AGENDA
REGULAR MEETING
AGOURA HILLS CITY COUNCIL
Civic Center - Council Chambers
30001 Ladyface Court, Agoura Hills, California 91301
Wednesday, October 22, 2025
6:00 PM

Please silence all cell phones and other electronic devices during the meeting.

ATTEND OR WATCH THE MEETING

*For in-person attendance, the Council Chambers will open to the public at 5:30 p.m. To watch the live stream or archived meeting, search "Agoura Hills City Council" on **YouTube** and select the meeting by date, or visit **agourahillscity.gov** and click the dark green "View Current Agenda(s) or Live/Archived Meetings" button at the top of the page.*

PUBLIC PARTICIPATION (PUBLIC COMMENT

Option A: To provide public comments in person in the Council Chambers

Members of the public may attend the meeting in person in the Council Chambers and have the opportunity to speak or submit a written comment on any item listed on the Agenda. To speak, complete a Speaker's Card for each item and submit it to the City Clerk before the public comment portion of that item. Public testimony is limited to three (3) minutes per speaker, and time may not be transferred to another person. Written comments submitted during the meeting will not be read aloud by the City Clerk.

Option B: To submit written public comments prior to the meeting

*Members of the public may submit written comments on any item listed on the Agenda. To ensure the City Council has time to review and/or consider the information prior to the meeting, please include the Agenda item number or topic in the email subject line and **send written public comments to comments@agourahillscity.gov on or before 4:00 p.m. on the meeting date.** Public comments are not read into the record by the City Clerk. Please note: any public comments submitted after the deadline may not be considered during the City Council's deliberations or included in the official record. However, the public is welcome to attend the meeting to make or submit comments in person.*

CALL TO ORDER

LAND ACKNOWLEDGEMENT

PLEDGE OF ALLEGIANCE

ROLL CALL

Mayor Penny Sylvester
Mayor Pro Tem Jeremy Wolf
Councilmember Kate Anderson
Councilmember Chris Anstead
Councilmember Deborah Klein Lopez

REPORT OF CLOSED SESSION

APPROVAL OF AGENDA

PRESENTATIONS

Business of the Month - Presentation to Fleet Feet

INTERGOVERNMENTAL, SPECIAL PURPOSE COMMITTEE, AND DEPARTMENTAL REPORTS

Las Virgenes/Malibu Council of Governments Update
Santa Monica Mountains Conservancy Advisory Committee Update

PUBLIC COMMENTS

(This section is reserved for persons wishing to address items not listed on the Agenda that are under the subject matter jurisdiction of the City Council. Please refer to “Public Participation” above for full details on how to speak or submit written public comments under this category.)

CONSENT CALENDAR

(Items on the Consent Calendar may be approved by a single motion and vote. Unless pulled by the City Council, there will be no separate discussion of these items. This section is reserved for persons wishing to address items on the Consent Calendar. Please refer to “Public Participation” above for full details on how to speak or submit written public comments under this category.)

1. Approve Minutes of the Regular City Council Meeting of July 9, 2025
   RECOMMENDATION: Approve the Minutes, as presented.

2. Approve Minutes of the Regular City Council Meeting of August 27, 2025
   RECOMMENDATION: Approve the Minutes, as presented.

3. Approve Demand Warrant Register No. 941
   RECOMMENDATION: Approve Demand Warrant Register No. 941.

4. Approve Treasurer's Report for July 2025
   RECOMMENTATION: Approve Treasurer's Report for July 2025.

5. Approve Treasurer's Report for August 2025
   RECOMMENTATION: Approve Treasurer's Report for August 2025.

6. Approve Treasurer’s Report for September 2025
   RECOMMENTATION: Approve Treasurer's Report for September 2025.

7. Adopt Amendments to the City of Agoura Hills Fiscal Year 2024-25 Budget
RECOMMENDATION: Approve: 1) The proposed transfers from the General Fund listed in this staff report; 2) The proposed journal entry related to the Successor Agency Shown in Exhibit 'A' affecting Revenues; 3) The proposed amendments to the General Fund Fiscal Year 2024-25 Budget for the amounts shown in Exhibit 'B'; and, 4) The proposed amendments to the Special Funds Fiscal Year 2024-25 Budget for the amounts shown in Exhibit 'C'.

8. Approval of Third Amendment to Agreement for Design Professional Consultant Services with m6 Consulting, Inc. for Construction Engineering Services Related to the Ladyface Greenway Project
RECOMMENDATION: Approve the Third Amendment to the Agreement for Design Professional Consultant Services with m6 Consulting, Inc. for construction engineering services related to the Ladyface Greenway Project.

9. Approve the 2025 Updated Sanitary Sewer Management Plan as Required by State Water Resources Control Board Order No. 2022-0103-DWQ
RECOMMENDATION: Approve the 2025 Updated Sanitary Sewer Management Plan.

ORDINANCE / INTRODUCTION

(This section is reserved for persons wishing to address items listed under Public Hearing. Please refer to "Public Participation" above for full details on how to submit written public comments or speak under this category.)

10. Introduce and Waive Full Reading of Ordinance No. 25-480; Adopting by Reference the 2025 Edition of the California Buildings Standards Code Comprised of the 2025 Editions of the Administrative, Building, Residential, Electrical, Mechanical, Plumbing, Energy, Wildland Urban Interface, Historical Building, Fire, Existing Building, Green Building Standards, and Referenced Standards Code, and the 2024 Edition of the International Property Maintenance Code, and Amending Articles III and VIII of the Agoura Hills Municipal Code, Approving a CEQA Exemption Determination, and Set a Public Hearing for November 12, 2025
RECOMMENDATION: Introduce and waive further reading of Ordinance No. 25-480, and set the Public Hearing for the adoption of the Ordinance for Wednesday, November 12, 2025.

DISCUSSION / ACTION

(This section is reserved for persons wishing to address items listed under Discussion / Action. Please refer to "Public Participation" above for full details on how to submit written public comments or speak under this category.)

11. Discussion Regarding E-Bicycles Rules and Regulations
RECOMMENDATION: Provide feedback and direction on the Electric Bicycle Options presented; no formal action required.

12. Discussion to Consider the Approval of the City of Agoura Hills 2025 Wildfire Risk Assessment Report
RECOMMENDATION: Approve the 2025 Agoura Hills Community Wildfire Risk Assessment Report.

CITY COUNCIL, STAFF COMMENTS

ADJOURNMENT

The next Regular City Council Meeting will be held at 6:00 p.m., on November 12, 2025, in the Council Chambers of the Civic Center. The Civic Center is located at 30001 Ladyface Court, Agoura Hills, California.

In accordance with the Americans with Disabilities Act, if you require special assistance to participate in a City Council meeting or to access other services offered by the City of Agoura Hills, please contact the City Clerk's Office at (818) 597-7300. To ensure that reasonable arrangements can be made to provide appropriate access, please provide notification at least 48 hours in advance of the meeting or time when services are needed.
Copies of staff reports or other written documentation related to each item of business on this Agenda are available on the City's website at ***agourahillscity.gov*** *and are on file in the Office of the City Clerk, Kimberly M. Rodrigues, at Agoura Hills City Hall, 30001 Ladyface Court, Agoura Hills, California, 91301.*
The telecast of Regular City Council Meeting held on Wednesday, October 22, 2025 will be broadcast on Channel 10 for Time Warner Cable subscribers and Channel 3 for Charter subscribers and air daily until the next regularly scheduled City Council meeting. The broadcast schedule is as follows: M-10a m; T-3pm; W-10am; Th-7pm; F-10am; S-3pm; and Su-7pm.

Date Posted: October 16, 2025

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE:	**OCTOBER 22, 2025**
TO:	**HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**
FROM:	**NATHAN HAMBURGER, CITY MANAGER**
BY:	**KIMBERLY RODRIGUES, CITY CLERK**
SUBJECT:	**APPROVE MINUTES OF THE REGULAR CITY COUNCIL MEETING OF JULY 9, 2025**

RECOMMENDATION

Approve the Minutes, as presented.

Attachments

Minutes CC 070925.pdf

MINUTES
REGULAR MEETING
AGOURA HILLS CITY COUNCIL
Civic Center – Council Chambers
30001 Ladyface Court, Agoura Hills, California 91301
Tuesday, July 9, 2025
6:00 p.m.

The City Council meeting was called to order at 6:00 p.m. by Mayor Sylvester.

Mayor Sylvester announced the Land Acknowledgement.

The Pledge of Allegiance was led by Executive Assistant Hubbs.

Present were: Mayor Penny Sylvester, Mayor Pro Tem Jeremy Wolf, Councilmember Kate Anderson, and Councilmember Deborah Klein Lopez.

Absent was: Councilmember Anstead.

Also Present were: City Manager Nathan Hamburger, City Attorney Candice K. Lee, Deputy City Manager Louis Celaya, Communication Manager Mary Haddad, Principal Planner Robby Nesovic, Director of Public Works/City Engineer Charmaine Yambao, Engineering Aide Joshua Keck, Building Official Lukas Quach, Director of Finance Diego Ibañez, Finance Manager Brenda Cho, Director of Community Services Amy Brink, and Executive Assistant/Recording Secretary Michele Hubbs,

REPORT OF CLOSED SESSION

No Closed Session was held.

APPROVAL OF AGENDA

ACTION: Councilmember Klein Lopez moved to approve the Agenda, as presented. Councilmember Mayor Pro Tem Wolf seconded. The motion carried 4-0, by the following roll call vote:

AYES: Mayor Sylvester, Mayor Pro Tem Wolf, and Councilmembers Anderson and Klein Lopez.

NOES: None.

ABSTAIN: None.

ABSENT: Councilmember Anstead.

PRESENTATIONS

No presentations were given.

INTERGOVERNMENTAL, SPECIAL PURPOSE COMMITTEE, & DEPARTMENTAL REPORTS

Public Affairs Associate Ricki Clark of the Las Virgenes Municipal Water District provided the Water and Wastewater Rate Structure Update.

Library Manager Nina Hull provided the Agoura Hills Library Quarterly Update and introduced the newly appointed Children's Librarian, Sarah Hollins, who briefly addressed the City Council.

Councilmember Klein Lopez provided a Clean Power Alliance (CPA) Update.

PUBLIC COMMENTS

No public comments were received.

CONSENT CALENDAR

No public comments were received.

ACTION: Mayor Pro Tem Wolf moved to approve Consent Calendar Item Nos. 1-10, as presented. Councilmember Anderson seconded. The motion carried 4-0, by the following roll call vote:

AYES: Mayor Sylvester, Mayor Pro Tem Wolf, and Councilmembers Anderson and Klein Lopez.

NOES: None.

ABSTAIN: None.

ABSENT: Councilmember Anstead.

1. Approve Minutes of the City Council Regular Meeting of June 25, 2025

2. Approve Demand Warrant Register No. 936

3. Approve Treasurer's Report for April 2025

4. Approve Treasurer's Report for May 2025

5. Approve Sixth Amendment to the Design Professional Consultant Services Agreement with Michael BakerInternational for Additional Engineering Design Services Related to the Kanan Corridor Project

6. Approve the Consumption of Alcohol in Designated Area in the Park at Reyes Adobe Days 2025

7. Adopt **Resolution No. 25-2114**; A RESOLUTION OF THE CITY COUNCIL OF THE CITYOF AGOURA HILLS, CALIFORNIA, DELEGATING AUTHORITY TO REQUEST DISBURSEMENTS FROM THE CALIFORNIA EMPLOYERS'

PENSION PREFUNDING TRUST (CEPPT) AND RESCINDING RESOLUTION NO. 22-2021.

8. Adopt **Resolution No. 25-2115**; A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF AGOURA HILLS, CALIFORNIA, DELEGATING AUTHORITY TO REQUEST DISBURSEMENTS FROM THE CALIFORNIA EMPLOYERS' PENSION RETIREMENT BENEFIT TRUST (CERBT)

9. Adopt **Resolution No. 25-2116**; A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF AGOURA HILLS, CALIFORNIA, AUTHORIZING INVESTMENT OF MONIES IN THE LOCAL AGENCY INVESTMENT FUND (LAIF) AND RESCINDING RESOLUTION NO. 03-1283

10. Adopt **Ordinance No. 25-479**; AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF AGOURA HILLS, CALIFORNIA, DESIGNATING FIRE HAZARD SEVERITY ZONES, AND APPROVING A CEQA EXEMPTION DETERMINATION

DISCUSSION / ACTION

11. Discussion Regarding Oak Tree Ordinance Planning Principles

Following presentation of the staff report, and a question-and-answer period with staff, Mayor Sylvester opened the floor for public comments.

No public comments were received.

After further discussion, the City Council provided staff with general direction regarding the goals and objectives of the Oak Tree Ordinance Amendment.

No formal action was required by the City Council on this item.

CITY COUNCIL, STAFF COMMENTS

The City Council commended staff on the success of the Concert in the Park and Drone Show, noting they had received only positive feedback about the event.

ADJOURNMENT

At 7:09 p.m., Mayor Sylvester announced the Regular City Council Meeting scheduled for Wednesday, July 23, 2025, had been canceled and the next Regular City Council Meeting would be held at 6:00 p.m., on Wednesday, August 13, 2025, in the Council Chambers of the Civic Center and adjourned the meeting.

Michele Hubbs, Executive Assistant/Recording Secretary
Minutes Prepared by Kimberly M. Rodrigues, MPPA, MMC, City Clerk

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE:	**OCTOBER 22, 2025**
TO:	**HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**
FROM:	**NATHAN HAMBURGER, CITY MANAGER**
BY:	**KIMBERLY RODRIGUES, CITY CLERK**
SUBJECT:	**APPROVE MINUTES OF THE REGULAR CITY COUNCIL MEETING OF AUGUST 27, 2025**

RECOMMENDATION

Approve the Minutes, as presented.

Attachments

Minutes CC 082725.pdf

MINUTES
REGULAR MEETING
AGOURA HILLS CITY COUNCIL
Civic Center – Council Chambers
30001 Ladyface Court, Agoura Hills, California 91301
Wednesday, August 27, 2025
6:00 p.m.

The City Council meeting was called to order at 6:00 p.m. by Mayor Sylvester.

Mayor Sylvester announced the Land Acknowledgement.

The Pledge of Allegiance was led by Director of Public Works/City Engineer Yambao.

Present were: Mayor Penny Sylvester, Mayor Pro Tem Jeremy Wolf, Councilmember Kate Anderson, Councilmember Chris Anstead, and Councilmember Deborah Klein Lopez.

Also Present were: City Manager Nathan Hamburger, City Attorney Candice K. Lee, Assistant City Manager Ramiro Adeva, Deputy City Manager Louis Celaya, Executive Assistant Michele Hubbs, Principal Planner Robby Nesovic, Director of Public Works/City Engineer Charmaine Yambao, Engineering Aide Joshua Keck, Director of Finance Diego Ibañez, and City Clerk Kimberly M. Rodrigues.

REPORT OF CLOSED SESSION

No Closed Session was held.

APPROVAL OF AGENDA

ACTION: Councilmember Anstead moved to approve the Agenda, as presented. Mayor Pro Tem Wolf seconded. The motion carried 5-0, by the following roll call vote:

AYES: Mayor Sylvester, Mayor Pro Tem Wolf, and Councilmembers Anderson, Anstead, and Klein Lopez.

NOES: None.

ABSTAIN: None.

ABSENT: None.

PRESENTATIONS

Mayor Sylvester presented a Certificate of Recognition, the 'Best in Show' Award, to Madelyn Saglie for her artwork *All About Monty* at the 2025 Summer Art Show and Cultural Arts Council Members Deanna Glassberg, Karen Kent, and Randee Paller presented her with the framed original of her artwork.

Mayor Sylvester presented a Certificate of Recognition, to representatives Maged Diab and Daniel Loyd, honoring Roadside Lumber as the August Business of the Month.

INTERGOVERNMENTAL, SPECIAL PURPOSE COMMITTEE, & DEPARTMENTAL REPORTS

Mayor Sylvester provided a Las Virgenes/Malibu Council of Governments Update.

Councilmember Anderson provided a Santa Monica Mountains Conservancy Advisory Committee Update.

PUBLIC COMMENTS

The following person(s) spoke:

Dr. Michael Koslow *(submitted written correspondence)*
Jennifer Miller, Agoura Hills
David Rice, representing The Foundation for Las Virgenes Schools

CONSENT CALENDAR

No public comments were received.

ACTION: Councilmember Klein Lopez moved to approve Consent Calendar Item Nos. 1-7, as presented. Mayor Pro Tem Wolf seconded. The motion carried 5-0, by the following roll call vote:

AYES: Mayor Sylvester, Mayor Pro Tem Wolf, and Councilmembers Anderson, Anstead, and Klein Lopez.

NOES: None.

ABSTAIN: None.

ABSENT: None.

1. Approve Demand Warrant Register No. 938

2. Approve Treasurer's Report - June 2025

3. Approve Notice of Completion for the Reyes Adobe Road High-Intensity Activated Crosswalk Project; NIB 23- 04

4. Approve First Amendment to Agreement for Contractor Services, with GMZ Engineering, Inc., for the Ladyface Greenway Project; NIB 24-02B

5. Approve a Three-Year Agreement for Contractor Services, with GeoDynamics, Inc., for Geotechnical Review Services

6. Approve Amendment to City Council 2025 Meeting Schedule

7. Adopt **Resolution No. 25-2117**; AUTHORIZING SUBMITTAL OF INDIVIDUAL GRANT APPLICATIONS AND RELATED AUTHORIZATIONS FOR ALL CALRECYCLE GRANT PROGRAMS FOR WHICH THE CITY OF AGOURA HILLS IS ELIGIBLE

CITY COUNCIL, STAFF COMMENTS

Councilmember Anstead referenced a New York Times article about the Calabasas dump and voiced concern over the County's initial refusal to test the debris, the need for County accountability, and emphasized the potential risk to Agoura Hills residents.

Mayor Sylvester thanked and congratulated staff on the successful Concerts in the Park series this summer.

Mayor Pro Tem Wolf reported that the inaugural hot dog eating contest between the Oak Park and Agoura High football teams was held at the last Concert in the Park. Oak Park won the contest, but Agoura Hills won the Kanan Bowl.

ADJOURNMENT

At 6:31 p.m., Mayor Sylvester announced the next Regular City Council Meeting would be held at 6:00 p.m., on Wednesday, September 10, 2025, in the Council Chambers of the Civic Center and adjourned the meeting.

Kimberly M. Rodrigues, MPPA, MMC
City Clerk

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE: OCTOBER 22, 2025

TO: HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL

FROM: NATHAN HAMBURGER, CITY MANAGER

BY: DIEGO IBANEZ, DIRECTOR OF FINANCE

SUBJECT: APPROVE DEMAND WARRANT REGISTER NO. 941

Demand Warrant No. 941 is hereby submitted for your approval.

FISCAL IMPACT

All items on the Demand Warrant are budgeted items; and all the items, when aggregated and annualized, are found to be within budget.

RECOMMENDATION

It is recommended the City Council approve Demand Warrant No. 941.

Attachments

DR 941.pdf

October 22, 2025

DEMAND WARRANT REGISTER NO. NINE HUNDRED FOURTY ONE

Pursuant to Section 2508, of the Agoura Hills Municipal Code (AHMC), the demands are herein presented, having been duly audited, and are hereby allowed and approved for payment in the amount as shown for the designated payees and charged to the appropriate funds as indicated.

Pursuant to Section 37202 of the Government Code, I certify the above demands are accurate and funds are available for payment thereof.

I hereby certify Demand Warrant No. 941 is a full, true, and correct statement.

Nathan Hamburger, City Manager

CITY OF AGOURA HILLS

Demand Register 941

Date	Check	Vendor	Description	Amount
10/2/2025	118630	Acorn	RAD Entertainment	4,003.36
10/2/2025	118631	Adam Leventhal Memorial School and Mus	RAD Blacksmith	1,200.00
10/2/2025	118632	Agromin	Walk on Bark	4,023.00
10/2/2025	118633	BlueTriton Brands Inc	Water	126.89
10/2/2025	118634	Bold Plumbing Inc.	City Hall Restroom Repair	528.50
10/2/2025	118635	Brightview Landscape Services	Landscape Maintenance July 2025	48,875.53
10/2/2025	118636	Burns Pacific Construction	Maintenance Services August 2025	77,664.17
10/2/2025	118637	Cal State Site Services	Portable Restroom Rec Center Trail	302.45
10/2/2025	118638	County of Los Angeles Department of Publi	W0353010	17,633.38
10/2/2025	118639	Create Studio	RAD	600.00
10/2/2025	118640	Dave Thornbury	RAD Lasso & Roping	400.00
10/2/2025	118641	Delphine G. Herrera	Instructor Payment	1,041.00
10/2/2025	118642	Dept Of Animal Care & Control	Animal Control - August 2025	9,035.28
10/2/2025	118643	Dish	Rec Center Cable Services 10/03 - 11/25	163.73
10/2/2025	118644	GMZ Engineering, Inc.	Ladyface Greenway August 2025	405,722.54
10/2/2025	118645	Human Artwork BJJ LLC	Instructor Payment	87.50
10/2/2025	118646	Jessica Flores	COG Services September 2025	3,000.00
10/2/2025	118647	Kimley Horn & Assoc.	On Call Services July 2025	55,084.22
10/2/2025	118648	Larry Walker Associates	Malibu Creek CIMP Implementation Aug 2025	67,874.08
10/2/2025	118649	Mackay Communications	GSPS Subscription Fee August 2025	426.87
10/2/2025	118650	Marie Girouard	RAD Giddy Up Ranch	500.00
10/2/2025	118651	Michael Chas Williams	RAD Panning for Gold Activity	1,000.00
10/2/2025	118652	Oh Watta Night Inc.	RAD DJ	1,500.00
10/2/2025	118653	317Studio	RAD Western Theme Cutouts	750.00
10/2/2025	118654	Ricoh USA, Inc	Copier Lease October 2025	818.14
10/2/2025	118655	Rms Printing Llc	Reyes Adobe Days Street Closure Sign	2,400.83
10/2/2025	118656	Ronald F. Troncatty	Monthly Services September 2025	1,825.00
10/2/2025	118657	Super Soccer Stars (CA)	Instructor Payment	1,255.80
10/2/2025	118658	Lanspeed	Travel Costs	2,168.80
10/2/2025	118659	Smith Pipe & Supply Inc.	Supplies Reyes Adobe Park	1,713.61
10/2/2025	118660	Southern California Edison	Utilities 8/21 - 9/21	10,738.81
10/2/2025	118661	Staples	Supplies	584.49
10/2/2025	118662	Sunbelt Controls	Rec Center System Maintenance	5,173.00
10/2/2025	118663	Terry Dipple, Inc.	COG Services September 2025	17,218.00
10/2/2025	118664	Thomas Kuznkowski	RAD	1,100.00
10/2/2025	118665	Twist and Shout Events, Inc.	RAD	5,400.00
10/2/2025	118666	Us Bank Corp. Payment System	Credit Cards August 2025	21,577.27
10/2/2025	118667	Vance Linge Insurance Svcs..	Reyes Adobe Days Insurance	3,442.95
10/2/2025	118668	Vivian Rescalvo	COG Services September 2025	13,262.58
10/2/2025	118669	West Coast Arborists, Inc	Park Tree Maintenance 9/1/25 - 9/15/25	2,855.05
10/2/2025	118670	West Coast Promotional Solutions	Employee Holiday Party	1,000.00
10/2/2025	118671	Wings of Discovery	RAD Educational Booth	250.00
10/9/2025	118673	A Rental Connection	RAD Rental	32,401.83
10/9/2025	118674	Acorn	RAD	1,625.14
10/9/2025	118675	Agoura Hills Fire Safe Council	Materials Reimbursement	2,759.28
10/9/2025	118676	Agromin	Organic Mulch	1,564.38
10/9/2025	118677	Alan Bruni	RAD	600.00
10/9/2025	118678	All City Management	School Crossing Guard 8/31 - 9/13	8,840.00
10/9/2025	118679	Alliant Insurance Svc	Special Event Liability Q1 2025	1,988.00
10/9/2025	118680	Amber Victoria	Travel Reimbursement	210.00

CITY OF AGOURA HILLS

Demand Register 941

10/9/2025	118681	Angel Andrade	Security Deposit Refund	1,000.00
10/9/2025	118682	Brightview Landscape Services	Landscape Services September 2025	33,592.17
10/9/2025	118683	Cal State Site Services	RAD Fence	3,072.54
10/9/2025	118684	California Conservation Corps	Rec Center Trail	69,600.00
10/9/2025	118685	Cynthia Tirado	Security Deposit Refund	1,000.00
10/9/2025	118686	Danish Environment Janitorial Services	Event Center Window and Pressure Washing	7,864.80
10/9/2025	118687	Dawn Adams	Security Deposit Refund	850.00
10/9/2025	118688	Direct Tv	Communication October 2025	53.49
10/9/2025	118689	DSR Audio	RAD Sound	8,230.13
10/9/2025	118690	Executive Facilities Services, Inc	Janitorial Services October 2025	2,764.86
10/9/2025	118691	Global Custom Security, Inc.	Quarterly Monitoring Fee	127.50
10/9/2025	118692	Excel Pest Managment	Monthly Pest Control September 2025	1,485.00
10/9/2025	118693	GSG Protective Services	Event Center Security 9/08 - 9/14	2,150.10
10/9/2025	118694	Katrina Garcia	Travel Reimbursement	1,235.01
10/9/2025	118695	Loretta Medina	Security Deposit Refund	1,000.00
10/9/2025	118696	Accu-prints	Fingerprinting August 2025	105.00
10/9/2025	118697	m6 Consulting, Inc.	Plan Check Services August 2025	24,655.92
10/9/2025	118698	Mdg Associates	Morrison Park	553.50
10/9/2025	118699	Michael Chas Williams	RAD Panning for Gold Activity	1,000.00
10/9/2025	118700	Michael Lang Design	RAD Marketing	12,071.92
10/9/2025	118701	National Utility Locators LLC	Contract Locating September 2025	1,700.00
10/9/2025	118702	Nelson Alvarez	Security Deposit Refund	1,100.00
10/9/2025	118703	Nicholas Alderette	Security Deposit Refund	100.00
10/9/2025	118704	Ooma, Inc.	AirDial Services September 2025	585.63
10/9/2025	118705	Pegasus Studios	Broadcasting Services September 2025	6,075.00
10/9/2025	118706	Richards, Watson & Gershon	Professional Services August 2025	512.00
10/9/2025	118707	Ricoh USA, Inc	Late Fee	40.91
10/9/2025	118708	Rms Printing Llc	Vehicle Magnets	513.88
10/9/2025	118709	Lanspeed	Monthly Services October 2025	15,177.60
10/9/2025	118710	Saddleback Golf Cars	RAD	2,169.38
10/9/2025	118711	SCA of CA LLC	Street Sweeping September 2025	12,351.00
10/9/2025	118712	SecuriTech	Alarm Monitoring 10/01/25 - 1/01/26	150.00
10/9/2025	118713	Signature Signs	Sign Removal and Installation	1,833.31
10/9/2025	118714	Solid Waste Solutions, Inc.	Permit Fees September 2025	1,028.25
10/9/2025	118715	Southern California Edison	Utilities 8/25 - 9/23	366.43
10/9/2025	118716	Staples	Supplies	427.35
10/9/2025	118717	Tiny Porch Concerts	RAD Entertainment	10,168.40
10/9/2025	118718	TK Elevator Corp	Event Center Elevator Maintenance	696.00
10/9/2025	118719	T-Mobile USA Inc.	Monthly Services 8/21 - 9/20	31.35
10/9/2025	118720	Total Access Evevator LLC	Maintenance October 2025	155.00
10/9/2025	118721	Townsend Public Affairs, Inc.	Consulting Services September 2025	5,000.00
10/9/2025	118722	TPX Communications	Monthly Communication 9/23 - 10/22	811.62
10/9/2025	118723	Underground Service Alert	AGRH New Ticket Charges	28.00
10/9/2025	118724	Vance Linge Insurance Svcs..	Reyes Adobe Days Insurance	550.00
10/9/2025	118725	Venco Electric Inc.	Sumac Pole Light	3,620.00
10/9/2025	118726	Vortex	Sunroom Door Repair	895.00
10/9/2025	118727	West Coast Promotional Solutions	Promotional Items	1,722.34
			Total	**1,084,535.85**

10/3/2025	DFT0007132	Spare Labs	Spare Base Platform September 2025	1,875.00
10/3/2025	DFT0007133	Spare Labs	Dial-A-Ride Services August 2025	21,768.06
10/10/2025	DFT0007162	Spare Labs	Dial-A-Ride July 2025	19,076.03
10/3/2025	Payroll	PP 9/20/2025-10/03/2025	PP 9/20/2025-10/03/2025	260,374.21
			Wire & EFT Total:	**303,093.30**
			Grand Total	**1,387,629.15**

Demand Register No. 941

PASSED, APPROVED, AND ADOPTED this 22nd day of October, 2025, by the following vote to wit:

AYES: ( )
NOES: ( )
ABSENT: ( )
ABSTAIN: ( )

_____
Penny Sylvester, Mayor

ATTEST:

_____
Kimberly M. Rodrigues, MMC, City Clerk

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE:	**OCTOBER 22, 2025**
TO:	**HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**
FROM:	**NATHAN HAMBURGER, CITY MANAGER**
BY:	**DIEGO IBANEZ, DIRECTOR OF FINANCE**
SUBJECT:	**APPROVE TREASURER'S REPORT FOR JULY 2025**

The Treasurer's Report for July 2025 is hereby submitted for your approval.

FISCAL IMPACT

There is no impact to the City Council Approved Fiscal Year 2025-26 Budget.

RECOMMENDATION

Approve Treasurer's Report for July 2025.

Attachments

Treasurer's Report - July 2025.pdf

CITY OF

AGOURA HILLS

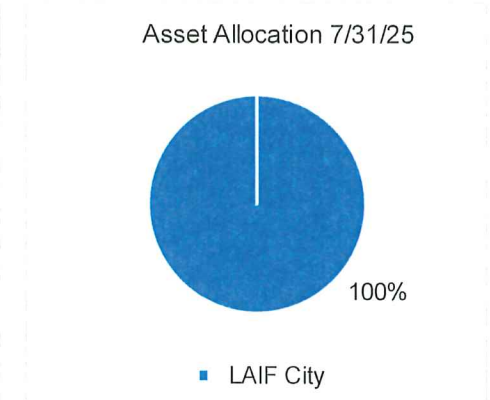
"Gateway to the Santa Monica Mountains National Recreation Area"

Treasurer's Report
July 2025

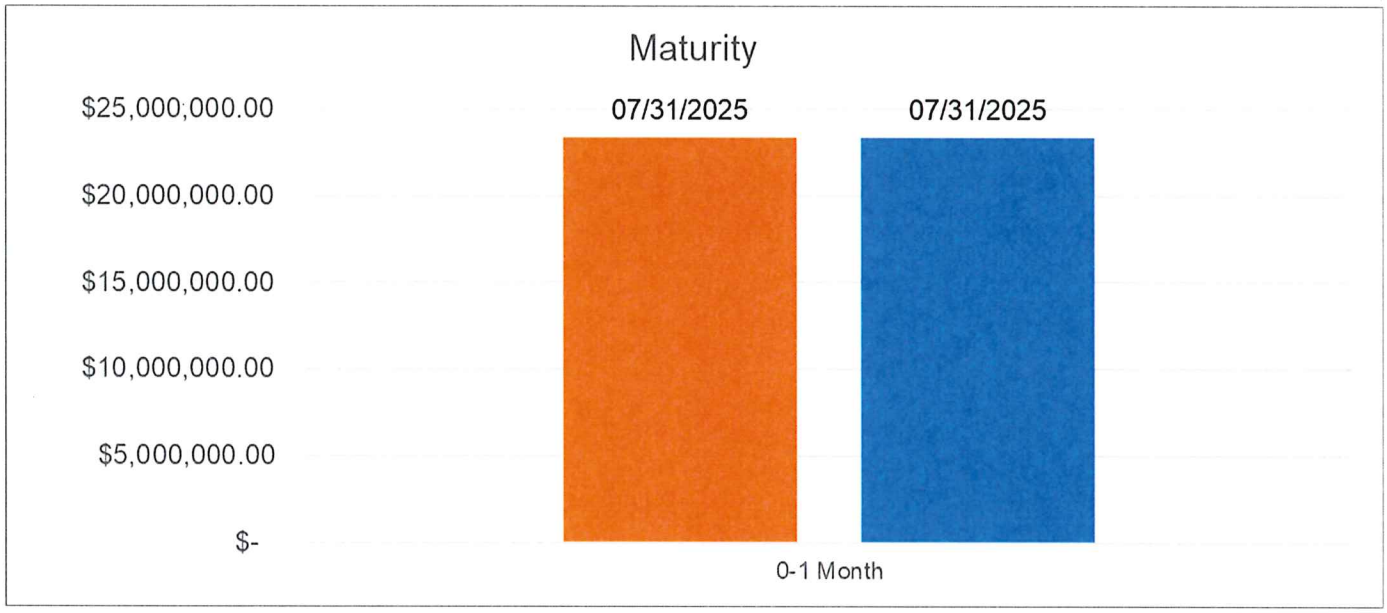
Asset Category	Policy Maximum	Market Value	Par Value	% Portfolio	Yield	Days to Maturity
Cash and Cash Equivalents						
Pooled Cash	n/a	$ 1,000,000.00	$ 1,000,000.00	n/a	n/a	n/a
Pooled Cash - Sweep	n/a	$ 2,088,724.05	$ 2,088,724.05	n/a	4.22%	1
Petty Cash	n/a	$ 800.00	$ 800.00	n/a	n/a	n/a
Flexible Spending Acct	n/a	$ 23,392.71	$ 23,392.71	n/a	n/a	n/a
Bond Accounts	n/a	$ 4,911,342.03	$ 4,911,342.03	n/a	n/a	n/a
Successor Agency Cash Deposits	n/a	$ 4,027.18	$ 4,027.18	n/a	n/a	n/a
Successor Agency Bond Accounts	n/a	$ 923,346.47	$ 923,346.47	n/a	n/a	n/a
Investments						
LAIF City	75 Million	$ 23,410,474.61	$23,410,474.61	100%	4.31%	1
LAIF Successor Agency	75 Million	$ 13,096.10	$ 13,096.10	100%	4.31%	1

PORTFOLIO ASSET ALLOCATION

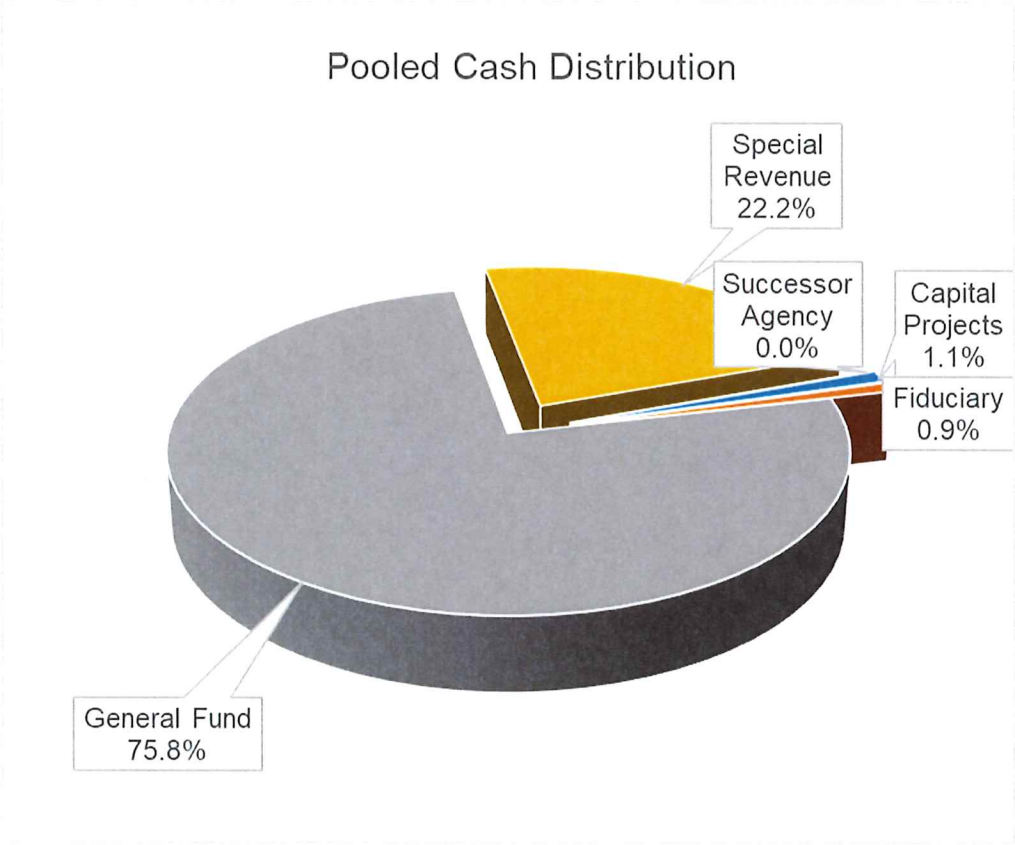
Asset Category	Market Value 7/31/2025	% of Portfolio 7/31/2025	Market Value 7/31/2025	% of Portfolio 7/31/2025
LAIF City	$ 23,410,474.61	100%	$ 23,410,474.61	100%



PORTFOLIO MATURITY



POOLED CASH DISTRIBUTION



INVESTMENT POLICY COMPLIANCE

I certify that the City's Investment Portfolio is in full compliance with the City's Investment Policy and California Government Code Section 53601, and I believe the Investment Pool contains sufficient cash flow from liquid and maturing securities, bank deposits, and income to meet the City's expenditure requirement for the next six months.

Nathan Hamburger, City Manager
October 15, 2025

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE:	**OCTOBER 22, 2025**
TO:	**HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**
FROM:	**NATHAN HAMBURGER, CITY MANAGER**
BY:	**DIEGO IBANEZ, DIRECTOR OF FINANCE**
SUBJECT:	**APPROVE TREASURER'S REPORT FOR AUGUST 2025**

The Treasurer's Report for August 2025 is hereby submitted for your approval.

FISCAL IMPACT

There is no impact to the City Council Approved Fiscal Year 2025-26 Budget.

RECOMMENDATION

Approve Treasurer's Report for August 2025.

Attachments

Treasurer's Report - August 2025.pdf

CITY OF

AGOURA HILLS

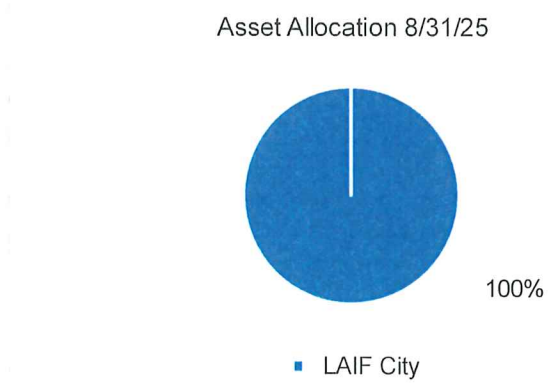
"Gateway to the Santa Monica Mountains National Recreation Area"

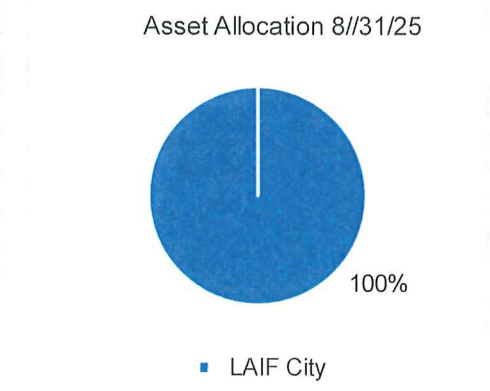
Treasurer's Report
August 2025

Asset Category	Policy Maximum	Market Value	Par Value	% Portfolio	Yield	Days to Maturity
Cash and Cash Equivalents						
Pooled Cash	n/a	$ 1,000,000.00	$ 1,000,000.00	n/a	n/a	n/a
Pooled Cash - Sweep	n/a	$ 1,089,508.46	$ 1,089,508.46	n/a	4.22%	1
Petty Cash	n/a	$ 800.00	$ 800.00	n/a	n/a	n/a
Flexible Spending Acct	n/a	$ 22,266.29	$ 22,266.29	n/a	n/a	n/a
Bond Accounts	n/a	$ 2,763,372.31	$ 2,763,372.31	n/a	n/a	n/a
Successor Agency Cash Deposits	n/a	$ 4,027.18	$ 4,027.18	n/a	n/a	n/a
Successor Agency Bond Accounts	n/a	$ 923,349.57	$ 923,349.57	n/a	n/a	n/a
Investments						
LAIF City	75 Million	$ 23,410,474.61	$23,410,474.61	100%	4.31%	1
LAIF Successor Agency	75 Million	$ 13,096.10	$ 13,096.10	100%	4.31%	1

PORTFOLIO ASSET ALLOCATION

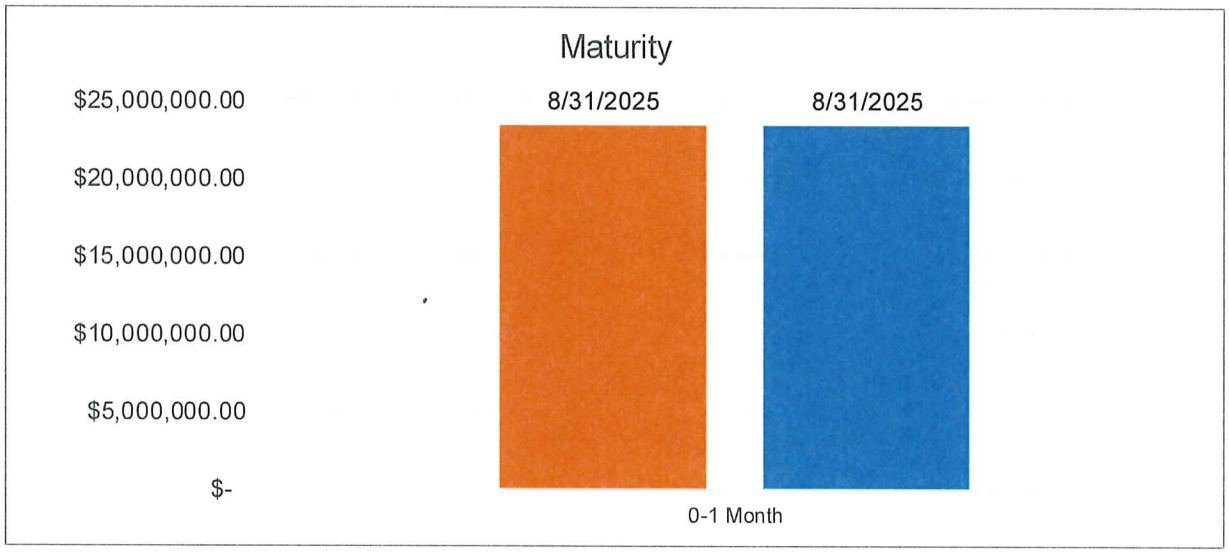
Asset Category	Market Value 8/31/2025	% of Portfolio 8/31/2025	Market Value 8/31/2025	% of Portfolio 8/31/2025
LAIF City	$ 23,410,474.61	100%	$ 23,410,474.61	100%



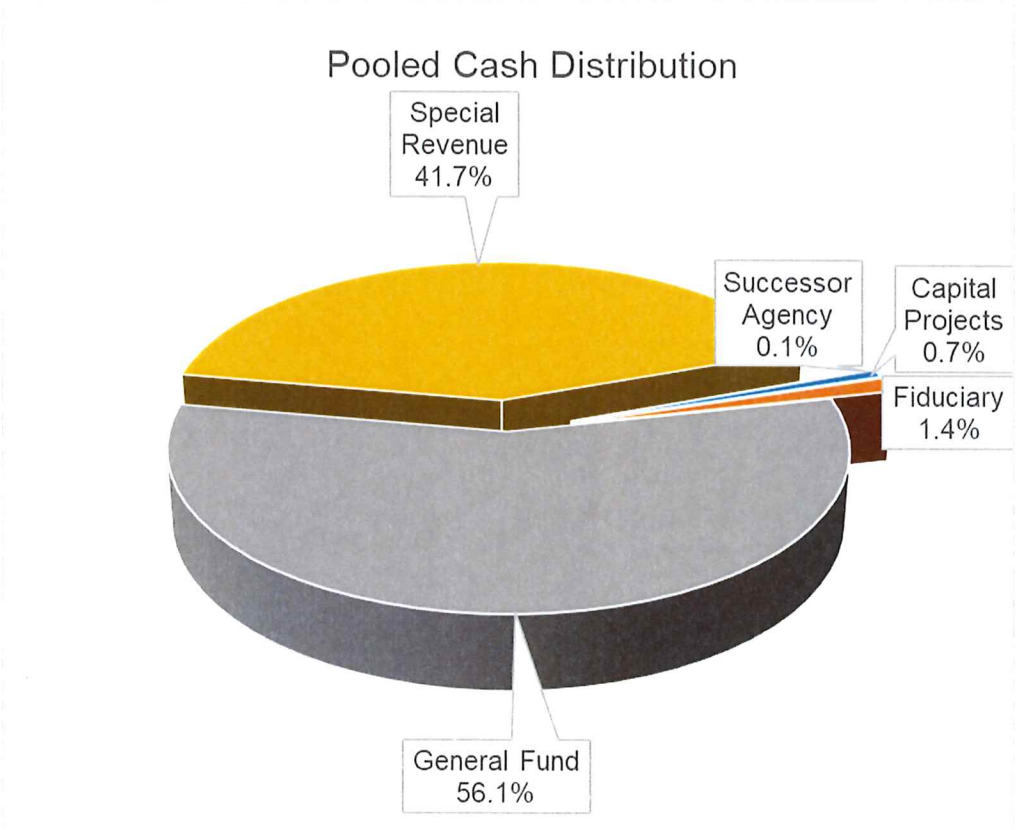


PORTFOLIO MATURITY

Maturity Range	Market Value 8/31/2025	% of Portfolio 8/31/2025	Market Value 8/31/2025	% of Portfolio 8/31/2025
0-1 Month	$ 23,410,474.61	100%	$23,410,474.61	100%



POOLED CASH DISTRIBUTION



INVESTMENT POLICY COMPLIANCE

I certify that the City's Investment Portfolio is in full compliance with the City's Investment Policy and California Government Code Section 53601, and I believe the Investment Pool contains sufficient cash flow from liquid and maturing securities, bank deposits, and income to meet the City's expenditure requirement for the next six months.

Nathan Hamburger, City Manager
October 15, 2025

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE:	**OCTOBER 22, 2025**
TO:	**HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**
FROM:	**NATHAN HAMBURGER, CITY MANAGER**
BY:	**DIEGO IBANEZ, DIRECTOR OF FINANCE**
SUBJECT:	**APPROVE TREASURER'S REPORT FOR SEPTEMBER 2025**

The Treasurer's Report for September 2025 is hereby submitted for your approval.

