been recognized by the City of Arcadia to address the Building problem(s) and maintain an environment, which will afford a level of fire and life safety to its citizens and guests.

Under provisions of California Building Code Preface, local amendments shall be based on climate, geographical or topographical conditions. The Findings of Facts contained herein shall address each of these situations and shall present the local situation, which singularly or in combination cause the established amendments to be adopted.

Climate: The City of Arcadia is located in the County of Los Angeles, and is subject to long periods of dry, hot and windy climates, which increase the chance of a fire occurring and predispose the City to large destructive fires. These dry climate conditions and winds contribute to the rapid spread of even small fires originating in moderate density housing or vegetation. These fires spread very quickly and create a need for increased levels for fire prevention and protection. The added protection will supplement normal fire department response available and provide immediate protection for life and safety of occupants during fire occurrences. The warm, dry climate is conducive to swimming pools which creates a higher probability of child drowning where pools are unprotected.

Geographical: The geographic layout and contours of the City of Arcadia create barriers for accessibility for fire suppression forces. Due to the City's close proximity to major fault lines, there is a significant possibility for multiple fires spreading out of control due to ruptured gas lines and multiple structural collapses. Because of the major earthquake hazard, and due to some older nonconforming buildings, it is necessary during the new construction or building renovation to use the City ordinance to control and minimize conditions hazardous to life and property, which may result from fire, hazardous materials or an explosion.

Topographical: The water supply (domestic and fire flow) system within the City is directly affected by the topographical layout of Arcadia. The distribution system consists of high-low pressure and gravity systems zones, which carry the water from various reservoirs and storage tanks to different zones via water pipes. These street mains consist of high-pressure lines and low pressure lines where the pressure and flows are

adequate in most of the areas of the city. There are certain areas in the southern portion of the City with static pressures of 40 psi., and in the northern portion as low as 20 psi. This variation of pressure causes major problems to development, as well as fire suppression forces.

As a result of the Findings of Fact, which identified the various climatic, geographical, and topographical elements, the requirements established by the City of Arcadia Building Department within the adopted Ordinance No. 2394 are considered reasonable and necessary modifications to the California Building Code based upon local conditions.

While it is clearly understood that the adoption of such regulations may not prevent the incidents of fire, and/or structural failure it is further noted that with the implementation of these various regulations and/or requirements it may serve to reduce the severity and potential loss of life and property.

The City of Arcadia Building Department submits these Findings of Fact and request acceptance of these as defined in the California Building Code Preface.

Prepared and submitted by: Kenneth Fields, City of Arcadia Building Official

ORDINANCE NO. 2395

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF ARCADIA, CALIFORNIA, AMENDING ARTICLE III OF THE ARCADIA MUNICIPAL CODE RELATING TO FIRE REGULATIONS AND ADOPTING BY REFERENCE THE 2022 EDITION OF THE CALIFORNIA FIRE CODE IN ITS ENTIRETY, INCLUDING CHAPTER 4 AND APPENDICES B, C, D, K, AND O BASED ON THE 2021 EDITION OF THE INTERNATIONAL FIRE CODE PUBLISHED BY THE INTERNATIONAL CODE COUNCIL; TOGETHER WITH CERTAIN ADDITIONS, INSERTIONS, DELETIONS AND CHANGES THERETO

WHEREAS, pursuant to Government Code Section 50022.1 *et seq.* the City may adopt by reference the California Building Standards Code, 2022 Edition as provided in Title 24 of the California Code of Regulations, which includes the California Fire Code; and

WHEREAS, the California Building Standards Commission ("Commission") recently adopted the 2022 Edition of the California Building Standards Code; and

WHEREAS, California Health and Safety Code Sections 17958, 17958.5, 17958.7, and 18941.5 authorize cities to adopt the California Building Standards Code with modifications determined to be reasonably necessary because of local climatic, geological or topographical conditions; and

WHEREAS, the City of Arcadia desires to adopt the 2022 Edition of the California Fire Code in its entirety, including Appendix Chapter 4 and Appendices B, C, D, K, and O based on the 2021 Edition of the International Fire Code published by the International Code Council, together with the necessary amendments to assure the Codes are tailored to the particular safety needs of the City as required by its unique climatic, geological and topographical conditions; and

WHEREAS, the City Council conducted first reading of this Ordinance on October 18, 2022; and

WHEREAS, notice of a public hearing on this ordinance was published in the Arcadia Weekly on October 24, 2022 and October 31, 2022; and

WHEREAS, the City Council held a public hearing on November 15, 2022, as required by law, at which time the Council determined that the adoption of the Codes and amendments thereto are in the best interest of the City and are based on the findings required by law; and

WHEREAS, at least one copy of each of the Codes adopted by reference by this ordinance were available for public inspection at the office of the City Clerk fifteen (15) days preceding the public hearing pursuant to Government Code Section 50022.6.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF ARCADIA, CALIFORNIA, DOES ORDAIN AS FOLLOWS:

SECTION 1. The City Council finds that the amendments and additions to the California Fire Code herein are supported by Findings of Fact which are attached hereto as Exhibit "A" and incorporated herein as part of this Ordinance.

SECTION 2. Section 3121 of Division 1, Part 2, Chapter 1, Article III of the Arcadia Municipal Code is hereby amended to read as follows:

"3121. CALIFORNIA FIRE CODE ADOPTION.

Subject to the exception of the deletions or additions hereinafter set forth, and further subject to the amendments hereinafter specified, there is adopted by reference for the City of Arcadia the 2022 Edition of the California Fire Code, including Chapter 4 and Appendices B, C, D, K, and O based on the 2021 Edition of the International Fire Code published by the International Code Council, and the foregoing shall constitute the Fire Code of the City of Arcadia.

One (1) copy of said code is on file in the office of the City Clerk for use and examination by the public.”

SECTION 3. Sections 3124, 3124.1, 3124.2, 3124.3, 3124.4, 3124.5, 3124.6, 3124.7, 3124.8, and 3124.9 of Division 4, Part 2, Chapter 1, of Article III are hereby amended in their entirety to read as follows:

“3124. AMENDMENTS AND ADDITIONS.

The California Fire Code is hereby amended to read as follows:

3124.1. AMENDMENT.

Section 105.6.15 of the California Fire Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

105.6.15 LP-gas. An operational permit is required for:

1. Storage and use of LP-gas.

Exception: A permit is not required for individual containers with a 500-gallon water capacity or less or multiple container systems having an aggregate quantity not exceeding 500 gallons, used exclusively for emergency power generation, and serving occupancies in Group R-3 not located in the Wildland-Urban Interface Area.

2. Operation of cargo tankers that transport LP-gas.

3124.2. AMENDMENT.

Section 202 of the California Fire Code is amended to read as follows due to local climatic, geographical, and topological conditions:

Business Group B

Training and skill development not in a school or academic program (this shall include, but not be limited to, martial arts studios, gymnastics and similar uses regardless of the ages served, and where not classified as a Group A occupancy).

3124.3. AMENDMENT.

Section 903.2 of the California Fire Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

903.2. Where required. Approved automatic extinguishing systems shall be installed:

1. In all new buildings regardless of the type of construction or occupancy.

EXCEPTIONS: A) Detached private garages, providing the floor area does not exceed 1000 square feet.

B) Pool houses, recreation rooms, workshops, and similar accessory R-3 occupancies providing no portion of the exterior wall of the building is more than 150 feet from a public street.

C) Other minor buildings and/or occupancies as approved by the Fire Chief.

2. In existing buildings with new occupancies as required by other sections of the Fire Code.

3124.4. AMENDMENT.

Section 903.2.18 of the California Fire Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

903.2.18. Group U garages and carports accessory to Group R-3 occupancies. Carports with habitable space above, detached private garages over 1000 square feet in area, and attached private garages shall be protected by fire sprinklers in accordance

with this section. These areas shall have a design density of an Ordinary Hazard Group 1 occupancy with a design area of two (2) heads. Quick-response intermediate temperature commercial type heads shall be used.

3124.5. AMENDMENT.

Section 903.3.1.3 of the California Fire Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

903.3.1.3. NFPA 13D SPRINKLER SYSTEMS. Where allowed, automatic sprinkler systems installed in one- and two-family dwellings shall be installed throughout in accordance with NFPA 13D with the following additions:

A) Attics containing forced air units shall have one or more quick-response intermediate temperature sprinkler heads adjacent to each unit.

B) Attached private garages shall be sprinklered and shall have a design density of an Ordinary Hazard Group 1 occupancy with a design area of two (2) heads. Quick-response intermediate temperature commercial type heads shall be used for the garage area.

C) Detached private garages over 1000 square feet in total area shall be sprinklered and shall have a design density of an Ordinary Hazard Group 1 occupancy with a design area of two (2) heads. Quick-response intermediate temperature commercial type heads shall be used for the garage area.

D) Residential structures under 5000 square feet in total area shall be designed for two (2) heads flowing in the residential area. Residential structures over 5000 square feet in total area shall be designed for four (4) heads flowing in the residential area.

E) Attics and basements used for storage purposes shall be fully sprinklered with residential type heads.

F) A single exterior bell activated by the waterflow switch shall be provided at an approved location.

G) A representative sample of spare heads shall be provided at an approved location.

3124.6. AMENDMENT.

Section 903.4.2 of the California Fire Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

903.4.2. ALARMS. An approved audible and visible exterior device shall be connected to every automatic sprinkler system. Such sprinkler water-flow alarm devices shall be activated by water flow equivalent to the flow of a single sprinkler of the smallest orifice size installed in the system. Alarm devices shall be provided on the exterior of the building in an approved location. Where a fire alarm system is installed, actuation of the automatic fire sprinkler system shall actuate the building fire alarm system. Approved audible notification appliances shall be provided in the interior of the building at locations required by the Fire Chief.

EXCEPTION: NFPA 13D systems serving R-3 occupancies shall be provided with a single exterior bell.

3124.7. AMENDMENT.

Section 1103.2 of the California Fire Code is amended to read as follows due to local climatic, geographical, and topographical conditions:

1103.2 Emergency responder radio coverage in existing buildings. Existing buildings that do not have approved radio coverage for emergency responders within

the building based upon the existing coverage levels of the public safety communications systems of the jurisdiction at the exterior of the building, shall be equipped with such coverage according to one of the following:

1. Wherever an existing wired communication system cannot be repaired or is being replaced, or where not approved in accordance with Section 510.1, Exception 1.
2. Whenever total additions result in an increase of more than 5000 square feet in the total floor area, including mezzanines or additional stories, regardless of ownership. Additions shall be cumulative with each application for building permit from January 1, 2011.
3. Whenever the value of alterations requiring permits exceed \$500,000 in valuation. Alteration values shall be cumulative with each application for a building permit from January 1, 2011.

3124.8. AMENDMENT.

Section 1103.5 of the California Fire Code is amended to read as follows due to local climatic, geographical, and topographic conditions:

1103.5 EXISTING BUILDINGS. An approved automatic fire sprinkler system shall be installed in existing buildings, including any additions thereto, in the occupancies and buildings as set forth in this section.

1. In all commercial and industrial buildings greater than 5000 square feet in area when enlarged by an addition to the existing structure or as required by the Fire Chief.
2. In all commercial and industrial buildings equal to or less than 5000 square feet in area, when enlarged by an addition to the existing structure, exceeds 5000 square feet or as required by the Fire Chief.

3. In all Group R-1 or R-2 Occupancies when an addition results in additional guestrooms or dwelling units.

4. In all Group R-3 Occupancies greater than 2500 square feet in living area when enlarged by an addition to the living area of the existing structure.

EXCEPTIONS:

1) Additions of areas that would not require sprinklers such as closets or bathrooms.

2) Additions that occur without increasing the number of stories or increasing the horizontal projection of the first story roof.

5. In all Group R-3 Occupancies equal to or less than 2500 square feet in living area, when enlarged by an addition to the living area of the existing structure, exceeds 2500 square feet in residential area.

EXCEPTIONS:

1) Additions of areas that would not require sprinklers such as closets or bathrooms.

2) Additions that occur without increasing the number of stories or increasing the horizontal projection of the first story roof.

6. In existing buildings for new occupancies as required by other sections of the Fire Code.

3124.9. AMENDMENT.

Section O101.2 of the California Fire Code is amended to read as follows:

O101.2 Permits. An operational permit shall be required for haunted houses, ghost walks, or similar amusement uses in accordance with Appendix O101.2.

EXCEPTION: Haunted houses, ghost walks, or similar amusement uses in Group R-3 occupancies.”

SECTION 4. Division 4, Part 2, Chapter 1 of Article III of the Arcadia Municipal Code is hereby amended by amending Sections 3124.10, 3124.11, 3124.12, 3124.13, and 3124.14 and adding Sections 3124.15 and 3124.16 to read in their entirety as follows:

“3124.10. ADDITION.

Section 5608.2 is added to Chapter 56 of the California Fire Code to read as follows due to local climatic conditions:

5608.2. FIREWORKS PROHIBITED. No person shall sell, display for sale, possess, store, or manufacture, use, light, fire, discharge, explode or set off any fireworks, including "Safe and Sane" fireworks anywhere within the City, except as allowed by the Fire Chief.

3124.11. ADDITION.

Section 6112 is hereby added to the California Fire Code to read as follows: The use of liquefied petroleum gas for emergency power generation for Group R-3 occupancies located in the Wildland-Urban Interface area shall comply with the following:

1. All individual containers shall be a maximum size of 500-gallon (1893 L) water capacity. Multiple container systems shall not exceed 500-gallons (1893 L) in aggregate quantity.
2. A minimum 10-foot setback shall be maintained between the tank and all buildings in perpetuity. All future developments on the property shall be subject to this requirement.

3. Signage shall be provided on the tank indicating its contents and warning of "NO SMOKING WITHIN 25 FEET".
4. Weeds, grass, brush, trash, and other combustible materials shall be kept a minimum of 10 feet from the tank.
5. A minimum 6A:80BC fire extinguisher shall be provided within 50 feet of the tank. It shall be the applicant's responsibility to have the fire extinguisher serviced by a qualified contractor on an annual basis.
6. During refueling, the LP tank vehicle shall not be left unattended at any time.

3124.12. ADDITION [ADMINISTRATIVE].

Section 105.1.7 is added to the California Fire Code to read as follows:

When the application for a permit under this section is filed, a non-refundable fee as adopted by City Council Resolution shall be paid for the purpose of recovering the cost of services provided.

3124.13. DELETION [ADMINISTRATIVE].

Section 103 is hereby deleted from the California Fire Code without replacement.

3124.14. ADDITION [ADMINISTRATIVE].

Section 104.13 is added to the California Fire Code to read as follows:

104.13. COST RECOVERY. Where an emergency situation is caused or exacerbated by a willful act, a negligent act, or a violation of the Fire Code, Building Code, or any other applicable law, ordinance or regulation, the cost of mitigating and securing any emergency that is within the responsibility of the Fire Chief is a charge against the person who caused the emergency or who caused the circumstances leading to the creation of the emergency. Damages and expenses incurred by any public

agency providing mutual aid shall constitute a debt of such person and shall be collectible by the Fire Chief for proper distribution in the same manner as in the case of an obligation under contract expressed or implied. Expenses as stated above shall include, but not be limited to, equipment and personnel committed and any payments required by the public agency to outside business firms requested by the public agency to mitigate or secure the emergency, monitor remediation, and clean up.

SECTION 5. Division 5, Part 2, Chapter 1 of Article III of the Arcadia Municipal Code is hereby amended by amending Sections 3125 and 3125.1 to read in their entirety as follows:

“DIVISION 5. - APPEALS AND PERMITS

3125. AMENDMENT [ADMINISTRATIVE].

Section 111 of the California Fire Code is amended to read as follows:

Appeals. Whenever the Chief disapproves an application or refuses to grant a permit, the applicant may appeal from the decision of the Chief to the City of Arcadia Building/Fire Code Appeals Board within thirty (30) days from the date of the decision being appealed.

3125.1. AMENDMENT [ADMINISTRATIVE].

Section 111 of the California Fire Code is amended by adding the following paragraph:

Appeals Procedure. The City of Arcadia Building/Fire Code Appeals Board shall not consider any such appeal unless the matter has come to the attention of the Chief and he has rendered a decision in writing. Any appeal to the board shall be made by the

affected person or his agent in writing in the form and manner as prescribed by the Chief and as specified in Arcadia Municipal Code section 8130.2.”

SECTION 6. Parts 4 and 5 of Chapter 1 of Article III of the Arcadia Municipal Code are hereby amended in their entirety to read as follows:

“PART 3. - WILDLAND-URBAN INTERFACE FIRE AREA

3130. CREATION

The City shall designate areas within the City boundaries that are at a significant risk from wildland fires. Such areas shall be designated Wildland-Urban Interface Areas.

3130.1. WILDLAND-URBAN INTERFACE FIRE AREA BOUNDARIES.

The boundaries of the Wildland-Urban Interface Area shall be the same as the Very High Fire Hazard Severity Map as produced by the California Department of Forestry and Fire Protection.

PART 4. - SPECIAL REGULATIONS DIVISION 1.

FLAMMABLE AND EXPLOSIVE MATERIAL

3141. STORAGE OF FLAMMABLE LIQUIDS.

Storage of flammable liquids in outside aboveground tanks is prohibited within the boundaries of the City as the same now exist or as the same may at any time hereafter exist. Aboveground tanks may be permitted on a case by case basis with approval of the Chief.

3141.1. NEW BULK PLANTS PROHIBITED.

The limits in which new bulk storage of liquefied petroleum gas is restricted are established as the boundaries of the City.

3141.2. SAME.

All real property which has been or may hereafter be classified as, changed to or placed in Zones R-M, R-O, R-1, R-2 or R-3 shall be limited to the storage of a maximum of the equivalent to ten (10) gallons of water capacity outdoors and five (5) gallons of water capacity in either free standing or attached accessory structures.

3141.3. SAME. EXCEPTIONS.

1) Individual containers with a 500-gallon water capacity or less or multiple container systems having an aggregate quantity not exceeding 500 gallons, used exclusively for emergency power generation and serving occupancies in Group R-3.

2) The City Council may, upon written application, and after receipt of the report and recommendation of the Chief, after finding upon the evidence received that the public health, safety and welfare will not be jeopardized, alter the limits fixed by any of the preceding section.

3142. HAZARDOUS MATERIALS ABATEMENT.

Clean up or abatement; liability for cost.

3142.1. SAME.

The Fire Department is authorized to abate or cause to be cleaned up the effects of any hazardous material deposited upon or into any property or facilities in the City; and any such person or persons responsible for such property or who intentionally, negligently or otherwise caused such deposit shall be liable for the payment of all such cost incurred by the Fire Department as a result of such cleanup or abatement activity. The remedy provided by this part shall be in addition to any other remedies provided by law.

3142.2. SAME.

For the purposes of this part, "Hazardous Materials" shall be defined as any substance or materials in a quantity or form which, in the determination of the Fire Chief or his authorized representative, poses an unreasonable and imminent risk to the life, health or safety of persons or property or to the ecological balance of the environment, and shall include, but not be limited to, such substances as explosives, radioactive materials, unstable or toxic materials, petroleum or petroleum products or gases, poisons, etiologic (biologic) agents, pesticides, flammables and corrosives.

3142.3. SAME.

For purposes of this part, cost incurred by the Fire Department shall include, but shall not necessarily be limited to the following: actual labor costs of City personnel, including workers compensation benefits, fringe benefits, administrative overhead, cost of equipment operations, cost of materials obtained directly by the City and cost of any contract labor, equipment and materials as necessary to clean up and abate the hazard.

3142.4. SAME.

The authority to recover costs under this part shall not include actual fire suppression services which are normally or usually provided by the Fire Department."

SECTION 7. The City Council finds that it can be seen with certainty that adoption of this Ordinance will not have a significant adverse effect on the environment and is therefore exempt from California Environmental Quality Act pursuant to Section 15061(b)(3) of the CEQA Guidelines. City staff is directed to file a notice of exemption within five (5) days of the adoption of this Ordinance.

SECTION 8. Transmittal. The Building Official shall transmit a copy of this

Ordinance to the California Building Standards Commission, pursuant to Health and Safety Code Section 17958.7.

SECTION 9. Recession. All former ordinances or parts conflicting or inconsistent with the provisions of this Ordinance or of the codes adopted by this Ordinance and any other ordinance in conflict herewith are hereby repealed.

SECTION 10. Severability. If any section, subsection, subdivision, paragraph, sentence, clause or phrase of this ordinance, or any part thereof is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portion of this ordinance or any part thereof. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause or phrase thereof, irrespective of the fact that any one or more section, subsection, subdivision, paragraph, sentence, clause or phrase be declared unconstitutional.

SECTION 11. Incorporation of Recitals. The above recitals are true and correct and are incorporated herein by this reference.

SECTION 12. The City Clerk shall certify to the adoption of the Ordinance and shall cause a copy of same or summary thereof to be published in the official newspaper of said City within fifteen (15) days after its adoption.

[SIGNATURES ON THE NEXT PAGE]


Passed, approved and adopted this _____ day of _____, 2022.

Mayor of the City of Arcadia

ATTEST:

City Clerk

APPROVED AS TO FORM:



Stephen P. Deitsch
City Attorney

EXHIBIT "A"

FINDINGS OF FACT

Pursuant to the 2022 Edition of the California Fire Code Preface, the report contained herein shall be submitted as the Findings of Fact document with regard to Article III of the City of Arcadia Municipal Code, Ordinance No. 2395, as adopted by the City of Arcadia. Under this adopting Ordinance specific amendments have been established, which are more restrictive in nature than those sections adopted by the California Building Standards Code.

The amendments to the California Fire Code, 2022 Edition have been recognized by the City of Arcadia to address the fire problem(s), concern(s) and future direction(s) by which this City can establish and maintain an environment, which will afford a level of fire and life safety to its citizens and guests.

Under the provisions of California Fire Code Preface, local amendments shall be based on climatic, geographical or topographical conditions. The Findings of Facts contained herein shall address each of these situations and shall present the local situation, which singularly or in combination cause the established amendments to be adopted.

Climatic: The City of Arcadia is located in the County of Los Angeles, and is subject to long periods of dry, hot and windy climates, which increase the chance of a fire occurring and predispose the City to large destructive fires. These dry climatic conditions and winds contribute to the rapid spread of even small fires originating in moderate density housing or vegetation. These fires spread very quickly and create a need for increased levels for fire prevention and protection.

Geographical: The geographic layout and contours of the City of Arcadia create barriers for accessibility for fire suppression forces. Due to the City's close proximity to major fault lines, there is a significant possibility for multiple fires spreading out of control due to ruptured gas lines and multiple structural collapses. Because of the major earthquake hazard, and due to some older nonconforming buildings, it is necessary during the new construction or building renovation to use the City ordinance to control and minimize conditions hazardous to life and property, which may result from fire, hazardous materials or an explosion.

Topographical: The water supply (domestic and fire flow) system within the City is directly affected by the topographical layout of Arcadia. The distribution system consists of high-low pressure and gravity systems zones, which carry the water from various reservoirs and storage tanks to different zones via water pipes. These street mains consist of high-pressure lines and low pressure lines where the pressure and flows are adequate in most of the areas of the city. There are certain areas in the southern portion of the City with static pressures of 40 psi, and in the northern portion as low as 20 psi. This variation of pressure causes major problems to development, as well as fire suppression forces.

As a result of the Findings of Fact, which identified the various climatic, geographical, and topographical elements, the requirements established by the City of Arcadia Fire Department within the adopted Ordinance No. 2395 are considered reasonable and necessary modifications to the California Fire Code based upon local conditions.

While it is clearly understood that the adoption of such regulations may not prevent the incidents of fire, it is further noted that with the implementation of these various regulations and/or requirements it may serve to reduce the severity and potential loss of life and property.

The City of Arcadia Fire Department submits these Findings of Fact and request acceptance of these as defined in the California Fire Code Preface.

Prepared and submitted by: Mark Krikorian, Fire Marshal



STAFF REPORT

Development Services Department

DATE: October 18, 2022

TO: Honorable Mayor and City Council

FROM: Jason Kruckeberg, Assistant City Manager/Development Services Director
Barry Spriggs, Fire Chief
By: Kenneth Fields, Building Official
Mark Krikorian, Fire Marshal

SUBJECT: ADOPTION OF THE CALIFORNIA BUILDING AND CALIFORNIA FIRE CODES

ORDINANCE NO. 2394 AMENDING ARTICLE VIII OF THE ARCADIA MUNICIPAL CODE RELATING TO BUILDING REGULATIONS AND ADOPTING BY REFERENCE THE 2022 EDITION OF THE CALIFORNIA BUILDING CODE, VOLUMES 1 AND 2, AND APPENDIX J, THE 2022 CALIFORNIA RESIDENTIAL CODE, THE 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE, THE 2022 CALIFORNIA PLUMBING CODE, THE 2022 CALIFORNIA ELECTRICAL CODE, THE 2022 CALIFORNIA MECHANICAL CODE, THE 2022 CALIFORNIA EXISTING BUILDINGS CODE, THE UNIFORM CODE FOR THE ABATEMENT OF DANGEROUS BUILDINGS, 1997 EDITION, AND THE LOS ANGELES COUNTY GRADING CODE WITH ADDITIONS, AMENDMENTS, AND DELETIONS

Recommendation: Introduce Ordinance No. 2394 and set the public hearing for November 15, 2022

ORDINANCE NO. 2395 AMENDING ARTICLE III OF THE ARCADIA MUNICIPAL CODE RELATING TO FIRE REGULATIONS AND ADOPTING BY REFERENCE THE 2022 EDITION OF THE CALIFORNIA FIRE CODE IN ITS ENTIRETY, INCLUDING APPENDICES CHAPTER 4, B, C, D, K, AND O BASED ON THE 2021 EDITION OF THE INTERNATIONAL FIRE CODE PUBLISHED BY THE INTERNATIONAL CODE COUNCIL; TOGETHER WITH CERTAIN ADDITIONS, INSERTIONS, DELETIONS AND CHANGES THERETO

Recommendation: Introduce Ordinance No. 2395 and set the public hearing for November 15, 2022

SUMMARY

The Development Services and Fire Departments are proposing amendments to the Arcadia Municipal Code relating to building and fire code regulations for the purpose of complying with State requirements, and to update current administrative and technical standards. Every three years, the State of California adopts new Building and Fire Codes with California amendments. The last code adoptions and amendments to the Arcadia Codes were adopted on December 17, 2019.

It is recommended that the City Council introduce Ordinance No. 2394 amending Article VIII of the Arcadia Municipal Code relating to Building Codes, and Ordinance No. 2395 amending Article III of the Arcadia Municipal Code relating to Fire Codes and schedule a public hearing for November 15, 2022.

BACKGROUND

The City of Arcadia uses the California Building Standards Codes (“CBSC”) as its local building and fire codes. Every three years, the California Building Standards Commission reviews the International Building Code and recommends revisions and updates to the State Code, and the State adopts the new code. Prior to adoption, amendments to the State Codes may be incorporated by the local jurisdiction based on local climatic, geologic, and/or topographic conditions per Section 17958.7 of California’s Health and Safety Code.

DISCUSSION

The 2022 CBSC was recently adopted by the State of California and will automatically become effective on January 1, 2023. While there are many technical updates to the various codes, there are not any highly notable changes this cycle. The updates generally fine tune existing regulations.

With each code adoption, cities have the option of amending the State model building standards code to better accommodate local conditions if specific findings are made justifying the changes. To further protect the public health, welfare, and safety specific to Arcadia residents, it is recommended that the City maintain the same basic amendments to the Codes that were made during the last code cycle three years ago, with minor modifications. These basic amendments provide an enhanced level of fire protection and prevention for buildings located within the City. They also establish minimum standards for multifamily developments, such as requirements for noise reduction and undergrounding of utility lines. Finally, they set minimum requirements for swimming pool safety barriers and construction site fencing. Findings of Fact for these amendments are included as Exhibit “A” of both proposed Ordinances.

Two examples of how the Codes have been amended from the State’s model building standards codes are as follows:

- Amends the fire sprinkler requirements in the Building Code, Residential Code, and the Fire Code by requiring sprinklers in existing single-family dwellings when they are enlarged to exceed 2,500 square feet of livable area.
- Amends the Electrical Code to require a single point of disconnect on the exterior of the building for solar energy systems.

In addition to amendments specific to Arcadia, Government Code 65850.7 requires that the City codify a process to expedite and streamline the permitting of electric vehicle charging stations, and adopt a checklist of all requirements that electric vehicle charging stations shall comply with in order to be eligible for expedited review. This ordinance would add language to codify this process.

ENVIRONMENTAL ANALYSIS

The proposed code adoptions and amendments to the Arcadia Municipal Code will not have a potential for causing a significant effect on the environment; therefore, this activity is exempt from the California Environmental Quality Act (“CEQA”) per Section 15061(b)(3) of the CEQA Guidelines.

PUBLIC NOTICE/COMMENTS

Adoption of the California Building and California Fire Codes requires a public hearing after the initial introduction of the proposed Ordinance. It is recommended that a public hearing be scheduled for the November 15, 2022, City Council Meeting. In anticipation of this hearing date, a notice of public hearing will be published in the Arcadia Weekly newspaper on October 24, 2022, and October 31, 2022.

FISCAL IMPACT

The adoption of the Codes and Amendments will have no fiscal impact on the City.

RECOMMENDATION

It is recommended that the City Council:

1. Introduce Ordinance No. 2394 amending Article VIII of the Arcadia Municipal Code relating to Building Regulations and adopting by reference the 2022 Edition of the California Building Code, Volumes 1 and 2, and Appendix J, the 2022 California Residential Code, the 2022 California Green Building Standards Code, the 2022 California Plumbing Code, the 2022 California Electrical Code, the 2022 California Mechanical Code, the 2022 California Existing Buildings Code, the Uniform Code for the Abatement of Dangerous Buildings, 1997 Edition, and Los Angeles County Grading Code with additions, amendments, and deletions; and

2. Set the public hearing for November 15, 2022; and
3. Introduce Ordinance No. 2395 amending Article III of the Arcadia Municipal Code relating to fire regulations and adopting by reference the 2022 Edition of the California Fire Code in its entirety, including Appendices Chapter 4, B, C, D, K, and O based on the 2021 Edition of the International Fire Code published by the International Code Council; together with certain additions, insertions, deletions and changes thereto; and
4. Set the public hearing for November 15, 2022.

Approved:



Dominic Lazzaretto
City Manager

Attachments: Ordinance No. 2394 (Findings of Fact attached as Exhibit "A")
Ordinance No. 2395 (Findings of Fact attached as Exhibit "A")

**ARCADIA CITY COUNCIL
REGULAR MEETING MINUTES
TUESDAY, NOVEMBER 01, 2022**

CALL TO ORDER – Mayor Beck called the Closed Session to order at 6:00 p.m.

ROLL CALL OF CITY COUNCIL MEMBERS

PRESENT: Danielson, Tay, Verlato, Cheng, and Beck

ABSENT: None

The City Manager and City Attorney explained the need to add a closed session item to the closed session agenda, in light of correspondence received late Friday afternoon.

City Attorney Deitsch further explained to the City Council that to add a closed session item under Government Code section 54956.9(d)(4) to the agenda pursuant to Section 54954.2(b) of the Brown Act, they would need to make the following two findings: (1) case, pursuant to Section 54954.2(b) of the Brown Act based on findings that (1) need to take action tonight (2) and that the need to take action arose after the agenda was posted and the finding was based on correspondence received late Friday afternoon after the agenda was posted

It was moved by Council Member Verlato, seconded by Mayor Pro Tem Cheng and carried on roll call vote to adopt the two findings, as cited by the City Attorney, to add an item to the closed session agenda, under Government Code Section 54956.9(d)(4), to confer with legal counsel regarding potential litigation – one (1) case

AYES: Verlato, Cheng, Danielson, Tay, and Beck

NOES:

ABSENT:

PUBLIC COMMENTS – There was no public comment.

CLOSED SESSION

- b. Pursuant to Government Code Section 54956.9(d)(4) to confer with legal counsel regarding potential litigation – one (1) case
- a. Pursuant to Government Code Section 54957.6 to confer with labor negotiators.

City Negotiators: City Manager Dominic Lazzaretto, Assistant City Manager/Development Services Director Jason Kruckeberg, and Administrative Services Director Hue Quach.

Employee Organizations: Arcadia Public Works Employees Association, Arcadia City Employees Association, Arcadia Police Civilian Employees Association, Arcadia Police Officers' Association, Arcadia Firefighters' Association, and unrepresented employees: Department Heads, Division Managers, Supervisors, and part-time employees.

No reportable action was taken on Closed Session Item b.

The City Council did not complete their discussion of Closed Session Item a. in the time allowed. Therefore, the Closed Session recessed to the Regular Meeting at 6:54 p.m. with the intent to return to Closed Session at the completion of the Regular Meeting.

**Regular Meeting
City Council Chambers, 7:00 p.m.**

1. **CALL TO ORDER** – Mayor Beck called the Regular Meeting to order at 7:00 p.m.
2. **INVOCATION** – Reverend Eva Thai-Erwin, Church of the Good Shepherd
3. **PLEDGE OF ALLEGIANCE** – Fire Chief Spriggs
4. **ROLL CALL OF CITY COUNCIL MEMBERS**

PRESENT: Danielson, Tay, Verlato, Cheng, and Beck
ABSENT: None

5. **REPORT FROM CITY ATTORNEY REGARDING CLOSED/STUDY SESSION ITEMS**

City Attorney Deitsch reported that at the October 18, City Council Meeting the City Council recessed to a Closed Session at the conclusion of the Regular Meeting to complete its discussion on the labor related matter posted on the Closed Session Agenda; and indicated that no reportable action taken on Closed Session Item b.

City Attorney Deitsch announced that the City Council met in a Closed Session Meeting prior to the regular meeting, and reported that by a unanimous vote, City Council voted to add a Closed Session under Government Code Section 54956.9(d)(4), to confer with legal counsel regarding potential litigation – one (1) case, pursuant to Section 54954.2(b) of the Brown Act based on findings that (1) there was a need to take action tonight (2) and that the need to take action arose after the agenda was posted and the finding was based on correspondence received later Friday afternoon after the agenda was posted; and indicated that no reportable action was taken. City Council also considered the one item that was listed on the posted agenda and will continue after the conclusion of the Regular Meeting; and recommended the City Council recess the Regular Meeting to a continued Closed Session.

6. **SUPPLEMENTAL INFORMATION FROM CITY MANAGER REGARDING AGENDA ITEMS**

City Manager Lazzaretto had nothing to report.

7. **MOTION TO READ ALL ORDINANCES AND RESOLUTIONS BY TITLE ONLY AND WAIVE THE READING IN FULL**

A motion was made by Council Member Verlato and seconded by Mayor Pro Tem Cheng to read all ordinances and resolutions by title only and waive the reading in full.

8. **PRESENTATIONS**

- a. Presentation of adoptable dog by the Pasadena Humane Society.

- b. Presentation of Arcadia Festival of Bands Proclamation.
- c. Presentation of the San Gabriel Valley Council of Government's Efficient San Gabriel Valley ("ESGV") Program.

9. PUBLIC COMMENTS (5-minute time limit each speaker)

Gerri Lyn, an Arcadia resident appeared and expressed her frustration with the Development Services Department; and expressed frustration with her unsuccessful attempts to reclassify her property to a single-family residence.

10. REPORTS FROM MAYOR, CITY COUNCIL AND CITY CLERK (including reports from the City Council related to meetings attended at City expense [AB 1234]).

Mayor Beck called for recess at 7:24 p.m.

Mayor Beck reconvened at 7:25 p.m.

City Clerk Glasco announced that residents may complete a Refusal Register Form available through the City Clerk's office and City website to avoid door to door solicitations; he further reminded vendors and solicitors that they must obtain a solicitors permit through the Business License office.

Council Member Tay announced that last Friday he shared the history of his time as a Mayor and Council Member with the Rotary Club of Arcadia; he reminded everyone to respect one another and not to be discouraged when you fail; he announced that it is campaign season and reminded everyone to work together.

Council Member Danielson announced that on October 25, he attended the Arcadia Board of Education meeting; on October 26, he attended the Building Industry Association of Southern California Gala, which focused on Veteran housing; on October 27, he visited the Jim Lahey Maintenance Yard; on October 28, he attended the Mayors Breakfast followed by the Downtown Arcadia Improvement Association Halloween Haunting and then Trunk or Treating at Camino Grove Elementary School; on October 29, he attended the Chinese Health Fair at the Community Center, and then later that day attended the Arcadia Historical Society Gala; on October 30, he attended the Arcadia Chinese Association Halloween Fundraiser; on October 31, he attended the Senior Boo Bash at the Arcadia Recreation Center; on November 1, he attended the Arcadia PTA meeting; and attended the Anti-Asian hate round table in San Gabriel later that evening.

Council Member Verlato announced that she attended the Arcadia PTA meeting; she attended the San Gabriel Valley Council of Governments Mobile Crisis Response Launch also known as SGV Care; the Mayor's Breakfast with keynote speaker Candice Parker; and the Downtown Arcadia Improvement Association Halloween Haunting; and the Arcadia Chinese Association Halloween Fundraiser. She shared photos of these events as well as of the Arcadia Police Department's new K9, Kopper; and she reminded residents that the Downtown Arcadia Holiday Fair is December 10.

Mayor Pro Tem Cheng announced that improper allegations have been made against City Council and stated that there is no fraudulent action occurring among any Council Member; he reminded residents of all the actions City Council took in response to the COVID-19 pandemic and other collaborations and accomplishments spearheaded by the Council; and thanked residents for choosing Arcadia to be their home.

Mayor Beck announced that he attended the Arcadia Chinese Association Halloween fundraiser; he thanked Mary Buttice, Jennifer Brutus, and Justine Bruno for putting together the Mayor's Breakfast, and shared photos of these events; on October 29, he attended the Arcadia History Makers celebration hosted by the Arcadia Historical Society; on October 30, he attended the Arcadia Chinese Association Gala; he announced that Council Member Verlato will be honored for all of her achievements, amongst other women, at NOOR Event Space in Pasadena and congratulated her; that on November 5, the Arcadia Beautiful Commission will be hosting the annual clean-up day in honor of Mary Hansen; that on November 12 a free shred event at the Arcadia Library beginning at 8 a.m.; that November 15, will be the last Coffee with the Mayor and dedication of the garden to Mary Hansen at the Arcadia Library; and that December 1, there will be the Christmas tree lighting at the Foothill Transit Plaza.

11. CONSENT CALENDAR

- a. Special and Regular Meeting Minutes of October 18, 2022.
Recommended Action: Approve
- b. Resolution No. 7467 amending the Fiscal Year 2022-23 General Fund Budget and authorizing a budget appropriation for the Police Department Chiller Replacement Project in the amount of \$247,605, offset by a reduction in the General Fund Reserve; and approving a contract with Carrier Corporation for the Police Department Chiller Replacement Project in the amount of \$247,605.
Recommended Action: Adopt and Approve
- c. Professional Services Agreements for On-Call Engineering Services with HR Green Pacific, Inc., Kreuzer Consulting Group, and Psomas.
Recommended Action: Approve
- d. Extension to the Professional Services Agreement with ABM Industry Groups, LLC. for Janitorial and Porter Services at various City facilities in an amount not to exceed \$398,360.49.
Recommended Action: Approve
- e. Service Agreement with Motorola Solutions Inc., for the Police Department Radio Consoles for Fiscal Year 2022-2023 through 2027-28 in an amount not to exceed \$191,795.
Recommended Action: Waive the Formal Bid Process and Approve
- f. Reject low bid from Bluesky Diversified dba Puente Hills Ford and approve Purchase Order with Ernie's Auto Parts for the purchase of automotive repair parts for City vehicles in an amount not to exceed \$60,677.06.
Recommended Action: Approve
- g. Accept all work performed by Ramona, Inc. for the Sewer Main Replacement Program as complete.
Recommended Action: Approve

It was moved by Council Member Verlato, seconded by Mayor Pro Tem Cheng, and carried on a roll call vote to approve Consent Calendar Items 11.a through 11.g.

AYES: Verlato, Cheng, Danielson, Tay, and Beck
NOES: None
ABSENT: None

12. CITY MANAGER

- a. Allowable hours and rules of operation for noise related to gardening/landscaping and use of gas-powered leaf blowers in residential areas.
Recommended Action: Provide Direction

Assistant City Manager/Development Services Director Kruckeberg presented the Staff Report.

The Council discussed changing the permissible hours for construction activities, but a consensus was not reached to pursue any changes to the existing code.

After City Council discussion, a motion was made by Mayor Pro Tem Cheng and seconded by Council Member Verlato to bring back an Ordinance that amends the existing code to prohibit the operation of mechanical equipment for gardening and landscaping purposes on Sundays.

AYES: Cheng, Verlato, Tay, and Beck
NOES: Danielson
ABSENT: None

The City Council had discussion regarding state regulations around electric leaf blowers, costs to transition, grants available, noise produced, battery life, and the implications of legislating in this area. After further discussion, it was the consensus of the City Council to have staff bring back more information regarding electric leaf blowers and the questions they raised.

- b. Resolution No. 7468 revising Resolution No. 7407 (Sixth Cycle Housing Element Adoption) with a categorical exemption under the California Environmental Quality Act ("CEQA").
Recommended Action: Adopt

Assistant City Manager/Development Services Director Kruckeberg presented the Staff Report.

City Manager Lazzaretto expressed that the actions being asked by the state are unnecessary but nevertheless recommended that the City Council adopt this Resolution in order to be cooperative.

Mike Veerman, an Arcadia resident appeared and urged the City Council to move forward with the housing element adoption; and thanked the City Council and Staff for their time and thorough review of this item.

A motion was made by Council Member Verlato, seconded by Council Member Tay, and carried on roll call vote to adopt Resolution No. 7468 revising Resolution No. 7407 (Sixth Cycle Housing Element Adoption) with a categorical exemption under the California Environmental Quality Act ("CEQA").

AYES: Verlato, Tay, Danielson, Cheng, and Beck
NOES: None
ABSENT: None

The City Council recessed at 9:15 p.m.

The City Council reconvened to Closed Session at 9:26 p.m. to discuss Closed Session Item a. and no reportable action was taken.

13. ADJOURNMENT

The City Council adjourned at 10:25 p.m. to Tuesday, November 15, 2022, at 6:00 p.m. in the City Council Conference Room.



Rachelle Arellano
Deputy City Clerk



STAFF REPORT

Library and Museum Services Department

DATE: November 15, 2022

TO: Honorable Mayor and City Council

FROM: Darlene Bradley, Director of Library and Museum Services

SUBJECT: DONATION IN THE AMOUNT OF \$30,000 FROM THE FRIENDS OF THE ARCADIA PUBLIC LIBRARY FOR LIBRARY PROGRAMMING
Recommendation: Accept
CEQA: Not a Project

SUMMARY

The Friends of the Arcadia Public Library have offered a gift of \$30,000 to fund Library programming, including the popular summer reading programs and teen programming. It is recommended that the City Council accept the donation.

DISCUSSION

The Friends of the Arcadia Public Library (the “Friends”), as part of their ongoing mission to support the Library’s goals and objectives, are donating \$30,000 to the Library to fund ongoing programming for children and teens. The Friends of the Arcadia Public Library raise funds through sales of used books and other items by the Friends Bookstore, located inside the Arcadia Public Library. The Friends also raise funds through Friends memberships from the community and the Amazon Smile program. This past year, they hosted several daylong book sales that helped boost sales.

The funds donated by the Friends help the Library provide quality programs for the children and teens of Arcadia beyond the current capacity of the City’s General Fund. All gifts to the Library over \$1,000 are subject to approval by the City Council pursuant to City Charter Section 809(d).

ENVIRONMENTAL ANALYSIS

The proposed action does not constitute a project under the California Environmental Quality Act (“CEQA”), and it can be seen with certainty that it will have no impact on the environment. Thus, this matter is exempt under CEQA.

Donation of \$30,000 by the Friends of the Arcadia Public Library

November 15, 2022

Page 2 of 2

FISCAL IMPACT

The Library's programming for the residents of Arcadia is enhanced by this gift of \$30,000 and the programs for children and teens that it will fund.

RECOMMENDATION

It is recommended that the City Council determine that this action does not constitute a project and is therefore exempt under the California Environmental Quality Act ("CEQA"); and accept a donation in the amount of \$30,000 from the Friends of the Arcadia Public Library for library programming.

Approved:



Dominic Lazzaretto
City Manager



STAFF REPORT

Public Works Services Department

DATE: November 15, 2022

TO: Honorable Mayor and City Council

FROM: Paul Cranmer, Public Works Services Director
By: Michael Kwok, Associate Civil Engineer

SUBJECT: ACCEPT THE 2022 SEWER MASTER PLAN UPDATE
Recommendation: Approve
CEQA: Not a Project

SUMMARY

The Public Works Services Department (“PWSD”) is responsible for the operation and maintenance of the City’s sanitary sewer collection system and utilizes the Sewer Master Plan to evaluate the condition of the City’s sewer system. The Sewer Master Plan was last updated in 2006. On May 5, 2020, the City Council authorized the City Manager to execute a Professional Services Agreement with Tetra Tech, Inc. in the amount of \$196,795 for the preparation of the Sewer Master Plan Update. Tetra Tech, Inc. has completed the Sewer Master Plan Update, which provides an evaluation of the condition and capacity of the sanitary sewer system and assists in the development of future capital improvement projects to ensure the sanitary sewer system meets current and future wastewater collection demands. It is recommended that the City Council accept the 2022 Sewer Master Plan Update.

BACKGROUND

The PWSD is responsible for the operation and maintenance of the City’s sanitary sewer system. The City’s sanitary sewer collection system consists of 138 miles of City-owned pipeline. The PWSD provides wastewater collection for approximately 56,000 residents within 11 square miles. The City’s sewer pipes are an average of 50 years in age and are primarily made of vitrified clay. Despite the average age, overall, the City’s sewer system is in good condition.

Throughout the years, the Sewer Master Plan (“SMP”) has helped identify capital improvement projects to ensure that the City’s sewer pipes are replaced before they come to the end of their useful life span, and to identify sections of the sewer system that are not at maximum capacity.

The SMP is a vital planning tool that evaluates the current state of the City's sanitary sewer system. The SMP was originally completed in 1998, was last updated in 2006 and needed an update. On May 5, 2020, the City Council authorized a Professional Services Agreement with Tetra Tech, Inc. for the SMP Update. The 2022 SMP Update was prepared to provide a framework for existing and future sewer system planning. The Update considers the recommended projects mentioned in the 2006 SMP and the work accomplished since then. Furthermore, the SMP Update re-evaluates the condition, capacity, and maintenance needs of the sanitary sewer system, and assists in the development of future capital improvement projects to ensure the sanitary sewer system meets current and future wastewater collection demands.

DISCUSSION

The SMP is a vital planning tool that includes the existing sewer system condition, any existing deficiencies, operation and maintenance practices, and recommendations for improvements. The 2022 SMP Update provides an up-to-date comprehensive look at the City's sewer system using recent planning information, flow rates, and an updated InfoSewer hydraulic model to assess the City's sewer system infrastructure needs through the year 2042. Due to the impacts of the pandemic, various changes in sewer generation were detected. In general, the increase in the number of people working from home has resulted in a larger amount of sewage flow from residential land use areas and a smaller amount of sewage flow from commercial land use areas. The pandemic's long-term effects are still unclear at this point, but these effects are likely to continue at a lesser degree, as working from home (at least partially) will be incorporated as a feature into many workplace cultures.

The SMP includes strategies for maintaining a reliable quality service level, prevention of sewage overflows, direction for future projects to be included in the Capital Improvement Program, and guidance of operational issues including system maintenance, cleaning, and inspection. The SMP also includes an analysis of how much sewage is generated for the many different land use types throughout the City, including residential, industrial, commercial, and open space areas. This information is useful in evaluating infrastructure improvements, new developments, and the impact they may have on the sewer system.

The 2022 SMP Update focuses on four primary areas:

1. Existing Sewer System Conditions – Focuses on the existing sewer system infrastructure in terms of demand, capacity, and configuration. An analysis using the InfoSewer computer model was performed to determine if demands can be met under various existing and future conditions.
2. Sewer System Deficiencies – Identifies the current and projected deficiencies in the existing sewer system infrastructure, including pipe segments that may be over capacity.

3. Operation and Maintenance Practices – Evaluates maintenance needs and schedules, including equipment needs, manhole easement access, and “hotspots” that require frequent cleaning.
4. Recommendations for Improvements – Evaluates infrastructure improvements to accommodate existing requirements and meet future needs. Improvements are prioritized and conceptual level budgets were established.

Based on the analysis of the system, review of sewer regulatory requirements and challenges, and discussions with maintenance personnel, various recommendations were developed for improvements to the sewer system. These recommendations considered financial constraints and were reviewed to focus on the projects considered to be the most beneficial and relevant to the sewer system condition, operations, and continued reliability. In general, the sewer system has been found to be in good condition.

The list of recommended improvements in the SMP Update to be implemented over the next 20 years were prioritized, with the most critical projects indicated as Priority 1 and the remaining projects indicated as Priority 2. There are eight Priority 1 projects with a total estimated cost of approximately \$3.2 million, and there are 34 Priority 2 projects with a total estimated cost of approximately \$5.4 million. In addition, various recommendations were provided regarding the operation and maintenance of the sewer system. These recommendations include staff training, equipment purchases, and community outreach.

ENVIRONMENTAL IMPACT

The SMP Update does not constitute a project under the California Environmental Quality Act (“CEQA”) per Section 15061(b)(3) of the CEQA Guidelines as it can be seen with certainty that it will have no impact on the environment. Thus, this matter is exempt under CEQA.