FISCAL IMPACT

There is no impact to the City Council Approved Fiscal Year 2025-26 Budget.

RECOMMENDATION

Approve Treasurer's Report for September 2025.

Attachments

Treasurer's Report - September 2025.pdf

CITY OF

AGOURA HILLS

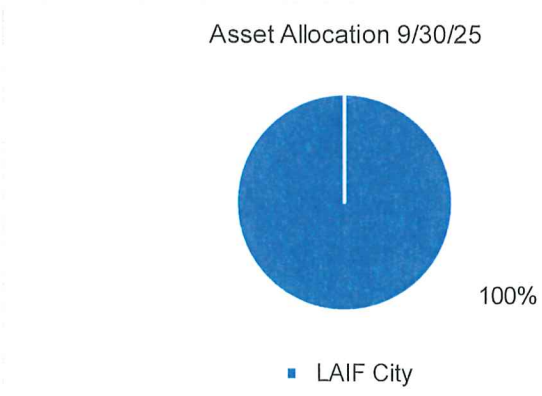
"Gateway to the Santa Monica Mountains National Recreation Area"

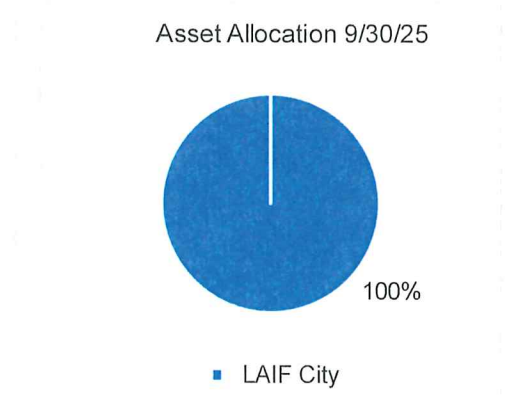
Treasurer's Report
September 2025

Asset Category	Policy Maximum	Market Value	Par Value	% Portfolio	Yield	Days to Maturity
Cash and Cash Equivalents						
Pooled Cash	n/a	$ 1,000,000.00	$ 1,000,000.00	n/a	n/a	n/a
Pooled Cash - Sweep	n/a	$ 1,934,582.20	$ 1,934,582.20	n/a	4.22%	1
Petty Cash	n/a	$ 800.00	$ 800.00	n/a	n/a	n/a
Flexible Spending Acct	n/a	$ 21,698.82	$ 21,698.82	n/a	n/a	n/a
Bond Accounts	n/a	$ 2,771,480.20	$ 2,771,480.20	n/a	n/a	n/a
Successor Agency Cash Deposits	n/a	$ 4,027.18	$ 4,027.18	n/a	n/a	n/a
Successor Agency Bond Accounts	n/a	$ 923,352.47	$ 923,352.47	n/a	n/a	n/a
Investments						
LAIF City	75 Million	$ 23,410,474.61	$ 23,410,474.61	100%	4.31%	1
LAIF Successor Agency	75 Million	$ 13,096.10	$ 13,096.10	100%	4.31%	1

PORTFOLIO ASSET ALLOCATION

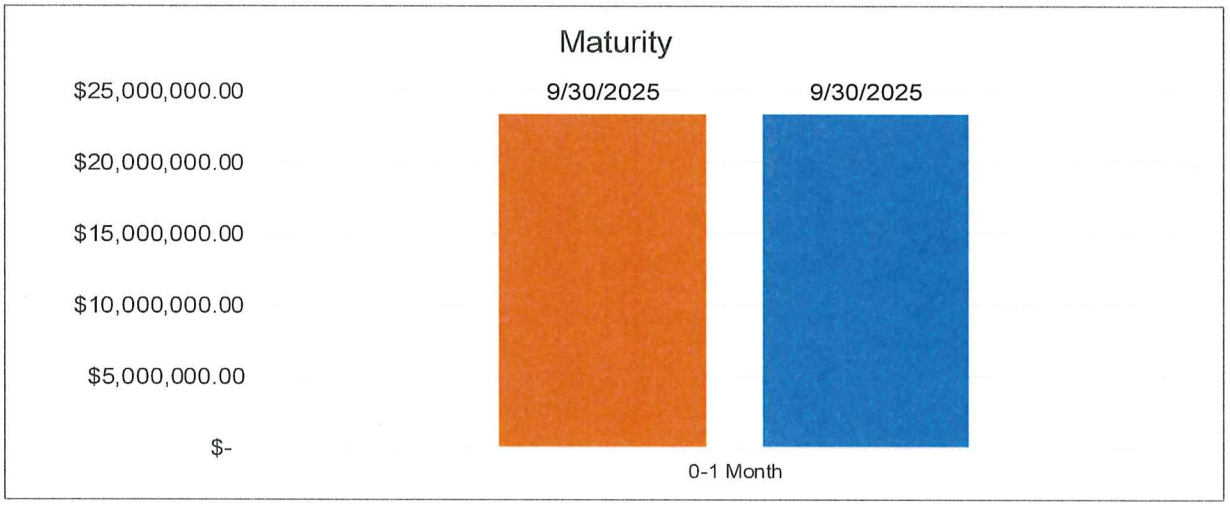
Asset Category	Market Value 9/30/2025	% of Portfolio 9/30/2025	Market Value 9/30/2025	% of Portfolio 9/30/2025
LAIF City	$ 23,410,474.61	100%	$ 23,410,474.61	100%



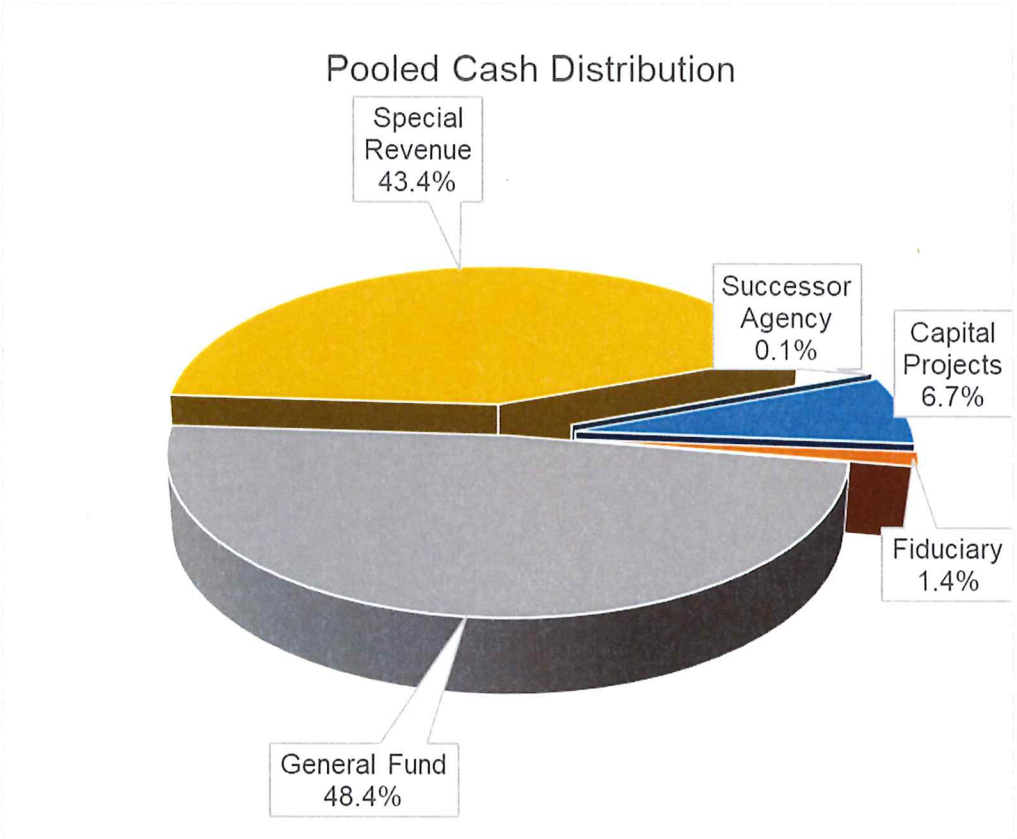


PORTFOLIO MATURITY

Maturity Range	Market Value 9/30/2025	% of Portfolio 9/30/2025	Market Value 9/30/2025	% of Portfolio 9/30/2025
0-1 Month	$ 23,410,474.61	100%	$23,410,474.61	100%



POOLED CASH DISTRIBUTION



INVESTMENT POLICY COMPLIANCE

I certify that the City's Investment Portfolio is in full compliance with the City's Investment Policy and California Government Code Section 53601, and I believe the Investment Pool contains sufficient cash flow from liquid and maturing securities, bank deposits, and income to meet the City's expenditure requirement for the next six months.

Nathan Hamburger, City Manager
October 15, 2025

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE:	**OCTOBER 22, 2025**
TO:	**HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**
FROM:	**NATHAN HAMBURGER, CITY MANAGER**
BY:	**DIEGO IBANEZ, DIRECTOR OF FINANCE** **LEAH PALMER, FINANCE MANAGER**
SUBJECT:	**ADOPT AMENDMENTS TO THE CITY OF AGOURA HILLS FISCAL YEAR 2024-25 BUDGET**

Staff is presenting the City of Agoura Hills City Council the year-end financial balance for the Fiscal Year (FY) 2024-25. The Finance Subcommittee has reviewed this item and it is now being presented to the City Council for review and approval.

Unaudited Net Operational General Fund revenues for the FY 2024-25 include adjustments for recognizing updated revenue in License and Services for building permits of $75,000, Building Check Plan of $220,000 in Building, and $35,000 in Building Plan Check Fee; this year end also has a one-time transfer in Journal Entry regarding the Successor Agency for $2.5M to account for an accounting adjustment; this is a non-cash transaction:

General Fund Revenues	**Amended Budget**	**Unaudited Actual**
Total Revenues	$20,903,645	$22,871,439

Fiscal Year 2024-25 amended the General Fund Budget for expenditures and transfers is shown as follows:

General Fund Expenditures	**Amended Budget**	**Unaudited Actual**
Total Expenditures & Transfers	$20,796,801	$20,836,873
Net Income (Deficit)	**$106,844**	**$2,034,566**

In FY 2024–25, the City of Agoura Hills faced fiscal challenges that reflected not just local issues, but broader national and global economic uncertainties. While the City's Budget was planned with a focus on City-specific revenues and expenditures, these sources remained deeply vulnerable to macroeconomic conditions. Shifts in interest rates, inflation trends, labor market disruptions, and sector-specific downturns affected consumer behavior, business activity, and tax collections during the fiscal year.

Finance Staff monitors budget changes on a monthly, quarterly, and mid-year level, and strives to keep the Budget withing City Council approved expenditure guidelines. The City's expenditures for FY 2024-25 continued to grow, but with careful planning and review, staff managed to keep expenditures within budgeted parameters. During Mid-Year review of FY 2024-25, if Departments needed additional funds, they reviewed their department for possible budget adjustments in their departmental budget to continue to maintain operations.

Staff has highlighted some of the Fiscal Year's activities below and a justification of request for adjustments.

Taxes and Assessments

During this Fiscal Year, several macro events affected the City's revenue sources. Economic policies like high interest rates, imposed by the Federal Reserve, to combat inflation reduced consumer and business spending, particularly on big-ticket items that generate local sales tax. Persistent inflation weakened household purchasing power, early conversations in the 1st Quarter of 2025 related to global tariffs also impacted consumer behavior, with people unsure when to buy items because of the implementation of tariffs. This affected seasonal spending related to back-to-school and holiday trends.

Sales Taxes and some assessments were lower than expected due to shifting consumer behavior. Many consumers were more conscious of spending as nationwide gas prices increased, food prices soared, and inflation affected disposable income. Sales tax was down 11% than was forecast and the City had several business closures during FY 2024-25.

Property Taxes remained flat at a 2% increase from previous years due to high interest rates and uncertain economic environment. The County Assessor did recognize the increased property values in the City of Agoura Hills, but with limited homes being sold it was difficult to calculate new property valuations and increase tax collection.

Transient Occupancy Tax/Short-Term Rental showed a huge increase, but this revenue stream is more unpredictable than the others and could have been affected by displaced residents of the Palisades Fire at the beginning of the calendar year.

Business License

Staff adjusted Business Licensing by $75,000 to recognize activity from that department, building plan checks were also adjusted, as well as the business technician fee; these revenue streams were updated to keep an accurate check of the progress of a development project in the City.

Investment Income

The City continued to receive more than the forecasted amount of Investment Income due to high interest rates in the City's investment portfolio. The City received 117% more than anticipated and staff is aware of a possible decrease due to recent interest rate cuts by the federal reserve.

Recognized Obligation Payment Schedule

This Fiscal Year, Finance Staff had to make a one-time internal accounting adjustment to its Recognized Obligation Payment Schedule (ROPS); the ROPS is a required report that former Redevelopment Agencies (RDAs) in California must submit each year to the state (via their local Successor Agency). It lists debts and obligations (like loans or bonds) that still need to be paid following the dissolution of the RDA.

The City filed its Last and Final ROPS and it was approved by the California Department of Finance. Some of the benefits of submitting a Last and Final ROPS are: no longer having to submit a yearly ROPS to the County Oversight Board; ability to finalize and pay off debts; inclusion of any City administrative costs; and, it allows the City to standardize all payments on a fixed 4% interest rate.

Finance Staff initiated a Journal Entry to restate the ROPS balance as of June 30, 2025, at the 4% interest rate. Staff spoke with Chavon and Associates, the City's current auditor to explain the entry. The Journal Entry that was approved and posted to the General Ledger; is listed as Exhibit "A" and attached to this staff report.

This Journal Entry corrects the Year End balance of FY 2023-24 in the City's Annual Comprehensive Financial Report with a restatement of 4% and balances out to the Last and Final ROPS Schedule that the California Department of Finance has. The City and the Successor Agency are both fixing their records to show that $2.56 Million was loaned from the City to the Successor Agency in the past, but wasn't properly recorded before. Now it's being added to both sides of the accounting books through a prior period adjustment.

There is no new money in this Journal Entry, the City and the Successor Agency are just updating the ledger to reflect the current ROPS schedule in terms of what the City receives and what is expected to be paid out on what already occurred, but wasn't recorded correctly. It is booked as a receivable that will be transferred out later this year.

As we move into the mid-year review of the 2025-26 Budget Cycle, staff will review and continue to take a more conservative approach to financial planning and update the financial assumptions for the current Fiscal Year.

The recommended Budget is balanced and in compliance with the Balanced Budget Policy (Policy). This means operating revenues cover operating expenditures, including debt service, and the ending fund balance is compliant with the minimum Policy level as defined by City Council resolution.

The City utilizes a departmental budget process, breaking out various functions of operations to allow for a transparent budget for the community to see and understand. Various departments within the General Fund exceeded budgeted appropriations, as explained in Exhibit 'B'. These costs were offset by savings in other departments. The major departmental increases are summarized below, and adjustments this year are requested at the personnel and operations level.

In order to keep the City Council informed of transactions throughout the Fiscal Year, Finance staff is highlighting some of the expenses that took place over the Fiscal Year. Some of the Budget variance from budget to actuals can be attributed to increased costs, timing of projects, or reclassification of salaries from Special Funds to the General Fund. This section highlights the budget variance of some of the departments covered under the General Fund and will make for better budget planning during the Mid-Cycle 2026-27 process. All of these expenses are included in the overall year-end expenses listed above.

City Clerk

The budget adjustment for the City Clerk is a reduction in Contract Services, due to postponing of an internal scanning project. The request is a reduction of $48,709.

Automated Services

The reduction in Automated Services of $35,868 is due to project timing issues related to an IT upgrade.

City Attorney

The budget adjustment for the City Attorney Budget is an additional request of $270,858, due to unanticipated litigation costs.

Finance

Staff is requesting an increase of $99,127 in overall salaries and contract services for the Department. Some of the salaries dedicated to projects in Special Funds did not happen due to timing of projects.

Public Facilities

Staff is requesting an increase in the Public Facilities Department, due to the rising costs of utilities and park maintenance. The request is an increase of $94,826 dollars.

Emergency Incident

During the Fiscal Year there was an unexpected special supply expense related to the department that was not budgeted, this adjustment request of $14,037 seeks to make an appropriation in this account.

Community Development

The department also had a reduction of $253,881 of Full time Salaries and Contract Services due to the timing of a development project.

Building and Safety

The Building and Safety Department has a reduction of $91,028 in contract services.

Recreation

Staff is requesting a reduction of $89,076 in Part-Time Salaries in various program salaries.

Reyes Adobe

There is a $30,000 budget reduction in the Reyes Adobe Other Improvements budget line item.

Recreation Center

The recommended adjustment to the Recreation Budget is due to salary increases and increases to Utilities and Maintenance/Building Grounds. The request is $66,518. The Recreation Center also has a decrease of $33,701.

Parks Maintenance

The Parks Maintenance Budget needs an additional $92,504 for expenses related to grounds maintenance and an increase in utility expenses. This department also has reduction of $35,762 in Special Supplies.

Public Works

The Personnel Budget on the Public Works Department needs an adjustment of $298,647 for salaries due to the timing of projects in the Department.

Special Funds

Staff has also reviewed Budget adjustments for the FY 2024-25 budget adjustments for the City's Special Funds. The Special Funds have been adjusted for salary, work performed, and other expenditures. Some of these funds might be in a deficit, but it is due to project timing or pending reimbursements. Staff has provided the proposed changes to the Special Funds in Exhibit C.

FISCAL IMPACT

The City has a Balanced Budget Policy, which states that the General Fund operating revenues must fully cover operating expenditures, including debt service. Under this Policy it is allowable for total expenditures to exceed revenues in a given year: however, in this situation beginning fund balance can only be used to fund capital improvement planned projects, or other "one-time", nonrecurring expenditures. Furthermore, the fund balance must meet the minimum Policy levels of 40%, as defined by the City Council.

The Amended Budget refers to forecasts that were adopted during the budget season of FY 2024-25; tentatively around June of 2024. The Unaudited Actual are forecasts that have been reviewed and finalized at the close of June 2025. These projections involve adjustments to departments for salaries due to timing of projects along with costs that could have exceeded operations for the year.

It is important to clarify one point that was discussed at the Finance Subcommittee. If the Journal Entry to the Successor Agency is not approved what would be the ending balance to the FY 2024-25. The City would have had a deficit of $523,472 closing out Fiscal Year 2024-25. See calculation below:

Revenue:	$22,871,439 (Journal Entry of $2,558,038 for SA Included)
Expenditures:	($20,836,873)
Total:	$2,034,666
Deduct SA JE:	($2,558,038)
Unaudited Actuals	($523,472)

This total is inclusive of all transfers approved during the budget process. Additionally, if the Journal Entry is not approved, the City's ending balance for the ROPS in the Annual Comprehensive Financial Report and the Last and Final ROPS with the Department of Finance would need to be readjusted and re-submitted.

As highlighted at the beginning of the report, the City has an unaudited actual net income of $2,034,566. The positive fund balance is a non-cash recording of an advance to the Successor Agency, due to a journal entry.

There are big macro events still taking place such as, world-wide unrest, determination of interest rate cuts, mixed messages of inflation and unemployment that can influence future project plans and the mid-cycle budget process.

Staff does recommend the following transfers:

011 Capital Projects Fund	($ 96,000)
015 To Recreation Center Capital Project	($ 104,000)
030 CAL PERS SET ASIDE FUND	($ 95,850)
305 Agoura Hills Improvement Authority Bond	($1,271,613)
620 Housing Successor Agency	($ 178,010)
Total Transfers of	($1,745,473)

Staff recommends no additional transfers at this time.

RECOMMENDATION

Staff respectfully recommends the City Council approve:

1. The proposed transfers from the General Fund listed in this staff report.
2. The proposed journal entry related to the Successor Agency Shown in Exhibit 'A' affecting Revenues.
3. The proposed amendments to the General Fund Fiscal Year 2024-25 Budget for the amounts shown in Exhibit 'B'.
4. The proposed amendments to the Special Funds Fiscal Year 2024-25 Budget for the amounts shown in Exhibit 'C'.

Attachments

Exhibit A - Successor Agency Journal Entry.pdf
Exhibit B - Budget Adjustments.pdf
Exhibit C - Budget Adjustments Special Funds.pdf

City of Agoura Hills
Fiscal Year 2024-25 Budget Amendments
Exhibit "A"

06/30/25 ,Restated Balance @ 4%:				
Principal Outstanding:		$ 11,405,550		
Interest Outstanding:		$ 16,141,057	(ROPS 23-24B covers Jan-Jun 2024)	
Net Amount due as restated - 6/30/24:		$ 27,546,607		
Journal Entry to Correct FY 2024-25 Ending Balance in ACFR (Page 57) - Post as of June 30, 2025				
Note: there is no amount that is "uncollectible" with the restatement of interest rate @ 4%,				
which balances to the Last and Final ROPS schedule.				
General Fund:				
	DR: Advances to Successor Age	*$ 2,558,038*		
	CR: Prior Period Adjustment		*$*	*2,558,038*
Successor Agency Fund:				
	DR: Prior Period Adjustment	*$ 2,558,038*		
	CR: Advance from City of AH		*$*	*2,558,038*
Entry to Post activity from FY 2024-25 - Post as of June 30, 2025.				
General Fund:				
	DR: Cash	*$ 469,430*		
	CR: Advances to Successor Agency		*$*	*469,430*
Successor Agency Fund:				
	DR: Advance from City of AH	*$ 469,430*		
	CR: Cash		*$*	*469,430*

City of Agoura Hills
Fiscal Year 2024-25 Budget Amendments
Exhibit "B"

General Fund Expenses to Be Increased		Current Budget	Proposed Budget	Proposed Adjustment Increase/(Decrease)	Subtotal Adjustment
City Attorney - 4140					
Professional Services	010-4140-551000	$360,500	$450,933	$90,433	
Contract Services	010-4140-552000	$50,000	$230,425	$180,425	
				Total Adjustment	$270,858
				City Attorney to be Increased	$270,858
Finance - 4150					
Regular Salaries	010-4150-510100	$353,668	$430,095	$76,427	
Retirement	010-4150-510700	$37,997	$49,922	$11,925	
Professional Services	010-4150-551000	$79,000	$89,775	$10,775	
				Total Adjustment	99,127
				Finance To be Increased	99,127
Public Facilities - 4180					
Utilities	010-4180-542800	$135,000	$203,119	$68,119	
Maintenance of Buildings/Grounds	010-4180-543400	$60,800	$87,507	$26,707	
				Total Adjustment	94,826
				Public Facilities to be Increased	94,826
Emergency Incident - 4219					
Special Supplies	010-4219-542400	$0	$14,037	$14,037	
				Total Adjustment	$14,037
				Emergency Incident to be Increased	$14,037

Recreation Center - 4426					
Part time Salaries	010-4426-510200	105,944	119,627	13,683	
Utilities	010-4426-542800	80,000	94,840	14,840	
Maintenance Building/Grounds	010-4426-543000	187,000	224,995	37,995	
				Total Adjustment	66,518
				Recreation Center Increase	66,518
Parks Maintenance - 4450					
Water	010-4450-542801	$70,000	$111,147	$41,147	
Maintenance Buildings/Grounds	010-4450-543000	$50,000	$69,458	$19,458	
Contract Services	010-4450-552000	$369,000	$396,664	$27,664	
Tree Maintenance in Parks	010-4450-552095	$25,000	$29,235	$4,235	
				Total Adjustment	$92,504
				Parks Maintenance Increase	$92,504
Public Works - 4505					
Salaries	010-4505-510100	$163,564	$323,310	$159,746	
Retirement	010-4505-510700	$25,996	$134,373	$108,377	
Group Health Insurance	010-4505-510800	$38,999	$69,523	$30,524	
				Total Adjustment	$298,647
				Public Works Adjustment	$298,647

General Fund Expenses to Be Decreased		Current Budget	Proposed Budget	Proposed Adjustment Increase/(Decrease)	Subtotal Adjustment
City Clerk - 4125					
Contract Services	010-4125-552000	$104,000	$55,291	($48,709)	
				Total Adjustment	($48,709)
				City Clerk Amount to be Decreased	($48,709)

Automated Services - 4195					
Contract Services	010-4195-55200	$443,667	$407,799	($35,868)	
				Total Adjustment	($35,868)
				Automated Services to be Decreased	($35,868)
Community Development - 4305					
Salaries	010-4305-510100	$938,048	$794,030	($144,018)	
Contract Services	010-4305-552000	$191,260	$81,397	($109,863)	
				Total Adjustment	($253,881)
				Community Development to be Decreased	($253,881)
Building and Safety - 4309					
Contract Services	010-4390-5520	$775,000	$683,972	($91,028)	
				Total Adjustment	($91,028)
				Building and Safety to be Decreased	($91,028)
Recreation - 4420					
Part - Time Salaries	010-4420-5102A0	$45,900	$7,940	($37,960)	
Part - Time Salaries	010-4420-5102B0	$3,600	$173	($3,427)	
Part - Time Salaries	010-4420-5102C0	$18,300	$15,435	($2,865)	
Part - Time Salaries	010-4420-5102D0	$19,100	$13,636	($5,464)	
Part-time Salaries - Teens	010-4420-5102G0	$3,850	$3,103	($747)	
Part - Time Salaries	010-4420-5102H0	$6,750	$4,734	($2,016)	
Part - Time Salaries	010-4420-5102I0	$11,300	$11,092	($208)	
Medicare Taxes	010-4420-511200	$2,800	$894	($1,906)	
Contract Services - Classes	010-4420-5520C0	$79,600	$45,117	($34,483)	
				Total Adjustment	($89,076)
				Recreation to be Decreased	($89,076)
Reyes Adobe - 4425					

Other Improvements	010-4425-56820	$30,000	$0	($30,000)	
				Total Adjustment	($30,000)
				Reyes Adobe to be Decreased	($30,000)
Recreation Center - 4426					
Communications	010-4426-542700	$10,000	$1,036	($8,964)	
Water	010-4426-542801	$28,000	$16,561	($11,439)	
Other Improvements	010-4426-568200	$80,000	$66,702	($13,298)	
				Total Adjustment	($33,701)
				Recreation Center to be Decreased	($33,701)
Parks Maintenance - 4450					
Special Supplies	010-4450-542400	$50,000	$14,238	-$35,762	
				Total Adjustment	($35,762)
				Parks maintenance to be Decreased	($35,762)

City of Agoura Hills
Recommended Adjustments
Fiscal Year 2024/25
Exhibit "C"

		Current Budget	Proposed Budget	Proposed Adjustment Inc/(Dec)	Subtotal Adjustment Inc/(Dec)
	Adjustments to Park Improvements				
Revenues - Capital Project Fund					
011-0000-334547	Morrison Park Improvements		243,153	243,153	243,153
Expenditures - Capital Project Fund					
011-4620-610500	Morrison Park Improvements	40,000.00	283,153	243,153	243,153
	Adjustments to Storm Water Capital Project Fund				
Expenditures - Storm Drain Diversion					
016-4610-632300	Storm Drain Diversion	970,610.00	360	(970,250)	(970,250)
	Adjustments to Road Rehab Fund				
Expenditures - Street Improvements					
022-4640-630500	Annual Overlay	400,000.00	127,766	272,234	272,234
	Adjustments to Traffic Improvement				
Revenues - CDBG Fund					
110-0000-391000	Miscellaneous Revenue	-	261,353	261,353	261,353
	Adjustments to CDBG Fund				
Revenues - CDBG Fund					
250-0000-334000	CDBG	109,650	241,113	131,463	131,463
Expenditures - CDBG Fund					
250-4610-600700	Accessibility Improvements	100,000	231,310	131,310	131,310
	Adjustments to Miscellaneous Grants Fund				
Revenues - Miscellaneous Grants Fund					
260-0000-334531	Art in Public Places	25,000	-	(25,000)	
260-0000-334532	Roadside Bridge	-	206,100	206,100	
260-0000-334541	IRWMP Storm Drain Diversion	1,195,135.00	-	(1,195,135)	
260-0000-334544	Bike Master Plan	500,000.00	181,862	(318,138)	
					(1,332,172)
Expenditures - Miscellaneous Grants Fund					
260-4440-568500	Art	25,000	-	(25,000)	
260-4505-630500	Bike Path Project	400,000	181,862	(218,138)	
260-4525-552043	Driver Drain Improvements	60,000	-	(60,000)	
260-4610-632300	Storm Drain Diversion	1,195,135	-	(1,195,135)	
					(1,498,273)
	Adjustments to Improvement Authority Bond Fund				
Revenues - Improvement Authority Bond Fund					
305-0000-371000	Interest earnings	-	318,283	318,283	318,283

City of Agoura Hills
Recommended Adjustments
Fiscal Year 2024/25
Exhibit "C"

	Current Budget	Proposed Budget	Proposed Adjustment Inc/(Dec)	Subtotal Adjustment Inc/(Dec)

City of Agoura Hills
Recommended Adjustments
Fiscal Year 2024/25
Exhibit "C"

		Current Budget	Proposed Budget	Proposed Adjustment Inc/(Dec)	Subtotal Adjustment Inc/(Dec)
Expenditures - Improvement Authority Bond Fund					
305-4900-700000	Transfer Out	-	5,805,677	5,805,677	
					5,805,677
	Adjustments to Proposition A Fund				
Expenditures - Proposition A Fund					
060-4440-510100	Regular Salaries	91,167	70,000	(21,167)	
060-4530-552080	Dial A Ride	498,000	370,000	(128,000)	
					(149,167)
	Adjustments to Proposition C Fund				
Expenditures - Proposition C Fund					
061-4505-510100	Regular Salaries	30,377	45,000	14,623	
061-4510-552013	Signal maintenance	115,000	60,000	(55,000)	
					(40,377)
	Adjustments to Measure R Fund (Local Return)				
Expenditures - Measure R Fund					
063-4640-631000	Sidewalk Repairs	50,000	-	(50,000)	
					(50,000)

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE:	**OCTOBER 22, 2025**
TO:	**HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**
FROM:	**NATHAN HAMBURGER, CITY MANAGER**
BY:	**CHARMAINE YAMBAO, DIRECTOR OF PUBLIC WORKS DIRECTOR / CITY ENGINEER**
SUBJECT:	**APPROVAL OF THIRD AMENDMENT TO AGREEMENT FOR DESIGN PROFESSIONAL CONSULTANT SERVICES WITH M6 CONSULTING, INC. FOR CONSTRUCTION ENGINEERING SERVICES RELATED TO THE LADYFACE GREENWAY PROJECT**

This report seeks City Council approval of additional construction engineering services to the Agreement for Design Professional Consultant Services with m6 Consulting, Inc. (m6) related to construction of the Ladyface Greenway Project. The Ladyface Greenway Project (Project) consists of constructing a new greenway over an existing rectangular concrete-lined runoff channel that is owned and maintained by the Los Angeles County Flood Control District (LACFCD).

In September 2023, the City entered into an agreement with m6 to provide construction engineering services during construction for the Project. Construction engineering services are crucial in assisting staff during the construction phase of the project, so that the design engineer (and their subconsultants) can respond to questions or requests for further clarification from the City and/or contractor, as issues arise in the field. As the original design engineer, m6 will be responsible to provide the City “as-built” plans when the project is completed. Additionally, m6 ensures that any field modifications necessary to construct the project do not negatively affect the integrity of the approved design plans.

In April 2024, the City approved the First Amendment to m6’s Agreement in the amount of $27,730, which was approved by the City Manager. Per Section 4.B of the Agreement, the City Manager may approve additional work up to 10% of the Agreement amount. The additional services included Worker’s Environmental Awareness Program (WEAP) training, and rebidding design services, which included value engineering. With Amendment 1, the total contract amount was $518,668.

On June 11, 2025, the City Council approved the Second Amendment to m6’s Agreement in the amount of $107,015. The first construction activities included pile drilling. The soils encountered during drilling were continuous hard rock through approximately half of the project area. The site condition of hard rock was unanticipated site conditions changes, which required additional geotechnical observations and inspections. The Second Amendment was for these increased construction engineering services for additional geotechnical and field observation services during hard rock drilling. With Amendment 2, the revised total Agreement was $625,683.

Currently, the Project is completing construction of utility undergrounding, waterline realignment, new storm drain in Agoura Road, and girder (concrete deck) installation. Additional construction engineering services for design revisions were required for the undergrounding of utilities and construction of new storm drain, due to unforeseen site conditions, such as existing utility lines within the alignment of proposed new wet and dry lines, and additional source inspection at the precast girder plant was initially required for quality control.

Due to these project site condition changes and quality control issues, m6 is requesting additional compensation for the increased construction engineering services to cover the technical complexities encountered during construction. Lastly, the unanticipated site change of hard rock, required an estimate of 4-5 months additional time to complete the drilling. With a Project construction schedule extended for an estimated 4-5 months, additional compensation and time extension in construction engineering design, evaluation, and clarification for the Project to completion is required. Based on Section 4 of the Agreement, any additional compensation over 10% of the contract amount requires approval by the City Council. In order for m6 to continue providing construction engineering services for the Project, staff is seeking approval of a Third Amendment to the Agreement to allow for an additional $200,000 for a revised total Agreement of $825,683, and a term extension to June 30, 2027.

The scope of work and all other terms and conditions of the Agreement are not expected to change and remain the same as previously approved.

The proposed Amendment to the Agreement has been reviewed by the City Attorney and approved as to form.

FISCAL IMPACT

The Project is fully funded through a combination of State Earmark dollars awarded by former Assemblymember Bloom, the Los Angeles County Metropolitan Transit Authority (Measure R and M Funds) approved by the Las Virgenes-Malibu Council of Governments, Measure W (Local), and Memorandum of Agreement with Las Virgenes Municipal Water District.

There is no fiscal impact to the City's General Fund from the Third Amendment to the Agreement with m6.

RECOMMENDATION

Staff respectfully recommends the City Council approve the Third Amendment to the Agreement for Design Professional Services with m6 Consulting, Inc. for construction engineering services related to the Ladyface Greenway Project.

Attachments

2025 3rd Amendment m6 CE Ladyface Greenway.pdf

THIRD AMENDMENT TO AGREEMENT FOR DESIGN PROFESSIONAL CONSULTANT SERVICES WITH THE CITY OF AGOURA HILLS

NAME OF CONTRACTOR:	m6 Consulting, Inc
RESPONSIBLE PRINCIPAL OF CONTRACTOR:	Attn: Robert Woodward, PE
CONTRACTOR'S ADDRESS:	893 Patriot Drive, Unit E Moorpark, CA 93021
CITY'S ADDRESS:	City of Agoura Hills 30001 Ladyface Court Agoura Hills, CA 91301 Attn: City Manager
PREPARED BY:	Charmaine Yambao
COMMENCEMENT DATE:	July 1, 2024
TERMINATION DATE:	June 30, 2027
CONSIDERATION:	Amendment Amount: $200,000.00 Total Contract Price Not to Exceed: $ 825,683.00/yr (1st Amendment of $27,730.00 increased Original contract of $490,938.00 to $518,668.00; 2nd Amendment of $107,015.00 increased contract to $625,683.00; 3rd Amendment of $200,000 increased contract to $825,683.00)

THIRD AMENDMENT TO AGREEMENT BETWEEN CITY OF AGOURA HILLS AND m6 CONSULTING, INC.

Ladyface Greenway Project

THIS THIRD AMENDMENT is made and entered into as of October 22, 2025 by and between the City of Agoura Hills, a municipal corporation (hereinafter referred to as "City"), and m6 Consulting, Inc., a Corporation (hereinafter referred to as "Consultant"). In consideration of the mutual covenants and conditions set forth herein, the parties agree as follows:

1. This Amendment is made with respect to the following facts and purposes:

a. On September 13, 2023, the City and Consultant entered into that certain Agreement entitled "Agreement for Design Professional Consultant Services," in the amount of Four Hundred Ninety Thousand Nine Hundred Thirty-Eight Dollars and Zero Cents ($490,938.00).

b. On April 5, 2024, the City and Consultant entered into the First Amendment to that certain Agreement entitled "Agreement for Design Professional Consultant Services," to add scope of work and to increase the payment in the amount of Twenty-Seven Thousand Seven Hundred Thirty Dollars and Zero Cents ($27,730.00).

c. On June 11, 2025, the City and Consultant entered into the Second Amendment to that certain Agreement entitled "Agreement for Design Professional Consultant Services," to increase the payment in the amount of One Hundred Seven Thousand Fifteen Dollars and Zero Cents ($107,015.00).

d. The parties now desire to extend the term of the agreement to June 30, 2027, increase the payment in the amount of Two Hundred Thousand Dollars and Zero Cents ($200,000.00), and to amend the Agreement as set forth in this Amendment.

2. Section 1 of the Agreement entitled "**TERM**" is hereby amended to read as follows:

> "This Agreement shall remain and continue in effect until tasks herein are completed, but in no event later than June 30, 2027 unless sooner terminated pursuant to the provisions of this Agreement."

3. Section 4 of the Agreement entitled "**PAYMENT**" at paragraph "a" is hereby amended to read as follows:

> "The City agrees to pay Consultant monthly, in accordance with the payment rates and schedules and terms set forth in Exhibit B, Payment Rates and Schedule, attached hereto and incorporated herein by this reference as though set forth in full, based upon actual time spent on the above tasks. Any terms in Exhibit B, other than the payment rates and schedule of payment, are null and void. The Third Amendment amount

shall not exceed Two Hundred Thousand Dollars and Zero Cents ($200,000.00), for a total Agreement amount of Eight Hundred Twenty-Five Thousand Six Hundred Eight-Three Dollars and Zero Cents ($825,683.00)."

4. Except for the changes specifically set forth herein, all other terms and conditions of the Agreement shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have caused this Third Amendment to Agreement to be executed the day and year first above written.

CITY OF AGOURA HILLS

_____
Penny Sylvester,
Mayor

ATTEST:

_____
Kimberly M. Rodrigues, MMC
City Clerk
*Date Approved by City Council:*_____

APPROVED AS TO FORM:

_____
Candice K. Lee,
City Attorney

CONTRACTOR
m6 Consulting, Inc.
893 Patriot Drive, Unit E, Moorpark, CA 93021
Robert Woodward, PE
805-379-1015
robert@m6consultinginc.com

By: _____

Print Name: MASOUD MAHMOUD

Title: CFO

By: _____

Print Name: ROBERT WOODWARD

Title: CEO

[Signatures of Two Corporate Officers Required]

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE:	**OCTOBER 22, 2025**
TO:	**HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**
FROM:	**NATHAN HAMBURGER, CITY MANAGER**
BY:	**CHARMAINE YAMBAO, DIRECTOR OF PUBLIC WORKS DIRECTOR / CITY ENGINEER** **KELLY FISHER, DEPUTY DIRECTOR OF PUBLIC WORKS**
SUBJECT:	**APPROVE THE 2025 UPDATED SANITARY SEWER MANAGEMENT PLAN AS REQUIRED BY STATE WATER RESOURCES CONTROL BOARD ORDER NO. 2022-0103-DWQ**

On July 8, 2009, the City Council approved the City's Sanitary Sewer Management Plan (SSMP), as required by State Water Resources Control Board (SWRCB) Order No. 2006-003-DWQ. The adopted Statewide General Waste Discharge Requirements were developed due to a growing concern about the water quality impacts of sanitary sewer overflows and spills, particularly those that cause beach closures or pose serious health and safety problems.

The SSMP sets forth goals and guidelines for managing, operating, maintaining, repairing, replacing and expanding the City's sewer system. Specifically, the City's SSMP contains the following:

- Goals and Actions;
- Description of the Organization;
- Legal Authority;
- Operation and Maintenance Program;
- Design and Performance Provisions;
- Spill Emergency Response Plan;
- Sewer Pipe Blockage Control Plan;
- System Evaluation and Capacity Assurance Plan;
- Monitoring, Measurement, Program Modifications;
- SSMP Program Audits and Certification; and
- Communication and SSMP Availability.

On December 6, 2022, the SWRCB adopted Order No. 2022-0003-DWQ which updated the waste discharge requirements. The key changes included:

- Expanding the prohibition on discharges from sanitary sewers to waters of the State;
- Amending the spill reporting and monitoring requirements;
- Amending the requirements for coordinated interagency spill responses;
- Adding new requirements to address climate change impacts; and
- Reducing the frequency of SSMP Updates and Audits.

The SSMP is intended to be a living document which must be updated every six years to reflect current conditions and knowledge of the sewer system. Since the Consolidated Sewer Maintenance District of Los Angeles County provides operation and maintenance services for the City's sewer facilities, the City's SSMP is updated to be consistent with Los Angeles County's SSMP update. The Los Angeles County SSMP Update was adopted by the Los Angeles County Board of Supervisors on July 29, 2025.

Staff has worked closely with Willdan Engineering (Willdan) to prepare the 2025 Updated SSMP, and deem it complete in terms of addressing all the requirements of the order. Willdan assisted in developing the City's initial plan that was approved in August 2009 and all subsequent updates.

FISCAL IMPACT

The approved Fiscal Year 2025-26 City Budget allocated $10,000 in the Public Works Department's NPDES Compliance Account (010-4525-5520.43) to fund the SSMP Update.

RECOMMENDATION

Staff respectfully recommends the City Council approve the 2025 Updated Sanitary Sewer Management Plan.

Attachments

Agoura Hills 2025 SSMP Update.pdf

SEWER SYSTEM MANAGEMENT PLAN

for the

City of Agoura Hills

in

Los Angeles County, California
WDID: 4SSO11366

June 29, 2009

Updated: October 13, 2025

SEWER SYSTEM MANAGEMENT PLAN

for the

City of Agoura Hills

in

Los Angeles County, California

Approved by Public Works Director/City Engineer:

_____

Charmaine Yambao, P.E. October 13, 2025

Prepared by Willdan Engineering
374 Poli St. Suite #101
Ventura, California 93001
(805) 653-6597

October 13, 2025

TABLE OF CONTENTS

Abbreviations / Acronyms
Definitions
Executive Summary

Chapter 1 – Introduction
1.1 Regulatory Context
1.2 Sewer System Management Plan Update Schedule
1.3 Sewer System Asset Overview
1.4 Goals and Actions

Chapter 2 - Description of the Organization
2.1 Management
2.2 Legally Responsible Official
2.3 City's Responsibilities
2.4 Organization Chart and Responsibilities
2.4.1 Organization Chart for Sanitary Sewer System Management
2.4.2 Description of Individual Responsibilities
2.4.3 Key Support Divisions
2.4.4 Chain of Communication for Spill Reporting
2.4.5 Spill Reporting Procedures Flow Chart
2.4.6 City's Contact Directory for Spill Responding and Reporting

Chapter 3 - Legal Authority
3.1 Legal Authority
3.1.1 Authority to prevent illicit discharges into the sewer system
3.1.2 Authority to collaborate with storm sewer agencies to coordinate spill responses, ensure access to storm sewer systems during spill events, and prevent unintentional cross connections of sanitary sewer infrastructure
3.1.3 Authority to require sewers and connections be properly designed and constructed
3.1.4 Authority to ensure access for maintenance, inspection, or repairs
3.1.5 Authority limiting discharge of FOG and other debris that may cause blockage
3.1.6 Authority to enforce a violation of sewer ordinances, service agreements, and/or other legally binding procedures
3.1.7 Authority to fund operations & maintenance of the sewer system
3.1.8 Authority to obtain easement accessibility agreements for locations requiring sewer system operations and maintenance

Chapter 4 - Operation and Maintenance Program
4.1 City Sewer Mapping System
4.2 Preventative Maintenance Program
4.2.1 CCTV Inspection
4.2.2Sewer line and manhole inspection
4.2.3 Gas Trap manholes and siphons
4.2.4 Drop Manholes

4.2.5 Sewer line cleaning
4.2.6 Root foaming
4.2.7 Periodic Maintenance
4.2.8 Vermin and odor control
4.2.9 Sewage pump stations
4.2.10 Work scheduling
4.3 Rehabilitation and Replacement Plan
4.3.1 Accumulative Capital Outlay program of the CSMD
4.3.2 Condition assessment program
4.4 Training for field operations personnel and contractors
4.5 Equipment maintenance and replacement policy

Chapter 5 - Design and Performance Provision
5.1 Design and construction standards and specification
5.2 Procedures and standards for inspection and testing

Chapter 6 - Spill Emergency Response Plan
6.1 Spill Response Procedure
6.1.1 Regulatory agencies notification and time frame
6.1.2 Procedure to ensure staff and contractors are aware and appropriately trained to follow spill emergency response plan
6.1.3 Procedures to address emergency operations such as traffic control and other necessary response activities
6.1.4 Program to eliminate or minimize discharge of spills into waters of the United States
6.1.5 Field response report protocol and forms
6.1.6 Spill flow estimation tables and photographs
6.1.7 Regulatory Agencies Notification and Time Frame

Chapter 7 – Sewer Pipe Blockage Control Program
7.1 Public education and outreach program
7.2 Disposal methods for FOG generated within the City service area
7.3 Legal authority to prohibit discharges to system and identify measures to prevent spills and blockages caused by FOG
7.4 Requirements to install grease removal devices, design standards, maintenance requirements, BMP requirements; record keeping and reporting requirements
7.5 Authority to inspect grease producing facilities, enforcement authorities & evidence of adequate staffing to inspect and enforce FOG ordinance
7.6 Cleaning schedule for identified FOG prone sewer segments
7.7 Source control measures developed and implemented to address FOG issues
7.8 Some BMPs for Fats, Oil, and Grease

Chapter 8 - System Evaluation, Capacity Assurance and Capital Improvements
8.1 System evaluation and condition assessment
8.2 Adequate capacity and correct design
8.3 Prioritization of Corrective Actions
8.4 Capacity Enhancement Plan
8.5 Capital Improvement Plan

8.6 Financing of Improvements

Chapter 9 - Monitoring, Measurement, and Program Modification
9.1 Maintenance of Information
9.2 Monitoring of Implementation and Effectiveness of the SSMP
9.3 Program Audits
9.4 Assessment of Preventative Operation and Maintenance Program
9.5 Spill location mapping and trends
9.5.1a Reported City Spills (2022-2025)
9.5.1b Location map of reported City spills (2022-2025)
9.5.2 Graphing and charting of spill frequencies

Chapter 10 - SSMP Program Audit and Certification
10.1 SSMP program audit
10.2 SSMP certification
10.3 SSMP modification and re-certification

Chapter 11 - Communication Program
11.1 Communication
11.2 SSMP availability

APPENDICES

Appendix A1---------- Governing Board Approval
In the SMD SSMP
Appendix A2---------- SWRCB – General Order for Sanitary Sewer Systems
In the SMD SSMP
Appendix A3---------- Asset Summary Per Collection System
In the SMD SSMP
Appendix B1---------- List of Staff Responsible for Implementing Specific Elements of the SSMP
In the SMD SSMP
Appendix B2---------- Sewer Maintenance Division Staff Contact Sheet
In the SMD SSMP
Appendix D---------- Field Operations Yard & Pump Station Map
In the SMD SSMP
Appendix F---------- Spill Emergency Response Plan
In the SMD SSMP
Appendix G---------- IDWP Conditions and Limitations
In the SMD SSMP

Appendix K---------- Spill Emergency Response Plan
Appendix L---------- Sewer System Capacity Evaluation
Appendix M---------- Policies for Managing Available Sewer Capacity
Appendix N---------- CCTV Inspection Report
Appendix O---------- Location Map – Delivery Points, Maintenance Zones, Flow Monitoring Locations & Hydraulic Identifications
Appendix P---------- Industrial Waste Contract With City
Appendix Q---------- 2025 SSMP Update Extension Letter

Appendix R---------- SSMP Change Log

ABBREVIATIONS/ACRONYMS

ACO	Accumulative Capital Outlay
AHMC	Agoura Hills Municipal Code
APWA	American Public Works Association
BMP	Best Management Practice
CADD	Computer Aided Design & Drafting
CALOSHA	California Occupation, Safety and Health Administration
CIWQS	California Integrated Water Quality System
CCTV	Closed – Circuit Television
CSD	County Sanitation Districts of Los Angeles County
CSMD	Consolidated Sewer Maintenance District
DPW	Department of Public Works
FOG	Fats, Oil, and Grease
FSE	Food Service Establishments
GIS	Geographical Information System
HDPE	High Density Polyethylene Pipe
I/I	Infiltration / Inflow
LACDPW	Los Angeles County Department of Public Works
LACo Code	Los Angeles County Code
LRO	Legally Responsible Official
LVMWD	Las Virgenes Municipal Water District
MMS	Maintenance Management System
NOI	Notice of Intent
OES	Office of Emergency Service
RWQCB	Regional Water Quality Control Board
SMD	Sewer Maintenance Division
SO&M	Sewer Operation and Maintenance
SSMP	Sewer System Management Plan
SSO	Sanitary Sewer Overflow
SU	Sewage Unit
SWRCB	State Water Resources Control Board
WDR	Statewide General Waste Discharge Requirements

DEFINITIONS

Blockage or Stoppage – A buildup of debris in the sewer, which stops the flow of wastewater and allows the water to back up behind the stoppage, sometimes causing an overflow.

California Integrated Water Quality System (CIWQS) – A statewide database that provides for mandatory electronic reporting as required in State and Regional Water Board-issued waste discharge requirements.

Geographical Information System (GIS) – A database linked with mapping, which includes various layers of information used by government officials. Examples of information found on a GIS can include a sewer map; sewer features such as pipe location, diameter, length, material, condition, last date cleaned or repaired. The GIS also typically contains base information such as streets and parcels.

Infiltration/Inflow (I/I) – Infiltration is generally considered to be extraneous water that enters the sewer system over longer periods of time, such as groundwater seepage through cracks in the sewer. Inflow is generally considered to be extraneous water that enters the system as a direct result of a rain event, such as through defects in the sewer. While it is impossible to control all I/I, it is certainly desirable to reduce I/I when cost-effective.

Lateral – The portion of sewer that connects a home or business with the main line in the street.

Spill - Discharge of sewage from any portion of a sanitary sewer system due to a sanitary sewer system overflow (SSO), operational failure, and/or infrastructure failure. Sewage and its associated wastewater spilled from a sanitary sewer system may threaten public health, beneficial uses of waters of the State, and the environment. "Spill" is also referred to in this document as a Sanitary Sewer Overflow (SSO).

Wastewater Collection System – All pipelines, pump stations, and other facilities upstream of the headworks of the wastewater treatment plant that transport wastewater from its source to the wastewater treatment plant.

Waters of the State - Surface waters or groundwater within boundaries of the state as defined in Water Code section 13050(e), in which the State and Regional Water Boards have authority to protect beneficial uses. Waters of the State include, but are not limited to, groundwater aquifers, surface waters, saline waters, natural washes and pools, wetlands, sloughs, and estuaries, regardless of flow or whether water exists during dry conditions. Waters of the State include waters of the United States.

Waters of the United States – All waters which are used, were used or may be used in interstate or foreign commerce; including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), adjacent wetlands, impoundments of water, etc., the use, degradation or destruction of which could affect interstate or foreign commerce; tributaries of waters so identified; and the territorial seas. Please refer to the following link to access Federal register published on January 18, 2023 for the updated and detailed definition of this item (https://www.federalregister.gov/documents/2023/01/18/2022-28595/revised-definition-of-waters-of-the-united-states).

SEWER SYSTEM MANAGEMENT PLAN
FOR THE
CITY OF AGOURA HILLS

EXECUTIVE SUMMARY

This plan document was prepared in compliance with a formal order issued by the State Water Resources Control Board. The order requires every owner and operator of publicly owned sewer systems to develop and implement a system specific Sewer System Management Plan (SSMP). This plan sets forth goals and actions to be followed, and guidelines for various activities involved in managing, operating, maintaining, repairing, replacing and expanding the sewer system. Chapter 6 describes actions to follow when responding to a spill occurrence within the community, including reporting obligations. There are chapters which describe legal authorities for managing the system, and ministerial actions required in monitoring, auditing, reporting and communicating with the public and regulators. There are specific requirements for accomplishing public involvement and the reporting and modifying (changing) of the plan. These later requirements are intended to raise public awareness of the hazards associated with spill events and to minimize the occurrence of such events.

- The City's initial plan was approved and certified by August 2, 2009. The City's updated plan herein is to be approved and certified by November 3, 2025 per the city's Extension Request letter dated June 4, 2025.
- This proposed plan is an update to the City's initial plan.
- The plan is to be monitored and updated no less frequent than every six years.
- The plan must be periodically audited for effectiveness, a report compiled and kept on file and such audits must occur no less frequent than every three years.
- There are reporting timeframes for both emergency and routine reporting events.
- The adoption of and any revision to the plan must be accomplished utilizing public notification and public hearing procedures as identified in the plan and order.
- Copies of the approved plan must be available for public review, and when requested by the State or Local regulatory agencies copies are to be provided, including any audit reports. These documents must also be uploaded to CIWQS and certified by the City's Legally Responsible Official (LRO).

.

CHAPTER 1

INTRODUCTION

1.1 Regulatory Context

On May 2, 2006 the State Water Resources Control Board (SWRCB) adopted Statewide General Waste Discharge Requirements (WDR) and Monitoring and Reporting Program, for sanitary sewer systems by issuing Order No. 2006-0003-DWQ (See Appendix 'A' in the SMD SSMP). The regulations in the Order were in response to growing public concern about the water quality impacts of Sanitary Sewer Overflows (spill), particularly those that cause beach closures, adverse effects to other bodies of water, or pose serious health and safety or nuisance problems.

Two major components of the WDR require the following:

(1) The owners/operators of publicly owned Sewer Collection Systems, a mile long or greater, must apply for coverage under the WDR; and,
(2) The owners/operators must develop and implement a Sewer System Management Plan (SSMP) specific to the sanitary sewer system.

In compliance with the first component, the City of Agoura Hills (City), a municipality of Los Angeles County, filed a Notice of Intent (NOI) application form with the SWRCB on October 18, 2006. The City subsequently received electronic access to the California Integrated Water Quality System (CIWQS) database. Within the database-reporting program, the City completed a "collection system questionnaire" and has filed all subsequent updates and all required spill reporting.

In compliance with the second component, this document was prepared to meet the objectives contained in the WDR Order. Since the Consolidated Sewer Maintenance District (CSMD) of the Los Angeles County Sewer Maintenance Division (SMD), provides operation and maintenance services for the City's sewer facilities, some components of the City's SSMP are the same as those of the SMD SSMP. This document is divided into 12 chapters, which closely align with the respective provisions contained in the WDR. Every section or subsection of each chapter addresses one of the key elements of the SSMP directive.

This document, with other existing agency programs referenced herein, constitute the City's SSMP. By implementing procedures contained in this SSMP, the occurrence of spills should decrease or possibly be avoided throughout the City's wastewater collection system.

This version of the SSMP is an update to the original 2015 SSMP, and the subsequent April 2023 Update. It is important to note this update is consistent with the published guidelines by SWRCB and Order No. 2022-0103-DWQ, which was adopted on December 6, 2022, and became effective on June 5, 2023.

Prior to the 2022 Order's effective date, the City's LRO successfully certified the City's continued regulatory coverage under the WDR in the California Integrated Water Quality System (CIWQS) Sanitary Sewer System Database.

The intent of the WDR is to provide consistent statewide requirements for managing and regulating sanitary sewer systems throughout California. The State Water Board recognized a need to provide this consistent regulatory measure because many of the Regional Water Boards

were beginning to implement similar measures inconsistently throughout the State, which was creating confusion in the discharger community. The State Water Board believes that providing a consistent regulatory measure that identifies regulatory expectations and comprehensive spill data will ultimately yield better collection system management and performance.

There are three major components to the WDR, including:

- Prohibitions;
- Sanitary Sewer Management Plan (SSMP) Elements; and
- Spill Reporting

While there are many other relevant components and findings within the WDR, the major components identified above represent most of the State Water Board's regulatory expectations for the implementation of the WDR. This regulatory audit is intended to provide an analysis of the current programs and practices within the City of Agoura Hills that address the above issues. This document will provide recommendations to ensure the development of appropriate SSMP programs and an appropriate time schedule necessary to comply with the WDR.

1.2 Sewer System Management Plan Update Schedule

SSMP Update Due Dates*							
8/2/2025		8/2/2031		8/2/2037		8/2/2043	
Audit Due Dates**							
End of Audit Period	**Audit Due Date**	**End of Audit Period**	**Audit Due Date**	**End of Audit Period**	**Audit Due Date**	**End of Audit Period**	**Audit Due Date**
8/2/2024	2/2/2025	8/2/2027	2/2/2028	8/2/2030	2/2/2031	8/2/2033	2/2/2034
Annual Report (due April 1st annually)							
Training Programs (Ongoing)							

*Per Per Section 5.5 and Attachment E1, Section 3.11 of General Order, Plan updates are due within six years after the required due date of the Enrollee's last Plan Update.
** Per Section 5.4 and Attachment E1, Section 3.10 of the General Order, the Audit Report is due within six months after the end of the required audit period.

1.3 Sewer System Asset Overview

The City was incorporated in December 1982 and currently serves an area of 7.86 square miles with a population of approximately 19,474 people, per the 2023 United States Census. The City is located in the County of Los Angeles where it is bordered to the north by Ventura County, to the west by the City of Westlake Village, to the south by unincorporated Los Angeles County, and to the east by the City of Calabasas and unincorporated Los Angeles County.

The City's wastewater collection system is managed by the City Department of Public Works (City DPW) and is currently maintained under contract with the Los Angeles County Department of Public Works (LACDPW or County DPW). The total budget for system operation, maintenance and administration is approximately $514,161.75 for FY 2025/26 based upon the sewage unit charge rate of $64.50. The wastewater collection system consists of approximately 53.6 miles of gravity sewers and 1,294 manholes. Sewer service connections are 96.22% residential, 3.22% commercial, and 0.38% industrial. There are 7,971.5 sewage units in the City. The City currently does not have any constructed structures to convey stormwater to the sewer

system. All flows from City sewers discharge into Las Virgenes Municipal Water District (LVMWD) trunk sewer facilities for conveyance to the Tapia Water Reclamation Plant in Malibu Canyon for treatment and disposal of wastewater.

Trunk sewers located in the City of Agoura Hills are owned by Las Virgenes Municipal Water District for which they are responsible for their operation and maintenance. Local main sewer lines are owned by the City and maintained by the Consolidated Sewer Maintenance District of LA County. Sewer laterals are owned by the property owner and are their responsibility for maintenance.

Sewer data is managed cooperatively between the City, CSMD, and LVMWD. Unique service area boundary challenges include the collaboration between the City, CSMD, and LVMWD for spill response, ownership, and maintenance of the sewer system. Detail regarding the specific data management systems utilized by CSMD can be found in Section 1.4 of the SMD SSMP Update.

The existing sewer pipes range from 8 to 15 inches in diameter (96% are 8-inch diameter) and are predominantly vitrified clay pipe material. The majority of the City's sewer pipes were installed between the 1960's and 2007. The City's sanitary sewer system maps can be found in Appendix 'O' of this document.

1.4 Goals and Actions

The **goals** of this SSMP are as follows:

1. Develop a complete understanding of the sanitary sewer system's available capacity through necessary studies in order to facilitate management for a sustainable infrastructure.

2. Maintain or improve the condition of the collection system infrastructure in order to provide reliable service now and into the future.

3. Minimize the number and impact of spills that occur.

4. Improve cooperative effort between agencies implementing the plan.

5. Reduce spill emergency response time through coordination of a localized first responder program.

6. Meet and exceed the intent of the requirements of WQO.

Actions to be taken to satisfy SSMP goals are as follows:

1. Conduct a planned and scheduled maintenance program to minimize the risk and occurrence of spills.

2. When a spill occurs, respond to the incident in a timely manner and undertake feasible remedial actions to contain the overflow, including stopping the flow from reaching a storm drain, if possible.

3. Stop the spill as soon as possible and limit public access to the overflow area to prevent public contact with any wastewater contamination.

4. Completely recover the overflow sewage, return it to the sewer system, and clean up the contaminated area.

5. Gather and compile all pertinent information regarding the spill incident, investigate as necessary to determine probable cause, document findings, report the incident to appropriate regulatory agencies in a timely manner, and file the completed report.

6. Condition all development and capital projects to evaluate, design and construct sewer facilities per the Los Angeles County approved standards and criteria.[1]

[1] Per Title 20, Division 3, Chapter 20.32.3 of the Los Angeles County Ordinance (LINK)

CHAPTER 2

DESCRIPTION OF THE ORGANIZATION

2.1 Management

The City has two (2) positions partially budgeted in Sewer Operations and Maintenance (SO&M) activities. Distribution of the City's personnel is depicted in the organization chart presented in Section 2.4.1 of this plan. The field operation and maintenance services are fulfilled by utilizing services provided through the Consolidated Sewer Management Division (CSMD). City personnel, in collaboration with County DPW personnel, administer the City's sewer collection system operation, provide engineering evaluation of proposed and existing sewer facilities, administer preventive maintenance and sewer construction programs, and oversee maintenance of the wastewater collection system facilities and related records and plans.

2.2 Legally Responsible Official

The Public Works Director/City Engineer in concert with designated County DPW staff, are the authorized representatives who are responsible for execution of compliance actions required under the WDR. This includes, but is not limited to, execution and certification of all reports and correspondence as required under the Order. Charmaine Yambao, Public Works Director/City Engineer is the City's designated Legally Responsible Official.

2.3 City's Responsibilities

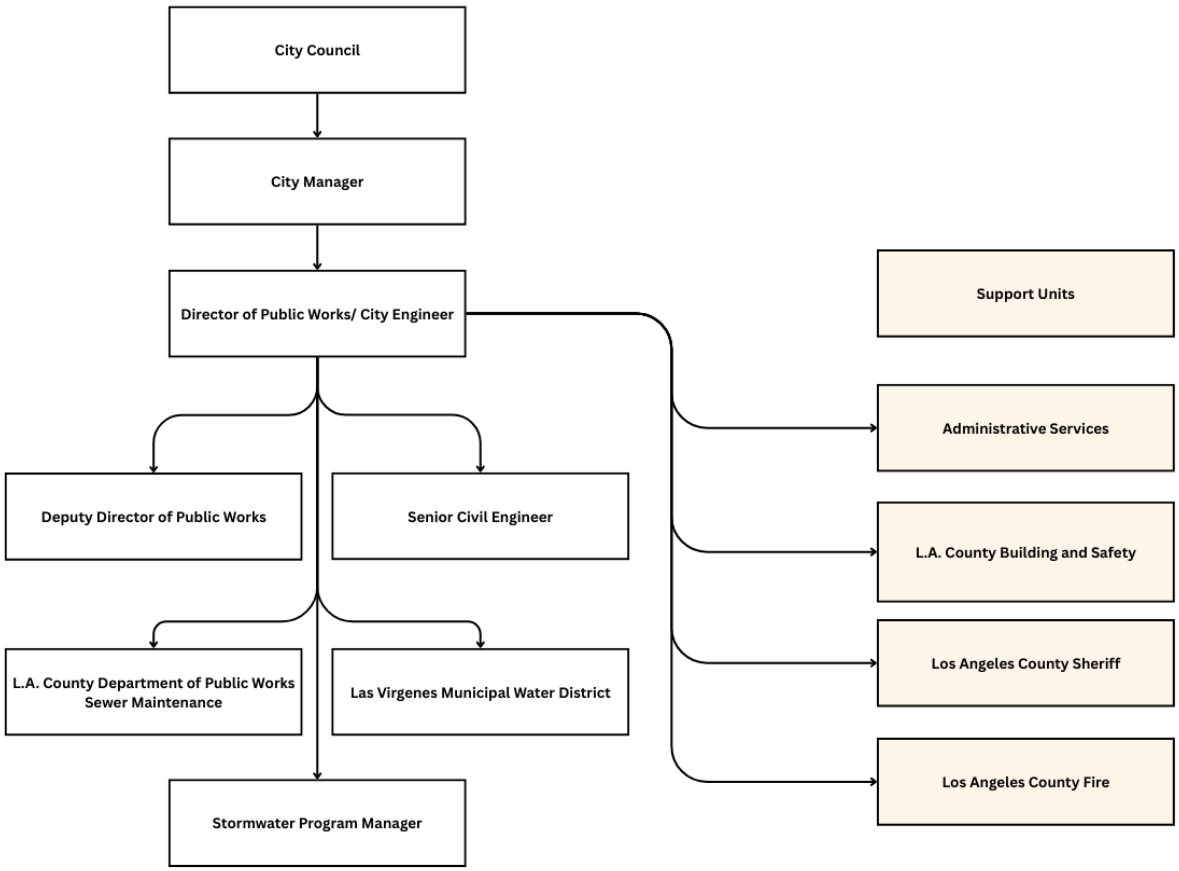
City has applied for coverage under the WDR for facilities it owns and holds a specific waste discharge identification (WDID) number with the state Water Resources Control Board (WDID No. 4SSO11366). The City prepared a comprehensive SSMP in 2009, and subsequent updates in 2015 and 2023. Article V, Chapter 2, 5200 of the City's Municipal Code has adopted Title 20 - Utilities, Division 2 - Sanitary Sewers and Industrial Waste of the Los Angeles County Code.

City Departments will play significant roles, jointly and separately, towards attaining the goals of this plan. The degree of these collaborative efforts will vary from department to department depending on the degree of spill related services the County DPW is providing under its agreements with the City.

2.4 Organization Chart and Responsibilities

The organization chart, showing the structure and relationship of City and County DPW administrative, management and field positions relative to SO&M is presented below and the descriptions of responsibilities and support are presented in Sections 2.4.2 and 2.4.3.

2.4.1 Organization Chart for Sanitary Sewer System Management



2.4.2 Description of Individual Responsibilities - The description of responsibilities or roles of each position especially as related to spills are as follows:

- City Council – Responsible for establishing new and amending existing laws governing the implementation of the SSMP and approving all SSMP related contracts and agreements.

- City Manager – Establishes SSMP policy within the scope of the City's' policy and legal requirements, directs its execution, and evaluates work accomplished for the SSMP. Directs the development and enactment of new ordinances

- Public Works Director/City Engineer – Responsible for formulating SSMP policies, and procedures. Directs emergency sewer repair activities, special studies, investigations and reports concerning sewer infrastructure, and approves the design and construction of new and rehabilitation of existing sewer systems. Responsible for training of personnel, and for processing of access easement documents and procuring easements

for public sewer facilities located in private properties. Assists in investigating spill related claims and litigations against the City. Responsible for developing standard plans and preparing plans and specifications for sewer enhancement and reconstruction projects. Reports to the City Manager.

- Deputy Director of Public Works – Assists in the formulation of SSMP policies and procedures. Direct studies, investigations, and the preparation of reports, budget and contractual agreements with private firms. Responsible for the day-to-day management and operation of the SSMP. Assists in directing engineering and management activities relating to the maintenance of the collection sewer system, and the needed contract services. Reports to the Public Works Director/City Engineer.

- Public Works Project Manager – Assists in the formulation of SSMP policies and procedures. Direct studies, investigations, and the preparation of reports, budget and contractual agreements with private firms. Responsible for the day-to-day management and operation of the SSMP. Assists in directing engineering and management activities relating to the maintenance of the collection sewer system, and the needed contract services, printing and mailing of public education outreach program materials, and for procuring material and supplies needed for the day-to-day operation and maintenance activities. Reports to the Public Works Director/City Engineer.

- Senior Civil Engineer – Has oversight of intra agency, clerical and field operation and maintenance staff. Responsible for overseeing implementation of the FOG program including point source control, inspection of industrial waste and grease generating facilities, and investigation of cases of illicit discharge of chemicals, debris, etc. into the public sewer. Reports to and can act on behalf of the City Engineer.

- Stormwater Program Manager – Assist in the operation of the SSMP. Assists in coordination efforts for tracing, containing, and cleaning up of spills that reach storm drain system. As well as NPDES compliance and program management for FOG. Reports to the Public Works Director/City Engineer.

- Engineering Aide – Assist in the operation of the SSMP. Assists in coordination efforts for tracing, containing, and cleaning up of spills that reach storm drain system. Reports to the Senior Civil Engineer.

2.4.3 Key Support Divisions

Other Divisions within the City as well as external agencies are currently and will continue to be responsible for carrying out some of the compliance actions called for by the WDRs for the SMD. The key support divisions and their responsibilities are described below:

- Administrative Services - Responsible for procuring equipment and as needed contract services for emergency sewer repair projects, printing and mailing of public education outreach program materials, and for procuring material and supplies needed for the day

to day operation and maintenance activities. Staffing the SO&M function and training of personnel. Also responsible for investigating spills related claims and litigations.

- Building and Safety Division – Responsible for issuing permits for sewer connection and for the enforcement of the Plumbing Codes involving proper connection, maintenance of sewer house laterals and illegal discharges into the public sewers. Responsible for subdivision plan checks to ensure compliance with the City standards for construction of new sewer collection systems.

- Las Virgenes Municipal Water District (LVMWD) – Currently a non-binding verbal agreement to assist exists between LVMWD and the City to assist in tracing, containing, and cleaning up of spills.

- Consolidated Sewer Maintenance District (CSMD) – An extension of LACDPW, CSMD is responsible for the sewer collection system operation and maintenance activities for the system. Responsible for the oversight of the Sewer Maintenance field maintenance personnel including the construction crews, gravity sewer system operation and maintenance crews etc. Responsible for maintenance activities of the sanitary sewer collection system including response to spills, sewer cleaning, construction and other activities as needed. Responsible for the operations and maintenance of pump stations and force mains. Reports to the Public Works Director/City Engineer.

- L.A. County Fire Department – Responsible for assisting with protecting the public during a spill event that expands into high use public travel ways and/or those that reach storm drains or water courses and spread the public risk to health and safety impacts.

- L.A. County Sheriff's Department - Responsible for operating the Emergency Operation Center for the entire City including handling after-hours service calls reporting spills, and pump station malfunction calls and forwarding those reports to the DPW.

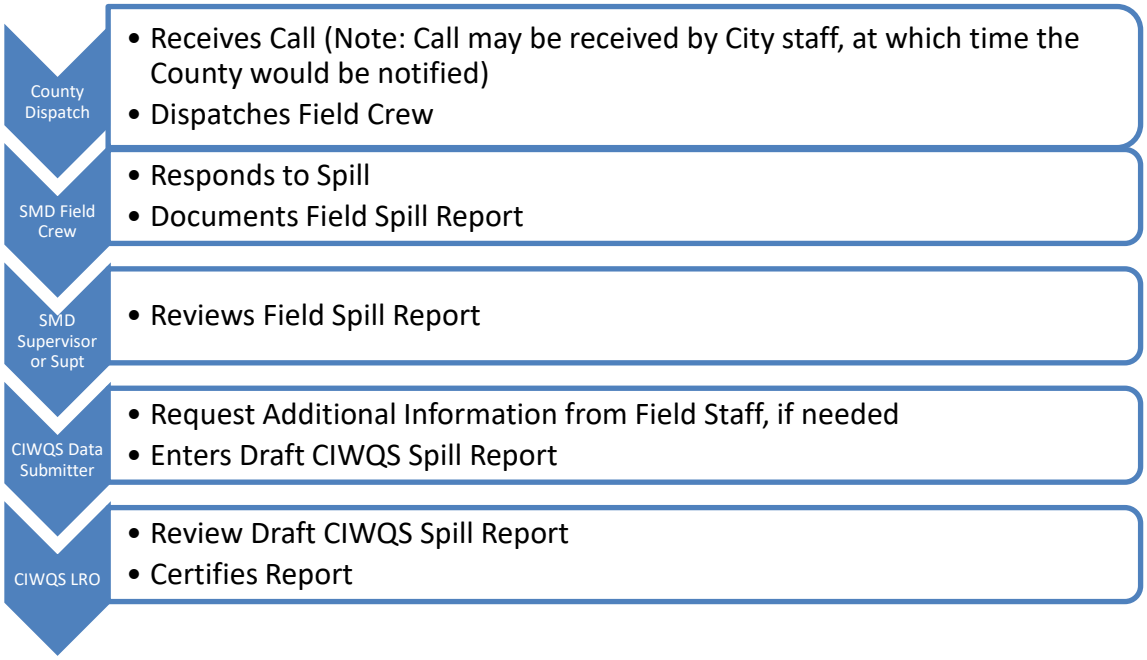
2.4.4 Chain of Communication for Spill Reporting

The chain of communication for reporting spills during regular business hours is the responsibility of the Engineering Division; after hours are handled through the County of Los Angeles Hotline (888) Clean-LA. Please see the following flow chart for an illustration of the reporting process. The SSMP emergency response plan will be discussed in more detail in Chapter 6 of this document.

The chain of communication for reporting spills, from receipt of a complaint or other reliable information source to reporting to the appropriate regulatory agencies, is presented in Section 2.4.5. The city's contact directory for communicating with both internal and external parties involved in responding and reporting an spill event is shown in Section 2.4.6. The spill emergency response plan will be discussed in greater detail in Chapter 6 of this document.

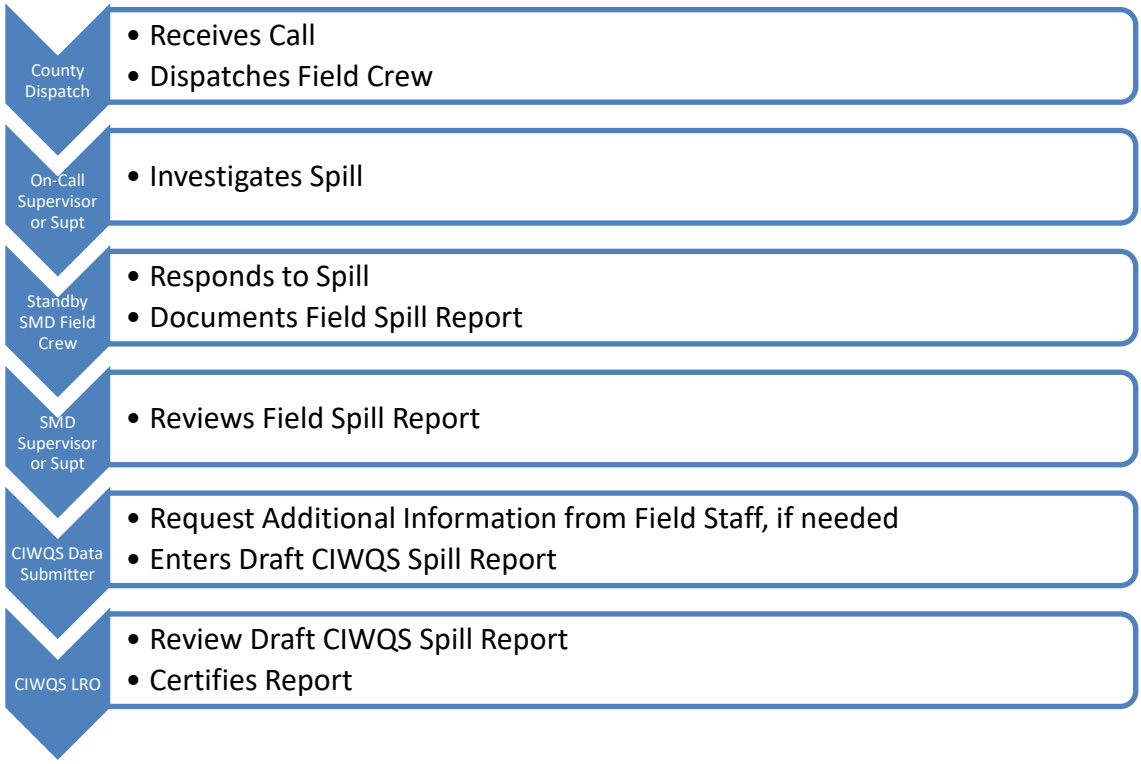
2.4.5 Spill Reporting Procedures Flow Chart

Normal Business Hours



*Normal Business hours are Monday through Friday from 6:30 AM to 5:00 PM.

After Hours



*After Hours are any hours that are not Normal Business Hours.

2.4.6 City's Contact Directory for Spill Responding and Reporting

Responsible Party	Name	Telephone	After Hours Cell Phone	Email (as applicable)
City Manager	Nathan Hamburger	818-597-7308		nhamburger@agourahillscity.org
Public Works Director/City Engineer	Charmaine Yambao	818-597-7360		cyambao@agourahillscity.org
Deputy Director of Public Works	Kelly Fisher	818-597-7338		kfisher@agourahillscity.org
Public Works Project Manager	Brian Woodworth	818-597-7322		bwoodworth@agourahillscity.org
Stormwater Program Manager	Kelsey Reed	818-597-7300	818-383-3092	kreed@willdan.com
Duty "On-Call" Person	LVMWD	818-251-2100	818-251-2100	
L.A. Co. Pub. Wks. Dept.	24-hour Dispatch	626-458-4357	800-675-4357	
L.A. County Sheriff		323-267-4800	323-267-4800	
L.A. County Fire Dept.		323-881-2455	323-881-2455	
Co. Health Dept. (After Hours)		213-974-1234	213-974-1234	
Co. Flood Control		818-896-0954	626-458-4357	
R.W.Q.C.B. (Region 4)		213-576-6600	213-305-2253	
State OES		800-852-7550	800-852-7550	
CSD of LACO		626-300-3308	800-657-4357	

CHAPTER 3

LEGAL AUTHORITY

3.1 Legal Authority

Pursuant to the California Government Code, Sections 37100 and 54350, the City Council, as the local legislative body, may by ordinances and resolutions make and enforce all rules and regulations necessary for the administration of the City's Sewer Operations and Maintenance SO&M plan. Such actions include, but are not limited to: budgeting and the cleaning, repair, construction, reconstruction, rehabilitation, replacement, operation, and maintenance of collection sewers within the City's System. This chapter highlights the City's legal authority in compliance with the WDR,

The City granted the County of Los Angeles the consent and jurisdiction to annex sewered portions of the City into the CSMD. By that action, the City has entrusted the operation and maintenance of its wastewater collection system to the CSMD. The City, however, still maintains full ownership and management responsibility of the City sewer system.

Consistent with the law, several ordinances have been established by the City Council to govern all aspects of the City's SO&M plan. The legal authorities for specific areas stipulated in the WDR are covered in the Agoura Hills Municipal Code (AHMC). These are found in Article V (Sanitation and Health), Chapter 1 (Health Code), Section 5100 which adopted Title 11 of the Los Angeles County Code (LACo Code), entitled "Health and Safety Code"; Article V (Sanitation and Health), Chapter 2 (Sanitary Sewer and Industrial Waste), Section 5200 which adopted Title 20, Utilities, Division 2 of the LACo Code entitled "Sanitary Sewers and Industrial Waste Ordinance"; and Article VIII (Building Regulations), Chapter 1 (Administration), Section 8100 which adopted the 2019 edition of the California Plumbing Code, published by the International Association of Plumbing and Mechanical Officials; some of which are discussed below:

The LACo Code Section 20.24.080 requires that property owners be responsible for maintenance of their house lateral, including the elimination of cracks, tree roots, and other debris. Similar regulation is also found in LACo Plumbing Code.

3.1.1 Authority to Prevent Illicit Discharges into the sewer system - LACo Code Title 20, Sections 20.36.010 and 20.36.400, prohibits the illegal dumping of offensive or damaging substances such as chemicals, debris, etc. into the sewer system. LACo Code Sections 20.24.020, 20.24.200, 20.32.080, 20.32.650, prohibits various forms of illicit discharges to the sewer. The City, as one of the CSMD cities, benefits from the districts Infiltration/Inflow (I/I) control program, the sewer line cleaning and maintenance program, which includes closed circuit television (CCTV) inspection and other mechanisms to detect I/I. These codes constitute the City's legal authority to prevent illicit discharges into the sewer system.

3.1.2 Authority to collaborate with storm sewer agencies to coordinate emergency spill responses, ensure access to storm sewer systems during spill events, and prevent unintentional cross connections of sanitary sewer infrastructure - The City is part of the Consolidated Sewer Maintenance District, which is managed by LACPW. All City spills

will flow to the City storm drain system, and then to the County flood control system. CSMD and the Flood Control District are both part of the Los Angeles County Public Works and staff have direct contact with one another to coordinate and access additional resources and support, if needed.

3.1.3 Authority to require Sewers and Connections be properly designed and constructed - LACo Code Title 20, Sections 20.32.330 and 20.32.340 require that the design of new main-line sewers and pumping plants respectively comply with Part 3 (Design Standards) of Chapter 20.32 of the Code. Section 20.32.350 requires that the design of new house laterals also conform to the same design standards unless otherwise covered by the Plumbing Code. Section 20.32.580 requires the construction of a collection sewer system to conform to all of Division 2 of Title 20, the Standard Specifications for Public Works Construction and by the Special Provisions and Standard Plans, all on file in the office of the City Engineer. Inspection of new main-line sewers and pumping plants to ensure proper construction is covered under Section 20.30.590.

3.1.4 Authority to Ensure Access for Maintenance, Inspection, or Repairs - LACo Code, Title 20, Division 2 gives the City the legal right to set requirements to allow unrestricted maintenance access to public sewer infrastructure located in private property. In accordance with Section 20.32.430, the access is secured through City's enforcement of the requirement for legally recorded sewer easements around all public sewer appurtenances located in private properties. Sewer easements are detailed on the sewer construction plans and are thoroughly reviewed by the City and the County for adequacy in size and accuracy of alignment during the subdivision map and plan check process. Such easements must have sufficient access for the movement of equipment and materials for both routine and emergency repair or construction work on the system.

LACo Code, Section 20.24.090 gives the Co. DPW and the City Engineer the legal authority to inspect main-line sewers, sewage pumping plants, interceptors etc., as often as they deem necessary, to ascertain whether such facilities are maintained and operated in accordance with the provisions of Division 2 of Title 20.

3.1.5 Authority limiting discharge of FOG and other debris that may cause blockage – The Plumbing Code requires the installation of grease interceptors at restaurants and other FSE that generate grease in the City. Section 714.1 of the Plumbing Code prohibits the discharge of FOG and other substances that may, among other things, clog, obstruct, fill, or necessitate frequent repairs, cleaning out or flushing of sewer facilities, in the City's sewer system. This prohibition is also contained in Title 20, Section 20.36.400. Also, Section 20.36.560 gives authority to the County and the City to require the installation of treatment facilities, including grease interceptors, at any facility that generates FOG in the amount that will damage or increase the maintenance costs of the wastewater collection system.

3.1.6 Authority to enforce a violation of sewer ordinances, service agreements, and/or other legally binding procedures – Under Section 20.24.100 the City Engineer is empowered to enforce all the requirements prescribed in Division 2 of Title 20 and in accordance with Section 20.24.110 may delegate this authority. Section

20.24.160 allows the application of criminal penalties for any violations of the Sewer and Industrial Waste Ordinances. Section 20.24.170 provides for additional enforcement for continued violations.

3.1.7 Authority to fund operations and maintenance of the sewer system - Sections 20.40.040 and 20.40.045 of Title 20 provides for the levy of annual service charge and additional annual service charge, respectively, to fund the maintenance, operation, reconstruction and construction of relief sewers in the CSMD including the City within the limits of the Operations and Maintenance provisions. This provision establishes a financial plan to ensure the ongoing operations and maintenance functions for the sewer system.

Under current authority there is no identified financial plan or vehicle for funding capital projects addressing capacity increase needs within the sewer system.

3.1.8 Authority to obtain easement accessibility agreements for locations requiring sewer system operations and maintenance – As the agency responsible for operations and maintenance of the City's sewer system, the CSMD has the authority to obtain easement accessibility agreements for sewer system operations and maintenance as outlined in LACo Code Sections 20.32.240 – Sewer easement processing fees and 20.32.430 – Sewer easement requirements.

The Codes, standard plans, specifications and other materials cited in this chapter are filed at the offices of the City Engineer as well as the City Clerk and are available at this LINK.

CHAPTER 4

OPERATION AND MAINTENANCE PROGRAM

4.1 City Sewer Mapping System

The City maintains as-built plans of City sewer facilities. Data on these plans, such as location, alignment, pipe material, size, etc., are stored in the drawing file system at City Hall. Information generated on the Computer Aided Design & Drafting (CADD) system, and printed to map sheets, is stored in the City's engineering file server. Periodic updates of these maps are scheduled by the City DPW when it is necessary to reflect changes in the system. These maps are included in Appendix O.

Data on the City's as-built sewer plans, such as system location and alignment, pipe material, size etc., are also stored in the CSMD CADD and GIS system. Information generated by CADD is printed on Index Map Sheets stored by LACDPW, Sewer Maintenance Division, located at 1000 South Fremont Avenue, Alhambra, California. The Index Maps are also kept at the CSMD field maintenance yards. The maps are updated, as necessary, to reflect any changes in the system.

Additionally, CSMD provides public access to up-to-date sewer mapping through the County's website. Within GIS, the Districts maintain a mapping system that includes sewer features such as pipe or manhole location, diameter, material, flow direction, etc. The system includes map base layers such as aerial images, streets, parcels, and storm drain systems also available from other Divisions within the County and other governmental agencies. The maps are regularly updated to reflect any changes in the system.

LA County Sanitary Sewer Network GIS Map – CSMD:

- https://dpw.lacounty.gov/smd/sewernetwork/

Operation Maps

- https://dpw.lacounty.gov/sewer/Page_15

4.2 Preventive Maintenance Program

The City is within the CSMD, and therefore depends totally on the CSMD for the operation and maintenance of its collection sewer system. CSMD's Operation and Maintenance programs applied district-wide and described in details in the SMD SSMP are applicable in the City. The CSMD Santa Clara Sub Yard (See Appendix 'D' in the SMD SSMP) located at 21014 Golden Triangle Road in the City of Santa Clarita provides sewer services to the City. However, personnel from the other five sewer maintenance yards, also shown in Appendix 'D', provide after hour services to the City such as stand-by, callback, and other sewer emergency services. The maintenance equipment utilized within the City is owned by the CSMD. A complete inventory of the CSMD equipment assigned to each County maintenance yard is presented in Appendix 'A3' and Section 4.5 in the SMD SSMP.

The City's maintenance programs are funded through levying of an annual sewer service charge (currently at $41.50 per equivalent single-family dwelling unit otherwise called a sewage unit (s.u.). This is included in the $50.50 per s.u. levied by the CSMD and collected with the annual tax bills of property owners in the City that are within the CSMD. The $9.00 differential is evenly split to fund the accumulative capital outlay and condition assessment programs described in Section 4.3. The total annual revenue generated for the various sewer programs through the $50.50 per s.u. charge is approximately $402,990. These funds are managed and administered by the County and reviewed and adjusted annually to raise sufficient revenues for the maintenance programs. The proposed sewer service charge increases to the CSMD was approved on June 24, 2025 with three consecutive year increases beginning FY 2025-26 to $49.50, FY 26-27 to $58.50, and FY 27-28 to $68.50.

The following is a summary of the CSMD preventive maintenance activities implemented by the district within the City:

4.2.1 CCTV Inspection — Closed-circuit televisions (CCTV) inspections of sewer pipes are used to investigate and diagnose issues. Maintenance history, past spill records, sewer line locations, and age are used to determine which pipes are televised. Additionally, the Condition Assessment Program is implemented by the County to perform CCTV inspections and structurally rate sewer infrastructure. The County's systematic approach in the Condition Assessment Program aims to conduct CCTV inspections and evaluate the structural integrity of about 500 miles of sewer infrastructure annually. The inspections are prioritized based on the frequency of spills per 100 miles in each jurisdiction.

4.2.2 Sewer Line and Manhole Inspection – The interior and lid cover of manholes are inspected semi-annually for any structural defects, sewage flow condition, presence of vermin or rodents, deleterious industrial waste, odors and any signs of unusual settlement around the manholes and along sewer alignments. Higher-frequency inspections and maintenance are conducted for known problem areas, including areas with tree root problems. Sewer lines are also inspected via CCTV on a routine schedule, as described in Section 4.2.1

4.2.3 Gas Trap Manholes and Siphons – On a monthly basis, these facilities are inspected and cleared of any stoppages or flow restrictions.

4.2.4 Drop Manholes – These facilities are inspected semiannually and cleared of stoppages and flow restrictions on variable frequencies based on prior inspection records.

4.2.5 Sewer Line Cleaning – Sewer lines are cleaned by hydro jet or rodding. Frequency of cleaning is based on inspection records. Sewer lines known to accumulate grease, garbage grinds or sand are put on monthly, quarterly, or semi-annual cleaning schedule and those prone to root growth are periodically rodded or chemically treated.

4.2.6 Root Foaming — Root foaming is performed on main sewer lines based on root intrusion and need, typically associated with overflowing. The frequency of root foaming is initially 1 year, then increases to an 18-to-24 month frequency.

4.2.7 Periodic Maintenance — Periodic Maintenance (PMs) are sites that require higher-frequency cleanings due to maintenance issues. These "hot spots" are identified in the field during maintenance and inspections of sewer facilities and are often caused by debris, root intrusion, or other factors. Segments that experience spills are also added under periodic maintenance.

4.2.8 Vermin and Odor Control — If sewers and structures are observed to show evidence of infestations during an inspection or if a service request or complaint is received, the vermin are dusted or baited and insects are chemically treated.

4.2.9 Sewage Pump Stations – All pump stations are equipped with telemetry/alarm system and are inspected once a week. Pumps and motors are lubricated, control mechanism and valves are checked and adjusted as necessary, and equipment is repaired or modified as required.

4.2.10 Work Scheduling – CSMD work orders within the City are generated and tracked by the LACDPW's Maximo Maintenance Management System (MMS). CSMD field crews activities are recorded in various forms such as service requests, cleaning reports, sewer maintenance daily reports, manhole adjustments, spill report forms, etc., and finally stored in the MMS. The reports are made available to the City upon request.

4.3 Rehabilitation and Replacement Plan

The City's sewer collection systems are in the CSMD, and the City participates in the District's Accumulative Capital Outlay (ACO) Program and the District's Sewer Condition Assessment Program.

4.3.1 Accumulative Capital Outlay Program of the CSMD – Sewer served properties, within the CSMD, are levied an annual charge of $9.00 per s.u. for sewer collection system rehabilitation and replacements. This annual charge was approved by the LA County Board of Supervisors to be increased in FY 2025-26 to $15.00 per s.u., in FY 2026-27 to $20.00 per s.u., and in FY 2027-28 to $24 per s.u. The $9.00 per s.u. charge is also a component of the total $50.50 per s.u. described previously. The program is managed and administered by the LACDPW.

Under the ACO program, any portion of the sewer system found to be structurally deficient through routine inspection, sewer emergency response or condition assessment program is immediately repaired as an emergency repair project, or documented in a prioritized list of future short and long-term ACO sewer rehabilitation and replacement project (See Table 8-1 in the SMD SSMP). However, LACDPW would refer those portions of the system that have capacity related problems, especially hydraulic deficiencies resulting from over development or changes in zoning to the City for appropriate corrective action. A detailed discussion of the CSMD ACO Program is contained in Chapter 8.4.1 of the SMD SSMP.

4.3.2 Condition Assessment Program - The existing sewer pipes, range from 8 to 15 inches in diameter (96% are 8-inch diameter) and are predominantly vitrified clay pipe material. The majority of the City's sewer pipes were installed between the 1960's and 2007. This results in a current sewer system age ranging from 18 years to 65 years. Naturally,

as these sewer lines age, structural problems such as cracks, joint separation, root intrusion, etc. will develop. To ensure that these problems are properly mitigated, the WDR requires that the City have a program in place to minimize and correct them and that the program is well funded.

The City participates in the CSMD's ACO/Condition Assessment Program. Sewer served properties, within the CSMD, are assessed an annual fee of $9.00 per s.u. for sewer system condition assessment. This annual charge was approved by the LA County Board of Supervisors to be increased for three consecutive years starting in FY 2025-26 as described in the section above. This charge is part of the current annual sewer service charge of $50.50 per s.u. described previously. Under this program, the entire Sewer Collection System within the City was inspected by Close Circuit Television (CCTV) to assess the condition of the pipes between 2008, 2013, and 2019. A map of the CCTV project within the City is provided in Appendix 'N'. The County DPW is responsible for the management and administration of the program and funds.

4.4 Training for Field Operations Personnel and Contractors

All personnel needed for the operation and maintenance of the City's sewer system are employed by the LACDPW. The training of CSMD personnel is a function of the County and not the City. The training methodologies utilized by the County are contained in Section 4.4 of the SMD SSMP. Training topics include General Order Requirements, Spill Emergency Response and Drills and Spill Volume Estimation, and CIWQS Reporting. The City does not have any formalized training for contractors doing work within the City. However, City's sewer construction projects are awarded to carefully selected contractors with well trained and qualified personnel for any given project. The designed plans and specifications for City's sewer construction projects contain detailed instructions on the City's permitting requirements, standards, and policies that must be adhered to by contractors doing work within the City.

CSMD staff attend structured collection system training classes or seminars given by other agencies including California Occupational, Safety and Health Administration (CALOSHA), California Water Environment Association (CWEA), County Sanitation Districts' (CSD), etc. This is to keep them abreast with the latest information in the industry on how to safely and efficiently carry out their tasks. Additionally, the City and CSMD personnel responsible for the electronic CIWQS reporting are trained for proper submittal.

4.5 Equipment Maintenance and Replacement Policy

Equipment utilized in the maintenance of the City's sewer facilities is owned by the CSMD. LACDPW has full responsibility for the maintenance and replacement of this equipment. The LACDPW Equipment Replacement Policy is described in Chapter 4.5 of the SMD SSMP.

The City also has a comprehensive equipment maintenance program. Equipment is regularly checked, adjusted, repaired or replaced as necessary. However, major fixed assets are replaced when they meet or exceed the City's established fixed assets replacement criteria based on the

equipment age, mileage, hours of use, repair history, safety, etc. Replacement of or additions to the major assets are done through the annual budget process of the City.