FISCAL IMPACT

Funds in the amount of \$200,000 were budgeted in the Fiscal Year 2018-19 Capital Improvement Program for the SMP Update. A Professional Services Agreement was issued to Tetra Tech, Inc. in the amount of \$196,795, with the total cost based on a maximum estimated number of hours to prepare the SMP Update. The actual cost for the preparation of the SMP Update was \$158,984.90. The SMP Update provides future capital improvement program projects and budgets for these projects. The total cost of all projects proposed in the SMP Update is approximately \$8.6 million, which will be dispersed over a 20-year period. The cost of these programs will be considered in future sewer rate fee setting discussions; however, they are not expected have a significant effect on future rates.

RECOMMENDATION

It is recommended that the City Council determine that this action does not constitute a project and is, therefore, exempt under the California Environmental Quality Act (“CEQA”); and accept the 2022 Sewer Master Plan Update.

Approved:



Dominic Lazzaretto
City Manager

Attachment: 2022 Sewer Master Plan Update



Sewer Master Plan

July 2022

PREPARED FOR

City of Arcadia
240 W. Huntington Drive
Arcadia, CA 91066

PREPARED BY

Tetra Tech
160 Via Verde, Suite 240
San Dimas, CA 91773
Phone: 909-305-2930
tetratech.com



Tetra Tech Project #200-157161-20001



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EXECUTIVE SUMMARY

Introduction

The City of Arcadia Sewer Master Plan evaluates the adequacy of the City's wastewater collection system infrastructure for a 20-year period through the year 2042. There are 4 main purposes to this Sewer Master Plan, as follows:

1. Establish the existing conditions and deficiencies in the City's sewer system in order to create a management aid in planning and budgeting system improvements through the year 2042. This report documents the existing system, identifies pipes (sizes, ages, materials), and connection points to the County System. Various analyses were performed and used to determine recommended infrastructure improvements.
2. As a management tool this report prioritizes and establishes conceptual level budgets for sewer system improvements required to remedy current deficiencies and those forecasted from changes in growth, development, and population densities. This report recommends capital improvement projects based on existing and forecasted scenarios and includes estimated costs to implement those recommendations.
3. Provide a summary of how the sewer collection works for those seeking to modify or understand its capabilities and limitations.
4. Evaluate current operation and maintenance practices and provide recommendations to aid staff.

This report is a living document and will be updated by the City on a periodic basis in order to be revised to account for changes in forecasted sewer system requirements and conditions. The City should revisit the master plan in 10 years and provide revisions as necessary.

Existing Sewer System

The City's sewer system is made up of mostly vitrified clay pipe (VCP) and includes approximately 741,000 feet (140 miles) of City-owned pipe, six siphons, and one pump station. In addition, there are approximately 77,000 feet (15 miles) of County-owned pipe within the City limits to which the City's system discharges. 95% of the system is 8-inch pipe and 95% of the system was built between the 1940's to the 1970's. Over half (approximately 60%) of the system was built in the 1940's. Because a large portion of the system was constructed in a short period of time (i.e. the 1940's), an increase in the rate of maintenance and pipe replacement requirements could be anticipated when these pipes reach a certain age. Around the year 2040, these pipes will be approaching 100 years of age.

2006 Sewer Master Plan CIP Project Status

A sewer master plan was prepared in 2006 that provided a long range schedule of necessary capital improvement projects to sustain an aging system. \$4.36 million dollars of capital improvement projects were identified and recommended in the 2006 plan. These projects include pipe size increase projects and relining projects. To date, all capital improvement projects identified in the 2006 sewer master plan have been completed. A table summarizing the 2006 projects is included in Table 3-1.

Flow Monitoring and Sewage Generation

Flow monitoring was performed from April 2021 to January 2022 to determine actual sewage flows throughout the City at strategic locations of various land use types. Data from flow monitoring was used to adjust sewage generation factors in the hydraulic model in order to more accurately model the system. Peaking factors were also developed based on the diurnal curve data from the flow monitoring.

Table E-1 below summarizes the sewage flow generation from the hydraulic model following calibration from flow monitoring data. The existing sewer system was modeled with an average day flow of 6,905 gallons per minute (gpm) or 9.9 million gallons per day (mgd). Modeling of future sewer system flows were adjusted up to 7,244 gpm (10.4 mgd) to reflect increases in population and future development / re-development. The future loads represent a 4.9% increase in sewer flows by the year 2042.

The total sewage flows of the entire system for the various scenarios are as follows:

**Table E-1
Summary of Sewage Generation**

Condition	Total Flow (gpm)
Existing Average Day	6,905
Existing Peak Hour	10,874
Future Average Day	7,244
Future Peak Hour	11,329

Hydraulic Computer Model

A computer model of the existing sewer system was developed using record information and geographical information system (GIS) data. The computer model serves as a tool to analyze the existing system, aid in forecasting the future requirements, and to evaluate proposed modifications. Computer modeling scenarios were developed for both the present year 2022 and future years 2042 sewer flow conditions. Deficiencies in the existing sewer system were identified in the model where flows become too high for specific pipes.

Capital Improvements Program

This report estimated costs of the CIP for the recommended sewer system improvements. The improvements assume the replacement construction method of pipe bursting with HDPE pipe. A summary listing of the CIP cost estimates is shown in Table E-2. The table includes CIP projects organized by recommended priority to be constructed, where priority 1 improvements are the highest priority. Criteria used for prioritization is defined in Chapter 6 and are based on model results of pipeline flow depth as well as known maintenance issues.

Table E-2
Summary of CIP Costs

Project	Linear Feet of Piping	Estimated Cost
Priority 1 Improvements	8,612	\$3.14M
Priority 2 Improvements	25,483	\$5.42M
Total:	34,095	\$8.56M

Recommendations

- A CIP of approximately \$3.14M is recommended to correct the existing Priority 1 sewer system deficiencies. Recommendations include construction of replacement pipe.
- A CIP of approximately \$5.42M is recommended to correct the existing Priority 2 sewer system deficiencies. Recommendations include construction of replacement pipe as well as lining pipe.
- Piping replacements are recommended to be HDPE via pipe bursting. HDPE pipe is the City's preferred pipe material that has been used with previous CIP projects. Fused HDPE is a preferred pipe material because of its longer life, lack of joints to prevent root intrusion, and also for its cost.
- Pipe lining is recommended where structural defects in the pipe have caused root intrusion issues. CIPP is the recommended method of lining. Each location should be assessed to determine if lining is the best option.

CHAPTER 1. - INTRODUCTION

1.1 OVERVIEW

The City of Arcadia (City) Sewer Master Plan evaluates the adequacy of the City's wastewater collection system infrastructure through the year 2042. A hydraulic model was used to identify wet-weather capacity limitations and estimate the impact of future development on the sewer system. Infrastructure improvement projects were identified for a 20-year capital improvement program (CIP) from both the hydraulic analysis and sewer system inspections completed prior to this report.

The City last completed a Master Plan of the wastewater collection system in 2006. Since that time, the City has been conducting closed-circuit television (CCTV) video inspections of sewer pipes with a goal of inspecting all accessible sewer pipes in the City of damage. Starting in 2014 and continuing until 2020, the majority of the sewer system was inspected, and the data has been used to prioritize pipes for repair. Some of the capital improvement projects identified in this report are based on inspections completed during this time.

1.2 PURPOSE OF THE SEWER MASTER PLAN

The purpose of this report is to establish the existing conditions and deficiencies in the City's sewer system in order to create a management aid in planning and budgeting system improvements through the year 2042. As a management tool, this report provides a means to prioritize a schedule and establish preliminary budgets for sewer system improvements required to remedy current system deficiencies and those forecasted from changes in growth, development, and population densities.

1.3 BACKGROUND

The City of Arcadia (City) was incorporated in 1903 and is defined as a "Community of Homes". The city is mainly a residential community located in the Los Angeles County and is home to the Santa Anita Park racetrack and the Los Angeles County Arboretum and Botanic Garden. The City is located east of Pasadena, south of Interstate I-210, and west of I-605.

The City provides wastewater collection for approximately 57,000 residents within 11 square miles. The dominant land use in the City is residential, which takes up about 68% of the City's total land use and is mainly made up of low-density residential development. In addition to residential land use, the City allocates land for commercial land use, industrial land use, and public institutional land use. In 2016, the Metro opened an at-grade light rail station in City and the station is served by the Metro Gold line. The City's land is fully built-out and is focused on the maintenance and recycling of uses on properties.

1.4 GENERAL SYSTEM DESCRIPTION

1.4.1 General System Description

The general flow scheme of the system follows the natural topography of the City. Sewage from the elevated areas of the City's northern boundary flows southerly towards the lower elevation areas. Sewage flow is picked up at various points by the Los Angeles County Sanitation District (District) trunk lines that run through the City. These trunk lines run from north to south and are located on Michillinda Ave. / Sunset Blvd., Holly Ave., El Monte Ave., and Santa Anita Ave. / First Ave. / Second Ave.

The neighboring cities of Sierra Madre, Temple City, Monrovia, and unincorporated areas also feed through the City's system as a route to the District Lines. The sewage is discharged to the Los Angeles County Sanitation District trunk lines and treated by the San Jose Creek West Water Reclamation Plant and Joint Water Pollution Control Plant-Carson Plant located in the cities of Whittier and Carson.

1.4.2 System Inventory

The City's sewer system is made up of mostly vitrified clay pipe (VCP) and includes approximately 741,000 feet (140 miles) of City-owned pipe, 77,000 feet (15 miles) of county-owned pipe, six siphons, and one pump station. Most of the main pipes are about 60 to 70 years old, with the pipe radius ranging from 6 inches to 27 inches. Most of the pipes (95%) are 8 inches. The larger sized pipes are generally located on Huntington Dr. and Duarte Rd., where the confluent of sewage flows feed into District lines. There are approximately 3007 manholes in the City's collection system. An inventory of pipe organized by material is shown on Table 1-1.


01/16/2022 3:53:34 PM - P:\167161000-157161-2000\1\CAD\SH\T\FLESC\708-SEWER PIPE.DWG - LEE, ADRIAN

LEGEND

- 6" SEWER
- 8" SEWER
- 10" SEWER
- 12" SEWER
- 14" SEWER
- 15" SEWER
- 16" SEWER
- COUNTY SEWER PIPELINE
- ➔ FLOW DIRECTION
- CONNECTION POINTS (109 TOTAL)



SEWER SYSTEM PIPELINES
SCALE: NTS

 TETRA TECH www.tetra-tech.com 160 E. Via Verde, Suite 240 San Dimas, CA 91773 Tel: 909-305-2930 Fax: 909-305-2950	CITY OF ARCADIA SEWER MASTER PLAN	Project No.: 200-157161-20001 Date: 11/2020
	SEWER SYSTEM PIPELINES	Designed By: AL Figure 1-1

1/8" Measure 1 inch

Table 1-1. Inventory of City Sewers by Year Constructed / City Sewer Installed by Era (Linear Feet)

Pipe Diameter (inches)	1940's	1950's	1960's	1970's	1980's	1990's	2000's	2010's	Unknown	Total	% Dia
	6	-	297	-	-	-	-	-	-		
8	426,451	182,193	18,334	56,182	5,659	6,987	6,931	-	57	702,794	94.80%
10	10,964	1,960	-	-	333	2,176	-	2,339	-	17,772	2.40%
12	2,959	2,170	-	325	-	-	1,928	2,374	-	9,756	1.32%
14	-	-	-	-	-	-	-	1,947	-	1,947	0.26%
15	1,939	-	-	-	-	-	750	1,399	-	4,088	0.55%
16	-	-	-	-	-	-	-	4,678	-	4,678	0.63%
Total (ft.)	442313	186620	18334	56507	5992	9163	9609	12737	57	741332	
Total (mi.)	83.77	35.34	3.47	10.70	1.13	1.73	1.82	2.41	0.011	140.40	
Generation %	59.66%	25.17%	2.47%	7.62%	0.81%	1.24%	1.30%	1.72%	0.01%	100%	

1.5 SCOPE OF WORK

The scope of services includes the following areas of work:

1.5.1 Sewer System Inventory

The updated GIS data of the sewer system was provided by the City. This data was used for the creation of the hydraulic model. Prior to creating the model, the data was scrutinized for missing information or inconsistencies. Corrections were made where appropriate, and the hydraulic model developed for this study includes the corrected data. The final list of pipe sizes and lengths is included in Table 1-1 above.

1.5.2 Hydraulic Model and Analysis

The computer model of the existing sewer system was completed on InfoSewer Suite and was developed based on the GIS data files of the sewer system that the City provided. The computer was further calibrated based on field investigations, such as sewer system flow monitoring. Multiple modeling simulations were developed to analyze potential sewer system scenarios and to determine potential improvements for the City. The hydraulic model, its development and application are further described in Chapter 5 of this master plan.

1.5.3 Capital Improvement Planning

With the results from the computer modeling and system evaluation, a list of capital improvements for the City were identified. The list provides the City with a guide for the planning and budgeting of sewer replacement improvements. The capital improvements plan considers effective life expectancy of the existing sewer system components for prioritizing projects. Pipe age, pipe material, soil conditions, and maintenance history are the main factors used to evaluate the effective life expectancy of the existing sewer system component.

1.5.4 Master Plan Report

The Sewer System Master Plan report is available for immediate planning and preliminary budgeting of the City's sewer system improvement. The report provides information about the current sewer system, which includes sewage generation, and size and layout of the sewer piping system.

CHAPTER 2. – CURRENT MAINTENANCE AND PREVENTION PROGRAMS

The City is actively engaged in extensive efforts to identify, repair and prevent system damage. The most common system problems occur as a result of root intrusion, grease buildup, and structural deterioration. The City has programs to clean lines before problems occur and inspect industrial discharge permits for grease prevention compliance. The City has also been persistently documenting the root damage, grease buildup, and structural defects inside pipes with a CCTV video system.

Residents, restaurants, and other commercial establishments discharge large quantities of grease into the sewer system. The predominant problems in the City's sewer system are the blockages caused by the protruding roots and accumulation of grease on the roots. Grease accumulates on the roots in the pipes, causing blockages that result in sewage backups and SSOs. These backups, blockages, and SSOs can cause serious problems for the environment, resulting in health problems, foul odors, property damage, pollution of rivers and streams, cleanup costs, state fines for the City, and other related problems.

2.1 STAFF AND EQUIPMENT

The City's Sanitary Sewer Unit conducts regular maintenance and inspections of the sanitary sewer system. The City has three full-time employees and one part-time employee in the Sanitary Sewer Unit, with 80 percent of their time dedicated to sewer collection maintenance and the other 20 percent to storm drain maintenance. The Utility Superintendent identifies performance goals and schedules and manages work assignments for these four employees. The Sewer Maintenance Section is responsible for performing routine maintenance activities such as sewer line cleaning, CCTV inspections, sewer line hydro-flushing, responding to routine and emergency service calls, making simple spot repairs, and marking sewer utilities for construction activities. With approximately 140 miles of pipe in the sewer system, the current maintenance staff ratio is one full-time employee per 40 miles of pipe. The City currently owns equipment to perform routine sewer maintenance including:

- 2 Vacuuming- Jetting Combination Trucks (Vactor)
- 2 Pickup Trucks with Utility Body
- Easement Machine Sreco Flexible
- 6-inch trash pump
- Emergency response trailer (including 2- and 3-inch trash pumps)
- Two sewer snakes

- Jetta Tech Inc. equipment to access manholes and sewer lines

In addition to the equipment listed above, the City will soon be purchasing a CCTV Camera Truck.

2.1.1 Current Maintenance and Inspection Efforts

The sewer maintenance section performs maintenance and inspection activities such as cleaning sewer pipes, inspecting sewer pipes with CCTV video equipment (contracted), and capacity monitoring in conjuncture with regular maintenance activities.

Sewer pipes that are identified as "problematic" are cleaned every 30 to 180 days, depending on the severity and frequency of the problems. In Arcadia, flow restrictions are typically caused by either grease buildup or root intrusion. The City maintains a list of these "hot spots" for regular maintenance. Cleaning methods include hydro-flushing (for grease and sediment) and physical root removal using specialized devices.

Problematic sewer pipes are inspected using CCTV video equipment on an as-needed basis. Video inspection is performed to identify the cause of flow restrictions and to measure the effectiveness of cleaning. Inspections are provided by outside contractors.

The Sanitary Sewer Section staff also performs routine and emergency repairs on restricted sewer mains. Occasional isolated emergency repairs are completed by Public Works Services Department personnel as soon as they are located. The frequency and extent of this work varies annually. Large repairs identified through the inspection process are referred to the Public Works Department for design and construction.

The City maintains a database of businesses that discharge industrial waste. This information is used for source tracking of grease and other problem causing substances. An inspection program for industrial users which includes annual grease trap inspections is contracted out by the City and pays for itself through inspection fees.

2.1.2 CCTV Video Inspections

From 2014 to 2020, the City has videotaped about 90 percent (120 miles) of its sewer collection system. The video data collected was evaluated in to assess the condition of the City's sewer collection system and recommended rehabilitation measures to improve hydraulic performance. Various structural grade reports were produced from 2014 to 2020 (Houston & Harris PCS, Inc.) that compiled structurally compromised pipe and assigned structural grades to these pipes. The structural grade reports were used to help develop projects for this Sewer Master Plan.

The goal of the CCTV system analysis is to identify pipelines that may require rehabilitation. As deficiencies are identified, their respective conditions are used to define and prioritize the necessary improvement and rehabilitation projects for inclusion in the CIP. The CCTV inspection analysis focused on a process of systematically rehabilitating the pipelines in need of repair and maintenance depending on the type of defect. Chapter 6 contains a description of the CCTV review process.

CHAPTER 3. – REVIEW OF RECOMMENDATIONS FROM THE 2006 SEWER MASTER PLAN

3.1 2006 SEWER MASTER PLAN CIP PROJECT STATUS

3.1.1 Construction Projects Status

The City in conjunction with CH2MHILL prepared a comprehensive Sewer Master Plan, which was adopted by City Council on May 2006. It identified deficiencies in the City's sanitary sewer system through hydraulic analysis and computer modeling. The Master Plan provided for a long-range schedule of necessary capital improvements and predictive maintenance measures to sustain and modernize an aging system.

The recommendation of the Sewer Master Plan, based on the combined analysis of CH2MHILL and City staff, was the implementation of a program that consisted of a series of nine (Baldwin Ave. Project and Sixth Ave. Project each split into two phases shown in Table 3-1) construction capital improvement projects that were identified as critical to the sustainability of the City's sanitary sewer system. The total estimated cost of the Capital Improvement Projects identified in the 2006 Sewer Master Plan was \$4.36 million. This estimate was based on prices at that time and should be adjusted for inflation to the current date, as required.

The following subsections and Table 3-1 outline capital improvement projects derived from the hydraulic model and known issues identified by field staff, as presented in the 2006 Sewer Master Plan. Comments on the status of the projects as of 2022 are included as applicable.

**Table 3-1
Status of Construction Projects
Identified in the 2006 Sewer Master Plan CIP**

Proposed Capital Improvement	Location	Description	Status	2006 Estimated Cost
Structural Damage Re-lining Projects	Various	Re-Lining for Structurally Damaged Piped as Identified by CCTV	Completed	\$826,143
Live Oak Ave. Relief Project	Intersection of Baldwin Ave. and Live Oak Ave.	Construct short 12-inch bypass line	Completed	\$71,030
Foothill Blvd. Relief Project Study	Foothill Blvd. at the Intersection of Baldwin Ave.	Frequent Sedimentation Problems Occur at the Intersection. Monitor Flows and Provide Recommendations	Completed	\$9,000
Baldwin Ave. Project 1	Baldwin Ave. Between Huntington Dr. and Fairview Ave.	Increase Pipe Size from 12-inch to 15-inch	Completed	\$431,000
Baldwin Ave. Project 2	Baldwin Ave. Between Fairview Ave. and Duarte Rd.	Increase Pipe Size from 12-inch to 16-inch (Pipe Bursting)	Completed	
Huntington Dr. / Campus Dr. Project	Huntington Dr. and Campus Dr. Between Baldwin Ave. and Park Ave.	Increase Pipe Size from 8-inch to 10-inch (Pipe Bursting)	Completed	\$409,033
Huntington Dr. Project	Huntington Dr. from Colorado Blvd. to Centennial Way	Increase Pipe Size from 10-inch to 14-inch (Pipe Bursting)	Completed	\$477,812
Sixth Ave. Project 1	Sixth Ave. Between Verner Circle and Longden Ave.	Increase Pipe Size from 8-inch to 10-inch	Completed	\$455,225
Sixth Ave. Project 2	Sixth Ave. Between Longden Ave. and Live Oak Ave.	Increase Pipe Size from 8-inch to 12-inch	Completed	

Chapter 3. – Review of Recommendations from the 2006 Sewer Master Plan

Old Ranch Rd. Project	Old Ranch Rd. Between Kingsley Dr. and Victoria Dr.	Increase Pipe Size from 10-inch to 12-inch	Completed	\$102,075
Duarte Rd. Project	Duarte Rd. Between Baldwin Ave. and Holly Ave.	Increase Pipe Size from 12-inch to 16-inch (Pipe Bursting)	Completed	\$748,866
			Total	\$4,356,327

3.1.2 Miscellaneous Projects Status

Infiltration Source Detection Project

This project was to monitor and identify the source of infiltration water into the sewer system that appears to be coming from the City of Sierra Madre. The method proposed to identify the inflow source were manhole inspections and a comprehensive smoke-testing program. The planning level cost estimate initially assumed 30,000 lineal feet of pipe to be smoke-tested and two flow monitors placed for a period of 1 month. The planning level cost was estimated at \$24,373. This project has not been completed.

Easement Access Project

The goal of this project was to build access gates and paths and/or to extending or move easement lines in order to maintain access to approximately 100 manholes located on private property in the areas of Orange Grove, Santa Anita, Highland Oaks, and cul-de-sacs south of Foothill Ave. the planning level cost estimate for this work was \$5,000 per manhole, for a total of approximately \$500,000. The estimate included inspection, construction management, engineering, and contingencies. As of 2022, this project has not been completed.

Caltrans Access Road Project

This was a project to obtain access to Caltrans access roads along the 210 freeway to better service Sewer easements in the area. The project involved clearing and grubbing of vegetation along the fence-line between the access road and easements and installing approximately 50 locking gates at each easement point. The planning level cost estimate for this project was \$1,000 per easement or a total of \$50,000 and included inspection, construction management, engineering and contingencies. As of 2022, this project has not been completed.

CHAPTER 4. – LAND USE AND SEWAGE FLOW QUANTITIES

4.1 GENERAL

The City of Arcadia is located in the southeastern part of Los Angeles County. The City is generally bound to the north by the San Gabriel Mountains and The City of Sierra Madre, to the south by Temple City, to the east by The City of Monrovia, and to the west by The City of Pasadena. A major corridor that runs through the City is Huntington Drive, which provides important multi-modal transportation routes.

In the City of Arcadia, the topography varies, as the northern area of the City is generally hilly while the remaining terrain of the City is relatively flat. The hilly areas of the City feature Residential Estate land use, Very Low-Density Residential land use, Public Institutional land use and Open Space for Resource Protection and for outdoor recreation. The elevation ranges from approximately 300 feet at the southern areas of the City to 1,000 feet at the northern areas of the City.

According to the 2010 census, the City has a population of 56,364 persons and a population density of 5,159.1 people per square miles. The City has a total area of 10.93 square miles. As of 2022, the estimated population of the City of Arcadia is 57,212 persons and is currently growing at a rate of 0.4% annually.

4.2 GENERAL PLAN LAND USE CATEGORIES

The majority of Arcadia's land use area consists of residential development, which covers approximately 69 percent of the City's total area. Residential development consists of five different land use designations, including: Residential Estates (8.5%), Very Low Density Residential (13.5%), Low Density Residential (39.6%), Medium Density Residential (1.1%), and High Density Residential (7.0%). To accommodate the higher density residents, the medium and high density residential are developed within walking distance of commercial shops and services.

Commercial businesses and professional offices make up approximately 12.6 percent of the City's total area. The Regional Commercial (1.3%) is located east of Baldwin Avenue and north of Huntington Drive and features the Westfield Santa Anita Mall which consists of retail businesses, restaurants, and entertainment centers. The Horse Racing designation (4.9%) is used to operate the Santa Anita Park racetrack for horse racing and special events. Mixed Use (0.8%) and Downtown Mixed Use (0.6%) are in the southeastern area of the City to serve as a major commercial and residential development for the Gold Line station. The Public/Institutional (3.8%) facilities are dispersed all over the City to accommodate education, entertainment, and government services for the community. There are six elementary schools, three middle schools, and one high school, which makes up the public educational facilities for the community. Additionally, there are over a half dozen private educational facilities throughout the City,

however these private institutions fall under various other land use categories including General Commercial and Residential. The USC Arcadia Hospital is the major hospital that is located in the center of the City. The Santa Anita Wash and Arcadia Wash are flood control channels that run through the northern and southern areas of Arcadia. The Commercial/Light Industrial (1.3%) and Industrial (1.7%) are placed in the northeastern area of the City. The Open Space – Outdoor Recreation (6.2%) includes the city, county, and state parks on public lands, which is intended for recreational activities. The remaining 4.3 percent of the total area is dedicated to Open Space – Resource Protection for unusual environmental conditions. A map of the City’s land use is displayed on Figure 4-1.

The City has defined land use categories in Chapter 2 of the Arcadia General Plan and is summarized in Table 4-1. The density of each land use designation is defined in terms of dwelling units (du) per acre or floor area ratio (FAR). The dwelling units per acre is used only for residential development and FAR is used for non-residential development. The FAR is the ratio of the building’s floor area to the total lot area while dwelling units per acre is the number of residential housing units per acre of land.

**Table 4-1
Arcadia General Plan
Land Use Categories**

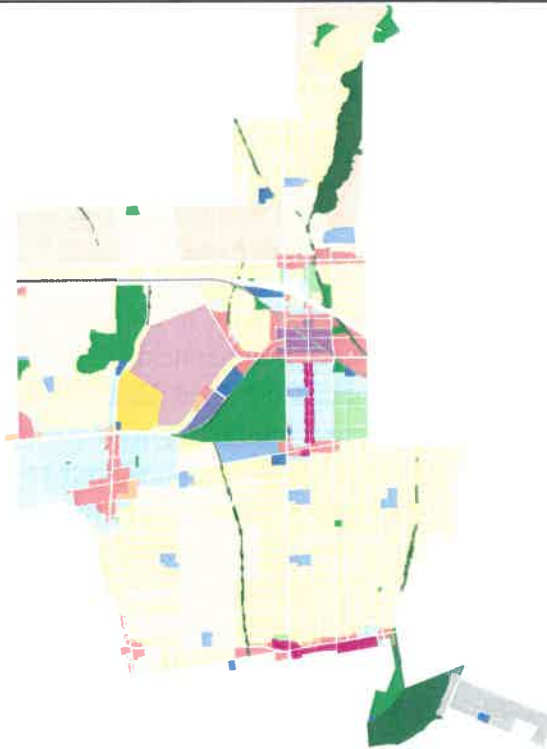
Land Use Designation	Density	Acres	Percent of Land Use
Residential Estates	2 du/acre	526	9%
Very Low Density Residential	2 – 4 du/acre	939	16%
Low Density Residential	4 – 6 du/acre	2070	36%
Medium Density Residential	6 – 12 du/acre	68	1%
High Density Residential	12 – 30 du/acre	433	7%
Commercial (0.5 FAR)	FAR 0.30 – 0.50	31	1%
Commercial (1.0 FAR)	FAR 1.0	236	4%
Public/Institution – Civic Center	--	51	1%
Regional Commercial	FAR 0.50	81	1%
Horse Racing	--	271	4%
Mixed Use	22 – 30 du/acre FAR 1.0	47	1%
Downtown Mixed Use	30 – 50 du/acre FAR 1.0	36	1%
Commercial/Light Industrial	FAR 0.50	119	2%
Industrial	FAR 0.50	185	2%
Public/Institutional - School	--	124	2%

Public/Institutional - Hospital	--	20	1%
Open Space – Outdoor Recreation	--	357	6%
Open Space – Resources Protection	--	311	5%

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LEGEND

- RESIDENTIAL ESTATE
- VERY LOW DENSITY RESIDENTIAL
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- COMMERCIAL (1.0 FAR)
- COMMERCIAL (0.5 FAR)
- REGIONAL COMMERCIAL
- HORSE RACING
- MIXED USE
- DOWNTOWN MIXED USE
- COMMERCIAL/LIGHT INDUSTRIAL
- INDUSTRIAL
- RAIL
- PUBLIC - CIVIC CENTER
- PUBLIC - HOSPITAL
- PUBLIC - SCHOOL
- OPEN SPACE - OUTDOOR RECREATION
- OPEN SPACE - RESOURCE PROTECTION



LAND USE MAP

SCALE: NTS

TETRA TECH <small>www.tetra-tech.com 180 E. Via Verde, Suite 240 San Diego, CA 92173 Tel: 859-305-2610 Fax: 859-305-2650</small>	CITY OF ARCADIA SEWER MASTER PLAN	Project No.: 200-157161-20001 Date: 11/20/20 Designed By: AL
	LAND USE MAP	Figure 4-1

Bar Measures 1 inch

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4.3 INITIAL SEWAGE LOAD FACTORS

The sewage load factors are used as initial inputs to determine sewage loads at each manhole in the computer model of the sewer collection system. Sewage loads to each manhole are calculated as a manhole’s tributary area multiplied by the corresponding land use load factor (or multiple factors where intersections of multiple land use areas occur) for the land use area that it intersects. The manhole sewage load is initially calculated with estimated or initial sewage load factors based on sewage generation factor from established agencies. The initial sewage load factors are later calibrated with adjustment factors that are derived from actual flow data collected on-site with flow monitoring.

The initial sewage load factors have been calculated with sewage load factors from previous sewer Master Plan projects of similar size and population densities. Additionally, the Irvine Ranch Water District (IRWD) provides sewage generation factors for commercial, residential, and industrial land uses for the varied cities within its district. The generation factors from City of Irvine were used to calculate the initial sewage load factors because the City of Irvine contains similar land use categories with similar densities.

The generation factors from IRWD are listed in units of “gallons per dwelling unit per day” for residential land use and “gallons per thousand square feet (KSF) per day” for commercial and industrial land use and can be applied to a land use of any known density. The loading for each land use category is calculated by first multiplying the corresponding average density and sewage generation factor to convert the IRWD generation factor to gallons per day per acre (gpd/acre). Then, the initial sewage loading factor is determined by multiplying the IRWD generation factor in gpd/acre and the proportion ratio of the Arcadia land use density to the corresponding Irvine land use density. The land use category for Horse Racing is unique to the City of Arcadia and the initial load factor for Horse Racing was not taken from IRWD but was rather composited from various published load factors for large event stadiums, including from the City of Inglewood’s Sofi Stadium and proposed Basketball and Entertainment Center.

Table 4-3
Initial Sewage Load Factors

Land Use Designation	Load Factor (gpd/acre)
Residential Estates	500
Very Low Density Residential	1200
Low Density Residential	1290
Medium Density Residential	1395
High Density Residential	2520
Commercial (0.5 FAR)	3095
Commercial (1.0 FAR)	6185

Public/Institutional (Civic Center)	915
Regional Commercial	2830
Horse Racing	959
Mixed Use	450
Downtown Mixed Use	450
Commercial/Light Industrial	1460
Industrial	13068
Public/Institutional (School)	100
Public/Institutional (Hospital)	6120
Open Space – Outdoor Recreation	20
Open Space – Resources Protection	20

4.4 FLOW MONITORING AND MODEL CALIBRATION

4.4.1 Smart Cover Level Sensors

Flow monitoring was performed using SmartCover manhole covers by SmartCover Systems. These water level monitoring systems provide continuous real-time information of the wastewater level within in a manhole. The SmartCover units can read the water depth to within a tenth of an inch. Measuring depth is a common way to indirectly measure flow, where the depth is converted to flow measurement using Manning’s equation (with known pipe slope and diameter size). For the range of piping diameters analyzed in this report, the SmartCovers data can provide flow measurement accuracies of approximately $\pm 5\%$.

The City currently owns and uses 8 SmartCovers installed at various manholes in the conveyance system. The City has the capability to remotely monitor the data from the units via a secure website and can modify the parameters of the equipment if required.

4.4.2 Flow Monitoring

The City’s existing SmartCover units were relocated to various locations crucial to determining actual sewage flows throughout the City corresponding to the City’s land use categories. Flows in the hydraulic model could then be adjusted based on the actual flow data collected. Diurnal patterns for each land use category could also be interpreted from the flow monitoring results, and peak flow factors for each land use type were determined, as discussed in Section 4.5. Figure 4.2 shows the locations of the monitoring manholes utilized throughout the City, and the landuse types each monitoring manhole is intended to monitor and Figure 4.3 shows the tributary areas each monitoring manhole captures.

An additional goal of the flow monitoring was to capture both dry-weather and wet-weather sewer flow data, where wet-weather data includes increased flow due to incidental rainfall entering the sewer system, otherwise known as inflow and infiltration (I/I). The flow monitoring was conducted in the months of April 2021 through January 2022. Historically, January is a month with high rainfall totals for the City of Arcadia and Southern California as a whole.

Only one monitoring manhole was not able to provide useful flow data due to trouble during installation. Manhole 817MH003 located on Lower Azusa Rd. east of Durfee Ave. had been intended to monitor flow for Light Industrial land use. During installation, the monitoring manhole lid became stuck due to a warped manhole frame, and the SmartCover unit could not be properly installed. Ultimately, the sewage load factor for Light Industrial land use was developed by taking 75% of the load generation factor for Industrial land use. This was determined by comparing light industrial and industrial load generation factors of similar sized city sewer systems.

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LEGEND

- RESIDENTIAL ESTATE
- VERY LOW DENSITY RESIDENTIAL
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- COMMERCIAL (1.0 FAR)
- COMMERCIAL (0.5 FAR)
- REGIONAL COMMERCIAL
- HORSE RACING
- MIXED USE
- DOWNTOWN MIXED USE
- COMMERCIAL/LIGHT INDUSTRIAL
- INDUSTRIAL
- RAIL
- PUBLIC - CIVIC CENTER
- PUBLIC - HOSPITAL
- PUBLIC - SCHOOL
- OPEN SPACE - OUTDOOR RECREATION
- OPEN SPACE - RESOURCE PROTECTION

PUBLIC / INSTITUTIONAL (HOSPITAL) - 408MH002
HUNTINGTON DR. WEST OF CENTENNIAL WAY.

PUBLIC / INSTITUTIONAL (HOSPITAL) - 408MH005
HUNTINGTON DR. WEST OF CENTENNIAL WAY.

AREA OF INTEREST - 306MH007
FOOTHILL BLVD. NORTHEAST OF
DON ALVARADO DR.

REGIONAL COMMERCIAL - 408MH002
HUNTINGTON DR. EAST OF HOLLY AVE.

HIGH DENSITY RESIDENTIAL - 310MH014
ARCADIA AVE. WEST OF BALDWIN AVE.

GENERAL COMMERCIAL - 311MH025
BALDWIN AVE. AND CAMINO REAL AVE.

LOW DENSITY RESIDENTIAL - 513MH027
S. SANTA ANITA AVE. NORTH OF W. PALM DR.

MIXED USE - 607MH035
ALLEY BETWEEN E. SANTA CLARA ST. AND ST JOSEPH ST.

AREA OF INTEREST - 608MH043
2ND ST. SOUTH OF HUNTINGTON DR.

MEDIUM DENSITY RESIDENTIAL - 609MH039
THIRD AVE. NORTH OF GENOA ST.

PUBLIC/INSTITUTIONAL (SCHOOL) - 509MH002
DUARTE RD. WEST OF SANTA ANITA AVE.

AREA OF INTEREST - 611MH020
2ND ST. NORTH OF CAMINO REAL

INDUSTRIAL - 815MH011
GOLDRING RD. WEST OF KARDASHIAN AVE.

LIGHT INDUSTRIAL - 817MH003
LOWER AZUSA RD. EAST OF DURFEE AVE.

LAND USE MAP
SCALE: NTS

TETRA TECH
www.tetratech.com
160 E. Via Verde, Suite 240
San Dimas, CA 91773
Tel: 909-306-2000 Fax: 909-306-2000

CITY OF ARCADIA
SEWER MASTER PLAN
MONITORING MANHOLE LOCATIONS

Project No.: 203-157161-20001
Date: 11/22/20
Designed By: AL
Figure 4-2

Bar Measured 1 Inch

Copyright: Tetra Tech

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LEGEND

- 310MH014 TRIBUTARY AREA
- 409MH002 TRIBUTARY AREA
- 408MH002 TRIBUTARY AREA
- 509MH002 TRIBUTARY AREA
- 513MH027 TRIBUTARY AREA
- 609MH039 TRIBUTARY AREA
- 607MH035 TRIBUTARY AREA
- 311MH025 TRIBUTARY AREA
- 815MH011 TRIBUTARY AREA

PUBLIC / INSTITUTIONAL (HOSPITAL) - 408MH002
HUNTINGTON DR. WEST OF CENTENNIAL WAY.

REGIONAL COMMERCIAL - 409MH002
HUNTINGTON DR. EAST OF HOLLY AVE.

MIXED USE - 607MH035
ALLEY BETWEEN E. SANTA CLARA ST. AND ST JOSEPH ST.

MEDIUM DENSITY RESIDENTIAL - 609MH039
THIRD AVE. NORTH OF GENOA ST.

HIGH DENSITY RESIDENTIAL - 310MH014
ARCADIA AVE. WEST OF BALDWIN AVE

GENERAL COMMERCIAL - 311MH025
BALDWIN AVE. AND CAMINO REAL AVE.


PUBLIC/INSTITUTIONAL (SCHOOL) - 509MH002
DUARTE RD. WEST OF SANTA ANITA AVE.

LOW DENSITY RESIDENTIAL - 513MH027
S. SANTA ANITA AVE. NORTH OF W. PALM DR.

INDUSTRIAL - 815MH011
GOLDRING RD. WEST OF KARDASHIAN AVE.

MONITORING MANHOLE TRIBUTARY AREAS

SCALE: NTS

 TETRA TECH <small>www.tetratech.com 160 E. Vine Street, Suite 240 San Diego, CA 92173 Tel: 605-305-2850 Fax: 605-305-2858</small>	CITY OF ARCADIA SEWER MASTER PLAN	Project No.: 200-157161-20001 Date: 11/2000 Designed By: AL
	MONITORING MANHOLE TRIBUTARY AREAS	Figure 4-3
	Bar Measures 1 inch	

4.4.3 Adjusted Sewage Load Allocations

Backwater Adjustment

A backwater condition is when downstream flow depth is greater than upstream flow depth. Backwater can occur under certain hydraulic conditions and can be problematic when occurring at a manhole where flow monitoring is being performed. Since flow with the SmartCover units is calculated by measuring flow depth, if the flow depth measured at the manhole is high due to a backwater condition, then the flow measured will be high. The hydraulic modeling software can predict backwater conditions based on pipe slopes upstream and downstream of a manhole, and the software calculates increased depth at a manhole due to a backwater condition. Monitored flows can then be reduced by applying the backwater depth adjustment. The backwater adjusted flows are then used to calibrate the model.

Monitoring Location Density Adjustment

The SmartCover monitoring manholes were strategically placed at locations that would best represent their respective land use category. Each land use category is composed of several subcategories of similar but slightly different densities and floor area ratios. To compensate for these minor variations, flow results from the monitoring manhole were adjusted to best represent the broader land use category as a whole. The adjustments were made by comparing du/acre or FAR of the immediate monitoring location with the du/acre or FAR of the other land use subcategories and either increasing or decreasing the sewage load factors such that it would represent more of an average of the land use category.

Adjusted Sewage Load Factors

Adjustment factors for the initial average-day dry-weather sewage load factors (gpd/acre) were developed for the various land use categories based on the field collected dry-weather flow data in comparison to the initial computer model simulation results, as shown on Table 4-4. The initial sewage load factors were first inserted into the computer model (as discussed in greater detail in Chapter 5 of this report), and initial modeled flow results were obtained. The initial modeled flow results from the computer model were then compared to the flow data obtained in the field, and adjustment factors were calculated for calibration of the model. 4 iterations of the model simulation were performed, each time utilizing further refined adjustment factors until the flows in the model reflected the field collected flow data.

Based on the adjusted load factors, a total average-day dry-weather sewage flow of 6,905 gallons per minute (9.9 mgd) is calculated as shown on Table 4-4. This flow rate equates to a residential per capita wastewater generation of approximately 174 gallons per capita per day (GPCD). In comparison, the total potable water usage per the City's 2020 Urban Water Management Plan is 230 GPCD.

Comparison of Flows to the 2006 Sewer Master Plan

The 2006 Sewer Master Plan provided the flow of the monitoring manholes in Appendix A. The flow monitoring performed for the 2022 Sewer Master Plan has one manhole in particular in common with the monitoring for the 2006 Sewer Master Plan. The flows from the monitoring manhole 514MH029 are used to compare against the 2022 calibrated flows. Manhole 514MH029 contains a convergence of flow from mostly low-density residential land use.

The average flow of monitoring manhole 514MH029 from the 2006 Sewer Master Plan was determined to be approximately 136 GPM, while the flow from the 2022 Sewer Master Plan was calibrated to be 198 GPM. When comparing the 2006 Sewer Master Plan and the 2022 calibrated data, the average flows of the 2022 calibrated data were approximately 45% higher. The higher flows in 2022 may be due to the impacts of COVID-19, which has particularly impacted the residential land use areas as more people have transitioned to working from home. The higher flows in 2022 may also be due to re-development of residential land uses, population increase since 2006, and/or the additions of ADUs in low density residential lots.

**Table 4-4
Sewage Load Allocation**

Land Use Category	Initial Load Factor (GPD/Acre)	Adjustment Factor	Adjusted Generation Factor (GPD/Acre)	Area (Acres)	Allocated Sewage Load (GPM)
Residential Estates	500	1.14	569	484	191
Very Low Density Residential	1200	1.14	1365	939	890
Low Density Residential	1290	1.14	1467	2,070	2109
Medium Density Residential	1395	2.66	3705	68	175
High Density Residential	2520	1.70	4291	433	1290
Commercial (0.5 FAR)	3093	1.15	3563	31	77
Commercial (1.0 FAR)	6186	0.77	4750	236	777
Public/Institutional (Civic Center)	915	1.00	915	51	32

Regional Commercial	2831	0.26	733	81	41
Horse Racing	959	--	959	271	180
Mixed Use	450	21.25	9565	47	310
Downtown Mixed Use	450	21.26	9565	36	237
Commercial/Light Industrial	1459	1.45	2113	91	134
Industrial	13068	0.22	2818	103	201
Public/Institutional (School)	100	15.15	1515	124	130
Public/Institutional (Hospital)	6123	1.41	8625	20	121
Open Space-Outdoor Recreation	20	--	20	357	5
Open Space-Resource Protection	20	--	20	311	4
				Total	6,905

4.5 DRY WEATHER PEAKING FACTORS

Peaking factors were developed for each land use category. Since the various land uses areas differ in the type of usage and activity, land use categories will differ in the time of day the peak flow occurs and in the magnitude of the peak flow compared to the average day flow. Peaking factors were developed for each land use category based on flow data collected from field units. The raw flow monitoring data in Appendix C of this report indicates the monitoring manhole peak flows determined for each land use category that was used to determine the peaking factors. Peaking factors are shown in Table 4-5 below, as well as total peak flows of each land use type. Residential land use peaking factors are somewhat lower than expected. This could possibly be an effect of the COVID-19 pandemic and live/work habits. This is further discussed in chapter 5. The average system wide peaking factor is 1.78.

**Table 4-5
Dry Weather Peaking Factors**

Land Use Designation	Peaking Factor	Total Peak Flow (gpm)
Residential Estates	1.3	254
Very Low Density Residential	1.3	1,183
Low Density Residential	1.3	2,805
Medium Density Residential	1.5	254
High Density Residential	1.5	1,871
Commercial (0.5 FAR)	2.4	182
Commercial (1.0 FAR)	2.4	1,841
Public/Institutional (Civic Center)	2.4	76
Regional Commercial	1.8	75
Horse Racing	2.5	451
Mixed Use	1.5	472
Downtown Mixed Use	1.5	360
Commercial/Light Industrial	1.8	244
Industrial	1.8	365
Public/Institutional (School)	1.3	173
Public/Institutional (Hospital)	2.1	258
Open Space – Outdoor Recreation	1.0	5
Open Space – Resources Protection	1.0	4
Total		10,874

4.6 WET WEATHER FLOWS

Inflow and infiltration (I/I) occur when water enters a sanitary sewer system from a rain event or exposure to groundwater. Inflow can enter a sanitary sewer system through surface openings such as manhole lids or from illegal storm water connections. Infiltration from rain-induced groundwater percolation can enter a system through defects such as cracked and broken pipe, joints, and through openings/cracks in manhole walls.

The largest rainfall during the flow monitoring period occurred on December 30th, 2021 (3.23 inches) based on rainfall recorded at Pasadena. The wet weather flow was monitored during rain events which occurred on October 25th, 2021, and between December 23rd, 2021, and December 30th, 2021. During the rainfall events, the sewage flows were approximately 12% greater than sewage flow observed during dry-weather conditions. Therefore, wet-weather flows are calculated in the model by increasing the average dry-weather sewage generation factors by 12%.

Unlike dry weather flows, wet weather flows are not increased by a (daily) peaking factor. This is because water use trends tend to decline during wet weather, and the same peaking factor that is applied to average dry weather flow does not apply to wet weather. Therefore, wet weather flows are modeled as a separate scenario from peak dry weather flows. Average wet weather flows were determined to be less than peak dry weather flows, and the critical scenario for modeling the system is peak dry weather.

The flow throughout this report, unless otherwise stated, refer to dry weather flows and not wet weather flows.

4.7 PROJECTED FUTURE SEWAGE FLOWS

This section discusses future population growth, re-development, and projected sewer flows for the year 2042.

4.7.1 Future Re-Development

The City is nearly built-out, and growth is not related to the spatial expansion of City boundaries, but through the re-development and intensification of currently developed areas. Table 4-6 below summarizes the proposed re-development projects and status as of 2022. The re-development projects listed are consistent with the goals of the 2010 General Plan to accommodate modest population growth and ease regional housing demands, specifically by developing more dense multi-family and mixed use, urban-type developments located near transit, restaurants, and entertainment. The 2010 General Plan also establishes policy direction to build upon the commercial base to maintain Arcadia's status as a regional hub for commercial and business, and several of the larger projects identified in Table 4-6 are consistent with those policies.

Most of the re-development projects listed in Table 4-6 are re-developments to usage within the land use categories to which they are already zoned, and the sewage demands for these developments are already accurately modeled and do not need to be updated in the hydraulic model. Several of the larger projects listed, however, do need to be added in the future scenarios of the hydraulic model. These projects include the large-scale hotel developments along Huntington Dr. The Le Meridien Hotel (part of the Seabiscuit Pacifica Specific Plan) that is currently under construction, for example, has been added to the future scenario of the hydraulic model. It should be noted that developments with direct connection to the County sewage system were not included in the future scenario demands. The demands for the following specific plan areas have been included in the future scenarios of the hydraulic model:

Seabiscuit Pacifica Specific Plan

The Seabiscuit Pacifica Specific Plan is located at the former Santa Anita Inn site in the southwest corner of the Downtown Arcadia, at the intersection of Huntington Dr. and Colorado Pl. The project consists of 2 phases of construction. The first phase is the Le Meridien Hotel by Marriott, a 6-story, 233 guest room hotel. The second phase is a mixed use residential and retail/commercial building consisting of an 8-story 96 residential unit building and 10,600 SF of commercial space on the ground floor. For the purpose of modeling future scenarios for the hydraulic model, the lot will be re-zoned to Downtown Mixed-Use.

57-Wheeler Ave. Mixed Use Development

A 3-story, 38 residential unit mixed use building at 57-Wheeler Ave. was recently constructed in an area that is currently zoned as vacant land. The development ties into an 8-inch City sewer line on Wheeler Ave., which then ties into the County trunk line on 1st Ave. shortly after. Approximately 100 ft. of the City's 8-inch line is affected, and this line has ample capacity to carry the additional load (approximately 2 gpm). The additional flow from this development is noted on Table 4-7.

**Table 4-6
Proposed Re-Development Projects**

Area No.	Location	Land use	2022 Status	Proposed Improvement
1	1046 Fairview Ave	Multi-Family	In Plan Check	5-unit condominium
2	837-841 1/2 W. Huntington Dr	Multi-Family	Under Construction	10-unit condominium
3	1027 Arcadia Ave	Multi-Family	Under Construction	6-unit condominium
4	230 California St	Multi-Family	Under Construction	5-unit condominium
5	116 Bonita St	Multi-Family	Under Construction	3-unit condominium
6	30 Fano St	Multi-Family	Completed	3-unit condominium
7	141-145 Alice St	Multi-Family	Completed	8-unit condominium
8	151 A-C Alice St.	Multi-Family	Under Construction	3-unit condominium
9	22-26 Colorado Blvd	Multi-Family	Completed	8-unit condominium
10	1028 W. Duarte Rd	Multi-Family	Completed	3-unit condominium
11	157-159 Genoa St	Multi-Family	Under Construction	4-unit condominium
12	121 Bonita St	Multi-Family	Completed	3-unit condominium
13	418 Fairview Ave	Multi-Family	Under Construction	6-unit condominium

14	135 El Dorado St	Multi-Family	Completed	3-unit condominium
15	828 Naomi Ave	Multi-Family	Under Construction	4-unit condominium
16	312 A&B, 316 A&B, and 318 California St	Multi-Family	Completed	5-unit condominium
17	1111-1117 La Cardena	Multi-Family	Under Construction	8-unit condominium
18	125 California St	Multi-Family	Completed	3-unit condominium
19	416-428 Genoa St	Multi-Family	Under Construction	8-unit condominium
20	405 S. First Ave	Mixed Use	Under Construction	4 Residential Units and 585 SF of Retail Space on Ground Floor
21	11700 Goldring Rd	Mixed Use	Entitlements Near Approved	Two-story Industrial Building with Office Space
22	288 N. Santa Anita Ave	Mixed Use	Under Construction	Four-story Retail and Medical Bldg. with Parking Structure Located Above the Ground Floor
23	117-129 E. Huntington Dr / 124, 126, & 134-Wheeler Ave	Mixed Use	Entitlements Approved	Huntington Plaza: 139 Residential Units and 10,200 SF of Commercial Space
24	125 W. Huntington Dr & 175 Colorado Pl	Mixed Use	Entitlements Approved	Hotel Indigo: 4-story & 5-Story Towers, 165 Guestrooms and Commercial Space on Ground Floor
25	1150 Colorado Blvd	Major Development	Entitlements Approved	Artis Senior Assisted Living Care Facility: Two-Story, 44,192 SF

26	100 & 180 W. Huntington Dr	Mixed Use	Under Construction	Le Meridien Hotel: 6-floor & 5-floor Wings, 120,388 SF, 233 Guestrooms Mixed-Use Building: 8 stories, 96 Residential Units, 10,600 SF Commercial Space on Ground Floor
27	33-35 W. Huntington Dr	Mixed Use	Preliminary	Arcadia Commons Food Hall: Convert 5,849 SF of Existing Self-Storage Bldg. Into a Multitenant Food Hall with 1,326 SF of Outdoor Dining Area
28	17 W. Las Tunas Dr	Mixed Use	Under Construction	77 Multi-Family Residential Units, 3 Live/Work Units with 2,487 SF Commercial Space, and a One-Story, 8,500 SF Commercial Building
29	57-Wheeler Ave.	Mixed Use	Recently Constructed	Three-Stories of 38 Residential Apartment Units and 17,850 SF of Commercial Space
30	56 E Duarte Rd.	Mixed Use	Recently Constructed	Three-stories of 37 Residential Condo Units and 19,360 SF of Commercial Space
31	901 W. Duarte Rd.	Multi-Family	Entitlements Approved	13-Unit Multi-family Residential Project
32	122-128 E. Live Oak Ave.	Mixed Use	Entitlements Approved	12 Residential Units, 3500 SF
33	314 E. Live Oak Ave	Mixed Use	Potential Projects for 2022-23	30 Residential Units and 19,000 SF of Commercial
34	11-19 W. Huntington Dr. and 25 N. Santa Anita Ave.	Mixed Use	Potential Projects for 2022-23	Huntington Park View Mixed Use: 155 Residential Units and 15,000 SF of Commercial
35	150 N. Santa Anita Ave.	Mixed Use	Potential Projects for 2022-23	Alexan Arcadia: 7-Story Mixed Use Adjacent to Existing 8-Story Office Building. 319 Residential Units

36	618 Michillinda Ave.	Multi-Family	Potential Projects for 2022-23	100-150 Residential Units to Replace Existing On-Site Commercial Building
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**Table 4-7
Additional Flow Quantities
From Re-Development**

Land Use Designation	Additional Flow (gpm)	Additional Flow (gpd)
Seabiscuit Pacifica Specific Plan	37	53,280
57-Wheeler Ave.	2	1616
Total	39	54,896

4.7.2 Future Development of Vacant Lots

Per the 2010 General Plan, the city is comprised of less than 1% vacant land (0.3%), and no developments are currently proposed on existing vacant land. Therefore, no additional flow will be included from development of vacant land for modeling of future scenarios.

4.7.3 Future Population Growth

The Master Plan considers future projected sewer system requirements for the year 2042. Over this time period, the City’s total population, along with the land use densities for all land use categories, are anticipated to increase. The total sewage load for residential land use categories in the City will be increased by a single global load factor to account for the overall increase in population. The population increase is based on population data from the Southern California Association of Governments (SCAG), which forecasts population changes in various jurisdictions within Los Angeles County. A baseline population was taken in 2022, and the population for the City of Arcadia projected up to 2042. In 2022, the City’s population was documented as 57,212 persons, and projected to be 61,695 by the year 2042. This is an approximate population increase of 7.8% over the 20-year period, or an annual increase of 0.4%.

A portion of the additional loads due to population growth has already been included as part of the loads added due to specific plan re-development. As population of the City increases, the areas that occupy are the residential and mixed-use land uses. The additional sewage load from population increase is distributed through the residential type of land uses by the percentage of population increase expected through 2042. Since population does not equate to sewage generation on a one-to-one basis, this percentage is reduced by the estimated sewage load to water consumption ratio, conservatively assumed as 75%. Also, in tandem with state and local drought policies, recent potable water usage trends indicate a movement towards reduced water usage and sewage load and applying the 75% factor is further justified by these recent water usage trends. The sewage load increase to the residential load factors to account for future population increase is 5.8%. The future load factors are defined in Table 4-8 below. Note that additional flow from population growth is attributed to residential land use types and no other land use types such as Commercial. Population increase data from SCAG is attributed to

the increase in permanent residents to the City. The commuter population, which refers to the number of people who are present in the area during normal business hours, including workers, are not accounted for in the population growth. Sewage generation from commercial, regional commercial, and other non-residential land use categories is associated with a commuter population and Sewage generation from these land use types has not been adjusted due to population growth.

**Table 4-8
Future (2042) Sewage Load Factors**

Land Use Category	Future Generation Factor (GPD/Acre)
Residential Estates	602
Very Low Density Residential	1444
Low Density Residential	1552
Medium Density Residential	3920
High Density Residential	4540
Commercial (0.5 FAR)	3563
Commercial (1.0 FAR)	4750
Public/Institutional (Civic Center)	915
Regional Commercial	733
Horse Racing	959
Mixed Use	10119
Downtown Mixed Use	10120
Commercial/Light Industrial	2113
Industrial	2818
Public/Institutional (School)	1515
Public/Institutional (Hospital)	8625
Open Space-Outdoor Recreation	20
Open Space-Resource Protection	20

The total flow to the system that can be attributed to the future increase in population and density is summarized in Table 4-9.

Table 4-9
Additional Flow Quantities
From Future Population Growth

Land Use Category	Additional Flow (gpm)	Additional Flow (gpd)
Residential Estates	11	15958
Very Low Density Residential	52	74307
Low Density Residential	122	176165
Medium Density Residential	10	14645
High Density Residential	75	107761
Commercial (0.5 FAR)	0	0
Commercial (1.0 FAR)	0	0
Public/Institutional (Civic Center)	0	0
Regional Commercial	0	0
Horse Racing	0	0
Mixed Use	18	25921
Downtown Mixed Use	14	19787
Commercial/Light Industrial	0	0
Industrial	0	0
Public/Institutional (School)	0	0
Public/Institutional (Hospital)	0	0
Open Space-Outdoor Recreation	0	0
Open Space-Resource Protection	0	0
TOTAL	302	434,545

4.7.4 Total Future Flows

Both future population increase, and future re-development will contribute to the increase in sewage load in the future system. The total future flow for the year 2042 under average day conditions is 7,244 gpm. This is a 5% increase over the existing average day flow of 6,905 gpm. Table 4- 10 has been provided below summarizing the additional future average day flows and total future average day flows in the system.

Table 4-10
Total Future Average Day Flows

Land Use Category	Existing Flow (gpm)	Additional Flow (gpm)	Total Future Flow (gpm)
Residential Estates	191	11	202
Very Low Density Residential	890	52	941
Low Density Residential	2109	122	2232
Medium Density Residential	175	10	186
High Density Residential	1290	75	1365
Commercial (0.5 FAR)	77	0	77
Commercial (1.0 FAR)	777	0	777
Public/Institutional (Civic Center)	32	0	32
Regional Commercial	41	0	41
Horse Racing	180	0	180
Mixed Use	310	18	328
Downtown Mixed Use	237	51	288
Commercial/Light Industrial	134	0	134
Industrial	201	0	201
Public/Institutional (School)	130	0	130
Public/Institutional (Hospital)	121	0	121
Open Space-Outdoor Recreation	5	0	5
Open Space-Resource Protection	4	0	4
TOTAL	6,905	339	7,244

4.7.5 Summary of Total Flows

Table 4-11 below provides a summary of the existing and future sewage flows.

The average system wide peaking factor for the existing 2022 system is 1.58. For the future 2042 system, the average system wide peaking factor is 1.56.

**Table 4-11
Flow Summary**

Scenario	Wet Weather		Average Day Dry Weather		Peak Dry Weather	
	gpm	mgd	gpm	mgd	gpm	mgd
Existing 2022	7,724	11.1	6,905	9.9	10,874	15.6
Future 2042	8,103	11.7	7,244	10.4	11,329	16.3

CHAPTER 5. – SEWER SYSTEM MODELING AND CAPACITY ANALYSIS

The following components of the sanitary sewer system modeling and capacity analysis performed for this Sanitary Sewer Master Plan are detailed in this section

- Sewer System Model
- Model Assumptions and Methodologies
- Model Verification and Calibration
- Capacity Analysis

Based on available data, information provided by the City, and site visits during the project monitoring period, conditions associated with the existing sewer system were identified.

5.1 SEWER SYSTEM MODEL

A hydraulic model is a representation of the City sewer system that is used to predict the response of the existing system, adequacy of the system under different scenarios, operational characteristics of the existing system, and to evaluate the requirements of the system for future re-development scenarios.

Inputs to the model are the attributes of the physical system including RIM elevations, invert elevations, and pipe dimensions and materials. Inputs to the model also include sewage loads. The model solves hydrodynamic equations to predict resulting flow rates, velocities, and water levels throughout the network. The result information from the model makes it possible to identify areas where flow exceeds the conveyance capacity and to evaluate alternatives for increasing capacity or managing excess flows.

5.1.1 Hydraulic Modeling Software

InfoSewer Suite (Version 7.6) software by Innovyze, as an add-on to ArcMAP Desktop (Version 10.5), was used to develop a hydraulic model of the City's sanitary sewer system in order to evaluate hydraulic performance and identify hydraulic deficiencies. Tetra Tech's 4000 link license was used based on approximately 140 miles of mainline sewers in the existing system with an allowance for future pipe capacity. Geographic Information System (GIS) of the City's sanitary sewer system was used as a basis for this model. Infosewer is an add-on software to ArcMap and is capable of working directly with shape files as one would working solely with ArcMap.

5.1.2 Hydraulic Model Development

Within the software a piping network model is created using data on the sewer piping segments such as elevations, diameter, and material types. Model scenarios are developed to evaluate the response of the sewer collection system to various existing and future sewer flow conditions. Model scenarios are also developed to determine the effectiveness of proposed improvements. The model should be

considered an ever-on-going project that can be updated and utilized to forecast the impact of planned development and improvements to the sewer collection system.

5.1.3 Basis of Sewer System Information

The City has provided GIS shape files of the City's sanitary sewer system for use in developing a hydraulic model. The GIS data was scrutinized for accuracy before import into the model in an effort to produce the best modeling results. For a number of locations, pipe upstream or downstream elevations were not provided in the GIS shape file attribute data. The majority of these missing pipe invert elevations were resolved by looking up invert elevations from as-built construction data. Where invert elevation as-built data could not be found, invert elevations were estimated based on assuming similar pipe slopes as adjacent pipes with known slopes.

5.1.4 Development of Flows

Sewage loads at the modeled manholes are calculated by the software. The load allocation module of the H2OMAP Sewer software allocates wastewater flows to each manhole based on tributary land use areas. Tributary Thiessen polygons are generated around each manhole and flow allocation to the manholes are calculated based on the intersection of these tributary polygons and the land use areas. The various land use types are assigned calibrated load factors as developed in Chapter 4 to develop average dry weather flow for system manholes. The average dry weather load factors are modified by factors to approximate peak hour flows and wet weather flows.

5.2 MODEL ASSUMPTIONS AND CRITERIA

Sanitary sewer analysis criteria were established for maximum depth of flow in the pipe and minimum pipe velocity / minimum pipe slope. The sewer model identifies hydraulic deficiencies in the system based on these criteria.

5.2.1 Sewer Design Criteria – Maximum Depth over Diameter

During a rainfall event or when exposed to ground water, water enters the sewer system via openings and defects that is referred to as inflow and infiltration (I/I). This additional water results in wet weather peak flows that can require more sewer pipeline capacity compared to dry weather peak flow conditions. Peak wet weather flows are accounted for by designing sewers to carry peak dry weather flows at maximum sewer flow depth within the pipe divided by the piping diameter d/D ratios. The remainder of the pipe flow area is reserved as spare capacity to carry wet weather flow on top of the peak dry weather flow. This conservative approach of allowing for void space within the sewer pipe allows for airflow that aids in preventing the wastewater from becoming septic and odorous.

The City provides the following design criteria set of the ratio of flow depth to pipe diameter (d/D) for sewer pipes:

Table 5-1
Maximum Depth over Diameter (d/D) Criteria

Pipe Size	Maximum d/D
8 to 10 inches	0.5
12 to 15 inches	0.75
Greater than 15 inches	0.8

5.2.2 Sewer Design Criteria – Minimum Velocity and Pipe Slope

A minimum pipe velocity of 2 feet per second fps at peak dry weather flow is necessary to remove solids from the pipe and prevent deposition on a daily basis. Pipe velocity is dependent on pipe slope such that pipes with steeper slopes tend to have flow of higher velocity. Minimum pipe slope listed by pipe diameter used in this computer model is shown in Table 5-2. These are typical minimum slopes used by similar agencies and cities to help ensure adequate pipe capacities and velocities. Minimum slope is a construction standard that helps ensure the d/D ratios, pipe velocity, and other hydraulic criteria are met. Pipes that have slopes less than the minimum slope will have higher levels and lower velocities at normal flows and are more likely to surcharge at high flows.

Table 5-2
Minimum Pipe Slope

Pipe Diameter (in.)	Minimum Slope (ft/ft)
6	0.004
8	0.004
10	0.003
12	0.002
14	0.0016
15	0.0016
16	0.0016

5.2.3 Sewer Manhole Splits

The sewer system contains several manhole locations designed to split flow from one sewer main to two sewer mains. In the model, flow splitting quantities can be supplied by the user or allowed to be automatically calculated by the software. If determined automatically, flow entering each downstream pipe is calculated based on their invert elevations and downstream slopes. Pipes with the lowest invert are assumed by the software to fill first. As the depth of water increases in the lowest pipe, flow is

routed until the next highest invert is achieved. All sewer manhole splits in the model were determined by the program automatically.

5.2.4 County Sewer Pipeline

While information of County pipelines is included in the model, the model runs do not evaluate the hydraulic capacity of County pipelines. Connections of the City sewer pipeline to County pipelines are modeled as outlets and analysis of hydraulic flow does not continue past the connection point.

5.3 CAPACITY ANALYSIS

The capacity of the system pipelines was checked with the d/D criteria established in Table 5-1. The capacity of the pipelines was checked under various scenarios as defined in Chapter 4 and briefly described as follows. The deficient pipes identified from the results of the capacity analysis were then prioritized in Chapter 6.

5.3.1 Model Results

Results from the hydraulic model are pipes that exceed the d/D criteria defined in Table 5-1. These pipes have been grouped into projects and prioritized into capital improvement projects in Table 6-1, where indicated as “Hydraulic Model” under deficiency type. The following scenarios were run in the model to determine these results.

Existing System – Peak Dry Weather Flow

The calibrated flows were input into the model, and the model of the existing system was run for the dry weather, peak flow scenario. The model results were filtered based on the depth over diameter deficiency criteria. A map of these deficient pipe is shown in Figure 5-1.

Future System – Peak Dry Weather Flow

The model of the future system was run under a dry weather, peak flow scenario. The model results were filtered based on the depth over diameter deficiency criteria under the future system scenario. A map of these deficient pipe is shown in Figure 5-2.

Future System – Peak Wet Weather Flow

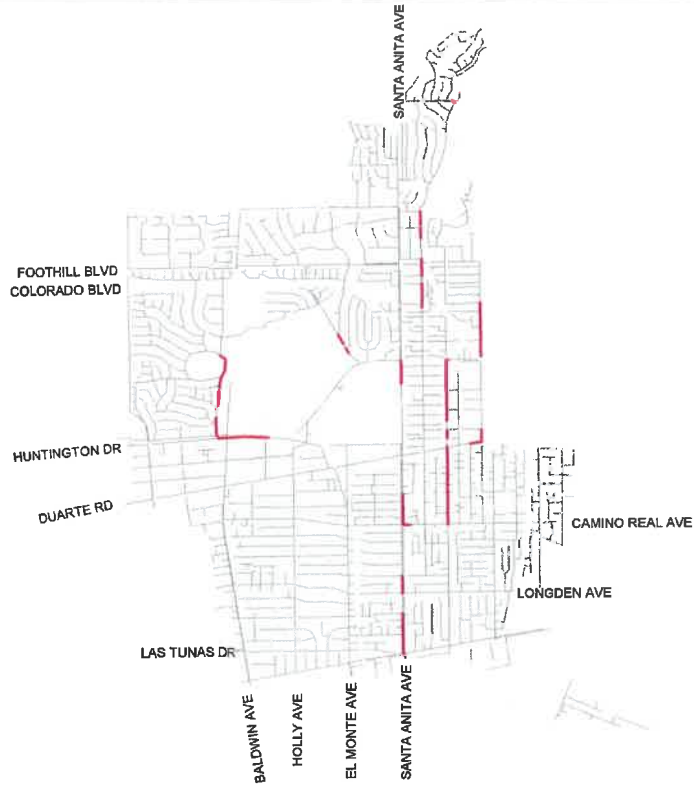
The wet weather flows were input into the model based on the wet weather factor calculated in section 4.6. The d/D criteria established in Table 5-1 are intended for the peak dry weather flow scenario, where the remainder of the pipe flow area is reserved as spare capacity to carry wet weather flow on top of the peak dry weather flow. While the peak wet weather scenario was not run to determine the deficient pipe, it was used to check the CIP pipe size recommendations. The future system with the proposed CIP improvements was checked under the peak wet weather scenario to assure the correct recommendations were made and to assure no potential for surcharging. Pipes where d/D were equal to 1.0 for the peak wet weather flow scenario indicate potential surcharge.

5.3.2 COVID-19 Impacts

The COVID-19 pandemic was first declared as a pandemic by the World Health Organization in March of 2020. The pandemic has had widespread social and economic effects that have vastly changed the landscape of living and working within the City. The immediate effects of the pandemic are self-evident, but the long-term effects are unclear at this point. The immediate effects can be characterized by higher patterns of sewage generation from residential land use areas as a result of work from home and lower patterns of sewage generation from commercial land use areas. The sewage generation patterns from residential land use areas have been observed during the flow monitoring and can be characterized as having a higher-than-average total flow when compared to previous master plans, but with a lower diurnal peak factor. In the long-term, these effects are most likely to continue at a lesser degree. The sewage generation patterns from commercial land use areas have also been observed from flow monitoring. Flows observed from commercial land use areas can be characterized as having a lower-than-average total flow when compared to previous master plans. We would expect sewage load from commercial land use areas to rebound to pre-covid levels.

Future sewer master plans should continue to monitor the on-going effects of the COVID-19 pandemic on the City's sewage system. The hydraulic model of the sewer system was developed and calibrated based on monitoring data collected towards tail end of the pandemic from the end of 2021 to the beginning of 2022, and the capital improvement projects recommended in Chapter 6 are based on these demands.

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LEGEND

-  EXISTING SEWER SYSTEM
-  EXISTING DEFICIENCIES

TETRA TECH
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 San Diego, CA 92173
 Tel: 609-305-2932 Fax: 609-305-2958

CITY OF ARCADIA
 SEWER MASTER PLAN
**SEWER SYSTEM PIPELINES
 EXISTING DEFICIENCIES**

Project No.: 200-15716-20001
 Date: 11/20/20
 Designer By: AL
 Figure
5-1

Bar Measure 1 inch

CHAPTER 6. – CAPITAL IMPROVEMENT PROJECTS

Capital improvement projects were identified and ranked in priority for implementation by the City of Arcadia in the next 20 years (2022 to 2042). These projects were derived from capacity issues identified in the hydraulic model, and structural defects recorded during CCTV video inspection, and sewer maintenance “hotspots” as provided by the City. This section presents CIP projects and estimated costs.

6.1 PRIORITY CRITERIA

The model results include two categories of priority. Priority 1 is the highest priority and priority 2 is the lowest priority:

Priority 1 Improvements: These improvements include pipe with a d/D exceeding the criteria set in Table 5-1 with at least one pipe segment with a d/D at or near 1.0 (potential SSO). Within the Priority 1 Improvements group, these deficient pipes are further prioritized higher on the list if there were observed significant structural defects per the CCTV inspection reports or if the hydraulically deficient pipe also coincide with pipes identified by the City as known historical maintenance “hotspots”. Priority 1 recommendations are based on the model results from the existing system under peak dry weather flow only and does not consider deficiencies predicted in the future system model.

Priority 2 Improvements: These improvements are based on those sewer pipes that are predicted to flow over capacity (with a d/D exceeding the criteria set in Table 5-1) but not full. These improvements are also based on pipes that have been identified by the City as known historical maintenance “hotspots” requiring lining. Priority 2 recommendations are based on the model results from the existing system under peak dry weather flow only and does not consider deficiencies predicted in the future system model.

6.2 CAPITAL COST ESTIMATE DEVELOPMENT

Construction costs presented for the projects included in the CIP are an approximate estimate based on typical industry experience for similar work but made without detailed design-level data. The costs are based on May 2022 dollars. Because all costs are provided in May 2022 dollars, future costs must be adjusted to account for the effects of inflation and market conditions at the actual time of construction. The cost adjustments at the time of construction can be made using the Engineering News-Record (ENR) Construction Cost Index or similar methods. The cost index is published on a monthly basis for 20 large cities in the country.

The costs for the improvement program were prepared from the information available at the time of the estimate to serve as a guide for project evaluation, funding, and implementation. The cost information is developed from a combination of recent bids on construction projects, vendor quotes, cost curves, scale-up and scale-down factors, and size and cost comparisons with similar projects. These

estimates reflect the costs for typical sewer system construction conditions but should be adjusted for extraordinary costs, such as street undercrossing, deep or difficult trenching, and similar items. The final costs of the sewer system improvement projects will vary from the estimates because costs depend on actual labor and materials costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, final design details, and other variable factors. Therefore, funding needs must be carefully reviewed before making specific financial decisions or establishing final budgets.

The unit costs presented in this report are construction costs and do not include engineering, project administration, construction administration, inspection, or construction management. Project costs are later totaled and summarized to include these items with a factor applied to the construction cost subtotal. The project costs presented for each of the projects in the improvement program include:

- 10 percent for engineering design
- 15 percent for inspection, construction management, and contingency

These costs do not include escalation, state or local taxes, easements, or acquisitions.

6.2.1 Unit Construction Costs

The cost per linear foot for various HDPE piping diameters were developed as listed in Table 6-1. The costs assume pipe bursting construction with HDPE pipe. Pipe bursting is the current recommended method of construction by the City for upsizing projects. Discussion of other methods of pipe upsizing replacement are described in Section 6.3.

Table 6-1
CIP Unit Costs
Pipe Bursting Construction

Pipe Diameter (in.)	Unit Cost (\$/LF)
8	230
10	250
12	260
14	275
15	280
16	290

6.2.2 Cost Index

A recent Engineering News Record (ENR) Construction Cost Index of 12684 (July 2022) is noted for users of this report seeking to update the cost estimates presented.

6.3 REPLACEMENT AND LINING CONSTRUCTION METHODS

Various construction methods of pipe replacement and lining are possible for the CIP projects as described below. The best construction method to use will depend on many factors including the existing pipe material, the existing pipe size, the existing pipe defect, available surface space around the pipe's upstream and downstream ends, and cost constraints. For the purpose of a project planning cost estimate, the replacement method assumed will be pipe bursting with HDPE and the lining method assumed will be cured in place pipe (CIPP).

Replacement - Traditional Trenching (Cut and Cover)

This replacement method simply digs down to the defective sewer main and replaces it with a new pipe. In urban areas, due to both nearby utilities and issues with grades, the existing sewer is usually removed, and a new pipe laid in the same place. Typically, a plastic (PVC, HDPE, etc.) or clay (VCP) pipe material is used when replacing a line. The City's system is composed of mostly VCP pipe, and we would assume that replacement would be with new VCP pipe. A temporary bypass is normally required which involves pumping from an upstream manhole through temporary pipe or hose generally placed at grade to a point downstream of construction. Traffic control is typically required over the entire replacement alignment. With this method of replacement, any defect is repairable because old pipe is removed and replaced with open trench access. Life expectancy is usually 50-100 years, with many cities in the US having functioning VCP over 100 years old. Traditional trenching is the most expensive method of pipe replacement.

Replacement – HDPE Pipe Bursting

Pipe bursting is considered a "trenchless" replacement method where an existing pipe to be rehabilitated is broken and forced outward while simultaneously being replaced by a PVC or HDPE pipe of the same diameter or larger. Upsizing up to two pipe sizes is possible. The PVC or HDPE pipe is fused at the joints with a fusing machine located at ground level. The existing pipe is broken open by an expansion head being pushed or pulled through the existing sewer line. Although most of the pipe alignment does not require excavation, a vertical insertion pit and a sloped tail ditch are required at the upstream manhole. For a typical pipe with 10' of cover, the insertion pit and tail ditch would be approximately 60 feet long, and longer for deeper pipes. Service laterals for this replacement method are also reinstated by excavating each one in order to connect it to the new sewer. A construction staging area about 60 feet long and about 10 feet wide located behind the pit will be required for pipe fusing equipment and pipe staging. Traffic control is required to protect the pit and the staging area, and any service laterals reconnected. Bypass piping may be required depending on the flow and duration of construction. Life expectancy with HDPE pipe bursting is expected to be between 50 to 100 years. Pipe bursting with HDPE comes at a cost of approximately 15% to 25% lower, on average, than traditional trenching.

The City has noted pipe bursting as the preferred method of pipe replacement construction and has been the method of construction used on many of their completed CIP projects since 2015. Pipe bursting was the method of construction for many of the CIP projects specified in the 2006 Sewer Master Plan CIP, including the construction of the Baldwin Ave. Project (Baldwin Ave. between Fairview Av. and Duarte Rd.), the Huntington Dr. Project (Huntington Dr. between Colorado Blvd. and Centennial Way), and the Duarte Rd. Project (Duarte Rd. Between Baldwin Ave. and Holly Ave.).

Replacement – Slip Lining

This method is another “trenchless” replacement method similar to pipe bursting; however, it is also not completely trenchless as an insertion pit and tail ditch are required and lateral connections must be excavated. Instead of breaking the existing pipe as in pipe bursting, this method slips a smaller diameter pipe into the existing pipe, and the annular space between the two pipes is sealed with grout. Pipe joint fusing, service restoration, insertion and tail pit, staging and traffic control requirements are the same as the pipe bursting method. Cleaning of the existing pipe is required prior to slip lining installation. Bypass may be required depending on sewer flow and duration of construction. Slip lining cannot be used in existing pipe with bends and the pipe must be reasonably straight and round. Life expectancy with slip lining is expected to be between 50 to 100 years. Slip lining comes at a lower cost on average than traditional trenching and at a similar cost to pipe bursting.

Lining – Cured In Place Pipe (CIPP)

The City of Arcadia has used CIPP lining techniques to repair structural damage and prevent root intrusion. This method is completely trenchless, which means that there is no excavation required. A pipe liner with structural properties is constructed within the host pipe. The liner consists of a fabric type of sleeve and a resin. The resin-impregnated sleeve is inserted into the host pipe, an inflatable bladder used to press the sleeve against the existing pipe ID, and then the resin is cured. After curing, the new pipe is bound to the host pipe and the result is a very smooth and continuous finish. The sleeve/resin can be designed for various purposes ranging from strictly a liner (e.g. to repair non-structural cracks) to a structurally sound pipe capable of bearing all external loads and internal pressures. However, cured-in-place pipe (CIPP) cannot be used without a host pipe (e.g. where large sections of pipe are missing) or where the host pipe is collapsed. The resin can be set using one of several methods including hot water, steam, or ultraviolet light (UV). The tube composed of the resin can be either winched or inverted into the pipe with water pressure. Since the tube is fabricated for the reach, a jointless inner pipe is created. The CIPP is fairly thin, and the surface is very smooth, so the hydraulic capacity is not greatly affected, and may even be improved over the existing hydraulics. Structural defects such as offset joints can be accommodated, but may be seen as imperfections in the CIPP, as it conforms to the surface of the existing pipe.

The CIPP lining process requires no excavations if manholes are available for access to the existing pipe. The service laterals are restored through the use of a remotely controlled robot in the pipe. The existing pipe requires careful cleaning and elimination of any flows to achieve optimal installation. The required staging area is about 30 feet long by 10 feet wide for the CIPP machines around the insertion manhole, and traffic control is required around the staging area. Bypass is required depending on sewer flow and

duration of construction. Life expectancy with CIPP can be expected to be between 50 to 100 years. Because there is no need for excavation, CIPP is a cost-effective method for rehabilitation.

Recommended Methods

The City has had recent success with pipeline replacement construction utilizing HDPE pipe bursting and has noted this method as a preferred replacement method. Overall, it is a cost-effective method with reduce impact to above ground pavement compared to traditional trenching. HDPE is constructed with fused joints, eliminating any potential root intrusion problems.

CIPP is the recommended method for pipe lining. However, the City has noted several issues encountered with previous CIPP projects in the City. Some of these issues include reduced capacity and/or problems with cleaning, constructing, and/or maintenance of the lined pipe. The City should assess each CIP project requiring lining and determine if the potential maintenance issues are worth the cost savings, or if replacing the pipe in kind is a better solution. For the purpose of capital improvement cost budgeting, the hotspot projects noted in the CIP in Appendix A will assume cleaning and lining.

6.4 RECOMMENDED CAPITAL IMPROVEMENT PROJECTS AND COSTS

Table 6-2 provides a summary list of the recommended CIP projects broken down by priority, project number, and location. Figure 6-1 shows the location of these projects utilizing the same project numbers. A comprehensive list of capital improvement projects and specific pipe sections are included in Appendix A. The total project cost for these pipeline improvements is **\$8,565,849**.

Table 6-2
Recommended Capital Improvement Projects Summary

Priority	Project #	Location	Project Type	Broken or Fractured? ¹	Initial Pipe Size (in.)	Replacement Pipe Size (in.)	Total Length (ft)	Construction Cost	Total Project Cost	
1	1	Santa Anita Ave. (West Side of Street) South of Palm Dr.	Replace	Broken	8	10	1,691	\$490,320	\$612,901	
	2	Santa Anita Ave. (West Side of Street) Between Las Flores Ave. and Longden Ave.	Replace	NA	8	10	698	\$202,316	\$252,895	
	3	Elkins Ave. and Highland Oaks Dr.	Replace	Fractured	8	10	142	\$41,274	\$51,593	
	4	Highland Oaks Dr. between E. Orange Grove Ave. and E. Sycamore Ave.	Replace	NA	8	10	969	\$281,047	\$351,309	
	5	Colorado Pl. at San Juan Dr.	Replace	NA	8, 10	10, 12	683	\$200,399	\$250,499	
	6	Camino Real and Santa Anita Ave. (East Side of Street)	Replace	NA	8	10	1,568	\$454,816	\$568,520	
	7	Old Ranch Rd. north of Huntington Dr. and Huntington Dr. (South Side of Street)	Replace	NA	8, 10	10, 12	2,861	\$837,047	\$1,046,309	
	8	Lower Azusa Rd. East of Durfee Ave.	Replace	NA	–	–	–	\$8,000	\$10,000	
							Subtotal	8,612	\$2,515,220	\$3,144,025
2	9	Hyland Ave. and Orange Grove Ave.	Clean and line	NA	8	8	285	\$7,114	\$8,892	

10	Santa Anita Ave. and Perkins Dr.	Clean and line	NA	8	8	418	\$10,451	\$13,064
11	Foothill Blvd. east of Arbolada Dr.	Clean and line	NA	8	8	240	\$5,989	\$7,486
12	Altura Ter. South of Colorado Blvd.	Clean and line	NA	8	8	189	\$4,727	\$5,908
13	Oakview Ln. south of Grandview Ave.	Clean and line	NA	8	8	422	\$10,544	\$13,180
14	Rancho Rd. north of Foothill Blvd.	Clean and line	NA	8	8	2,009	\$50,227	\$62,784
15	Hacienda Dr. and Rancho Rd.	Clean and line	NA	8	8	685	\$17,127	\$21,408
16	Rancho Rd. south of Foothill Blvd.	Clean and line	NA	8	8	553	\$13,827	\$17,283
17	El Vista Circle south of Santa Anita Ave.	Clean and line	NA	8	8	416	\$10,411	\$13,014
18	Highland Oaks Dr. south of Doshier Ave.	Clean and line	Fracture	8	8	357	\$8,930	\$11,162
19	San Carlos Rd. and Foothill Blvd.	Clean and line	NA	8	8	654	\$16,360	\$20,449
20	Foothill Blvd. and Baldwin Ave.	Clean and line	Fracture	8	8	153	\$3,830	\$4,788
21	Foothill Blvd east of Santa Anita Ave.	Clean and line	NA	8, 10	8, 10	399	\$19,608	\$24,510
22	2nd Ave. and Floral Ave.	Clean and line	NA	8	8	418	\$10,451	\$13,063
23	6th Ave. and Live Oak Ave.	Clean and line	NA	8, 10	8, 10	394	\$13,174	\$16,468
24	6th Ave. and Camino Real Ave.	Clean and line	NA	8	8	369	\$9,227	\$11,533
25	10th Ave. and El Sur Ave.	Clean and line	NA	8	8	1,008	\$25,193	\$31,491
26	10th Ave. and Camino Real Ave.	Clean and line	NA	8	8	396	\$9,902	\$12,377

27	La Cadena Ave. north of Duarte Rd.	Clean and line	NA	8	8	400	\$10,001	\$12,501
28	Alley north of Foothill Blvd. west of Highland Oaks Dr.	Clean and line	NA	8	8	218	\$5,438	\$6,797
29	Cambridge Dr. and Baldwin Ave.	Clean and line	NA	8	8	414	\$10,340	\$12,925
30	Arboretum	Clean and line	NA	8	8	590	\$14,757	\$18,446
31	Duarte Rd. and Golden West Ave.	Clean and line	NA	8	8	420	\$10,505	\$13,132
32	Canyon Rd. and Cielo Pl.	Clean and line	NA	8	8	252	\$6,309	\$7,886
33	Duarte Rd. and 5th Ave.	Replace	NA	8, 10	10, 12	989	\$291,761	\$364,702
34	Old Ranch Rd. north of Victoria Dr.	Replace	NA	8, 10	10, 12	2,220	\$663,119	\$828,899
35	2nd Ave. from Huntington Dr. to Fano St.	Replace	NA	8	10	2,441	\$707,833	\$884,792
36	First Ave. between Foothill Blvd. and Colorado Blvd.	Replace	NA	8	10	1,635	\$474,266	\$592,833
37	2nd Ave. from E. La Sierra Dr. to E. Camino Real Ave.	Replace	NA	8	10	1,648	\$477,926	\$597,408
38	5th Ave. north of Huntington Dr.	Replace	NA	8	10	2,173	\$630,299	\$787,873
39	Huntington Dr. at 2nd Ave.	Replace	NA	8	10	15	\$4,267	\$5,334
40	2nd Ave. from Duarte Rd. to E. La Sierra Dr.	Replace	NA	8	10	1,415	\$410,429	\$513,036
41	Santa Anita Ave. south of Huntington Dr.	Replace	NA	8	10	950	\$275,378	\$344,223

	42	2nd Ave. from Genoa St. to Alice St.	Replace	NA	8	10	337	\$97,741	\$122,177	
							Subtotal	25,483	\$4,337,459	\$5,421,824
							Total	34,095	\$ 6,852,679	\$ 8,565,849

⁴As determined from CCTV Inspection Structural Grade Reports from 2014-2020

6.5 MISCELLANEOUS MAINTENANCE PROJECTS

In addition to the capital improvement projects listed and prioritized, maintenance staff have identified various issues inhibiting their ability to properly clean and maintain City sewer pipelines. Hard to access sewer easements located in the back of residential properties have made it difficult or impossible to service sewer lines. There are two areas in particular where this occurs that affect the cleaning of thousands of feet of pipeline. These areas are referred to as the Foothill Easement, the Highland Oaks Easement, and the Orange Grove Easement. Access to each sewer manhole along these easements varies by particular layout of the private residence which it resides, and thus project scope and budget is not easily quantifiable and has not been included in the CIP list. These easement access issues are further discussed in Chapter 7.

CHAPTER 7. – OPERATIONS AND MAINTENANCE

The City’s current O&M practices were evaluated, and potential improvements are identified in this Chapter. O&M practices include sewer cleaning and CCTV inspection.

7.1 Evaluation of Sewer Cleaning Schedules

The City currently performs routine sewer maintenance based on a list of “Hot Spots”, which was identified by field personnel as requiring frequent maintenance. Those areas identified as 30-day, 60-day, and 180-day hot spots are listed in Table 7-1. The remainder of the system is cleaned every 18 months, or as needed.

Table 7-1
List of “Hot Spots”

30 Day Hotspots	Manhole Numbers
Siphon at Foothill Blvd. and West Branch Arcadia Wash	306MH010 - 306MH011
Siphon at Colorado Place and East Branch Arcadia Wash	507MH082 - 507MH083
Siphon at Huntington Drive and West Branch Arcadia Wash (285 W. Huntington Dr.)	409MH006 - 409MH007
Siphon at Huntington Drive and East Branch Arcadia Wash	508MH015 - 508MH016
60 Day Hotspots	Manhole Numbers
Highland Oaks Dr.	605MH003 - 604MH018
Old Credit Union	608MH005 - 508MH035
Live Oak Ave. / 2nd Ave.	614MH009 - 614MH007
Alta Alley	608MH014 - 614MH011
Second Ave. / Floral Alley	606MH035 - 606MH034
Highland Oaks Dr. / N. Foothill Blvd.	606MH004 - 506MH048

Duarte Rd. / Golden West Ave.	210MH028 310MH017	-
La Cadena Ave.	310MH037 310MH038	-
180 Day Hotspots	Manhole Numbers	
Hyland Ave. and Orange Grove Ave.	505MH007- 505MH006	
Perkins Dr. and Santa Anita Ave.	504MH029- 504MH051	
Fallen Leaf Rd. S/O Hampton Rd.	305MH011- 306MH004	
Foothill Blvd. E/O Arbolada Dr.	406MH007- 406MH006	
Altura Ter. S/O Colorado Blvd.	206MH054- 206MH056	
Oakview Ln. S/O Grandview Ave.	503MH010- 503MH007	
Rancho Rd. N/O Foothill Blvd.	405MH031- 506MH004	
Hacienda Dr. and Rancho Rd.	505MH020- 405MH029	
Rancho Rd. at Easement	506MH008- 506MH006	
El Vista Circle S/O Santa Anita Ave.	504MH040- 504MH043	
Highland Oaks Dr. S/O Doshier Ave.	604MH014- 604MH015	
San Carlos Rd. and Foothill Blvd.	405MH012- 405MH014	
Foothill Ave. and Baldwin Ave.	300MH014- 300MH016	
Foothill Ave. E/O Santa Anita Ave.	506MH049- 606MH076	
Foothill Blvd. W/O N. 2nd Ave.	606MH026- 606MH028	

2nd Ave. and Floral Alley	606MH034- 606MH035
Longden Ave. and Bella Vista Ave.	412MH017- 312MH055
Rosemarie Dr. and Holly Ave.	413MH010- 413MH006
Camino Real Dr. W/O Santa Anita Ave.	511MH056- 511MH046
Naomi Ave. and Holly Ave.	411MH004- 411MH002
Sixth Ave. and Live Oak Ave.	713MH030- 713MH024
Baldwin Ave. S/O Duarte Rd.	311MH023- 311MH026
East Side of Baldwin Ave. and Norman Ave.	311MH060- 311MH059
Sixth Ave. and Camino Real Ave.	711MH007- 711MH011
Eighth Ave. and Camino Real Ave.	711MH027- 711MH020
Eighth Ave. S/O Duarte Rd.	710MH022- 710MH023
Tenth Ave. and El Sur Ave.	710MH052- 710MH053
Tenth Ave. and Camino Real Dr.	711MH047- 711MH049
2nd Ave. and Camino Real Dr.	611MH019- 611MH021
La Cadena Ave. N/O Duarte Rd.	31MH037-310MH038
Wheeler Ave. at Post Office	508MH033- 608MH003
Fifth Ave. and Huntington Dr.	606MH008- 606MH063
Arcadia Ave. W/O Baldwin Dr.	210MH007- 210MH011

Duarte Rd. E/O 1st Ave.	610MH006- 610MH003
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7.2 Maintenance Needs Identified

7.2.1 Summary

The following are suggested needs identified to improve operation and maintenance productivity of the City Staff:

- Improve easement access and access to manholes at three main areas at the north of the City, and described in 7.2.2 below:
- Improve communication systems between maintenance staff with City provided communication equipment.

7.2.2 Easement Access

Staff has identified 3 main areas in the northern portion of the City where access to sewer manholes is limited. These areas are as follows:

1. The Foothill Easement from Michillinda Ave. to Baldwin Ave.
2. The Highland Oaks Easement north of Elkins Ave.
3. The Orange Grove Easement

These spans of sewer pipeline are located within easements that run in back of residences and are accessed only by communicating and negotiating access through private property with the property owners. Access to the sewer system within these easements is limited to only a few pre-negotiated locations, and cleaning of these lines either cannot be performed to best practices or cannot be performed at all. In most cases, there is no access to the downstream manholes for these spans, and cleaning must be performed from upstream manholes, risking potential surcharge to residences when cleaning lines are retracted and pulled upstream in the direction of service laterals.

It is recommended that the City establish open lines of communications to additional property owners, especially those owners that can provide access to allow for downstream cleaning. As an added measure of reliable access, the City could also negotiate with property owners at strategic locations for an access easement.

7.2.3 Staff Communications Equipment

During discussion with maintenance staff, crews are currently using personal cell phones as primary means of communication. City provided work cell phones are recommended to improve communication between staff. City provided work cell phones would also aid in reaching standby crew during after-hours in the event of an SSO.

7.3 Maintenance and Inspection Program Recommendations

7.3.1 Staff Education

The certification for Wastewater Operators in California is governed by the California EPA – State Water Resources Control Board. Their Operator Certification Division is accessible at https://www.waterboards.ca.gov/water_issues/programs/operator_certification/operator_certification.html. Many California universities and colleges teach wastewater operator qualifying courses. Office of Water Programs at California State University Sacramento offers home-study courses in wastewater operation and related areas. These are excellent, easily accessible correspondence courses. These training courses for sewer system maintenance leaders outline the elements of basic maintenance management programs and provide information on scheduling routine operations, setting and tracking performance goals, and defining equipment needs. These courses are sometimes sponsored by the Water Environment Federation. This type of course would provide the Sanitary Sewer Unit Crew Chief with the general guidelines with which to structure a long-term program. Opportunities for the Sanitary Sewer Unit Crew Chief to participate in training programs that will improve maintenance techniques and efficiency are recommended.

7.3.2 Routine Maintenance and Prevention

Routine preventative maintenance measures can reduce emergency activities and improve the level of customer service. However, excessive preventative maintenance may not be cost-effective. The following topics discuss recommendations for pipe cleaning activities, root prevention programs, grease prevention program, and continuation of CCTV pipe inspections.

Pipe Cleaning

The City currently cleans its entire system on a cycle of 1 year. The City has identified a number of sections of sewer requiring that have presented problems in the past and therefore been placed on a more frequent cleaning interval. These problem sections are cleaned on a 30- to 120-day cycle, depending on the severity of the problem.

Root Control Program

Root intrusion occurs when tree roots infiltrate the pipe system. This typically occurs at pipe joints. The infiltrated roots then block flows and can cause overflows or create leaks in the sewer pipe allowing wastewater to infiltrate to soils and eventually the groundwater. In the worst cases, roots can cause a deterioration of the pipes even to the point of causing them to collapse. There are certain tree species that are prone to attack the pipes in this manner, such as oak, fig, and birch.

To prevent root intrusion, it is recommended that the City encourage the residents to plant tree species or shrubs that have shorter root systems and are less likely to cause root intrusion. Cedar, cypress, and juniper are a few examples of tree species with shorter root systems. For areas that have already have aggressive trees that cannot be removed, installation of pipe without joints can mitigate root intrusion by not providing any pipe joints for the roots to take advantage of.

Fats, Oils, and Grease (FOG) Control Programs

The City of Arcadia is responsible for assuring that all residents, restaurants, and commercial establishments within the City boundaries are well informed and aware of the harm of fats, oils, and grease (FOG) in the sewer system and that they effectively implement devices and follow procedures to properly dispose of FOG. FOG accumulated in the sewer system limits flow capacity in the sanitary sewer system and can create an overflow. Therefore, the City of Arcadia has made great efforts and continues to educate restaurants, residents and other commercial establishments about the proper disposal of grease through handouts.

The predominant problem in the City of Arcadia's sanitary sewer system is the blockages caused by the protruding roots and accumulation of grease on the roots. Grease that accumulates on the roots causes blockages that result in sewage back-ups and overflows. To eliminate sewage backups and overflows due to FOG, the City of Arcadia does the following:

- Educates restaurants and the public with handouts and inserts on proper disposal of (FOG) and preventative maintenance techniques along with best management practices.
- Contract with John L Hunter and Associates, Inc. for environmental services to assist the City to manage the Industrial Waste Program. John L Hunter and Associates, Inc. assists the City in having restaurants obtain and renew industrial waste permits, install proper devices to safeguard the sewer system, and conduct annual inspections.
- Created the legal authority (Chapter 4 and Chapter 10 of the municipal code) for FOG control which applies to all residential and non-residential facilities.
- Continues the usage of high-pressured jet cleaning for cleaning roots with accumulated grease.

To reduce the impacts of grease in the system, commercial and industrial users that utilize grease interceptors should continue to be inspected for conformance with their discharge requirements. Grease interceptors in the City of Arcadia must be of adequate size to prevent grease from entering the sewer. The size and the design must be approved by the City Engineer. Additionally, the grease interceptors are required to be cleaned properly to ensure its effectiveness.

Since households often flush grease into the sewer, it is recommended that a program be developed to educate households on proper disposal of grease. These programs could be done by including an instruction guide in a newsletter, distributing flyers, and advertising on store receipts. By incorporating these programs, the public will recognize that grease should be disposed as a solid waste, rather than flushed down the drain.

CCTV Video Inspection

It is recommended that the City continue to set goals of inspecting their system using CCTV video equipment. The highest priority for inspection should be given to pipes that are most susceptible to blockage and that could cause the greatest impacts upon failure.

7.3.3 Equipment

CCTV Truck

The City's Sewer System Management Plan requires a condition assessment plan for all sewer mainlines to identify and prioritize system deficiencies. Condition assessment is completed using a CCTV truck equipped with cameras mounted on a robot crawler that relays live footage to a monitor in the truck that is recorded. CCTV truck services have been contracted out in the past, however, purchasing a CCTV truck and training City staff in its use would allow the City to self-perform this work thereby saving a portion of the City's budget and increasing staff flexibility in its execution.

Flow Monitoring SmartCovers

The City utilizes SmartCover flow monitoring equipment for monitoring hotspots and frequent problem areas within the system. SmartCover monitoring units are level indicating devices that are installed at the sewer manhole under the manhole lids to measure the flow level within the channel below. Level measurements can be converted to an estimated flow quantity through a simple engineering equation when slope, material, and channel size parameters are known. Real time data from these units are accessible online and through mobile devices and can be programmed with alarm levels to notify the utilities superintendent of high flow levels. Early notification of high flow levels is an effective means to preventing SSO's. The City currently owns 7 SmartCover units that are deployed at strategic locations throughout the City. The City should continue to utilize SmartCover flow monitors and purchase additional monitors on an as-needed basis.

7.3.4 Recordkeeping

Record keeping practices are generally adequate for the current operations of the City's Public Works Services Department.

SSO Reporting

If an SSO occurs, it must be reported to the SWRCB using an online reporting system developed by the SWRCB

7.4 Cleaning Crew Assessment

The current field staff distribution is approximately 80 percent for sewer collection system maintenance and 20 percent for storm drain maintenance. When cleaning sewers, a three-man crew is required for streets with heavy traffic and a two-man crew is required for quiet side-streets. When only a two-man crew is required, the third member conducts storm drain cleaning, sewer manhole inspections, easement line inspections, or similar work.

Based on a 40-hour work week and three weeks of vacation, each crew has approximately 1,500 hours to delegate to sewer system maintenance. This is less than the estimated 1,605 hours for the 2-year schedule but conducting this work with the current staff may be possible depending on the mix of tasks requiring a two-man crew versus a three-man crew.

7.5 Summary of Recommendations

The following recommendations were described above and are summarized for the City for its consideration to refine maintenance activities and to provide appropriate information for CMOM requirements.

- Reaffirm the existing outreach program armed with the information confirmed in this Master Plan to educate users about capturing (and possibly treating) grease before it enters the sewer. Introduce grease traps to restaurants and continue to inspect regularly.
- Recommend purchase of CCTV truck and training City staff in its use to allow the City to self-perform work, saving portions of the City's budget and increasing staff flexibility in its execution.
- Provide equipment to provide staff internal communications. City provided work cell phones would aid in reaching standby crew during after-hours in the event of an SSO.
- Improve easement access at 3 northern areas of the City as described. Develop reliable lines of communication with residences and/or negotiate access easements through residences at strategic locations for access to sewer lines.

Appendix A.