CHAPTER 5

DESIGN AND PERFORMANCE PROVISION

5.1 Design and Construction Standards and Specifications

The City requires that all sewers be designed in accordance with Los Angeles County standards. The County DPW has Standard Plans and Specifications for Construction of Sanitary Sewers and appurtenances to ensure that sewer lines and connections are properly designed and constructed. The County DPW specifications, by reference, incorporate the Standard Plans and Specifications for Public Works Construction ("Greenbook"), Special Provisions, and Standard Drawings. In addition, County DPW has other publications such as the Private Contract Sanitary Sewer Procedural Manual, Guidelines for the Design of Pump Stations etc. to ensure consistency in the design of wastewater collection systems within unincorporated County areas. The City requires that these publications also be followed in the design of the sewer system within the City. To further assure that sewer facilities are properly designed and constructed, the City requires that plans are designed by licensed engineers and provides thorough review of plans, by City and SMD, prior to approval for construction and inspection of the actual construction work. The SMD plan review is performed from the stand point of maintenance only.

Section 8.2 of the SMD SSMP provides further detail regarding the design criteria and construction standards necessary to support hydraulic capacity.

5.2 Procedures and Standards for Inspection and Testing

The City is responsible for assuring sewers are designed and constructed to standard. The City provides inspection for the installation of new and rehabilitation of deteriorated public sewer facilities within City jurisdiction. The inspectors are also provided with adequate materials to perform their jobs, including the Standard Specifications for Public Works Construction, the Standard Plans for Public Works Construction, and the Public Works Inspectors' Manual. The City also requires the preparation and submittal of "As-Built" plans of completed projects prior to final approval and acceptance of the project as public infrastructure.

The inspection of sewer rehabilitation projects under the ACO program are conducted by County DPW inspectors.

In compliance with SMD policy, the City also requires that all newly constructed pumping stations be inspected by experienced SMD Electro-Mechanics prior to transferring such facilities to SMD for maintenance.

SPILL EMERGENCY RESPONSE PLAN

6.1 Spill Emergency Response Procedure

The City, as a member of the CSMD, relies on the services of SMD for sanitary sewer spills within the City. Therefore, the SMD Spill Emergency Response Procedure described in Appendix F of the SMD SSMP are utilized by the District in the City. Furthermore, the County DPW 24-hour emergency phone number 1-800-675-HELP (4357) is readily available to City staff and residents to use in promptly notifying County DPW staff of spill events in the City.

The City provides 24-hour emergency response services to investigate and act upon notifications received from citizens or from telemetry systems or from other valid sources. Personnel are available 24-hours a day of the year to receive and act on any calls or automated alarms related to problems in the sewer system, including spills.

The City's detailed Spill Emergency Response Plan is included as Appendix K of this document. This plan has been tailored to mirror the procedures outlined in the SMD Spill Emergency Response Plan. Annually, the City will review and assess the effectiveness of the Spill Emergency Response Plan and update it as necessary.

6.1.1 Regulatory Agencies Notification and Time Frame - The SMD is responsible for reporting of spills to appropriate regulatory agencies for the City. As discussed in Chapter 2, spills that occur in the City are reported to the County by telephone or by telemetry at the pump stations. Upon receipt of such call, County Officials follow the notification guidelines contained in Appendix F of the SMD SSMP. A notification and timeframe matrix is attached as 6.1.7.

6.1.2 Procedure to ensure that Staff and Contractors are aware and appropriately trained to follow Spill Emergency Response Plan - This is mainly the function of the County DPW. However, City staff is familiar with the SMD Emergency procedures which are included in Appendix 'F' in the SMD SSMP. City staff will cooperate with CSMD during a spill event, as necessary.

When City staff is involved in a spill response, the Spill Emergency Response Plan (Appendix 'K' in this document) is a procedural and training guide. The crew responding to a spill emergency is required to stop the spill, contain it as soon as possible, and ensure that the facility or area is cleaned up and returned to normal operation. The agencies to be notified, method and time frame for notification are presented in Section 6.1.7. The relevant data about the spill such as location, volume, agencies notified, etc. is recorded in field report forms (see Appendix 'K') and later stored in a computer file. All responding field personnel are trained to be conversant with these procedures and to accurately report all spill events.

6.1.3 Procedure to Address Emergency Operations such as Traffic Control and other Necessary Response Activities - The City does not play a significant role in this function. It is performed by County DPW staff or contractors doing emergency repair spill related

work for the County or the City. The County Fire and County Sheriff departments also play active roles in the control and protection of the general public during emergency spill operations. The Districts' field personnel and emergency contractors are trained in traffic and crowd control and equipped with tools such as traffic cones, yellow tape, flashing lights, and high-visibility uniforms.

6.1.4 Program to Eliminate or Minimize Discharge of s pills into waters of the United States - This is one of the main functions performed by the County DPW for the City. Some of the methods include the use of sand bags to contain spills, absorbent tube socks to prevent spill discharge into storm drain catch basins, and the use of vacuum trucks to suck up contained spills and dump effluent back into the collection system at other safe locations The roles played by the City are limited to ensuring that the City's collection system has sufficient capacity for all operating conditions and making sure that the County DPW staff are promptly notified of spill events when they do occur.

6.1.5 Field Response Report Protocol and Forms - Appendix 'K', of this Spill Emergency Response Plan, describes the procedures and reporting activity to be accomplished during an actual spill event in the physical setting in which it occurs. Corrective actions and reporting guides are described and an investigation and reporting format are included for reference use.

6.1.6 Spill Flow Estimation Tables and Photographs - Example spill flow estimation templates (guides) follow:

[Courtesy of the California Water Environment Association]

Attachment D - Sample Templates for SSO Volume Estimation

TABLE 'A'

ESTIMATED SSO FLOW OUT OF M/H WITH COVER IN PLACE

24" COVER

Height of spout above M/H rim H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/4	1	0.001	
1/2	3	0.004	
3/4	6	0.008	
1	9	0.013	
1 1/4	12	0.018	
1 1/2	16	0.024	
1 3/4	21	0.030	
2	25	0.037	
2 1/4	31	0.045	
2 1/2	38	0.054	
2 3/4	45	0.065	
3	54	0.077	
3 1/4	64	0.092	
3 1/2	75	0.107	
3 3/4	87	0.125	
4	100	0.145	
4 1/4	115	0.166	
4 1/2	131	0.189	
4 3/4	148	0.214	
5	166	0.240	
5 1/4	185	0.266	
5 1/2	204	0.294	
5 3/4	224	0.322	6"
6	244	0.352	
6 1/4	265	0.382	
6 1/2	286	0.412	
6 3/4	308	0.444	
7	331	0.476	
7 1/4	354	0.509	
7 1/2	377	0.543	
7 3/4	401	0.578	8"
8	426	0.613	
8 1/4	451	0.649	
8 1/2	476	0.686	
8 3/4	502	0.723	
9	529	0.761	

36" COVER

Height of spout above M/H rim H in inches	S S O FLOW Q		Min. Sewer size in which these flows are possible
	in gpm	in MGD	
1/4	1	0.002	
1/2	4	0.006	
3/4	8	0.012	
1	13	0.019	
1 1/4	18	0.026	
1 1/2	24	0.035	
1 3/4	31	0.044	
2	37	0.054	
2 1/4	45	0.065	
2 1/2	55	0.079	
2 3/4	66	0.095	
3	78	0.113	
3 1/4	93	0.134	
3 1/2	109	0.157	
3 3/4	127	0.183	
4	147	0.211	
4 1/4	169	0.243	
4 1/2	192	0.276	
4 3/4	217	0.312	6"
5	243	0.350	
5 1/4	270	0.389	
5 1/2	299	0.430	
5 3/4	327	0.471	
6	357	0.514	
6 1/4	387	0.558	8"
6 1/2	419	0.603	
6 3/4	451	0.649	
7	483	0.696	
7 1/4	517	0.744	
7 1/2	551	0.794	
7 3/4	587	0.845	10"
8	622	0.896	
8 1/4	659	0.949	
8 1/2	697	1.003	
8 3/4	734	1.057	
9	773	1.113	

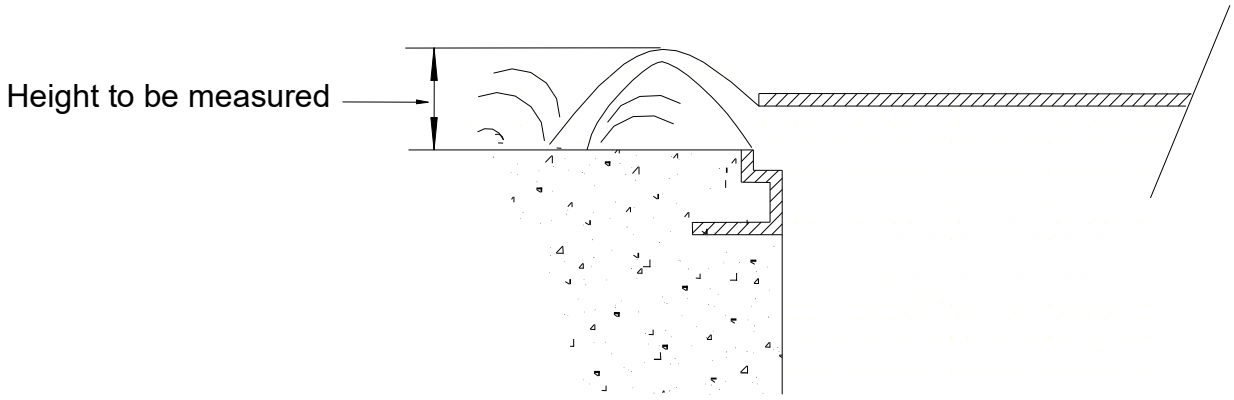
Disclaimer:
This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

The formula used to develop Table A measures the maximum height of the water coming out of the maintenance hole above the rim. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

Example Overflow Estimation:

The maintenance hole cover is unseated and slightly elevated on a 24” casting. The maximum height of the discharge above the rim is 5 ¼ inches. According to Table A, these conditions would yield an SSO of 185 gallons per minute.

FLOW OUT OF M/H WITH COVER IN PLACE



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

TABLE 'B'

ESTIMATED SSO FLOW OUT OF M/H WITH COVER REMOVED

24" FRAME

Water Height above M/H frame H in inches	S S O FLOW Q in gpm	in MGD	Min. Sewer size in which these flows are possible
1/8	28	0.04	
1/4	62	0.09	
3/8	111	0.16	
1/2	160	0.23	
5/8	215	0.31	6"
3/4	354	0.51	8"
7/8	569	0.82	10"
1	799	1.15	12"
1 1/8	1,035	1.49	
1 1/4	1,340	1.93	15"
1 3/8	1,660	2.39	
1 1/2	1,986	2.86	
1 5/8	2,396	3.45	18"
1 3/4	2,799	4.03	
1 7/8	3,132	4.51	
2	3,444	4.96	21"
2 1/8	3,750	5.4	
2 1/4	3,986	5.74	
2 3/8	4,215	6.07	
2 1/2	4,437	6.39	
2 5/8	4,569	6.58	24"
2 3/4	4,687	6.75	
2 7/8	4,799	6.91	
3	4,910	7.07	

36" FRAME

Water Height above M/H frame H in inches	S S O FLOW Q in gpm	in MGD	Min. Sewer size in which these flows are possible
1/8	49	0.07	
1/4	111	0.16	
3/8	187	0.27	6"
1/2	271	0.39	
5/8	361	0.52	8"
3/4	458	0.66	
7/8	556	0.8	10"
1	660	0.95	12"
1 1/8	1,035	1.49	
1 1/4	1,486	2.14	15"
1 3/8	1,951	2.81	
1 1/2	2,424	3.49	18"
1 5/8	2,903	4.18	
1 3/4	3,382	4.87	
1 7/8	3,917	5.64	21"
2	4,458	6.42	
2 1/8	5,000	7.2	24"
2 1/4	5,556	8	
2 3/8	6,118	8.81	
2 1/2	6,764	9.74	
2 5/8	7,403	10.66	
2 3/4	7,972	11.48	30"
2 7/8	8,521	12.27	
3	9,062	13.05	
3 1/8	9,604	13.83	
3 1/4	10,139	14.6	
3 3/8	10,625	15.3	36"
3 1/2	11,097	15.98	
3 5/8	11,569	16.66	
3 3/4	12,035	17.33	
3 7/8	12,486	17.98	
4	12,861	18.52	
4 1/8	13,076	18.83	
4 1/4	13,285	19.13	
4 3/8	13,486	19.42	

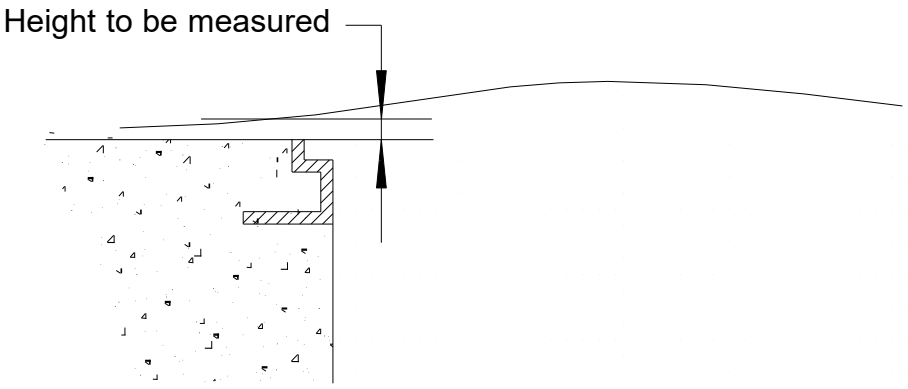
Disclaimer:
This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

The formula used to develop Table B for estimating SSO's out of maintenance holes without covers is based on discharge over curved weir -- bell mouth spillways for 2" to 12" diameter pipes. The formula was taken from hydraulics and its application by A.H. Gibson (Constable & Co. Limited).

Example Overflow Estimation:

The maintenance hole cover is off and the flow coming out of a 36" frame maintenance hole at one inch (1") height will be approximately 660 gallons per minute.

FLOW OUT OF M/H WITH COVER REMOVED (TABLE "B")



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

TABLE 'C'

ESTIMATED SSO FLOW OUT OF M/H PICK HOLE

Height of spout above M/H cover H in inches	SSO FLOW Q in gpm	Height of spout above M/H cover H in inches	SSO FLOW Q in gpm	
1/8	1.0	5 1/8	6.2	
1/4	1.4	5 1/4	6.3	
3/8	1.7	5 3/8	6.3	
1/2	1.9	5 1/2	6.4	
5/8	2.2	5 5/8	6.5	
3/4	2.4	5 3/4	6.6	
7/8	2.6	5 7/8	6.6	
1	2.7	6	6.7	
1 1/8	2.9	6 1/8	6.8	
1 1/4	3.1	6 1/4	6.8	
1 3/8	3.2	6 3/8	6.9	
1 1/2	3.4	6 1/2	7.0	Unrestrained M/H cover will start to lift
1 5/8	3.5	6 5/8	7.0	
1 3/4	3.6	6 3/4	7.1	
1 7/8	3.7	6 7/8	7.2	
2	3.9	7	7.2	
2 1/8	4.0	7 1/8	7.3	
2 1/4	4.1	7 1/4	7.4	
2 3/8	4.2	7 3/8	7.4	
2 1/2	4.3	7 1/2	7.5	
2 5/8	4.4	7 5/8	7.6	
2 3/4	4.5	7 3/4	7.6	
2 7/8	4.6	7 7/8	7.7	
3	4.7	8	7.7	
3 1/8	4.8	8 1/8	7.8	
3 1/4	4.9	8 1/4	7.9	
3 3/8	5.0	8 3/8	7.9	
3 1/2	5.1	8 1/2	8.0	
3 5/8	5.2	8 5/8	8.0	
3 3/4	5.3	8 3/4	8.1	
3 7/8	5.4	8 7/8	8.1	
4	5.5	9	8.2	
4 1/8	5.6	9 1/8	8.3	
4 1/4	5.6	9 1/4	8.3	
4 3/8	5.7	9 3/8	8.4	
4 1/2	5.8	9 1/2	8.4	
4 5/8	5.9	9 5/8	8.5	
4 3/4	6.0	9 3/4	8.5	
4 7/8	6.0	9 7/8	8.6	
5	6.1	10	8.7	

Note: This chart is based on a 7/8 inch diameter pick hole

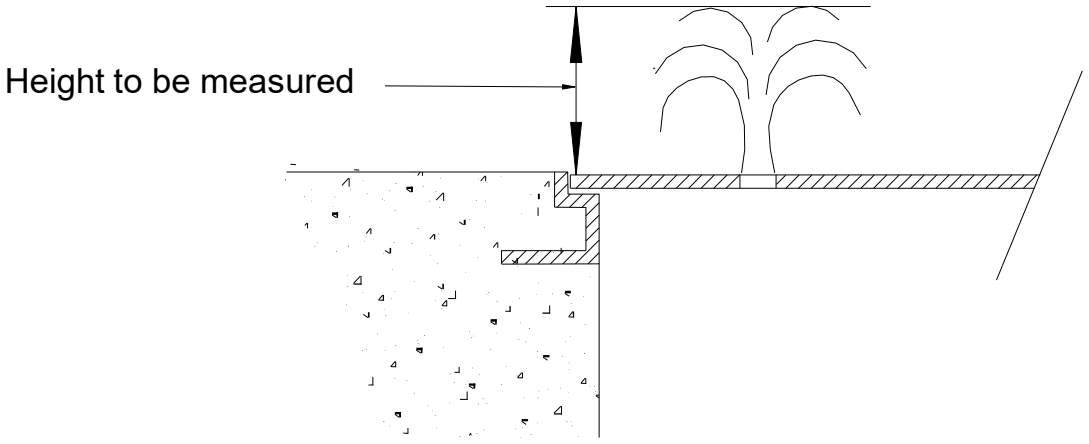
Disclaimer: This sanitary sewer overflow table was developed by Ed Euyen, Civil Engineer, P.E. No. 33955, California, for County Sanitation District 1. This table is provided as an example. Other Agencies may want to develop their own estimating tables.

The formula used to develop Table C is Q=CcVA, where Q is equal to the quantity of the flow in gallons per minute, Cc is equal to the coefficient of contraction (.63), V is equal to the velocity of the overflow, and A is equal to the area of the pick hole.[2] If all units are in feet, the quantity will be calculated in cubic feet per second, which when multiplied by 448.8 will give the answer in gallons per minute. (One cubic foot per second is equal to 448.8 gallons per minute, hence this conversion method).

Example Overflow Estimation:

The maintenance hole cover is in place and the height of water coming out of the pick hole seven-eighths of an inch in diameter (7/8") is 3 inches (3”). This will produce an SSO flow of approximately 4.7 gallons per minute.

FLOW OUT OF VENT OR PICK HOLE (TABLE "C")



This sanitary sewer overflow drawing was developed by Debbie Myers, Principal Engineering Technician, for Ed Euyen, Civil Engineer, P.E. No. 33955, California, of County Sanitation District 1.

[2] Velocity for the purposes of this formula is calculated by using the formula h = v squared / 2G, where h is equal to the height of the overflow, v is equal to velocity, and G is equal to the acceleration of gravity.

_Flow Estimation Pictures

City of San Diego
Metropolitan Wastewater Department

Reference Sheet for Estimating Sewer Spills from Overflowing Sewer Manholes

*All estimates are calculated in **gallons per minute (gpm)***

Wastewater Collection Division
(619) 654-4160

5 gpm

25 gpm

50 gpm

100 gpm

150 gpm

200 gpm

225 gpm

250 gpm

275 gpm

All photos were taken during a demonstration using metered water from a hydrant in cooperation with the City of San Diego's Water Department.

rev. 4/99

6.1.7 Regulatory Agencies Notification and Time Frame

[As noted in Section 6.1.1, the County does all reporting]

Spill Category	Type or Description	Agencies to be Notified	Type of Notification & Time Frame	
			Telephone/Fax *ASAP, but no later than 2 hours after spill awareness*	**Written Report/*Online Database**
1	**A spill of any volume that discharges to surface water, a drainage conveyance, or channel and was not captured.**	County Health Department Flood Maintenance Division State Office Emergency Serv. Regional Wtr. Qual. Cntrl. Bd. St. Wtr. Resources Control Bd.	626-430-5420-Bus. Hrs 213-974-1234-Aftr Hrs 818-896-0594-Bus. Hrs 800-852-7550 [24/7] 213-576-6600-Bus. Hrs 213-576-6650-Aftr Hrs N/A	**2-Hour Notification:** Regulatory Agencies (CAL OES) must be notified within two hours of ANY discharge of sewage (untreated/partially treated) to a surface water or drainage channel (that is not fully captured and returned to sewer). **Within 3 Business Days of Notification:** Enter draft report in CIWQS. **Within 15 Calendar Days of Conclusion of Response/Remediation:** Must be certified by LRO using CIWQS. **Within 45 Calendar Days of Conclusion of Response/Remediation:** Submit Spill Technical Report for spills 50,000 gallons or greater **Within 90 Calendar Days of Conclusion of Response/Remediation:** Submit Amended Certified Spill Report (if necessary)

2	**A discharge that is greater than 1,000 gallons that did not discharge to surface water.**	County Health Department Flood Maintenance Division State Office Emergency Serv. Regional Wtr. Qual. Cntrl Bd. St. Wtr. Resources Control Bd.	626-430-5420-Bus. Hrs 213-974-1234-Aftr Hrs 818-896-0594-Bus. Hrs 800-852-7550 [24/7] 213-576-6600-Bus. Hrs 213-576-6650-Aftr Hrs N/A	**2-Hour Notification:** Regulatory Agencies (Cal OES) must be notified within two hours of ANY discharge of sewage (untreated/partially treated) 1,000 gallons or greater. **Within 3 Business Days of Notification**: Enter draft report in CIWQS. **Within 15 Calendar Days of Conclusion of Response/Remediation**: Must be certified by LRO using CIWQS **Within 90 Calendar Days of Conclusion of Response/Remediation:** Submit Amended Certified Spill Report (if necessary)
3	**A spill that is less than 1,000 gallons but greater than 50 gallons that does not discharge to surface water.**	County Health Department St. Wtr. Resources Control Bd.	626-430-5420-Bus. Hrs 213-974-1234-Aftr Hrs N/A	**Within 30 days past the end of the month in which the spill occurred**: Submit certified Report **Within 90 Calendar Days of Conclusion of Response/Remediation:** Submit Amended Certified Spill Report (if necessary)
4	**Less than 50 gallons, from or caused by a sanitary sewer system that does not discharge to surface water.**	County Health Department St.Wtr. Resources Control Bd.	624-430-5420-Bus. Hrs 213-974-1234-Aftr. Hrs N/A	**Within 30 days past the end of the month in which the spill occured:** Submit certified report **By February 1 after the end of the calendar year in which the spill occurred:** Submit certified report, in acceptable electronic format, of all recordkeeping of spills.

Private Lateral Spill	**A discharge from a privately owned lateral.**	County Health Department St. Wtr. Resources Control Bd.	626-430-5420-Bus. Hrs 213-974-1234-Aftr Hrs N/A	**Within 30 days past the end of the month in which the spill occurred:** If reporting, enter into CIWQS as a "Private Lateral Sewage Discharge" and identify responsible party, if known (not LACPW). Must be certified by LRO using CIWQS.
N/A	**No spill in a calendar month**	St. Wtr. Resources Control Bd.	N/A	**Within 30 days past the end of the month:** Certify "No Spill" certification statement. The LRO or designee must report using CIWQS.

24/7 = 24 hours per day & 7 days per week

CHAPTER 7

SEWER PIPE BLOCKAGE CONTROL PROGRAM

7.1 Public Education and Outreach Program

The City currently benefits from the County DPW public education outreach program. Under this program information on proper disposal of Fats, Oils and Grease (FOG) and other spill prevention measures such as the installation of backwater valves, house lateral maintenance etc. is disseminated to CSMD member city residents through publication of annual reports, brochures and individual notices to property owners. County DPW sewer maintenance and industrial waste management program personnel also assist in passing useful information on spill prevention and FOG on to home and business owners. County DPW, in addition, has the annual reports posted on its home web page (http://dpw.lacounty.gov/smd/smd) for easy access to internet users.

- Community Events: SMD participates in resource fairs, park events, and Earth Day-themed events, where staff distribute FOG brochures and answer questions from the community.
- Website Resources: The FOG page on SMD's website provides a comprehensive list of FOG do's and don'ts: https://pw.lacounty.gov/SMD/grease/Index.cfm.
- Inspections: During inspections of food service establishments (FSEs), FOG inspectors provide educational materials on best management practices (BMPs) for grease traps and interceptors. Newly permitted FSEs also receive BMP materials.

Outreach is scheduled based upon opportunities for public engagement and frequency of FSE inspections. The Community and Government Relations Group (CGRG) keeps track of all the events the County participates in annually, providing a summary of events at the end of the year.

To complement County efforts, the City proactively reaches out to users of its sewer system regarding the community's sewer pipe blockage control program. Information on proper disposal of FOG and other spill prevention measures, including installation of grease traps, backwater valves, sewer lateral maintenance, etc. is disseminated through publication of brochures, articles in newsletters, individual notices to property owners, and with business license renewals, on a schedule. These notifications provide descriptions of grease control efforts that can be undertaken by homeowners and businesses alike. Additionally, the DPW utilizes personal contacts with home and business owners by its field crews and the code enforcement inspectors as conditions warrant. These methods are usually effective in relaying information on proper disposal of FOG and other spill prevention methods to the community. Also provided in this chapter are some BMPs for reducing FOG in the wastewater collection system.

Additionally, other effective ways to communicate with the public are being considered. These include use of the City's home web page, use of local radio and cablevision announcements, and the exchange of outreach information between agencies.

FOG in the local sewer system can be a prime contributor to a spill and its corresponding health and safety impacts. Related health and safety issues can also result from the discharge of pharmaceuticals and pesticides into the sanitary sewer system. Although not usually a causative

factor in sewer spills, these chemicals can be toxic and have disruptive environmental and biological effects. Discharges of such chemical compounds into the sewers should also be avoided and addressed in the education and outreach program. ("No drugs or household pesticides down the drain" is a compatible health and safety advisory).

7.2 Disposal Methods for FOG Generated within the City Sewer System

This function is performed by the CSMD staff on behalf of the City. The methods used by County DPW are contained in Section 7.3 of the SMD SSMP.

7.3 Legal Authority to Prohibit Discharges to the System and Identify Measures to Prevent Spills and Blockages Caused By FOG

Legal authority to prohibit discharges of FOG into the sewer system is discussed in Chapter 3 of this document. Requirements for grease interceptors at food establishments to prevent the discharge of grease to the collection sewer system and educating the public on proper disposal methods for FOG are also discussed elsewhere in this chapter.

Discharges from industrial classification facilities are usually controlled under the terms of an industrial wastewater discharge permit, which is issued and monitored by the local sewering agency.

7.4 Requirement to Install Grease Removal Devices, Design Standards, Maintenance Requirements, BMP Requirements; Record Keeping and Reporting Requirements

The County DPW, under a separate agreement (Appendix 'P') with the City, is charged with the responsibility of enforcing the County's Sanitary Sewers and Industrial Waste Ordinance in the City. The Industrial Waste Program of the County is managed by the Environmental Programs Division (EPD) of County DPW. The design standards for grease removal devices and all requirements imposed on industrial waste facilities that discharge waste or FOG into the City's sewer system are similar to those imposed in the Unincorporated County and as presented in Chapter 7.5 of the SMD SSMP.

The City Building Official is authorized to monitor and enforce the terms of the Plumbing Code and the Public Health Code, relative to domestic waste disposal from residential and commercial facilities within the community.

The County DPW is charged with reviewing, permitting and inspecting existing industrial waste facilities that discharge into the sanitary sewer system in the City. Pretreatment devices are required for industrial waste generating facilities, including restaurants and other FSE. Grease removal devices are required to be designed, approved, installed and operated in a manner to control discharges of FOG into the sanitary sewer system, They are also to ensure that the facilities do not create nuisances, menaces to the public peace, health or safety hazards, or adverse impacts on the public sewerage system, soil, underground and/or surface waters. If there is a FOG related problem associated with an industrial waste permit, the City will take enforcement action against

the permittee.

If during inspection of the sanitary sewer system, SO&M personnel determine that a FOG related problem exists and is traceable to a domestic sewage source of such character that is not satisfactory, under the PMC, pretreatment could be required or the discharge required to be eliminated. Domestic waste containing FOG can lead to spills which are public nuisances, and California Health and Safety Code Division 5, Part 3, Chapter 6, Article 2 can also be used to impose appropriate domestic sewage discharge requirements.

The effectiveness of any grease removal devices is dependent upon their routine maintenance and monitoring/inspection for conformance with its intended purpose. Regular inspection and maintenance activity logging with quarterly reporting are required.

Permit conditions require:
- GIs to be cleaned at least once every three months
- FSEs with grease traps are required to perform daily maintenance

7.5 Authority to Inspect Grease Producing Facilities, Enforcement Authorities, and Evidence of Adequate Staffing To Inspect and Enforce the FOG Ordinance

LACO Code, Section 20.24.090 and 20.36.400 gives the County DPW the legal authority to inspect grease producing facilities for compliance with permit requirements. In accordance with the aforementioned agreement, the County DPW is responsible for issuing the permits and for the inspection of these facilities for compliance with terms of their permit. County DPW in concert with the City Engineer is also responsible for the enforcement of all industrial waste permit and Code violations in the City.

The County DPW has adequate staff to conduct inspections of the few pre-treatment facilities at the permitted FSE connected into the city sewer system. The funding mechanism now in place allows for increases in permit and other services charges to hire additional staff, if necessary. This program is discussed further in Section 7.6 of the SMD SSMP.

7.6 Cleaning Schedule for Identified FOG Prone Sewer Segments

This function is performed by the CSMD for the City. The methods used by CSMD staff are described in Section 7.7 of the SMD SSMP.

Between 2021 and 2024, about 80% of the total spill events that occurred within the CSMD were attributed to roots, debris, grease, pipe structure failure and pump station failure as either a primary or secondary cause. FOG prone sections of City's collection system, otherwise called "hot spots," are identified during routine maintenance operations and investigation of stoppages resulting in a spill event. These "hot spots" are typically cleaned by hydro jetting and rodding or cutting if roots are encountered. Those portions of the system found to have persistent FOG problems are inspected and cleaned more frequently, depending on the magnitude of the problem. Furthermore, segments of the collection system with persistent FOG problems are referred to the DPW for

additional evaluation and corrective actions.

7.7 Source Control Measures Developed and Implemented to Address FOG Issues

This function is performed by the CSMD for the City. The methods used by CSMD staff are described in Section 7.8 of the SMD SSMP.

The County provides pretreatment guidelines to FSEs, offering guidance on how to adequately select, size, and install a pretreatment device based on the amount of grease produced. The maintenance of these devices is outlined in the Industrial Waste Discharge Permit (IWDP) to ensure proper operation and functionality. Under the IWDP, the County or City may require upgrades to grease interceptors if maintenance is inadequate or if the interceptor is too small to handle the waste stream.

The EPD conducts routine inspections of FSEs and inspects new establishments. Investigations are also performed when spills occur. Upon investigation, the EPD may make adjustments to the permit and treatment requirements to prevent such incidents and/or place the impacted area under periodic maintenance as described in the SSMP Section 4.2.7. Under the Industrial Waste Discharge Permit (IWDP), the County or City may modify the permit and its conditions and limitations as necessary to ensure proper waste disposal.

7.8 Some BMPs for Fats, Oil and Grease

Examples of some BMPs for local application are listed on the following pages.

Some Best Management Practices (BMPs) for Fats, Oils, and Grease

Residual fats, oils and grease (FOG) are by-products that food preparation and food service establishments and automotive service facilities and machine shops must constantly manage. Typically, FOG enters a facility's plumbing from wash sinks and floor drains during daily operations. Sanitary sewer systems are not designed or equipped to handle accumulating FOG on the interior of sewer collection system pipes due to unmanaged – unmaintained discharges. Keeping FOG materials out of the plumbing system, by reasonable methods, is an important factor. The following are suggestions for proper FOG management:

Bulk or Dry Clean-Up

- Practice bulk and dry materials clean-up before using wet methods that use water.
- Remove bulk or other solid food and grease laden substances into a suitable container before rinsing or washing the initial containers or surfaces that will drain into the plumbing system.
- Keep drain screens in place and fully serviceable to avoid clogging drains or accumulating FOG or grit on the interiors of pipes.
- Do not pour grease, fats, or oils down the drain nor place food scraps in the drain.
- Use food grade paper to soak up oils and grease and dispose of appropriately.
- Use paper towels to wipe down surfaces and work areas. Cloth towels require washing and thereby introducing FOG back into the drains.
- Success of bulk or dry clean-up is dependent upon the behavior of individuals and their access to tools and materials for use in removing bulk and dry materials before washing.

Spill Prevention

- Preventing spills reduces the amount of waste that will require clean-up.
- A dry surface work place is safer for everyone in avoiding slips, trips and falls.
- Capture bulk or dryer materials and place them into an appropriate container.
- Empty containers before they are full to avoid spills.
- Cover any FOG container before transporting to the rendering storage container.
- Provide employees with proper tools to transport materials without spilling.

Maintenance

- Whatever method(s) are being used to collect, filter and store FOG, ensure that equipment is regularly maintained.
- Employees should be aware of and trained to perform correct and scheduled cleaning procedures.
- A daily and weekly maintenance schedule is highly recommended.
- Contract with a responsible service company to regularly and thoroughly clean larger components and spaces requiring specialized equipment and skills (e.g. large hood filters, hot tanks, floor drain pipes, specialty tools).

- Smaller and less complex elements can be cleaned by hand by the user (e.g. small hood filters, counter/bench tops, sinks, storage areas, daily tools).
- Skim/filter fryer grease daily and test the oil to determine when change is necessary. Build-up of carbon deposits on the bottom of the fryer acts as an insulator that forces the fryer to heat longer, thus causing the oil to break down sooner. This extends the life of both the fryer and the oil.
- Avoid discharging fryer oil into a drain or grease trap, but dispose into a rendering container for transport to a rendering company.
- Cleaning intervals depend upon the type of product being prepared and the typical deposition of materials experienced. The larger the volume produced and deposits incurred, the more frequent the cleaning. This may warrant setting up a system of high use, high deposition work to be done in certain equipment that is cleaned more frequently than others to confine maintenance efforts.

Grease Traps and Interceptors

- For grease traps and interceptors to be effective, the units must be properly sized, constructed and installed in a location to provide an adequate retention time for settling and accumulation of the FOG.
- For information on properly locating, constructing and sizing grease traps and interceptors, contact the local governmental agency and examine EPA guidance documents and UPC criteria.
- Ensure all grease-bearing drains discharge to the grease trap/interceptor.
- No toilet or shower waste should be plumbed to the trap/interceptor

Oil and Grease Collection/Recycling and Food Donations

- FOG consists of commodities that if handled properly can be treated as a valuable resource.
- Some rendering companies will offer services free-of-charge and other will give a rebate on the materials collected. Contact local rendering representative for specific information and details.
- Use only covered rendering barrels and make sure all drain screens are installed.
- Use a 3-compartment sink for ware washing. Begin with a hot pre-wash, then a scouring detergent wash, then a hot rinse. Each step should be trapped to capture non-emulsified FOG.
- Donations can reduce disposal costs. Ensure that edible food is not washed or flushed down the drain. Edible food waste may be donated to a local food bank. Inedible food waste can be collected by a garbage feeder that will use discards for feeding livestock.

CHAPTER 8

SYSTEM EVALUATION, CAPACITY ASSURANCE, AND CAPITAL IMPROVEMENTS

8.1 System Evaluation and Condition Assessment

In 1987 the City received a partial master plan for sewers within the area known as "Old Agoura" which is north of the SR-101 Freeway near the easterly boundary of the city. However, this report did not address other existing sewer services in the community. The city currently does not have a comprehensive sewer master plan, so a hydraulic model analysis of the community sewer system was performed and the resulting report (2009 Sewer System Capacity Evaluation) is included as Appendix 'L' in this SSMP report.

The 2009 Sewer System Capacity Evaluation utilizes a hydraulic model of the system to evaluate capacity constraints and is a key element of the SSMP. The evaluation identifies capacity deficiencies in the sewer mainline system, prioritizes the deficient reaches, recommends alternatives to eliminate the deficiencies, and provides the City with a basis on which to build a future infrastructure management system. In 2009, the model identified nineteen (19) reaches between manholes with pipe flows greater than 64% full (guideline criteria). Those pipe segments equal 4,592 feet (~2% of the total system length) with a probable replacement budget of $1,970,000. However, the 2009 modeling should be updated to further engineering evaluation and select flow monitoring should be performed in order to establish a firm capital improvement plan for the identified reaches.

In addition to capacity constrained segments, the City's 2019 CCTV investigation conducted through the County's Condition Assessment Program revealed forty (40) locations with various structural deficiencies and seventy-eight (78) locations with various maintenance deficiencies (i.e. roots, grease, intrusions, sags, etc.). The structural deficiencies are rated and grouped with the higher priority locations first. One high priority location has a probable repair cost of $5,424. One lower priority also has a probable repair cost of $5,424. Cost estimates were originally developed for the 2015 SSMP Update, and an estimation factor of 29% was applied based upon consumer price index. Project specific design and repair methods must be considered before proceeding, and more detailed information is included in Appendix 'N' of this report. Additionally, the County DPW has scheduled CCTV inspection and evaluation of sewer pipe conditions (2006, 2010, 2015, and 2019) during which further repairs or replacement of any structurally deficient pipe segments should be scheduled.

The City, in conjunction with CSMD, shall prioritize the condition assessment of system areas that:

- Hold a high level of environmental consequences, if vulnerable to collapse, failure, blockage, capacity issues, or other system deficiencies;
- Are located in or within the vicinity of surface waters, steep terrain, high groundwater elevations, and environmentally sensitive areas;
- Are within the vicinity of a receiving water with a bacterial-related impairment on the most

current Clean Water Act section 303(d) list

A schedule of future capital improvement projects will be provided in the SMD SSMP.

8.2 Adequate Capacity and Correct Design

The City is responsible for ensuring that the public sewer infrastructure is correctly designed, adequately sized and reasonably maintainable. The CSMD also provides a supporting role in reviewing all proposed sewer plans for new developments in the City. This is to ensure that sewers conform to County design standards and particularly to ensure that the District's requirements for acceptability for maintenance are satisfied.

The City Engineer or hired qualified professional engineer provides thorough review of all sewer plans for proposed development projects in the City to ensure that capacity assessment considers: 1) data from existing system condition assessments, system inspections, system audits, spill history, and other available information; 2) capacity of flood-prone systems subject to increased infiltration and inflow, under normal local and regional storm conditions 3) capacity for an increased infiltration and inflow due to larger and/or higher-intensity storm events as a result of climate change; 4) increases of erosive forces in canyons and streams near underground and above-ground system components due to larger and/or higher-intensity storm events; 5) capacity of major system elements to accommodate dry weather peak flow conditions, and updated design storm and wet weather events; and 6) necessary redundancy in pumping and storage capacities. Any impact of proposed project on existing sewer system is mitigated prior to approval by the City Engineer to receive additional sewage flow. During construction, the projects are continuously inspected by the hired construction inspectors to ensure that the sewer facilities are constructed in accordance with the approved plans and specifications.

8.3 Prioritization of Corrective Action

The results and findings of the system evaluation and capacity assessments will be used to implement corrective actions to improve the efficiency of the sanitary sewer system and prevent future spills. This information will also inform the CIP schedule and applicable projects. The District prioritizes corrective action based on:

- Likelihood of failure which is determined from findings of condition assessment (e.g., prioritizing NASSCO PACP rating 4 and 5) and;
- Consequence of failure (e.g. proximity to water body, railroad, road type, and easement)
- Areas with multiple priority segments to factor in areas to be repaired at a time

Based on the condition grading and observed defects, the District prioritizes sewer segments for remediation. NASSCO PACP Structural Grade 5 defects are significant structural deficiencies. Pipe segments with these defects are placed on a repair list with the highest priority focused on pipes with NASSCO PACP Structural Grade 5 defects prone to accelerated deterioration. Sewer repairs are also prioritized based on maintenance history, past spill records, sewer line locations, and age as they contribute to the likelihood and severity of spills.

8.4 Capacity Enhancement Plan

The collection sewer system capacity enhancement program and prevention of spills is a combined effort of the City and LACDPW. The City follows its policies for managing available sewer capacity (See Appendix 'M'). While the CSMD utilizes its programs, which include the CCTV program to identify pipe segments needing repairs or with I/I or tree root intrusion problems, sewer cleaning program and the CSMD ACO program to effect repairs or replacement of damaged pipes. The CSMD programs are described in Chapters 4 and 8 of the SMD SSMP. The identified capacity deficient pipe segments and related replacement costs are addressed in Appendix 'L'.

8.5 Capital Improvement Plan

As described in Section 8.4 of the SMD SSMP, collection systems owned by the Cities receive improvements under the City's Capital Improvement Plan (CIP). For unincorporated areas, system repairs are funded by the County. The SMD focuses on lining and point repairs for damaged pipes to maintain operations and reduce the risk of sewer spills.

Most improvements are delivered through on-call contracts, including work on gravity mains, point repairs, and pipe lining. The Accumulative Capital Outlay Program (ACO) funds the repair and maintenance of SMD facilities. Alternative funding sources vary for each project and can come from the zone budget or other assistance identified by LACPW. The Project Management Division (PMD) manages the CIP and schedule, tracking budget, scope, and schedule.

8.6 Financing of Improvements

General

Funding considerations are often the deciding factor in scoping and implementation of a project. There are, of course, numerous methods or mix of methods, which could be used to finance the implementation of a sewer system capital improvement plan (CIP), and the ongoing operations and maintenance activities. Among these methods are:

1. Pay-as-You-Go Financing (rates, fees and charges based)
2. Redevelopment Agency Funding
3. State Assistance Programs
4. Municipal Securities
5. Improvement Districts
6. Federal Assistance Programs

In discussion that follows, the above funding options are briefly described and their

adaptability to specific circumstances of a sewer system CIP are noted. In evaluating specific funding programs, services of financial and legal experts in such issues are recommended.

Methods of Financing

1. Pay-as-You-Go Financing:

   Development of cash reserves or capital improvement funds, from an agency's revenue base, is often referred to as "pay-as-you-go" funding. This method avoids interest payments on other types of debt financing. Under this form of financing, the initial capital cost of a project must be accumulated in advance of construction, which can cause a delay in project implementation. If delay is not a crucial factor, this is a cost effective method due to the absence of debt financing costs. This method has sometimes been used together with various forms of short-term financing to construct needed sewer infrastructure.

2. State Assistance Programs:

   Under the rules and regulations of the Federal Water Pollution Control Act (Clean Water Act or CWA) and the Federal Safe Drinking Water Act (SDWA), the State has enacted the Clean Water State Revolving Fund (CWSRF) and the Drinking Water Revolving Fund (DWSRF), respectively. These programs are funded by Federal grants, State funds and Revenue bonds. The CWSRF Loan Program provides low-interest loan funding for construction of publicly-owned wastewater treatment facilities, sewers, sewer interceptors, water recycling facilities, as well as implementation of non-point source (NPS) projects or programs. There are different types of funding assistance available under these programs.
   www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/

   The Department of Water Resources administers the State bond law programs for Water supply/Water quality, Water conservation, Flood management and Regional water management. https://water.ca.gov/Work-With-Us/Grants-And-Loans

   The State Water Resources Control Board administers the State revolving fund loans, Water recycling grants & loans, Small community grants, Agricultural drainage loans, Agricultural drainage management loans, Clean beaches initiative grants, Agricultural water quality grants, Areas of special biological significance (ASBS) grants, Storm water grants, and Santa Monica bay restoration commission grants. www.waterboards.ca.gov

   The State Department of Public Health administers the DWSRF, Proposition 84 funding for public water systems, and Proposition 50 for the water security, clean drinking water, coastal and beach protection act of 2002 loans. www.cdph.ca.gov

   Various types of infrastructure improvement/construction loans can be arranged

through the California Infrastructure and Economic Development Bank (IBank) www.ibank.ca.gov

Limited amounts of public works grant funds have been available to agencies from the State Office of Economic Development. Use of such grant funds must result in the creation of new, permanent jobs in the private sector. In order to ensure that the funds are ultimately assisting those in most need, projects eligible for consideration must be those in areas designated eligible for HUD Urban Development Action Grants (UDAG), EDA Sudden or Long-term Economic Deterioration, or EDA Designated Special Impact Area.

3. Municipal Securities:

Historically, general obligation bonds (GOB's) had been a prevalent method of financing various public works improvements. They are secured by an agency's total assets and payable from ad valorem taxes levied on all taxable properties within the agency's boundary. However, the Jarvis-Gann Amendment (Proposition 13 of 1978) prohibits the levying of ad valorem property taxes beyond pre-existing authorizations and levels (pre-July 1, 1978). Therefore, authorization and issuance of GOB's is not considered feasible under current law.

An alternative to GOB's is the issuance of a specific type note or bond form, such as a revenue anticipation note (RAN) or a tax anticipation note (TAN) or a certificate of participation (COP) or various combinations of available authorities that can be used to fund public infrastructure needs. These types of municipal securities (Munis) are generally tax-exempt and commonly used to fund public works infrastructure and facilities. Many states also exempt their securities from their own taxes, which makes those securities particularly attractive investments for their own residents.

TAN's and RAN's are instruments backed by anticipated taxes or revenues respectively. When these types of notes are considered for funding of needed infrastructure, a specified source of tax or revenue stream is identified and pledged for repayment of the debt. For example, with sewer facilities, all or a portion of the sewer service revenue fees/charges could be used as backing for the debt instrument selected. Then other local revenue sources could be considered for ongoing operations and maintenance (O&M) or some acceptable mix and match of funds specified to secure the debt and accomplish the O&M.

COP's are another form of municipal funding instrument available. These generally require the facility improvement being funded to be named as security for the investment with a lease back of the facility by the municipality. In turn, the municipality pledges some revenue stream(s) that would be used to repay the investor held notes.

When Munis are being considered for funding of improvements, consultation with an experienced and qualified financing consultant and bond counsel are a must.

4. Improvement Districts:

In general, special assessment district procedures have been established by statute to provide for financing of construction and/or acquisition of public works improvements, such as sewer systems, and for assessing the cost of such improvements to the benefiting properties. Under all assessment proceedings, the cost of the work is assessed against properties within the benefited area. The assessments are levied in specific amounts against each individual property on the basis of the benefit each parcel receives. The property owner may pay the assessment in cash during the cash collection period of 30 days. But, if any assessments are not paid in cash during that period, bonds are usually issued to represent the unpaid assessments and the benefited properties are assessed on their annual property tax bill over a usual period of 10 to 20 years.

Commonly used assessment acts are the 1911 and 1913 Acts. The common bond acts are the 1911 and 1915 Acts. These assessment and bond acts are used in varying combinations depending on the particular circumstances for each proposed improvement district.

While an assessment district proceeding may be a reasonable and equitable means for financing sewer system improvements, further evaluation and stakeholder involvement is a usual practice to determine the viability and practicality of utilizing such financing method.