Capital Improvement Projects

Project	ID	From MH ID	To MH ID	Location	Recommendation	Existing Pipe Size (in)	Replacement Size (in)	Length (ft)	d/c ¹	Year Installed	Material	Deficiency Type	Unit Cost (\$/ft)	Construction Cost	
1	513A4052_513A4050	513A4050	513A4051	Santa Anita Ave. South of Palm Dr.	Replace	8	10	288	0.586	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 83,664	
	513A4053_513A4055	513A4053	513A4055	Santa Anita Ave. South of Palm Dr.	Replace	8	10	246	0.591	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 71,223	
	513A4054_513A4056	513A4054	513A4056	Santa Anita Ave. South of Palm Dr.	Replace	8	10	37	0.594	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 10,730	
	513A4055_513A4070	513A4056	513A4070	Santa Anita Ave. South of Palm Dr.	Replace	8	10	282	0.595	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 81,547	
	513A4070_513A4029	513A4070	513A4029	Santa Anita Ave. South of Palm Dr.	Replace	8	10	383	0.688	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 110,962	
	513A4029_513A4052	513A4029	513A4052	Santa Anita Ave. South of Palm Dr.	Replace	8	10	392	0.712	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 113,697	
	513A4052_513A4053	513A4052	513A4053	Santa Anita Ave. South of Palm Dr.	Replace	8	10	63	1	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 18,399	
							Total Length	1691							Subtotal \$ 490,320
								10	344	0.506	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 98,632
								10	354	0.508	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 102,685
						Total Length	698							Subtotal \$ 202,316	
2	603A4027_603A4029	603A4027	603A4029	Elms Ave. and Highland Oaks Dr.	Replace	8	10	39	0.511	1952	VCP	Hydraulic Model / Wet Spot (Block B Grease)	\$ 290	\$ 11,418	
	603A4028_603A4030	603A4028	603A4030	Elms Ave. and Highland Oaks Dr.	Replace	8	10	103	0.513	1952	VCP	Hydraulic Model / Wet Spot (Block B Grease)	\$ 290	\$ 29,856	
						Total Length	142							Subtotal \$ 41,274	
4	603A4008_603A4009	603A4008	603A4009	Highland Oaks Dr. between E. Orange Grove Ave. and E. Sycamore Ave.	Replace	8	10	290	0.537	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 84,111	
	603A4009_603A4010	603A4009	603A4010	Highland Oaks Dr. between E. Orange Grove Ave. and E. Sycamore Ave.	Replace	8	10	251	0.54	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 72,803	
	603A4010_603A4012	603A4010	603A4012	Highland Oaks Dr. between E. Orange Grove Ave. and E. Sycamore Ave.	Replace	8	10	428	0.743	1949	VCP	Hydraulic Model / Potential SSO / CCTV Structural Defect	\$ 290	\$ 124,134	
							Total Length	969							Subtotal \$ 281,047
5	607A4002_607A4008	607A4002	607A4008	Salamancas Pt. at San Juan Dr.	Replace	8	10	177	0.67	1949	VCP	Hydraulic Model / CCTV Structural Defect	\$ 290	\$ 51,367	
	607A4008_607A4002	607A4008	607A4002	Salamancas Pt. at San Juan Dr.	Replace	8	10	264	0.689	1949	VCP	Hydraulic Model / CCTV Structural Defect	\$ 290	\$ 76,547	
	608A4001_608A4002	608A4001	608A4002	Salamancas Pt. at San Juan Dr.	Replace	10	12	242	0.535	1949	VCP	Hydraulic Model / CCTV Structural Defect	\$ 300	\$ 72,485	
							Total Length	683							Subtotal \$ 200,399
6	511A4071_511A4073	511A4071	511A4073	Carroll Road and Santa Anita Ave.	Replace	8	10	279	0.562	1949	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 80,942	
	511A4073_511A4072	511A4073	511A4072	Carroll Road and Santa Anita Ave.	Replace	8	10	369	0.565	1949	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 107,037	
	511A4072_511A4073	511A4072	511A4073	Carroll Road and Santa Anita Ave.	Replace	8	10	315	0.537	1949	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 91,213	
	511A4073_511A4074	511A4073	511A4074	Carroll Road and Santa Anita Ave.	Replace	8	10	300	1	1949	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 86,874	
	511A4074_511A4073	511A4074	511A4073	Carroll Road and Santa Anita Ave.	Replace	8	10	306	1	1949	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 88,750	
						Total Length	1568							Subtotal \$ 484,816	
7	309A4021_309A4026	309A4021	309A4026	Old Ranch Rd. north of Huntington Dr.	Replace	10	12	243	0.572	1949	VCP	Hydraulic Model / Potential SSO	\$ 300	\$ 72,921	
	309A4026_309A4027	309A4026	309A4027	Old Ranch Rd. north of Huntington Dr.	Replace	10	12	244	0.637	1949	VCP	Hydraulic Model / Potential SSO	\$ 300	\$ 73,057	
	309A4027_309A4022	309A4027	309A4022	Old Ranch Rd. north of Huntington Dr.	Replace	10	12	244	0.642	1949	VCP	Hydraulic Model / Potential SSO	\$ 300	\$ 73,121	
	309A4022_309A4024	309A4022	309A4024	Old Ranch Rd. north of Huntington Dr.	Replace	8	10	135	0.8	1982	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 39,274	
	309A4024_309A4024	309A4024	309A4024	Old Ranch Rd. north of Huntington Dr.	Replace	8	10	444	0.616	1982	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 128,871	
	309A4024_309A4025	309A4024	309A4025	Old Ranch Rd. north of Huntington Dr.	Replace	8	10	279	0.525	1949	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 80,994	
	309A4025_309A4026	309A4025	309A4026	Old Ranch Rd. north of Huntington Dr.	Replace	8	10	270	0.554	1949	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 78,240	
	309A4026_309A4027	309A4026	309A4027	Old Ranch Rd. north of Huntington Dr.	Replace	8	10	359	0.57	1949	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 104,130	
	309A4027_309A4028	309A4027	309A4028	Old Ranch Rd. north of Huntington Dr.	Replace	8	10	303	0.585	1949	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 87,966	
	309A4028_609A4011	309A4028	609A4011	Old Ranch Rd. north of Huntington Dr.	Replace	8	10	340	0.61	1949	VCP	Hydraulic Model / Potential SSO	\$ 290	\$ 98,473	
							Total Length	2861							Subtotal \$ 837,047
	8	617A4001	--	--	Lower Access Rd. East of Durbin Ave.	--	--	--	--	--	--	--	Block Wet Spot (Block B Grease)	\$ --	\$ 0,000
														Subtotal \$ 0,000	
													Total \$ 2,515,220		

¹c/d based on existing pipe sizes modeled under existing demand conditions

Capital Improvement Projects

Priority 2

Project	ID	From MH ID	To MH ID	Location	Recommendation	Existing Pipe Size (In)	Replacement Size (In)	Length (ft)	d/D ¹	Year Installed	Material	Deficiency Type	Unit Cost (\$/ft.)	Construction Cost												
9	505AH006_505MH007	505AH006	505MH007	Hyland Ave. and Orange Grove Ave.	Clean and Line	8	8	285	0.111	1948	VCP	Hotspot (Roots)	\$ 25	\$ 7,114												
								Total Length						285	\$ 7,114											
10	504AH029_504MH030	504MH029	504MH030	Santa Anita Ave. and Parkins Dr.	Clean and Line	8	8	71	0.152	1948	VCP	Hotspot (Roots)	\$ 25	\$ 1,787												
								Total Length						71	\$ 1,787											
10	504AH030_504MH031	504MH030	504MH031	Santa Anita Ave. and Parkins Dr.	Clean and Line	8	8	347	0.202	1948	VCP	Hotspot (Roots)	\$ 25	\$ 8,664												
								Total Length						418	\$ 10,451											
11	406AH006_406MH007	406AH006	406MH007	Foothill Blvd. east of Arbolada Dr.	Clean and Line	8	8	240	0.332	1949	VCP	Hotspot (Roots)	\$ 25	\$ 5,989												
								Total Length						240	\$ 5,989											
11	206AH054_206MH056	206AH054	206MH056	Altura Ter. South of Colorado Blvd.	Clean and Line	8	8	189	0.111	1975	VCP	Hotspot (Roots)	\$ 25	\$ 4,727												
								Total Length						189	\$ 4,727											
13	503AH007_503MH008	503AH007	503MH008	Oakview Ln. south of Grandview Ave.	Clean and Line	8	8	39	0.045	1949	VCP	Hotspot (Roots)	\$ 25	\$ 987												
								Total Length						39	\$ 987											
								Total Length						39	\$ 987											
13	503AH008_503MH009	503AH008	503MH009	Oakview Ln. south of Grandview Ave.	Clean and Line	8	8	246	0.094	1949	VCP	Hotspot (Roots)	\$ 25	\$ 6,144												
								Total Length						246	\$ 6,144											
								Total Length						246	\$ 6,144											
13	503AH009_503MH010	503AH009	503MH010	Oakview Ln. south of Grandview Ave.	Clean and Line	8	8	137	0.100	1949	VCP	Hotspot (Roots)	\$ 25	\$ 3,413												
								Total Length						137	\$ 3,413											
								Total Length						422	\$ 10,544											
14	405AH031_405MH032	405AH031	405MH032	Rancho Rd. north of Foothill Blvd.	Clean and Line	8	8	340	0.043	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 8,512												
								Total Length						340	\$ 8,512											
								405AH032_405MH033						405AH032	405MH033	Rancho Rd. north of Foothill Blvd.	Clean and Line	8	8	262	0.208	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 6,539
																				Total Length						262
								405AH033_405MH034						405AH033	405MH034	Rancho Rd. north of Foothill Blvd.	Clean and Line	8	8	242	0.213	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 6,052
																				Total Length						242
								405AH034_405MH035						405AH034	405MH035	Rancho Rd. north of Foothill Blvd.	Clean and Line	8	8	293	0.147	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 7,329
																				Total Length						293
								405AH035_405MH036						405AH035	405MH036	Rancho Rd. north of Foothill Blvd.	Clean and Line	8	8	330	0.151	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 8,252
																				Total Length						330
506AH002_506MH003	506AH002	506MH003	Rancho Rd. north of Foothill Blvd.	Clean and Line	8	8	341	0.151	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 8,525													
							Total Length						341	\$ 8,525												
506AH002_506MH004	506AH002	506MH004	Rancho Rd. north of Foothill Blvd.	Clean and Line	8	8	201	0.172	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 5,018													
							Total Length						201	\$ 5,018												
15	405AH029_405MH033	405AH029	405MH033	Nacoles Dr. and Rancho Rd.	Clean and Line	8	8	382	0.104	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 9,562												
								Total Length						382	\$ 9,562											
15	506AH030_506MH032	506AH030	506MH032	Nacoles Dr. and Rancho Rd.	Clean and Line	8	8	303	0.051	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 7,565												
								Total Length						685	\$ 17,127											
16	506AH006_506MH007	506AH006	506MH007	Rancho Rd. south of Foothill Blvd.	Clean and Line	8	8	228	0.365	1949	VCP	Hotspot (Roots)	\$ 25	\$ 5,705												
								Total Length						228	\$ 5,705											
16	506AH007_506MH008	506AH007	506MH008	Rancho Rd. south of Foothill Blvd.	Clean and Line	8	8	325	0.374	1949	VCP	Hotspot (Roots)	\$ 25	\$ 8,122												
								Total Length						553	\$ 13,827											
17	504MH040_504MH041	504MH040	504MH041	El Vista Circle south of Santa Anita Ave.	Clean and Line	8	8	193	0.056	1950	VCP	Hotspot (Roots)	\$ 25	\$ 4,819												
								Total Length						193	\$ 4,819											
17	504MH041_504MH043	504MH041	504MH043	El Vista Circle south of Santa Anita Ave.	Clean and Line	8	8	224	0.094	1950	VCP	Hotspot (Roots)	\$ 25	\$ 5,593												
								Total Length						416	\$ 10,411											
18	604MH05_604MH05	604MH05	604MH05	Highland Oaks Dr. south of Doshier Ave.	Clean and Line	8	8	357	0.332	1956	VCP	Hotspot (Roots)	\$ 25	\$ 8,930												
								Total Length						357	\$ 8,930											
19	405MH012_405MH013	405MH012	405MH013	San Carlos Rd. and Foothill Blvd.	Clean and Line	8	8	336	0.071	1956	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 8,396												
								Total Length						336	\$ 8,396											
								405MH013_405MH014						405MH013	405MH014	San Carlos Rd. and Foothill Blvd.	Clean and Line	8	8	319	0.081	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 7,964
Total Length	654	\$ 16,360																								
20	306MH04_306MH05	306MH04	306MH05	Foothill Blvd. and Baldwin Ave.	Clean and Line	8	8	65	0.376	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 1,627												
								Total Length						65	\$ 1,627											
20	306MH05_306MH06	306MH05	306MH06	Foothill Blvd. and Baldwin Ave.	Clean and Line	8	8	88	0.376	1949	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 2,204												
								Total Length						153	\$ 3,830											
21	606AH04B_606MH008	606AH04B	606MH008	Foothill Blvd east of Santa Anita Ave.	Clean and Line	8	8	377	0.091	1949	VCP	Hotspot (Roots)	\$ 25	\$ 9,427												
								Total Length						377	\$ 9,427											
								606AH07_606MH006						606AH07	606MH006	Foothill Blvd east of Santa Anita Ave.	Clean and Line	8	8	380	0.119	1949	VCP	Hotspot (Roots)	\$ 25	\$ 9,501
Total Length	380	\$ 9,501																								
21	606AH08B_606MH076	606AH08B	606MH076	Foothill Blvd east of Santa Anita Ave.	Clean and Line	10	10	19	0	1998	VCP	Hotspot (Roots)	\$ 25	\$ 486												
								Total Length						399	\$ 19,414											
22	606AH03A_606MH033	606AH03A	606MH033	2nd Ave. and Floral Ave.	Clean and Line	8	8	418	0.045	1949	VCP	Hotspot (Roots)	\$ 25	\$ 10,451												
								Total Length						418	\$ 10,451											
23	713MH02A_713MH021	713MH02A	713MH021	6th Ave. and Live Oak Ave.	Clean and Line	10	10	333	0.054	1986	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 8,315												
								Total Length						333	\$ 8,315											
23	713MH030_713MH027	713MH030	713MH027	6th Ave. and Live Oak Ave.	Clean and Line	8	8	61	0.145	1948	VCP	Hotspot (Roots & Grease)	\$ 25	\$ 1,533												
								Total Length						394	\$ 9,848											
24	711MH007_711MH011	711MH007	711MH011	6th Ave. and Camino Real Ave.	Clean and Line	8	8	369	0.244	1949	VCP	Hotspot (Roots)	\$ 25	\$ 9,227												
								Total Length						369	\$ 9,227											

25	710MH052_710MH053	710MH052	710MH053	10th Ave. and El Sur Ave.	Clean and Line	8	8	370	0.126	1949	VCP	Hotspot (Roots & Grease)	\$	25	\$	9,239					
	710MH053_710MH054	710MH053	710MH054	10th Ave. and El Sur Ave.	Clean and Line	8	8	334	0.305	1949	VCP	Hotspot (Roots & Grease)	\$	25	\$	8,352					
	710MH054_710MH055	710MH054	710MH055	10th Ave. and El Sur Ave.	Clean and Line	8	8	304	0.314	1949	VCP	Hotspot (Roots & Grease)	\$	25	\$	7,601					
								Total Length								Subtotal	\$	25	\$	25,193	
26	711MH047_711MH049	711MH047	711MH049	10th Ave. and Camino Real Ave.	Clean and Line	8	8	396	0.384	1949	VCP	Hotspot (Roots & Grease)	\$	25	\$	9,902					
									Total Length								Subtotal	\$	25	\$	9,902
27	310MH037_310MH038	310MH037	310MH038	La Cadena Ave. north of Duarte Rd.	Clean and Line	8	8	400	0.1	1949	VCP	Hotspot (Roots)	\$	25	\$	10,001					
									Total Length								Subtotal	\$	25	\$	10,001
28	606MH003_606MH004	606MH003	606MH004	Alley north of Franklin Street, west of Highland Oaks Dr.	Clean and Line	8	8	218	0.288	1949	VCP	Hotspot (Roots & Grease)	\$	25	\$	5,438					
									Total Length								Subtotal	\$	25	\$	5,438
29	407MH005_407MH006	407MH005	407MH006	Cambridge Dr. and Baldwin Ave.	Clean and Line	8	8	173	0.093	1956	VCP	Hotspot (Roots & Grease)	\$	25	\$	4,330					
	407MH006_407MH007	407MH006	407MH007	Cambridge Dr. and Baldwin Ave.	Clean and Line	8	8	240	0.085	1956	VCP	Hotspot (Roots & Grease)	\$	25	\$	6,010					
									Total Length								Subtotal	\$	25	\$	10,340
30	307MH024_307MH023	307MH024	307MH023	Arboretum	Clean and Line	8	8	289	0.176	1949	Conc.	Hotspot (Roots & Grease)	\$	25	\$	7,220					
	307MH023_307MH024	307MH023	307MH024	Arboretum	Clean and Line	8	8	301	0.178	1949	Conc.	Hotspot (Roots & Grease)	\$	25	\$	7,537					
									Total Length								Subtotal	\$	25	\$	14,757
31	210MH028_310MH017	210MH028	310MH017	Duarte Rd. and Golden West Ave.	Clean and Line	8	8	420	0.294	1949	VCP	Hotspot (Roots & Grease)	\$	25	\$	10,505					
									Total Length								Subtotal	\$	25	\$	10,505
32	602MH005_602MH006	602MH005	602MH006	Canyon Rd. and Cleo Pl.	Clean and Line	8	8	138	0.074	1958	VCP	Hotspot (Roots)	\$	25	\$	3,442					
	602MH006_602MH007	602MH006	602MH007	Canyon Rd. and Cleo Pl.	Clean and Line	8	8	115	0.078	1958	VCP	Hotspot (Roots)	\$	25	\$	2,868					
									Total Length								Subtotal	\$	25	\$	6,309
33	609MH052_609MH053	609MH052	609MH053	Duarte Rd. and 5th Ave.	Replace	8	10	252	0.501	1949	VCP	Hydraulic Model	\$	290	\$	72,943					
	609MH053_609MH054	609MH053	609MH054	Duarte Rd. and 5th Ave.	Replace	8	10	248	0.505	1949	VCP	Hydraulic Model	\$	290	\$	71,933					
	609MH054_609MH055	609MH054	609MH055	Duarte Rd. and 5th Ave.	Replace	10	12	250	0.655	1949	VCP	Hydraulic Model	\$	300	\$	74,919					
	609MH055_609MH056	609MH055	609MH056	Duarte Rd. and 5th Ave.	Replace	10	12	240	0.661	1949	VCP	Hydraulic Model	\$	300	\$	71,966					
									Total Length								Subtotal	\$	290	\$	291,761
34	308MH008_308MH007	308MH008	308MH007	Old Ranch Rd. north of Victoria Dr.	Replace	8	10	288	0.549	1949	VCP	Hydraulic Model	\$	290	\$	83,649					
	308MH007_308MH008	308MH007	308MH008	Old Ranch Rd. north of Victoria Dr.	Replace	10	12	458	0.550	1956	VCP	Hydraulic Model	\$	300	\$	137,319					
	308MH008_308MH009	308MH008	308MH009	Old Ranch Rd. north of Victoria Dr.	Replace	10	12	297	0.556	1956	VCP	Hydraulic Model	\$	300	\$	89,046					
	308MH009_308MH010	308MH009	308MH010	Old Ranch Rd. north of Victoria Dr.	Replace	10	12	202	0.639	1949	VCP	Hydraulic Model	\$	300	\$	60,457					
	308MH010_308MH011	308MH010	308MH011	Old Ranch Rd. north of Victoria Dr.	Replace	10	12	192	0.641	1949	VCP	Hydraulic Model	\$	300	\$	57,678					
	308MH011_308MH012	308MH011	308MH012	Old Ranch Rd. north of Victoria Dr.	Replace	10	12	395	0.650	1949	VCP	Hydraulic Model	\$	300	\$	118,649					
	308MH012_308MH008	308MH012	308MH008	Old Ranch Rd. north of Victoria Dr.	Replace	10	12	388	0.655	1949	VCP	Hydraulic Model	\$	300	\$	116,321					
								Total Length								Subtotal	\$	290	\$	663,119	
35	608MH034_608MH033	608MH034	608MH033	2nd Ave. from Huntington Dr. to Fawn St.	Replace	8	10	345	0.539	1949	VCP	Hydraulic Model	\$	290	\$	100,193					
	608MH033_608MH034	608MH033	608MH034	2nd Ave. from Huntington Dr. to Fawn St.	Replace	8	10	355	0.541	1949	VCP	Hydraulic Model	\$	290	\$	102,818					
	608MH034_608MH035	608MH034	608MH035	2nd Ave. from Huntington Dr. to Fawn St.	Replace	8	10	352	0.537	1949	VCP	Hydraulic Model	\$	290	\$	102,093					
	608MH035_608MH036	608MH035	608MH036	2nd Ave. from Huntington Dr. to Fawn St.	Replace	8	10	353	0.602	1949	VCP	Hydraulic Model	\$	290	\$	102,394					
	608MH036_608MH037	608MH036	608MH037	2nd Ave. from Huntington Dr. to Fawn St.	Replace	8	10	342	0.509	1949	VCP	Hydraulic Model	\$	290	\$	99,191					
	608MH037_608MH038	608MH037	608MH038	2nd Ave. from Huntington Dr. to Fawn St.	Replace	8	10	376	0.530	1949	VCP	Hydraulic Model	\$	290	\$	108,912					
	608MH038_608MH039	608MH038	608MH039	2nd Ave. from Huntington Dr. to Fawn St.	Replace	8	10	97	0.533	1949	VCP	Hydraulic Model	\$	290	\$	28,136					
	608MH039_608MH033	608MH039	608MH033	2nd Ave. from Huntington Dr. to Fawn St.	Replace	8	10	221	0.537	1949	VCP	Hydraulic Model	\$	290	\$	64,097					
									Total Length								Subtotal	\$	290	\$	707,833
	36	609MH004_609MH005	609MH004	609MH005	First Ave. between Foothill Blvd. and Colorado Blvd.	Replace	8	10	140	0.560	1949	VCP	Hydraulic Model	\$	290	\$	40,625				
609MH005_609MH006		609MH005	609MH006	First Ave. between Foothill Blvd. and Colorado Blvd.	Replace	8	10	79	0.556	1949	VCP	Hydraulic Model	\$	290	\$	22,909					
609MH006_609MH007		609MH006	609MH007	First Ave. between Foothill Blvd. and Colorado Blvd.	Replace	8	10	228	0.569	1949	VCP	Hydraulic Model	\$	290	\$	65,987					
609MH007_609MH008		609MH007	609MH008	First Ave. between Foothill Blvd. and Colorado Blvd.	Replace	8	10	236	0.571	1949	VCP	Hydraulic Model	\$	290	\$	68,309					
609MH008_609MH009		609MH008	609MH009	First Ave. between Foothill Blvd. and Colorado Blvd.	Replace	8	10	250	0.548	1991	VCP	Hydraulic Model	\$	290	\$	72,374					
609MH009_609MH010		609MH009	609MH010	First Ave. between Foothill Blvd. and Colorado Blvd.	Replace	8	10	241	0.553	1991	VCP	Hydraulic Model	\$	290	\$	68,892					
609MH010_609MH011		609MH010	609MH011	First Ave. between Foothill Blvd. and Colorado Blvd.	Replace	8	10	337	0.558	1949	VCP	Hydraulic Model	\$	290	\$	97,607					
609MH011_609MH012		609MH011	609MH012	First Ave. between Foothill Blvd. and Colorado Blvd.	Replace	8	10	126	0.632	1949	VCP	Hydraulic Model	\$	290	\$	36,563					
								Total Length								Subtotal	\$	290	\$	474,266	
37		610MH042_610MH041	610MH042	610MH041	2nd Ave. from E. La Sierra Dr. to E. Camino Real Ave.	Replace	8	10	60	0.538	1949	VCP	Hydraulic Model	\$	290	\$	17,342				
	610MH041_610MH040	610MH041	610MH040	2nd Ave. from E. La Sierra Dr. to E. Camino Real Ave.	Replace	8	10	190	0.541	1949	VCP	Hydraulic Model	\$	290	\$	54,956					

	610MH043_610MH045	610MH043	610MH045	2nd Ave. from E. La Sierra Dr. to E. Camino Real Ave.	Replace	8	10	82	0.541	1949	VCP	Hydraulic Model	\$	290	\$	23,642	
	610MH043_610MH047	610MH043	610MH047	2nd Ave. from E. La Sierra Dr. to E. Camino Real Ave.	Replace	8	10	39	0.543	1949	VCP	Hydraulic Model	\$	290	\$	11,455	
	610MH047_611MH017	610MH047	611MH017	2nd Ave. from E. La Sierra Dr. to E. Camino Real Ave.	Replace	8	10	217	0.546	1949	VCP	Hydraulic Model	\$	290	\$	62,787	
	611MH017_611MH018	611MH017	611MH018	2nd Ave. from E. La Sierra Dr. to E. Camino Real Ave.	Replace	8	10	365	0.604	1949	VCP	Hydraulic Model	\$	290	\$	105,874	
	611MH018_611MH019	611MH018	611MH019	2nd Ave. from E. La Sierra Dr. to E. Camino Real Ave.	Replace	8	10	250	0.558	1949	VCP	Hydraulic Model	\$	290	\$	72,504	
	611MH019_611MH020	611MH019	611MH020	2nd Ave. from E. La Sierra Dr. to E. Camino Real Ave.	Replace	8	10	89	0.575	1949	VCP	Hydraulic Model	\$	290	\$	25,816	
	611MH020_611MH021	611MH020	611MH021	2nd Ave. from E. La Sierra Dr. to E. Camino Real Ave.	Replace	8	10	357	0.577	1949	VCP	Hydraulic Model	\$	290	\$	103,551	
				Total Length				1648								Subtotal	\$ 477,926
	607MH046_607MH051	607MH046	607MH051	5th Ave. north of Huntington Dr.	Replace	8	10	355	0.566	1949	VCP	Hydraulic Model	\$	290	\$	102,974	
	607MH051_607MH053	607MH051	607MH053	5th Ave. north of Huntington Dr.	Replace	8	10	321	0.529	1949	VCP	Hydraulic Model	\$	290	\$	93,102	
	607MH053_607MH058	607MH053	607MH058	5th Ave. north of Huntington Dr.	Replace	8	10	301	0.528	1949	VCP	Hydraulic Model	\$	290	\$	87,316	
	607MH058_607MH059	607MH058	607MH059	5th Ave. north of Huntington Dr.	Replace	8	10	300	0.540	1949	VCP	Hydraulic Model	\$	290	\$	87,015	
	607MH059_607MH061	607MH059	607MH061	5th Ave. north of Huntington Dr.	Replace	8	10	266	0.544	1949	VCP	Hydraulic Model	\$	290	\$	77,010	
	607MH061_607MH062	607MH061	607MH062	5th Ave. north of Huntington Dr.	Replace	8	10	49	0.571	1949	VCP	Hydraulic Model	\$	290	\$	14,210	
	607MH062_608MH064	607MH062	608MH064	5th Ave. north of Huntington Dr.	Replace	8	10	242	0.576	1949	VCP	Hydraulic Model	\$	290	\$	70,051	
	608MH064_608MH063	608MH064	608MH063	5th Ave. north of Huntington Dr.	Replace	8	10	79	0.583	1949	VCP	Hydraulic Model	\$	290	\$	22,914	
	608MH063_608MH055	608MH063	608MH055	5th Ave. north of Huntington Dr.	Replace	8	10	106	0.587	1949	VCP	Hydraulic Model	\$	290	\$	30,754	
	608MH055_608MH056	608MH055	608MH056	5th Ave. north of Huntington Dr.	Replace	8	10	68	0.590	1949	VCP	Hydraulic Model	\$	290	\$	19,722	
	608MH056_608MH057	608MH056	608MH057	5th Ave. north of Huntington Dr.	Replace	8	10	87	0.592	1949	VCP	Hydraulic Model	\$	290	\$	25,231	
				Total Length				2178								Subtotal	\$ 630,299
	608MH027_608MH028	608MH027	608MH028	Huntington Dr. at 2nd Ave.	Replace	8	10	15	0.571	1983	VCP	Hydraulic Model	\$	290	\$	4,267	
				Total Length				15								Subtotal	\$ 4,267
	610MH029_610MH030	610MH029	610MH030	2nd Ave. from Duarte Rd. to E. La Sierra Dr.	Replace	8	10	358	0.537	1949	VCP	Hydraulic Model	\$	290	\$	103,696	
	610MH030_610MH031	610MH030	610MH031	2nd Ave. from Duarte Rd. to E. La Sierra Dr.	Replace	8	10	364	0.536	1949	VCP	Hydraulic Model	\$	290	\$	105,565	
	610MH031_610MH033	610MH031	610MH033	2nd Ave. from Duarte Rd. to E. La Sierra Dr.	Replace	8	10	152	0.547	1949	VCP	Hydraulic Model	\$	290	\$	43,958	
	610MH033_610MH034	610MH033	610MH034	2nd Ave. from Duarte Rd. to E. La Sierra Dr.	Replace	8	10	185	0.549	1949	VCP	Hydraulic Model	\$	290	\$	53,652	
	610MH034_610MH036	610MH034	610MH036	2nd Ave. from Duarte Rd. to E. La Sierra Dr.	Replace	8	10	48	0.507	1949	VCP	Hydraulic Model	\$	290	\$	13,787	
	610MH036_610MH038	610MH036	610MH038	2nd Ave. from Duarte Rd. to E. La Sierra Dr.	Replace	8	10	62	0.509	1949	VCP	Hydraulic Model	\$	290	\$	17,980	
	610MH038_610MH039	610MH038	610MH039	2nd Ave. from Duarte Rd. to E. La Sierra Dr.	Replace	8	10	248	0.511	1949	VCP	Hydraulic Model	\$	290	\$	71,792	
				Total Length				1415								Subtotal	\$ 410,429
	508MH028_508MH029	508MH028	508MH029	Santa Anita Ave. south of Huntington Dr.	Replace	8	10	306	0.533	1949	VCP	Hydraulic Model	\$	290	\$	88,603	
	508MH029_508MH030	508MH029	508MH030	Santa Anita Ave. south of Huntington Dr.	Replace	8	10	301	0.535	1949	VCP	Hydraulic Model	\$	290	\$	87,294	
	508MH030_508MH031	508MH030	508MH031	Santa Anita Ave. south of Huntington Dr.	Replace	8	10	343	0.538	1949	VCP	Hydraulic Model	\$	290	\$	99,481	
				Total Length				950								Subtotal	\$ 275,378
	609MH034_609MH035	609MH034	609MH035	2nd Ave. from Geneva St. to Alicia St.	Replace	8	10	337	0.523	1949	VCP	Hydraulic Model	\$	290	\$	97,741	
				Total Length				337								Subtotal	\$ 97,741
																Total	\$ 4,333,939

⁴/D based on existing pipe sizes modeled under existing demand conditions

Appendix B.

Technical Memorandum

Date: February 25, 2021

To: Eddie Chan

Cc: Michael Kwok

From: Ken Berard

Project: Arcadia Sewer Master Plan

Project Number: 200-157161-20001

Subject: Flow Monitoring Locations

Introduction

Flow monitoring of select locations throughout the City's system is required for the purpose of calibrating the hydraulic model demands, define diurnal flow patterns, and to characterize flow conditions during dry and wet-weather. Calibration of the hydraulic model demands will be accomplished by adjusting the sewage generation factors of the 12 land use categories based on the monitoring results. These 12 land use categories have been mapped to the City's land use identified in the general plan and the corresponding land use zone in Table 2.

The City currently has 8 Smartcovers installed at various manholes in the conveyance system. Some of these Smartcovers can be relocated as needed to provide flow information regarding a specific land use. This memorandum will recommend locations of flow monitoring Smartcovers for the purpose of model calibration while evaluating the locations of the City's 8 existing Smartcovers.

Basis of Selection

Smartcovers measure the flow depth within a sewer manhole channel. Flow is estimated by assuming normal flow (i.e. a stable flow depth/rate) and applying the manning's equation. In order for flow to be accurately measured, it is important that the flow through the manhole channel be laminar. Therefore it is important to select a monitoring location where there are no bends/deflections or grade changes in the line near the location, and no lateral lines connecting into the manhole.

The tributary flow to a monitoring location will need to be attributed to a land use type(s). The number of land use types should be limited to one or two categories. The tributary area of each upstream land use type is calculated in the model as a constant, and the generation factor multiplier is adjusted until model flow resembles the monitoring flow results. Monitoring at locations where more than 2 land use types occur upstream will introduce additional variables that will prove difficult to converge on a single solution.

Evaluation of Existing SmartCovers

8 SmartCover units are currently installed in the City. Below is a description of each location along with an evaluation of effectiveness for the purpose of flow monitoring.

604MH019 (S Highland Oaks) – Located at a manhole bend location where flow data may not be reliable. Flow upstream is predominately “Low Density Residential”. *This location is not recommended to be re-purposed for flow monitoring due to the variation of land uses.*

406MH015 (Foothill Blvd.) - Located at a single in-line manhole location where reliable flow data can be captured. Flow upstream is from a mix of “Very Low Density Residential” and “Residential Estates”. The variation of tributary landuse types upstream of this manhole would not be conducive for calibrating generation factors. *This location is not recommended for flow monitoring.*

608MH038 (5th Ave. South of Huntington Dr.) - Located at a single in-line manhole location where reliable flow data can be captured. Flow upstream is from a wide range of landuse types including “Commercial (1.0 FAR)”, “Downtown Mixed Use”, and “High-Density Residential”. The variation of tributary landuse types upstream of this manhole would not be conducive for calibrating generation factors. *This location is not recommended to be re-purposed for flow monitoring due to the variation of land uses.*

508MH016 (Huntington Dr.) – Located at a single in-line manhole location where reliable flow data can be captured. Flow upstream is from a wide range of landuse types including “Public – Civic Center”, “Low Density Residential”, “Very Low Density Residential”, “High Density Residential”, “Commercial (1.0 FAR)”, and “Horse Racing”. The variation of tributary landuse types upstream of this manhole would not be conducive for calibrating generation factors. *This location is not recommended to be re-purposed for flow monitoring due to the variation of land uses.*

309MH007 (N. Old Ranch Rd.) – Located at a single in-line manhole location where reliable flow data can be captured. Flow upstream is from a wide range of landuse types including “Very Low Density Residential”, “Low Density Residential”, “High Density Residential”, “Commercial (0.5 FAR)”, and “Downtown Mixed-Use”. The variation of tributary landuse types upstream of this manhole would not be conducive for calibrating generation factors. *This location is not recommended to be re-purposed for flow monitoring due to the variation of land uses.*

610MH030 (S. 2nd St.) – Located at a single in-line manhole location where reliable flow data can be captured. Flow upstream is from a wide range of landuse types including “Medium Density Residential”, “High Density Residential”, “Commercial (1.0 FAR)”, and “Downtown Mixed-Use”. The variation of tributary landuse types upstream of this manhole would not be conducive for calibrating generation factors. *This location is not recommended to be re-purposed for flow monitoring due to the variation of land uses.*

511MH073 (N. Santa Anita Ave.) – Located at a single in-line manhole location where reliable flow data can be captured. Flow upstream is from a wide range of landuse types including “Low Density Residential”, “High Density Residential”, “Commercial (1.0 FAR)”, “Downtown Mixed-Use”, and “Public – School”, . The variation of tributary landuse types upstream of this manhole would not be conducive for calibrating generation factors. *This location is not recommended to be re-purposed for flow monitoring due to the variation of land uses.*

514MH029 (S. Santa Anita Ave.) - Located at a single in-line manhole location where reliable flow data can be captured. Flow upstream is from a wide range of landuse types including “Very Low Density Residential”, “Low Density Residential”, “Medium Density Residential”, “Mixed-Use”, “Public – School”,

and “Public – Civic Center”. The variation of tributary landuse types upstream of this manhole would not be conducive for calibrating generation factors. *This location is not recommended to be re-purposed for flow monitoring due to the variation of land uses.*

Per the evaluation, none of the 8 existing Smartcovers are located where reliable flow data can be measured and where the tributary landuse types are limited.

Seven of the 8 Smartcovers can be relocated to other locations for flow monitoring. The Smartcover at manhole **608MH038** at 5th Ave. and Huntington Dr. will need to remain as is due to continued monitoring for surcharge at that location.

Impacts from the COVID-19 Pandemic

The COVID-19 Pandemic has altered business operations and the daily movement of the population. These things affect where sewage is generated. It previously assessed two Smartcover locations and determined that residential sewage flows were mildly increased by the pandemic and commercial sewage flows were dramatically reduced by the pandemic. Based on these findings, it is believed that monitoring sewage flows at this stage of the pandemic would provide skewed information. However, there may be some benefit to monitoring some (limited location) flows during the pandemic, and comparing those flows to post pandemic flows.

High Flow & Other Monitoring

The City has identified four locations that they are interested in monitoring due to high flows. Monitoring these locations may provide the City with a better understanding of how those flows vary and may provide a warning of increasing depths or possible spills. Specifically, the city has identified manholes 8, 12, 13, & 14 as being desirable to monitor due to high flows.

815MH011– The City has requested to monitor this manhole to capture high industrial flows.

306MH008 – The City has requested to monitor manhole 306MH008 on Foothill Blvd. northeast of Don Alvarado Dr. to capture the residential estate area at the north part of the City.

611MH020 – The City has requested to monitor manhole 611MH020 on Second Ave. north of Camino Real to capture high flows reported in this area.

608MH043 – The City has requested to monitor manhole 608MH043 on Second Ave. south of Huntington Dr. to capture the new developments north of Huntington dr.

There is a proposed development located on the west side of Santa Anita Ave. north of Live Oak Ave. The City is interested in the flows near the development in order to be able to assess the impact the development will have on the City’s conveyance system. We have identified a location that will provide this information and will also provide good information on flows from low density residential land use. Manhole **513MH027** is located at Santa Anita Ave north of Palm Ave. and can serve this dual purpose.

Recommendations

Current (i.e. during pandemic) Recommendations

We recommend the City move 7 of their Smartcovers to the Priority 1 locations identified in Table 1 at this time. Those locations are anticipated to provide some information on inflow/infiltration rates, general impacts from COVID in residential, commercial, and industrial areas, high flows/warning, and specific information for a proposed development. Refer to Figure 1.

After a couple of months, the City could either move the Smartcovers back to their original location, or keep them in their new location.

Future (i.e. post pandemic) Recommendations

Next year, before the rainy season and assuming the sewage flows have returned to normal again (or a new post-pandemic normal), we recommend 14 locations for flow monitoring. Seven locations are priority 1 from Table 1 (these match the current recommendations). After a period of time, the Smartcovers would be moved to monitor 7 other locations as identified by priority 2 in Table 1. Refer to Figure 1.

Since flow monitoring will need to include periods of wet and dry weather, a specific schedule and time frame for the initial PRIORITY 1 monitoring has not been defined and will instead depend on the occurrences of rain. At a minimum, the flow monitors should capture a typical week of flow to determine weekly patterns. Each monitor should also capture at least 1 rainstorm in order to determine inflow and infiltration rates. Tetra Tech will coordinate with the City to move PRIORITY 1 locations to the PRIORTIY 2 locations.

3/15/2021 11:28:22 AM - P:\157161000-157161-20001\CADD\SHET\ELBNC-701\MDT\ORING_MANHOLEL.DWG - LEE, ADRAN

LEGEND

- RESIDENTIAL ESTATE
- VERY LOW DENSITY RESIDENTIAL
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- COMMERCIAL (1.0 FAR)
- COMMERCIAL (0.5 FAR)
- REGIONAL COMMERCIAL
- HORSE RACING
- MIXED USE
- DOWNTOWN MIXED USE
- COMMERCIAL/LIGHT INDUSTRIAL
- INDUSTRIAL
- RAIL
- PUBLIC - CIVIC CENTER
- PUBLIC - HOSPITAL
- PUBLIC - SCHOOL
- OPEN SPACE - OUTDOOR RECREATION
- OPEN SPACE - RESOURCE PROTECTION

PUBLIC / INSTITUTIONAL (HOSPITAL) - 408MH002
HUNTINGTON DR. WEST OF CENTENNIAL WAY.

PUBLIC / INSTITUTIONAL (HOSPITAL) - 409MH005
HUNTINGTON DR. WEST OF CENTENNIAL WAY.

AREA OF INTEREST - 306MH007
FOOTHILL BLVD. NORTHEAST OF
DON ALVARADO DR.

REGIONAL COMMERCIAL - 409MH002
HUNTINGTON DR. EAST OF HOLLY AVE.

HIGH DENSITY RESIDENTIAL - 310MH014
ARCADIA AVE. WEST OF BALDWIN AVE

GENERAL COMMERCIAL - 311MH025
BALDWIN AVE. AND CAMINO REAL AVE.

LOW DENSITY RESIDENTIAL - 513MH027
S. SANTA ANITA AVE. NORTH OF W. PALM DR.

MIXED USE - 607MH035
ALLEY BETWEEN E. SANTA CLARA ST. AND ST JOSEPH ST.

AREA OF INTEREST - 609MH043
2ND ST. SOUTH OF HUNTINGTON DR.

MEDIUM DENSITY RESIDENTIAL - 609MH039
THIRD AVE. NORTH OF GENOA ST.

PUBLIC/INSTITUTIONAL (SCHOOL) - 509MH002
DUARTE RD. WEST OF SANTA ANITA AVE.

AREA OF INTEREST - 611MH020
2ND ST. NORTH OF CAMINO REAL

INDUSTRIAL - 815MH011
GOLDRING RD. WEST OF KARDASHIAN AVE.

LIGHT INDUSTRIAL - 817MH003
LOWER AZUSA RD. EAST OF DURFEE AVE.

LAND USE MAP
SCALE: NTS

<p>TETRA TECH</p> <p><small>www.tetra-tech.com</small></p> <p><small>160 E. Via Varco, Suite 240 San Diego, CA 92172 Tel: 609-305-2100 Fax: 609-305-2959</small></p>	<p>CITY OF ARCADIA SEWER MASTER PLAN</p>	<p>Project No.: 200-157161-20001</p> <p>Date: 11/22/20</p> <p>Designed By: AL</p>
	<p>MONITORING MANHOLE LOCATIONS</p>	<p>Figure 1</p>
	<p>Bar Measures: 1 inch</p>	

TABLE 1 - MONITORING MANHOLES

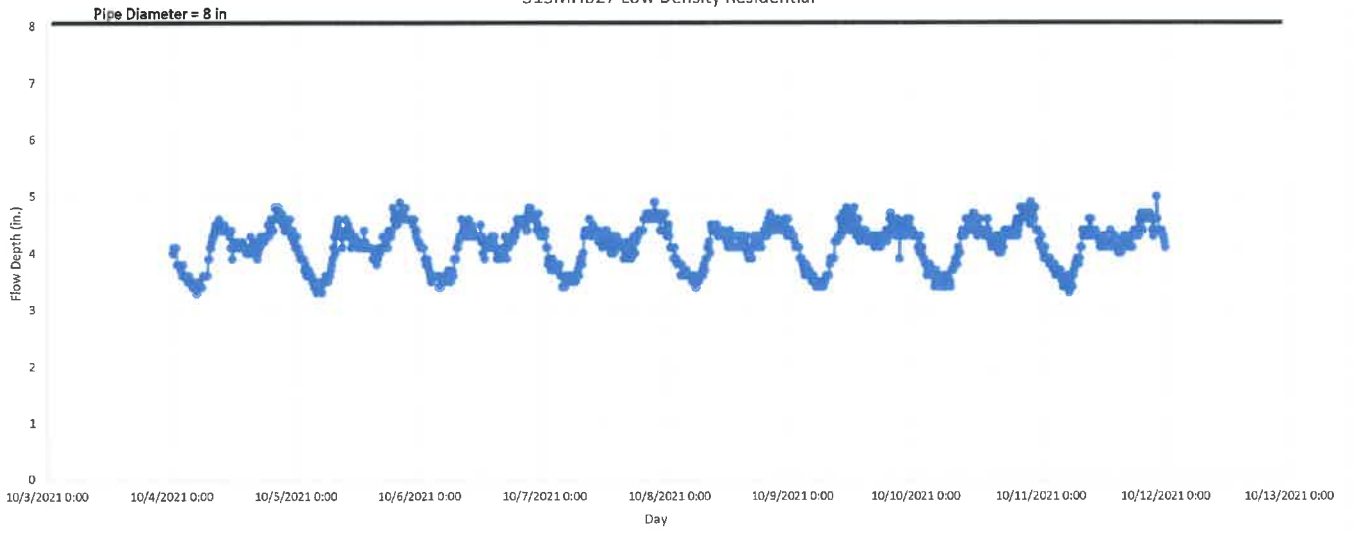
#	Manhole ID	Location	Landuse	Purpose	PRIORITY
1	513MH027	S. Santa Anita Ave. north of Palm Ave.	Low Density Residential	Landuse Flow Monitoring / High Flow & Other Monitoring	PRIORITY 1
2	609MH039	Third Ave. north of Genoa St.	Medium Density Residential	Landuse Flow Monitoring	PRIORITY 2
3	310MH014	Arcadia Ave. west of Baldwin Ave.	High Density Residential	Landuse Flow Monitoring	PRIORITY 2
4	311MH025	Baldwin Ave. and Camino Real Ave.	General Commercial	Landuse Flow Monitoring	PRIORITY 1
5	409MH002	Huntington Dr. east of Holly Ave.	Regional Commercial	Landuse Flow Monitoring	PRIORITY 2
6	607MH035	Alley Between E. Santa Clara St. and St. Joseph St.	Mixed Use	Landuse Flow Monitoring	PRIORITY 2
7	817MH003	Lower Azusa Rd. east of Durfee Ave.	Light Industrial	Landuse Flow Monitoring	PRIORITY 2
8	815MH011	Goldring Rd. west of Kardashian Ave.	Industrial	Landuse Flow Monitoring / High Flow & Other Monitoring	PRIORITY 1
9	409MH005	Huntington Dr. west of Centennial Way	Public - Hospital	Landuse Flow Monitoring	PRIORITY 1
10	509MH002	Duarte Rd. west of Santa Anita Ave.	Public - School	Landuse Flow Monitoring	PRIORITY 2
11	408MH002	Huntington Dr. west of Centennial Way	Public - Hospital	Landuse Flow Monitoring	PRIORITY 2
12	306MH007	Foothill Blvd. northeast of Don Alvarado Dr.	NA	High Flow & Other Monitoring	PRIORITY 1
13	611MH020	Second Ave. north of Camino Real	NA	High Flow & Other Monitoring	PRIORITY 1
14	608MH043	Second Ave. south of Huntington Dr.	NA	High Flow & Other Monitoring	PRIORITY 1

TABLE 2 - LAND USE CATEGORY DEFINITIONS

	2020 SMP Combined Land Use Category	City of Arcadia Land Use Category	Corresponding Zone District	
1	Low Density Residential	Residential Estates	R-M	Residential Mountainous Single Family
			R-O 30,000	First One Family 30,000
		Very Low Density Residential	R-O 22,000	First One Family 22,000
			R-O 15,000	First One Family 15,000
			R-O 12,500	First One Family 12,500
			R-1 15,000	Second One Family 15,000
			R-1 12,500	Second One Family 12,500
		Low Density Residential	R-1 10,000	Second One Family 10,000
R-1 7,500	Second One Family 7,500			
2	Medium Density Residential	Medium Density Residential	R-2	Medium Density Multiple Family
3	High Density Residential	High Density Residential	R-3	Multiple Family
			R-3-R	
4	General Commercial	Commercial (0.5 FAR)	CPD-1	Commercial Planned Development - 1
			C-O	Professional Office
			C-1	Limited Commercial
			SP-SA1	
		Commercial (1.0 FAR)	C-M	Commercial Manufacturing
			C-G	General Commercial
			CBD	New Overlay Zone Required
Public/Institutional (Civic Center)		Civic Center		
5	Regional Commercial	Regional Commercial	C-R	General Commercial
6	Horse Racing	Horse Racing	S-1	Special Use Zone
			H	Special Height Zone
			SP	Special Plan
			MU	Mixed Use
7	Mixed Use	Mixed Use		
		Downtown Mixed Use	DMU	Downtown Mixed Use
8	Light Industrial	Commercial/Light Industrial	C-M	Commercial Manufacturing
9	Industrial	Industrial	M-1	Planned Industrial District
10	Public/Institutional (School)	Public/Institutional (School)		School
11	Public/Institutional (Hospital)	Public/Institutional (Hospital)		Hospital
12	Open Space	Open Space-Outdoor Recreation	OS-OR	Open Space
			OS-RP	Open Space
		Open Space-Resource Protection	SP-SP	
			SP-AP	

Appendix C.

513MH027 Low Density Residential

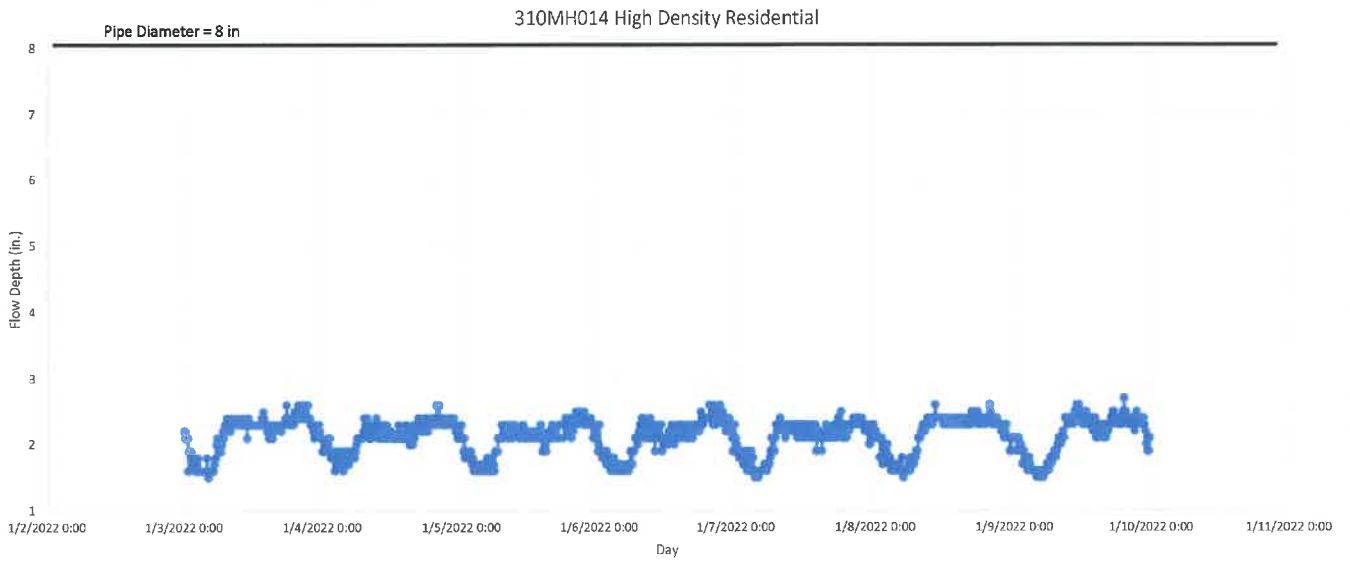


513MH027 Low Density Residential / Location: 2309 Santa Anita

Date	Backwater		Diameter (in)	d/D	K'	Q (cfs)	Q (gpm)	Qaverage	Qpeak
	Depth (in)	Adjusted Depth (in)							
10/4/2021 0:08	4	3.676	8	0.4595	0.1967	0.470701	211.2653	227.2728	301.8076
10/4/2021 0:18	4.1	3.776	8	0.472	0.2082	0.498221	223.6169		
10/4/2021 0:28	4.1	3.776	8	0.472	0.2082	0.498221	223.6169		
10/4/2021 0:38	4.1	3.776	8	0.472	0.2082	0.498221	223.6169		
10/4/2021 0:48	4.1	3.776	8	0.472	0.2082	0.498221	223.6169		
10/4/2021 0:58	3.8	3.476	8	0.4345	0.1779	0.425713	191.0732		
10/4/2021 1:08	3.8	3.476	8	0.4345	0.1779	0.425713	191.0732		
10/4/2021 1:18	3.8	3.476	8	0.4345	0.1779	0.425713	191.0732		
10/4/2021 1:28	3.8	3.476	8	0.4345	0.1779	0.425713	191.0732		
10/4/2021 1:38	3.8	3.476	8	0.4345	0.1779	0.425713	191.0732		
10/4/2021 1:48	3.7	3.376	8	0.422	0.1705	0.408005	183.1253		
10/4/2021 1:59	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 2:09	3.8	3.476	8	0.4345	0.1779	0.425713	191.0732		
10/4/2021 2:19	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 2:29	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 2:39	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 2:49	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 2:59	3.5	3.176	8	0.397	0.15255	0.365051	163.8461		
10/4/2021 3:09	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 3:19	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 3:29	3.5	3.176	8	0.397	0.15255	0.365051	163.8461		
10/4/2021 3:39	3.5	3.176	8	0.397	0.15255	0.365051	163.8461		
10/4/2021 3:49	3.5	3.176	8	0.397	0.15255	0.365051	163.8461		
10/4/2021 3:59	3.4	3.076	8	0.3845	0.142	0.339805	152.5149		
10/4/2021 4:09	3.4	3.076	8	0.3845	0.142	0.339805	152.5149		
10/4/2021 4:19	3.5	3.176	8	0.397	0.15255	0.365051	163.8461		
10/4/2021 4:29	3.5	3.176	8	0.397	0.15255	0.365051	163.8461		
10/4/2021 4:39	3.4	3.076	8	0.3845	0.142	0.339805	152.5149		
10/4/2021 4:49	3.3	2.976	8	0.372	0.1352	0.323532	145.2114		
10/4/2021 4:59	3.4	3.076	8	0.3845	0.142	0.339805	152.5149		
10/4/2021 5:09	3.4	3.076	8	0.3845	0.142	0.339805	152.5149		
10/4/2021 5:19	3.5	3.176	8	0.397	0.15255	0.365051	163.8461		
10/4/2021 5:29	3.4	3.076	8	0.3845	0.142	0.339805	152.5149		
10/4/2021 5:39	3.4	3.076	8	0.3845	0.142	0.339805	152.5149		
10/4/2021 5:49	3.4	3.076	8	0.3845	0.142	0.339805	152.5149		
10/4/2021 5:58	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 6:08	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 6:18	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 6:28	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 6:38	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 6:48	3.6	3.276	8	0.4095	0.1597	0.382161	171.5256		
10/4/2021 7:01	3.9	3.576	8	0.447	0.18915	0.452634	203.1563		
10/4/2021 7:11	3.9	3.576	8	0.447	0.18915	0.452634	203.1563		
10/4/2021 7:21	4.1	3.776	8	0.472	0.2082	0.498221	223.6169		
10/4/2021 7:31	4.1	3.776	8	0.472	0.2082	0.498221	223.6169		
10/4/2021 7:41	4.2	3.876	8	0.4845	0.216	0.516886	231.9945		
10/4/2021 7:51	4.3	3.976	8	0.497	0.2279	0.545363	244.7757		
10/4/2021 8:04	4.3	3.976	8	0.497	0.2279	0.545363	244.7757		
10/4/2021 8:14	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384		

10/4/2021 8:24	4.5	4.176	8	0.522	0.247	0.591069	265.29
10/4/2021 8:34	4.5	4.176	8	0.522	0.247	0.591069	265.29
10/4/2021 8:44	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 8:54	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 9:04	4.6	4.276	8	0.5345	0.255	0.610213	273.8824
10/4/2021 9:14	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 9:24	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 9:34	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 9:44	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 9:54	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 10:10	4.5	4.176	8	0.522	0.247	0.591069	265.29
10/4/2021 10:20	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 10:30	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 10:40	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 10:50	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 11:00	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 11:10	4.3	3.976	8	0.497	0.2279	0.545363	244.7757
10/4/2021 11:20	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 11:30	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384
10/4/2021 11:40	3.9	3.576	8	0.447	0.18915	0.452634	203.1563
10/4/2021 11:50	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 12:00	4.2	3.876	8	0.4845	0.216	0.516886	231.9945
10/4/2021 12:12	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 12:22	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 12:32	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 12:42	4.2	3.876	8	0.4845	0.216	0.516886	231.9945
10/4/2021 12:52	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 13:02	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 13:12	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 13:22	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 13:32	4.2	3.876	8	0.4845	0.216	0.516886	231.9945
10/4/2021 13:42	4.2	3.876	8	0.4845	0.216	0.516886	231.9945
10/4/2021 13:52	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 14:02	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 14:12	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 14:22	4	3.676	8	0.4595	0.1967	0.470701	211.2653
10/4/2021 14:32	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 14:42	4	3.676	8	0.4595	0.1967	0.470701	211.2653
10/4/2021 14:52	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 15:02	4	3.676	8	0.4595	0.1967	0.470701	211.2653
10/4/2021 15:12	4.3	3.976	8	0.497	0.2279	0.545363	244.7757
10/4/2021 15:22	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 15:32	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 15:42	4	3.676	8	0.4595	0.1967	0.470701	211.2653
10/4/2021 15:52	4.2	3.876	8	0.4845	0.216	0.516886	231.9945
10/4/2021 16:02	4.2	3.876	8	0.4845	0.216	0.516886	231.9945
10/4/2021 16:12	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 16:22	4	3.676	8	0.4595	0.1967	0.470701	211.2653
10/4/2021 16:32	3.9	3.576	8	0.447	0.18915	0.452634	203.1563
10/4/2021 16:42	4	3.676	8	0.4595	0.1967	0.470701	211.2653
10/4/2021 16:52	4.2	3.876	8	0.4845	0.216	0.516886	231.9945
10/4/2021 17:02	4.1	3.776	8	0.472	0.2082	0.498221	223.6169
10/4/2021 17:13	4.3	3.976	8	0.497	0.2279	0.545363	244.7757
10/4/2021 17:23	4.3	3.976	8	0.497	0.2279	0.545363	244.7757

10/4/2021 17:33	4.3	3.976	8	0.497	0.2279	0.545363	244.7757	
10/4/2021 17:43	4.3	3.976	8	0.497	0.2279	0.545363	244.7757	
10/4/2021 17:53	4.2	3.876	8	0.4845	0.216	0.516886	231.9945	
10/4/2021 18:03	4.3	3.976	8	0.497	0.2279	0.545363	244.7757	
10/4/2021 18:16	4.3	3.976	8	0.497	0.2279	0.545363	244.7757	
10/4/2021 18:26	4.3	3.976	8	0.497	0.2279	0.545363	244.7757	
10/4/2021 18:36	4.5	4.176	8	0.522	0.247	0.591069	265.29	
10/4/2021 18:46	4.3	3.976	8	0.497	0.2279	0.545363	244.7757	
10/4/2021 18:56	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384	
10/4/2021 19:06	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 19:16	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 19:26	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 19:36	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384	
10/4/2021 19:46	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 19:56	4.8	4.476	8	0.5595	0.275	0.658073	295.3633	295.3633
10/4/2021 20:06	4.8	4.476	8	0.5595	0.275	0.658073	295.3633	
10/4/2021 20:19	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 20:29	4.8	4.476	8	0.5595	0.275	0.658073	295.3633	
10/4/2021 20:39	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 20:49	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 20:59	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 21:09	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 21:20	4.7	4.376	8	0.547	0.267	0.638929	286.771	
10/4/2021 21:30	4.5	4.176	8	0.522	0.247	0.591069	265.29	
10/4/2021 21:40	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 21:50	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384	
10/4/2021 22:00	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 22:10	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384	
10/4/2021 22:23	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 22:33	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384	
10/4/2021 22:43	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384	
10/4/2021 22:53	4.6	4.276	8	0.5345	0.255	0.610213	273.8824	
10/4/2021 23:03	4.3	3.976	8	0.497	0.2279	0.545363	244.7757	
10/4/2021 23:13	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384	
10/4/2021 23:23	4.4	4.076	8	0.5095	0.2355	0.563549	252.9384	
10/4/2021 23:33	4.2	3.876	8	0.4845	0.216	0.516886	231.9945	
10/4/2021 23:43	4.2	3.876	8	0.4845	0.216	0.516886	231.9945	
10/4/2021 23:53	4.1	3.776	8	0.472	0.2082	0.498221	223.6169	



310MH014 High Density Residential / Location: 821 Arcadia

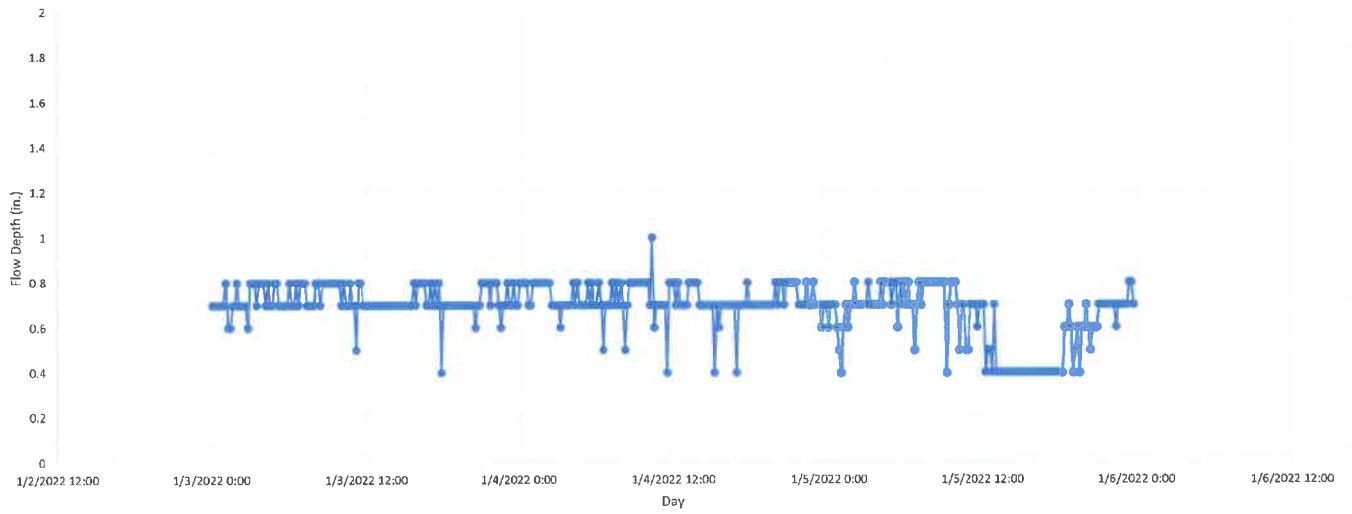
Date	Backwater		Diameter (in)	d/D	K'	Q (cfs)	Q (gpm)	Qaverage	Qpeak
	Depth (in)	Adjusted Depth (in)							
1/3/2022 0:09	2.2	2.2	8	0.275	0.0738	0.197448	88.62072	84.85435	122.8442
1/3/2022 0:19	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644		
1/3/2022 0:29	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644		
1/3/2022 0:34	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644		
1/3/2022 0:44	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 0:54	1.9	1.9	8	0.2375	0.0561	0.150092	67.36616		
1/3/2022 1:04	1.9	1.9	8	0.2375	0.0561	0.150092	67.36616		
1/3/2022 1:14	1.8	1.8	8	0.225	0.0492	0.131632	59.08048		
1/3/2022 1:24	1.7	1.7	8	0.2125	0.0448	0.11986	53.79686		
1/3/2022 1:30	1.8	1.8	8	0.225	0.0492	0.131632	59.08048		
1/3/2022 1:40	1.8	1.8	8	0.225	0.0492	0.131632	59.08048		
1/3/2022 1:50	1.7	1.7	8	0.2125	0.0448	0.11986	53.79686		
1/3/2022 2:00	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 2:10	1.8	1.8	8	0.225	0.0492	0.131632	59.08048		
1/3/2022 2:20	1.7	1.7	8	0.2125	0.0448	0.11986	53.79686		
1/3/2022 2:26	1.8	1.8	8	0.225	0.0492	0.131632	59.08048		
1/3/2022 2:36	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 2:46	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 2:56	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 3:06	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 3:16	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 3:23	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 3:33	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 3:43	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 3:53	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 4:03	1.8	1.8	8	0.225	0.0492	0.131632	59.08048		
1/3/2022 4:13	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 4:17	1.5	1.5	8	0.1875	0.03465	0.092704	41.60851		
1/3/2022 4:27	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 4:37	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 4:47	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 4:57	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 5:07	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 5:12	1.6	1.6	8	0.2	0.0386	0.103272	46.35176		
1/3/2022 5:22	1.7	1.7	8	0.2125	0.0448	0.11986	53.79686		
1/3/2022 5:32	1.8	1.8	8	0.225	0.0492	0.131632	59.08048		
1/3/2022 5:42	2	2	8	0.25	0.06095	0.163068	73.19015		
1/3/2022 5:52	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644		
1/3/2022 6:02	1.9	1.9	8	0.2375	0.0561	0.150092	67.36616		
1/3/2022 6:08	1.9	1.9	8	0.2375	0.0561	0.150092	67.36616		
1/3/2022 6:18	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644		
1/3/2022 6:28	1.9	1.9	8	0.2375	0.0561	0.150092	67.36616		
1/3/2022 6:38	2	2	8	0.25	0.06095	0.163068	73.19015		
1/3/2022 6:48	2.2	2.2	8	0.275	0.0738	0.197448	88.62072		
1/3/2022 6:58	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644		
1/3/2022 7:03	2.2	2.2	8	0.275	0.0738	0.197448	88.62072		
1/3/2022 7:13	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755		
1/3/2022 7:23	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755		
1/3/2022 7:33	2.4	2.4	8	0.3	0.0878	0.234904	105.4322		
1/3/2022 7:43	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755		

1/3/2022 7:53	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 7:58	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 8:08	2.2	2.2	8	0.275	0.0738	0.197448	88.62072
1/3/2022 8:18	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 8:28	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 8:38	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 8:48	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 8:53	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 9:03	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 9:13	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 9:23	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 9:33	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 9:43	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 9:54	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 10:04	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 10:14	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 10:24	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 10:34	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 10:44	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 10:51	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 11:01	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644
1/3/2022 11:11	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 11:21	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 11:31	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 11:41	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 11:49	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 11:59	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 12:09	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 12:19	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 12:29	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 12:39	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 12:45	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 12:55	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 13:05	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 13:15	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 13:25	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 13:35	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 13:42	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 13:52	2.5	2.5	8	0.3125	0.0966	0.258448	115.9995
1/3/2022 14:02	2.4	2.4	8	0.3	0.0878	0.234904	105.4322
1/3/2022 14:12	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 14:22	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 14:32	2.2	2.2	8	0.275	0.0738	0.197448	88.62072
1/3/2022 14:43	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 14:53	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644
1/3/2022 15:03	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 15:13	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 15:23	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 15:33	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644
1/3/2022 15:40	2.2	2.2	8	0.275	0.0738	0.197448	88.62072
1/3/2022 15:50	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 16:00	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 16:10	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755
1/3/2022 16:20	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755

1/3/2022 16:30	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 16:38	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 16:48	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 16:58	2.2	2.2	8	0.275	0.0738	0.197448	88.62072	
1/3/2022 17:08	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 17:18	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 17:28	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 17:34	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 17:44	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 17:54	2.6	2.6	8	0.325	0.1027	0.274768	123.3245	
1/3/2022 18:04	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 18:14	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 18:24	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 18:30	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 18:40	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 18:50	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 19:00	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 19:10	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 19:20	2.5	2.5	8	0.3125	0.0966	0.258448	115.9995	
1/3/2022 19:27	2.5	2.5	8	0.3125	0.0966	0.258448	115.9995	
1/3/2022 19:37	2.5	2.5	8	0.3125	0.0966	0.258448	115.9995	
1/3/2022 19:47	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 19:57	2.6	2.6	8	0.325	0.1027	0.274768	123.3245	123.3245
1/3/2022 20:07	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 20:17	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 20:22	2.5	2.5	8	0.3125	0.0966	0.258448	115.9995	
1/3/2022 20:32	2.6	2.6	8	0.325	0.1027	0.274768	123.3245	
1/3/2022 20:42	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 20:52	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 21:02	2.6	2.6	8	0.325	0.1027	0.274768	123.3245	
1/3/2022 21:12	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 21:18	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 21:28	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 21:38	2.6	2.6	8	0.325	0.1027	0.274768	123.3245	
1/3/2022 21:48	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 21:58	2.4	2.4	8	0.3	0.0878	0.234904	105.4322	
1/3/2022 22:08	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 22:13	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 22:23	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 22:33	2.2	2.2	8	0.275	0.0738	0.197448	88.62072	
1/3/2022 22:43	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644	
1/3/2022 22:53	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 23:03	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 23:10	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 23:20	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 23:30	2.3	2.3	8	0.2875	0.0821	0.219654	98.58755	
1/3/2022 23:40	2.2	2.2	8	0.275	0.0738	0.197448	88.62072	
1/3/2022 23:50	2.1	2.1	8	0.2625	0.0686	0.183536	82.37644	

Pipe Diameter = 8 in.

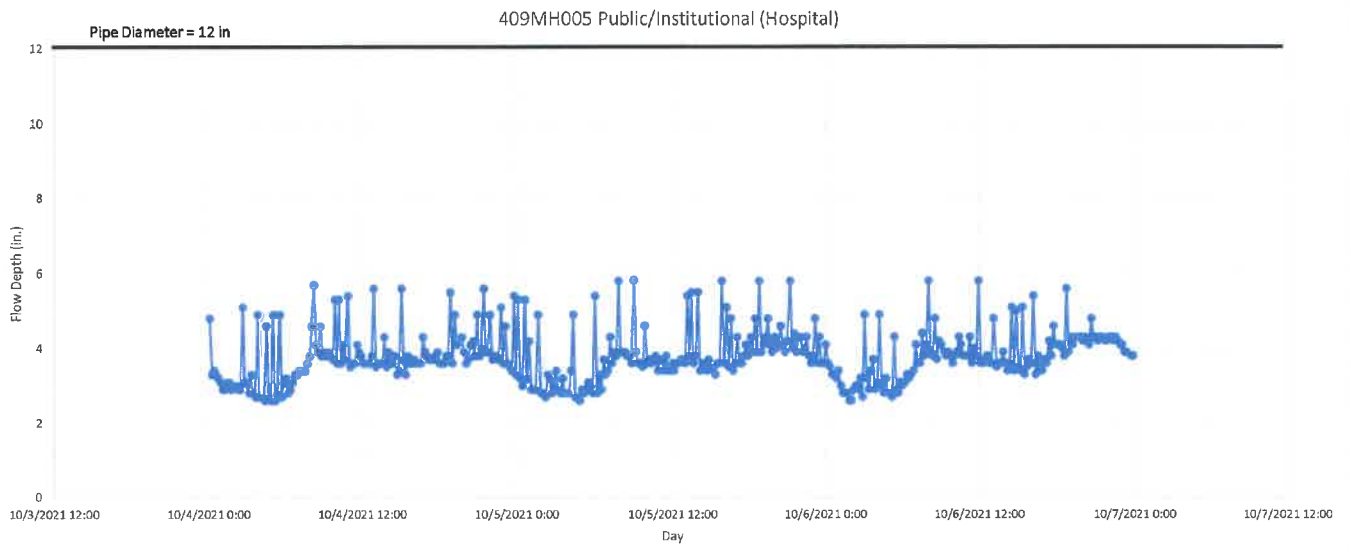
409MH002 General Commercial



409MH002 General Commercial / Location: Huntington East of Holly

Date	Backwater		Diameter	d/D	K'	Q (cfs)	Q (gpm)	Qaverage	Qpeak
	Depth (in)	Adjusted Depth (in)							
1/3/2022 0:06	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493	7.203179	13.12584
1/3/2022 0:16	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 0:26	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 0:36	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 0:46	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 0:56	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 1:09	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 1:19	0.6	0.6	8	0.075	0.00455	0.01173	5.264995		
1/3/2022 1:29	0.6	0.6	8	0.075	0.00455	0.01173	5.264995		
1/3/2022 1:39	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 1:49	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 1:59	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 2:09	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 2:19	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 2:29	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 2:39	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 2:49	0.6	0.6	8	0.075	0.00455	0.01173	5.264995		
1/3/2022 2:59	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 3:09	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 3:19	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 3:29	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 3:39	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 3:49	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 3:59	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 4:11	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 4:21	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 4:31	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 4:41	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 4:51	0.8	0.8	8	0.1	0.00967	0.02493	11.18956	11.18956	
1/3/2022 5:01	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 5:11	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 5:21	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 5:31	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 5:41	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 5:51	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 6:01	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 6:10	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 6:20	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 6:30	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 6:40	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 6:50	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 7:00	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 7:12	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 7:22	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 7:32	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 7:42	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 7:52	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		
1/3/2022 8:02	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 8:13	0.8	0.8	8	0.1	0.00967	0.02493	11.18956		
1/3/2022 8:23	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493		

1/3/2022 17:35	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 17:45	0.8	0.8	8	0.1	0.00967	0.02493	11.18956
1/3/2022 17:55	0.4	0.4	8	0.05	0.00222	0.005723	2.568855
1/3/2022 18:05	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 18:14	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 18:24	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 18:34	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 18:44	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 18:54	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 19:04	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 19:16	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 19:26	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 19:36	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 19:46	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 19:56	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 20:06	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 20:16	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 20:26	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 20:36	0.6	0.6	8	0.075	0.00455	0.01173	5.264995
1/3/2022 20:46	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 20:56	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 21:06	0.8	0.8	8	0.1	0.00967	0.02493	11.18956
1/3/2022 21:16	0.8	0.8	8	0.1	0.00967	0.02493	11.18956
1/3/2022 21:26	0.8	0.8	8	0.1	0.00967	0.02493	11.18956
1/3/2022 21:36	0.8	0.8	8	0.1	0.00967	0.02493	11.18956
1/3/2022 21:46	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 21:56	0.8	0.8	8	0.1	0.00967	0.02493	11.18956
1/3/2022 22:06	0.8	0.8	8	0.1	0.00967	0.02493	11.18956
1/3/2022 22:16	0.8	0.8	8	0.1	0.00967	0.02493	11.18956
1/3/2022 22:26	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 22:36	0.6	0.6	8	0.075	0.00455	0.01173	5.264995
1/3/2022 22:46	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 22:56	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 23:06	0.8	0.8	8	0.1	0.00967	0.02493	11.18956
1/3/2022 23:16	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 23:26	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 23:36	0.8	0.8	8	0.1	0.00967	0.02493	11.18956
1/3/2022 23:46	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493
1/3/2022 23:56	0.7	0.7	8	0.0875	0.006895	0.017776	7.978493

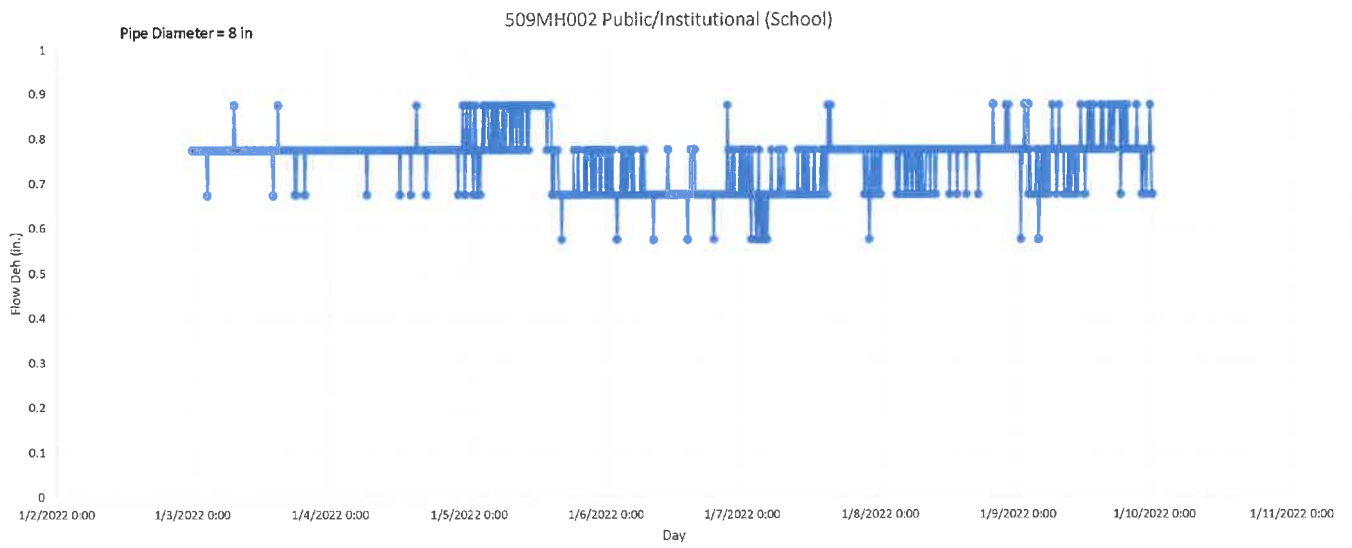


409MH005 Public/Institutional (Hospital) / Location: Huntington @ Methodist

Date	Backwater		Diameter (in)	d/D	K'	Q (cfs)	Q (gpm)	Qaverage	Qpeak
	Depth (in)	Adjusted Depth (in)							
10/4/2021 0:03	4.8	4.8	12	0.4	0.15255	0.719128	322.7668	213.352	454.6573
10/4/2021 0:13	3.3	3.3	12	0.275	0.0738	0.347897	156.1468		
10/4/2021 0:23	3.4	3.4	12	0.283333	0.0793	0.373824	167.7837		
10/4/2021 0:33	3.3	3.3	12	0.275	0.0738	0.347897	156.1468		
10/4/2021 0:43	3.2	3.2	12	0.266667	0.0712	0.33564	150.6456		
10/4/2021 0:53	3.1	3.1	12	0.258333	0.066	0.311127	139.6434		
10/4/2021 1:04	2.9	2.9	12	0.241667	0.0585	0.275772	123.7749		
10/4/2021 1:14	2.9	2.9	12	0.241667	0.0585	0.275772	123.7749		
10/4/2021 1:24	3.1	3.1	12	0.258333	0.066	0.311127	139.6434		
10/4/2021 1:34	3.1	3.1	12	0.258333	0.066	0.311127	139.6434		
10/4/2021 1:44	2.9	2.9	12	0.241667	0.0585	0.275772	123.7749		
10/4/2021 1:54	3	3	12	0.25	0.06095	0.287321	128.9586		
10/4/2021 2:06	3	3	12	0.25	0.06095	0.287321	128.9586		
10/4/2021 2:16	2.9	2.9	12	0.241667	0.0585	0.275772	123.7749		
10/4/2021 2:26	2.9	2.9	12	0.241667	0.0585	0.275772	123.7749		
10/4/2021 2:36	5.1	5.1	12	0.425	0.1705	0.803745	360.7455		
10/4/2021 2:46	3.1	3.1	12	0.258333	0.066	0.311127	139.6434		
10/4/2021 2:56	3.1	3.1	12	0.258333	0.066	0.311127	139.6434		
10/4/2021 3:07	2.8	2.8	12	0.233333	0.0537	0.253144	113.619		
10/4/2021 3:17	3.3	3.3	12	0.275	0.0738	0.347897	156.1468		
10/4/2021 3:27	2.8	2.8	12	0.233333	0.0537	0.253144	113.619		
10/4/2021 3:37	2.7	2.7	12	0.225	0.0492	0.231931	104.0978		
10/4/2021 3:47	4.9	4.9	12	0.408333	0.1597	0.752833	337.8948		
10/4/2021 3:57	2.7	2.7	12	0.225	0.0492	0.231931	104.0978		
10/4/2021 4:11	2.7	2.7	12	0.225	0.0492	0.231931	104.0978		
10/4/2021 4:21	2.6	2.6	12	0.216667	0.047	0.22156	99.44305		
10/4/2021 4:31	4.6	4.6	12	0.383333	0.142	0.669394	300.445		
10/4/2021 4:41	2.7	2.7	12	0.225	0.0492	0.231931	104.0978		
10/4/2021 4:51	2.6	2.6	12	0.216667	0.047	0.22156	99.44305		
10/4/2021 5:01	4.9	4.9	12	0.408333	0.1597	0.752833	337.8948		
10/4/2021 5:11	2.6	2.6	12	0.216667	0.047	0.22156	99.44305		
10/4/2021 5:21	2.8	2.8	12	0.233333	0.0537	0.253144	113.619		
10/4/2021 5:31	4.9	4.9	12	0.408333	0.1597	0.752833	337.8948		
10/4/2021 5:41	2.7	2.7	12	0.225	0.0492	0.231931	104.0978		
10/4/2021 5:51	3.1	3.1	12	0.258333	0.066	0.311127	139.6434		
10/4/2021 6:01	3.2	3.2	12	0.266667	0.0712	0.33564	150.6456		
10/4/2021 6:10	2.8	2.8	12	0.233333	0.0537	0.253144	113.619		
10/4/2021 6:20	2.9	2.9	12	0.241667	0.0585	0.275772	123.7749		
10/4/2021 6:30	3.1	3.1	12	0.258333	0.066	0.311127	139.6434		
10/4/2021 6:40	3.3	3.3	12	0.275	0.0738	0.347897	156.1468		
10/4/2021 6:50	3.3	3.3	12	0.275	0.0738	0.347897	156.1468		
10/4/2021 7:00	3.4	3.4	12	0.283333	0.0793	0.373824	167.7837		
10/4/2021 7:19	3.4	3.4	12	0.283333	0.0793	0.373824	167.7837		
10/4/2021 7:29	3.4	3.4	12	0.283333	0.0793	0.373824	167.7837		
10/4/2021 7:39	3.6	3.6	12	0.3	0.0878	0.413893	185.7681		
10/4/2021 7:49	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404		
10/4/2021 7:59	4.6	4.6	12	0.383333	0.142	0.669394	300.445		
10/4/2021 8:09	5.7	5.7	12	0.475	0.2082	0.981464	440.5116	440.5116	
10/4/2021 8:18	4.1	4.1	12	0.341667	0.1153	0.543529	243.9528		
10/4/2021 8:28	3.9	3.9	12	0.325	0.1027	0.484132	217.2936		

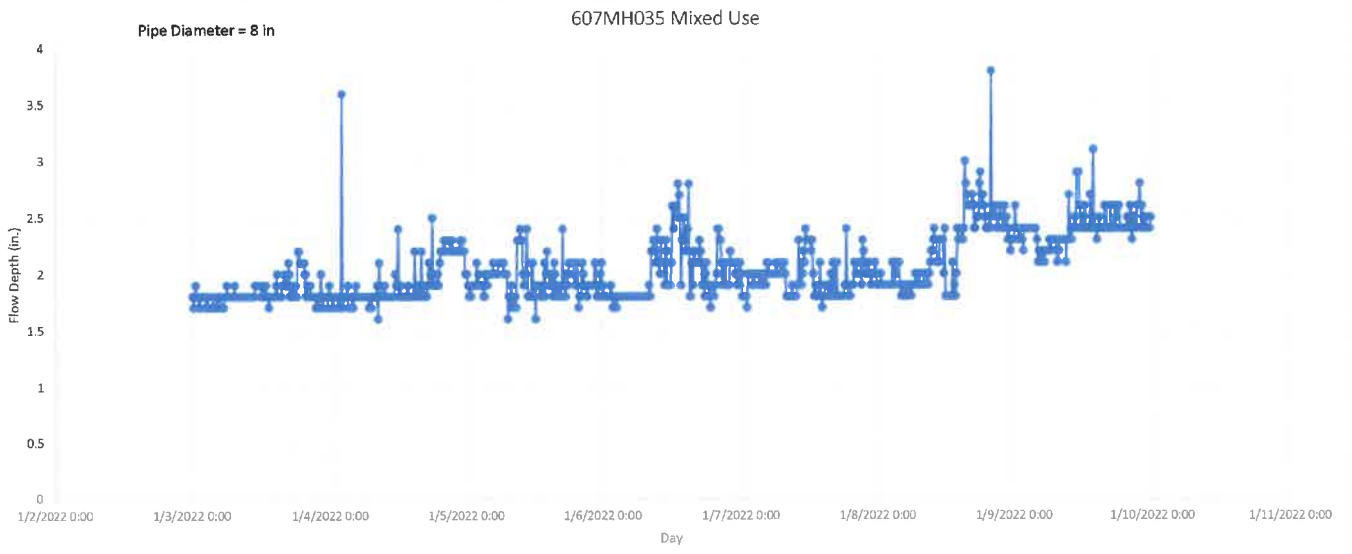
10/4/2021 8:38	4.6	4.6	12	0.383333	0.142	0.669394	300.445
10/4/2021 8:48	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 8:58	3.9	3.9	12	0.325	0.1027	0.484132	217.2936
10/4/2021 9:08	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 9:21	3.9	3.9	12	0.325	0.1027	0.484132	217.2936
10/4/2021 9:31	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 9:41	3.7	3.7	12	0.308333	0.09365	0.44147	198.1456
10/4/2021 9:51	5.3	5.3	12	0.441667	0.1854	0.873984	392.2711
10/4/2021 10:01	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 10:11	5.3	5.3	12	0.441667	0.1854	0.873984	392.2711
10/4/2021 10:21	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 10:31	4.1	4.1	12	0.341667	0.1153	0.543529	243.9528
10/4/2021 10:41	3.7	3.7	12	0.308333	0.09365	0.44147	198.1456
10/4/2021 10:51	5.4	5.4	12	0.45	0.18915	0.891662	400.2054
10/4/2021 11:01	3.5	3.5	12	0.291667	0.0849	0.400222	179.6322
10/4/2021 11:11	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 11:25	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 11:35	4.1	4.1	12	0.341667	0.1153	0.543529	243.9528
10/4/2021 11:45	3.9	3.9	12	0.325	0.1027	0.484132	217.2936
10/4/2021 11:55	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 12:05	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 12:15	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 12:25	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 12:35	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 12:45	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 12:55	5.6	5.6	12	0.466667	0.20435	0.963315	432.3657
10/4/2021 13:05	3.5	3.5	12	0.291667	0.0849	0.400222	179.6322
10/4/2021 13:15	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 13:26	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 13:36	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 13:46	4.3	4.3	12	0.358333	0.1251	0.589727	264.6878
10/4/2021 13:56	3.5	3.5	12	0.291667	0.0849	0.400222	179.6322
10/4/2021 14:06	3.9	3.9	12	0.325	0.1027	0.484132	217.2936
10/4/2021 14:16	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 14:26	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 14:36	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 14:46	3.3	3.3	12	0.275	0.0738	0.347897	156.1468
10/4/2021 14:56	3.4	3.4	12	0.283333	0.0793	0.373824	167.7837
10/4/2021 15:06	5.6	5.6	12	0.466667	0.20435	0.963315	432.3657
10/4/2021 15:16	3.7	3.7	12	0.308333	0.09365	0.44147	198.1456
10/4/2021 15:26	3.3	3.3	12	0.275	0.0738	0.347897	156.1468
10/4/2021 15:36	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 15:46	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 15:56	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 16:06	3.7	3.7	12	0.308333	0.09365	0.44147	198.1456
10/4/2021 16:16	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 16:36	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 16:46	4.3	4.3	12	0.358333	0.1251	0.589727	264.6878
10/4/2021 16:56	3.9	3.9	12	0.325	0.1027	0.484132	217.2936
10/4/2021 17:06	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 17:16	3.7	3.7	12	0.308333	0.09365	0.44147	198.1456
10/4/2021 17:26	3.7	3.7	12	0.308333	0.09365	0.44147	198.1456
10/4/2021 17:36	3.7	3.7	12	0.308333	0.09365	0.44147	198.1456
10/4/2021 17:46	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404

10/4/2021 17:56	3.9	3.9	12	0.325	0.1027	0.484132	217.2936
10/4/2021 18:06	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 18:16	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 18:26	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 18:36	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 18:46	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 18:56	5.5	5.5	12	0.458333	0.1967	0.927253	416.1798
10/4/2021 19:06	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 19:16	4.9	4.9	12	0.408333	0.1597	0.752833	337.8948
10/4/2021 19:26	4.1	4.1	12	0.341667	0.1153	0.543529	243.9528
10/4/2021 19:48	4.3	4.3	12	0.358333	0.1251	0.589727	264.6878
10/4/2021 19:58	3.9	3.9	12	0.325	0.1027	0.484132	217.2936
10/4/2021 20:08	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 20:18	3.7	3.7	12	0.308333	0.09365	0.44147	198.1456
10/4/2021 20:28	4.1	4.1	12	0.341667	0.1153	0.543529	243.9528
10/4/2021 20:38	4.2	4.2	12	0.35	0.11855	0.55885	250.8292
10/4/2021 20:49	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 20:59	4.9	4.9	12	0.408333	0.1597	0.752833	337.8948
10/4/2021 21:09	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 21:19	4	4	12	0.333333	0.1089	0.51336	230.4117
10/4/2021 21:29	5.6	5.6	12	0.466667	0.20435	0.963315	432.3657
10/4/2021 21:39	3.9	3.9	12	0.325	0.1027	0.484132	217.2936
10/4/2021 21:49	3.9	3.9	12	0.325	0.1027	0.484132	217.2936
10/4/2021 21:59	4.9	4.9	12	0.408333	0.1597	0.752833	337.8948
10/4/2021 22:09	3.7	3.7	12	0.308333	0.09365	0.44147	198.1456
10/4/2021 22:19	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 22:29	3.8	3.8	12	0.316667	0.09965	0.469755	210.8404
10/4/2021 22:39	3.7	3.7	12	0.308333	0.09365	0.44147	198.1456
10/4/2021 22:49	5.1	5.1	12	0.425	0.1705	0.803745	360.7455
10/4/2021 22:59	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 23:09	4.6	4.6	12	0.383333	0.142	0.669394	300.445
10/4/2021 23:19	3.6	3.6	12	0.3	0.0878	0.413893	185.7681
10/4/2021 23:29	3.5	3.5	12	0.291667	0.0849	0.400222	179.6322
10/4/2021 23:39	3.4	3.4	12	0.283333	0.0793	0.373824	167.7837
10/4/2021 23:49	5.4	5.4	12	0.45	0.18915	0.891662	400.2054
10/4/2021 23:59	3.3	3.3	12	0.275	0.0738	0.347897	156.1468



509MH002 Public/Institutional (School) / Location: Arcadia High School

Date	Depth (in)	Backwater		d/D	K'	Q (cfs)	Q (gpm)	Qaverage	Qpeak
		Adjusted Depth (in)	Diameter (in)						
1/3/2022 0:02	0.8	0.776	8	0.097	0.00871	0.024121	10.82627	10.04728	13.34328
1/3/2022 0:11	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 0:21	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 0:31	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 0:41	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 0:51	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 1:01	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 1:11	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 1:21	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 1:31	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 1:41	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 1:51	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 2:01	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 2:11	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 2:21	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 2:31	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 2:41	0.7	0.676	8	0.0845	0.00604	0.016727	7.507537		
1/3/2022 2:51	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 3:01	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 3:12	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 3:22	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 3:32	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 3:42	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 3:52	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 4:02	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 4:13	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 4:23	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 4:33	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 4:43	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 4:53	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 5:03	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 5:13	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 5:23	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 5:33	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 5:43	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 5:53	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 6:03	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 6:12	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 6:22	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 6:32	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 6:42	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 6:52	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 7:02	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 7:12	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 7:22	0.9	0.876	8	0.1095	0.010735	0.029729	13.34328	13.34328	
1/3/2022 7:32	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 7:42	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 7:52	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 8:02	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		
1/3/2022 8:16	0.8	0.776	8	0.097	0.00871	0.024121	10.82627		



607MH035 Mixed Use / Location: Alley between St Joseph and Santa Clara

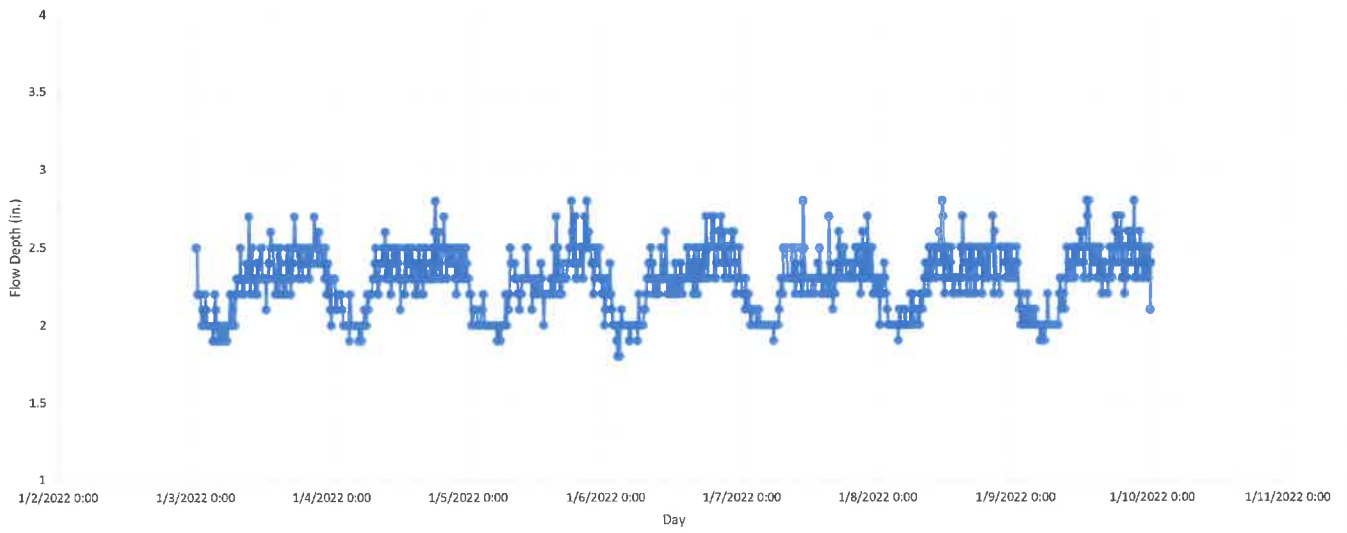
Date	Backwater		Diameter (in)	d/D	K'	Q (cfs)	Q (gpm)	Qaverage	Qpeak
	Depth (in)	Adjusted Depth (in)							
1/3/2022 0:06	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	37.3922	56.73346
1/3/2022 0:16	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 0:26	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 0:36	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589		
1/3/2022 0:46	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 0:56	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 1:11	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 1:21	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 1:31	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 1:41	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 1:51	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 2:01	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 2:12	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 2:22	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 2:32	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 2:42	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 2:52	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 3:02	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 3:15	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 3:25	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 3:35	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 3:45	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 3:55	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 4:05	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 4:17	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 4:27	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 4:37	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 4:47	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 4:57	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 5:07	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 5:18	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 5:28	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879		
1/3/2022 5:38	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 5:48	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 5:58	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589		
1/3/2022 6:08	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 6:17	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 6:27	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 6:37	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 6:47	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 6:57	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 7:07	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 7:19	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589		
1/3/2022 7:29	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 7:39	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 7:49	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 7:59	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 8:09	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 8:20	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		
1/3/2022 8:30	1.8	1.8	8	0.225	0.0492	0.062932	28.24474		

1/3/2022 8:40	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 8:50	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 9:00	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 9:10	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 9:20	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 9:30	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 9:40	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 9:50	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 10:00	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 10:10	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 10:21	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 10:31	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 10:41	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 10:51	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 11:01	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 11:11	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 11:22	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 11:32	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 11:42	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 11:52	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 12:02	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 12:12	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 12:22	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 12:32	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 12:42	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 12:52	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 13:02	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 13:12	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879
1/3/2022 13:28	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 13:38	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 13:48	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 13:58	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 14:08	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 14:18	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 14:28	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 14:38	2	2	8	0.25	0.06095	0.077962	34.99018
1/3/2022 14:48	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 14:58	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 15:08	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 15:18	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 15:29	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 15:39	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 15:49	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 15:59	2	2	8	0.25	0.06095	0.077962	34.99018
1/3/2022 16:09	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 16:19	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 16:29	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 16:39	2.1	2.1	8	0.2625	0.0686	0.087747	39.38189
1/3/2022 16:49	2	2	8	0.25	0.06095	0.077962	34.99018
1/3/2022 16:59	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 17:09	1.8	1.8	8	0.225	0.0492	0.062932	28.24474
1/3/2022 17:19	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 17:29	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589
1/3/2022 17:39	1.8	1.8	8	0.225	0.0492	0.062932	28.24474

1/3/2022 17:49	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589	
1/3/2022 17:59	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589	
1/3/2022 18:09	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 18:19	2.2	2.2	8	0.275	0.0738	0.094398	42.36711	42.36711
1/3/2022 18:30	2.2	2.2	8	0.275	0.0738	0.094398	42.36711	
1/3/2022 18:40	2.1	2.1	8	0.2625	0.0686	0.087747	39.38189	
1/3/2022 18:50	2.1	2.1	8	0.2625	0.0686	0.087747	39.38189	
1/3/2022 19:00	2.1	2.1	8	0.2625	0.0686	0.087747	39.38189	
1/3/2022 19:10	2.1	2.1	8	0.2625	0.0686	0.087747	39.38189	
1/3/2022 19:20	2.1	2.1	8	0.2625	0.0686	0.087747	39.38189	
1/3/2022 19:30	2.1	2.1	8	0.2625	0.0686	0.087747	39.38189	
1/3/2022 19:40	2	2	8	0.25	0.06095	0.077962	34.99018	
1/3/2022 19:50	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 20:00	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 20:10	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589	
1/3/2022 20:20	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589	
1/3/2022 20:29	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589	
1/3/2022 20:39	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 20:49	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 20:59	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 21:09	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 21:19	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 21:30	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879	
1/3/2022 21:40	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 21:50	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 22:00	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 22:10	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879	
1/3/2022 22:20	2	2	8	0.25	0.06095	0.077962	34.99018	
1/3/2022 22:30	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 22:40	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 22:50	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879	
1/3/2022 23:00	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 23:10	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 23:20	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 23:31	1.8	1.8	8	0.225	0.0492	0.062932	28.24474	
1/3/2022 23:41	1.7	1.7	8	0.2125	0.0448	0.057304	25.71879	
1/3/2022 23:51	1.9	1.9	8	0.2375	0.0561	0.071758	32.20589	