5. Federal Assistance Programs:

There are, and have been, a series of federal grant and loan programs which may be applicable to public infrastructure projects. However, the qualification criteria for such programs vary from time to time and their funding or continuation is subject to congressional appropriations. Therefore, such programs should not be considered as a likely source of funds unless a funding commitment letter has been received.

Historically, federal programs administered by the Economic Development Administration (EDA) provide financial and technical assistance to aid the economic development of areas with high unemployment or low family income levels. Communities must make long-range plans for economic growth in order to be eligible for EDA financial assistance, in the form of grants and loans for public works and development that generates jobs and economic opportunity. Typical public works projects include construction of roads, water and sewer lines, and public facilities. To determine the status requires timely monitoring.

Under the rules and regulations of the Housing and Community Development Act of 1974, the Community Development Block Grant (CDBG) program can fund housing and community development needs. This includes part or all of improvements necessary to upgrade existing sewer facilities. Those qualifying geographic areas within the City that have the greatest overall deficiency in physical infrastructure receive the highest priority according to CDBG criteria. When the sewer system has a

defined deficiency, then it is appropriate to use CDBG funds to meet health and safety standards as well as to encourage up-grading of abutting housing and physical environment.

The primary statutory objective of the CDBG program is to develop viable communities by providing decent housing and a suitable living environment and by expanding economic opportunities, principally for persons of low- and moderate-income. Communities receiving CDBG funds through the State may use the funds for many kinds of community development activities including, but not limited to:

- acquisition of property for public purposes;
- construction or reconstruction of streets, water and sewer facilities, neighborhood centers, recreation facilities, and other public works;
- demolition;
- rehabilitation of public and private buildings;
- public services;
- planning activities;
- assistance to nonprofit entities for community development activities; and
- assistance to private, for profit entities to carry out economic development activities (including assistance to micro-enterprises).

The United State Department of Agriculture Rural Development Program provides communities with population less than 50,000 a variety of direct-guaranteed-loans and /or grants. These include water and wastewater system improvement funding. www.rurdev.usa.gov/ca

CHAPTER 9

MONITORING, MEASUREMENT, MODIFICATION PROGRAM

9.1 Maintenance of Information

The City will document all relevant data on spills that occur in the City. These will include both the quarterly spill reports and the Annual Reports published by County DPW for the City, and any special reports to regulatory agencies etc. The data will be analyzed to evaluate the effectiveness of the City's SSMP.

9.2 Monitoring of Implementation and Effectiveness of the SSMP

The City will implement an adaptive management approach to evaluate the City's SSMP program effectiveness shall be based on such key performance indicators as the total number of spills, spill response time, reduction in repeated incidents of spill at some location, total spills equal to or greater than 1,000 gallons or reaching the waters of the United States and reduction in number of spills that are caused by sewer capacity-related problems. The City will maintain relevant information, including audit findings, in the SSMP to establish and prioritize appropriate SSMP activities.

9.3 Program Audits

Every three years, the City performs an internal audit of the SSMP and the SSMP program implementation. The various County divisions and positions responsible for SSMP implementation as identified in the organization chart in 2.4.1 are involved in the audit. Each element of the SSMP is reviewed for effectiveness towards reducing the frequency and/or mitigating the impacts of spills and for compliance with the General Order requirements. Corrective actions to address identified deficiencies are prioritized, scheduled and incorporated into division plans.

9.4 Assessment of Preventative Operation and Maintenance Program

The City will periodically update or modify key elements of its SSMP based on the results of the above mentioned monitoring and program effectiveness evaluations. The City shall also make recommendations to the County, as necessary, on elements of the SMD SSMP to be adjusted or revised within the City boundaries to better serve its residents.

9.5 Spill Location Mapping and Trends

All sanitary sewer system agencies in the Los Angeles, Santa Ana, and San Diego Regional Water Quality Board regions including the City of Agoura Hills, which is a sewer system agency within the Los Angeles Regional Water Quality Board region, were required to report all spills to their respective Regional Board beginning on January 2, 2007.

CSMD has retained spill data pertaining to the City dating back to 2004. The characteristic data for each recorded spill event in the City from January 2022 through August 2025 is shown in Section 9.5.1a.

9.5.1a Reported City Spills (2022-2025)

Year	Spill No.	Spill Category	Date	Location	Estimated Volume (gal)	Estimated Recovered Volume (gal)	Spill Cause
2022	**1**	1	1/21/2022	5050 Kanan Rd.	525	0	Grease/Rags

(a) Refer to Section 6.1.7 for spill category definitions.

9.5.1b Location Map of Reported Spills (2022-2025)

See the following page.

9.5.2 Graphing and Charting of Spill Frequencies

Spill data is stored in the State Water Resources Control Board's CIWQS database and SMD internal PowerBI database. Productivity reports documenting and summarizing the work performed per City can be generated by PowerBI. Over time the graphs are used for identifying spill trends, to evaluate overall program effectiveness, and are used as an indicator of possible problems due to infiltration/inflow.

City of Agoura Hills
Spill Locations Map (2022-2025)

CHAPTER 10

SSMP PROGRAM AUDIT AND CERTIFICATION

10.1 SSMP Program Audit

The City shall conduct periodic internal audits and prepare a report at a minimum every three years.

The audit will focus on evaluating the implementation and effectiveness of the SSMP as well as the City's and SMD's compliance with all elements of the SSMP and the General Order. This will include:

- Identification of any deficiencies in the SSMP in addressing ongoing spills and discharges to waters of the State
- Steps taken to correct any identified deficiencies including necessary modifications to the SSMP
- Notes on interviews with key responding personnel and any contractors utilized
- Notes of operational observations, especially of each spill event
- Notes on related equipment inspections
- Findings of all review of records

The Enrollee shall submit a complete audit report that includes:

- Audit findings and recommended corrective actions
- A statement that sewer system operator's input on the audit findings has been considered; and
- A proposed schedule for the Enrollee to address the identified deficiencies

The most recent audit report must be kept on file. Copies of the audit report shall also be available upon request by the involved regulators and stakeholders.

10.2 SSMP Certification

The SSMP shall be presented to the City Council for approval at a public meeting and subsequently certified by the LRO to be in compliance with the requirements set forth in the WDR. The City's LRO must also complete the certification portion in CIWQS at: (http://ciwqs.waterboards.ca.gov/).

10.3 SSMP Modification and Re-certification

The SSMP must be updated every six years to keep it current. When significant amendments are made to any portion or portions of the SSMP, it must be resubmitted to the City Council for approval and re-certification. The re-certification shall be in accordance with the certification process described in Section 10.2 above.

CHAPTER 11

COMMUNICATION PROGRAM

11.1 Communication

The City shall provide all stakeholders and interested parties, the general public and other agencies, with status updates on the development, implementation and performance of the SSMP and consider comments received from them [in conformance with the WDR, Section D-11]. The City shall utilize various outreach means to communicate issues surrounding the use and operation of the city sewer system, such as letters, newsletters (city and chamber of commerce), brochures, annual reports, notices in newspapers, local cable access programming, and the City's home web page for conveying this information. In concert with the City's efforts, the CSMD will provide educational and information materials as well as utilize the LACDPW website to communicate with the public.

If a spill enters the ocean or a waterway requiring posting of signage, the Department of Public Health will post and remove signage for waterways as required and will not remove the signs until the effects of the spill have been mitigated. A public press release will be made of the temporary closure due to a spill. Additionally, if a spill enters a drinking water source, proper notification and procedures will be implemented as stated in Chapter 3 of the SMD Spill Emergency Response Plan.

11.2 SSMP Availability

Copies of the SSMP will be maintained in the CSMD Office, all CSMD Maintenance Yards, and onsite at City Hall. The document shall also be made readily available upon request to the Regional Water Quality Control Board (Region 4) and to the operators of any collection system or treatment facility downstream of the City's system.

APPENDICES

Appendix A1----------Governing Board Approval
In the SMD SSMP
Appendix A2---------- SWRCB – General Order for Sanitary Sewer Systems
In the SMD SSMP
Appendix A3----------Asset Summary Per Collection System
In the SMD SSMP
Appendix B1---------- List of Staff Responsible for Implementing Specific Elements
In the SMD SSMP of the SSMP
Appendix B2---------- Sewer Maintenance Division Staff Contact Sheet
In the SMD SSMP
Appendix D---------- Condition Assessment Work Schedule
In the SMD SSMP
Appendix F---------- Spill Emergency Response Plan
In the SMD SSMP
Appendix G---------- IDWP Conditions and Limitations
In the SMD SSMP

Appendix K---------- Spill Emergency Response Plan

Appendix L---------- Sewer System Capacity Evaluation

Appendix M---------- Policies for Managing Available Sewer Capacity

Appendix N---------- CCTV Inspection Report

Appendix O---------- Location Map – Delivery Points, Maintenance Zones, Flow Monitoring Locations & Hydraulic Identifications

Appendix P---------- Industrial Waste Contract With City

Appendix Q---------- 2025 SSMP Update Extension Letter

Appendix R---------- SSMP Change Log

Appendix “K”

Spill Emergency Response Plan

SPILL EMERGENCY RESPONSE PLAN

INTRODUCTION

The City of Agoura Hills serves the wastewater disposal needs of approximately 19,474 people in the western Los Angeles County area per the 2023 United States Census. The community sewers receive and convey approximately 3.7 million gallons per day of wastewater to the regional LVMWD trunk sewers and wastewater treatment plant.

The primary goal of the City's sewer maintenance program has been and remains the protection of public health, safety and the environment. As a matter of State and Federal regulations, spills are prohibited, and moreover, are inconsistent with the City's goal of providing the highest level of sewer service to the public. The City places high priority on capacity assurance, repair and replacement, and proper operation and maintenance of its sewerage system. While the City desires to completely eliminate spills, it is also understood that manmade systems do fail. Regardless of the level of scrutiny and control provided, spills may, on occasion, occur.

The City is responsible for response to and reporting of, all spills caused by problems within the City's sanitary sewer system. Therefore, an effective SSMP has to encompass the response measures necessary to minimize any public health and environmental impact when overflows do occur. To accomplish this, the City operates a two-pronged response to spills that directs efforts to stop the spill simultaneously with efforts to contain and recover the wastewater discharged. These actions are taken in concert with the LACDPW as the sewer maintenance provider under the CSMD membership of the City. CSMD implements the SMD Spill Emergency Response Plan to assist in quick response to emergency situations to prevent spills of wastewater from reaching the water of the United States. Annually the City will review and assess the effectiveness of the Spill Emergency Response Plan, and update the Plan as needed.

SPILL RESPONSE GOALS

1. The City's goals and actions regarding spill response are stated in Chapter 1 of the SSMP.

NOTIFICATION, INVESTIGATION AND MOBILIZATION

1. The City's chain of communication and reporting are stated in Chapter 2 of the SSMP.

2. The following occurs upon receiving notification of a spill:

- The notification is logged on a form (See Attachment K-1) and assigned for follow-up actions in concert with the LACDPW.

- Dispatch of Personnel to Investigate - For spills reported during the workday, a supervisor or other trained representative is immediately dispatched to investigate; during non-working hours, an on-duty employee or supervisor is dispatched. Both events are concurrent with the notification of an spill event reporting to the LACDPW.

- Dispatch of Staff and Equipment - When the initial inspection report indicates that a wastewater spill has occurred from the City's sewer system, a notification call is placed to both the LVMWD and to the LACDPW for support of personnel and equipment to the spill site.

- Notification for Outside Support – When the initial investigation determines that additional 'Outside Support' resources and notifications will be necessary to accomplish the containment, clean-up and compliance, the City Engineer is notified and informed of the situation and the perceived needs.

- Notification of Sewer, Water, and Health Agencies - When the initial investigation indicates that a spill has occurred in another agency's sewer or may have resulted from blockage in another agency's sewer, the potentially responsible agency is immediately notified. If the additional on-site investigation indicates that the spill is the responsibility of the other agency, then the response efforts are turned over to that agency, with assistance from the City, if necessary and if requested. Additionally, health and regulatory agencies (i.e., Los Angeles County Health Department and Regional Water Quality Control Board) will be notified of the spill as applicable. Regardless of cause, once the spill response has occurred, the primary objective is to minimize the risk to human health and to the environment (i.e. Waters of the United States). Notification to applicable agencies is based upon spill category; more information can be found in Section 6 of the City's SSMP.

- Notification of Management Personnel - Appropriate management personnel are notified (if they have not already been notified) and any personnel necessary for office support of the field response are mobilized.

RESPONSE

The spill response is directed in the field by supervisors and/or managers who are trained and experienced in responding to spills, with additional operations, maintenance, engineering and agency support staff available as needed for public notification, protection, resource supply, expense authorization and tracking, and coordination of available support resources.

The individual steps involved in the response to a wastewater spill event include:

1. Corrective Action and Site Control
2. Containment and Recovery
3. Cleanup
4. Sampling

5. Notification and Reporting
6. Post-Cleanup Activities

1. Corrective Action and Site Control

Upon arriving at the spill location, concurrent actions taken by the various crews are:

- Prevent Public Access - Access to the immediate area of the spill is restricted to minimize potential impacts to public health by redirecting pedestrian and automobile traffic away from the spill through the use of traffic cones, plastic tape, barricades, or local law enforcement.

  The extent of the spill and its potential impacts to the public health are assessed by City's personnel. This process involves determining if any private property owners/residents may be exposed to raw sewage, making direct contact with private property owners/residents who have been or may be directly affected by the spill, advising private property owners/residents of the potential health hazards associated with contact with raw sewage, and identifying prudent measures to be taken by private property owners/residents, such as vacating the property, to prevent contact with the spill.

  Simultaneous efforts include determining the path and final destination of the sewage spill and potential exposure to the public. If wastewater from the spill is ponding in a location that can be isolated, then City personnel set up barricades to prevent public access. Traffic control is set up to prevent vehicles from entering locations where the spill has contaminated public or private streets. City personnel are instructed to direct pedestrians and automobile traffic away from the path and final destination of the spill. All involved personnel cooperate with local law enforcement and public works officials to ensure that public exposure to the spill is minimized and to ensure spill site security.

- Prevent Wastewater Entry to Storm Drain System - When possible, contain and recover the spill in the immediate vicinity of the spill before it enters a storm drain catch basin. Measures to effect such containment include damming the spill path with sandbags in the street gutter and recovering the impounded water with a vacuum truck or jet vactor, or using sandbags to divert the spill back into a nearby sewer manhole.

- Stop Spill - The cause of the spill is investigated and the necessary corrective action is taken to stop the spill and/or correct the condition that caused the spill if the spill has already stopped.

  Typical corrective actions to stop a sewer spill include:

  - clearing a pipe blockage with a jet vactor or rodding machine,
  - removing debris from a manhole,
  - upstream flow diversion,
  - bypass of wastewater around the blockage using vacuum trucks or pumps,

and

- bypass and repair of a damaged force main.

Bypass pumping is typically accomplished by the use of portable pumps and hoses to convey flow around the blocked or damaged sewer, the inoperative pumping plant or the damaged force main. The SO&M team maintains a Spill Response Rig, which is equipped with portable pumps and hoses of various sizes, fittings, and tools and is designed to bypass flows of up to 450 gallons per minute. When possible, diversions are used to redirect a portion or all of the wastewater around the affected area in the system. Maintaining accurate and complete sewerage system maps is essential to expeditiously accomplish wastewater diversion during an emergency response.

- Pumping Plants - Emergency Procedure Operating Manuals for pumping plants (Lift Stations) are available in the LACDPW as references for operations, maintenance, engineering, supervisory, and management staff. The manuals provide comprehensive information on the proper response to all types of pumping plant failures, potential spills and force main leaks and failures. Available information includes proper response to power failure, high wet well level, telemetry system failure, control system failure, procedures to bypass the plant, and emergency spill information including low manhole location, storage time in the tributary sewer system, containment location and estimated travel time to the containment location.

2. Containment and Recovery

Containment and recovery of the spill should occur as close as possible to the site of the spill, preferably in the street curb and gutter, to minimize the length of the storm drain system affected by the wastewater. When a storm drain system is nearby, the spill may enter the storm drain system prior to arrival of the first responding personnel. In these cases, engineering, supervisory and/or management staff identify the most practical containment location in the storm drain system downstream of the spill. In the selection of the best containment location, staff must consider many factors, including:

- the time the spill started,
- the spill route through the storm drain system,
- the time needed to install a containment dam,
- the travel time for the spill to reach the containment location,
- safe access to the containment location for personnel and equipment, and
- the availability of a nearby sewer with sufficient capacity into which recovered wastewater can be returned.

Access and safety considerations generally require establishment of containment in open storm drain channels. Containment in buried storm drains pipes upstream of any open channels is preferable when possible. However, the physical difficulty of deploying personnel and materials through a manhole into a buried storm drain pipe to construct a containment dam, the dimensions of the storm drain itself, and/or the safety procedures and authorization needed to enter confined space generally preclude rapid and practical establishment of containment within a buried storm drain pipe. City staff can usually and safely enter the storm drain system to establish containment during dry weather conditions only. A

containment location close to the spill location is only possible when a containment dam can be deployed very quickly after the start of a spill.

Once a suitable containment location is identified, the crew responsible for containment:

- deploys a sandbag containment dam or otherwise prevents the movement of the spill and contaminated street runoff further downstream in the storm drain system, and
- deploys the vacuum trucks or portable pumps and piping necessary to return the contained wastewater, dry weather runoff, and clean up water back to the sewer system.

3. Cleanup

After the spill has been stopped, the following steps are taken in collaboration with responsible agencies:

- Recover Locally Impounded Wastewater - All locally impounded wastewater is recovered with a vacuum truck or jet vactor and returned to the sewer system
- Collect Wastewater Debris - All visible debris of wastewater origin from the spill location(s), street(s), curb and gutters, and the spill runoff path is physically removed.
- Flush Affected Area – Spill location(s), street(s), curb and gutters, and the runoff path are flushed with lightly chlorinated potable water, typically delivered by a vacuum truck or water truck. The flush water is also recovered and returned to the sewer system.
- Flush Storm Drain and Conduct Dye Study - Additional potable water is used to flush the spill runoff path within the storm drain system. When appropriate, this flush water is marked with a nontoxic, visible dye. Arrival of the dye at the containment location establishes the actual travel time to the containment location. Recovery of the dye confirms completion of spilled wastewater and flush water recovery.
- Complete Cleanup - All sandbags and other containment are removed to complete the cleanup in the storm drain system. If spilled wastewater reaches natural watercourses or other areas accessible to the public, input is solicited from the responsible jurisdiction regarding additional measures which may be necessary or appropriate for a complete cleanup. Additional cleanup measures are completed as directed.

Private properties impacted by spills or backups from problems within the City's sewer system should be cleaned up by a professional restoration company dispatched by the City. The City may offer residents meals, lodging, and reasonable expenses when they are temporarily displaced by private property restoration operations. Claims for property

damage are handled by the City's Claims and Insurance Coordinator.

4. Receiving Water Sampling

Samples of spills should be taken for bacterial testing by the first responder, whenever possible. If it is probable that a spill may reach receiving waters, samples should also be taken of the receiving waters to evaluate the potential impact on the receiving water quality. Samples should be drawn from the location(s) most likely to be impacted by the spil and also from a receiving waters location or locations that can be used to establish background water quality. Advance coordination with a certified laboratory for pre- arrangement of sampling supplies, notification protocol for urgent services, and training as may be required, will facilitate emergency sample delivery so that bacterial testing can begin immediately when needed. Delivered samples are analyzed for total coliform, fecal coliform, and enterococcus and other constituents that may be appropriate based on the nature of the receiving water and the spilled wastewater. Because it takes approximately
24 hours for the bacterial analyses, a second round of sampling is conducted within 24 hours of the first unless full containment and recovery of the spill can be confirmed. If sample results indicate elevated bacterial levels in receiving waters, sampling is continued until results indicate a return to background levels.

5. Notification and Reporting

Sewering entities are required to report to various regulatory agencies, including the appropriate Regional Water Quality Control Board, the County Department of Health Services, and the State Office of Emergency Services, any wastewater spills greater than 1,000 gallons and, in some cases, spills less than 1,000 gallons. The reporting requirements vary according to location of the spill and the amount of wastewater spilled. The City's guideline for *Notification and Reporting Procedures for Spills,* (included as Attachment K-2), contains an outlined notification and reporting procedures for all categories of overflows. The City's SSMP contains a flow chart which is used to determine the notification and reporting procedures that apply to a given spill incident. The SSMP also contains all of the appropriate contacts for reporting. A City's manager, typically the Sewerage System Manager, makes the notifications. When required, telephone notification should be made as soon as possible without substantially impeding response activities and always within 24 hours of the incident occurrence. The following information shall be provided, if available, when reporting a spill by telephone:

- name of person reporting,
- name of agency,
- location of spill,
- whether the spill has entered or will enter receiving waters (rivers, lakes, storm drains, or ocean) of the State or the United States,
- date and time spill began and ended,
- estimated volume of spill,
- cause of spill,
- corrective actions taken,

- estimated time of repair, and
- agencies involved in repair and clean-up.

All spills, regardless of quantity, which reach receiving waters, impact groundwater, or endanger public health or the environment, require immediate telephone notification of the County Department of Health Services, which is responsible for beach postings and closures and other forms of public notification deemed necessary to protect the public health.

Written notification of the spill, when required, must be submitted within the required time period to the Regional Water Quality Control Board (RWQCB), typically within 30- days of a spill and within 3 days if the incident has or may endangered public health or the environment. Written reports should be submitted to the local RWQCB for spills occurring within their jurisdiction. To satisfy this requirement, the City may choose to submit a brief written confirmation of the reported spill to the appropriate RWQCB within the time frame required. A follow-up, detailed written report, pursuant to the guideline as contained in Attachment K-2, will meet the statutory provisions of the State Water Code. This detailed report usually requires three to four weeks to complete. Copies of the detailed report are sent to those agencies which were initially noticed, unless otherwise notified.

6. Post-Cleanup Activities

Once cleanup of a spill is complete, the incident must be reviewed and any appropriate measures to prevent recurrence must be implemented. Follow-up CCTV inspection is performed when a spill was caused by a blockage to verify complete removal of the material causing the blockage. If the spill was avoidable by preventative maintenance, then maintenance activities are added or adjusted as necessary. An example is to increase the frequency of line cleaning where heavy grease build-up has caused a spill to occur, while source control efforts are reviewed. If the spill was caused by factors generally outside the City's control, such as vandalism, steps are still taken to minimize recurrence such as strengthening security by locking down manhole covers, increasing area surveillance, and requesting neighborhood assistance in reporting vandalism and unauthorized dumping.

Regardless of the size or type of spill, all spills are investigated thoroughly. Following the investigation, the information as noted on Attachment K-2 is documented and included as part of the City's internal spill records.

Policies and procedures are upgraded as appropriate to prevent recurrence of accidental spills due to procedural errors by City's staff and contractors. As part of their training, all involved employees must thoroughly familiarize themselves with these emergency procedures. City's personnel administering contract sewer repair, rehabilitation and replacement projects must rigidly enforce contract provisions. Especially important is enforcing contractors'

approved *Emergency Spill Response Plan* requirements (see Attachment K-3 for guidelines) intended to prevent and limit the impact of accidental spills.

An approved *Contractor Spill Emergency Response Plan,* which is activated if a spill from a contract activity enters a storm drain, should be incorporated into the contract documents of all sewer repair, rehabilitation, or replacement contracts involving sewage bypass operations. When successful execution of a *Contractor Spill Emergency Response Plan* requires pre-deployment of containment or pumping equipment, City's personnel administering the contract must ensure the necessary pre-deployment measures are taken. Guidelines for the preparation of *a Contractor Spill Emergency Response Plan* are included as Attachment K-3.

EMERGENCY RESPONSE PERSONNEL AND EQUIPMENT

Personnel

The City maintains a listing of emergency services contractors having resources necessary to respond to *almost any* emergency, including *power failure, mechanical and electrical equipment breakdown, sewer blockage, pipe failure, and vandalism.* The urgency and seriousness of any wastewater spill results in the full commitment and availability of all staff in the city to respond. Additional city personnel are utilized for specialized assistance as needed. Contractors with emergency response capabilities are also used to assist in emergencies as needed.

The City of Agoura Hills is a CSMD contract city and contracts out maintenance and operation responsibilities. A list of contractors that can be available in the event of an emergency are:

- LA County CSMD for sewer (1-800-675-HELP(4357))
- LACPW for storm drain (626) 458-4357
- LVMWD owns and operates water (818) 251-2100
- SCE for power failures (800) 611-1911

An emergency contact list is maintained which includes the home phone number of all employees in the city. All supervisors and managers in the city are assigned cell phones and/or pagers and are accessible 24-hours a day. A table of organization for spill responses and role of each supporting unit/group are included in Chapter 2 of the SSMP.

Emergency Equipment

All emergency response equipment is maintained and provided by the County DPW pursuant to the CSMD contract provisions.

A current listing of emergency equipment available from the Sewerage System maintenance yards is included in Section 4.5 of the SMD SSMP.

TRAINING

In house or external training of City and contract personnel in the goals and procedures of this plan is accomplished in annual emergency response classroom training. The training will include the requirements of the General Order, Spill Emergency Response Plan procedures and practice drills, skilled estimation of spill volume for field operators, and electronic CIWQS reporting procedures for staff submitting data. A checklist used by staff to check off and record information regarding the various procedures completed during a spill response is utilized during the training process. The checklist is included as Attachment K-1. Secondly, on-the-job training is administered to subordinate staff, by experienced supervisors and lead workers, during and following actual spill events to further reinforce the annual training and to analyze event specific issues.

The City intends to further develop the training program and update training materials as necessary in the future.

Attachment "K-1"

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
SEWER MAINTENANCE DIVISION
(626) 300-3308

Notification of Sanitary Sewer Spill

NOTIFICATION

(to be completed by Crew Leader or Electro-Mechanic responding)

DATE: _____ MMS No. _____

LOCATION: Address _____

Nearest Intersection _____

Map No. _____ City/County _____

Residential _____ Commercial _____ Industrial _____

TYPE OF INCIDENT:

Manhole Overflow _____ Pump Station Failure _____ Other _____

CREW LEADER/ELECTRO-MECHANIC RESPONDING _____
(Name) (Crew No.)

Time spill start* _____ Verified by (name/contact) _____

Time crew notified _____

Time of arrival _____ Call back Tel. No. ( ) _____

Time of spill end* _____

Time of departure _____ DPW dispatcher notified? Yes _____ No _____

Start and End Time estimation notes

AGENCY NOTIFICATION LIST

CONTACT WITHIN 15 MINUTES of verification of overflow		Initial		Follow-up	Operator Number
Department of Public Health (DPH) **(213) 974-1234** *(24-hour reporting)*	Date		Date		
	Time		Time		
CONTACT WITHIN 2 HOURS *					Control Number
California Office of Emergency Services (OES) **(800) 852-7550** *(24-hour reporting)* *Discharge of sewage spills reaching or which likely make its way into, any state waters is 1000 gallons or more.*	Date		Date		
	Time		Time		
	Time		Time		
Stormwater Maintenance Division (SWMD) **(Notify through Dispatch)** *Call Dispatch to request assistance from SWMD* **(626) 458-4357**	Date				
	Time				
Environmental Programs Division (EPD) **(Notify through Dispatch)** *Call Dispatch to request assistance from EPD if SSO is 50,000 gallons or more that reached surface water.*	Date				
	Time				

I certify that the OES and Los Angeles County of Public Health have been notified as shown above, in accordance with State Water Board Order No. WQ 2022-0103-DWQ

Certified by: _____
Signed by Supervisor, Crew Leader, Electro-Mechanic, or Treatment Plant Operator Responding — Date

*** If > 2 HRS, PROVIDE COMMENTS**

☐ Poor Telephone Signal ☐ Caller Site Location Error ☐ Complication in SSO Containment ☐ Heavy Traffic

☐ Other (Specify) _____

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
SEWER MAINTENANCE DIVISION
SUMMARY REPORT OF MAINLINE SEWER AND PUMP STATION SPILLS

PART 2 - DESCRIPTION OF INCIDENT

(to be completed by Crew Leader or Electro-Mechanic responding)

Photos Attached? ☐ Yes ☐ No   Backflow Notice Attached? ☐ Yes ☐ No

Time dispatch received complaint ____________ Date: ____________ Mapsheet No. ____________

Spill appearance point(s) If manhole(s) provide No(s):

- ☐ Backflow Prevention Device
- ☐ Force Main
- ☐ Gravity Mainline
- ☐ Inside Building or Structure
- ☐ Lateral Clean Out (Private)
- ☐ Lateral Clean Out (Public)
- ☐ Lower Lateral (Private)
- ☐ Lower Lateral (Public)
- ☐ MH (s)
- ☐ Pump Station
- ☐ Upper Lateral (Private)
- ☐ Upper Lateral (Public)
- ☐ Other sewer system structure (specify) ____________

Est. Duration: ____________

Where did failure/blockage occur?

- ☐ Air Relief Valve (ARV) Blow-Off valve (BOV)
- ☐ Force Main
- ☐ Gravity Mainline
- ☐ Lower Lateral (Public)
- ☐ Manhole
- ☐ Pump Station - Controls
- ☐ Pump Station – Power
- ☐ Pump Station – Mechanical
- ☐ Siphon
- ☐ Upper Lateral (Public)
- ☐ Other (Specify): ____________

Total estimated spill volume? ____________ How much recovered? ____________

Out of the total estimated spill volume how much reached into......

- Storm Drain that flows to a surface water body? (Do not include water used for clean-up) ____________ How much recovered ____________
- Land (includes discharge directly to land, and discharges to a storm drain system or drainage channel that flows to a storm water infiltration / retention structure, field, or other non-surface water location. Also, includes backups to building structures) ____________ How much recovered ____________
- Drainage channel that flows to a surface water body ____________ How much recovered ____________
- Discharge directly to surface water body ____________ How much recovered ____________

Extent of spill and spill boundaries:

Explanation of volume estimation methods used:

- ☐ CWEA SSCSC Manhole Gauge
- ☐ Measured Volume Method
- ☐ Visual or Eyeball Method
- ☐ Inches to Feet Conversion Chart
- ☐ Bucket Method
- ☐ Gutter Flow Method
- ☐ Tributary Connection Method
- ☐ Vent and Pick Holes Method
- ☐ Other ____________

Attachment "K-1"

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
SEWER MAINTENANCE DIVISION
SUMMARY REPORT OF MAINLINE SEWER AND PUMP STATION SPILLS

Suspected Cause:

- ☐ Air Relief Valve (ARV) Failure
- ☐ Damage by Other Party
- ☐ CS Maintenance Caused Spill/Damage
- ☐ Construction Diversion Failure
- ☐ Debris from Construction
- ☐ Debris from Lateral
- ☐ Debris-General
- ☐ Debris-Rags
- ☐ Debris-Wipes/Non-Disposables
- ☐ Grease Deposition (FOG)
- ☐ Inappropriate Discharge to CS
- ☐ Natural Disaster
- ☐ Operator Error
- ☐ Pipe Structural Problem/Failure
- ☐ Pipe Structural Problem/Failure – Installation
- ☐ Pump Station Failure – Controls
- ☐ Pump Station Failure – Mechanical
- ☐ Pump Station Failure - Power
- ☐ Rainfall Exceeded Design, I&I
- ☐ Root intrusion
- ☐ Siphon Failure
- ☐ Vandalism

Entry point into drainage system: _____

Action taken: _____

Final Spill Destination and Discharge Points:

- ☐ Beach
- ☐ Building or Structure
- ☐ Drainage Channel
- ☐ Separate Storm Drain
- ☐ Street/Curb and Gutter
- ☐ Surface Water
- ☐ Unpaved Surface
- ☐ Other

Health warning posted? ☐ No ☐ Yes

Did the spill cause beach closure or impacts? ☐ No ☐ Yes

If YES, posting party, impacted beach(es), duration _____

Name and type of impacted surface water(s): *(If unnamed surface water, document location at point of discharge and document first named downstream tributary):*

Observed impacts of spill: _____

Water quality samples analyzed for: _____

Water quality sample resulted reported to: _____

Was this spill associated with a storm event? ☐ No ☐ Yes,

NAME _____ TITLE _____ DATE _____

Attachment "K-1"

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
SEWER MAINTENANCE DIVISION
SUMMARY REPORT OF MAINLINE SEWER AND PUMP STATION SPILLS

PART 3 - RECOMMENDATION (to be completed by Supervisor or Electro-Mechanic Working Supv.)

Is this a repeated Incident? ☐ Yes ☐ No MMS No.

Recommended measures to prevent reoccurrence: ☐ Adjusted schedule/method of preventive maintenance

☐ Inspect & monitor condition ☐ Repair or replace defective assets ☐ Illicit discharge enforcement

Comments: _____

_____

Corrective Action PM No. _____

Is there an ongoing investigation? ☐ Yes ☐ No

Reason for investigation (if yes) _____

_____

_____

NAME _____ DATE _____

ADDITIONAL COMMENTS

_____

_____

_____

_____

P:\WSPUB\GENERAL\OVERFLOW3.DOC

Revised 5/1/2023

Attachment "K-2"

NOTIFICATION and REPORTING PROCEDURES for SPILLS

Category 1 – Spill of any volume of sewage from or caused by a sanitary sewer system that results in a discharge to surface water or to a drainage conveyance system that discharges to surface water:

- Initial notifications ASAP per agency procedure described in this chapter (verbal, phone, fax or E-mail)

Draft Spill Report for Category 1 Spills

Within three business days of the Enrollee's knowledge of a Category 1 spill, the Enrollee shall submit a Draft Spill Report to the online CIWQS Sanitary Sewer System Database. The Draft Spill Report must, at minimum, include the following items:

1. Contact information: Name and telephone number of Enrollee contact person to respond to spill-specific questions;
2. Spill location name;
3. Date and time Enrollee was notified of, or self-discovered, the spill;
4. Operator arrival time;
5. Estimated spill start date and time;
6. Date and time the Enrollee notified the California Office of Emergency Services, and the assigned control number;
7. Description, photographs, and GPS coordinates of the system location where the spill originated;
    - If a single spill event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the spill appearance point explanation field
8. Estimated total spill volume exiting the system;
9. Description and photographs of the extent of the spill and spill boundaries;
10. Did the spill reach a drainage conveyance system? If Yes:
    - Description of the drainage conveyance system transporting the spill;
    - Photographs of the drainage conveyance system entry location(s);
    - Estimated spill volume fully recovered from the drainage conveyance system;
    - Estimated spill volume remaining within the drainage conveyance system
11. Description and photographs of all discharge point(s) into the surface water;
12. Estimated spill volume that discharged to surface waters; and
13. Estimated total spill volume recovered

Certified Spill Report for Category 1 Spills

Within 15 calendar days of the spill end date, the Enrollee shall submit a Certified Spill Report for Category 1 spills, to the online CIWQS Sanitary Sewer System Database. Upon completion of the Certified Spill Report, the online CIWQS Sanitary Sewer System Database will issue a final spill event

identification number. The Certified Spill Report must, at minimum, include the following mandatory information in addition to all information in the Draft Spill Report per the previous section (Draft Spill Report for Category 1 Spills) above:

1. Description of the spill event destination(s), including GPS coordinates if available, that represent the full spread and reach of the spill;
2. Spill end date and time;
3. Description of how the spill volume estimations were calculated, including at a minimum:
    - The methodology, assumptions and type of data relied upon, such as supervisory control data acquisition (SCADA) records, flow monitoring or other telemetry information used to estimate the volume and spill discharged, and the volume of the spill recovered, and
    - The methodology(ies), assumptions and type of data relied upon for estimations of the spill start time and spill end time;
4. Spill cause(s) (for example, root intrusion, grease deposition, etc);
5. System failure location (for example, main, lateral, pump station, etc):
6. Description of the pipe material, and estimated age of the pipe material, the failure
    - Location;
    - Description of the impact of the spill;
    - Whether or not the spill was associated with a storm event;
    - Description of spill response activities including description of immediate spill containment and cleanup efforts

Spill Technical Report for Individual Category 1 Spill in which 50,000 Gallons or Greater Discharged into a Surface Water

For any spill in which 50,000 gallons or greater discharged into a surface water, within 45 calendar days of the spill end date, the Enrollee shall submit a Spill Technical Report to the online CIWQS Sanitary Sewer System Database. The Spill Technical Report, at minimum, must include the following information:

1. Spill causes and circumstances, including at minimum:
    - Complete and detailed explanation of how and when the spill was discovered;
    - Photographs illustrating the spill origin, the extent and reach of the spill, drainage conveyance system entrance and exit, receiving water, and post-cleanup site conditions;
    - Diagram showing the spill failure point, appearance point(s), the spill flow path, and ultimate destinations;
    - Detailed description of the methodology employed, and available data used to calculate the discharge volume and, if applicable, the recovered spill volume
    - Detailed description of the spill cause (s);
    - Description of the pipe material, and estimated age of the pipe material, at the failure location
    - Description of the impact of the spill;
    - Copy of original field crew records used to document the spill; and
    - Historical maintenance records for the failure location

2. Enrollee's response to the spill:
    - Chronological narrative description of all actions taken by the Enrollee to terminate the spill;
    - Explanation of how the Sewer System Management Plan Spill Emergency Response Plan was implemented to respond to and mitigate the spill; and
    - Final corrective action(s) completed and a schedule for planned corrective actions, including:
        - Local regulatory enforcement action taken against an illicit discharge in response to this spill, as applicable,
        - Identifiable system modifications, and operation and maintenance program modifications needed to prevent repeated spill occurrences, and
        - Necessary modifications to the Emergency Spill Response Plan to incorporate lessons learned in responding to and mitigating the spill.
3. Water Quality Monitoring, including at minimum:
    - Description of all water quality sampling activities conducted;
    - List of pollutant and parameters monitored, sampled, and analyzed; as required in section 2.3 (Receiving Water Monitoring) of the General Order;
    - Laboratory results, including laboratory reports;
    - Detailed location map illustrating all water quality sampling points; and
    - Other regulatory agencies receiving sample results (if applicable)
4. Evaluation of spill impact(s), including a description of short-term and long-term impact(s) to beneficial uses of the surface water.

Amended Certified Spill Reports for Individual Category 1 Spills

The Enrollee shall update or add additional information to a Certified Spill Report within 90 calendar days of the spill end date by amending the report or by adding an attachment to the Spill Report in the online CIWQS Sanitary Sewer System Database. The Enrollee shall certify the amended report.

After 90 calendar days, the Enrollee shall contact the State Water Board at SanitarySewer@waterboards.ca.gov to request to amend a Spill Report. The Legally Responsible Official shall submit justification for why the additional information was not reported within the Amended Spill Report due date.

Category 2 - Spill of 1,000 gallons or greater, from or caused by a sanitary sewer system that does not discharge to surface water:

- Initial notifications per agency procedures in this chapter (verbal, phone, fax or E-mail)

Draft Spill Report for Category 2 Spills

Within three business days of the Enrollee's knowledge of a Category 2 spill, the Enrollee shall submit a Draft Spill Report to the online CIWQS Sanitary System Database. The Draft Spill Report must, at minimum, include the following items:

1. Contact information: Name and telephone number of Enrollee contact person to respond to spill specific questions;
2. Spill location name;
3. Date and time Enrollee was notified of, or self-discovered, the spill;
4. Operator arrival time;
5. Estimated spill start date and time;
6. Date and time the Enrollee notified the California Office of Emergency Services, and the assigned control number;
7. Description, photographs, and GPS coordinates of the system location where the spill originated;
    - If a single spill event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the spill appearance point explanation field
8. Estimated total spill volume exiting the system;
9. Description and photographs of the extent of the spill and spill boundaries;
10. Did the spill reach a drainage conveyance system? If Yes:
    - Description of the drainage conveyance system transporting the spill;
    - Photographs of the drainage conveyance system entry location(s);
    - Estimated spill volume fully recovered from the drainage conveyance system;
    - Estimated spill volume remaining within the drainage conveyance system
    - Estimated spill volume discharged to a groundwater infiltration basin or facility, if applicable; and
11. Estimated total spill volume recovered

Certified Spill Report for Category 2 Spills

Within 15 calendar days of the spill end date, the Enrollee shall submit a Certified Spill Report for the Category 2 spill, to the online CIWQS Sanitary Sewer System Database (https://ciwqs.waterboards.ca.gov). Upon completion of the Certified Spill Report, the online CIWQS Sanitary Sewer System Database will issue a final spill event identification number.

The Certified Spill Report must, at minimum, include the following mandatory information in addition to all information in the Draft Spill Report per the previous section (Draft Spill Report for Category 2 Spills) above:

1. Description of the spill event destination(s), including GPS coordinates if available, that represent the full spread and reach of the spill;
2. Spill end date and time;
3. Description of how the spill volume estimations were calculated, including at a minimum:
    - The methodology, assumptions and type of data relied upon, such as supervisory control and data acquisition (SCADA) records, flow monitoring or other telemetry information used to estimate the volume of the spill discharged, and the volume of the spill recovered (if any volume of the spill was recovered), and

- The methodology(ies), assumptions and type of data relied upon for estimations of the spill start time and the spill end time

4. Spill cause(s) (for example, root intrusion, grease deposition, etc.);
5. System failure location (for example, main, pump station, etc.);
6. Description of the pipe/infrastructure material, and estimated age of the pipe material, at the failure location;
7. Description of the impact of the spill;
8. Whether or not the spill was associated with a storm event;
9. Description of spill response activities including description of immediate spill containment and cleanup efforts;
10. Description of spill corrective action, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the spill, and a schedule of major milestones for those steps;
11. Spill response completion date;
12. Detailed narrative of investigation and investigation findings of cause of spill;
13. Reasons for an ongoing investigation (as applicable) and the expected date of completion; and
14. Whether or not the spill was located within 1,000 feet of a municipal surface water intake

Amended Certified Spill Reports for Individual Category 2 Spills

The Enrollee shall update or add additional information to a Certified Spill Report within 90 calendar days of the spill end date by amending the report or by adding an attachment to the Spill Report in the online CIWQS Sanitary Sewer System Database.

The Enrollee shall certify the amended report. After 90 calendar days, the Enrollee shall contact the State Water Board at SanitarySewer@waterboards.ca.gov to request to amend a Spill Report. The Legally Responsible Official shall submit justification for why the additional information was not reported wihtin the Amended Spill Report due date.

-

Category 3 – Spill of equal to or greater than 50 gallons and less than 1,000 gallons that does not discharge to surface water

Monthly Certified Spill Reporting for Category 3 Spills

The Enrollee shall report and certify all Category 3 spills to the online CIWQS Sanitary Sewer System Database within 30 calendar days after the end of the month in which the spills occurred. After the Legally Responsible Official certifies the spills, the online CIWQS Sanitary System Database will issue a spill event identification number for each spill. The monthly reporting of all Category 3 spills must include the following items for each spill:

1. Contact information: Name and telephone number of Enrollee contact person to respond to spill specific questions;
2. Spill location name:
3. Date and time the Enrollee was notified of, or self-discovered, the spill;

4. Operator arrival time;
5. Estimated spill start date and time;
6. Description, photographs, and GPS coordinates where the spill originated:
    - If a single spill event results in multiple appearance points, provide GPS coordinates for the appearance point closest to the failure point and describe each additional appearance point in the spill appearance point explanation field;
7. Estimated total spill volume exiting the system;
8. Description and photographs of the extent of the spill and spill boundaries;
9. Did the spill reach a drainage conveyance system? If Yes:
    - Description of the drainage conveyance system transporting the spill;
    - Photographs of the drainage conveyance system entry location(s);
    - Estimated spill volume fully recovered from the drainage conveyance system; and
    - Estimated spill volume discharged to a groundwater infiltration basis or facility, if applicable
10. Estimated total spill volume recovered
11. Description of the spill event destination(s), including GPS coordinates, if available, that represent the full spread and reaches of the spill;
12. Spill end date and time;
13. Description of how the spill volume estimations were calculated, including, at minimum:
    - The methodology and type of data relied upon, including supervisory control and data acquisition (SCADA) records, flow monitoring or other telemetry information used to estimate the volume of the spill discharged, and the volume of the spill recovered (if any volume of the spill was recovered), and
    - The methodology and type of data relied upon to estimate the spill start time, ongoing spill rate at time of arrival (if applicable) and spill end time;
14. Spill cause(s) (for example, root intrusion, grease deposition, etc.);
15. System failure location (for example, main, pump station, etc.);
16. Description of the pipe/infrastructure material, and estimated age of the pipe/infrastructure material at the failure location;
17. Description of the impact of the spill;
18. Whether or not the spill was associated with a storm event;
19. Description of spill response activities including description of immediate spill containment and cleanup efforts;
20. Description of spill corrective actions, including steps planned or taken to reduce, eliminate, and prevent reoccurrence of the spill, and a schedule of the major milestones for those steps; including, at minimum:
    - Local regulatory enforcement action taken against an illicit discharge in response to this spill, as applicable, and
    - Identifiable system modifications, and operation and maintenance program modifications needed to prevent repeated spill occurrences at the same spill event location, including:
        - Adjusted schedule/method of preventative maintenance,
        - Planned rehabilitation or replacement of sanitary sewer asset,
        - Inspected, repaired asset(s), or replaced defective asset(s),
        - Capital improvements,

- Documentation verifying immediately implemented system modifications and operating/maintenance modifications,
- Description of spill response activities,
- Spill response completion date, and
- Ongoing investigation efforts, and expected completion date of investigation to determine the full cause of spill;

21. Detailed narrative of investigation and investigation findings of cause of spill

Amended Certified Spill Reports for Category 3 Spills

Within 90 calendar days of the certified Spill Report due date, the Enrollee may update or add additional information to a certified Spill Report by amending the report or by adding an attachment to the Spill Report in the online CIWQS Sanitary Sewer System Database. The Enrollee shall certify the amended report.

After 90 calendar days, the Legally Responsible Official shall contact the State Water Board a to request to amend a certified Spill Report. The Legally Responsible Official shall submit justification for why the additional information was not reported within the 90-day timeframe for amending the certified Spill Report, as provided above.

Category 4 – Less than 50 gallons, from or caused by a sanitary sewer system that does not discharge to surface water

Monthly Certified Spill Reporting for Cateogry 4 Spills

The Enrollee shall report and certify the estimated total spill volume exiting the sanitary sewer system, and the total number of all Category 4 spills to the online CIWQS Sanitary Sewer System Database, within 30 calendar days after the end of the month in which the spills occurred.

Annual Certified Spill Reporting of Category 4 and/or Lateral Spills

For all Category 4 spills and spills from its owned and/or operated laterals that are caused by a failure or blockage in the lateral and that do not discharge to a surface water, the Enrollee shall:

- The Enrollee shall provide records upon request by State Water Board or Regional Water Board staff.
- Annually upload and certify a report, in an appropriate digital format, of all recordkeeping of spills to the online CIWQS Sanitary Sewer System Database, by February 1st after the end of the calendar year in which the spills occurred.

A spill from an Enrollee-owned and/or operated lateral that discharges to a surface water is a Category 1 spill; the Enrollee shall report all Category 1 spills per section 3.1 of Attachment E1 (Notification, Monitoring, Reporting and Recordkeeping Requirements) of the General Order.

Monthly Certification of "No Spills" or "Category 4 Spills" and/or "Non-Category 1 Lateral Spills":

If either 1) no spills occur during a calendar month or 2) only Category 4, occur during a calendar month, the Enrollee shall certify, within 30 calendar days after the end of each calendar month, either a "No-Spill" certification statement, or a "Category 4 Spills" and/or "Non-Category 1 Lateral Spills" certification statement, in the online CIWQS Sanitary Sewer System Database, certifying that there were either no spills, or Category 4 and/or Non-Category 1 Lateral Spills that will be reported annually for the designated month.

If a spill starts in one calendar month and ends in a subsequent calendar month, and the Enrollee has no further spills of any category, in the subsequent calendar month, the Enrollee shall certify "no-spills" for the subsequent calendar month. If the Enrollee has no spills from its systems during a calendar month, but the Enrollee voluntarily reported a spill from a private lateral or a private system, the Enrollee shall certify "no-spills" for that calendar month.

Private Lateral Sewage Discharge (Reporting Optional):

If reporting, report within 30 days past the end of the month in which the spill occurred. Enter the spill into CIWQS as a "Private Lateral Sewage Discharge" and identify responsible party, if known (not LACPW). Must be certified by LRO using CIWQS.

CONTRACTOR'S SPILL EMERGENCY RESPONSE PLAN

The following serves as the guidelines for a contractor's development of an Emergency Spill Response Plan.

Outline for a Contractor's Emergency Spill Response Plan:

- Identification of Project, Sewer owner, Contractor and Location of affected sewer(s)
- Description of Installation criteria, procedures, layout (with diagrams) and operations.
- Description of Spill prevention and protection measures/actions.
- Spill control (discharge) actions/measures, to minimize impacts.
- Remediation (Clean-up) measures.
- Emergency Materials and Equipment Onsite
- Emergency Equipment specifications that meet the potential spill risk
- Emergency Phone Numbers
- For spills where receiving waters are, or will be, affected:
    - Identification of affected drainage course/piping owner, proximity and emergency contacts
    - Map of drainage path, access and containment points, with relevant photographs
    - Identification of closest sewer to the containment point(s)
    - Travel time to the containment point
    - Emergency support resources and contacts
    - Equipment and Materials necessary for containment and for Clean-up
    - Require notification contacts

Appendix “L”

Sewer System Capacity Evaluation

City of Agoura Hills
SEWER SYSTEM CAPACITY EVALUATION
2009

Introduction and Summary

The City owns and operates its local wastewater collection system consisting of approximately 53.6 miles of gravity flow sewer pipelines (8-inch to 15-inch, mostly vitrified clay pipe) and 1,294 manholes. The existing sewer system discharges to trunk sewers that are owned and operated by the Las Virgenes Municipal Water District.

The purpose of this evaluation is to identify capacity deficiencies in the existing sewer mainline system, prioritize the deficient reaches, recommend alternatives to eliminate the deficiencies, and provide the City with a basis on which to build a future infrastructure management system.

The 53.6 miles of local sewer pipes were modeled using HYDRA® 6.4 by PIZER. Of the total miles, approximately 4,592 feet (0.87 miles or 2%) of the existing system were identified as being capacity deficient (Greater than 64% full). The deficient reaches of sewer pipeline are located within SMZ # 17, 20, 23, 26, 29, 30, 31, 35, and 41. Please refer to Appendix 'L-2' for the deficient reach locations. The cost to repair the deficient reaches is described in Appendix 'L-1'.

During four weeks in March and April of 2009, flow monitoring was performed as part of this evaluation effort at nine locations as indicated on the Appendix 'F' map. This was done to confirm the LACDPW design coefficients of flow generation used in the computer model. In general, the results of the flow monitoring indicate that the model flow rates are slightly conservative for most of the nine areas monitored. However, some of the flow monitoring data warrants further discussion with the monitoring subconsultant in order to clarify or rectify some of the calibration analysis conducted with the monitoring data. Of concern are the low flow condition results and a high flow result for one of the higher density residential areas of the city. Depending upon further evaluation findings, obtaining additional flow monitoring for selected developed areas may be recommended, especially during periods of rain to verify or deny any potential inflow and infiltration impact to the sewer system.

In the event of any land use changes to the General Plan, upon which this study has been based, the model should be updated to reflect the consequences of such changes. The model should also be updated to reflect the construction of new relief facilities and/or the construction of new sewer lines.

Study Approach

The following tasks were performed in the preparation of this Sewer System Capacity Evaluation Report.

1. The city provided its current GIS base map with horizontal sewer system features, Willdan obtained city as-built drawing plans from which additional vertical data was added to the GIS file of attributes for the sewer.
2. The City provided the November 2006 General Plan land use map (Appendix 'L-5') for use in creating a land use overlay of the parcels and sewer maintenance zones in the city system.
3. Formulation of a computer model of the City wastewater collection system.
4. Analysis of the existing wastewater collection system capacity and determination of any capacity deficiencies (refer to the deficiency criteria section of this report and see Appendix 'L-2'.
5. Development of recommendations for system improvements to correct deficiencies.
6. Preparation of cost estimates for the recommended improvements (Appendix 'L-1').
7. Preparation of evaluation findings and recommendations to correct identified deficiencies in this Sewer System Capacity Evaluation Report.

System Criteria and Alternatives

In designing or evaluating a wastewater collection system, the engineer must establish certain criteria upon which to base the design. These include such things as available pipe sizes, materials, slope, bury or cover, connections, etc. Such criteria are established to ensure that the wastewater collection system can operate effectively under all flow conditions. Each pipe segment must be capable of carrying the peak flows without surcharging the system. Surcharging the system occurs when the pipe is flowing under pressure. However, many of the initial design assumptions are unnecessary in the analysis of a collection system when the pipe already exists and its features are fixed.

Therefore, in the analysis of an existing sewer system, the Hydra program compares the capacity of each pipe in the system with the peak wastewater flow projected for that particular link or reach of pipe. If the pipe segment is at or below design capacity, the analysis program continues downstream, segment by segment, evaluating successive pipe segments in the system. However, if the existing pipe size is surcharged, the Hydra program reports the surcharge condition and recommends a standard pipe size that will carry the design flow without being surcharged. Minimum criteria utilized is all pipes must be 8 inches or larger in diameter and the in pipe velocity of flow should be 2 feet per second (ft/s) or greater. This velocity will prevent deposition of solids in the sewer and help to re-suspend any materials that may have already settled in the pipe. Table 1 shows the minimum corresponding slopes to maintain 2 ft/s for various pipe sizes.

Table 1
Minimum Pipe Slopes ft/ft

Sewer Size	Slope
8"	0.0028
10"	0.0021
12"	0.0016
15"	0.0012
18"	0.0010

Both design and analysis of gravity sewer pipes is typically based upon the depth of flow to the pipe diameter ratio (d/D). Common design criteria for proposed new sewer design is 0.50 (50% full) for 8 to 15-inch diameter pipes and 0.75 (75% full) for 18-inch and larger pipes. The area above the water surface (residual capacity) helps to keep the sewage aerated, reducing the possibility of septic conditions and odors. Existing wastewater systems are usually allowed to flow with less residual capacity because development and redevelopment has occurred or may be foreseeable in the near future.

This report establishes the hydraulic design criteria for existing sewer pipes by classifying "over capacity" pipes as any with a d/D greater than 0.64. This d/D ratio was arrived at by taking 75 percent of the depth to diameter ratio of a pipe having maximum stable flow capacity, which is at a d/D of 0.85 (75% of 85% is 64%). The area above a d/D of 0.85 is considered hydraulically unstable. This reduction results in approximately 35 percent of the pipe's full flow capacity being reserved for variations in discharges, seasonal variations and minor or temporary obstructions. Again, this residual capacity helps to keep the sewage aerated, reducing the possibility of septic conditions and odors.

The residual capacity allows for the possibility that actual wastewater flows may be slightly higher than anticipated, especially during the hours when instantaneous or intermittent peaks may occur. Such peaks are generally observed between the hours of 6:00 a.m. and 8:00 a.m. Monday thru Friday and between the hours of 9:00 a.m. and 11:00 a.m. Saturday and Sunday. Peak flows may also be observed during rainfall events due to inflow and infiltration conditions.

Appendix 'L-2' shows the pipes that are capacity deficient per the 0.64 criteria and also shows the pipes that are deficient per the 0.50 criteria. Only the pipes that exceed the 0.64 criteria are recommended for correction projects.

The design capacity of a gravity pipeline is the calculated capacity of the pipeline based on the Manning formula:

$Q=1.486\ R^{2/3}\ S^{1/2}\ /n$ where, Q = flow in cubic feet per second
R = hydraulic radius in feet = A/ P
A = cross-sectional area of the pipe in square feet
P = wetted perimeter in feet
S = slope of the pipe in feet of rise per foot of length
n = Manning's friction factor

Sewer system capacity is established using a Manning's fiction factor of 0.013 for vitrified clay pipe.

Alternatives

The following alternatives were considered in developing the recommended schedule of deficiency correction projects.

1. Construction of a parallel sewer facility to carry the excess sewage flow is an obvious solution to most of the deficiencies; however, this solution is not necessarily the most economical or practical approach. In some instances rerouting of tributary areas or the construction of a single relief sewer line can be planned in such a way that it will relieve several main sewer lines thereby avoiding the construction of parallel facilities and the duplicate cost.

2. In other instances the replacement of the existing sewer with a larger size may be the preferred alternative. The replacement or upsizing of the line may include open trench installation or pipe bursting (if surrounding condition are conducive), and the use of temporary bypass pumping. The decision as to which correction alternative to construct is typically made just prior to the design phase after careful consideration of all design constraints such as existing utilities and the costs associated with potential utility relocation to provide additional space for the construction of a replacement sewer line.

The engineer's opinion of cost figures (See Appendix 'L-1') was prepared based on the cost to remove and replace the existing sewer with a larger size, as this is the most conservative cost approach.

It is suggested the where the depth of flow exceeds the design criteria of 0.64 d/D, but does not exceed the maximum stable flow capacity of 0.85 d/D, that consideration be given to allowing these sewers to flow in a slightly overloaded condition in lieu of building a more costly relief facility at this time.. This overloading occurs only during peak flow conditions that are short in duration. The City should frequently monitor these sewers in order to undertake a future corrective action if the overloading problem becomes worse.

Analysis of Existing Sewer System

The City's sewer system was modeled using Pizer Hydra Ver. 6.4. The Hydra program is designed to provide analysis of both the existing sewer system and the design of any new sewer lines.

After defining (lying out) the existing sewer system, the network was divided into 56 SMZ's or sewer drainage areas, based upon city sewer records, for input into the computer model. The input data consisted of a numerical designation for each manhole and length of sewer pipe between manholes, the slope of the line, and flow line and rim elevation of each manhole.

Computation of Wastewater Inflows

Once the pipe schematic of the sewer system network was established, data was compiled on each SMZ, General Plan land uses, and related factors that affect the volume of wastewater generated. Next, it was necessary to compute the area of each type of land use; e.g., low-density, medium-density, and high-density residential, commercial, industrial, schools, etc., within each SMZ (drainage) boundary. The LACDPW unit flow coefficients (see Table 2)

were then applied to the computed areas of land use within each SMZ. The results are a calculated peak flow rates for each particular land use category. The wastewater inflows calculated for the various land use categories within the SMZ were then accumulated to provide the calculated peak flow for the entire SMZ. The accumulation of estimated wastewater flow is accomplished totally within the computer program.

Table 2
Unit Flow Coefficients for Peak Flow Rates

Zone	Cu. Ft. per sec. per acre	Gallons per day per acre
R-1	0.004	2585
R2	0.008	5171
R3	0.012	7756
R-P, Commercial	0.015	9695
Manufacturing	0.021	13573
Institutional	0.015	9695

Flow Monitoring

In order to verify and/or calibrate the sewer flow modeling work, nine jointly selected flow-monitoring sites were chosen to represent existing developed area flows. This monitoring work was performed over a four week period from March 24 through April 23, 2009.

Flow monitoring data was provided by V&A Engineering as subconsultant to Ventura Regional Sanitation District, which undertook the CCTV inspection and flow monitoring services as a subconsultant to Willdan Engineering. The V&A flow monitoring report is contained in Appendix 'L-4'. The nine flow monitoring site locations and corresponding findings are presented in the report.

Each sites flow monitoring data was reviewed and compared to the contributing SMZ area. The peak monitored flow rate was compared to the design flow rate and the shape of the outflow curve was compared to the SMZ modeled result. The flow monitoring data was also compared to other data from previous studies in other cities to verify the results. As previously mentioned there was reasonable correlation indicated in most of the zones monitored, but two or three of the nine areas showed some unusual low and high correlation results that must be reviewed and discussed with the subconsultant in order to determine their significance, if any, to the capacity evaluation results. Some difference is expected because the design flow rate includes the maximum flow rate expected from each development type, wet weather inflow/infiltration, and design safety factors.

Recommended Deficiency Correction Projects

Presented in Table 3 is a brief summary of the measures recommended to correct the deficiencies stated above and as shown on Exhibit 2. The criteria for recommending and prioritizing relief facilities are as follows:

Priority 1

Sewers with critical deficiencies of $d/D > 0.85$ are recommended for correction first. The correction can be undertaken immediately if further engineering review discloses such an immediate need. Otherwise replacement within 1 to 4 years is considered reasonable.

Priority 2

Sewers with critical deficiencies of $0.64 < d/D < 0.85$ are recommended for correction second. These corrections can usually be programmed somewhere between 5 to 9 years from the evaluation date depending upon further engineering review findings.

Priority 3

Sewers with a $d/D < 0.64$ are not capacity deficient; therefore, are not ranked here, but it is recommended that such segments be monitored as sewage flows tributary to the locations increase over time.

Sewer System Improvements Costs

The unit prices shown in the engineer's estimate (see Appendix 'L-1') represent the anticipated construction cost only as applicable for mid-2008. Bid prices received on jobs of similar nature in Southern California area were one source of information used to derive the cost figure. In addition, manufacturers, suppliers of material and equipment, and local contractors were consulted on various cost items. An additional 35% of construction cost is added to cover the cost of contingencies, design engineering, contract administration and construction observation.

The Engineer's Estimate does not include an adjustment for inflation. Construction costs can be expected to fluctuate as corresponding changes occur in the national or local economy. One available indicator of these changes is the Engineering News-Record Construction Cost Index for the Los Angeles metropolitan area. This index is compiled from actual construction cost data for materials and labor and is reported in Engineering News-Record magazine. It is suggested that this index be used to update the unit prices presented in Appendix 'L-1' and in adjusting the estimate from the date of the initial estimates.

Financing of Improvements

General

Funding considerations are often the deciding factor in scoping and implementation of a project. There are, of course, numerous methods or mix of methods, which could be used to finance the implementation of a sewer system capital improvement plan (CIP), and the ongoing operations and maintenance activities. Among these methods are:

1. Pay-as-You-Go Financing (rates, fees and charges based)
2. Redevelopment Agency Funding
3. State Assistance Programs
4. Municipal Securities
5. Improvement Districts
6. Federal Assistance Programs

In discussion that follows, the above funding options are briefly described and their adaptability to specific circumstances of a sewer system CIP are noted. In evaluating specific funding programs, services of financial and legal experts in such issues are recommended.

Methods of Financing

1. Pay-as-You-Go Financing:

   Development of cash reserves or capital improvement funds, from an agency's revenue base, is often referred to as "pay-as-you-go" funding. This method avoids interest payments on other types of debt financing. Under this form of financing, the initial capital cost of a project must be accumulated in advance of construction, which can cause a delay in project implementation. If delay is not a crucial factor, this is a cost effective method due to the absence of debt financing costs. This method has sometimes been used together with various forms of short-term financing to construct needed sewer infrastructure.

2. Redevelopment Agency Funding:

   Funds generated from property tax increment revenue, received by the City's redevelopment agency (RDA), is a possible source for sewer system capital improvements, within or beneficial to the RDA. A sewer system improvement project would have to compete with other agency planned projects, prioritized and an agency funding decision.

3. State Assistance Programs:

   Under the rules and regulations of the Federal Water Pollution Control Act (Clean Water Act or CWA) and the Federal Safe Drinking Water Act (SDWA), the State has enacted the Clean Water State Revolving Fund (CWSRF) and the Drinking Water Revolving Fund (DWSRF), respectively. These programs are funded by Federal grants, State funds and Revenue bonds. The CWSRF Loan Program provides low-interest loan funding for

construction of publicly-owned wastewater treatment facilities, sewers, sewer interceptors, water recycling facilities, as well as implementation of non-point source (NPS) projects or programs. There are different types of funding assistance available under these programs.
www.waterboards.ca.gov/water_issues/programs/grants_loans/srf/

The Department of Water Resources administers the State bond law programs for Water supply/Water quality, Water conservation, Flood management and Regional water management. www.grantsloans.water.ca.gov

The State Water Resources Control Board administers the State revolving fund loans, Water recycling grants & loans, Small community grants, Agricultural drainage loans, Agricultural drainage management loans, Clean beaches initiative grants, Agricultural water quality grants, Areas of special biological significance (ASBS) grants, Storm water grants, and Santa Monica bay restoration commission grants. www.waterboards.ca.gov

The State Department of Public Health administers the DWSRF, Proposition 84 funding for public water systems, and Proposition 50 for the water security, clean drinking water, coastal and beach protection act of 2002 loans. www.cdph.ca.gov

Various types of infrastructure improvement/construction loans can be arranged through the California Infrastructure and Economic Development Bank (I Bank)
www.ibank,ca,gov

Limited amounts of public works grant funds have been available to agencies from the State Office of Economic Development. Use of such grant funds must result in the creation of new, permanent jobs in the private sector. In order to ensure that the funds are ultimately assisting those in most need, projects eligible for consideration must be those in areas designated eligible for HUD Urban Development Action Grants (UDAG), EDA Sudden or Long-term Economic Deterioration, or EDA Designated Special Impact Area.

4. Municipal Securities:

Historically, general obligation bonds (GOB's) had been a prevalent method of financing various public works improvements. They are secured by an agency's total assets and payable from ad valorem taxes levied on all taxable properties within the agency's boundary. However, the Jarvis-Gann Amendment (Proposition 13 of 1978) prohibits the levying of ad valorem property taxes beyond pre-existing authorizations and levels (pre- July 1, 1978). Therefore, authorization and issuance of GOB's is not considered feasible under current law.

An option to GOB's is the issuance of a specific type note or bond form, such as a revenue anticipation note (RAN) or a tax anticipation note (TAN) or a certificate of participation (COP) or various combinations of available authorities that can be used to fund public infrastructure needs. These types of municipal securities (Munis) are generally tax- exempt and commonly used to fund public works infrastructure and facilities. Many states also exempt their securities from their own taxes, which makes those securities particularly attractive investments for their own residents.

TAN's and RAN's are instruments backed by anticipated taxes or revenues respectively. When these types of notes are considered for funding of needed infrastructure, a specified source of tax or revenue stream is identified and pledged for repayment of the debt. For example, with sewer facilities, all or a portion of the sewer service revenue fees/charges could be used as backing for the debt instrument selected. Then other local revenue sources could be considered for ongoing operations and maintenance (O&M) or some acceptable mix and match of funds specified to secure the debt and accomplish the O&M.

COP's are another form of municipal funding instrument available. These generally require the facility improvement being funded to be named as security for the investment with a lease back of the facility by the municipality. In turn, the municipality pledges some revenue stream(s) that would be used to repay the investor held notes.

When Munis are being considered for funding of improvements, consultation with an experienced and qualified financing consultant and bond counsel are a must.

5. Improvement Districts:

In general, special assessment district procedures have been established by statute to provide for financing of construction and/or acquisition of public works improvements, such as sewer systems, and for assessing the cost of such improvements to the benefiting properties. Under all assessment proceedings, the cost of the work is assessed against properties within the benefited area. The assessments are levied in specific amounts against each individual property on the basis of the benefit each parcel receives. The property owner may pay the assessment in cash during the cash collection period of 30 days. But, if any assessments are not paid in cash during that period, bonds are usually issued to represent the unpaid assessments and the benefited properties are assessed on their annual property tax bill over a usual period of 10 to 20 years.

Commonly used assessment acts are the 1911 and 1913 Acts. The common bond acts are the 1911 and 1915 Acts. These assessment and bond acts are used in varying combinations depending on the particular circumstances for each proposed improvement district.

While an assessment district proceeding may be a reasonable and equitable means for financing sewer system improvements, further evaluation and stakeholder involvement is a usual practice to determine the viability and practicality of utilizing such financing method.

6. Federal Assistance Programs:

There are, and have been, a series of federal grant and loan programs which may be applicable to public infrastructure projects. However, the qualification criteria for such programs vary from time to time and their funding or continuation is subject to congressional appropriations. Therefore, such programs should not be considered as a likely source of funds unless a funding commitment letter has been received.

Historically, federal programs administered by the Economic Development Administration (EDA) provide financial and technical assistance to aid the economic development of areas with high unemployment or low family income levels. Communities must make long-range plans for economic growth in order to be eligible for EDA financial assistance, in the form of grants and loans for public works and development that generates jobs and economic opportunity. Typical public works projects include construction of roads, water and sewer lines, and public facilities. To determine the status requires timely monitoring.

Under the rules and regulations of the Housing and Community Development Act of 1974, the Community Development Block Grant (CDBG) program can fund housing and community development needs. This includes part or all of improvements necessary to upgrade existing sewer facilities. Those qualifying geographic areas within the City that have the greatest overall deficiency in physical infrastructure receive the highest priority according to CDBG criteria. When the sewer system has a defined deficiency, then it is appropriate to use CDBG funds to meet health and safety standards as well as to encourage up-grading of abutting housing and physical environment.

The primary statutory objective of the CDBG program is to develop viable communities by providing decent housing and a suitable living environment and by expanding economic opportunities, principally for persons of low- and moderate-income. Communities receiving CDBG funds through the State may use the funds for many kinds of community development activities including, but not limited to:

- acquisition of property for public purposes;
- construction or reconstruction of streets, water and sewer facilities, neighborhood centers, recreation facilities, and other public works;
- demolition;
- rehabilitation of public and private buildings;
- public services;
- planning activities;
- assistance to nonprofit entities for community development activities; and
- assistance to private, for profit entities to carry out economic development activities (including assistance to micro-enterprises).

www.hcd.ca.gov/ca/cdbg/about/html

The United State Department of Agriculture Rural Development Program provides communities with population less than 50,000 a variety of direct-guaranteed-loans and /or grants. These include water and wastewater system improvement funding.

www.rurdev.usa.gov/ca

APPENDIX ‘L-1’

Engineer’s Opinion of Cost

CITY OF AGOURA HILLS

SANITARY SEWER IMPROVEMENTS		***Date:***	6/26/2009
ENGINEER'S OPINION OF COST			
PRIORITY #1 AND #2 SUMMARY		***Prepared by:***	J.H.
PROJECT: SEWER SYSTEM MANAGEMENT PLAN		***Checked by:***	R.W.

ITEM NO.	DESCRIPTION	AMOUNT
1	SUB-TOTAL PRIORITY #1 SEWER IMPROVEMENTS	$ 550,000
2	SUB-TOTAL PRIORITY #2 SEWER IMPROVEMENTS	$ 1,420,000
3	**TOTAL[1, 2]**	**$ 1,970,000**

[1]Price taken from actual bid of District 3A Sanitary Sewer Improvement for 325 LF of 10" VCP in the City of La Canada Flintridge plus $83/LF for mobilization, traffic control, and traffic markings.

[2]Since the design professional has no control over the cost of labor, materials, equipment, or over the contractor's method of determining prices, or over competitive bidding or market conditions, his opinions of probable construction costs provided herein are to be made on the basis of his experience and qualifications. These cost opinions represent his best judgment as a design professional familiar with the construction industry. However, the design professional cannot and does not guarantee that proposals, bids, or the construction costs will not vary from opinions of probable cost prepared by him.

CITY OF AGOURA HILLS

SANITARY SEWER IMPROVEMENTS	*Date:*	6/26/2009		
ENGINEER'S OPINION OF COST				
PRIORITY #1	*Prepared by:*	J.H.		
PROJECT: SEWER SYSTEM MANAGEMENT PLAN	*Checked by:*	R.W.		

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST
AREA 17					
1	MOBILIZATION (5%)	1	LS	$ 7,438	$ 7,438
2	12" VCP SEWER MAIN	610	LF	$ 175	$ 106,750
3	MANHOLE	6	EA	$ 7,000	$ 42,000
4	SEWER BY-PASS (20%)	1	LS	$ 29,750	$ 29,750
5	TRAFFIC CONTROL (10%)	1	LS	$ 14,875	$ 14,875
				SUBTOTAL CONSTRUCTION:	$ 200,813
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 70,284
				AREA TOTAL:	**$ 271,097**
				SAY	**$ 271,100**
AREA 20					
1	MOBILIZATION (5%)	1	LS	$ 1,014	$ 1,014
2	18" VCP SEWER MAIN	33	LF	$ 190	$ 6,270
3	MANHOLE	2	EA	$ 7,000	$ 14,000
4	SEWER BY-PASS (20%)	1	LS	$ 4,054	$ 4,054
5	TRAFFIC CONTROL (10%)	1	LS	$ 2,027	$ 2,027
				SUBTOTAL CONSTRUCTION:	$ 27,365
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 9,578
				AREA TOTAL:	**$ 36,942**
				SAY	**$ 36,900**
AREA 23					
1	MOBILIZATION (5%)	1	LS	$ 3,596	$ 3,596
2	12" VCP SEWER MAIN	331	LF	$ 175	$ 57,925
3	MANHOLE	2	EA	$ 7,000	$ 14,000
4	SEWER BY-PASS (20%)	1	LS	$ 14,385	$ 14,385
5	TRAFFIC CONTROL (10%)	1	LS	$ 7,193	$ 7,193
				SUBTOTAL CONSTRUCTION:	$ 97,099
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 33,985
				AREA TOTAL:	**$ 131,083**
				SAY	**$ 131,000**

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST
AREA 26					
1	MOBILIZATION (5%)	1	LS	$ 3,075	$ 3,075
2	15" VCP SEWER MAIN	250	LF	$ 190	$ 47,500
3	MANHOLE	2	EA	$ 7,000	$ 14,000
4	SEWER BY-PASS (20%)	1	LS	$ 12,300	$ 12,300
5	TRAFFIC CONTROL (10%)	1	LS	$ 6,150	$ 6,150
				SUBTOTAL CONSTRUCTION:	$ 83,025
				(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:	$ 29,059
				AREA TOTAL:	**$ 112,084**
				SAY	**$ 112,100**

SUB-TOTAL PRIORITY #1 SANITARY SEWER IMPROVEMENTS $ 551,100

SAY $ 550,000

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST
SANITARY SEWER IMPROVEMENTS		***Date:***	6/26/2009		
ENGINEER'S OPINION OF COST					
PRIORITY #2		***Prepared by:***	J.H.		
PROJECT: SEWER SYSTEM MANAGEMENT PLAN		***Checked by:***	R.W.		
ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST
AREA 17					
1	MOBILIZATION (5%)	1	LS	$ 2,548	$ 2,548
2	10" VCP SEWER MAIN	224	LF	$ 165	$ 36,960
3	MANHOLE	2	EA	$ 7,000	$ 14,000
4	SEWER BY-PASS (20%)	1	LS	$ 10,192	$ 10,192
5	TRAFFIC CONTROL (10%)	1	LS	$ 5,096	$ 5,096
				SUBTOTAL CONSTRUCTION:	$ 68,796
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 24,079
				AREA TOTAL:	**$ 92,875**
				SAY	**$ 92,900**
AREA 20					
1	MOBILIZATION (5%)	1	LS	$ 3,550	$ 3,550
2	15" VCP SEWER MAIN	300	LF	$ 190	$ 57,000
3	MANHOLE	2	EA	$ 7,000	$ 14,000
4	SEWER BY-PASS (20%)	1	LS	$ 14,200	$ 14,200
5	TRAFFIC CONTROL (10%)	1	LS	$ 7,100	$ 7,100
				SUBTOTAL CONSTRUCTION:	$ 95,850
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 33,548
				AREA TOTAL:	**$ 129,398**
				SAY	**$ 129,400**
AREA 26					
1	MOBILIZATION (5%)	1	LS	$ 2,548	$ 2,548
2	10" VCP SEWER MAIN	224	LF	$ 165	$ 36,960
3	MANHOLE	2	EA	$ 7,000	$ 14,000
4	SEWER BY-PASS (20%)	1	LS	$ 10,192	$ 10,192
5	TRAFFIC CONTROL (10%)	1	LS	$ 5,096	$ 5,096
				SUBTOTAL CONSTRUCTION:	$ 68,796
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 24,079
				AREA TOTAL:	**$ 92,875**
				SAY	**$ 92,900**

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST
AREA 29					
1	MOBILIZATION (5%)	1	LS	$ 14,954	$ 14,954
2	10" VCP SEWER MAIN	225	LF	$ 165	$ 37,125
3	12" VCP SEWER MAIN	326	LF	$ 175	$ 57,050
4	15" VCP SEWER MAIN	710	LF	$ 190	$ 134,900
5	MANHOLE	10	EA	$ 7,000	$ 70,000
6	SEWER BY-PASS (20%)	1	LS	$ 59,815	$ 59,815
7	TRAFFIC CONTROL (10%)	1	LS	$ 29,908	$ 29,908
				SUBTOTAL CONSTRUCTION:	$ 403,751
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 141,313
				AREA TOTAL:	**$ 545,064**
				SAY	**$ 545,000**
AREA 30					
1	MOBILIZATION (5%)	1	LS	$ 2,284	$ 2,284
2	10" VCP SEWER MAIN	192	LF	$ 165	$ 31,680
3	MANHOLE	2	EA	$ 7,000	$ 14,000
4	SEWER BY-PASS (20%)	1	LS	$ 9,136	$ 9,136
5	TRAFFIC CONTROL (10%)	1	LS	$ 4,568	$ 4,568
				SUBTOTAL CONSTRUCTION:	$ 61,668
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 21,584
				AREA TOTAL:	**$ 83,252**
				SAY	**$ 83,300**
AREA 31					
1	MOBILIZATION (5%)	1	LS	$ 3,431	$ 3,431
2	10" VCP SEWER MAIN	331	LF	$ 165	$ 54,615
3	MANHOLE	2	EA	$ 7,000	$ 14,000
4	SEWER BY-PASS (20%)	1	LS	$ 13,723	$ 13,723
5	TRAFFIC CONTROL (10%)	1	LS	$ 6,862	$ 6,862
				SUBTOTAL CONSTRUCTION:	$ 92,630
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 32,421
				AREA TOTAL:	**$ 125,051**
				SAY	**$ 125,100**

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST
AREA 35					
1	MOBILIZATION (5%)	1	LS	$ 3,192	$ 3,192
2	10" VCP SEWER MAIN	302	LF	$ 165	$ 49,830
3	MANHOLE	2	EA	$ 7,000	$ 14,000
4	SEWER BY-PASS (20%)	1	LS	$ 12,766	$ 12,766
5	TRAFFIC CONTROL (10%)	1	LS	$ 6,383	$ 6,383
				SUBTOTAL CONSTRUCTION:	$ 86,171
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 30,160
				AREA TOTAL:	**$ 116,330**
				SAY	**$ 116,300**
AREA 41					
1	MOBILIZATION (5%)	1	LS	$ 6,473	$ 6,473
2	15" VCP SEWER MAIN	534	LF	$ 190	$ 101,460
3	MANHOLE	4	EA	$ 7,000	$ 28,000
4	SEWER BY-PASS (20%)	1	LS	$ 25,892	$ 25,892
5	TRAFFIC CONTROL (10%)	1	LS	$ 12,946	$ 12,946
				SUBTOTAL CONSTRUCTION:	$ 174,771
	(35% of Construction) ENGINEERING, CONTRACT ADMIN, INSPECTION, AND CONTINGENCY:				$ 61,170
				AREA TOTAL:	**$ 235,941**
				SAY	**$ 235,900**
				SUB-TOTAL PRIORITY #2 SANITARY SEWER IMPROVEMENTS	**$ 1,420,785**
				SAY	**$ 1,420,000**

Since the design professional has no control over the cost of labor, materials, equipment, or over the contractor's method of determining prices, or over competitive bidding or market conditions, his opinions of probable construction costs provided herein are to be made on the basis of his experience and qualifications. These costs opinions represent his best judgment as a design professional familiar with the construction industry. However, the design professional cannot and does not guarantee that proposals, bids, or the construction costs will not vary from opinions of probable cost prepared by him.

APPENDIX ‘L-2’

Sewer System Capacity Analysis
Deficient Pipes Exhibit

APPENDIX ‘L-3’

Pizer Hydra version 6.4 Hydraulic Calculations

Ar01

6/25/2009 4:41:11 PM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		87.08	1,025.65	1,018.26	0.0611	8	0.015	0.004	1.40	0.03	2.995	0	1,018.28	No
2	1		1,024.85	1,012.94							1.860	0	1,012.96	
											1.856			

Ar02

6/26/2009 8:47:14 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
3		304.67	1,036.84	1,028.48	0.0079	8	0.016	0.020	1.14	0.12	1.078	0	1,028.56	No
2	3		1,034.12	1,026.07							0.669	0	1,026.15	
											0.649			
2		334.00	1,034.12	1,025.97	0.0233	8	0.016	0.020	1.64	0.09	1.851	0	1,026.03	No
4	2		1,026.61	1,018.18							1.149	0	1,018.24	
											1.129			
1		91.00	1,026.61	1,018.02	0.0558	8	0.016	0.020	2.54	0.09	2.863	0	1,018.08	No
6	1		1,024.85	1,012.94							1.778	0	1,013.00	
											1.758			

Ar03

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
2		245.00	1,178.62	1,170.03	0.0369	8	0.013	0.000	0.20	0.00	2.326	0	1,170.03	No
2	2		1,171.81	1,161.00							1.445	0	1,161.00	
											1.445			
4		265.00	1,171.81	1,160.93	0.0252	8	0.013	0.000	0.20	0.00	1.924	0	1,160.93	No
4	4		1,168.22	1,154.25							1.195	0	1,154.25	
											1.195			
3		340.00	1,062.79	1,054.79	0.0101	8	0.013	0.000	0.20	0.00	1.215	0	1,054.79	No
6	3		1,059.37	1,051.37							0.755	0	1,051.37	
											0.755			
11		284.27	1,059.37	1,051.27	0.0099	8	0.013	0.000	0.20	0.00	1.203	0	1,051.27	No
8	11		1,056.51	1,048.47							0.747	0	1,048.47	
											0.747			
12		228.75	1,056.51	1,048.37	0.0255	8	0.013	0.000	0.20	0.00	1.936	0	1,048.37	No
10	12		1,055.45	1,042.53							1.202	0	1,042.53	
											1.202			
10		210.00	1,087.11	1,076.15	0.0192	8	0.013	0.000	0.20	0.00	1.681	0	1,076.15	No
12	10		1,084.18	1,072.11							1.044	0	1,072.23	
											1.044			
15		350.00	1,209.45	1,200.74	0.0274	8	0.017	0.157	3.07	0.24	2.007	0	1,200.90	No
14	15		1,199.85	1,191.14							1.246	0	1,191.30	
											1.090			
14		322.29	1,199.85	1,190.95	0.1137	8	0.016	0.157	4.82	0.15	4.085	0	1,191.05	No
16	14		1,168.22	1,154.32							2.537	0	1,154.42	
											2.380			
1		357.91	1,168.22	1,153.93	0.0590	8	0.016	0.157	3.84	0.18	2.944	0	1,154.05	No
18	1		1,143.37	1,132.80							1.828	0	1,132.92	
											1.672			
17		228.18	1,143.37	1,132.39	0.1135	8	0.016	0.157	4.82	0.15	4.082	0	1,132.49	No
20	17		1,116.00	1,106.49							2.535	0	1,106.59	
											2.379			
8		265.79	1,116.00	1,105.00	0.1233	8	0.016	0.157	5.02	0.15	4.255	0	1,105.10	No
22	8		1,084.18	1,072.22							2.643	0	1,072.32	
											2.486			
6		273.23	1,084.18	1,072.11	0.1080	8	0.016	0.157	5.20	0.18	3.981	0	1,072.23	No
24	6		1,055.45	1,042.61							2.473	0	1,042.73	
											2.316			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
5		176.90	1,055.45	1,042.33	0.0321	8	0.017	0.157	3.08	0.21	2.169	0	1,042.47	No
26	5		1,049.00	1,036.66							1.347	0	1,036.80	
											1.191			
9		197.00	1,049.00	1,036.54	0.0502	8	0.017	0.157	3.85	0.21	2.714	0	1,036.68	No
28	9		1,037.95	1,026.66							1.685	0	1,026.80	
											1.529			
16		351.00	1,042.16	1,034.15	0.0067	8	0.013	0.000	0.20	0.00	0.994	0	1,034.15	No
30	16		1,040.67	1,031.79							0.617	0	1,031.79	
											0.617			
7		331.00	1,040.67	1,031.68	0.0146	8	0.013	0.000	0.20	0.00	1.464	0	1,031.68	No
32	7		1,037.95	1,026.85							0.909	0	1,026.85	
											0.909			
13		260.40	1,037.95	1,026.56	0.0796	8	0.016	0.157	4.46	0.18	3.418	0	1,026.68	No
34	13		1,019.15	1,005.84							2.123	0	1,005.96	
											1.966			

Ar04

6/26/2009 8:55:05 AM

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		350.00	1,016.13	1,008.13	0.0091	8	0.016	0.035	1.36	0.15	1.153	0	1,008.23	No
2	1		1,014.58	1,004.96							0.716	0	1,005.06	
											0.682			
2		300.00	1,014.58	1,004.96	0.0102	8	0.016	0.035	1.44	0.15	1.224	0	1,005.06	No
4	2		1,011.90	1,001.90							0.760	0	1,002.00	
											0.725			

Ar05

6/26/2009 8:56:10 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
2		225.00	998.08	990.09	0.0076	8	0.017	0.068	1.50	0.21	1.056	0	990.23	No
2	2		996.37	988.38							0.656	0	988.52	
											0.588			
4		325.00	996.37	988.22	0.0158	8	0.016	0.068	1.99	0.18	1.524	0	988.34	No
4	4		992.03	983.08							0.946	0	983.20	
											0.878			
3		220.40	992.03	980.67	0.0086	8	0.017	0.068	1.60	0.21	1.125	0	980.81	No
6	3		987.12	978.77							0.699	0	978.91	
											0.631			
1		279.60	987.12	978.67	0.0087	8	0.017	0.068	1.60	0.21	1.130	0	978.81	No
8	1		985.10	976.24							0.702	0	976.38	
											0.634			

Ar06s

6/26/2009 10:01:38 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
4		350.00	1,042.67	1,034.35	0.0245	8	0.016	0.040	2.00	0.12	1.897	0	1,034.43	No
2	4		1,033.93	1,025.77							1.178	0	1,025.85	
											1.139			
10		350.00	1,033.93	1,025.67	0.0074	8	0.016	0.040	1.23	0.15	1.042	0	1,025.77	No
4	10		1,031.47	1,023.08							0.647	0	1,023.18	
											0.608			
27		331.47	1,031.47	1,022.94	0.0099	8	0.016	0.040	1.42	0.15	1.204	0	1,023.04	No
6	27		1,028.50	1,019.67							0.747	0	1,019.77	
											0.708			
12		245.84	1,041.75	1,033.59	0.0280	8	0.016	0.020	1.80	0.09	2.026	0	1,033.65	No
8	12		1,034.48	1,026.72							1.258	0	1,026.78	
											1.238			
26		197.19	1,034.48	1,026.61	0.0251	8	0.016	0.020	1.70	0.09	1.920	0	1,026.67	No
10	26		1,029.53	1,021.66							1.192	0	1,021.72	
											1.172			
14		349.56	1,110.35	1,102.00	0.0198	8	0.013	0.000	0.20	0.00	1.705	0	1,102.00	No
12	14		1,103.63	1,095.08							1.059	0	1,095.08	
											1.059			
39		334.44	1,103.63	1,094.98	0.0095	8	0.013	0.000	0.20	0.00	1.180	0	1,094.98	No
14	39		1,101.50	1,091.81							0.733	0	1,091.81	
											0.733			
15		302.30	1,060.60	1,052.43	0.0719	8	0.013	0.000	0.20	0.00	3.248	0	1,052.43	No
16	15		1,039.35	1,030.71							2.017	0	1,030.71	
											2.017			
34		142.05	1,039.35	1,030.60	0.0318	8	0.013	0.000	0.20	0.00	2.161	0	1,030.60	No
18	34		1,034.10	1,026.08							1.342	0	1,026.08	
											1.342			
18		350.00	1,172.34	1,163.61	0.1360	8	0.016	0.045	3.96	0.09	4.469	0	1,163.67	No
20	18		1,127.81	1,116.00							2.775	0	1,116.06	
											2.731			
9		249.71	1,127.81	1,115.62	0.0531	8	0.016	0.045	2.95	0.12	2.792	0	1,115.70	No
22	9		1,112.00	1,102.36							1.734	0	1,102.44	
											1.689			
40		184.15	1,112.00	1,102.04	0.0556	8	0.016	0.045	3.01	0.12	2.856	0	1,102.12	No
24	40		1,101.50	1,091.81							1.774	0	1,091.89	
											1.729			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
7		127.62	1,101.50	1,091.47	0.1085	8	0.016	0.045	3.54	0.09	3.992	0	1,091.53	No
26	7		1,087.27	1,077.62							2.479	0	1,077.68	
											2.434			
20		188.86	1,087.27	1,077.20	0.0959	8	0.016	0.067	3.96	0.12	3.753	0	1,077.28	No
28	20		1,068.10	1,059.08							2.331	0	1,059.16	
											2.264			
17		111.80	1,068.10	1,058.70	0.0861	8	0.016	0.067	3.75	0.12	3.554	0	1,058.78	No
30	17		1,059.15	1,049.08							2.207	0	1,049.16	
											2.141			
23		271.19	1,036.72	1,028.67	0.0276	8	0.013	0.000	0.20	0.00	2.012	0	1,028.67	No
32	23		1,030.00	1,021.19							1.250	0	1,021.19	
											1.250			
25		261.84	1,031.92	1,022.32	0.0733	8	0.013	0.000	0.20	0.00	3.279	0	1,022.32	No
34	25		1,012.19	1,003.14							2.037	0	1,003.14	
											2.037			
8		228.16	1,012.19	1,002.94	0.0267	8	0.013	0.000	0.20	0.00	1.981	0	1,002.94	No
36	8		1,006.00	996.84							1.230	0	996.88	
											1.230			
28		150.00	1,063.42	1,055.42	0.0097	8	0.013	0.000	0.20	0.00	1.195	0	1,055.42	No
38	28		1,062.44	1,053.96							0.742	0	1,053.96	
											0.742			
44		240.65	1,062.44	1,053.86	0.0200	8	0.013	0.000	0.20	0.00	1.715	0	1,053.86	No
40	44		1,059.15	1,049.04							1.065	0	1,049.04	
											1.065			
54		116.08	1,059.15	1,048.83	0.0402	8	0.016	0.067	2.87	0.15	2.430	0	1,048.93	No
42	54		1,054.45	1,044.16							1.509	0	1,044.26	
											1.443			
41		179.11	1,054.45	1,044.00	0.0807	8	0.016	0.067	3.63	0.12	3.443	0	1,044.08	No
44	41		1,038.50	1,029.54							2.138	0	1,029.62	
											2.072			
51		147.91	1,038.50	1,029.16	0.0276	8	0.016	0.067	2.37	0.15	2.012	0	1,029.26	No
46	51		1,034.53	1,025.08							1.250	0	1,025.18	
											1.183			
52		139.10	1,034.53	1,024.82	0.0373	8	0.016	0.067	2.76	0.15	2.341	0	1,024.92	No
48	52		1,028.50	1,019.63							1.454	0	1,019.73	
											1.387			
5		314.90	1,028.50	1,019.47	0.0399	8	0.016	0.129	3.16	0.18	2.420	0	1,019.59	No
50	5		1,014.82	1,006.91							1.503	0	1,007.03	
											1.374			
47		356.00	1,014.82	1,006.74	0.0416	8	0.016	0.129	3.23	0.18	2.471	0	1,006.86	No
52	47		1,000.70	991.93							1.535	0	992.05	
											1.406			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
57		250.00	1,000.70	991.81	0.0181	8	0.017	0.129	2.49	0.24	1.631	0	991.97	No
54	57		996.40	987.28							1.013	0	987.44	
											0.884			
31		184.64	1,093.50	1,085.53	0.0528	8	0.016	0.038	2.47	0.09	2.784	0	1,085.59	No
56	31		1,084.01	1,075.78							1.729	0	1,075.84	
											1.691			
11		318.50	1,084.01	1,075.45	0.1082	8	0.016	0.038	3.53	0.09	3.986	0	1,075.51	No
58	11		1,052.40	1,040.99							2.475	0	1,041.05	
											2.437			
21		234.93	1,052.40	1,040.64	0.0621	8	0.016	0.038	2.68	0.09	3.020	0	1,040.70	No
60	21		1,034.10	1,026.05							1.875	0	1,026.11	
											1.837			
24		83.67	1,034.10	1,025.88	0.0190	8	0.016	0.038	1.76	0.12	1.670	0	1,025.96	No
62	24		1,032.32	1,024.29							1.037	0	1,024.37	
											0.999			
1		181.90	1,032.32	1,024.10	0.0140	8	0.016	0.038	1.69	0.15	1.432	0	1,024.20	No
64	1		1,029.53	1,021.56							0.889	0	1,021.66	
											0.851			
46		48.00	1,029.53	1,021.46	0.0038	8	0.017	0.058	1.13	0.24	0.742	0	1,021.62	No
66	46		1,030.00	1,021.28							0.461	0	1,021.44	
											0.402			
37		258.41	1,030.00	1,021.09	0.0240	8	0.016	0.058	2.22	0.15	1.878	0	1,021.19	No
68	37		1,023.50	1,014.88							1.167	0	1,014.98	
											1.108			
22		351.05	1,023.50	1,014.76	0.0336	8	0.016	0.100	2.90	0.18	2.222	0	1,014.88	No
70	22		1,011.26	1,002.96							1.380	0	1,003.08	
											1.280			
16		350.00	1,011.26	1,002.71	0.0401	8	0.016	0.100	3.17	0.18	2.425	0	1,002.83	No
72	16		997.23	988.69							1.506	0	988.81	
											1.407			
32		323.00	1,014.17	1,005.77	0.0051	8	0.017	0.098	1.42	0.27	0.869	0	1,005.95	No
74	32		1,012.30	1,004.11							0.540	0	1,004.29	
											0.442			
38		348.90	1,012.30	1,004.01	0.0051	8	0.017	0.098	1.42	0.27	0.868	0	1,004.19	No
76	38		1,010.60	1,002.22							0.539	0	1,002.40	
											0.441			
49		252.10	1,010.60	1,002.12	0.0083	8	0.017	0.098	1.68	0.24	1.101	0	1,002.28	No
78	49		1,009.59	1,000.04							0.684	0	1,000.26	
											0.586			
3		184.09	1,009.59	1,000.12	0.0174	8	0.017	0.098	2.27	0.21	1.598	0	1,000.26	No
80	3		1,006.00	996.92							0.992	0	997.06	
											0.894			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
36		246.84	1,006.00	996.74	0.0117	8	0.017	0.098	1.86	0.21	1.311	0	996.88	No
82	36		1,002.00	993.85							0.814	0	993.99	
											0.717			
50		300.00	1,002.00	992.75	0.0201	8	0.017	0.125	2.44	0.21	1.719	0	992.89	No
84	50		994.61	986.71							1.068	0	986.85	
											0.943			
53		270.67	994.61	986.61	0.0203	8	0.017	0.125	2.45	0.21	1.726	0	986.75	No
86	53		994.61	981.12							1.072	0	981.26	
											0.947			
56		339.53	994.61	981.02	0.0169	8	0.017	0.125	2.40	0.24	1.573	0	981.18	No
88	56		984.54	975.30							0.977	0	975.50	
											0.852			
42		284.00	1,006.68	997.50	0.0446	8	0.016	0.074	3.02	0.15	2.559	0	997.60	No
90	42		993.78	984.83							1.589	0	984.93	
											1.515			
13		350.00	993.78	984.71	0.0142	8	0.016	0.074	1.89	0.18	1.445	0	984.83	No
92	13		987.59	979.73							0.898	0	979.85	
											0.824			
48		347.73	987.59	979.63	0.0063	8	0.017	0.074	1.47	0.24	0.964	0	979.79	No
94	48		985.67	977.43							0.599	0	977.59	
											0.524			
43		137.08	997.73	989.81	0.0089	8	0.013	0.000	0.20	0.00	1.143	0	989.81	No
96	43		997.23	988.59							0.710	0	988.69	
											0.710			
45		124.00	997.23	988.49	0.0039	8	0.017	0.100	1.30	0.30	0.754	0	988.69	No
98	45		996.68	988.01							0.468	0	988.21	
											0.369			
33		73.89	996.68	987.91	0.0038	8	0.017	0.100	1.29	0.30	0.746	0	988.11	No
100	33		996.00	987.63							0.463	0	987.83	
											0.364			
29		92.79	996.00	987.53	0.0038	8	0.017	0.100	1.29	0.30	0.744	0	987.73	No
102	29		996.40	987.18							0.462	0	987.38	
											0.363			
2		296.21	996.40	987.08	0.0040	8	0.016	0.228	1.65	0.45	0.762	0	987.38	No
104	2		998.13	985.91							0.473	0	986.21	
											0.245			
19		300.00	998.13	985.81	0.0039	8	0.016	0.332	1.83	0.54	0.760	0	986.17	No
106	19		997.92	984.63							0.472	0	984.99	
											0.140			
55		300.00	997.92	984.53	0.0099	8	0.016	0.332	2.51	0.42	1.204	0	984.81	No
108	55		990.10	981.57							0.748	0	981.85	
											0.416			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
30		291.35	990.10	981.47	0.0142	8	0.017	0.332	2.89	0.39	1.444	0	981.73	No
110	30		985.67	977.33							0.897	0	977.59	
											0.566			
35		257.65	985.67	977.23	0.0079	8	0.016	0.411	2.50	0.51	1.076	0	977.57	No
112	35		984.54	975.20							0.668	0	975.54	
											0.257			
6		301.00	984.54	975.10	0.0075	8	0.016	0.540	2.68	0.60	1.050	0	975.50	No
114	6		982.50	972.84							0.652	0	973.24	
											0.112			