Pipe Diameter = 8 in

609MH039 Medium Density Residential



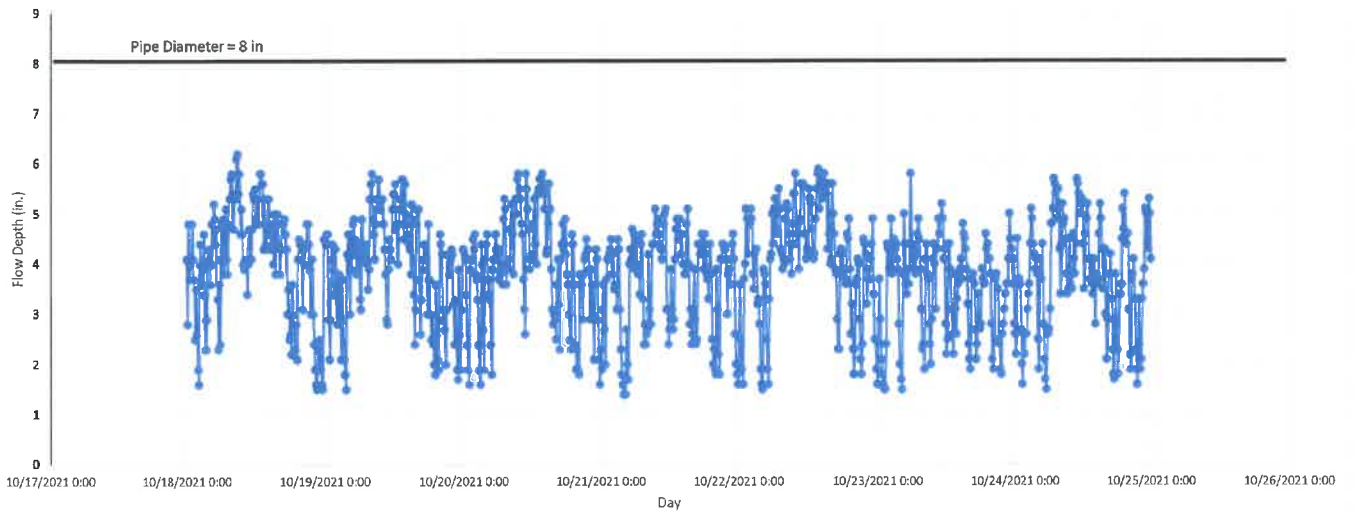
609MH039 Medium Density Residential / Location: 523 3rd Ave

Date	Backwater		Diameter (in)	d/D	K'	Q (cfs)	Q (gpm)	Qaverage	Qpeak
	Depth (in)	Adjusted Depth (in)							
1/3/2022 0:06	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	54.17521	78.56673
1/3/2022 0:16	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069		
1/3/2022 0:26	2.2	2.2	8	0.275	0.0738	0.110692	49.68183		
1/3/2022 0:36	2.2	2.2	8	0.275	0.0738	0.110692	49.68183		
1/3/2022 0:46	2.2	2.2	8	0.275	0.0738	0.110692	49.68183		
1/3/2022 0:57	2.2	2.2	8	0.275	0.0738	0.110692	49.68183		
1/3/2022 1:07	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 1:17	2.1	2.1	8	0.2625	0.0686	0.102892	46.18121		
1/3/2022 1:27	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 1:37	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 1:47	2.2	2.2	8	0.275	0.0738	0.110692	49.68183		
1/3/2022 1:57	2.1	2.1	8	0.2625	0.0686	0.102892	46.18121		
1/3/2022 2:07	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 2:17	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 2:27	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 2:37	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 2:47	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 2:57	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 3:07	1.9	1.9	8	0.2375	0.0561	0.084144	37.76627		
1/3/2022 3:17	1.9	1.9	8	0.2375	0.0561	0.084144	37.76627		
1/3/2022 3:27	2.2	2.2	8	0.275	0.0738	0.110692	49.68183		
1/3/2022 3:37	2.1	2.1	8	0.2625	0.0686	0.102892	46.18121		
1/3/2022 3:47	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 3:57	1.9	1.9	8	0.2375	0.0561	0.084144	37.76627		
1/3/2022 4:07	1.9	1.9	8	0.2375	0.0561	0.084144	37.76627		
1/3/2022 4:17	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 4:27	1.9	1.9	8	0.2375	0.0561	0.084144	37.76627		
1/3/2022 4:37	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 4:47	1.9	1.9	8	0.2375	0.0561	0.084144	37.76627		
1/3/2022 4:57	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 5:07	1.9	1.9	8	0.2375	0.0561	0.084144	37.76627		
1/3/2022 5:17	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 5:27	1.9	1.9	8	0.2375	0.0561	0.084144	37.76627		
1/3/2022 5:37	1.9	1.9	8	0.2375	0.0561	0.084144	37.76627		
1/3/2022 5:47	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 5:59	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 6:09	2.2	2.2	8	0.275	0.0738	0.110692	49.68183		
1/3/2022 6:19	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 6:29	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 6:39	2.1	2.1	8	0.2625	0.0686	0.102892	46.18121		
1/3/2022 6:49	2.2	2.2	8	0.275	0.0738	0.110692	49.68183		
1/3/2022 6:59	2	2	8	0.25	0.06095	0.091418	41.03127		
1/3/2022 7:09	2.2	2.2	8	0.275	0.0738	0.110692	49.68183		
1/3/2022 7:19	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935		
1/3/2022 7:29	2.2	2.2	8	0.275	0.0738	0.110692	49.68183		
1/3/2022 7:39	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935		
1/3/2022 7:49	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935		
1/3/2022 7:59	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069		
1/3/2022 8:09	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935		
1/3/2022 8:19	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935		

1/3/2022 8:29	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 8:39	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 8:49	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 8:59	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 9:09	2.4	2.4	8	0.3	0.0878	0.13169	59.10657	
1/3/2022 9:19	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 9:29	2.7	2.7	8	0.3375	0.1121	0.168137	75.46522	75.46522
1/3/2022 9:39	2.4	2.4	8	0.3	0.0878	0.13169	59.10657	
1/3/2022 9:49	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 9:58	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 10:08	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	
1/3/2022 10:18	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 10:28	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 10:38	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 10:48	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 11:00	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 11:10	2.4	2.4	8	0.3	0.0878	0.13169	59.10657	
1/3/2022 11:20	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 11:30	2.4	2.4	8	0.3	0.0878	0.13169	59.10657	
1/3/2022 11:40	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	
1/3/2022 11:50	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	
1/3/2022 12:00	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 12:10	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 12:20	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 12:30	2.1	2.1	8	0.2625	0.0686	0.102892	46.18121	
1/3/2022 12:40	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 12:50	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 13:00	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 13:10	2.4	2.4	8	0.3	0.0878	0.13169	59.10657	
1/3/2022 13:20	2.6	2.6	8	0.325	0.1027	0.154038	69.13718	
1/3/2022 13:30	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	
1/3/2022 13:40	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	
1/3/2022 13:50	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	
1/3/2022 14:00	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 14:10	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 14:20	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 14:30	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 14:40	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	
1/3/2022 14:50	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 15:01	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	
1/3/2022 15:11	2.4	2.4	8	0.3	0.0878	0.13169	59.10657	
1/3/2022 15:21	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 15:31	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 15:41	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 15:51	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 16:00	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 16:10	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 16:20	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	
1/3/2022 16:30	2.4	2.4	8	0.3	0.0878	0.13169	59.10657	
1/3/2022 16:40	2.4	2.4	8	0.3	0.0878	0.13169	59.10657	
1/3/2022 16:50	2.2	2.2	8	0.275	0.0738	0.110692	49.68183	
1/3/2022 17:02	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069	
1/3/2022 17:12	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935	
1/3/2022 17:22	2.4	2.4	8	0.3	0.0878	0.13169	59.10657	

1/3/2022 17:32	2.7	2.7	8	0.3375	0.1121	0.168137	75.46522
1/3/2022 17:42	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 17:52	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 18:01	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 18:11	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 18:21	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935
1/3/2022 18:31	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 18:41	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 18:51	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 19:01	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935
1/3/2022 19:11	2.4	2.4	8	0.3	0.0878	0.13169	59.10657
1/3/2022 19:21	2.4	2.4	8	0.3	0.0878	0.13169	59.10657
1/3/2022 19:31	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 19:41	2.4	2.4	8	0.3	0.0878	0.13169	59.10657
1/3/2022 19:51	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 20:01	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 20:11	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935
1/3/2022 20:21	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 20:31	2.4	2.4	8	0.3	0.0878	0.13169	59.10657
1/3/2022 20:41	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 20:51	2.4	2.4	8	0.3	0.0878	0.13169	59.10657
1/3/2022 21:02	2.7	2.7	8	0.3375	0.1121	0.168137	75.46522
1/3/2022 21:12	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 21:22	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 21:32	2.6	2.6	8	0.325	0.1027	0.154038	69.13718
1/3/2022 21:42	2.4	2.4	8	0.3	0.0878	0.13169	59.10657
1/3/2022 21:52	2.6	2.6	8	0.325	0.1027	0.154038	69.13718
1/3/2022 22:02	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 22:12	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 22:22	2.4	2.4	8	0.3	0.0878	0.13169	59.10657
1/3/2022 22:32	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 22:42	2.4	2.4	8	0.3	0.0878	0.13169	59.10657
1/3/2022 22:52	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935
1/3/2022 23:02	2.5	2.5	8	0.3125	0.0966	0.144889	65.03069
1/3/2022 23:12	2.2	2.2	8	0.275	0.0738	0.110692	49.68183
1/3/2022 23:22	2.3	2.3	8	0.2875	0.0821	0.123141	55.26935
1/3/2022 23:32	2.4	2.4	8	0.3	0.0878	0.13169	59.10657
1/3/2022 23:42	2.2	2.2	8	0.275	0.0738	0.110692	49.68183
1/3/2022 23:52	2.1	2.1	8	0.2625	0.0686	0.102892	46.18121

815MH011 Industrial



815MH011 Industrial / Location: Goldring Rd.

Date	Backwater Adjusted		Diameter	d/D	K'	Q (cfs)		Q (gpm)	Qaverage	Qpeak
	Depth (in)	Depth (in)								
10/18/2021 0:00	4.1	4.1	8	0.5125	0.239	0.34179	153.4062	140.219	254.6377	
10/18/2021 0:10	2.8	2.8	8	0.35	0.11855	0.169537	76.09331			
10/18/2021 0:20	4.8	4.8	8	0.6	0.307	0.439036	197.0531			
10/18/2021 0:30	3.7	3.7	8	0.4625	0.2005	0.286732	128.6943			
10/18/2021 0:40	3.7	3.7	8	0.4625	0.2005	0.286732	128.6943			
10/18/2021 0:50	4	4	8	0.5	0.2279	0.325917	146.2814			
10/18/2021 1:00	4.8	4.8	8	0.6	0.307	0.439036	197.0531			
10/18/2021 1:10	4.1	4.1	8	0.5125	0.239	0.34179	153.4062			
10/18/2021 1:21	3.7	3.7	8	0.4625	0.2005	0.286732	128.6943			
10/18/2021 1:31	2.5	2.5	8	0.3125	0.0966	0.138146	62.00433			
10/18/2021 1:41	3.5	3.5	8	0.4375	0.18165	0.259775	116.5951			
10/18/2021 1:51	2.6	2.6	8	0.325	0.1027	0.14687	65.91972			
10/18/2021 2:01	1.9	1.9	8	0.2375	0.0561	0.080228	36.00873			
10/18/2021 2:11	1.6	1.6	8	0.2	0.0386	0.055201	24.77606			
10/18/2021 2:21	4.4	4.4	8	0.55	0.267	0.381833	171.3784			
10/18/2021 2:31	4	4	8	0.5	0.2279	0.325917	146.2814			
10/18/2021 2:41	3.6	3.6	8	0.45	0.18915	0.270501	121.4091			
10/18/2021 2:51	3.9	3.9	8	0.4875	0.2199	0.314476	141.1465			
10/18/2021 3:01	4.6	4.6	8	0.575	0.287	0.410435	184.2158			
10/18/2021 3:11	3.4	3.4	8	0.425	0.1705	0.24383	109.4383			
10/18/2021 3:25	2.3	2.3	8	0.2875	0.0821	0.11741	52.69726			
10/18/2021 3:35	2.9	2.9	8	0.3625	0.1284	0.183623	82.41569			
10/18/2021 3:45	4	4	8	0.5	0.2279	0.325917	146.2814			
10/18/2021 3:55	4.3	4.3	8	0.5375	0.259	0.370392	166.2435			
10/18/2021 4:05	4.1	4.1	8	0.5125	0.239	0.34179	153.4062			
10/18/2021 4:15	3.6	3.6	8	0.45	0.18915	0.270501	121.4091			
10/18/2021 4:25	4.8	4.8	8	0.6	0.307	0.439036	197.0531			
10/18/2021 4:35	4	4	8	0.5	0.2279	0.325917	146.2814			
10/18/2021 4:45	5.2	5.2	8	0.65	0.3465	0.495525	222.4068			
10/18/2021 4:55	4.9	4.9	8	0.6125	0.319	0.456197	204.7555			
10/18/2021 5:05	4.4	4.4	8	0.55	0.267	0.381833	171.3784			
10/18/2021 5:15	4.7	4.7	8	0.5875	0.299	0.427596	191.9182			
10/18/2021 5:25	3.3	3.3	8	0.4125	0.1633	0.233533	104.8168			
10/18/2021 5:35	2.3	2.3	8	0.2875	0.0821	0.11741	52.69726			
10/18/2021 5:45	3.6	3.6	8	0.45	0.18915	0.270501	121.4091			
10/18/2021 5:55	2.4	2.4	8	0.3	0.0878	0.125562	56.3559			
10/18/2021 6:05	4.1	4.1	8	0.5125	0.239	0.34179	153.4062			
10/18/2021 6:15	4.8	4.8	8	0.6	0.307	0.439036	197.0531			
10/18/2021 6:24	4.9	4.9	8	0.6125	0.319	0.456197	204.7555			
10/18/2021 6:34	3.8	3.8	8	0.475	0.2082	0.297744	133.6367			
10/18/2021 6:44	4.1	4.1	8	0.5125	0.239	0.34179	153.4062			
10/18/2021 6:54	5.1	5.1	8	0.6375	0.339	0.484799	217.5928			
10/18/2021 7:04	4.1	4.1	8	0.5125	0.239	0.34179	153.4062			
10/18/2021 7:14	3.8	3.8	8	0.475	0.2082	0.297744	133.6367			
10/18/2021 7:24	4.8	4.8	8	0.6	0.307	0.439036	197.0531			
10/18/2021 7:34	5.3	5.3	8	0.6625	0.358	0.511971	229.7883			
10/18/2021 7:44	5.7	5.7	8	0.7125	0.395	0.564884	253.5374			
10/18/2021 7:54	5.8	5.8	8	0.725	0.402	0.574894	258.0304			
10/18/2021 8:04	5.4	5.4	8	0.675	0.366	0.523411	234.9232			
10/18/2021 8:14	4.7	4.7	8	0.5875	0.299	0.427596	191.9182			

10/18/2021 8:27	5.3	5.3	8	0.6625	0.358	0.511971	229.7883	
10/18/2021 8:37	5.3	5.3	8	0.6625	0.358	0.511971	229.7883	
10/18/2021 8:47	6.1	6.1	8	0.7625	0.429	0.613507	275.3608	
10/18/2021 8:57	6.2	6.2	8	0.775	0.435	0.622087	279.212	279.212
10/18/2021 9:07	5.4	5.4	8	0.675	0.366	0.523411	234.9232	
10/18/2021 9:17	5.8	5.8	8	0.725	0.402	0.574894	258.0304	
10/18/2021 9:27	4.6	4.6	8	0.575	0.287	0.410435	184.2158	
10/18/2021 9:37	5.1	5.1	8	0.6375	0.339	0.484799	217.5928	
10/18/2021 9:47	4.6	4.6	8	0.575	0.287	0.410435	184.2158	
10/18/2021 9:57	4	4	8	0.5	0.2279	0.325917	146.2814	
10/18/2021 10:07	3.9	3.9	8	0.4875	0.2199	0.314476	141.1465	
10/18/2021 10:17	4.1	4.1	8	0.5125	0.239	0.34179	153.4062	
10/18/2021 10:29	4.1	4.1	8	0.5125	0.239	0.34179	153.4062	
10/18/2021 10:39	3.4	3.4	8	0.425	0.1705	0.24383	109.4383	
10/18/2021 10:49	4	4	8	0.5	0.2279	0.325917	146.2814	
10/18/2021 10:59	4.7	4.7	8	0.5875	0.299	0.427596	191.9182	
10/18/2021 11:09	4.1	4.1	8	0.5125	0.239	0.34179	153.4062	
10/18/2021 11:19	4.1	4.1	8	0.5125	0.239	0.34179	153.4062	
10/18/2021 11:29	4.7	4.7	8	0.5875	0.299	0.427596	191.9182	
10/18/2021 11:39	5.4	5.4	8	0.675	0.366	0.523411	234.9232	
10/18/2021 11:49	5.3	5.3	8	0.6625	0.358	0.511971	229.7883	
10/18/2021 11:59	5.5	5.5	8	0.6875	0.3765	0.538427	241.6628	
10/18/2021 12:09	4.9	4.9	8	0.6125	0.319	0.456197	204.7555	
10/18/2021 12:19	4.8	4.8	8	0.6	0.307	0.439036	197.0531	
10/18/2021 12:29	5.3	5.3	8	0.6625	0.358	0.511971	229.7883	
10/18/2021 12:39	4.8	4.8	8	0.6	0.307	0.439036	197.0531	
10/18/2021 12:49	5.8	5.8	8	0.725	0.402	0.574894	258.0304	
10/18/2021 12:59	5.8	5.8	8	0.725	0.402	0.574894	258.0304	
10/18/2021 13:09	5.6	5.6	8	0.7	0.384	0.549153	246.4768	
10/18/2021 13:19	5.6	5.6	8	0.7	0.384	0.549153	246.4768	
10/18/2021 13:29	4.3	4.3	8	0.5375	0.259	0.370392	166.2435	
10/18/2021 13:39	5.3	5.3	8	0.6625	0.358	0.511971	229.7883	
10/18/2021 13:49	4.4	4.4	8	0.55	0.267	0.381833	171.3784	
10/18/2021 13:59	4.3	4.3	8	0.5375	0.259	0.370392	166.2435	
10/18/2021 14:09	4.6	4.6	8	0.575	0.287	0.410435	184.2158	
10/18/2021 14:19	5.3	5.3	8	0.6625	0.358	0.511971	229.7883	
10/18/2021 14:29	4.8	4.8	8	0.6	0.307	0.439036	197.0531	
10/18/2021 14:39	4.6	4.6	8	0.575	0.287	0.410435	184.2158	
10/18/2021 14:49	4.3	4.3	8	0.5375	0.259	0.370392	166.2435	
10/18/2021 14:59	4.8	4.8	8	0.6	0.307	0.439036	197.0531	
10/18/2021 15:09	4	4	8	0.5	0.2279	0.325917	146.2814	
10/18/2021 15:19	5	5	8	0.625	0.327	0.467638	209.8904	
10/18/2021 15:31	3.8	3.8	8	0.475	0.2082	0.297744	133.6367	
10/18/2021 15:41	4.8	4.8	8	0.6	0.307	0.439036	197.0531	
10/18/2021 15:51	5	5	8	0.625	0.327	0.467638	209.8904	
10/18/2021 16:01	4.8	4.8	8	0.6	0.307	0.439036	197.0531	
10/18/2021 16:11	4.4	4.4	8	0.55	0.267	0.381833	171.3784	
10/18/2021 16:21	3.8	3.8	8	0.475	0.2082	0.297744	133.6367	
10/18/2021 16:34	4.3	4.3	8	0.5375	0.259	0.370392	166.2435	
10/18/2021 16:44	4.8	4.8	8	0.6	0.307	0.439036	197.0531	
10/18/2021 16:54	4.8	4.8	8	0.6	0.307	0.439036	197.0531	
10/18/2021 17:04	4.9	4.9	8	0.6125	0.319	0.456197	204.7555	
10/18/2021 17:14	4.6	4.6	8	0.575	0.287	0.410435	184.2158	
10/18/2021 17:24	4.3	4.3	8	0.5375	0.259	0.370392	166.2435	

10/18/2021 17:35	3	3	8	0.375	0.1352	0.193348	86.78039
10/18/2021 17:45	3.5	3.5	8	0.4375	0.18165	0.259775	116.5951
10/18/2021 17:55	2.5	2.5	8	0.3125	0.0966	0.138146	62.00433
10/18/2021 18:05	2.6	2.6	8	0.325	0.1027	0.14687	65.91972
10/18/2021 18:15	2.2	2.2	8	0.275	0.0738	0.10554	47.36977
10/18/2021 18:25	3.6	3.6	8	0.45	0.18915	0.270501	121.4091
10/18/2021 18:36	3	3	8	0.375	0.1352	0.193348	86.78039
10/18/2021 18:46	2.8	2.8	8	0.35	0.11855	0.169537	76.09331
10/18/2021 18:56	2.3	2.3	8	0.2875	0.0821	0.11741	52.69726
10/18/2021 19:06	2.8	2.8	8	0.35	0.11855	0.169537	76.09331
10/18/2021 19:16	2.1	2.1	8	0.2625	0.0686	0.098104	44.03206
10/18/2021 19:26	4.1	4.1	8	0.5125	0.239	0.34179	153.4062
10/18/2021 19:36	4.5	4.5	8	0.5625	0.279	0.398994	179.0808
10/18/2021 19:46	4.4	4.4	8	0.55	0.267	0.381833	171.3784
10/18/2021 19:56	4.4	4.4	8	0.55	0.267	0.381833	171.3784
10/18/2021 20:06	4.3	4.3	8	0.5375	0.259	0.370392	166.2435
10/18/2021 20:16	3.1	3.1	8	0.3875	0.1455	0.208077	93.39161
10/18/2021 20:26	4.3	4.3	8	0.5375	0.259	0.370392	166.2435
10/18/2021 20:35	4	4	8	0.5	0.2279	0.325917	146.2814
10/18/2021 20:45	4.4	4.4	8	0.55	0.267	0.381833	171.3784
10/18/2021 20:55	4.8	4.8	8	0.6	0.307	0.439036	197.0531
10/18/2021 21:05	4.8	4.8	8	0.6	0.307	0.439036	197.0531
10/18/2021 21:15	4.4	4.4	8	0.55	0.267	0.381833	171.3784
10/18/2021 21:25	3.9	3.9	8	0.4875	0.2199	0.314476	141.1465
10/18/2021 21:36	3	3	8	0.375	0.1352	0.193348	86.78039
10/18/2021 21:46	4.1	4.1	8	0.5125	0.239	0.34179	153.4062
10/18/2021 21:56	3	3	8	0.375	0.1352	0.193348	86.78039
10/18/2021 22:06	2.4	2.4	8	0.3	0.0878	0.125562	56.3559
10/18/2021 22:16	1.9	1.9	8	0.2375	0.0561	0.080228	36.00873
10/18/2021 22:26	1.6	1.6	8	0.2	0.0386	0.055201	24.77606
10/18/2021 22:36	1.5	1.5	8	0.1875	0.03465	0.049552	22.24068
10/18/2021 22:46	2.3	2.3	8	0.2875	0.0821	0.11741	52.69726
10/18/2021 22:56	1.9	1.9	8	0.2375	0.0561	0.080228	36.00873
10/18/2021 23:06	2.5	2.5	8	0.3125	0.0966	0.138146	62.00433
10/18/2021 23:16	1.9	1.9	8	0.2375	0.0561	0.080228	36.00873
10/18/2021 23:26	1.6	1.6	8	0.2	0.0386	0.055201	24.77606
10/18/2021 23:37	1.5	1.5	8	0.1875	0.03465	0.049552	22.24068
10/18/2021 23:47	4.5	4.5	8	0.5625	0.279	0.398994	179.0808
10/18/2021 23:57	4.5	4.5	8	0.5625	0.279	0.398994	179.0808



STAFF REPORT

Public Works Services Department

DATE: November 15, 2022

TO: Honorable Mayor and City Council

FROM: Paul Cranmer, Public Works Services Director
By: Jeramie Brogan, Management Analyst

SUBJECT: CITY WATER AND SEWER RATES FOR CALENDAR YEAR 2023
Recommendation: Receive and File
CEQA: Not a Project

SUMMARY

On February 2, 2021, the City Council adopted a five-year water and sewer rate adjustment schedule for calendar years 2021 through 2025. The Public Works Services Department (“PWSD”) has reviewed water and sewer operating budgets, revenues, expenditures, and reserve fund balances, and determined that it is necessary to adjust water and sewer rates for calendar year 2023 to recover increasing water and sewer system operations and maintenance costs, and to continue to replace aging infrastructure. The sewer rate will increase 2% based on the previously adopted rate schedule. The water rate will increase 6% based on previously adopted rate schedule. This will be the third year of the approved five-year water rate adjustment. The water and sewer rate adjustments will ensure revenue stability and encourage water use efficiency. The following report is to provide an update on the City’s current water and sewer operations.

The City of Arcadia’s water and sewer rates are among the lowest in the area and will remain so through calendar year 2023, even with the adopted increases. It is recommended that the City Council receive and file this report.

BACKGROUND

The City provides and maintains water and sewer services to more than 56,000 residents. In order to provide quality services to Arcadia residents and businesses, utility rate increases are necessary to keep up with ongoing operations costs, maintenance, and capital improvements, and to maintain adequate Reserve Fund balances for the water and sanitary sewer systems. In February 2014, the City Council awarded a Professional Services Agreement to Carollo Engineers (“Carollo”) for the preparation of the Water and Sewer Cost of Service Study, and the development of financial models that would determine how best to recover projected ongoing operational costs, capital improvements

to water and sewer infrastructure, and water supply costs over a five-year period. Carollo and PWSD collaborated to analyze data on the City's water and sanitary sewer operations and established a seasonal tiered water rate structure that would meet the City's primary objectives of providing revenue stability, while encouraging water use efficiency.

The goal of the 2015 Cost of Service Study was to utilize Reserve Funds to minimize larger rate adjustments. Due to changes in water use trends resulting from the last drought emergency, increases to operations and maintenance budgets – mainly due to the cost of the Resource Development Assessment (“RDA”) and Replacement Water described below – and funding capital improvements, an update to the 2015 Cost of Service Study was necessary. In July 2019, the City Council approved a Professional Services Agreement with Carollo to complete an update to the 2015 Cost Study and to recommend a new five-year water and sewer rate adjustment schedule. Based on the Cost Study Update, on February 2, 2021, the City Council adopted a five-year water and sewer rate adjustment schedule for calendar years 2021 through 2025.

In the Main Basin, from which the City draws most of its water, basin levels continue to decline and have not recovered to optimal operating levels since the previous drought. In response, the Main Basin Watermaster adopted a Drought Management Plan that includes a Resource Development Assessment, which is a pass-through fee based on each individual producer's annual amount of water pumped from the Main Basin. The purpose of the RDA is to restore ground water levels by purchasing imported water from the State Water Project, separate from and in addition to the purchase of Replacement Water. The RDA will cost the City over \$2 million dollars in Fiscal Year 2022-23 and is anticipated to cost the same in Fiscal Year 2023-24.

The PWSD annually reviews water and sewer operating budgets, revenues, expenditures, and reserve fund balances to determine whether the approved maximum rate adjustment is necessary.

DISCUSSION

The Cost Study Update relied on the City's financial and rate models, which were exclusively developed for the City by Carollo during the 2015 Cost Study and were subsequently updated and refined in 2017. In 2020, these models were again updated to include actual revenues and operational expenditures, capital improvement costs, and customer usage data, along with additional items that were necessary to develop financial projections for Fiscal Years 2020-21 through Fiscal Year 2024-25.

Water Rates

Water rates are determined by analyzing expenditures and revenues and forecasting the water sales for calendar year 2023. The following goals were identified in the Cost Study Update:

- Generate enough revenue to fund continued operations and maintenance of the City's sewer and water supply and distribution system, including increases in water supply costs driven by the Main Basin's Drought Management Plan to restore the health of the basin.
- Provide for equipment replacement and improvements to the water and sewer systems infrastructure through capital improvements.
- Review reserve policies and set rates to adequately maintain a reserve fund to make necessary repairs in the event of an emergency.

Operations and maintenance expenditures comprise most of the expenses within the Water budget, with the single largest line item being water supply costs. The updated Cost Study financial model was used to forecast water sales and expenditures that include assessing the cost of current and future water supplies as well as the rising cost of replacement water, system operation costs, and Watermaster's imposed RDA fee.

Following an analysis of forecasted water use, expenditures, and capital improvement projects, it was determined that the City must increase revenues by 6%, as recommended by the Cost Study Update, and that the previously-adopted maximum rate adjustment for water rates be applied for calendar year 2023. The reason for applying the maximum rate adjustment next year is primarily due to the continued RDA fee to purchase additional water from the State Water Project, and the proposed limitations on the purchase of cyclic water, which would result in an increased cost to purchase Replacement Water. In 2023, there is a proposed decrease in the Operating Safe Yield, or the amount of water that can be removed from the Main San Gabriel Basin, for all producers with pumping rights. If adopted, this will drastically reduce the allowable extractions from the Basin, which will increase the amount of more costly Replacement Water needed to meet consumer demand.

The adopted water rates for calendar year 2023 are as shown in the following tables and will not exceed the estimated amount necessary to fund the operation of the City Water System for calendar year 2023.

This table shows the adopted increase to the current fixed bimonthly meter charge effective January 1, 2023, for all customer classes to adequately reflect the actual cost of service incurred.

BI-MONTHLY RATES FOR METER CHARGE (\$/SIZE OF METER) – ALL CUSTOMER CLASSES		
Meter Size	Current Rates	Effective 1/1/2023
5/8"	\$33.41	\$35.41
3/4"	\$35.69	\$37.83
1"	\$40.26	\$42.67
1 1/2"	\$51.68	\$54.78
2"	\$65.38	\$69.31
3"	\$97.36	\$103.20
4"	\$143.05	\$151.63
6"	\$280.09	\$296.90
8"	\$439.98	\$466.38
10"	\$668.39	\$708.50

The following tables are the commodity charges [\$/Hundred Cubic Feet (“HCF”)] for single-family residential customers based on the approved four-tier inclining block rate structure, and variable consumption allotments based on the customers’ water meter size. No changes are included in these allotments.

BIMONTHLY TIER BREAK POINTS (IN HCF) FOR WINTER WATER USAGE (NOVEMBER THROUGH APRIL)					
Tier	Meter Size				
	5/8"	3/4"	1"	1 1/2"	2"
Tier 1	0 - 22	0 - 22	0 - 22	0 - 22	0 - 22
Tier 2	23 - 32	23 - 34	23 - 42	23 - 48	23 - 60
Tier 3	33 - 42	35 - 44	43 - 58	49 - 70	61 - 90
Tier 4	43+	45+	59+	71+	91+

BIMONTHLY TIER BREAK POINTS (IN HCF) FOR SUMMER WATER USAGE (MAY THROUGH OCTOBER)					
Tier	Meter Size				
	5/8"	3/4"	1"	1 1/2"	2"
Tier 1	0 - 22	0 - 22	0 - 22	0 - 22	0 - 22
Tier 2	23 - 34	23 - 42	23 - 60	23 - 70	23 - 94
Tier 3	35 - 44	43 - 58	61 - 92	71 - 112	95 - 148
Tier 4	45+	59+	93+	113+	149+

A seasonal single-family tiered water rate structure assists in managing customer demand for water by pricing discretionary water uses, such as landscape irrigation, at a higher rate than water used for drinking and sanitation purposes. This is to provide a price

signal to customers to use water efficiently and to offer an incentive to reduce excess water use. As water usage increases, so does the cost per unit of additional water; this methodology has proven effective in curtailing wasteful water practices.

The table below shows the proposed single-family rates:

SINGLE FAMILY RESIDENTIAL WATER RATES (\$/HCF)		
Tier	Current Rates	Effective 1/1/2023
Tier 1	\$2.01	\$2.13
Tier 2	\$2.50	\$2.65
Tier 3	\$2.58	\$2.73
Tier 4	\$3.21	\$3.41

The table below shows the two-tier water allocations based on the number of dwelling units in each multi-family complex, followed by a table showing the proposed multi-family rates. Again, there are no proposed changes to these allotments.

BIMONTHLY TIER ALLOTMENTS (PER DWELLING UNIT)	
Tier	Tier (HCF) x Per Dwelling Unit
Tier 1	12
Tier 2	13 +

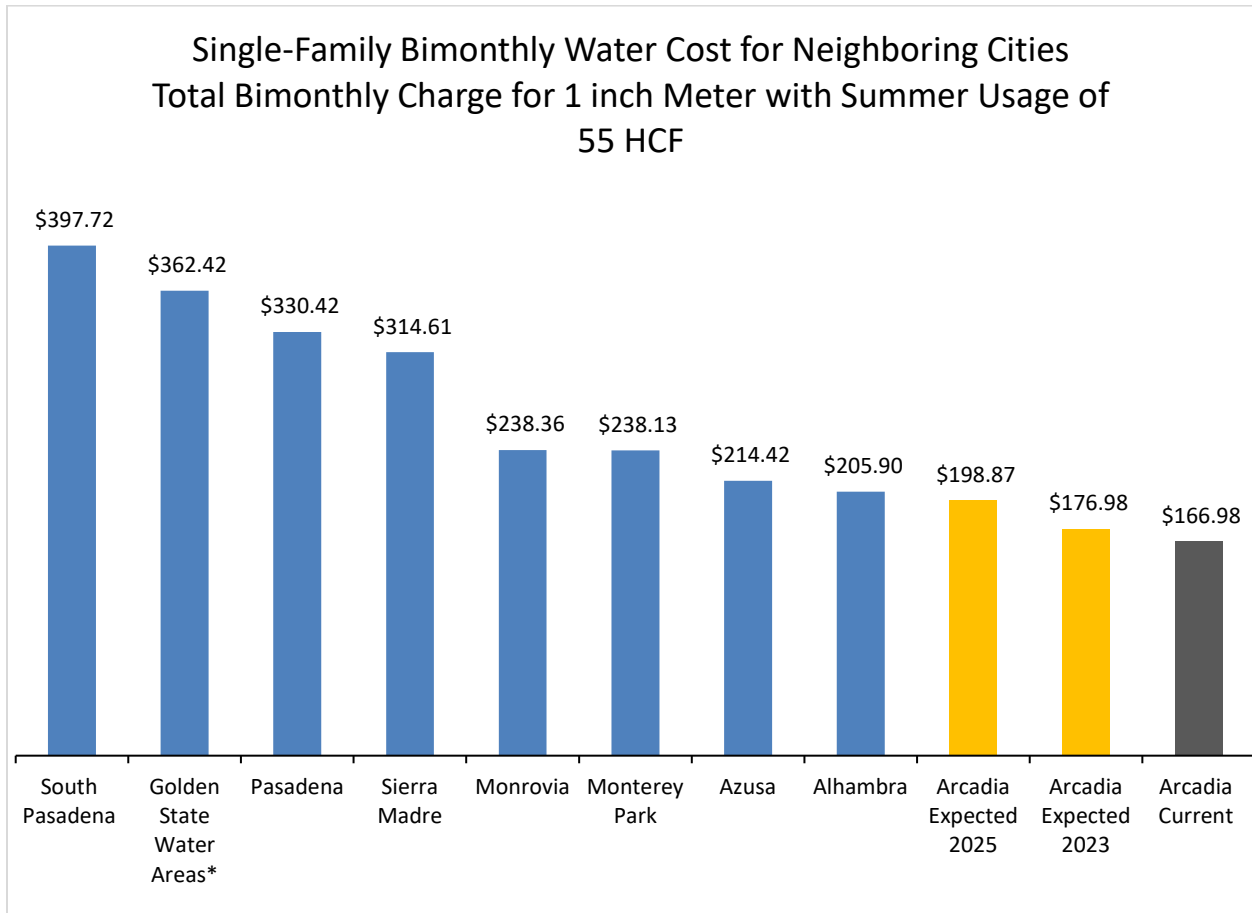
The table below shows the adopted multi-family residential rates based on the tier structures:

MULTI-FAMILY RESIDENTIAL WATER RATES (\$/HCF)		
Tier	Current Rates	Effective 1/1/2023
Tier 1	\$1.83	\$1.94
Tier 2	\$2.04	\$2.17

Finally, the following table shows specific uniform rates for Commercial, Government, and Institutional classes:

COMMERCIAL, GOVERNMENT, & INSTITUTIONAL WATER RATES (\$/HCF)		
Tier	Current Rates	Effective 1/1/2023
Commercial	\$1.95	\$2.07
Government & Institutional	\$2.38	\$2.52

The net change to a customer’s water bill will be affected by the customer’s ability to use water efficiently. The percent increase will vary among customers based on usage. Arcadia’s water rates are among the lowest in the area and will remain so, even with the adopted increases. The table below provides a comparison of Arcadia’s rates along with other neighboring jurisdictions.



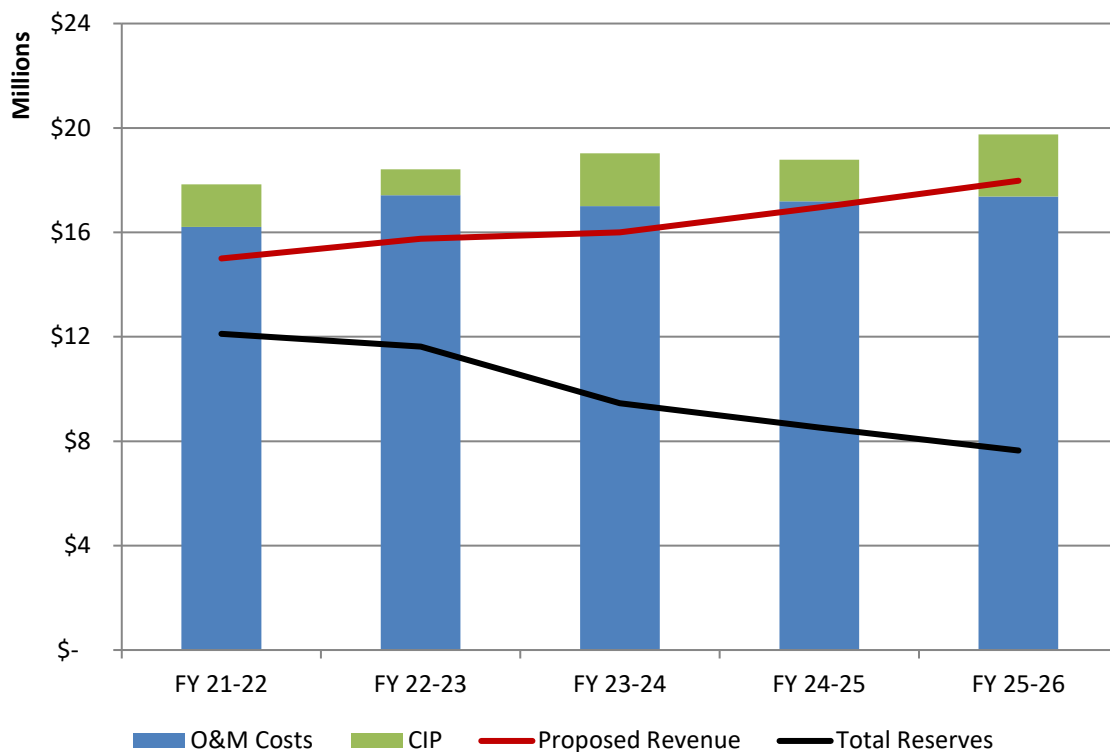
The previous annual rate adjustments were designed to use Reserve Funds to lessen the amount of annual water rate adjustments. Accordingly, the City Council agreed to lower the Water Reserve Fund balance from \$20 million to \$11 million over the five-year period. The updated Cost Study has estimated the value of the City’s water system replacement at \$236 million. Based on industry standards for such a valuation, the Cost Study determined that \$7.1 million in capital reserve (or 3% of the replacement value) is needed, combined with about \$3.8 million to fund operation and maintenance costs for at least 90 days. To meet these industry standards and financial best practices, the City needs to increase rates to reach the recommended \$11 million for the Water Reserve Fund.

Based on those factors, the Cost Study Update recommended that the City increase water revenues by 5% for calendar years 2021 and 2022, and 6% for each of the following

calendar years through 2025 in order to fund expected operations, maintenance, and CIP expenditures, and maintain a sufficient Reserve Fund balance. This will be the third year of an approved five-year water rate adjustment. Currently, the maximum water rate adjustment is not resulting in sufficient revenues to meet total expenditures for operations and maintenance costs and capital improvement projects. The goal of the Cost Study Update was to utilize reserve funds to minimize larger rate adjustments.

The graph below includes a 6% increase in revenue for the third year of the five-year approved water rate adjustment, and a 6% increase is projected for the following two years. Even with the adopted annual 6% increase in revenue, over time the reserve fund balance continues to fall below the recommended reserve fund balance of \$11 million. Therefore, it should be anticipated that maximum rates be applied in the following years to maintain a healthy fund balance or significant savings in overall water purchases will be necessary (i.e., customers would need to significantly reduce their usage). In addition, Water Division staff will look for alternative funding sources for CIP projects and delay optional projects in order to protect Water Reserve Fund balances. Nevertheless, it should be anticipated that water rates will need to increase substantially in the next five-year rate cycle to ensure the long-term health of the program.

Water Fund Balance



Sewer Rates

The City’s sewer system includes 138 miles of pipe and is, on average, 50 years old. The Sewer Master Plan is a comprehensive report outlining a long-range program of capital improvements and preventative maintenance measures to upgrade and maintain the City’s sewer system. Annual sewer rate adjustments are necessary to fund the operations and maintenance activities of the sewer system to ensure that the City’s sewer system follows state regulations that mandate the elimination of sewer overflows. An update to the Sewer Master Plan is recommended for approval at the November 15, 2022, City Council meeting. The Plan contains a list of recommended improvements to the City’s sewer system to be implemented over the next 20 years, with the most critical projects indicated as Priority 1 and the remaining projects indicated as Priority 2. There are eight Priority 1 projects with a total estimated cost of approximately \$3.2 million, and 34 Priority 2 projects with a total estimated cost of approximately \$5.4 million. If the Plan is approved, the project costs will have a continued impact on the Sewer Fund.

The adopted rate adjustments and revenue increases would allow the City to fund ongoing operations and provide adequate maintenance and upgrades to the City’s sewer system. The results of the Cost Study Update determined that the current sewer rate structure equitably recovers costs from each customer class, but that the City must increase sewer revenues annually to adequately fund Capital Improvement Projects and meet projected expenditure increases. The PWSD has determined that the approved 2% sewer rate adjustment for calendar year 2023 is necessary to meet operations and maintenance expenditures and complete capital improvement projects.

The adopted sewer rates for calendar year 2023 are shown in the tables below and will not exceed the estimated amount necessary to fund the operation of the City Sewer System for calendar year 2023.

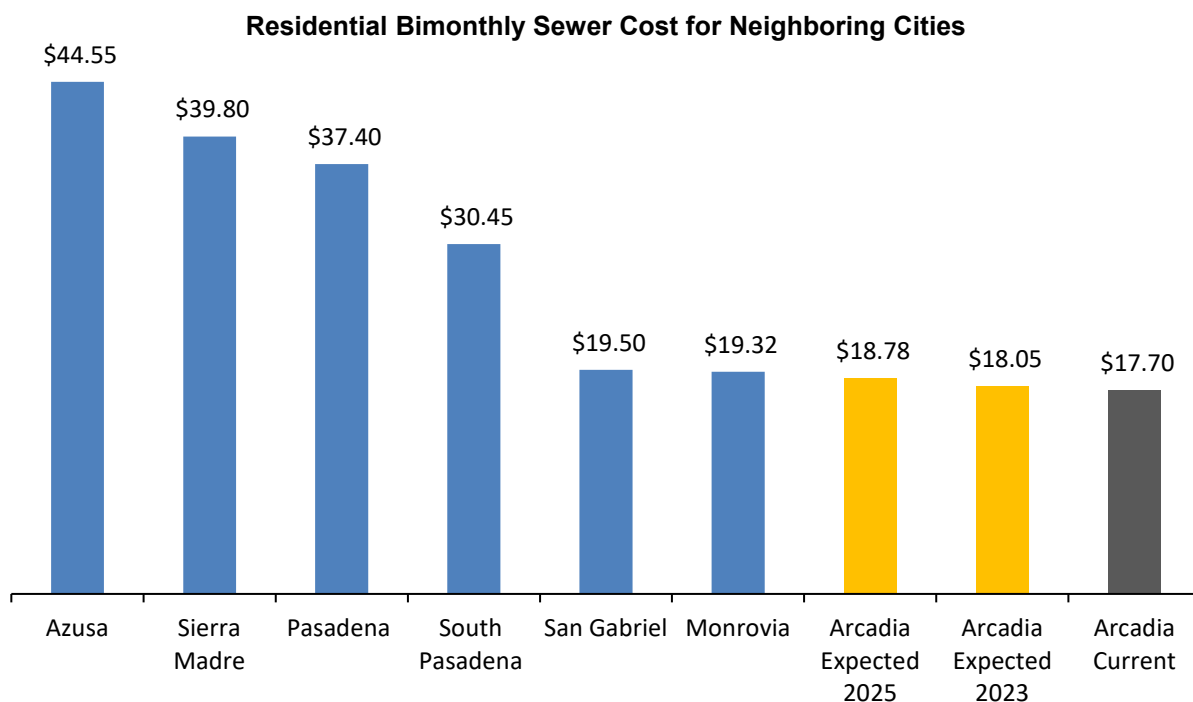
The table below shows Single-Family Residential and Multi-Family Residential Dwellings Bimonthly Rates:

Current Rate	Effective 1/1/2023
\$17.70	\$18.05

Commercial Dwellings Bimonthly Rates (Fixed Rate + Variable Per HCF Billed Water Usage) are shown in the following table:

Current Rate	Effective 1/1/2023
\$53.09 + \$0.29 Variable Per HCF	\$54.15 + \$0.29 Variable Per HCF

The adopted sewer rates are increased proportionally each year to generate the necessary level of revenues projected in the Cost Study Update. Should the City find that revenue requirements are less than those projected in the study, the City Council could opt to forgo rate increases in any given year or implement rates lower than the proposed increase for that year. Even with the proposed increases, Arcadia’s sewer rates are also among the lowest in the area and will remain so through year 2025, , as shown in the table below.



Each year, as part of the budgeting process, water and sewer operating budgets will be reviewed and analyzed. Should it be determined that revenue projections do not require the full percent rate adjustment, the PWSO will recommend a lesser rate adjustment.

ENVIRONMENTAL ANALYSIS

The proposed action does not constitute a project under the California Environmental Quality Act (“CEQA”) under Section 15061(b)(3) of the CEQA Guidelines, and it can be seen with certainty that it will have no impact on the environment. Thus, this matter is exempt under CEQA.

FISCAL IMPACT

Water and sewer rate increases are necessary to fund ongoing operations and maintenance budgets and the Capital Improvement Program while maintaining an adequate Reserve Fund balance in case of an emergency. The lack of a rate adjustment would not allow the City to recover increasing water supply costs, and operations and maintenance costs for the City's water and sewer systems.

The Water and Sewer Costs of Service Study Update recommended that the City increase water revenues by 6%, for calendar year 2023 in order to fund expected operations, maintenance, and Capital Improvement Program expenditures. While the rates will be a nominal increase for most ratepayers, collectively, the City will receive or approximately \$940,000 in additional water revenue. Based on study projections, the City must increase water revenue annually in order to meet expected expenses.

Additionally, the Cost Study Update recommends that a 2% sewer rate adjustment, or approximately \$50,000 collectively, for calendar year 2023 is necessary to fund expected operations, maintenance and Capital Improvement Programs expenditures for the City's sewer system. Based on study projections, the City must increase sewer revenue annually in order to meet expected revenue needs.

RECOMMENDATION

It is recommended that the City Council determine that this item is exempt under the California Environmental Quality Act ("CEQA"); and that the City Council receive and file this report.

Approved:



Dominic Lazzaretto
City Manager

Attachments: Adopted Resolution No. 7348 (City Water Rates)
Adopted Resolution No. 7349 (City Sewer Rates)

RESOLUTION NO. 7348

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ARCADIA, CALIFORNIA, SETTING CITY WATER RATES AND FINDING THE RATES WILL NOT EXCEED THE ESTIMATED AMOUNT NECESSARY TO FUND THE OPERATION OF THE CITY WATER SYSTEM FOR CALENDAR YEARS 2021 THROUGH 2025

WHEREAS, pursuant to the Arcadia Municipal Code Section 7531.1, water rates may be set and modified by resolution of the City Council; and

WHEREAS, it is the desire of the City Council to maintain flexibility so as to best meet the needs of the City and water consumers; and

WHEREAS, proposed water rate changes were presented to the City Council at its December 15, 2020 regularly scheduled City Council meeting; and

WHEREAS, a public notice concerning said rate changes was duly mailed to residents in accordance with Proposition 218 noticing requirements on December 16, 2020, and a duly noticed public hearing concerning said rate adjustments was conducted by the City Council on February 2, 2021 for Calendar Years 2021, 2022, 2023, 2024, and 2025.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF ARCADIA, CALIFORNIA, DOES HEREBY FIND, DETERMINE AND RESOLVE AS FOLLOWS:

SECTION 1. SERVICE FEES. The bimonthly water service fees are comprised of two components – (1) a fixed service charge (the “Meter Charge”); and, (2) a variable water commodity charge (the “Commodity Charge”). The Commodity Charge includes four customer classes - (1) Single Family Residential; (2) Multi-Family Residential; (3) Commercial; and (4) Governmental, Institutional, and Irrigation (collectively “Institutional”). The Meter Charge is a fixed charge established on the basis of the size

of the water meter (in inches) serving a property and is calculated to recover a percentage of the water utility’s annual fixed costs of providing water service, such as utilities, equipment, materials, billing, collections, customer service, meter reading, and meter maintenance.

SECTION 2. RATES. The following new bimonthly rates are established and shall supersede rates heretofore adopted for the provision, delivery, and consumption of water for beneficial use during each bimonthly period.