Ar07

6/26/2009 10:19:52 AM

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		265.00	983.38	976.11	0.0087	8	0.016	0.018	1.19	0.12	1.131	0	976.19	No
2	1		981.20	973.80							0.703	0	973.88	
											0.685			
2		255.00	981.20	973.70	0.0229	8	0.016	0.018	1.62	0.09	1.832	0	973.76	No
4	2		977.97	967.87							1.138	0	967.93	
											1.120			

Ar08

6/26/2009 10:20:12 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		330.00	1,004.03	995.89	0.0403	8	0.016	0.040	2.57	0.12	2.433	0	995.97	No
2	1		990.51	982.59							1.511	0	982.67	
											1.471			
2		350.00	990.51	982.40	0.0550	8	0.016	0.040	3.00	0.12	2.841	0	982.48	No
4	2		974.50	963.16							1.764	0	963.24	
											1.725			

Ar09

6/26/2009 10:20:31 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
3		250.00	1,018.64	1,004.74	0.0114	8	0.013	0.000	0.20	0.00	1.294	0	1,004.74	No
2	3		1,009.75	1,001.89							0.804	0	1,001.89	
											0.804			
4		291.70	1,009.75	1,001.78	0.0656	8	0.013	0.000	0.20	0.00	3.103	0	1,001.78	No
4	4		993.11	982.65							1.927	0	982.65	
											1.927			
7		180.00	1,058.05	1,052.39	0.0536	8	0.016	0.064	2.96	0.12	2.804	0	1,052.47	No
6	7		1,049.00	1,042.75							1.742	0	1,042.83	
											1.677			
1		318.00	1,049.00	1,042.52	0.0573	8	0.016	0.064	3.06	0.12	2.900	0	1,042.60	No
8	1		1,031.00	1,024.31							1.801	0	1,024.39	
											1.737			
5		197.00	1,031.00	1,023.56	0.1045	8	0.016	0.064	4.13	0.12	3.916	0	1,023.64	No
10	5		1,012.46	1,002.98							2.432	0	1,003.06	
											2.368			
8		350.00	1,027.19	1,020.79	0.0508	8	0.013	0.000	0.20	0.00	2.732	0	1,020.79	No
12	8		1,012.46	1,003.00							1.697	0	1,003.00	
											1.697			
2		278.00	1,012.46	1,002.57	0.0718	8	0.016	0.064	3.42	0.12	3.246	0	1,002.65	No
14	2		993.11	982.62							2.016	0	982.70	
											1.952			
6		333.30	993.11	982.34	0.0565	8	0.016	0.064	3.04	0.12	2.881	0	982.42	No
16	6		974.25	963.50							1.789	0	963.58	
											1.725			

Ar10

6/26/2009 10:20:49 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		89.52	976.52	967.43	0.0107	8	0.017	0.096	1.92	0.24	1.255	0	967.59	No
2	1		975.65	966.47							0.779	0	966.63	
											0.683			
2		113.67	975.65	966.47	0.0097	8	0.017	0.096	1.82	0.24	1.192	0	966.63	No
4	2		974.38	965.37							0.740	0	965.53	
											0.644			
4		335.58	974.38	965.27	0.0099	8	0.017	0.096	1.84	0.24	1.205	0	965.43	No
6	4		971.03	961.95							0.749	0	962.11	
											0.653			
3		172.11	971.03	961.85	0.0593	8	0.016	0.096	3.48	0.15	2.951	0	961.95	No
8	3		966.98	951.64							1.833	0	951.74	
											1.737			

Ar11

6/26/2009 10:21:07 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		270.83	1,026.49	1,019.69	0.0807	8	0.013	0.000	0.20	0.00	3.442	0	1,019.69	No
2	1		1,004.96	997.84							2.137	0	997.84	
											2.137			
4		276.08	1,004.96	997.26	0.0914	8	0.013	0.000	0.20	0.00	3.664	0	997.26	No
4	4		979.96	972.02							2.275	0	972.02	
											2.275			
2		310.77	995.56	989.17	0.0552	8	0.013	0.000	0.20	0.00	2.846	0	989.17	No
6	2		979.96	972.02							1.768	0	972.02	
											1.768			
6		297.05	979.96	971.71	0.0646	8	0.013	0.000	0.20	0.00	3.079	0	971.71	No
8	6		961.75	952.53							1.912	0	952.63	
											1.912			
3		155.00	982.16	972.39	0.0456	8	0.013	0.000	0.20	0.00	2.588	0	972.39	No
10	3		974.87	965.32							1.607	0	965.32	
											1.607			
7		350.00	991.68	983.11	0.0221	8	0.016	0.081	2.35	0.18	1.803	0	983.23	No
12	7		983.32	975.36							1.120	0	975.48	
											1.038			
8		180.67	983.32	975.20	0.0547	8	0.016	0.083	3.34	0.15	2.834	0	975.30	No
14	8		974.87	965.32							1.760	0	965.42	
											1.677			
5		233.84	974.87	965.08	0.0532	8	0.016	0.083	3.30	0.15	2.794	0	965.18	No
16	5		961.75	952.65							1.735	0	952.75	
											1.652			
9		260.00	961.75	952.53	0.0627	8	0.016	0.083	3.58	0.15	3.033	0	952.63	No
18	9		940.00	936.24							1.884	0	936.34	
											1.800			

Ar12

6/26/2009 10:21:28 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
5		211.18	1,026.01	1,018.31	0.0714	8	0.013	0.000	0.20	0.00	3.238	0	1,018.31	No
2	5		1,012.13	1,003.23							2.011	0	1,003.23	
											2.011			
3		335.82	1,012.13	1,002.74	0.0939	8	0.013	0.000	0.20	0.00	3.713	0	1,002.74	No
4	3		981.63	971.20							2.306	0	971.20	
											2.306			
9		242.36	1,012.92	1,004.69	0.0295	8	0.013	0.000	0.20	0.00	2.081	0	1,004.69	No
6	9		1,005.76	997.54							1.293	0	997.54	
											1.293			
10		250.14	1,005.76	997.38	0.0492	8	0.013	0.000	0.20	0.00	2.688	0	997.38	No
8	10		993.27	985.07							1.669	0	985.07	
											1.669			
18		256.14	993.27	984.86	0.0536	8	0.013	0.000	0.20	0.00	2.804	0	984.86	No
10	18		981.63	971.14							1.742	0	971.14	
											1.742			
11		220.57	1,027.50	1,020.80	0.0216	8	0.013	0.000	0.20	0.00	1.780	0	1,020.80	No
12	11		1,024.85	1,016.04							1.106	0	1,016.04	
											1.106			
1		350.00	1,024.85	1,015.85	0.0735	8	0.013	0.000	0.20	0.00	3.286	0	1,015.85	No
14	1		1,000.00	990.11							2.041	0	990.17	
											2.041			
17		282.27	944.19	935.03	0.0244	8	0.013	0.000	0.20	0.00	1.894	0	935.03	No
16	17		940.50	928.13							1.177	0	928.13	
											1.177			
20		125.00	960.60	950.32	0.0099	8	0.013	0.000	0.20	0.00	1.207	0	950.32	No
18	20		956.00	949.08							0.750	0	949.08	
											0.750			
21		285.17	1,038.37	1,032.16	0.0301	8	0.017	0.125	2.99	0.21	2.103	0	1,032.30	No
20	21		1,031.13	1,023.57							1.306	0	1,023.71	
											1.181			
7		201.38	1,031.13	1,023.22	0.1136	8	0.016	0.125	4.82	0.15	4.083	0	1,023.32	No
22	7		1,007.38	1,000.35							2.536	0	1,000.45	
											2.411			
12		149.70	1,007.38	999.98	0.0654	8	0.016	0.125	4.05	0.18	3.099	0	1,000.10	No
24	12		1,000.00	990.19							1.924	0	990.31	
											1.800			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
2		235.00	1,000.00	989.95	0.0039	8	0.017	0.125	1.38	0.33	0.758	0	990.17	No
26	2		996.00	989.03							0.471	0	989.25	
											0.346			
6		327.03	996.00	988.81	0.0537	8	0.016	0.125	3.67	0.18	2.809	0	988.93	No
28	6		981.63	971.24							1.744	0	971.36	
											1.620			
4		243.86	981.63	970.94	0.0445	8	0.016	0.125	3.34	0.18	2.555	0	971.06	No
30	4		968.07	960.10							1.587	0	960.22	
											1.462			
14		254.98	968.07	959.90	0.0547	8	0.016	0.125	3.70	0.18	2.834	0	960.02	No
32	14		956.00	945.95							1.760	0	946.07	
											1.635			
22		169.06	995.73	989.36	0.0363	8	0.013	0.000	0.20	0.00	2.309	0	989.36	No
34	22		989.47	983.22							1.434	0	983.22	
											1.434			
19		251.94	989.47	982.96	0.0921	8	0.013	0.000	0.20	0.00	3.678	0	982.96	No
36	19		967.63	959.75							2.284	0	959.75	
											2.284			
15		239.81	967.63	959.38	0.0897	8	0.013	0.000	0.20	0.00	3.629	0	959.38	No
38	15		946.07	937.87							2.254	0	937.87	
											2.254			
8		160.19	946.07	937.50	0.0581	8	0.013	0.000	0.20	0.00	2.920	0	937.50	No
40	8		940.50	928.20							1.813	0	928.20	
											1.813			
23		149.00	956.45	950.53	0.0040	8	0.013	0.000	0.20	0.00	0.769	0	950.53	No
42	23		956.00	949.93							0.478	0	949.93	
											0.478			
13		301.02	956.00	945.68	0.0584	8	0.016	0.125	3.82	0.18	2.928	0	945.80	No
44	13		940.50	928.10							1.819	0	928.22	
											1.694			
16		260.30	940.50	927.02	0.0281	8	0.017	0.125	2.89	0.21	2.032	0	927.16	No
46	16		934.00	919.70							1.262	0	919.84	
											1.137			

Ar13

6/26/2009 10:21:45 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		222.03	933.26	925.24	0.0393	8	0.013	0.000	0.20	0.00	2.401	0	925.24	No
2	1		932.00	916.52							1.491	0	916.56	
											1.491			
6		318.00	938.00	930.89	0.0040	8	0.013	0.000	0.20	0.00	0.763	0	930.89	No
4	6		936.56	929.63							0.474	0	929.69	
											0.474			
11		290.00	936.25	928.97	0.0039	8	0.013	0.000	0.20	0.00	0.760	0	928.97	No
6	11		934.60	927.83							0.472	0	927.89	
											0.472			
14		350.00	937.65	929.30	0.0059	8	0.013	0.000	0.20	0.00	0.934	0	929.30	No
8	14		935.90	927.22							0.580	0	927.22	
											0.580			
2		120.00	935.90	927.12	0.0406	8	0.013	0.000	0.20	0.00	2.441	0	927.12	No
10	2		934.64	922.25							1.516	0	922.25	
											1.516			
16		289.24	942.85	933.58	0.0140	8	0.017	0.176	2.34	0.27	1.434	0	933.76	No
12	16		936.56	929.53							0.891	0	929.71	
											0.715			
4		204.21	936.56	929.43	0.0039	8	0.017	0.176	1.52	0.39	0.758	0	929.69	No
14	4		935.30	928.63							0.471	0	928.89	
											0.295			
7		202.99	935.30	928.53	0.0039	8	0.017	0.176	1.52	0.39	0.761	0	928.79	No
16	7		934.60	927.73							0.472	0	927.99	
											0.297			
17		162.56	934.60	927.63	0.0039	8	0.017	0.176	1.51	0.39	0.754	0	927.89	No
18	17		936.18	927.00							0.469	0	927.26	
											0.293			
8		330.00	936.18	926.90	0.0039	8	0.017	0.176	1.52	0.39	0.761	0	927.16	No
20	8		946.80	925.60							0.472	0	925.86	
											0.297			
3		234.54	946.80	925.40	0.0039	8	0.017	0.176	1.52	0.39	0.759	0	925.66	No
22	3		940.30	924.48							0.471	0	924.74	
											0.296			
15		234.54	940.30	924.38	0.0039	8	0.017	0.176	1.52	0.39	0.759	0	924.64	No
24	15		938.14	923.46							0.471	0	923.72	
											0.296			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
10		305.52	938.14	923.36	0.0040	8	0.017	0.176	1.53	0.39	0.763	0	923.62	No
26	10		934.64	922.15							0.474	0	922.41	
											0.298			
13		159.59	934.64	922.05	0.0293	8	0.017	0.176	3.17	0.24	2.073	0	922.21	No
28	13		933.17	917.38							1.287	0	917.54	
											1.112			
9		218.03	933.17	917.28	0.0039	8	0.017	0.176	1.52	0.39	0.761	0	917.54	No
30	9		932.00	916.42							0.473	0	916.68	
											0.297			
5		135.44	932.00	916.32	0.0058	8	0.017	0.176	1.76	0.36	0.920	0	916.56	No
32	5		929.28	915.54							0.571	0	915.78	
											0.395			
12		301.93	929.28	915.44	0.0252	8	0.017	0.176	2.94	0.24	1.925	0	915.60	No
34	12		927.00	907.82							1.196	0	907.98	
											1.020			

Ar14

6/26/2009 10:22:05 AM

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		100.00	936.56	928.33	0.0790	8	0.016	0.090	4.02	0.15	3.406	0	928.43	No
2	1		933.20	920.43							2.115	0	920.57	
											2.025			
2		192.00	929.20	921.09	0.0196	8	0.013	0.000	0.20	0.00	1.696	0	921.09	No
4	2		927.70	917.33							1.053	0	917.41	
											1.053			
6		227.00	935.50	927.77	0.0315	8	0.013	0.000	0.20	0.00	2.149	0	927.77	No
6	6		933.20	920.63							1.335	0	920.63	
											1.335			
4		176.05	933.20	920.43	0.0113	8	0.017	0.090	1.83	0.21	1.288	0	920.57	No
8	4		925.60	918.44							0.800	0	918.58	
											0.710			
3		106.86	925.60	917.84	0.0038	8	0.017	0.090	1.22	0.27	0.751	0	918.02	No
10	3		927.70	917.43							0.466	0	917.61	
											0.376			
7		127.83	927.70	917.23	0.0039	8	0.017	0.090	1.24	0.27	0.758	0	917.41	No
12	7		925.25	916.73							0.471	0	916.91	
											0.381			
5		141.00	925.25	916.73	0.0834	8	0.016	0.090	4.13	0.15	3.499	0	916.83	No
14	5		921.25	904.97							2.173	0	905.07	
											2.083			

Ar15

6/26/2009 10:22:57 AM

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
3		188.14	944.66	936.69	0.0536	8	0.016	0.037	2.49	0.09	2.806	0	936.75	No
2	3		934.00	926.60							1.743	0	926.66	
											1.705			
4		154.72	934.00	926.38	0.0039	8	0.016	0.037	0.99	0.18	0.755	0	926.50	No
4	4		936.50	925.78							0.469	0	925.94	
											0.431			
1		262.66	936.50	925.88	0.0511	8	0.016	0.037	2.43	0.09	2.738	0	925.94	No
6	1		919.80	912.47							1.700	0	912.53	
											1.663			
2		123.82	919.80	912.47	0.0590	8	0.016	0.037	2.61	0.09	2.942	0	912.53	No
8	2		921.20	905.17							1.827	0	905.23	
											1.790			

Ar16

6/26/2009 10:23:17 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		38.00	923.71	911.93	0.0447	8	0.013	0.000	0.20	0.00	2.563	0	911.93	No
2	1		923.13	910.23							1.592	0	910.38	
											1.592			
4		215.59	941.67	931.83	0.0046	8	0.013	0.000	0.20	0.00	0.821	0	931.83	No
4	4		939.43	930.84							0.510	0	930.84	
											0.510			
5		320.00	945.96	938.00	0.0371	8	0.013	0.000	0.20	0.00	2.335	0	938.00	No
6	5		935.47	926.12							1.450	0	926.12	
											1.450			
18		310.00	935.47	925.97	0.0277	8	0.013	0.000	0.20	0.00	2.015	0	925.97	No
8	18		930.25	917.40							1.251	0	917.40	
											1.251			
11		213.08	932.38	922.33	0.0046	8	0.013	0.000	0.20	0.00	0.822	0	922.33	No
10	11		929.77	921.35							0.510	0	921.35	
											0.510			
9		204.36	955.22	947.01	0.0200	8	0.017	0.227	2.97	0.30	1.714	0	947.21	No
11	9		951.38	942.92							1.065	0	943.12	
											0.838			
13		253.03	951.38	942.77	0.0256	8	0.017	0.227	3.16	0.27	1.938	0	942.95	No
13	13		944.36	936.30							1.203	0	936.48	
											0.977			
10		250.00	944.36	936.17	0.0437	8	0.017	0.227	3.87	0.24	2.532	0	936.33	No
15	10		938.06	925.25							1.573	0	925.41	
											1.346			
19		332.52	938.06	925.06	0.0233	8	0.017	0.227	3.02	0.27	1.851	0	925.24	No
17	19		930.25	917.30							1.150	0	917.48	
											0.923			
12		241.48	930.25	917.20	0.0290	8	0.017	0.227	3.37	0.27	2.063	0	917.38	No
19	12		923.13	910.20							1.281	0	910.38	
											1.054			
3		100.00	923.13	910.08	0.0038	8	0.016	0.227	1.62	0.45	0.747	0	910.38	No
21	3		923.00	909.70							0.464	0	910.00	
											0.237			
16		339.88	955.22	947.01	0.0229	8	0.013	0.000	0.20	0.00	1.834	0	947.01	No
22	16		948.03	939.22							1.139	0	939.22	
											1.139			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
14		315.65	948.03	939.12	0.0051	8	0.013	0.000	0.20	0.00	0.868	0	939.12	No
24	14		946.32	937.50							0.539	0	937.50	
											0.539			
8		189.17	946.32	937.30	0.0376	8	0.013	0.000	0.20	0.00	2.351	0	937.30	No
26	8		939.43	930.18							1.460	0	930.64	
											1.460			
15		260.00	939.43	930.64	0.0355	8	0.013	0.000	0.20	0.00	2.282	0	930.64	No
28	15		929.77	921.42							1.417	0	921.42	
											1.417			
6		265.00	929.77	921.28	0.0437	8	0.013	0.000	0.20	0.00	2.533	0	921.28	No
30	6		923.00	909.70							1.573	0	909.75	
											1.573			
7		344.56	923.00	909.43	0.0031	8	0.016	0.227	1.50	0.48	0.669	0	909.75	No
32	7		924.00	908.38							0.415	0	908.70	
											0.189			
17		99.72	924.00	908.18	0.0038	8	0.016	0.227	1.62	0.45	0.748	0	908.48	No
34	17		925.00	907.80							0.465	0	908.10	
											0.238			
20		148.36	925.00	907.60	0.0202	8	0.017	0.227	2.98	0.30	1.723	0	907.80	No
36	20		921.00	904.60							1.070	0	904.80	
											0.843			
2		344.56	921.00	904.48	0.0186	8	0.017	0.227	2.86	0.30	1.653	0	904.68	No
38	2		908.00	898.07							1.026	0	898.27	
											0.800			

Ar17s

6/26/2009 10:23:49 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		122.88	1,058.36	1,051.22	0.0039	8	0.016	0.005	0.67	0.09	0.757	0	1,051.28	No
2	1		1,060.00	1,050.74							0.470	0	1,050.80	
											0.465			
3		141.49	1,038.46	1,030.52	0.0563	8	0.016	0.017	2.00	0.06	2.876	0	1,030.56	No
4	3		1,030.49	1,022.55							1.786	0	1,022.59	
											1.769			
67		242.14	1,030.49	1,022.25	0.0651	8	0.016	0.017	2.15	0.06	3.090	0	1,022.29	No
6	67		1,015.00	1,006.50							1.919	0	1,006.64	
											1.903			
17		184.00	1,029.23	1,021.05	0.0736	8	0.016	0.012	2.28	0.06	3.287	0	1,021.09	No
8	17		1,015.34	1,007.51							2.041	0	1,007.55	
											2.029			
38		188.53	1,015.34	1,007.11	0.0979	8	0.016	0.012	2.63	0.06	3.790	0	1,007.15	No
10	38		996.58	988.66							2.354	0	988.70	
											2.342			
19		44.39	992.47	984.54	0.0629	8	0.015	0.002	1.42	0.03	3.038	0	984.56	No
12	19		990.35	981.75							1.887	0	981.77	
											1.885			
25		130.00	1,088.18	1,081.99	0.0395	8	0.016	0.008	1.67	0.06	2.409	0	1,082.03	No
14	25		1,083.61	1,076.85							1.496	0	1,076.89	
											1.489			
26		343.69	1,018.16	1,010.05	0.0316	8	0.016	0.032	2.27	0.12	2.155	0	1,010.13	No
16	26		1,009.05	999.18							1.338	0	999.40	
											1.306			
27		240.48	1,093.85	1,086.30	0.0873	8	0.013	0.000	0.20	0.00	3.581	0	1,086.30	No
18	27		1,076.58	1,065.30							2.224	0	1,065.30	
											2.224			
28		233.87	1,076.58	1,065.01	0.0570	8	0.016	0.023	2.57	0.09	2.893	0	1,065.07	No
20	28		1,061.10	1,051.68							1.797	0	1,051.74	
											1.774			
49		169.76	1,061.10	1,051.40	0.0039	8	0.016	0.023	0.89	0.15	0.756	0	1,051.50	No
22	49		1,060.00	1,050.74							0.469	0	1,050.84	
											0.446			
93		319.94	1,060.00	1,050.51	0.0596	8	0.016	0.053	3.12	0.12	2.959	0	1,050.59	No
24	93		1,040.15	1,031.43							1.838	0	1,031.51	
											1.785			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
42		302.98	1,040.15	1,031.33	0.0612	8	0.016	0.053	3.16	0.12	2.997	0	1,031.41	No
26	42		1,020.76	1,012.79							1.862	0	1,012.87	
											1.809			
12		350.00	1,020.76	1,012.59	0.0475	8	0.016	0.053	2.79	0.12	2.640	0	1,012.67	No
28	12		1,004.15	995.98							1.639	0	996.06	
											1.587			
55		350.00	1,004.15	995.88	0.0079	8	0.016	0.053	1.41	0.18	1.078	0	996.00	No
30	55		1,001.28	993.11							0.670	0	993.23	
											0.617			
137		251.29	1,001.28	993.01	0.0079	8	0.016	0.053	1.40	0.18	1.076	0	993.13	No
32	137		999.66	991.03							0.668	0	991.29	
											0.615			
36		228.62	1,093.97	1,086.30	0.0531	8	0.016	0.058	2.94	0.12	2.791	0	1,086.38	No
34	36		1,082.55	1,074.17							1.733	0	1,074.25	
											1.676			
75		250.08	1,082.55	1,073.90	0.0846	8	0.016	0.058	3.72	0.12	3.525	0	1,073.98	No
36	75		1,063.65	1,052.74							2.189	0	1,052.82	
											2.131			
78		187.27	1,063.65	1,052.55	0.0079	8	0.016	0.058	1.40	0.18	1.074	0	1,052.67	No
38	78		1,059.22	1,051.08							0.667	0	1,051.20	
											0.609			
35		186.74	1,059.22	1,050.80	0.0529	8	0.016	0.058	2.94	0.12	2.786	0	1,050.88	No
40	35		1,051.93	1,040.93							1.730	0	1,041.01	
											1.672			
22		187.40	1,051.93	1,040.76	0.0313	8	0.016	0.058	2.53	0.15	2.145	0	1,040.86	No
42	22		1,042.96	1,034.89							1.332	0	1,035.14	
											1.274			
44		318.00	1,004.95	998.83	0.0040	8	0.016	0.018	0.80	0.12	0.763	0	998.91	No
44	44		1,005.02	997.57							0.474	0	997.65	
											0.456			
10		350.00	1,005.02	997.47	0.0040	8	0.016	0.018	0.81	0.12	0.764	0	997.55	Yes
46	10		1,003.39	996.08							0.474	0	996.95	
											0.456			
46		166.00	946.69	938.56	0.0293	8	0.016	0.031	2.19	0.12	2.073	0	938.64	No
48	46		941.65	933.70							1.288	0	933.78	
											1.257			
115		300.00	941.65	933.56	0.0395	8	0.016	0.031	2.13	0.09	2.407	0	933.62	No
50	115		929.65	921.72							1.495	0	921.78	
											1.464			
70		321.00	929.65	921.57	0.0327	8	0.016	0.031	2.31	0.12	2.190	0	921.65	No
52	70		919.72	911.08							1.360	0	911.16	
											1.330			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
7		150.00	919.72	910.85	0.0039	8	0.016	0.031	0.98	0.18	0.753	0	910.97	No
54	7		917.60	910.27							0.468	0	910.39	
											0.437			
50		212.50	1,004.23	996.64	0.0625	8	0.016	0.025	2.69	0.09	3.029	0	996.70	No
56	50		991.90	983.36							1.881	0	983.42	
											1.856			
4		111.32	991.90	983.14	0.0308	8	0.016	0.025	1.89	0.09	2.127	0	983.20	No
58	4		987.88	979.71							1.321	0	979.77	
											1.296			
141		134.18	987.88	979.61	0.0040	8	0.016	0.025	0.90	0.15	0.762	0	979.71	No
60	141		988.83	979.08							0.473	0	979.18	
											0.448			
8		350.00	988.83	978.98	0.0039	8	0.016	0.025	0.90	0.15	0.761	0	979.08	No
62	8		986.03	977.60							0.473	0	977.70	
											0.448			
2		270.00	986.03	977.49	0.0493	8	0.016	0.026	2.38	0.09	2.689	0	977.55	No
64	2		974.32	964.19							1.670	0	964.25	
											1.644			
51		249.57	1,011.97	1,004.19	0.0197	8	0.016	0.009	1.18	0.06	1.700	0	1,004.23	No
66	51		1,009.05	999.28							1.056	0	999.40	
											1.047			
18		196.76	1,009.05	999.28	0.0128	8	0.016	0.053	1.79	0.18	1.369	0	999.40	No
68	18		1,006.25	996.77							0.850	0	996.89	
											0.797			
13		214.39	1,006.25	996.57	0.0039	8	0.017	0.053	1.08	0.21	0.758	0	996.71	No
70	13		1,007.38	995.73							0.471	0	995.87	
											0.418			
53		210.00	1,007.38	995.63	0.0039	8	0.017	0.053	1.08	0.21	0.757	0	995.77	No
72	53		1,008.15	994.81							0.470	0	994.95	
											0.417			
60		143.73	1,065.00	1,055.29	0.1133	8	0.016	0.060	4.30	0.12	4.079	0	1,055.37	No
74	60		1,047.15	1,039.00							2.533	0	1,039.08	
											2.473			
31		208.20	1,047.15	1,038.74	0.0686	8	0.016	0.060	3.35	0.12	3.174	0	1,038.82	No
76	31		1,033.63	1,024.45							1.972	0	1,024.53	
											1.911			
122		232.00	1,033.63	1,024.21	0.0522	8	0.016	0.060	2.92	0.12	2.769	0	1,024.29	No
78	122		1,020.40	1,012.09							1.720	0	1,012.17	
											1.660			
130		325.00	1,020.40	1,011.85	0.0679	8	0.016	0.060	3.33	0.12	3.158	0	1,011.93	No
80	130		1,005.30	989.77							1.961	0	989.85	
											1.901			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
63		326.39	1,005.30	989.62	0.0040	8	0.017	0.060	1.16	0.24	0.762	0	989.78	No
82	63		997.12	988.33							0.473	0	988.49	
											0.413			
131		179.61	997.12	988.23	0.0039	8	0.017	0.060	1.16	0.24	0.756	0	988.39	No
84	131		997.50	987.53							0.470	0	987.69	
											0.409			
21		338.35	997.50	987.33	0.0055	8	0.017	0.060	1.28	0.21	0.901	0	987.47	No
86	21		993.24	985.46							0.559	0	985.60	
											0.499			
61		340.13	1,095.82	1,086.81	0.0039	8	0.017	0.069	1.16	0.24	0.761	0	1,086.97	No
88	61		1,098.64	1,085.47							0.472	0	1,085.63	
											0.404			
103		180.18	1,098.64	1,085.26	0.0989	8	0.016	0.069	4.02	0.12	3.811	0	1,085.34	No
90	103		1,079.48	1,067.44							2.367	0	1,067.52	
											2.298			
110		350.00	1,079.48	1,057.33	0.0565	8	0.016	0.069	3.04	0.12	2.881	0	1,057.41	No
92	110		1,046.64	1,037.55							1.789	0	1,037.81	
											1.720			
34		274.51	1,046.64	1,037.73	0.0552	8	0.016	0.069	3.00	0.12	2.847	0	1,037.81	No
94	34		1,030.29	1,022.58							1.768	0	1,022.66	
											1.699			
72		212.21	1,030.29	1,022.34	0.0648	8	0.016	0.069	3.25	0.12	3.083	0	1,022.42	No
96	72		1,018.42	1,008.60							1.915	0	1,008.68	
											1.846			
15		350.00	1,018.42	1,008.37	0.0494	8	0.016	0.069	3.18	0.15	2.694	0	1,008.47	No
98	15		1,004.50	991.07							1.673	0	991.17	
											1.604			
64		126.91	1,022.92	1,014.90	0.0229	8	0.013	0.000	0.20	0.00	1.832	0	1,014.90	No
100	64		1,022.16	1,012.00							1.138	0	1,012.00	
											1.138			
48		305.78	1,022.16	1,011.90	0.0280	8	0.016	0.022	1.80	0.09	2.029	0	1,011.96	No
102	48		1,011.41	1,003.33							1.260	0	1,003.39	
											1.238			
82		242.06	1,011.41	1,003.17	0.0496	8	0.016	0.022	2.39	0.09	2.698	0	1,003.23	No
104	82		1,004.50	991.17							1.676	0	991.23	
											1.654			
47		262.96	1,004.50	990.96	0.0040	8	0.017	0.091	1.24	0.27	0.762	0	991.14	No
106	47		999.29	989.92							0.473	0	990.10	
											0.383			
129		183.09	999.29	989.82	0.0234	8	0.017	0.106	2.63	0.21	1.855	0	989.96	No
108	129		993.24	985.53							1.152	0	985.67	
											1.046			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
57		272.71	993.24	985.36	0.0150	8	0.017	0.166	2.42	0.27	1.484	0	985.54	No
110	57		988.94	981.27							0.922	0	981.45	
											0.755			
135		250.00	988.94	981.17	0.0039	8	0.016	0.215	1.58	0.42	0.759	0	981.45	No
112	135		990.00	980.19							0.471	0	980.47	
											0.256			
81		240.26	990.00	980.09	0.0040	8	0.016	0.215	1.59	0.42	0.762	0	980.37	No
114	81		993.13	979.14							0.473	0	979.42	
											0.258			
52		142.99	993.13	979.04	0.0039	8	0.016	0.215	1.58	0.42	0.758	0	979.32	No
116	52		991.99	978.48							0.471	0	978.76	
											0.256			
33		180.26	991.99	978.28	0.0039	8	0.016	0.215	1.59	0.42	0.760	0	978.56	No
118	33		985.00	977.57							0.472	0	977.85	
											0.257			
30		37.08	985.00	973.93	0.1319	8	0.016	0.215	5.74	0.18	4.400	0	974.05	No
120	30		985.00	969.04							2.733	0	969.16	
											2.518			
69		136.37	985.00	968.34	0.0310	8	0.017	0.215	3.48	0.27	2.132	0	968.52	No
122	69		971.72	964.12							1.324	0	964.30	
											1.109			
71		244.27	971.72	964.02	0.0246	8	0.017	0.215	3.10	0.27	1.901	0	964.20	No
124	71		965.62	958.01							1.180	0	958.19	
											0.966			
11		300.00	965.62	957.88	0.0375	8	0.017	0.215	3.59	0.24	2.346	0	958.04	No
126	11		954.20	946.63							1.457	0	946.79	
											1.242			
86		250.00	954.20	946.48	0.0586	8	0.017	0.215	4.17	0.21	2.934	0	946.62	Yes
128	86		946.04	931.82							1.822	0	932.85	
											1.607			
66		172.02	1,017.39	1,008.93	0.0137	8	0.016	0.004	0.98	0.06	1.416	0	1,008.97	No
130	66		1,015.00	1,006.58							0.880	0	1,006.64	
											0.876			
127		195.64	1,015.00	1,006.58	0.0265	8	0.016	0.021	1.75	0.09	1.972	0	1,006.64	No
132	127		1,010.46	1,001.40							1.225	0	1,001.46	
											1.204			
114		218.78	1,010.46	1,001.30	0.0126	8	0.016	0.036	1.60	0.15	1.359	0	1,001.40	No
134	114		1,008.16	998.55							0.844	0	998.65	
											0.808			
68		194.79	1,008.16	998.45	0.0039	8	0.016	0.036	0.99	0.18	0.757	0	998.57	No
136	68		1,010.00	997.69							0.470	0	997.81	
											0.434			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
104		27.64	1,010.00	997.38	0.0854	8	0.016	0.036	3.14	0.09	3.541	0	997.44	No
138	104		1,008.15	995.02							2.199	0	995.08	
											2.163			
89		204.74	1,008.15	994.71	0.0047	8	0.017	0.089	1.35	0.27	0.830	0	994.89	No
140	89		1,006.42	993.75							0.515	0	993.93	
											0.426			
111		180.00	1,006.42	993.65	0.0043	8	0.017	0.093	1.29	0.27	0.793	0	993.83	No
142	111		1,008.00	992.88							0.492	0	993.08	
											0.399			
80		125.00	982.26	974.28	0.0202	8	0.016	0.005	1.20	0.06	1.720	0	974.32	No
144	80		981.11	971.76							1.069	0	971.88	
											1.064			
83		150.00	999.80	991.71	0.0436	8	0.016	0.013	1.76	0.06	2.530	0	991.75	No
146	83		993.45	985.17							1.571	0	985.21	
											1.559			
88		100.00	993.45	985.03	0.0326	8	0.016	0.013	1.52	0.06	2.188	0	985.07	No
148	88		990.35	981.77							1.359	0	981.81	
											1.346			
94		265.11	990.35	981.48	0.0709	8	0.016	0.025	2.86	0.09	3.227	0	981.54	No
150	94		971.27	962.68							2.004	0	962.74	
											1.979			
98		256.56	971.27	962.44	0.0453	8	0.016	0.025	2.29	0.09	2.579	0	962.50	No
152	98		959.25	950.82							1.602	0	950.88	
											1.577			
90		249.45	1,056.83	1,048.86	0.0693	8	0.013	0.000	0.20	0.00	3.189	0	1,048.86	No
154	90		1,040.15	1,031.58							1.981	0	1,031.58	
											1.981			
29		294.79	1,040.15	1,031.33	0.0612	8	0.016	0.023	2.66	0.09	2.997	0	1,031.39	No
156	29		1,021.08	1,013.30							1.861	0	1,013.36	
											1.838			
58		350.00	1,021.08	1,013.20	0.0494	8	0.016	0.023	2.39	0.09	2.694	0	1,013.26	No
158	58		1,003.39	995.90							1.673	0	995.96	
											1.650			
126		350.00	1,003.39	995.78	0.0079	8	0.016	0.023	1.14	0.12	1.078	0	995.86	No
160	126		1,000.92	993.01							0.670	0	993.09	
											0.646			
54		349.76	1,000.92	992.91	0.0034	8	0.016	0.023	0.83	0.15	0.704	0	993.01	No
162	54		999.29	991.73							0.437	0	991.83	
											0.414			
14		48.00	999.29	991.53	0.0083	8	0.016	0.024	1.17	0.12	1.106	0	991.61	No
164	14		999.66	991.13							0.687	0	991.29	
											0.663			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
99		130.00	1,058.00	1,061.93	0.0979	8	0.015	0.005	1.77	0.03	3.790	0	1,061.95	No
166	99		1,055.13	1,049.21							2.354	0	1,049.23	
											2.349			
101		87.99	1,096.84	1,090.93	0.0471	8	0.016	0.008	1.83	0.06	2.628	0	1,090.97	No
168	101		1,092.73	1,086.79							1.632	0	1,086.83	
											1.624			
121		86.77	1,092.73	1,086.47	0.1114	8	0.016	0.008	2.81	0.06	4.045	0	1,086.51	No
170	121		1,083.61	1,076.80							2.512	0	1,076.89	
											2.504			
106		179.20	1,083.61	1,076.85	0.1589	8	0.016	0.020	3.36	0.06	4.830	0	1,076.89	No
172	106		1,055.13	1,048.38							2.999	0	1,048.87	
											2.980			
85		155.38	1,055.13	1,048.77	0.1462	8	0.016	0.119	5.46	0.15	4.632	0	1,048.87	No
174	85		1,032.24	1,026.06							2.877	0	1,026.16	
											2.758			
20		97.66	1,032.24	1,025.48	0.1351	8	0.016	0.119	5.25	0.15	4.453	0	1,025.58	No
176	20		1,017.78	1,012.29							2.766	0	1,012.39	
											2.646			
37		73.07	1,017.78	1,011.75	0.1244	8	0.016	0.119	5.04	0.15	4.274	0	1,011.85	No
178	37		1,010.28	1,002.66							2.654	0	1,002.78	
											2.535			
105		126.93	1,010.28	1,002.66	0.0351	8	0.016	0.119	2.96	0.18	2.269	0	1,002.78	No
180	105		1,005.51	998.21							1.409	0	998.33	
											1.290			
24		349.00	1,005.51	998.08	0.0562	8	0.016	0.119	3.75	0.18	2.871	0	998.20	No
182	24		985.57	978.48							1.783	0	978.60	
											1.664			
84		340.00	985.57	978.19	0.0492	8	0.016	0.119	3.51	0.18	2.689	0	978.31	No
184	84		968.50	961.45							1.670	0	961.57	
											1.550			
41		270.00	968.50	961.25	0.0834	8	0.016	0.119	4.13	0.15	3.499	0	961.35	No
186	41		949.19	938.73							2.173	0	938.83	
											2.054			
108		285.00	1,008.86	1,001.01	0.0197	8	0.016	0.015	1.51	0.09	1.702	0	1,001.07	No
188	108		1,004.13	995.39							1.057	0	995.45	
											1.042			
107		275.00	1,004.13	995.29	0.0240	8	0.016	0.015	1.67	0.09	1.879	0	995.35	No
190	107		996.58	988.68							1.167	0	988.74	
											1.152			
138		211.47	996.58	988.28	0.0887	8	0.016	0.030	3.20	0.09	3.609	0	988.34	No
192	138		982.28	969.52							2.241	0	969.61	
											2.211			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
109		343.82	1,029.73	1,019.62	0.0261	8	0.016	0.017	1.74	0.09	1.957	0	1,019.68	No
194	109		1,019.75	1,010.65							1.216	0	1,010.71	
											1.199			
45		302.22	1,019.75	1,010.23	0.0797	8	0.016	0.017	2.38	0.06	3.420	0	1,010.27	No
196	45		995.20	986.15							2.124	0	986.19	
											2.108			
119		93.59	1,051.19	1,037.14	0.0041	8	0.016	0.011	0.68	0.09	0.772	0	1,037.20	No
198	119		1,046.77	1,036.76							0.480	0	1,036.82	
											0.469			
100		132.00	1,046.77	1,036.56	0.0117	8	0.016	0.011	1.16	0.09	1.309	0	1,036.62	No
200	100		1,042.96	1,035.02							0.813	0	1,035.14	
											0.802			
9		228.08	1,042.96	1,035.02	0.0326	8	0.016	0.101	2.86	0.18	2.187	0	1,035.14	No
202	9		1,035.32	1,027.59							1.358	0	1,027.71	
											1.257			
39		230.00	1,035.32	1,027.37	0.0786	8	0.016	0.101	4.01	0.15	3.397	0	1,027.47	No
204	39		1,018.87	1,009.29							2.110	0	1,009.39	
											2.009			
97		327.53	1,018.87	1,009.05	0.0415	8	0.016	0.101	3.22	0.18	2.468	0	1,009.17	No
206	97		1,008.58	995.46							1.533	0	995.58	
											1.432			
113		326.99	1,008.58	995.36	0.0040	8	0.017	0.101	1.32	0.30	0.761	0	995.56	No
208	113		1,003.36	994.07							0.473	0	994.27	
											0.372			
125		175.37	1,003.36	993.97	0.0039	8	0.017	0.101	1.32	0.30	0.760	0	994.17	No
210	125		1,005.25	993.28							0.472	0	993.48	
											0.371			
112		29.00	1,005.25	993.08	0.0069	8	0.017	0.101	1.64	0.27	1.006	0	993.26	No
212	112		1,008.00	992.88							0.625	0	993.08	
											0.524			
120		252.00	1,002.77	995.24	0.0039	8	0.016	0.014	0.80	0.12	0.760	0	995.32	No
214	120		1,002.02	994.25							0.472	0	994.33	
											0.458			
124		155.00	964.88	956.62	0.0367	8	0.016	0.012	1.61	0.06	2.322	0	956.66	No
216	124		959.25	950.93							1.442	0	950.97	
											1.430			
74		253.36	959.25	950.63	0.0476	8	0.016	0.042	2.79	0.12	2.645	0	950.71	No
218	74		949.19	938.56							1.643	0	938.64	
											1.600			
32		208.51	949.19	938.36	0.0314	8	0.017	0.166	3.28	0.24	2.146	0	938.52	Yes
220	32		946.04	931.82							1.333	0	932.85	
											1.167			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
133		343.27	1,001.06	992.40	0.0186	8	0.016	0.008	1.15	0.06	1.651	0	992.44	No
222	133		995.20	986.03							1.025	0	986.07	
											1.017			
43		106.18	995.20	985.89	0.0489	8	0.016	0.025	2.38	0.09	2.679	0	985.95	No
224	43		989.75	980.70							1.664	0	980.76	
											1.639			
118		285.87	989.75	980.53	0.0301	8	0.016	0.034	2.22	0.12	2.102	0	980.61	No
226	118		981.11	971.93							1.305	0	972.01	
											1.272			
5		144.68	981.11	971.76	0.0062	8	0.016	0.039	1.25	0.18	0.956	0	971.88	No
228	5		979.56	970.86							0.594	0	970.98	
											0.555			
40		223.64	979.56	970.76	0.0055	8	0.016	0.046	1.17	0.18	0.899	0	970.88	No
230	40		982.28	969.53							0.558	0	969.65	
											0.512			
23		205.56	982.28	969.49	0.0258	8	0.016	0.079	2.54	0.18	1.946	0	969.61	No
232	23		974.32	964.19							1.208	0	964.31	
											1.130			
65		200.98	974.32	963.84	0.0710	8	0.016	0.111	3.81	0.15	3.228	0	963.94	No
234	65		957.01	949.58							2.005	0	949.68	
											1.893			
77		90.00	957.01	949.14	0.0913	8	0.016	0.111	4.32	0.15	3.662	0	949.24	No
236	77		950.65	940.92							2.274	0	941.14	
											2.163			
134		130.00	1,043.82	1,036.37	0.0426	8	0.016	0.016	2.22	0.09	2.501	0	1,036.43	No
238	134		1,038.01	1,030.83							1.554	0	1,030.89	
											1.537			
123		329.58	1,038.01	1,030.53	0.1027	8	0.016	0.016	2.70	0.06	3.884	0	1,030.57	No
240	123		1,005.93	996.67							2.412	0	996.95	
											2.396			
91		95.42	1,005.93	996.45	0.0039	8	0.016	0.016	0.80	0.12	0.755	0	996.95	Yes
242	91		1,003.39	996.08							0.469	0	996.95	
											0.452			
73		392.49	1,003.39	996.83	0.0065	8	0.016	0.041	1.27	0.18	0.975	0	996.95	No
244	73		1,002.02	994.29							0.605	0	994.41	
											0.565			
132		170.82	1,002.02	994.05	0.0063	8	0.017	0.055	1.36	0.21	0.959	0	994.19	No
246	132		1,008.00	992.98							0.596	0	993.12	
											0.541			
6		224.87	1,008.00	992.78	0.0039	8	0.016	0.249	1.64	0.45	0.758	0	993.08	No
248	6		1,002.00	991.90							0.471	0	992.20	
											0.222			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
87		171.77	1,002.00	991.80	0.0039	8	0.016	0.254	1.70	0.48	0.757	0	992.12	No
250	87		999.66	991.13							0.470	0	991.45	
											0.216			
92		254.16	999.66	990.93	0.0055	8	0.016	0.382	2.16	0.54	0.899	0	991.29	No
252	92		997.35	989.53							0.559	0	989.89	
											0.177			
102		197.85	997.35	989.31	0.0071	8	0.016	0.382	2.37	0.51	1.019	0	989.65	No
254	102		995.51	987.91							0.633	0	988.25	
											0.251			
95		266.04	995.51	987.81	0.0042	8	0.016	0.382	1.94	0.57	0.783	0	988.19	No
256	95		997.00	986.70							0.486	0	987.08	
											0.104			
62		170.37	997.00	986.66	0.0164	8	0.017	0.382	3.11	0.39	1.553	0	986.92	No
258	62		999.10	983.86							0.965	0	984.12	
											0.583			
117		124.99	999.10	983.26	0.1156	8	0.017	0.382	6.30	0.24	4.120	0	983.42	Yes
260	117		976.90	968.81							2.559	0	969.53	
											2.177			
140		121.50	976.90	969.29	0.0282	8	0.017	0.382	3.90	0.36	2.033	0	969.53	No
262	140		973.52	965.87							1.263	0	966.11	
											0.881			
116		341.50	973.52	965.87	0.0326	8	0.017	0.382	4.00	0.33	2.188	0	966.09	No
264	116		962.25	954.73							1.359	0	954.95	
											0.978			
59		340.00	962.25	954.60	0.0393	8	0.017	0.382	4.39	0.33	2.402	0	954.82	No
266	59		950.65	941.24							1.492	0	941.46	
											1.110			
139		135.42	950.65	940.92	0.0594	8	0.017	0.493	5.39	0.33	2.952	0	941.14	No
268	139		945.65	932.88							1.834	0	933.23	
											1.341			
76		224.40	945.65	932.76	0.0042	8	0.015	0.498	2.09	0.66	0.784	10	933.23	Yes
270	76		946.04	931.82							0.487	4	932.85	
											-0.011			
56		218.19	946.04	931.62	0.0039	8	0.013	0.913	2.61	1.00	0.761	12	932.85	Yes
272	56		943.50	930.76							0.472	8	931.61	
											-0.440			
96		158.96	943.50	930.66	0.0039	8	0.013	0.913	2.61	1.00	0.757	12	931.61	Yes
274	96		939.74	930.04							0.470	8	930.71	
											-0.443			
136		341.34	939.74	929.84	0.0261	8	0.016	0.913	4.85	0.57	1.958	0	930.22	No
276	136		928.80	920.93							1.216	0	921.31	
											0.303			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
16		346.00	928.80	920.83	0.0273	8	0.016	0.913	4.81	0.54	2.001	0	921.19	Yes
278	16		919.45	911.39							1.243	0	912.26	
											0.330			
79		232.93	919.45	911.19	0.0040	8	0.013	0.913	2.61	1.00	0.762	12	912.26	Yes
280	79		917.60	910.27							0.473	8	910.94	
											-0.440			
128		307.61	917.60	910.00	0.0657	10	0.017	0.999	6.65	0.34	5.633	0	910.28	No
282	128		918.00	889.78							3.498	0	890.06	
											2.499			