(a) Meter Charge (\$/Meter Size)

<u>Meter Size (in inches)</u>	<u>2/2/2021</u>	<u>1/1/2022</u>	<u>1/1/2023</u>	<u>1/1/2024</u>	<u>1/1/2025</u>
5/8"	\$31.82	\$33.41	\$35.41	\$37.54	\$39.79
3/4"	\$33.99	\$35.69	\$37.83	\$40.10	\$42.51
1"	\$38.34	\$40.26	\$42.67	\$45.24	\$47.95
1 1/2"	\$49.22	\$51.68	\$54.78	\$58.07	\$61.55
2"	\$62.27	\$65.38	\$69.31	\$73.47	\$77.87
3"	\$92.73	\$97.36	\$103.20	\$109.40	\$115.96
4"	\$136.23	\$143.05	\$151.63	\$160.72	\$170.37
6"	\$266.75	\$280.09	\$296.90	\$314.71	\$333.59
8"	\$419.03	\$439.98	\$466.38	\$494.36	\$524.02
10"	\$636.57	\$668.39	\$708.50	\$751.01	\$796.07

(b) Single- Family Residential and Multi-Family Residential

Single-Family Residential and Multi-Family Residential rates consist of tiers which impose higher rates per unit of water as the level of consumption increases, with one unit equal to one hundred cubic feet of water.

The amount of water allotted to each tier for Single-Family Residential customers is seasonal – winter (November through April) or summer (May through October) – and

based on the size of the water meter serving a property.

Single-Family Residential Bimonthly Tier Break Points (in HCF) for Winter Months' Water Usage (November through April)

	<u>Meter Size (in inches)</u>				
	<u>5/8"</u>	<u>3/4"</u>	<u>1"</u>	<u>1 1/2"</u>	<u>2"</u>
Tier 1	0-22 HCF	0-22 HCF	0-22 HCF	0-22 HCF	0-22 HCF
Tier 2	23-32 HCF	23-34 HCF	23-42 HCF	23-48 HCF	23-60 HCF
Tier 3	33-42 HCF	35-44 HCF	43-58 HCF	49-70 HCF	61-90 HCF
Tier 4	43+ HCF	45+ HCF	59+ HCF	71+ HCF	91+ HCF

Single-Family Residential Bimonthly Tier Break Points (in HCF) for Summer Months' Water Usage (May through October)

	<u>Meter Size (in inches)</u>				
	<u>5/8"</u>	<u>3/4"</u>	<u>1"</u>	<u>1 1/2"</u>	<u>2"</u>
Tier 1	0-22 HCF	0-22 HCF	0-22 HCF	0-22 HCF	0-22 HCF
Tier 2	23-34 HCF	23-42 HCF	23-60 HCF	23-70 HCF	23-94 HCF
Tier 3	35-44 HCF	43-58 HCF	61-92 HCF	71-112 HCF	95-148 HCF
Tier 4	45+ HCF	59+ HCF	93+ HCF	113+ HCF	149+ HCF

Single-Family Residential Bimonthly Rates for Commodity Charges (\$/HCF)

	<u>2/2/2021</u>	<u>1/1/2022</u>	<u>1/1/2023</u>	<u>1/1/2024</u>	<u>1/1/2025</u>
Tier 1	\$1.91	\$2.01	\$2.13	\$2.25	\$2.39
Tier 2	\$2.38	\$2.50	\$2.65	\$2.81	\$2.98
Tier 3	\$2.46	\$2.58	\$2.73	\$2.90	\$3.07
Tier 4	\$3.06	\$3.21	\$3.41	\$3.61	\$3.83

The amount of water allotted to each tier for Multi-Family Residential customers is based on allotments per dwelling unit.

Multi-Family Residential Bimonthly Tier Allotments (Per Dwelling Unit)

	<u>Tier (HCF) x Per Dwelling Unit</u>
Tier 1	12
Tier 2	13 +

Multi-Family Residential Bimonthly Rates for Commodity Charges (\$/HCF)

	<u>2/2/2021</u>	<u>1/1/2022</u>	<u>1/1/2023</u>	<u>1/1/2024</u>	<u>1/1/2025</u>
Tier 1	\$1.75	\$1.83	\$1.94	\$2.06	\$2.18
Tier 2	\$1.95	\$2.04	\$2.17	\$2.30	\$2.43

(c) Commercial and Institutional

Commercial and Institutional rates for the Commodity Charge are uniform, but the amount of the charge imposed varies based on the number of units of water delivered to a property (institutional rates shall include Government and Irrigation customers), with one unit equal to one hundred cubic feet of water.

Commercial Bimonthly Rates for Commodity Charges (\$/HCF)

<u>2/2/2021</u>	<u>1/1/2022</u>	<u>1/1/2023</u>	<u>1/1/2024</u>	<u>1/1/2025</u>
\$1.86	\$1.95	\$2.07	\$2.19	\$2.32

Institutional Bimonthly Rates for Commodity Charges (\$/HCF)

<u>2/2/2021</u>	<u>1/1/2022</u>	<u>1/1/2023</u>	<u>1/1/2024</u>	<u>1/1/2025</u>
\$2.27	\$2.38	\$2.52	\$2.67	\$2.83

SECTION 3. FIRE HYDRANT SERVICE FOR CONSTRUCTION, OUTSIDE CITY, AND PRIVATE USE. Fire hydrant meters, eddy valves, and water sold

for construction, to outside City agencies, and for private use, shall be subject to the following charges:

Meter Installation	\$50.00
Meter Relocation	\$25.00
Meter Rental	\$40.00/month
Eddy Valve Rental	\$25.00/month
Hydrant Rental	\$15.00/month
Hydrant Permit	\$25.00
Water Usage	\$2.74/100 cubic feet

All water consumption is to be charged at the rate of two dollars and seventy-four cents (\$2.74) per full one hundred (100) cubic feet registered on the consumer's meter.

Unmetered water use will be charged at a flat rate determined by the Water Section of the Public Works Services Department based upon type of use.

SECTION 4. FIRE LINE SERVICE (NO CHARGE FOR WATER USE). The following rates are established for bimonthly charges for fire protection services:

<u>SIZE OF METER</u>	<u>MINIMUM BIMONTHLY SERVICE CHARGE</u>
2"	\$ 11.55
4"	23.10
6"	34.64
8"	46.18
10"	57.75

SECTION 5. All rates set forth in this Resolution shall be effective and operative for water use and bills sent after February 2, 2021.

SECTION 6. Annually adjusted rates shall take effect for all water use and service appearing on water bills issued on or after January 1, 2022 and each January 1 thereafter, including January 1, 2025. Prior to implementing the rates, however, the City Council will review its projected costs for each year to determine the maximum amount of any rate increases that are necessary.

SECTION 7. The City Council hereby finds that the rates specified in this Resolution will not produce an amount in excess of that necessary to fund the operation of the City of Arcadia Water System.

SECTION 8. The City Council finds that this Resolution is exempt from the requirements of the California Environmental Quality Act as specified in Title 14 Section 15273 of the California Administrative Code.

SECTION 9. The City Clerk shall certify to the adoption of this Resolution.

Passed, approved and adopted this 2nd day of February, 2021.

/s/ Roger Chandler
Mayor of the City of Arcadia

ATTEST:

/s/ Gene Glasco
City Clerk

APPROVED AS TO FORM:

Stephen P. Deitsch

Stephen P. Deitsch
City Attorney

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS:
CITY OF ARCADIA)

I, GENE GLASCO, City Clerk of the City of Arcadia, hereby certifies that the foregoing Resolution No. 7348 was passed and adopted by the City Council of the City of Arcadia, signed by the Mayor and attested to by the City Clerk at a regular meeting of said Council held on the 2nd day of February, 2021 and that said Resolution was adopted by the following vote, to wit:

AYES: Beck, Cheng, Verlato, Tay, and Chandler

NOES: None

ABSENT: None

/s/ Gene Glasco

City Clerk of the City of Arcadia

RESOLUTION NO. 7349

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ARCADIA, CALIFORNIA, SETTING CITY SEWER RATES AND FINDING THE RATES WILL NOT EXCEED THE ESTIMATED AMOUNT NECESSARY TO FUND THE OPERATION OF THE CITY SEWER SYSTEM FOR CALENDAR YEARS 2021 THROUGH 2025

WHEREAS, pursuant to the Arcadia Municipal Code Section 2696, sewer rates may be set and modified by resolution of the City Council; and

WHEREAS, it is the desire of the City Council to set sewer rates in a reasonable amount and so as to meet the capital improvement and service needs of the City and its sewer service consumers; and

WHEREAS, proposed sewer rate changes were presented to the City Council at its October 20, 2020 regularly scheduled City Council meeting; and

WHEREAS, a public notice concerning said rate changes was duly mailed to residents in accordance with Proposition 218 noticing requirements on December 16, 2020, and a duly noticed public hearing concerning said rate adjustments was conducted by the City Council on February 2, 2021 for Calendar Years 2021, 2022, 2023, 2024, and 2025.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF ARCADIA, CALIFORNIA, DOES HEREBY FIND, DETERMINE AND RESOLVE AS FOLLOWS:

SECTION 1. RATES. The following new bimonthly sewer rates are established and shall supersede rates heretofore adopted for the following categories of sewer service:

(a) Single-Family Residential and Multi-Family Residential Dwellings

<u>2/2/2021</u>	<u>1/1/2022</u>	<u>1/1/2023</u>	<u>1/1/2024</u>	<u>1/1/2025</u>
\$17.35	\$17.70	\$18.05	\$18.41	\$18.78

(b) Commercial Properties

<u>2/2/2021</u>	<u>1/1/2022</u>	<u>1/1/2023</u>	<u>1/1/2024</u>	<u>1/1/2025</u>
\$52.04 + \$0.28	\$53.09 + \$0.29	\$54.15 + \$0.29	\$55.23 + \$0.30	\$56.33 + \$0.31
Variable Per	Variable Per	Variable Per	Variable Per	Variable Per
HCF Billed	HCF Billed	HCF Billed	HCF Billed	HCF Billed
Water Usage	Water Usage	Water Usage	Water Usage	Water Usage

(c) Premises where sewer connections are not available or are not connected shall be exempt from said monthly charges.

SECTION 2. All rates set forth in this Resolution shall be effective and operative for water use and bills sent after February 2, 2021.

SECTION 3. Annually adjusted sewer rates shall take effect for all water use and service appearing on bills issued on or after January 1, 2022 and each January 1 thereafter, including January 1, 2025. Prior to implementing the rates, however, the City Council will review its projected costs for each year to determine the maximum amount of any rate increases that are necessary.

SECTION 4. The City Council hereby finds that the rates specified in this Resolution will not produce an amount in excess of that necessary to fund the operation of the City of Arcadia Sewer System.

SECTION 5. The City Council hereby finds that the adoption of this Resolution and the establishment of the sewer rates set forth herein are categorically exempt from the requirements of the California Environmental Quality Act, as specified in Title 14,

Section 15273 of the California Administrative Code.

SECTION 6. The City Clerk shall certify to the adoption of this Resolution.

Passed, approved and adopted this 2nd day of February, 2021.

/s/ Roger Chandler
Mayor of the City of Arcadia

ATTEST:

/s/ Gene Glasco
City Clerk

APPROVED AS TO FORM:

Stephen P. Deitsch

Stephen P. Deitsch
City Attorney

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS:
CITY OF ARCADIA)

I, GENE GLASCO, City Clerk of the City of Arcadia, hereby certifies that the foregoing Resolution No. 7349 was passed and adopted by the City Council of the City of Arcadia, signed by the Mayor and attested to by the City Clerk at a regular meeting of said Council held on the 2nd day of February, 2021 and that said Resolution was adopted by the following vote, to wit:

AYES: Beck, Cheng, Verlato, Tay, and Chandler

NOES: None

ABSENT: None

/s/ Gene Glasco
City Clerk of the City of Arcadia



STAFF REPORT

Development Services Department

DATE: November 15, 2022

TO: Honorable Mayor and City Council

FROM: Jason Kruckeberg, Assistant City Manager/Development Services Director
By: Kenneth Fields, Building Official
Ivette Torres, Administrative Assistant

SUBJECT: PROFESSIONAL SERVICES AGREEMENT WITH URBAN GRAFFITI ENTERPRISES, INC., FOR GRAFFITI REMOVAL AND NUISANCE ABATEMENT SERVICES IN AN AMOUNT NOT TO EXCEED \$50,000 ANNUALLY FOR A PERIOD OF THREE YEARS WITH THE OPTION TO RENEW FOR THREE ADDITIONAL ONE-YEAR PERIODS
Recommendation: Approve
CEQA: Not A Project

SUMMARY

The City of Arcadia provides graffiti removal and nuisance abatement services through an agreement with a company specializing in these services. The City has been contracting with Urban Graffiti Enterprises, Inc. for the work since 2016. The most recent agreement with Urban Graffiti Enterprises, Inc. was for an initial term of three years with three one-year renewals. The latest Professional Services Agreement (“PSA”) will expire in December 2022.

A Request for Proposals (“RFP”) was prepared and distributed to six firms. In addition, a Notice Inviting Bids was published in Arcadia Weekly on September 29 and October 6; three proposals were received. Upon review, the firm selected to provide graffiti removal and nuisance abatement services is Urban Graffiti Enterprises, Inc. It is recommended that the City Council approve, and authorize and direct the City Manager to execute, Professional Services Agreement with Urban Graffiti Enterprises, Inc. for graffiti removal and nuisance abatement services in an amount not to exceed \$50,000 annually.

BACKGROUND

Prior to contracting for these services, graffiti removal on public property was completed by the Public Works Services Department, and the Code Services staff were responsible for contacting property owners to have graffiti removed from private property. These methods did not provide the desired level of effectiveness. It was not cost-effective to have Public Works Services vehicles and crew on standby to respond to instances of

graffiti. When Code Services contacted private property owners to have graffiti removed, it typically took at least a week for the abatement. Utilizing a contractor specializing in this service was a more effective approach to graffiti removal, so the City transitioned to contractor services in 2010.

DISCUSSION

A Request for Proposals was prepared and distributed to six qualified firms. In addition, a Notice Inviting Bids was listed on the City of Arcadia website and published in Arcadia Weekly newspaper on September 29 and October 6. Three firms responded to the RFP, and a committee made up of staff from the Development Services and Public Works Services Departments was formed to review the proposals. The following criteria were used to determine which firm would best fulfill the City’s requirements:

- Understanding the scope of work as demonstrated by the firm’s proposal
- Responsiveness and Responsibility
- Qualifications
- Quality of proposal
- Related experience
- References
- Cost

All three proposals were reviewed and evaluated by the committee. The costs were based on unit prices for various work items. In comparing the costs associated with graffiti removal of an average 30 square foot sample area, the proposed costs are as follows:

Removal Method	Cost		
	Urban Graffiti Enterprises, Inc.	Woods Maintenance Services, Inc.	Superior Property Services, Inc.
Sandblasting	\$38.25	\$175.00	\$125.00
Water Blasting	\$32.50	\$150.00	\$125.00
Water Blasting with Baking Soda	\$38.75	\$175.00	\$125.00
Painting– “Matching Paint”	\$30.00	\$125.00	\$85.00
Chemical/Solvents	\$28.00	\$150.00	\$85.00
Other (describe) Sacrificial Coating	\$83.75	By Estimate Only	Not Provided

As an option, Urban Graffiti Enterprises, Inc. and Superior Property Services, Inc. proposed a fixed monthly rate for graffiti removal. Urban Graffiti Enterprises, Inc. proposed a fixed monthly rate of \$3,500 for a total of \$42,000 annually, and Superior Property Services, Inc. proposed a fixed monthly rate of \$14,000 for a total of \$168,000 annually. Woods Maintenance Services, Inc. elected not to provide an optional fixed monthly rate. However, based on the current workload, it is estimated that Woods

Maintenance Services proposal would cost the City approximately \$7,500 monthly for a total of \$90,000 annually. The lower cost of Urban Graffiti’s proposal is likely due to their familiarity with the City and a more realistic expectation of the amount of work anticipated on a monthly basis.

The other component of this agreement is nuisance abatement. Nuisance abatement is typically the last resort in enforcing violations and code infractions, and is employed after multiple notices and citations, except in cases of health and safety matters. If Code Services must have a nuisance abated by a contractor or City crews, the property owner is billed for the services. If the costs are not reimbursed, a lien is processed to place the costs on the property’s tax roll. In recent years, the incidence of projects that need to be abated has risen. This may be due to the increase in absentee owners and/or vacant or underutilized properties throughout the City. As a result, it is important to have a qualified and accessible option to abate a situation quickly and professionally.

Based on the responses to the RFP, Urban Graffiti Enterprises, Inc. and Superior Property Services, Inc. provided bids for Nuisance Abatement Services. However, Woods Maintenance Services, Inc. elected not to bid on Nuisance Abatement Services. The proposed costs for nuisance abatement are as follows:

Nuisance Abatement Services	Cost	
	Urban Graffiti Enterprises, Inc.	Superior Property Services, Inc.
Patrol and Pick-up of Illegally Discarded Bulky Items	\$225/day	\$125/hour
Weed Abatement	\$75/hour	\$85/hour
Debris Removal/Cleanup	\$95/hour	\$125/hour
Installation of 6’ Chain Link Fencing (Rental)	Depends on # of panels and time needed	N/A
Securing of Unsecured Buildings (Board-ups)	Depends on # and size of openings that need securing	\$125/hour
Pumping/ Removal of Standing Water (e.g., green swimming pools)	Depends on amount of water and solids that need to be collected and disposed of	\$125/hour

Based on the responses, the selection committee unanimously ranked Urban Graffiti Enterprises, Inc. the highest. They meet all of the required criteria and are also the lowest in terms of cost. They are highly qualified and have provided high-quality services to the City in a timely manner for the last six years. Additionally, since they are the City’s current contractor, there would be transition period or service interruptions.

Although the workload typically varies from month to month, the cost of an average monthly workload based on the proposed rates from Urban Graffiti Enterprises, Inc. was

estimated to be comparable to the fixed monthly rate. Therefore, it is recommended to pursue the fixed rate removal services for an annual cost of \$42,000.

ENVIRONMENTAL IMPACT

The proposed action does not constitute a project under the California Environmental Quality Act ("CEQA"), and it can be seen with certainty it will have no impact on the environment. Thus, this matter is exempt under CEQA.

FISCAL IMPACT

Graffiti removal is a General Fund expense, and the proposed Professional Services Agreement provides for compensation of \$42,000 per year at a fixed monthly amount of \$3,500. Based on the previous agreement and anticipated cost increase, a total of \$38,000 was budgeted for Fiscal Year 2022-23. This amount will cover the increased cost of graffiti removal services for the remainder of the Fiscal Year based on the terms and conditions outlined in the PSA.

Nuisance abatement is also a General Fund expense. However, the City would be reimbursed for the cost of abating a nuisance at a particular property by the property owner. This reimbursement generally includes the administrative costs for the abatement work. If the costs are not reimbursed, a lien is processed to have the costs placed on the property's tax roll. Therefore, an additional \$8,000 is added to the contract to cover the potential annual nuisance abatement. The two services together make up an anticipated total budget of \$50,000.

RECOMMENDATION

It is recommended that the City Council approve, and authorize and direct the City Manager to execute a Professional Services Agreement with Urban Graffiti Enterprises, Inc. for graffiti removal and nuisance abatement services in an amount not to exceed \$50,000 annually for a period of three years with the option to renew for three additional one-year periods.

Approved:



Dominic Lazzaretto
City Manager

Attachment: Proposed Professional Services Agreement

**CITY OF ARCADIA
PROFESSIONAL SERVICES AGREEMENT REGARDING
GRAFFITI REMOVAL AND NUISANCE ABATEMENT SERVICES**

This Agreement is made and entered into as of _____, 2022 by and between the City of Arcadia, a municipal corporation organized and operating under the laws of the State of California with its principal place of business at 240 West Huntington Drive, Arcadia, California 91066 ("City"), and Urban Graffiti Enterprises, Inc., a California Corporation with its principal place of business at 1280 Mountain View Circle, Azusa, California 91702 (hereinafter referred to as "Consultant"). City and Consultant are sometimes individually referred to as "Party" and collectively as "Parties" in this Agreement.

RECITALS

A. City is a public agency of the State of California and is in need of professional services for the following project:

Graffiti Removal and Nuisance Abatement Services (hereinafter referred to as "the Project").

B. Consultant is duly licensed and has the necessary qualifications to provide such services.

C. The Parties desire by this Agreement to establish the terms for City to retain Consultant to provide the services described herein.

AGREEMENT

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

1. Services.

Consultant shall provide the City with the services described in the Scope of Services attached hereto as Exhibit "A."

2. Compensation.

a. Subject to paragraph 2(b) below, the City shall pay for such services in accordance with the Schedule of Charges set forth in Exhibit "B."

b. In no event shall the total amount paid for services rendered by Consultant under this Agreement exceed the sum of fifty thousand dollars and zero cents (\$50,000) annually without written approval of the City Manager. This amount is to cover all printing and related costs, and the City will not pay any additional fees for printing expenses. Periodic payments shall be made within 30 days of receipt of an invoice which includes a detailed description of the work performed. Payments to Consultant for work performed will be made on a monthly billing basis.

3. Additional Work.

If changes in the work seem merited by Consultant or the City, and informal consultations with the other party indicate that a change is warranted, it shall be processed in the following manner: a letter outlining the changes shall be forwarded to the City by Consultant with a statement of estimated changes in fee or time schedule. An amendment to this Agreement shall be prepared by the City and executed by both Parties before performance of such services, or the City will not be required to pay for the changes in the scope of work. Such amendment shall not render ineffective or invalidate unaffected portions of this Agreement.

4. Maintenance of Records.

Books, documents, papers, accounting records, and other evidence pertaining to costs incurred shall be maintained by Consultant and made available at all reasonable times during the contract period and for four (4) years from the date of final payment under the contract for inspection by City.

5. Term.

The term of this Agreement shall be from December 19, 2022 through December 18, 2025, with an option of three one-year time extensions based on satisfactory performance, unless earlier terminated as provided herein. Consultant shall complete the Services within the term of this Agreement, and shall meet any other established schedules and deadlines.

6. Delays in Performance.

a. Neither City nor Consultant shall be considered in default of this Agreement for delays in performance caused by circumstances beyond the reasonable control of the non-performing party. For purposes of this Agreement, such circumstances include but are not limited to, abnormal weather conditions; floods; earthquakes; fire; epidemics; war; riots and other civil disturbances; strikes, lockouts, work slowdowns, and other labor disturbances; sabotage or judicial restraint.

b. Should such circumstances occur, the non-performing party shall, within a reasonable time of being prevented from performing, give written notice to the other party describing the circumstances preventing continued performance and the efforts being made to resume performance of this Agreement.

7. Compliance with Law.

a. Consultant shall comply with all applicable laws, ordinances, codes and regulations of the federal, state and local government, including Cal/OSHA requirements.

b. If required, Consultant shall assist the City, as requested, in obtaining and maintaining all permits required of Consultant by federal, state and local regulatory agencies.

c. If applicable, Consultant is responsible for all costs of clean up and/ or removal of hazardous and toxic substances spilled as a result of his or her services or operations performed under this Agreement.

8. Standard of Care

Consultant's services will be performed in accordance with generally accepted professional practices and principles and in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions.

9. Assignment and Subconsultant

Consultant shall not assign, sublet, or transfer this Agreement or any rights under or interest in this Agreement without the written consent of the City, which may be withheld for any reason. Any attempt to so assign or so transfer without such consent shall be void and without legal effect and shall constitute grounds for termination. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement. Nothing contained herein shall prevent Consultant from employing independent associates, and subconsultants as Consultant may deem appropriate to assist in the performance of services hereunder.

10. Independent Contractor

Consultant is retained as an independent contractor and is not an employee of City. No employee or agent of Consultant shall become an employee of City. The work to be performed shall be in accordance with the work described in this Agreement, subject to such directions and amendments from City as herein provided.

11. Insurance. Consultant shall not commence work for the City until it has provided evidence satisfactory to the City it has secured all insurance required under this section. In addition, Consultant shall not allow any subcontractor to commence work on any subcontract until it has secured all insurance required under this section.

a. Commercial General Liability

(i) The Consultant shall take out and maintain, during the performance of all work under this Agreement, in amounts not less than specified herein, Commercial General Liability Insurance, in a form and with insurance companies acceptable to the City.

(ii) Coverage for Commercial General Liability insurance shall be at least as broad as the following:

(1) Insurance Services Office Commercial General Liability coverage (Occurrence Form CG 00 01) or exact equivalent.

(iii) Commercial General Liability Insurance must include coverage for the following:

- (1) Bodily Injury and Property Damage
- (2) Personal Injury/Advertising Injury
- (3) Premises/Operations Liability
- (4) Products/Completed Operations Liability
- (5) Aggregate Limits that Apply per Project
- (6) Explosion, Collapse and Underground (UCX) exclusion deleted
- (7) Contractual Liability with respect to this Agreement
- (8) Property Damage
- (9) Independent Consultants Coverage

(iv) The policy shall contain no endorsements or provisions limiting coverage for (1) contractual liability; (2) cross liability exclusion for claims or suits by one insured against another; (3) products/completed operations liability; or (4) contain any other exclusion contrary to the Agreement.

(v) The policy shall give City, its officials, officers, employees, agents and City designated volunteers additional insured status using ISO endorsement forms CG 20 10 01 and 20 37 10 01, or endorsements providing the exact same coverage.

(vi) The general liability program may utilize either deductibles or provide coverage excess of a self-insured retention, subject to written approval by the City, and provided that such deductibles shall not apply to the City as an additional insured.

b. Automobile Liability

(i) At all times during the performance of the work under this Agreement, the Consultant shall maintain Automobile Liability Insurance for bodily injury and property damage including coverage for owned, non-owned and hired vehicles, in a form and with insurance companies acceptable to the City.

(ii) Coverage for automobile liability insurance shall be at least as broad as Insurance Services Office Form Number CA 00 01 covering automobile liability (Coverage Symbol 1, any auto).

(iii) The policy shall give City, its officials, officers, employees, agents and City designated volunteers additional insured status.

(iv) Subject to written approval by the City, the automobile liability program may utilize deductibles, provided that such deductibles shall not apply to the City as an additional insured, but not a self-insured retention.

c. Workers' Compensation/Employer's Liability

(i) Consultant certifies that he/she is aware of the provisions of Section 3700 of the California Labor Code which requires every employer to be insured against liability

for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and he/she will comply with such provisions before commencing work under this Agreement.

(ii) To the extent Consultant has employees at any time during the term of this Agreement, at all times during the performance of the work under this Agreement, the Consultant shall maintain full compensation insurance for all persons employed directly by him/her to carry out the work contemplated under this Agreement, all in accordance with the "Workers' Compensation and Insurance Act," Division IV of the Labor Code of the State of California and any acts amendatory thereof, and Employer's Liability Coverage in amounts indicated herein. Consultant shall require all subconsultants to obtain and maintain, for the period required by this Agreement, workers' compensation coverage of the same type and limits as specified in this section.

d. Professional Liability (Errors and Omissions)

At all times during the performance of the work under this Agreement the Consultant shall maintain professional liability or Errors and Omissions insurance appropriate to its profession, in a form and with insurance companies acceptable to the City and in an amount indicated herein. This insurance shall be endorsed to include contractual liability applicable to this Agreement and shall be written on a policy form coverage specifically designed to protect against acts, errors or omissions of the Consultant. "Covered Professional Services" as designated in the policy must specifically include work performed under this Agreement. The policy must "pay on behalf of" the insured and must include a provision establishing the insurer's duty to defend.

e. Minimum Policy Limits Required

(i) The following insurance limits are required for the Agreement:

	<u>Combined Single Limit</u>
Commercial General Liability	\$1,000,000 per occurrence/ \$2,000,000 aggregate for bodily injury, personal injury, and property damage
Automobile Liability	\$1,000,000 per occurrence for bodily injury and property damage
Employer's Liability	\$1,000,000 per occurrence
Professional Liability	\$1,000,000 per claim and aggregate (errors and omissions)

(ii) Defense costs shall be payable in addition to the limits.

(iii) Requirements of specific coverage or limits contained in this section are not intended as a limitation on coverage, limits, or other requirement, or a waiver of any coverage normally provided by any insurance. Any available coverage shall be provided to the parties required to be named as Additional Insured pursuant to this Agreement.

f. Evidence Required

Prior to execution of the Agreement, the Consultant shall file with the City evidence of insurance from an insurer or insurers certifying to the coverage of all insurance required herein. Such evidence shall include original copies of the ISO CG 00 01 (or insurer's equivalent) signed by the insurer's representative and Certificate of Insurance (Acord Form 25-S or equivalent), together with required endorsements. All evidence of insurance shall be signed by a properly authorized officer, agent, or qualified representative of the insurer and shall certify the names of the insured, any additional insureds, where appropriate, the type and amount of the insurance, the location and operations to which the insurance applies, and the expiration date of such insurance.

g. Policy Provisions Required

(i) Consultant shall provide the City at least thirty (30) days prior written notice of cancellation of any policy required by this Agreement, except that the Consultant shall provide at least ten (10) days prior written notice of cancellation of any such policy due to non-payment of premium. If any of the required coverage is cancelled or expires during the term of this Agreement, the Consultant shall deliver renewal certificate(s) including the General Liability Additional Insured Endorsement to the City at least ten (10) days prior to the effective date of cancellation or expiration.

(ii) The Commercial General Liability Policy and Automobile Policy shall each contain a provision stating that Consultant's policy is primary insurance and that any insurance, self-insurance or other coverage maintained by the City or any named insureds shall not be called upon to contribute to any loss.

(iii) The retroactive date (if any) of each policy is to be no later than the effective date of this Agreement. Consultant shall maintain such coverage continuously for a period of at least three years after the completion of the work under this Agreement. Consultant shall purchase a one (1) year extended reporting period A) if the retroactive date is advanced past the effective date of this Agreement; B) if the policy is cancelled or not renewed; or C) if the policy is replaced by another claims-made policy with a retroactive date subsequent to the effective date of this Agreement.

(iv) All required insurance coverages, except for the professional liability coverage, shall contain or be endorsed to waiver of subrogation in favor of the City, its officials, officers, employees, agents, and volunteers or shall specifically allow Consultant or others providing insurance evidence in compliance with these specifications to waive their right of recovery prior to a loss. Consultant hereby waives its own right of recovery against City, and shall require similar written express waivers and insurance clauses from each of its subconsultants.

(v) The limits set forth herein shall apply separately to each insured against whom claims are made or suits are brought, except with respect to the limits of liability. Further the limits set forth herein shall not be construed to relieve the Consultant from liability in excess of such coverage, nor shall it limit the Consultant's indemnification obligations to the City and shall not preclude the City from taking such other actions available to the City under other provisions of the Agreement or law.

h. Qualifying Insurers

(i) All policies required shall be issued by acceptable insurance companies, as determined by the City, which satisfy the following minimum requirements:

(1) Each such policy shall be from a company or companies with a current A.M. Best's rating of no less than A:VII and admitted to transact in the business of insurance in the State of California, or otherwise allowed to place insurance through surplus line brokers under applicable provisions of the California Insurance Code or any federal law.

i. Additional Insurance Provisions

(i) The foregoing requirements as to the types and limits of insurance coverage to be maintained by Consultant, and any approval of said insurance by the City, is not intended to and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by the Consultant pursuant to this Agreement, including but not limited to, the provisions concerning indemnification.

(ii) If at any time during the life of the Agreement, any policy of insurance required under this Agreement does not comply with these specifications or is canceled and not replaced, City has the right but not the duty to obtain the insurance it deems necessary and any premium paid by City will be promptly reimbursed by Consultant or City will withhold amounts sufficient to pay premium from Consultant payments. In the alternative, City may cancel this Agreement.

(iii) The City may require the Consultant to provide complete copies of all insurance policies in effect for the duration of the Project.

(iv) Neither the City nor any of its officials, officers, employees, agents or volunteers shall be personally responsible for any liability arising under or by virtue of this Agreement.

j. Subconsultant Insurance Requirements. Consultant shall not allow any subcontractors or subconsultants to commence work on any subcontract until they have provided evidence satisfactory to the City that they have secured all insurance required under this section. Policies of commercial general liability insurance provided by such subcontractors or subconsultants shall be endorsed to name the City as an additional insured using ISO form CG 20 38 04 13 or an endorsement providing the exact same coverage. If requested by Consultant, City may approve different scopes or minimum limits of insurance for particular subcontractors or subconsultants.

12. Indemnification.

a. To the fullest extent permitted by law, Consultant shall defend (with counsel of City's choosing), indemnify and hold the City, its officials, officers, employees, volunteers, and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury of any kind, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or incident to any acts, errors or omissions, or willful misconduct of Consultant, its officials, officers, employees, subcontractors, consultants or agents in connection with the performance of the Consultant's services, the Project or this Agreement, including without limitation the payment of all damages, expert witness fees and attorney's fees and other related costs and expenses. Consultant's obligation to indemnify

shall not be restricted to insurance proceeds, if any, received by Consultant, the City, its officials, officers, employees, agents, or volunteers.

b. To the extent required by Civil Code section 2782.8, which is fully incorporated herein, Consultant's obligations under the above indemnity shall be limited to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, but shall not otherwise be reduced. If Consultant's obligations to defend, indemnify, and/or hold harmless arise out of Consultant's performance of "design professional services" (as that term is defined under Civil Code section 2782.8), then upon Consultant obtaining a final adjudication that liability under a claim is caused by the comparative active negligence or willful misconduct of the City, Consultant's obligations shall be reduced in proportion to the established comparative liability of the City and shall not exceed the Consultant's proportionate percentage of fault.

13. California Labor Code Requirements.

a. Consultant is aware of the requirements of California Labor Code Sections 1720 et seq. and 1770 et seq., which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects ("Prevailing Wage Laws"). If the services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is \$15,000 or more for maintenance or \$25,000 or more for construction, alteration, demolition, installation, or repair, Consultant agrees to fully comply with such Prevailing Wage Laws. Consultant shall defend, indemnify and hold the City, its officials, officers, employees and agents free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or alleged failure to comply with the Prevailing Wage Laws. It shall be mandatory upon the Consultant and all subconsultants to comply with all California Labor Code provisions, which include but are not limited to prevailing wages (Labor Code Sections 1771, 1774 and 1775), employment of apprentices (Labor Code Section 1777.5), certified payroll records (Labor Code Sections 1771.4 and 1776), hours of labor (Labor Code Sections 1813 and 1815) and debarment of contractors and subcontractors (Labor Code Section 1777.1).

b. If the services are being performed as part of an applicable "public works" or "maintenance" project and if the total compensation is \$15,000 or more for maintenance or \$25,000 or more for construction, alteration, demolition, installation, or repair, then pursuant to Labor Code Sections 1725.5 and 1771.1, the Consultant and all subconsultants performing such services must be registered with the Department of Industrial Relations. Consultant shall maintain registration for the duration of the Project and require the same of any subconsultants, as applicable. This Project may also be subject to compliance monitoring and enforcement by the Department of Industrial Relations. It shall be Consultant's sole responsibility to comply with all applicable registration and labor compliance requirements.

c. This Agreement may also be subject to compliance monitoring and enforcement by the Department of Industrial Relations. It shall be Consultant's sole responsibility to comply with all applicable registration and labor compliance requirements. Any stop orders issued by the Department of Industrial Relations against Consultant or any subcontractor that affect Consultant's performance of services, including any delay, shall be Consultant's sole responsibility. Any delay arising out of or resulting from such stop orders shall be considered Consultant caused delay and shall not be compensable by the City. Consultant shall defend, indemnify and hold the City, its officials, officers, employees and agents free and harmless from

any claim or liability arising out of stop orders issued by the Department of Industrial Relations against Consultant or any subcontractor.

14. Verification of Employment Eligibility.

By executing this Agreement, Consultant verifies that it fully complies with all requirements and restrictions of state and federal law respecting the employment of undocumented aliens, including, but not limited to, the Immigration Reform and Control Act of 1986, as may be amended from time to time, and shall require all subconsultants and sub-subconsultants to comply with the same.

15. Laws and Venue.

This Agreement shall be interpreted in accordance with the laws of the State of California. If any action is brought to interpret or enforce any term of this Agreement, the action shall be brought in a state or federal court situated in the County of Los Angeles, State of California.

16. Termination or Abandonment

a. City has the right to terminate or abandon any portion or all of the work under this Agreement by giving ten (10) calendar days written notice to Consultant. In such event, City shall be immediately given title and possession to all original field notes, drawings and specifications, written reports and other documents produced or developed for that portion of the work completed and/or being abandoned. City shall pay Consultant the reasonable value of services rendered for any portion of the work completed prior to termination. If said termination occurs prior to completion of any task for the Project for which a payment request has not been received, the charge for services performed during such task shall be the reasonable value of such services, based on an amount mutually agreed to by City and Consultant of the portion of such task completed but not paid prior to said termination. City shall not be liable for any costs other than the charges or portions thereof which are specified herein. Consultant shall not be entitled to payment for unperformed services, and shall not be entitled to damages or compensation for termination of work.

b. Consultant may terminate its obligation to provide further services under this Agreement upon thirty (30) calendar days' written notice to City only in the event of substantial failure by City to perform in accordance with the terms of this Agreement through no fault of Consultant.

17. Documents.

Except as otherwise provided in "Termination or Abandonment," above, all original field notes, written reports, Drawings and Specifications and other documents, produced or developed for the Project shall, upon payment in full for the services described in this Agreement, be furnished to and become the property of the City.

18. Organization

Consultant shall assign Siannah Sandoval as Project Manager. The Project Manager shall not be removed from the Project or reassigned without the prior written consent of the City.

19. Limitation of Agreement.

This Agreement is limited to and includes only the work included in the Project described above.

20. Notice

Any notice or instrument required to be given or delivered by this Agreement may be given or delivered by depositing the same in any United States Post Office, certified mail, return receipt requested, postage prepaid, addressed to:

CITY:

City of Arcadia
240 West Huntington Drive
Arcadia, CA 91066
Attn: Jason Kruckeberg
Development Services Department

CONSULTANT:

Urban Graffiti Enterprises, Inc.
1280 Mountain View Circle
Azusa, CA 91702
Attn: Maria Gutierrez

and shall be effective upon receipt thereof.

21. Third Party Rights

Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than the City and the Consultant.

22. Equal Opportunity Employment.

Consultant represents that it is an equal opportunity employer and that it shall not discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, sex, age or other interests protected by the State or Federal Constitutions. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination.

23. Entire Agreement

This Agreement, with its exhibits, represents the entire understanding of City and Consultant as to those matters contained herein, and supersedes and cancels any prior or contemporaneous oral or written understanding, promises or representations with respect to those matters covered hereunder. Each party acknowledges that no representations, inducements, promises or agreements have been made by any person which are not incorporated herein, and that any other agreements shall be void. This Agreement may not be modified or altered except in writing signed by both Parties hereto. This is an integrated Agreement.

24. Severability

The unenforceability, invalidity or illegality of any provision(s) of this Agreement shall not render the provisions unenforceable, invalid or illegal.

25. Successors and Assigns

This Agreement shall be binding upon and shall inure to the benefit of the successors in interest, executors, administrators and assigns of each party to this Agreement. However, Consultant shall not assign or transfer by operation of law or otherwise any or all of its rights, burdens, duties or obligations without the prior written consent of City. Any attempted assignment without such consent shall be invalid and void.

26. Non-Waiver

None of the provisions of this Agreement shall be considered waived by either party, unless such waiver is specifically specified in writing.

27. Time of Essence

Time is of the essence for each and every provision of this Agreement.

28. City's Right to Employ Other Consultants

City reserves its right to employ other consultants, including engineers, in connection with this Project or other projects.

29. Prohibited Interests

Consultant maintains and warrants that it has not employed nor retained any company or person, other than a bona fide employee working solely for Consultant, to solicit or secure this Agreement. Further, Consultant warrants that it has not paid nor has it agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, City shall have the right to rescind this Agreement without liability. For the term of this Agreement, no director, official, officer or employee of City, during the term of his or her service with City, shall have any direct interest in this Agreement, or obtain any present or anticipated material benefit arising therefrom.

[SIGNATURES ON FOLLOWING PAGE]

**SIGNATURE PAGE FOR PROFESSIONAL SERVICES AGREEMENT
BETWEEN THE CITY OF ARCADIA
AND URBAN GRAFFITI ENTERPRISES, INC.**

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first written above.

CITY OF ARCADIA

URBAN GRAFFITI ENTERPRISES, INC.

By: _____
Dominic Lazzaretto
City Manager

By: _____
Signature

Date: _____

Its: _____

ATTEST:

Printed Name

By: _____
City Clerk

Date: _____

APPROVED AS TO FORM

By: _____
Signature

By: _____
Stephen P. Deitsch
City Attorney

Its: _____

Printed Name

EXHIBIT A

Scope of Services

Graffiti Removal Service

Consultant shall furnish at its own expense, all labor, equipment, and materials necessary for the satisfactory performance of graffiti removal as set forth herein. Consultant shall commence work within 36 hours from the time the Consultant is notified.

Consultant shall inspect all referrals to determine the method to be used for the graffiti removal. Methods of removals may include sandblasting or other pressurized removal systems, matching existing painted surfaces or other eradication procedures as approved by the City.

Consultant shall determine the most effective method(s) for removal of the graffiti at each location. The method(s) of removal will vary depending upon the type of graffiti and condition of the surface.

Consultant must use care to avoid damages to existing improvements. Existing improvements damaged by Consultant shall be repaired at Consultant's sole expense to the satisfaction of the City.

Nuisance Abatement Service

Consultant shall provide all equipment, supplies, and personnel needed to conduct weed abatement, landscape maintenance, on-site and off-site debris removal/cleanup, installation of construction fencing, securing of unsecured buildings, and pumping/removal of standing water (e.g., green swimming pools) in a timely and efficient manner in accordance with all appropriate state and federal regulations governing such work.

Consultant shall arrange for all waste disposal and recycling in accordance with all applicable State and federal regulations. Consultant shall prepare manifests, inventories, receipts, and other relevant documentation, including cubic yards or tonnage of solid waste removed from each site, and number of tires, appliances, and other debris.

EXHIBIT B

Schedule of Charges/Payments

Consultant will invoice City on a monthly cycle. Consultant will include with each invoice a detailed progress report that indicates the amount of budget spent on each task. Consultant will inform City regarding any out-of-scope work being performed by Consultant. This is a time-and-materials contract.

Consultant shall be paid for services rendered within thirty (30) days after receipt of invoice from the Consultant. The City will pay Consultant for services in accordance with this agreement.

Graffiti Removal Service

A fixed monthly amount of \$3,500.

Nuisance Abatement Service

Type of Service	Cost
Patrol and Pick-up of Illegally Discarded Bulky Items	\$225.00 per day
Weed Abatement	\$75.00/labor hour
Debris Removal/Cleanup	\$95.00/ labor hour
Installation of 6' Chain Link Fencing (Rental)	Depends on # of panels and length of time needed
Securing of Unsecured Buildings (Board-ups)	Depends on # and size of openings that need securing
Pumping/ Removal of Standing Water (e.g., green swimming pools)	Depends on amount of water and solids that need to be collected and disposed of

Utility Box Art/Sacrificial Coating Surfaces

Type	Minimum	Cost over Minimum
Sacrificial Coating	\$ <u>80.00</u> For <u>25</u> sq. ft	\$ <u>0.75</u> /sq. ft.

EXHIBIT C

Activity Schedule

Graffiti Removal Service

All graffiti removal shall be performed by the Contractor in accordance with requests for services authorized by the Code Services Officer.

Contractor shall promptly respond to requests for service with work to be commenced within 36 hours from notice. Graffiti that is determined by the City or the Contractor to be obscene or contains vulgarity or profanity shall be removed within 24 hours of the request for services. Saturday and Sunday or Holidays shall not be counted in computing the 36 hour response period. Work shall not be permitted on Sunday or Holidays, unless otherwise authorized. Authorized working hours to be between 7:00 a.m. and 7:00 p.m.

Nuisance Abatement Service

Contractor shall submit to Code Services a maximum cost estimate within 48 hours after an on-site visit with the Code Services Officer. Once the Officer approves the estimate and authorizes the work, the Contractor will have one (1) week to complete the abatement.

Contractor must coordinate with the Officer all dates and times of operations. Once started, the abatement must be completed on consecutive days, excluding Sundays and/or Holidays, unless authorized by the Officer.

Contractor is not to go to the properties without the Code Services Officer, unless authorized to do so.



STAFF REPORT

Administrative Services Department

DATE: November 15, 2022

TO: Honorable Mayor and City Council

FROM: Hue Quach, Administrative Services Director
By: Henry Chen, Financial Services Manager/City Treasurer

SUBJECT: APPROVE THE ANNUAL DEVELOPMENT IMPACT FEE REPORT FOR FISCAL YEAR 2021-22 PURSUANT TO GOVERNMENT CODE SECTION 66006
Recommendation: Approve
CEQA: Not a Project

SUMMARY

Pursuant to Resolution Nos. 6498 and 6602, the City has been collecting Transportation Impact Fees and Park Facilities Impact Fees and, as such, is required to report certain information to the City Council and public annually pursuant to Government Code Section 66006. These fees are intended to provide funding for the City to maintain infrastructure services levels and improvements needed because of growth from development. The City has been complying with all collection and expenditure requirements.

It is recommended the City Council approve the Annual Development Impact Fee Report for Fiscal Year 2021-22 pursuant to Government Code Section 66006.

DISCUSSION

The City collects Transportation Impact and Park Facilities fees, which are fees associated with development projects. Government Code Section 66006 requires the City to prepare an annual report that describes certain information about the fees, such as the amount of fees collected, public improvements for which the fees were expended, fund balance, and other information. This information is attached hereto:

Exhibit "A": The Park Facilities Fee Impact Fund currently has a balance of \$7,826,989. While the City had anticipated spending significant dollars to renovate and expand services at Newcastle Park, the City received \$2.5 million in grant funds for this effort. The additional fund balance will now be used in the coming years to continue implementation of the adopted Parks Master Plan, including the remainder of the Newcastle Park project, and facilities upgrades at several smaller parks and sports fields.

Exhibit "B": The Transportation Fee Impact Fund currently has a balance of \$1,293,062. Funds are spent regularly from this account for various traffic improvements throughout the City.

ENVIRONMENTAL ANALYSIS

This proposed action does not constitute a project under the California Environmental Quality Act ("CEQA"), and it can be seen with certainty that it will have no impact on the environment. Thus, this matter is exempt under CEQA.

FISCAL IMPACT

Funds from these accounts make significant community improvement projects possible. Due to the variability of development activity in the community, the amount of revenue tends to vary substantially in any given year. In Fiscal Year 2021-22, both funds combined for over \$570,000 in new revenue to the City, including interest earned. Without these funds, the City would need to find other sources of revenues to offset the impacts caused by new developments.

RECOMMENDATION

It is recommended that the City Council determine that this action does not constitute a project and is, therefore, exempt under the California Environmental Quality Act ("CEQA"); and approve the Annual Development Impact Fee Report for Fiscal Year 2021-22 pursuant to Government Code Section 66006.

Approved:



Dominic Lazzaretto
City Manager

Attachments: Exhibit "A" - Annual Park Facilities Impact Fee Report Fiscal Year 2021-22
Exhibit "B" - Annual Transportation Impact Fee Report Fiscal Year 2021-22

Exhibit "A"

City of Arcadia Annual Park Facilities Impact Fee Report Fiscal Year 2021-22

This annual report section has been prepared pursuant to the requirements of Government Code Section 66006.

Description of Fees

Pursuant to Resolution No. 6602, the Park Facilities Fee is collected to ensure that new development pays its fair share of costs associated with building new park facilities and infrastructure.

Amount of Fees

\$2.85 per square feet for single family projects

\$3.73 per square feet for multi-family projects

Beginning and Ending Balances of the Fund and Amount of Fees Collected and Interests Earned

Fiscal Year	Beginning Fund Balance	Fees Collected	Interest Earned	Expenditures	Other	Ending Balance
2021-22	\$ 7,421,829	\$ 570,486	\$ (123,464)	\$ (41,862)	\$ -	\$ 7,826,989
2020-21	6,200,930	622,346	39,183	(278,380)	837,750	7,421,829
2019-20	11,841,628	883,959	281,397	(6,810,432)	4,378	6,200,930
2018-19	10,905,784	593,808	395,942	(53,906)	-	11,841,628
2017-18	9,962,795	916,233	53,122	(26,366)	-	10,905,784
2016-17	8,237,966	1,734,923	42,361	(52,455)	-	9,962,795
2015-16	6,151,955	2,096,641	90,231	(100,861)	-	8,237,966
2014-15	4,147,454	1,996,015	44,305	(35,819)	-	6,151,955
2013-14	2,613,371	2,091,202	29,202	(1,087,003)	500,682	4,147,454
2012-13	1,454,337	1,406,449	1,989	(249,404)	-	2,613,371
Before 2012	(264,045)	3,814,734	40,813	(1,286,650)	(850,515)	1,454,337
Total		\$ 16,726,796	\$ 895,081	\$ (10,023,138)	\$ 492,295	

An identification of each public improvement on which fees were expended and the amount of the expenditures on each improvement, including the total percentage of the cost of the public improvement that was funded with fees

Project	Years	Amount	% Funded by Fees
Museum Education Center	2008, 2014	\$ 984,884	49%
City Hall Soccer Field	2010-2012	1,275,111	100%
Wilderness Park Restroom	2013	148,482	100%
City Park Improvements	2013-14	62,931	100%
Community Center Backup Generator	2014	154,250	100%
Recreation and Parks Master Plan	2014-18	212,900	100%
Eisenhower Park	2019-21	6,940,727	100%
Newcastle Park	2020-22	243,853	100%
Total		\$ 10,023,138	

Identification of an approximate date by which the construction of the public improvement will commence if the local agency determines that sufficient funds have been collected to complete financing on an incomplete public improvement, as identified in paragraph (2) of subdivision (a) of Section 66001, and the public improvement remains incomplete.

The City has budgeted \$520,000 for baseball bleacher replacements, \$710,000 for Bonita Park concession building and \$75,000 for a walking trail at the county park in FY22-23. The City received a \$2.2 million dollar grant to cover the costs of the previously budgeted improvements to Newcastle Park, which will enable the City to finance additional park improvement in the City. The anticipated completion date for these projects is 2022-2023 and the new anticipated completion date for Newcastle Park will be 2024.

Description of each interfund transfer or loan made from the account or fund, including the public improvement on which the transferred or loaned fees will be expended, and, in the case of an interfund loan, the date on which the loan will be repaid, and the rate of interest that the account or fund will receive on the loan.

There were no interfund transfers or loans.

Amount of refunds made pursuant to subdivision (e) of Section 66001 and any allocations pursuant to subdivision (f) of Section 66001.

There were no refunds nor allocations for some other purpose for which fees were collected.

Exhibit “B”

City of Arcadia Annual Transportation Impact Fee Report Fiscal Year 2021-22

This annual report section has been prepared pursuant to the requirements of Government Code Section 66006.

Description of Fees

Pursuant to Resolution No. 7151, the Transportation Impact Fee is collected to help pay for needed traffic improvements to maintain certain intersections at a Level of Service “D” or better.

Amount of Fees

\$1,983 per PM Peak House vehicle trip

Beginning and Ending Balances of the Fund and Amount of Fees Collected and Interests Earned

<u>Fiscal Year</u>	<u>Beginning Fund Balance</u>	<u>Fees Collected</u>	<u>Interest Earned</u>	<u>Expenditures</u>	<u>Other</u>	<u>Ending Balance</u>
2021-22	\$ 1,558,252	\$ 146,497	\$ (22,166)	\$ (389,521)	\$ -	\$ 1,293,062
2020-21	1,795,981	230,538	6,371	(655,121)	180,483	1,558,252
2019-20	2,574,038	155,861	75,033	(1,280,422)	271,471	1,795,981
2018-19	2,955,110	517,563	101,503	(1,066,970)	66,832	2,574,038
2017-18	3,047,632	196,819	17,163	(456,785)	150,281	2,955,110
2016-17	1,977,887	1,553,561	12,414	(496,230)	-	3,047,632
2015-16	1,672,534	335,883	21,746	(69,759)	17,483	1,977,887
2014-15	1,907,326	372,853	18,975	(920,723)	294,103	1,672,534
2013-14	852,100	1,148,032	(3,707)	(94,751)	5,652	1,907,326
2012-13	885,350	184,392	(1,405)	(746,457)	530,220	852,100
2011-12	643,777	227,173	7,361	(77,728)	84,767	885,350
Before 2011	417,289	903,833	85,079	(2,209,461)	1,447,037	643,777
Total	\$ 5,973,005	\$ 5,973,005	\$ 318,367	\$ (8,463,928)	\$ 3,048,329	

An identification of each public improvement on which fees were expended and the amount of the expenditures on each improvement, including the total percentage of the cost of the public improvement that was funded with fees

Project	Years	Amount	% Funded by Fees
Sunset Blvd. Widening	2008	240,289	61.67%
Santa Anita Intersection Improvement	2008-12	1,972,009	90.28%
Huntington Drive Capacity Improvement	2012-15	1,524,342	73.04%
Duarte Road Intersection Widening	2012-17	539,725	98.22%
Transportation Impact Fee Study	2012-17	68,124	100.00%
Land Acquisition	2015-16	144,239	10.00%
Various Miscellaneous Traffic Signal Improvements	2017-22	833,984	100.00%
Duarte and Lovell Traffic Signalization	2018-19	343,381	100.00%
Huntington Arterial Rehabilitation	2018-21	751,677	38.00%
Santa Anita Corridor Traffic Signalization	2018-22	931,504	100.00%
Huntington Drive and Second Ave	2019	150,000	100.00%
Sunset and Fairview Traffic Signalization	2019-20	425,861	100.00%
Baldwin Ave Traffic Signal Fiber Optic Extension	2020-22	290,051	100.00%
Colorado Street - Complete Streets	2020-22	12,882	100.00%
Traffic Signal Fiber Optics Network Extension	2021-22	75,277	100.00%
Arterial Rehabilitation - Live Oak (Santa Anita to East City Limits)	2022	159,000	14.79%
Arterial Rehabilitation - Huntington Dr (Santa Clara to 5th)	2022	1,583	100.00%
Total		\$ 8,463,928	

Identification of an approximate date by which the construction of the public improvement will commence if the local agency determines that sufficient funds have been collected to complete financing on an incomplete public improvement, as identified in paragraph (2) of subdivision (a) of Section 66001, and the public improvement remains incomplete.

The City utilizes the impact fees to fund various traffic signalization improvements and arterial rehabilitation projects on an annual basis. The projects that remain incomplete at the end of the fiscal year and their anticipated completion dates are as follows:

Project	Estimated Completion
Various Miscellaneous Traffic Signal Improvements	June 2023
Santa Anita Corridor Traffic Signalization	June 2023
Traffic Signal Fiber Optics Network Extension	June 2024
Colorado Street - Complete Streets	September 2023

Description of each interfund transfer or loan made from the account or fund, including the public improvement on which the transferred or loaned fees will be expended, and, in the case of an interfund loan, the date on which the loan will be repaid, and the rate of interest that the account or fund will receive on the loan.

There were no interfund transfers or loans.

Amount of refunds made pursuant to subdivision (e) of Section 66001 and any allocations pursuant to subdivision (f) of Section 66001.

There were no refunds nor allocations for some other purpose for which fees were collected.



STAFF REPORT

Development Services Department

DATE: November 15, 2022

TO: Honorable Mayor and City Council

FROM: Jason Kruckeberg, Assistant City Manager/Development Services Director
By: Tim Schwehr, Economic Development Manager

SUBJECT: ALLOCATE \$215,000 IN AMERICAN RESCUE PLAN ACT (“ARPA”) FUNDS FOR THE FOLLOWING ECONOMIC DEVELOPMENT PROGRAMS AND PROJECTS:

- A. THE 2022 MERRY & BRIGHT HOLIDAY SHOPPING PROGRAM IN THE AMOUNT OF \$100,000;
- B. THE ARCADIA CHAMBER OF COMMERCE MEMBERSHIP ASSISTANCE PROGRAM IN THE AMOUNT OF \$50,000; AND
- C. A PROFESSIONAL SERVICES AGREEMENT WITH DESIGN NINE, INC. FOR THE DEVELOPMENT OF A DOWNTOWN ARCADIA BROADBAND STRATEGIC PLAN AND THE EVALUATION OF A CITYWIDE FIBEROPTIC BROADBAND PROPOSAL IN AN AMOUNT NOT TO EXCEED \$65,000

Recommendation: Approve
CEQA: Not a Project

SUMMARY

Based on prior City Council discussion and direction earlier this year regarding use of American Rescue Plan Act (“ARPA”) funds, three economic and financial assistance programs and projects are proposed for approval: the Merry & Bright Holiday Shopping Program, the Arcadia Chamber of Commerce Membership Assistance Program, and a Professional Services Agreement for a broadband strategic plan for Downtown Arcadia. A summary of each program is included in this staff report and additional details are provided in the program summaries included as Attachments “A” – “C”. It is recommended that the City Council approve the allocation of \$215,000 in ARPA funds for these three programs.

BACKGROUND

The City has been notified it will receive \$8,865,000 in funding through the American Rescue Plan Act (“ARPA”). This funding is available to use for various purposes, including

ARPA Allocations for Economic Development

November 15, 2022

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economic and financial assistance. To date, the City Council has approved \$1,350,000 in ARPA funds for economic and financial assistance programs and projects. The City Council has also provided direction regarding use of an additional \$215,000 in ARPA funds for the three economic development programs and projects included in this agenda item. The table below shows the allocation amount, current status, and City Council action to date for each ARPA-funded economic and financial assistance program and project.

Program/Project	Funding	Status and Council Action to Date
Small Business Grant Program	\$750,000	Approved by City Council September 6, 2022. Application submittal period of October 24 – December 29, 2022.
Small Business Permit Assistance Program	\$250,000	Approved by City Council September 6, 2022. Applications accepted beginning November 15, 2022.
Homeless Prevention & Diversion Program	\$250,000	Approved by City Council May 17, 2022.
Merry & Bright Holiday Shopping Program	\$200,000	Initial \$100,000 approved by City Council November 2, 2021, for the 2021 winter holiday season. Remaining funding pending approval but earmarked by City Council at March 1, 2022 study session for 2022 winter holiday season or other future date. Originally \$150,000 remained for this program but \$50,000 was moved from this project and placed in the Chamber of Commerce program fund.
Chamber of Commerce Membership Assistance Program	\$50,000	Pending approval. \$50,000 earmarked by City Council at September 6, 2022, regular meeting for this program. Moved from “Merry and Bright” allocation.
Downtown Arcadia Broadband Study/Strategic Plan & Evaluation of Citywide Fiberoptic Proposal	\$65,000*	Pending approval of PSA with Design Nine Inc. \$50,000 earmarked by the City Council for Downtown broadband study at the March 1, 2022, study session. Scope expanded per City Council direction at October 18, 2022, study session to include evaluation of citywide fiberoptic project.
Total	\$1,565,000	

*Includes \$50,000 for Downtown Broadband Study and \$15,000 for review of citywide fiberoptic proposal

DISCUSSION

Based on prior City Council discussion and direction earlier this year regarding use of American Rescue Plan Act (“ARPA”) funds, the following economic and financial assistance programs and projects have been prepared for the City Council’s review and approval:

1. The 2022 Merry & Bright Holiday Shopping Program in the amount of \$100,000;
2. The Arcadia Chamber of Commerce Membership Assistance Program in the amount of \$50,000; and
3. A Downtown Arcadia Broadband Strategic Plan and Citywide Fiberoptic Proposal Review and Professional Services Agreement with Design Nine, Inc. in the amount of \$65,000.

If approved as proposed, the goal of these programs is to provide financial assistance to Arcadia businesses impacted by the COVID-19 pandemic and to promote long-term local economic recovery and growth. Utilizing a portion of the City’s American Rescue Plan Act funds for this purpose is an appropriate use of this funding consistent with the goals and objectives of the authorizing legislation. A summary and discussion of each program and project is included below.

2022 Merry & Bright Holiday Shopping Program

This program proposes the use of \$100,000 in ARPA funds to purchase gift cards valued at \$25, \$50, and \$75 for the purpose of incentivizing in-person shopping at Arcadia brick-and-mortar businesses during the 2022 winter holiday season. Customers who spend a minimum of \$150 combined at three or more Arcadia brick-and-mortar businesses are eligible to submit receipts to the Shops at Santa Anita Mall Concierge Desk and redeem a gift card valued at \$25. They will receive a \$50 card for \$300 in purchases, or \$75 with \$500 in total combined spend. The gift cards issued will be Visa, Master Card, or American Express and usable at any location in or outside of the City that accepts this form of payment; however, they will be branded with Arcadia and Shops at Santa Anita imagery to encourage local spending of those funds. If approved, the program is tentatively scheduled to run December 1 – 24, 2022, or until all gift cards have been issued. Additional program terms, conditions, and details are provided in the Merry & Bright Program Summary included as Attachment “A” to this report.

The City and Westfield Santa Anita partnered last December on this same program using \$100,000 in ARPA funds. A total of 1,810 customers participated last year with receipts submitted for gift card redemption totaling \$986,738 in local spending. The program received very positive feedback from both the business community and program participants, and there were no significant issues or problems with administration. If approved by the City Council for the 2022 winter holiday season, the City will enter into

an agreement with the Shops at Santa Anita for the disbursement of \$100,000 of ARPA funds for this purpose. Through an agreement with the new mall ownership, former Westfield staff continue to manage this property and similar to last year, would oversee the submittal of receipts, issuance of gift cards, and provide customer service for the program from their on-site concierge desk.

One decision point for the City Council is to determine the amount of ARPA funding to allocate to the program. Originally, a total of \$250,000 was allocated to the program. Last year, the City Council authorized \$100,000 to be spent as the timeline was short and there was an interest in evaluating how successful the program would be. Subsequently, the City Council chose to move \$50,000 from this program to the Chamber of Commerce Membership program. Now, the Council may decide to allocate the remaining \$100,000 as shown in the Staff Report, or may choose to allocate the original \$150,000 remaining from the first approval. Should the City Council wish to allocate the original amount from the first approval, it is anticipated that any additional funding would be well utilized by the retail community. At this time, there are unallocated ARPA funds available to support an additional allocation to this program.

Arcadia Chamber of Commerce Membership Assistance Program

This program proposes the use of \$50,000 in ARPA funds to assist Arcadia small businesses to join or rejoin the Arcadia Chamber of Commerce. Approved participants would be eligible to receive up to one year of Chamber membership dues (currently \$280) paid for through this program. To qualify, a business would need to have a physical location in the City of Arcadia, to have been open for a minimum of one year, and not be a current member of the Arcadia Chamber of Commerce. Applications for this program would be submitted directly to the Arcadia Chamber for their review and approval. Businesses receiving assistance through this program would be required to attend a Chamber orientation and at least one in-person event within the first 90 days of membership. Additional program details and requirements are outlined in the Arcadia Stronger Program Proposal included as Attachment "B" to this report.

If approved by the City Council, an initial \$25,000 disbursement of ARPA funds would be made to the Arcadia Chamber of Commerce to initiate this program. The Chamber would provide the City with regular updates on the number of program participants and funding. A second disbursement of up to \$25,000 would be made at a later date based on program demand and funding need. Any unspent funds allocated to this program could be repurposed by the City Council, including other uses in support of the Arcadia Chamber of Commerce.

Downtown Broadband Strategic Plan and Review of Citywide Fiberoptic Proposal

A Professional Services Agreement with Design Nine, Inc. is recommended for approval in an amount not to exceed \$65,000, for the completion of a Downtown Arcadia

Broadband Strategic Plan, and to assist the City with the review and analysis of a proposed public-private partnership to install a citywide fiberoptic network in the public right-of-way. The Agreement includes \$48,750 for the completion of the Downtown Arcadia Broadband Strategic Plan.

A Request for Proposals (“RFP”) for this project was issued by the City in July 2022. A five-person panel convened to review the three proposals received in response to the RFP and interview with the top two scoring firms. As a result of this evaluation process, Design Nine, Inc. has been selected as the preferred consultant for this project. The table below shows the bid amount, hourly rate, and evaluation rating for each of the three proposals received. Design Nine, Inc. received the highest rating of the three firms who bid on the project based on their knowledge of and prior experience with completing similar projects, their lower hourly rate, and the overall quality of their proposal.

Firm Name	Bid Amount	Hourly Rate	Evaluation Rating (100 max)
Design Nine, Inc.	\$48,750	\$125	92
Solarity	\$48,200	\$185	87
Gunnerson Consulting	\$49,250	\$250	64

Following selection of Design Nine Inc. as the preferred consultant for the Downtown Broadband Strategic Plan, the City was approached by a privately-funded broadband infrastructure company regarding a potential public-private partnership with the City to install a citywide fiberoptic network in the public right-of-way. Based on the City Council’s discussion and direction at the October 18, 2022, study session on this topic, additional funding in the amount of \$16,250 has been included in the Professional Service Agreement with Design Nine, Inc. to assist the City with the review and evaluation of this proposal. The additional \$16,250 in funding will be utilized only on an as-needed basis and invoiced at the consulting firm’s \$125 hourly rate. A copy of the Professional Services Agreement with Design Nine, Inc. is included as Attachment “C” to the staff report.

ENVIRONMENTAL ANALYSIS

The proposed action does not constitute a project under the California Environmental Quality Act (“CEQA”), as it can be seen with certainty that it will have no impact on the environment. Thus, this matter is exempt under CEQA.

FISCAL IMPACT

The City has been allocated a total of \$8,865,000 in American Rescue Plan Act (“ARPA”) funding available to use for various purposes, including economic assistance. Allocating \$215,000 of the City’s ARPA funds to the three programs and projects outlined above is an appropriate use of ARPA funding consistent with its objective to provide economic assistance to residents and businesses impacted by the COVID-19 pandemic.

Additionally, should the City Council wish to allocate an additional \$50,000 to the Merry & Bright Program, there are ample unprogrammed ARPA funds available to cover this expenditure. No General Fund dollars, other than staff time already budgeted, will be utilized for these programs.

RECOMMENDATION

It is recommended that the City Council determine that this action does not constitute a project and is, therefore, exempt under, the California Environmental Quality Act (“CEQA”); and approve the allocation of \$215,000 in American Rescue Plan Act (“ARPA”) funds for the following economic development programs and projects:

- A. The 2022 Merry & Bright Holiday Shopping Program in the amount of \$100,000;
- B. The Arcadia Chamber of Commerce Membership Assistance Program in the amount of \$50,000; and
- C. A Professional Services Agreement with Design Nine, Inc. for the development of a Downtown Arcadia Broadband Strategic Plan and the evaluation of a citywide fiber-optic broadband proposal in an amount not to exceed \$65,000.

Approved:



Dominic Lazzaretto
City Manager

Attachment “A”: 2022 Merry & Bright Program Summary

Attachment “B”: Arcadia Stronger Program Proposal (Chamber Membership Program)

Attachment “C”: Proposed Professional Services Agreement with Design Nine, Inc.

2022 Merry & Bright Program Summary

From December 1st through December 24th, 2022 shoppers who spend money at three or more brick-and-mortar retailers or restaurants in Arcadia, including one at the Shops at Santa Anita will be gifted up to \$75 in Gift Cards from the City to Shop and Dine in Arcadia. Redeem at the Shops at Santa Anita Concierge Desk while supplies last. Terms and conditions apply, visit www.Arcadia.gov/MerryandBright for details.

Reward Thresholds (based on combined spend)

- Spend \$150 or more, and get a \$25 gift card
- Spend \$300 or more, and get a \$50 gift card
- Spend \$500 or more, and get a \$75 gift card

Terms and Conditions

While supplies last and awarded on a first-come, first-serve basis. Must make purchases at a minimum of three different brick-and-mortar business located in the City of Arcadia between December 1-24, 2022 to qualify. At least one of the three purchases must be made at a brick-and-mortar business located at the Shops at Santa Anita. In-person purchases only. No minimum purchase required at any particular business, but total receipts must be over the required threshold before taxes. Purchases of gift card are not valid and will not count toward total required spend. Receipts from qualifying purchases must be uploaded to the Shop at Santa Anita's system no later than December 31, 2022 to qualify. No duplicate receipts accepted. Receipts can be uploaded via QR codes located at Santa Anita's concierge desk. Gift cards can only be obtained in person at the Shops at Santa Anita's concierge desk. Use of gift cards subject to terms on back of gift card. Deposits for financed or layaway purchases must be over the promotional amount before taxes to apply. The Shops at Santa Anita reserves the right to reject any receipt in its sole and absolute discretion. A total of \$100,000 in funding has been allocated to this program. Valid ID must be presented and any credit card purchases must match the ID. Limit one gift card redemption per person per giveaway with purchase. 18+ only.

Frequently Asked Questions

Who is eligible to receive a Merry & Bright Program Gift Card?

Anyone who spends a combined \$150+ at three or more Arcadia businesses between December 1-24, 2022, provided at least one of the businesses is located at the Shops at Santa Anita. You do not need to be an Arcadia resident to participate.

What shopping, dining, and other purchases qualify as eligible spending under this program?

Shopping and dining receipts dated December 1-24, 2022 from any brick-and-mortar business located in the City of Arcadia (i.e. any business with a physical storefront in

Arcadia) will be accepted as eligible purchases under this program. For example, spending at any Arcadia-based retail store, restaurant or other food and beverage business, retail service establishment, entertainment-related business, or other business that sells products and/or services direct to the general public is eligible to submit under this program. At least one receipt is required to be from a business located at the Shops at Santa Anita.

How and where do I redeem my Gift Card?

All Gift Cards are required to be redeemed in person at the Shops at Santa Anita Concierge Desk beginning December 1, 2022 during open mall hours (10am-8pm Sun-Thurs, and 10am-9pm on Fri & Sat) . Please bring all eligible receipts to the Westfield Concierge Desk and then follow the on-site instructions to use your smartphone to upload receipts for verification and receive your Gift Card. Please note that a maximum of 2,000 Gift Cards will be issued through this program on a first-come, first-serve basis. Specific amounts and denominations of these Gift Cards are listed in the Program Terms and Conditions provided above.

Where can I spend my Gift Card?

Gift cards can be used at any store that accepts this form of payment, both at the Shops at Santa Anita and outside of the mall.

What happens after all the Gift Cards have been issued? Can receipts still be submitted to participate in this program or another promotion?

A total of \$100,000 in funding has been dedicated to this program and gift cards will be issued on a first-come, first-served basis to qualified recipients. No additional funding for gift cards is planned to be funded at this time. All program participation is subject to gift card availability, and once the initial supply has been distributed no additional receipts will be accepted or available to submit for the Merry & Bright Gift Card Program. At this time, there is no plan for additional offerings or other promotional offers after the initial Merry & Bright Card Program funding has been expended and all gift cards have been issued.

Are there any additional program restrictions or limitations to be aware of?

For additional program information and restrictions, please review the terms and conditions section above.

Who can I contact with any further questions?

For questions relating to the Gift Card redemption process, please contact the Shops at Santa Anita Call Center at (insert phone number) . For other inquiries or comments related to this program, please contact the Arcadia Economic Development Division by email at EconDev@ArcadiaCA.gov and an Arcadia City Staff Member will respond to your message within 1-to-2 business days.



Arcadia Stronger Program

Executive Summary

The Arcadia Chamber has developed the *Arcadia Stronger* grant program to create and continue the relationships between businesses and the chamber community. Our focus is on businesses with financial and other difficulties so that they can be a part of the Arcadia Chamber membership and have access to chamber programs and benefits as we work together as a community. We foresee this playing a critical role in leading to a healthier business environment for the city of Arcadia and Arcadia Chamber.

Project Background

The Arcadia Chamber faced a gross loss of 303 members (138 of these were within the city of Arcadia) since March of 2020 due to the Covid – 19 pandemic and economic decline. Businesses that couldn't renew their membership gave the following reasons: financial hardship, limited availability due to staff loss and/or business closures during the pandemic and after. Throughout the pandemic and continuing the Arcadia Chamber has stayed open and available to address the networking needs of the local business community. To help the community reengage with restaurants the chamber recreated events, such as changing Taste of Arcadia into Dine Arcadia. Through this transition the Arcadia Chamber was able to meet similar needs of its members to a greater extent by boosting its social media presence and abiding by the health safety standards. As Covid – 19 health restrictions were lifted the Arcadia Chamber continued to meet the needs and requests of its members by reoffering in person events and currently offers a hybrid of virtual and live events for its members.

Proposed Solution

In using the Arcadia Strong program as a model, we want to expand the outreach and accessibility of the Arcadia Chamber. The Arcadia Chamber will utilize the city's grant funds to subsidize the complete annual cost of membership for businesses within the city of Arcadia. By utilizing the networking and promotional resources that the Arcadia Chamber offers, these businesses will increase their brand recognition and their presence in the community. This program will help maintain a healthy business environment.

Program Eligibility Requirements:

Qualifications for a full year membership (\$280)

- Submission of grant membership application
- A current City of Arcadia Business License and be an Arcadia-based business (Business will provide copy of current business license and physical Arcadia-based business address in application process)
- Business needs to have been open prior to Dec 1,2021
- Previous membership is not a restriction, both dropped members and new businesses can apply
 - Membership drop date can be no later than November 1, 2022

Approval Commitment requirements from applicant (Must be completed within 90 days of acceptance)

- Must attend a chambering 101 orientation
- Must attend at least one networking event which can include in person or virtual events
- Like and follow Arcadia Chamber and City of Arcadia social media
 - The Arcadia Chamber will like and follow in turn
- Submit a piece of promotional material to be posted on Arcadia Chamber's website, social media and email blasts.

Initial Marketing Procedure

- Print Marketing mailed/emailed on what the program is, how the city sponsors the program and what the chamber program does.
- Video produced by the Arcadia Chamber about *Arcadia Stronger* program
- Chamber Website has landing page with program qualifications and application form, with appropriate links to business license and city of Arcadia website
- Physical distribution of Arcadia Stronger promotional material in the business license department and electronically on the business license webpage.
- Business walks by Chamber staff and members for educational purposes and distribution of promotional materials.

Reporting Plan

- The details of the grant program will be included in the six-month chamber reports to the city.

Attachment "C"

CITY OF ARCADIA PROFESSIONAL SERVICES AGREEMENT REGARDING DOWNTOWN ARCADIA BROADBAND STRATEGIC PLAN AND REVIEW OF CITYWIDE FIBEROPTIC PROPOSAL

This Agreement is made and entered into as of _____, 2022 by and between the City of Arcadia, a municipal corporation organized and operating under the laws of the State of California with its principal place of business at 240 West Huntington Drive, Arcadia, California 91066 ("City"), and Design Nine Inc., a Virginia Corporation, with its principal place of business at 2000 Kraft Drive, Suite 2200, Blacksburg, VA 24060 (hereinafter referred to as "Consultant"). City and Consultant are sometimes individually referred to as "Party" and collectively as "Parties" in this Agreement.

RECITALS

A. City is a public agency of the State of California and is in need of professional services for the following project:

Downtown Arcadia Broadband Strategic Plan and Review of Citywide Fiberoptic Proposal (hereinafter referred to as "the Project").

B. Consultant is duly licensed and has the necessary qualifications to provide such services.

C. The Parties desire by this Agreement to establish the terms for City to retain Consultant to provide the services described herein.

AGREEMENT

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

1. Services

Consultant shall provide the City with the services described in the Scope of Services attached hereto as Exhibit "A."

2. Compensation

a. Subject to paragraph 2(b) below, the City shall pay for such services in accordance with the Schedule of Charges set forth in Exhibit "B."

b. In no event shall the total amount paid for services rendered by Consultant under this Agreement exceed the sum of sixty-five thousand dollars (\$65,000.00). Periodic payments shall be made within 30 days of receipt of an invoice which includes a detailed description of the work performed. Payments to Consultant for work performed will be made on a monthly billing basis.

3. Additional Work

If changes in the work seem merited by Consultant or the City, and informal consultations with the other party indicate that a change is warranted, it shall be processed in the following

manner: a letter outlining the changes shall be forwarded to the City by Consultant with a statement of estimated changes in fee or time schedule. An amendment to this Agreement shall be prepared by the City and executed by both Parties before performance of such services, or the City will not be required to pay for the changes in the scope of work. Such amendment shall not render ineffective or invalidate unaffected portions of this Agreement.

4. Maintenance of Records

Books, documents, papers, accounting records, and other evidence pertaining to costs incurred shall be maintained by Consultant and made available at all reasonable times during the contract period and for four (4) years from the date of final payment under the contract for inspection by City.

5. Term

Consultant shall perform its services in a prompt and timely manner and shall commence performance upon receipt of written notice from the City to proceed ("Notice to Proceed"). Consultant shall complete the services required hereunder within 270 calendar days. The Notice to Proceed shall set forth the date of commencement of work.

6. Delays in Performance

a. Neither City nor Consultant shall be considered in default of this Agreement for delays in performance caused by circumstances beyond the reasonable control of the non-performing party. For purposes of this Agreement, such circumstances include but are not limited to, abnormal weather conditions; floods; earthquakes; fire; epidemics; war; riots and other civil disturbances; strikes, lockouts, work slowdowns, and other labor disturbances; sabotage or judicial restraint.

b. Should such circumstances occur, the non-performing party shall, within a reasonable time of being prevented from performing, give written notice to the other party describing the circumstances preventing continued performance and the efforts being made to resume performance of this Agreement.

7. Compliance with Law

a. Consultant shall comply with all applicable laws, ordinances, codes and regulations of the federal, state and local government, including Cal/OSHA requirements.

b. If required, Consultant shall assist the City, as requested, in obtaining and maintaining all permits required of Consultant by federal, state and local regulatory agencies.

c. If applicable, Consultant is responsible for all costs of clean up and/ or removal of hazardous and toxic substances spilled as a result of his or her services or operations performed under this Agreement.

8. Standard of Care

Consultant's services will be performed in accordance with generally accepted professional practices and principles and in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions.

9. Assignment and Subconsultant

Consultant shall not assign, sublet, or transfer this Agreement or any rights under or interest in this Agreement without the written consent of the City, which may be withheld for any reason. Any attempt to so assign or so transfer without such consent shall be void and without legal effect and shall constitute grounds for termination. Subcontracts, if any, shall contain a provision making them subject to all provisions stipulated in this Agreement. Nothing contained herein shall prevent Consultant from employing independent associates, and subconsultants as Consultant may deem appropriate to assist in the performance of services hereunder.

10. Independent Contractor

Consultant is retained as an independent contractor and is not an employee of City. No employee or agent of Consultant shall become an employee of City. The work to be performed shall be in accordance with the work described in this Agreement, subject to such directions and amendments from City as herein provided.

11. Insurance

Consultant shall not commence work for the City until it has provided evidence satisfactory to the City it has secured all insurance required under this section. In addition, Consultant shall not allow any subcontractor to commence work on any subcontract until it has secured all insurance required under this section.

a. Commercial General Liability

(i) The Consultant shall take out and maintain, during the performance of all work under this Agreement, in amounts not less than specified herein, Commercial General Liability Insurance, in a form and with insurance companies acceptable to the City.

(ii) Coverage for Commercial General Liability insurance shall be at least as broad as the following:

(1) Insurance Services Office Commercial General Liability coverage (Occurrence Form CG 00 01) or exact equivalent.

(iii) Commercial General Liability Insurance must include coverage for the following:

- (1) Bodily Injury and Property Damage
- (2) Personal Injury/Advertising Injury
- (3) Premises/Operations Liability
- (4) Products/Completed Operations Liability
- (5) Aggregate Limits that Apply per Project

- (6) Explosion, Collapse and Underground (UCX) exclusion deleted
- (7) Contractual Liability with respect to this Agreement
- (8) Property Damage
- (9) Independent Consultants Coverage

(iv) The policy shall contain no endorsements or provisions limiting coverage for (1) contractual liability; (2) cross liability exclusion for claims or suits by one insured against another; (3) products/completed operations liability; or (4) contain any other exclusion contrary to the Agreement.

(v) The policy shall give City, its officials, officers, employees, agents and City designated volunteers additional insured status using ISO endorsement forms CG 20 10 10 01 and 20 37 10 01, or endorsements providing the exact same coverage.

(vi) The general liability program may utilize either deductibles or provide coverage excess of a self-insured retention, subject to written approval by the City, and provided that such deductibles shall not apply to the City as an additional insured.

b. Automobile Liability

(i) At all times during the performance of the work under this Agreement, the Consultant shall maintain Automobile Liability Insurance for bodily injury and property damage including coverage for owned, non-owned and hired vehicles, in a form and with insurance companies acceptable to the City.

(ii) Coverage for automobile liability insurance shall be at least as broad as Insurance Services Office Form Number CA 00 01 covering automobile liability (Coverage Symbol 1, any auto).

(iii) The policy shall give City, its officials, officers, employees, agents and City designated volunteers additional insured status.

(iv) Subject to written approval by the City, the automobile liability program may utilize deductibles, provided that such deductibles shall not apply to the City as an additional insured, but not a self-insured retention.

c. Workers' Compensation/Employer's Liability

(i) Consultant certifies that he/she is aware of the provisions of Section 3700 of the California Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and he/she will comply with such provisions before commencing work under this Agreement.

(ii) To the extent Consultant has employees at any time during the term of this Agreement, at all times during the performance of the work under this Agreement, the Consultant shall maintain full compensation insurance for all persons employed directly by him/her to carry out the work contemplated under this Agreement, all in accordance with the "Workers' Compensation and Insurance Act," Division IV of the Labor Code of the State of California and any acts amendatory thereof, and Employer's Liability Coverage in amounts

indicated herein. Consultant shall require all subconsultants to obtain and maintain, for the period required by this Agreement, workers' compensation coverage of the same type and limits as specified in this section.

d. Professional Liability (Errors and Omissions)

At all times during the performance of the work under this Agreement the Consultant shall maintain professional liability or Errors and Omissions insurance appropriate to its profession, in a form and with insurance companies acceptable to the City and in an amount indicated herein. This insurance shall be endorsed to include contractual liability applicable to this Agreement and shall be written on a policy form coverage specifically designed to protect against acts, errors or omissions of the Consultant. "Covered Professional Services" as designated in the policy must specifically include work performed under this Agreement. The policy must "pay on behalf of" the insured and must include a provision establishing the insurer's duty to defend.

e. Minimum Policy Limits Required

(i) The following insurance limits are required for the Agreement:

	<u>Combined Single Limit</u>
Commercial General Liability	\$1,000,000 per occurrence/ \$2,000,000 aggregate for bodily injury, personal injury, and property damage
Automobile Liability	\$1,000,000 per occurrence for bodily injury and property damage
Employer's Liability	\$1,000,000 per occurrence
Professional Liability	\$1,000,000 per claim and aggregate (errors and omissions)

(ii) Defense costs shall be payable in addition to the limits.

(iii) Requirements of specific coverage or limits contained in this section are not intended as a limitation on coverage, limits, or other requirement, or a waiver of any coverage normally provided by any insurance. Any available coverage shall be provided to the parties required to be named as Additional Insured pursuant to this Agreement.

f. Evidence Required

Prior to execution of the Agreement, the Consultant shall file with the City evidence of insurance from an insurer or insurers certifying to the coverage of all insurance required herein. Such evidence shall include original copies of the ISO CG 00 01 (or insurer's equivalent) signed by the insurer's representative and Certificate of Insurance (Acord Form 25-S or equivalent), together with required endorsements. All evidence of insurance shall be signed by a properly authorized officer, agent, or qualified representative of the insurer and shall certify the names of the insured, any additional insureds, where appropriate, the type and amount of the insurance, the location and operations to which the insurance applies, and the expiration date of such insurance.

g. Policy Provisions Required

(i) Consultant shall provide the City at least thirty (30) days prior written notice of cancellation of any policy required by this Agreement, except that the Consultant shall provide at least ten (10) days prior written notice of cancellation of any such policy due to non-payment of premium. If any of the required coverage is cancelled or expires during the term of this Agreement, the Consultant shall deliver renewal certificate(s) including the General Liability Additional Insured Endorsement to the City at least ten (10) days prior to the effective date of cancellation or expiration.

(ii) The Commercial General Liability Policy and Automobile Policy shall each contain a provision stating that Consultant's policy is primary insurance and that any insurance, self-insurance or other coverage maintained by the City or any named insureds shall not be called upon to contribute to any loss.

(iii) The retroactive date (if any) of each policy is to be no later than the effective date of this Agreement. Consultant shall maintain such coverage continuously for a period of at least three years after the completion of the work under this Agreement. Consultant shall purchase a one (1) year extended reporting period A) if the retroactive date is advanced past the effective date of this Agreement; B) if the policy is cancelled or not renewed; or C) if the policy is replaced by another claims-made policy with a retroactive date subsequent to the effective date of this Agreement.

(iv) All required insurance coverages, except for the professional liability coverage, shall contain or be endorsed to waiver of subrogation in favor of the City, its officials, officers, employees, agents, and volunteers or shall specifically allow Consultant or others providing insurance evidence in compliance with these specifications to waive their right of recovery prior to a loss. Consultant hereby waives its own right of recovery against City, and shall require similar written express waivers and insurance clauses from each of its subconsultants.

(v) The limits set forth herein shall apply separately to each insured against whom claims are made or suits are brought, except with respect to the limits of liability. Further the limits set forth herein shall not be construed to relieve the Consultant from liability in excess of such coverage, nor shall it limit the Consultant's indemnification obligations to the City and shall not preclude the City from taking such other actions available to the City under other provisions of the Agreement or law.

h. Qualifying Insurers

(i) All policies required shall be issued by acceptable insurance companies, as determined by the City, which satisfy the following minimum requirements:

(1) Each such policy shall be from a company or companies with a current A.M. Best's rating of no less than A:VII and admitted to transact in the business of insurance in the State of California, or otherwise allowed to place insurance through surplus line brokers under applicable provisions of the California Insurance Code or any federal law.

i. Additional Insurance Provisions

(i) The foregoing requirements as to the types and limits of insurance coverage to be maintained by Consultant, and any approval of said insurance by the City, is not intended to and shall not in any manner limit or qualify the liabilities and obligations otherwise assumed by the Consultant pursuant to this Agreement, including but not limited to, the provisions concerning indemnification.

(ii) If at any time during the life of the Agreement, any policy of insurance required under this Agreement does not comply with these specifications or is canceled and not replaced, City has the right but not the duty to obtain the insurance it deems necessary and any premium paid by City will be promptly reimbursed by Consultant or City will withhold amounts sufficient to pay premium from Consultant payments. In the alternative, City may cancel this Agreement.

(iii) The City may require the Consultant to provide complete copies of all insurance policies in effect for the duration of the Project.

(iv) Neither the City nor any of its officials, officers, employees, agents or volunteers shall be personally responsible for any liability arising under or by virtue of this Agreement.

j. Subconsultant Insurance Requirements. Consultant shall not allow any subcontractors or subconsultants to commence work on any subcontract until they have provided evidence satisfactory to the City that they have secured all insurance required under this section. Policies of commercial general liability insurance provided by such subcontractors or subconsultants shall be endorsed to name the City as an additional insured using ISO form CG 20 38 04 13 or an endorsement providing the exact same coverage. If requested by Consultant, City may approve different scopes or minimum limits of insurance for particular subcontractors or subconsultants.

12. Indemnification

a. To the fullest extent permitted by law, Consultant shall defend (with counsel of City's choosing), indemnify and hold the City, its officials, officers, employees, volunteers, and agents free and harmless from any and all claims, demands, causes of action, costs, expenses, liability, loss, damage or injury of any kind, in law or equity, to property or persons, including wrongful death, in any manner arising out of, pertaining to, or incident to any acts, errors or omissions, or willful misconduct of Consultant, its officials, officers, employees, subcontractors, consultants or agents in connection with the performance of the Consultant's services, the Project or this Agreement, including without limitation the payment of all damages, expert witness fees and attorney's fees and other related costs and expenses. Consultant's obligation to indemnify shall not be restricted to insurance proceeds, if any, received by Consultant, the City, its officials, officers, employees, agents, or volunteers.

b. To the extent required by Civil Code section 2782.8, which is fully incorporated herein, Consultant's obligations under the above indemnity shall be limited to claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant, but shall not otherwise be reduced. If Consultant's obligations to defend, indemnify, and/or hold harmless arise out of Consultant's performance of "design professional services" (as that term is defined under Civil Code section 2782.8), then upon Consultant obtaining a final

adjudication that liability under a claim is caused by the comparative active negligence or willful misconduct of the City, Consultant's obligations shall be reduced in proportion to the established comparative liability of the City and shall not exceed the Consultant's proportionate percentage of fault.

13. California Labor Code Requirements

a. Consultant is aware of the requirements of California Labor Code Sections 1720 et seq. and 1770 et seq., which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects ("Prevailing Wage Laws"). If the services are being performed as part of an applicable "public works" or "maintenance" project, as defined by the Prevailing Wage Laws, and if the total compensation is \$15,000 or more for maintenance or \$25,000 or more for construction, alteration, demolition, installation, or repair, Consultant agrees to fully comply with such Prevailing Wage Laws. Consultant shall defend, indemnify and hold the City, its officials, officers, employees and agents free and harmless from any claims, liabilities, costs, penalties or interest arising out of any failure or alleged failure to comply with the Prevailing Wage Laws. It shall be mandatory upon the Consultant and all subconsultants to comply with all California Labor Code provisions, which include but are not limited to prevailing wages (Labor Code Sections 1771, 1774 and 1775), employment of apprentices (Labor Code Section 1777.5), certified payroll records (Labor Code Sections 1771.4 and 1776), hours of labor (Labor Code Sections 1813 and 1815) and debarment of contractors and subcontractors (Labor Code Section 1777.1).

b. If the services are being performed as part of an applicable "public works" or "maintenance" project and if the total compensation is \$15,000 or more for maintenance or \$25,000 or more for construction, alteration, demolition, installation, or repair, then pursuant to Labor Code Sections 1725.5 and 1771.1, the Consultant and all subconsultants performing such services must be registered with the Department of Industrial Relations. Consultant shall maintain registration for the duration of the Project and require the same of any subconsultants, as applicable. This Project may also be subject to compliance monitoring and enforcement by the Department of Industrial Relations. It shall be Consultant's sole responsibility to comply with all applicable registration and labor compliance requirements.

c. This Agreement may also be subject to compliance monitoring and enforcement by the Department of Industrial Relations. It shall be Consultant's sole responsibility to comply with all applicable registration and labor compliance requirements. Any stop orders issued by the Department of Industrial Relations against Consultant or any subcontractor that affect Consultant's performance of services, including any delay, shall be Consultant's sole responsibility. Any delay arising out of or resulting from such stop orders shall be considered Consultant caused delay and shall not be compensable by the City. Consultant shall defend, indemnify and hold the City, its officials, officers, employees and agents free and harmless from any claim or liability arising out of stop orders issued by the Department of Industrial Relations against Consultant or any subcontractor.

14. Verification of Employment Eligibility

By executing this Agreement, Consultant verifies that it fully complies with all requirements and restrictions of state and federal law respecting the employment of undocumented aliens, including, but not limited to, the Immigration Reform and Control Act of 1986, as may be amended from time to time, and shall require all subconsultants and sub-subconsultants to comply with the same.

15. Laws and Venue

This Agreement shall be interpreted in accordance with the laws of the State of California. If any action is brought to interpret or enforce any term of this Agreement, the action shall be brought in a state or federal court situated in the County of Los Angeles, State of California.

16. Termination or Abandonment

a. City has the right to terminate or abandon any portion or all of the work under this Agreement by giving ten (10) calendar days written notice to Consultant. In such event, City shall be immediately given title and possession to all original field notes, drawings and specifications, written reports and other documents produced or developed for that portion of the work completed and/or being abandoned. City shall pay Consultant the reasonable value of services rendered for any portion of the work completed prior to termination. If said termination occurs prior to completion of any task for the Project for which a payment request has not been received, the charge for services performed during such task shall be the reasonable value of such services, based on an amount mutually agreed to by City and Consultant of the portion of such task completed but not paid prior to said termination. City shall not be liable for any costs other than the charges or portions thereof which are specified herein. Consultant shall not be entitled to payment for unperformed services, and shall not be entitled to damages or compensation for termination of work.

b. Consultant may terminate its obligation to provide further services under this Agreement upon thirty (30) calendar days' written notice to City only in the event of substantial failure by City to perform in accordance with the terms of this Agreement through no fault of Consultant.

17. Documents

Except as otherwise provided in "Termination or Abandonment," above, all original field notes, written reports, Drawings and Specifications and other documents, produced or developed for the Project shall, upon payment in full for the services described in this Agreement, be furnished to and become the property of the City.

18. Organization

Consultant shall assign Andrew Cohill and Jack Maytum as Project Managers. The Project Managers shall not be removed from the Project or reassigned without the prior written consent of the City.

19. Limitation of Agreement.

This Agreement is limited to and includes only the work included in the Project described above.

20. Notice

Any notice or instrument required to be given or delivered by this Agreement may be given or delivered by depositing the same in any United States Post Office, certified mail, return receipt requested, postage prepaid, addressed to:

CITY:
City of Arcadia
240 West Huntington Drive
Arcadia, CA 91066
Attn: Jason Kruckeberg,
Assistant City Manager

CONSULTANT:
Design Nine, Inc.
2000 Kraft Drive, Suite 2200
Blacksburg, VA 24060
Attn: Andrew Cohill, PhD.

and shall be effective upon receipt thereof.

21. Third Party Rights

Nothing in this Agreement shall be construed to give any rights or benefits to anyone other than the City and the Consultant.

22. Equal Opportunity Employment

Consultant represents that it is an equal opportunity employer and that it shall not discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, sex, age or other interests protected by the State or Federal Constitutions. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination.

23. Entire Agreement

This Agreement, with its exhibits, represents the entire understanding of City and Consultant as to those matters contained herein, and supersedes and cancels any prior or contemporaneous oral or written understanding, promises or representations with respect to those matters covered hereunder. Each party acknowledges that no representations, inducements, promises or agreements have been made by any person which are not incorporated herein, and that any other agreements shall be void. This Agreement may not be modified or altered except in writing signed by both Parties hereto. This is an integrated Agreement.

24. Severability

The unenforceability, invalidity or illegality of any provision(s) of this Agreement shall not render the provisions unenforceable, invalid or illegal.

25. Successors and Assigns

This Agreement shall be binding upon and shall inure to the benefit of the successors in interest, executors, administrators and assigns of each party to this Agreement. However, Consultant shall not assign or transfer by operation of law or otherwise any or all of its rights, burdens, duties or obligations without the prior written consent of City. Any attempted assignment without such consent shall be invalid and void.

26. Non-Waiver

None of the provisions of this Agreement shall be considered waived by either party, unless such waiver is specifically specified in writing.

27. Time of Essence

Time is of the essence for each and every provision of this Agreement.

28. City's Right to Employ Other Consultants

City reserves its right to employ other consultants, including engineers, in connection with this Project or other projects.

29. Prohibited Interests

Consultant maintains and warrants that it has not employed nor retained any company or person, other than a bona fide employee working solely for Consultant, to solicit or secure this Agreement. Further, Consultant warrants that it has not paid nor has it agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, City shall have the right to rescind this Agreement without liability. For the term of this Agreement, no director, official, officer or employee of City, during the term of his or her service with City, shall have any direct interest in this Agreement, or obtain any present or anticipated material benefit arising therefrom.

[SIGNATURES ON FOLLOWING PAGE]

**SIGNATURE PAGE FOR PROFESSIONAL SERVICES AGREEMENT
BETWEEN THE CITY OF ARCADIA
AND STAR RETAIL ADVISORS**

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first written above.

CITY OF ARCADIA

DESIGN NINE, INC.

By: _____
Dominic Lazzaretto
City Manager

By: _____
Signature

Date: _____

Its: _____

ATTEST:

Printed Name

By: _____
City Clerk

Date: _____

APPROVED AS TO FORM

By: _____
Signature

By: _____
Stephen P. Deitsch
City Attorney

Its: _____

Printed Name

EXHIBIT "A"

Scope of Services

The **SCOPE OF SERVICES** and principal responsibilities include, but are not limited to, the following tasks:

- 1) Kick-Off Meeting: Complete a kick-off meeting with City staff to present project objectives, goals, and tasks; share access to information already held by the City, such as existing infrastructure and existing facilities for broadband service; and share existing City policies related to broadband.
- 2) Inventory of Existing Providers and Fiber-Optic Paths: Identify current broadband service providers operating in Downtown Arcadia and the locations of existing fiber-optic infrastructure in this area.
- 3) Gap Analysis: Identify locations in Downtown Arcadia that are well-served, underserved, and unserved by showing where the gaps are in existing broadband infrastructure.
- 4) Public Asset Inventory: Identify the City's and other public agencies' current assets in the area that may be utilized to promote broadband deployment, such as streetlight/traffic controls, SCADA systems, and existing conduit. This inventory can then be used to identify some of the tools available to the City in accomplishing its broadband objectives. Conversely, identifying the absence of some sort of asset or asset class may lead to recommendations to collaborate or acquire that asset or asset class.
- 5) Engagement with Broadband Providers: Directly engage, or prepare a strategy for the City to engage, the broadband providers with existing infrastructure and service in or around the project area to encourage and facilitate additional deployment of broadband options and infrastructure. Assess relationship management by the City with broadband providers and outline strategies that could facilitate improved cooperation in support of both City and provider broadband objectives.
- 6) Identification of Obstacles: Identify obstacles to broadband deployment in Downtown Arcadia. This may include physical, legal, regulatory, financial, and other obstacles. Identifying obstacles will help advise the Arcadia City Council as it decides how to promote further broadband deployment not only within this area but throughout the City.
- 7) Identification of Anchors: Identify potential anchor customers that may individually justify private-sector investment in broadband infrastructure. Also identify potential strategies to leverage existing anchors in support of the City's broadband objectives for Downtown Arcadia.
- 8) Recommend Policies and Actions to Promote Broadband Deployment: Outline potential courses of action the City may undertake to promote additional broadband deployment within Downtown Arcadia. These actions may include regulatory changes, legislative changes, adoption of new ordinances (such as a "dig once" approach), community development and planning process workflow changes, collaborative ideas with other utility or public sector agencies, a process to identify potential revenue generation opportunities for the City, and public-private partnerships, among others. Include a high-level, rough cost estimate for each recommendation.
- 9) Identify Funding Sources: Identify potential sources of funding for implementation of the recommended broadband policies and actions.

- 10) Evaluation of Citywide Fiberoptic Proposal: Assist the City to review and evaluate the merits of a recently proposed public-private partnership for installation of a citywide fiberoptic network in the public right-of-way. Work for this task shall be completed on an as-needed basis only with prior written authorization for any work related to this task provided by the City. As described in Exhibit B to this Agreement, Consultant shall invoice the City for work related to this task on an hourly basis.

Draft

EXHIBIT "B"

Schedule of Charges/Payments

The compensation for this Agreement shall not exceed \$65,000 with a \$125 hourly rate unless prior written authorization is provided by the City. The compensation for Task Nos. 1 – 9 in the Scope of Services shall not exceed \$48,750. The compensation for Scope of Services item no. 10 shall not exceed \$16,250 and work related to this task shall only be completed on an as-needed basis with prior written authorization from the City and billed at a \$125 hourly rate. Consultant will invoice City on a monthly cycle. Consultant will include with each invoice a progress report that indicates the amount of budget and hours spent on each task. Compensation shall not be provided for any work performed outside of the scope of services without the prior written consent of the City. This is a time-and-materials contract.

DRAFT

EXHIBIT "C"

Activity Schedule

The schedule of services shall commence on November 23, 2022 and conclude no later than August 20, 2023.

Draft