Ar18

6/26/2009 10:24:16 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		161.00	982.69	972.80	0.0729	8	0.013	0.000	0.20	0.00	3.272	0	972.80	No
2	1		969.15	961.06							2.032	0	961.06	
											2.032			
11		350.00	969.15	960.70	0.0880	8	0.013	0.000	0.20	0.00	3.595	0	960.70	No
4	11		934.11	929.89							2.233	0	929.89	
											2.233			
6		190.00	934.11	929.60	0.0826	8	0.013	0.000	0.20	0.00	3.483	0	929.60	No
6	6		924.54	913.90							2.163	0	918.68	
											2.163			
4		254.04	970.56	960.78	0.0370	8	0.013	0.000	0.20	0.00	2.331	0	960.78	No
8	4		960.57	951.38							1.448	0	951.38	
											1.448			
9		193.00	974.33	966.07	0.0153	8	0.016	0.062	1.96	0.18	1.498	0	966.19	No
10	9		971.75	963.12							0.930	0	963.24	
											0.868			
5		240.00	971.75	962.99	0.0475	8	0.016	0.062	2.79	0.12	2.642	0	963.07	No
12	5		960.57	951.58							1.641	0	951.66	
											1.579			
8		194.36	960.57	950.99	0.0934	8	0.016	0.062	3.91	0.12	3.704	0	951.07	No
14	8		942.28	932.83							2.300	0	932.91	
											2.238			
3		194.70	942.28	932.44	0.0726	8	0.016	0.062	3.45	0.12	3.265	0	932.52	No
16	3		924.54	918.30							2.028	0	918.68	
											1.966			
7		315.30	924.54	918.60	0.0581	8	0.016	0.062	3.08	0.12	2.921	0	918.68	No
18	7		908.19	900.28							1.814	0	900.36	
											1.752			
10		182.55	908.19	900.09	0.0204	8	0.016	0.062	2.04	0.15	1.730	0	900.19	No
20	10		900.29	896.37							1.074	0	896.47	
											1.012			
2		153.02	900.29	896.21	0.0667	8	0.016	0.062	3.30	0.12	3.130	0	896.29	No
22	2		899.20	886.00							1.944	0	886.08	
											1.882			

Ar19

6/26/2009 10:24:35 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		152.00	972.53	964.33	0.0828	8	0.013	0.000	0.20	0.00	3.486	0	964.33	No
2	1		968.00	951.75							2.165	0	951.75	
											2.165			
3		83.32	922.80	914.77	0.0118	8	0.013	0.000	0.20	0.00	1.314	0	914.77	No
4	3		922.24	913.79							0.816	0	913.79	
											0.816			
18		74.20	922.24	913.68	0.0324	8	0.013	0.000	0.20	0.00	2.179	0	913.68	No
6	18		920.20	911.28							1.353	0	911.28	
											1.353			
15		85.00	920.20	911.12	0.0473	8	0.013	0.000	0.20	0.00	2.635	0	911.12	No
8	15		917.67	907.10							1.637	0	907.10	
											1.637			
6		129.00	957.10	944.18	0.0047	8	0.013	0.000	0.20	0.00	0.833	0	945.32	No
10	6		958.02	943.57							0.518	0	945.32	
											0.518			
8		170.00	963.73	952.16	0.0503	8	0.013	0.000	0.20	0.00	2.717	0	952.16	No
12	8		958.02	943.61							1.688	0	945.32	
											1.688			
10		156.00	960.64	952.30	0.0043	8	0.013	0.000	0.20	0.00	0.794	0	952.30	No
14	10		968.00	951.63							0.493	0	951.63	
											0.493			
25		301.14	968.00	951.53	0.0203	8	0.013	0.000	0.20	0.00	1.726	0	951.53	No
16	25		958.02	945.42							1.072	0	945.42	
											1.072			
32		95.00	958.02	945.32	0.0165	8	0.013	0.000	0.20	0.00	1.558	0	945.32	No
18	32		957.50	943.75							0.967	0	943.75	
											0.967			
30		155.75	957.50	942.80	0.0039	8	0.013	0.000	0.20	0.00	0.758	0	942.80	No
20	30		952.38	942.19							0.471	0	942.19	
											0.471			
13		350.00	949.09	941.07	0.0839	8	0.013	0.000	0.20	0.00	3.510	0	941.07	No
22	13		921.06	911.70							2.180	0	911.70	
											2.180			
11		64.10	921.06	911.01	0.1665	8	0.013	0.000	0.20	0.00	4.944	0	911.01	No
24	11		908.61	900.34							3.070	0	900.50	
											3.070			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
16		234.00	903.23	895.04	0.0167	8	0.013	0.000	0.20	0.00	1.566	0	895.04	No
26	16		901.13	891.13							0.973	0	891.13	
											0.973			
22		308.00	935.90	927.99	0.0253	8	0.013	0.000	0.20	0.00	1.926	0	927.99	No
28	22		928.23	920.21							1.196	0	920.21	
											1.196			
27		273.98	1,001.25	992.56	0.0383	8	0.017	0.267	3.87	0.27	2.370	0	992.74	No
30	27		991.24	982.08							1.472	0	982.26	
											1.205			
35		257.07	991.24	981.92	0.0390	8	0.017	0.267	3.90	0.27	2.392	0	982.10	No
32	35		974.87	971.90							1.486	0	972.08	
											1.219			
2		109.20	974.87	970.30	0.0377	8	0.017	0.267	3.84	0.27	2.354	0	970.48	No
34	2		974.50	966.18							1.462	0	966.36	
											1.195			
23		165.00	974.50	965.96	0.0230	8	0.017	0.267	3.18	0.30	1.839	0	966.16	No
36	23		970.83	962.16							1.142	0	962.36	
											0.875			
4		31.62	970.83	961.16	0.4943	8	0.016	0.267	10.05	0.15	8.519	0	961.26	No
38	4		953.85	945.53							5.291	0	945.63	
											5.024			
19		300.00	953.85	945.06	0.0185	8	0.017	0.267	3.01	0.33	1.647	0	945.28	No
40	19		947.50	939.52							1.023	0	939.74	
											0.755			
5		235.00	947.50	939.42	0.0205	8	0.017	0.267	3.17	0.33	1.734	0	939.64	No
42	5		942.45	934.61							1.077	0	934.83	
											0.809			
31		280.09	942.45	934.51	0.0304	8	0.017	0.267	3.65	0.30	2.111	0	934.71	No
44	31		939.90	926.01							1.311	0	926.21	
											1.044			
7		315.00	939.90	925.81	0.0178	8	0.017	0.267	2.95	0.33	1.616	0	926.03	No
46	7		928.23	920.21							1.003	0	920.43	
											0.736			
29		326.61	928.23	919.84	0.0597	8	0.017	0.267	4.52	0.24	2.961	0	920.00	No
48	29		908.61	900.34							1.839	0	900.50	
											1.572			
20		21.30	908.61	900.34	0.0606	8	0.017	0.267	4.56	0.24	2.982	0	900.50	No
50	20		907.29	899.05							1.852	0	899.21	
											1.585			
17		196.80	907.29	898.79	0.0670	8	0.017	0.267	4.79	0.24	3.137	0	898.95	No
52	17		896.21	885.60							1.948	0	885.76	
											1.681			

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
28		145.00	957.49	949.40	0.0497	8	0.013	0.000	0.20	0.00	2.702	0	949.40	No
54	28		952.38	942.19							1.678	0	942.19	
											1.678			
33		229.45	952.38	941.76	0.1120	8	0.013	0.000	0.20	0.00	4.055	0	941.76	No
56	33		924.20	916.06							2.519	0	916.06	
											2.519			
36		131.04	927.74	919.67	0.0276	8	0.013	0.000	0.20	0.00	2.011	0	919.67	No
58	36		924.20	916.06							1.249	0	916.06	
											1.249			
9		55.79	924.20	915.51	0.1507	8	0.013	0.000	0.20	0.00	4.704	0	915.51	No
60	9		917.67	907.10							2.922	0	907.10	
											2.922			
24		74.55	917.67	906.60	0.2068	8	0.013	0.000	0.20	0.00	5.511	0	906.60	No
62	24		901.13	891.18							3.422	0	891.18	
											3.422			
26		32.71	901.13	890.36	0.0556	8	0.013	0.000	0.20	0.00	2.858	0	890.36	No
64	26		901.50	888.54							1.775	0	888.54	
											1.775			
14		175.54	901.50	888.34	0.0121	8	0.013	0.000	0.20	0.00	1.335	0	888.34	No
66	14		894.94	886.21							0.829	0	886.21	
											0.829			
34		89.20	894.94	886.01	0.0046	8	0.013	0.000	0.20	0.00	0.822	0	886.01	No
68	34		896.21	885.60							0.510	0	885.60	
											0.510			
12		62.20	896.21	885.01	0.1659	8	0.016	0.267	6.44	0.18	4.936	0	885.13	No
70	12		894.15	874.69							3.065	0	874.81	
											2.798			
21		108.15	894.15	874.30	0.0135	8	0.017	0.267	2.70	0.36	1.408	0	874.54	No
72	21		889.90	872.84							0.874	0	873.08	
											0.607			

Ar20s

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:24:57 AM

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
6		147.85	964.38	952.23	0.0926	8	0.017	0.554	6.38	0.30	3.687	0	952.43	No
2	6		956.31	938.54							2.290	0	938.74	
											1.736			
10		215.00	900.00	890.18	0.0040	8	0.017	0.119	1.40	0.33	0.766	0	890.40	No
4	10		899.40	889.32							0.476	0	889.54	
											0.357			
8		270.00	899.40	889.22	0.0040	8	0.017	0.119	1.40	0.33	0.766	0	889.44	No
6	8		898.30	888.14							0.476	0	888.36	
											0.357			
21		47.00	898.30	888.04	0.0040	8	0.017	0.119	1.41	0.33	0.770	0	888.26	No
8	21		898.00	887.85							0.479	0	888.08	
											0.359			
20		32.00	898.00	887.75	0.0041	8	0.017	0.119	1.41	0.33	0.772	0	888.08	No
10	20		897.90	887.62							0.480	0	888.08	
											0.361			
26		223.26	973.75	955.60	0.0448	8	0.017	0.264	4.18	0.27	2.564	0	955.78	No
12	26		952.80	945.60							1.593	0	945.82	
											1.329			
5		278.17	952.80	945.40	0.0039	8	0.016	0.455	1.98	0.63	0.759	0	945.82	No
14	5		957.69	944.31							0.471	0	944.73	
											0.016			
2		350.00	957.69	944.04	0.0039	10	0.016	0.527	2.04	0.50	1.380	0	944.46	No
16	2		958.99	942.66							0.857	0	943.08	
											0.330			
23		350.00	958.99	942.56	0.0063	10	0.016	0.620	2.52	0.48	1.750	0	942.96	No
18	23		954.07	940.34							1.087	0	940.74	
											0.466			
22		200.00	954.07	940.24	0.0102	10	0.016	0.660	3.01	0.43	2.213	0	940.60	No
20	22		956.31	938.21							1.375	0	938.61	
											0.715			
14		278.00	956.31	938.11	0.0106	10	0.016	1.214	3.69	0.60	2.263	0	938.61	No
22	14		947.82	935.16							1.406	0	935.66	
											0.192			
3		241.47	947.82	935.04	0.0054	12	0.016	1.269	2.87	0.56	2.631	0	935.60	No
24	3		950.40	933.73							1.634	0	934.29	
											0.365			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
15		263.33	950.40	933.63	0.0071	12	0.016	1.307	3.21	0.54	3.010	0	934.17	No
26	15		941.31	931.76							1.870	0	932.30	
											0.563			
24		296.45	941.31	931.56	0.0083	12	0.016	1.390	3.40	0.52	3.261	0	932.08	No
28	24		935.80	929.09							2.025	0	929.63	
											0.635			
12		300.11	935.80	928.99	0.0040	12	0.015	1.390	2.63	0.64	2.250	0	929.63	No
30	12		939.50	927.80							1.397	0	928.44	
											0.007			
11		300.00	939.50	927.50	0.0069	12	0.016	1.423	3.23	0.56	2.960	0	928.06	No
32	11		944.90	925.44							1.839	0	926.00	
											0.415			
1		168.18	944.90	925.34	0.0067	12	0.016	1.492	3.24	0.58	2.915	0	925.92	No
34	1		938.00	924.22							1.811	0	924.80	
											0.319			
4		43.00	938.00	924.02	0.0161	12	0.016	1.492	4.42	0.46	4.525	0	924.48	No
36	4		937.20	923.33							2.811	0	923.83	
											1.319			
13		173.13	937.20	923.33	0.0121	12	0.016	1.524	4.00	0.50	3.925	0	923.83	No
38	13		934.60	921.24							2.438	0	921.74	
											0.914			
9		218.15	934.60	921.13	0.0828	12	0.017	1.574	8.20	0.32	10.282	0	921.45	Yes
40	9		921.01	903.06							6.386	0	909.23	
											4.812			
17		350.00	921.01	908.87	0.0494	12	0.017	1.574	6.76	0.36	7.940	0	909.23	No
42	17		904.84	891.58							4.931	0	891.94	
											3.358			
25		218.91	904.84	891.20	0.0164	15	0.017	1.636	4.46	0.35	8.283	0	891.64	No
44	25		897.90	887.62							5.144	0	888.08	
											3.509			
19		131.00	897.90	887.62	0.0164	15	0.017	1.803	4.58	0.37	8.298	0	888.08	No
46	19		893.79	885.47							5.154	0	885.93	
											3.350			
16		223.28	893.79	885.34	0.0295	12	0.016	1.833	5.84	0.44	6.133	0	885.78	No
48	16		897.00	878.76							3.809	0	879.20	
											1.976			
18		189.52	897.00	878.53	0.0392	12	0.017	1.833	6.38	0.40	7.069	0	878.93	No
50	18		884.60	871.11							4.390	0	871.97	
											2.558			
7		33.00	884.60	871.11	0.0030	12	0.014	1.853	2.60	0.86	1.967	15	871.97	No
52	7		884.00	871.01							1.221	10	871.87	
											-0.632			

Ar21

6/26/2009 10:25:26 AM

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		220.76	926.00	919.01	0.0716	8	0.017	0.309	4.96	0.24	3.243	0	919.17	No
2	1		911.55	903.20							2.014	0	903.36	
											1.705			
4		361.03	911.55	902.90	0.0787	8	0.017	0.309	5.19	0.24	3.400	0	903.06	No
4	4		882.59	874.48							2.111	0	874.64	
											1.803			
2		116.18	882.59	874.25	0.0920	8	0.017	0.309	5.62	0.24	3.675	0	874.41	No
6	2		880.12	863.56							2.283	0	863.72	
											1.974			
5		305.54	895.17	886.92	0.0382	8	0.013	0.000	0.20	0.00	2.369	0	886.92	No
8	5		884.09	875.24							1.471	0	875.24	
											1.471			
3		207.35	884.09	875.13	0.0565	8	0.013	0.000	0.20	0.00	2.879	0	875.13	No
10	3		880.12	863.42							1.788	0	863.42	
											1.788			
6		72.09	880.12	862.59	0.0173	15	0.016	0.309	2.97	0.16	8.529	0	862.79	No
12	6		880.12	861.34							5.297	0	861.54	
											4.989			

Ar22s

6/26/2009 10:25:51 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		200.00	1,014.23	1,006.29	0.0196	8	0.016	0.006	1.18	0.06	1.696	0	1,006.33	No
2	1		1,011.13	1,002.37							1.054	0	1,002.41	
											1.047			
3		120.00	924.40	916.59	0.0058	8	0.013	0.000	0.20	0.00	0.925	0	916.59	No
4	3		923.75	915.89							0.575	0	915.89	
											0.575			
5		330.00	972.56	964.15	0.0162	8	0.016	0.021	1.37	0.09	1.543	0	964.21	No
6	5		967.28	958.80							0.958	0	958.86	
											0.938			
9		350.00	967.28	958.70	0.0142	8	0.016	0.021	1.53	0.12	1.445	0	958.78	No
8	9		962.71	953.72							0.898	0	953.80	
											0.877			
13		141.00	952.40	943.63	0.0454	8	0.016	0.006	1.79	0.06	2.581	0	943.67	No
10	13		951.90	937.23							1.603	0	937.27	
											1.597			
16		142.23	881.40	873.41	0.0058	8	0.016	0.009	0.82	0.09	0.926	0	873.47	No
12	16		881.02	872.58							0.575	0	872.64	
											0.565			
17		134.00	926.10	918.82	0.0058	8	0.017	0.066	1.31	0.21	0.924	0	918.96	No
14	17		926.10	918.04							0.574	0	918.18	
											0.508			
18		340.00	1,002.19	994.46	0.0703	8	0.016	0.010	2.23	0.06	3.212	0	994.50	No
16	18		982.16	970.57							1.995	0	970.61	
											1.985			
20		110.00	910.10	902.26	0.0058	8	0.013	0.000	0.20	0.00	0.924	0	902.26	No
18	20		909.85	901.62							0.574	0	901.62	
											0.574			
23		119.00	903.40	895.45	0.0097	8	0.013	0.000	0.20	0.00	1.191	0	895.45	No
20	23		905.05	894.30							0.740	0	894.30	
											0.740			
26		275.00	1,020.59	1,012.81	0.0706	8	0.016	0.009	2.24	0.06	3.218	0	1,012.85	No
22	26		1,000.95	993.41							1.999	0	993.45	
											1.990			
69		100.00	1,000.95	993.41	0.0481	8	0.016	0.009	1.85	0.06	2.657	0	993.45	No
24	69		997.52	988.60							1.650	0	988.64	
											1.641			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
28		127.00	950.90	942.66	0.0349	8	0.016	0.005	1.57	0.06	2.263	0	942.70	No
26	28		950.39	938.23							1.405	0	938.27	
											1.401			
30		123.40	938.10	928.02	0.0058	8	0.016	0.005	0.64	0.06	0.926	0	928.06	No
28	30		935.20	927.30							0.575	0	927.34	
											0.570			
31		141.00	952.50	943.97	0.0478	8	0.016	0.006	1.84	0.06	2.649	0	944.01	No
30	31		951.90	937.23							1.645	0	937.27	
											1.639			
32		134.00	927.20	918.33	0.0097	8	0.013	0.000	0.20	0.00	1.193	0	918.33	No
32	32		926.75	917.03							0.741	0	917.03	
											0.741			
35		141.00	899.60	892.01	0.0097	8	0.016	0.009	1.06	0.09	1.194	0	892.07	No
34	35		898.30	890.64							0.742	0	890.70	
											0.733			
37		123.48	966.54	957.92	0.0348	8	0.016	0.004	1.57	0.06	2.261	0	957.96	No
36	37		962.71	953.62							1.404	0	953.66	
											1.400			
38		255.18	962.71	953.52	0.0122	8	0.016	0.031	1.41	0.12	1.338	0	953.60	No
38	38		958.42	950.41							0.831	0	950.49	
											0.800			
24		220.00	958.42	950.30	0.0436	8	0.016	0.037	2.67	0.12	2.530	0	950.38	No
40	24		948.63	940.71							1.571	0	940.79	
											1.534			
66		130.00	948.63	940.57	0.0253	8	0.016	0.040	2.03	0.12	1.928	0	940.65	No
42	66		945.87	937.28							1.197	0	937.36	
											1.157			
54		201.35	945.87	937.09	0.0079	8	0.016	0.047	1.40	0.18	1.073	0	937.21	No
44	54		946.18	935.51							0.667	0	935.63	
											0.620			
39		119.00	883.00	875.41	0.0097	8	0.013	0.000	0.20	0.00	1.191	0	875.41	No
46	39		882.08	874.26							0.740	0	874.26	
											0.740			
40		120.00	927.18	918.19	0.0097	8	0.013	0.000	0.20	0.00	1.191	0	918.19	No
48	40		926.75	917.03							0.740	0	917.03	
											0.740			
42		120.00	910.10	902.26	0.0053	8	0.013	0.000	0.20	0.00	0.885	0	902.26	No
50	42		909.85	901.62							0.550	0	901.62	
											0.550			
46		119.00	893.10	885.41	0.0097	8	0.013	0.000	0.20	0.00	1.191	0	885.41	No
52	46		892.06	884.26							0.740	0	884.26	
											0.740			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
47		120.00	926.08	918.74	0.0058	8	0.013	0.000	0.20	0.00	0.925	0	918.74	No
54	47		926.10	918.04							0.575	0	918.04	
											0.575			
8		232.00	926.10	917.84	0.0039	8	0.017	0.066	1.16	0.24	0.759	0	918.00	No
56	8		926.75	916.93							0.471	0	917.09	
											0.406			
45		265.08	926.75	916.83	0.0039	8	0.017	0.066	1.16	0.24	0.759	0	916.99	No
58	45		923.75	915.79							0.471	0	915.95	
											0.406			
49		141.00	952.20	944.19	0.7656	8	0.015	0.006	4.96	0.03	10.602	0	944.21	Yes
60	49		951.24	836.24							6.584	0	936.18	
											6.579			
55		95.35	1,009.73	1,002.63	0.0038	8	0.016	0.006	0.66	0.09	0.745	0	1,002.69	No
62	55		1,011.13	1,002.27							0.462	0	1,002.33	
											0.457			
14		229.61	1,011.13	1,002.17	0.0039	8	0.016	0.012	0.80	0.12	0.759	0	1,002.25	No
64	14		1,010.25	1,001.27							0.471	0	1,001.39	
											0.459			
73		250.00	1,010.25	1,001.17	0.0039	8	0.017	0.127	1.39	0.33	0.759	0	1,001.39	No
66	73		1,009.25	1,000.19							0.471	0	1,000.41	
											0.345			
19		250.00	1,009.25	1,000.09	0.0039	8	0.017	0.127	1.39	0.33	0.759	0	1,000.31	No
68	19		1,008.00	999.11							0.471	0	999.33	
											0.345			
48		300.00	1,008.00	998.91	0.0046	8	0.017	0.127	1.50	0.33	0.822	0	999.13	No
70	48		1,006.80	997.53							0.510	0	997.75	
											0.384			
29		350.00	1,006.80	997.23	0.0105	8	0.017	0.127	2.03	0.27	1.242	0	997.41	No
72	29		1,001.00	993.55							0.772	0	993.73	
											0.645			
50		291.59	1,001.00	993.38	0.0718	8	0.016	0.127	4.24	0.18	3.247	0	993.50	No
74	50		981.75	972.44							2.017	0	972.56	
											1.890			
36		337.84	981.75	972.08	0.0980	8	0.016	0.127	4.48	0.15	3.794	0	972.18	No
76	36		950.00	938.96							2.356	0	939.06	
											2.230			
27		161.43	950.00	938.76	0.0045	8	0.017	0.127	1.49	0.33	0.815	0	938.98	No
78	27		950.39	938.03							0.506	0	938.27	
											0.379			
57		119.00	917.06	910.03	0.0097	8	0.016	0.048	1.56	0.18	1.191	0	910.15	No
80	57		916.92	908.88							0.740	0	909.00	
											0.692			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
11		243.00	916.92	908.54	0.0590	8	0.016	0.048	3.11	0.12	2.943	0	908.62	No
82	11		905.05	894.20							1.828	0	894.28	
											1.780			
2		250.00	905.05	894.00	0.0394	8	0.016	0.048	2.54	0.12	2.404	0	894.08	No
84	2		892.06	884.16							1.493	0	884.24	
											1.445			
58		250.00	892.06	884.00	0.0394	8	0.016	0.048	2.54	0.12	2.404	0	884.08	No
86	58		882.08	874.16							1.493	0	874.24	
											1.445			
12		149.26	882.08	873.99	0.0448	8	0.016	0.048	2.70	0.12	2.563	0	874.07	No
88	12		876.19	867.31							1.592	0	867.39	
											1.544			
61		161.35	1,003.66	995.74	0.0515	8	0.016	0.006	1.91	0.06	2.750	0	995.78	Yes
90	61		997.52	987.43							1.708	0	988.40	
											1.702			
56		188.69	997.52	988.34	0.0341	8	0.016	0.026	1.98	0.09	2.237	0	988.40	No
92	56		989.97	981.91							1.389	0	981.97	
											1.363			
33		195.35	989.97	981.72	0.0576	8	0.016	0.026	2.58	0.09	2.908	0	981.78	No
94	33		982.16	970.47							1.806	0	970.53	
											1.779			
4		278.65	982.16	970.31	0.0214	8	0.016	0.036	1.87	0.12	1.771	0	970.39	No
96	4		973.37	964.36							1.100	0	964.44	
											1.063			
44		281.88	973.37	964.16	0.0280	8	0.016	0.059	2.39	0.15	2.027	0	964.26	No
98	44		966.40	956.27							1.259	0	956.37	
											1.200			
7		265.80	966.40	956.11	0.0481	8	0.016	0.059	2.80	0.12	2.657	0	956.19	No
100	7		953.79	943.33							1.650	0	943.41	
											1.591			
62		142.00	936.10	928.13	0.0059	8	0.016	0.006	0.82	0.09	0.926	0	928.19	No
102	62		935.20	927.30							0.575	0	927.36	
											0.570			
63		127.00	952.20	944.11	0.0620	8	0.016	0.006	2.10	0.06	3.016	0	944.15	No
104	63		951.24	936.24							1.873	0	936.28	
											1.867			
64		232.00	962.91	954.89	0.0494	8	0.016	0.007	1.87	0.06	2.693	0	954.93	No
106	64		953.79	943.43							1.673	0	943.47	
											1.665			
65		259.20	953.79	943.17	0.0296	8	0.016	0.074	2.46	0.15	2.083	0	943.27	No
108	65		946.18	935.51							1.294	0	935.61	
											1.220			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
22		192.38	946.18	935.31	0.0603	8	0.016	0.122	3.88	0.18	2.974	0	935.43	No
110	22		934.00	923.72							1.847	0	923.84	
											1.725			
43		135.00	934.00	923.12	0.0399	8	0.017	0.234	3.70	0.24	2.421	0	923.28	No
112	43		926.00	917.73							1.504	0	917.93	
											1.269			
6		210.00	926.00	917.63	0.0039	8	0.016	0.234	1.64	0.45	0.757	0	917.93	No
114	6		927.00	916.81							0.470	0	917.11	
											0.236			
10		180.00	927.00	916.71	0.0039	8	0.016	0.234	1.64	0.45	0.756	0	917.01	No
116	10		925.00	916.01							0.469	0	916.31	
											0.235			
21		105.00	925.00	915.91	0.0038	8	0.016	0.234	1.62	0.45	0.748	0	916.21	No
118	21		924.15	915.51							0.465	0	915.81	
											0.230			
74		135.00	924.15	915.41	0.0039	8	0.016	0.234	1.63	0.45	0.752	0	915.71	No
120	74		924.25	914.89							0.467	0	915.19	
											0.233			
60		295.00	924.25	914.79	0.0039	8	0.016	0.234	1.65	0.45	0.760	0	915.09	No
122	60		921.20	913.63							0.472	0	913.93	
											0.238			
15		150.00	921.20	913.42	0.0128	8	0.017	0.239	2.50	0.33	1.371	0	913.64	No
124	15		919.16	911.50							0.851	0	911.72	
											0.612			
70		134.00	924.70	916.67	0.0058	8	0.013	0.000	0.20	0.00	0.924	0	916.67	No
126	70		923.75	915.89							0.574	0	915.89	
											0.574			
41		235.00	923.75	915.66	0.0602	8	0.016	0.066	3.14	0.12	2.972	0	915.74	No
128	41		909.85	901.52							1.846	0	901.60	
											1.780			
53		180.02	909.85	901.20	0.0587	8	0.016	0.066	3.10	0.12	2.935	0	901.28	No
130	53		898.30	890.64							1.823	0	890.72	
											1.757			
71		141.00	951.00	942.83	0.0326	8	0.016	0.006	1.52	0.06	2.189	0	942.87	No
132	71		950.39	938.23							1.359	0	938.27	
											1.354			
52		229.96	950.39	938.03	0.0039	8	0.017	0.139	1.45	0.36	0.758	0	938.27	No
134	52		951.90	937.13							0.471	0	937.37	
											0.332			
67		227.00	951.90	937.03	0.0039	8	0.017	0.153	1.45	0.36	0.759	0	937.27	No
136	67		951.24	936.14							0.471	0	936.38	
											0.318			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
59		255.10	951.24	936.04	0.0347	8	0.017	0.167	3.20	0.21	2.256	0	936.18	No
138	59		935.20	927.20							1.401	0	927.34	
											1.234			
25		195.33	935.20	926.94	0.0796	8	0.016	0.182	4.46	0.18	3.418	0	927.06	No
140	25		919.16	911.40							2.123	0	911.52	
											1.941			
51		257.07	919.16	911.08	0.0799	8	0.017	0.426	5.93	0.30	3.425	0	911.28	No
142	51		898.30	890.54							2.127	0	890.74	
											1.701			
72		209.01	898.30	890.20	0.0848	8	0.017	0.502	6.10	0.30	3.528	0	890.40	No
144	72		881.02	872.48							2.191	0	872.68	
											1.689			
34		144.27	881.02	872.24	0.0335	8	0.017	0.512	4.44	0.39	2.217	0	872.50	No
146	34		876.19	867.41							1.377	0	867.67	
											0.865			
68		253.24	876.19	867.13	0.0362	8	0.017	0.563	4.62	0.39	2.306	0	867.39	No
148	68		867.99	857.96							1.432	0	858.22	
											0.869			

Ar23s

6/26/2009 10:26:10 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
4		130.00	889.90	883.03	0.0232	8	0.016	0.055	2.18	0.15	1.847	0	883.13	No
2	4		890.00	880.01							1.147	0	880.19	
											1.092			
1		350.00	890.00	880.01	0.0115	8	0.017	0.137	2.12	0.27	1.297	0	880.19	No
4	1		883.40	876.00							0.806	0	876.18	
											0.668			
7		350.00	883.40	875.40	0.0037	8	0.016	0.206	1.54	0.42	0.738	0	875.68	No
6	7		880.02	874.10							0.459	0	874.38	
											0.253			
2		350.00	880.02	874.00	0.0051	8	0.016	0.290	1.95	0.48	0.869	0	874.32	No
8	2		885.25	872.20							0.540	0	872.52	
											0.250			
6		350.00	885.25	872.10	0.0069	8	0.016	0.372	2.25	0.48	1.003	0	872.42	No
10	6		879.00	869.70							0.623	0	870.02	
											0.251			
5		330.00	879.00	869.60	0.0108	8	0.016	0.448	2.82	0.48	1.257	0	869.92	No
12	5		873.52	866.05							0.781	0	866.37	
											0.333			
3		350.00	873.52	865.94	0.0201	8	0.016	0.498	3.59	0.42	1.718	0	866.22	No
14	3		867.02	858.90							1.067	0	859.38	
											0.569			
8		331.24	867.02	858.80	0.0024	8	0.014	0.558	1.77	0.87	0.592	10	859.38	No
16	8		868.15	858.01							0.368	8	858.59	
											-0.191			

Ar24

6/26/2009 10:38:27 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		260.00	862.85	851.65	0.0024	8	0.016	0.208	1.32	0.48	0.587	0	851.97	No
2	1		859.25	851.04							0.365	0	851.36	
											0.157			
2		260.00	859.25	851.03	0.0024	8	0.016	0.208	1.32	0.48	0.587	0	851.35	No
4	2		861.83	850.42							0.365	0	850.74	
											0.157			

Ar25s

6/26/2009 10:43:30 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
2		60.00	879.20	871.03	0.0040	8	0.016	0.020	0.90	0.15	0.766	0	871.13	No
2	2		879.20	870.79							0.476	0	870.89	
											0.456			
1		172.99	879.20	870.69	0.0175	8	0.016	0.070	2.09	0.18	1.601	0	870.81	No
4	1		877.17	867.67							0.994	0	867.79	
											0.924			
3		187.75	877.17	867.57	0.0172	8	0.017	0.179	2.59	0.27	1.589	0	867.75	No
6	3		874.71	864.34							0.987	0	864.52	
											0.808			
4		334.25	874.71	864.14	0.0600	8	0.017	0.271	4.53	0.24	2.968	0	864.30	No
8	4		855.00	844.09							1.843	0	844.25	
											1.573			
5		316.00	855.00	843.89	0.0572	8	0.017	0.526	5.29	0.33	2.898	0	844.11	No
10	5		840.00	825.81							1.800	0	826.03	
											1.274			

Ar26s

6/26/2009 10:43:51 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
3		71.71	1,033.49	1,025.57	0.0411	8	0.013	0.000	0.20	0.00	2.458	0	1,025.57	No
2	3		1,030.16	1,022.62							1.526	0	1,022.62	
											1.526			
18		260.89	1,030.16	1,022.49	0.0500	8	0.016	0.040	2.86	0.12	2.710	0	1,022.57	No
4	18		1,016.88	1,009.44							1.683	0	1,009.52	
											1.643			
8		249.39	1,016.88	1,009.25	0.0461	8	0.016	0.040	2.75	0.12	2.602	0	1,009.33	No
6	8		1,005.17	997.75							1.616	0	997.83	
											1.576			
50		177.61	1,005.17	997.62	0.0694	8	0.016	0.040	2.83	0.09	3.191	0	997.68	No
8	50		993.42	985.30							1.982	0	985.36	
											1.942			
38		171.97	993.42	985.00	0.0727	8	0.016	0.040	2.90	0.09	3.267	0	985.06	No
10	38		979.73	972.50							2.029	0	972.56	
											1.989			
21		308.03	979.73	972.21	0.0507	8	0.016	0.040	2.88	0.12	2.729	0	972.29	No
12	21		964.16	956.59							1.695	0	956.67	
											1.655			
10		350.00	964.16	956.49	0.0089	8	0.016	0.040	1.35	0.15	1.146	0	956.59	No
14	10		959.79	953.36							0.712	0	953.46	
											0.672			
58		145.00	959.79	952.93	0.0050	8	0.016	0.040	1.12	0.18	0.860	0	953.05	No
16	58		959.14	952.20							0.534	0	952.32	
											0.494			
11		112.60	938.74	920.66	0.0147	8	0.016	0.003	1.02	0.06	1.467	0	920.70	No
18	11		932.61	919.01							0.911	0	919.25	
											0.908			
15		300.00	963.73	955.62	0.0043	8	0.016	0.017	0.84	0.12	0.798	0	955.70	No
20	15		962.06	954.32							0.495	0	954.40	
											0.478			
62		276.00	962.06	954.22	0.0043	8	0.016	0.018	0.84	0.12	0.796	0	954.30	No
22	62		960.84	953.03							0.494	0	953.11	
											0.476			
16		145.67	1,015.49	1,007.77	0.0448	8	0.016	0.021	2.27	0.09	2.563	0	1,007.83	No
24	16		1,008.73	1,001.25							1.592	0	1,001.31	
											1.571			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
33		304.69	1,008.73	1,000.81	0.0664	8	0.016	0.021	2.77	0.09	3.123	0	1,000.87	No
26	33		987.93	980.57							1.940	0	980.63	
											1.918			
56		286.31	987.93	980.13	0.0873	8	0.016	0.021	3.17	0.09	3.579	0	980.19	No
28	56		962.46	955.15							2.223	0	955.21	
											2.201			
53		144.03	962.46	954.87	0.0587	8	0.016	0.021	2.60	0.09	2.937	0	954.93	No
30	53		953.72	946.41							1.824	0	946.61	
											1.802			
20		180.00	943.35	935.41	0.0047	8	0.016	0.012	0.87	0.12	0.828	0	935.49	No
32	20		942.45	934.57							0.514	0	934.65	
											0.502			
9		200.00	942.45	934.47	0.0083	8	0.016	0.012	0.98	0.09	1.101	0	934.53	No
34	9		941.32	932.82							0.684	0	932.91	
											0.672			
22		275.00	958.51	949.31	0.0004	8	0.017	0.014	0.33	0.21	0.231	0	949.45	No
36	22		957.02	949.21							0.144	0	949.35	
											0.129			
44		225.00	957.02	949.21	0.0075	8	0.016	0.015	1.10	0.12	1.047	0	949.29	No
38	44		955.50	947.53							0.650	0	947.61	
											0.635			
24		224.82	1,068.74	1,059.71	0.0676	8	0.016	0.032	2.79	0.09	3.150	0	1,059.77	No
40	24		1,054.56	1,044.52							1.956	0	1,044.58	
											1.924			
5		350.00	1,054.56	1,044.00	0.1384	8	0.016	0.032	4.00	0.09	4.508	0	1,044.06	No
42	5		1,007.17	995.56							2.800	0	995.62	
											2.767			
54		147.61	1,007.17	995.14	0.0665	8	0.016	0.032	2.77	0.09	3.125	0	995.20	No
44	54		998.90	985.32							1.941	0	985.43	
											1.909			
55		52.39	998.90	985.37	0.0660	8	0.016	0.032	2.76	0.09	3.114	0	985.43	No
46	55		996.13	981.91							1.934	0	981.97	
											1.902			
29		353.70	941.85	933.15	0.0099	8	0.016	0.011	1.07	0.09	1.205	0	933.21	No
48	29		939.78	929.65							0.749	0	929.71	
											0.738			
31		181.93	1,060.38	1,051.82	0.0542	8	0.016	0.029	2.50	0.09	2.821	0	1,051.88	No
50	31		1,052.80	1,041.96							1.752	0	1,042.02	
											1.723			
57		272.00	1,052.80	1,041.64	0.0593	8	0.016	0.029	2.62	0.09	2.951	0	1,041.70	No
52	57		1,034.41	1,025.51							1.833	0	1,025.57	
											1.804			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
32		50.00	960.51	953.95	0.0056	8	0.016	0.003	0.63	0.06	0.907	0	953.99	No
54	32		960.76	953.67							0.563	0	953.71	
											0.560			
35		351.49	940.51	932.23	0.0225	8	0.016	0.012	1.61	0.09	1.819	0	932.29	No
56	35		938.15	924.31							1.130	0	924.55	
											1.118			
39		275.00	950.78	942.81	0.0067	8	0.016	0.014	1.05	0.12	0.991	0	942.89	No
58	39		948.87	940.97							0.616	0	941.05	
											0.602			
66		225.00	948.87	940.87	0.0134	8	0.016	0.014	1.24	0.09	1.401	0	940.93	No
60	66		946.76	937.86							0.870	0	937.92	
											0.857			
40		347.23	931.90	923.87	0.0099	8	0.016	0.011	1.07	0.09	1.204	0	923.93	No
62	40		936.00	920.44							0.748	0	920.50	
											0.737			
42		65.00	960.52	954.25	0.0188	8	0.016	0.003	1.15	0.06	1.660	0	954.29	No
64	42		960.84	953.03							1.031	0	953.11	
											1.028			
64		279.34	960.84	953.03	0.0201	8	0.016	0.025	1.81	0.12	1.716	0	953.11	No
66	64		955.50	947.43							1.066	0	947.61	
											1.040			
48		282.34	955.50	947.53	0.0346	8	0.016	0.045	2.38	0.12	2.254	0	947.61	No
68	48		946.76	937.76							1.400	0	937.84	
											1.355			
69		282.34	946.76	937.64	0.0174	8	0.016	0.064	2.08	0.18	1.596	0	937.76	No
70	69		941.32	932.74							0.991	0	932.91	
											0.927			
4		62.10	941.32	932.81	0.0432	8	0.016	0.076	2.97	0.15	2.517	0	932.91	No
72	4		948.80	930.13							1.563	0	930.45	
											1.488			
43		346.69	974.04	966.57	0.0791	8	0.016	0.016	2.37	0.06	3.408	0	966.61	No
74	43		948.52	939.15							2.116	0	939.19	
											2.101			
68		279.61	948.52	938.92	0.0335	8	0.016	0.016	1.97	0.09	2.217	0	938.98	No
76	68		939.78	929.56							1.377	0	929.62	
											1.361			
70		289.87	939.78	929.41	0.0238	8	0.016	0.031	1.97	0.12	1.871	0	929.49	No
78	70		937.36	922.50							1.162	0	922.58	
											1.131			
45		201.00	1,047.58	1,039.00	0.1021	8	0.016	0.014	2.69	0.06	3.872	0	1,039.04	No
80	45		1,026.90	1,018.47							2.405	0	1,018.51	
											2.391			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
36		158.84	1,026.90	1,018.08	0.0511	8	0.016	0.014	1.90	0.06	2.738	0	1,018.12	No
82	36		1,018.72	1,009.97							1.700	0	1,010.01	
											1.686			
49		103.61	1,062.67	1,054.65	0.0282	8	0.016	0.018	1.80	0.09	2.034	0	1,054.71	No
84	49		1,059.57	1,051.73							1.263	0	1,051.79	
											1.245			
6		229.85	1,059.57	1,051.57	0.0621	8	0.016	0.018	2.68	0.09	3.019	0	1,051.63	No
86	6		1,044.90	1,037.30							1.875	0	1,037.36	
											1.857			
23		204.84	1,044.90	1,037.06	0.0569	8	0.016	0.018	2.56	0.09	2.890	0	1,037.12	No
88	23		1,034.41	1,025.41							1.795	0	1,025.47	
											1.776			
13		253.94	1,034.41	1,025.17	0.0605	8	0.016	0.051	3.14	0.12	2.979	0	1,025.25	No
90	13		1,018.72	1,009.82							1.850	0	1,009.90	
											1.799			
41		333.56	1,018.72	1,009.58	0.0834	8	0.016	0.065	3.69	0.12	3.499	0	1,009.66	No
92	41		996.13	981.77							2.173	0	981.85	
											2.108			
27		85.54	996.13	981.51	0.0594	8	0.016	0.098	3.48	0.15	2.953	0	981.61	No
94	27		989.85	976.43							1.834	0	976.53	
											1.736			
67		203.98	989.85	976.23	0.0490	8	0.016	0.132	3.50	0.18	2.683	0	976.35	No
96	67		978.11	966.23							1.666	0	966.35	
											1.534			
30		343.14	978.11	966.03	0.0223	8	0.017	0.132	2.57	0.21	1.809	0	966.17	No
98	30		964.70	958.38							1.124	0	958.52	
											0.991			
17		340.60	964.70	958.28	0.0033	8	0.017	0.132	1.33	0.36	0.692	0	958.52	No
100	17		963.19	957.17							0.430	0	957.41	
											0.297			
19		145.00	963.19	957.07	0.0117	8	0.017	0.132	2.13	0.27	1.308	0	957.25	No
102	19		962.11	955.38							0.812	0	955.56	
											0.680			
14		289.38	962.11	955.28	0.0059	8	0.017	0.132	1.61	0.30	0.931	0	955.48	No
104	14		960.76	953.57							0.579	0	953.77	
											0.446			
7		281.66	960.76	953.37	0.0138	8	0.017	0.135	2.18	0.24	1.424	0	953.53	No
106	7		956.57	949.48							0.884	0	949.64	
											0.749			
37		285.00	956.57	949.38	0.0209	8	0.017	0.158	2.68	0.24	1.752	0	949.54	No
108	37		950.93	943.42							1.088	0	943.58	
											0.930			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
60		285.00	950.93	943.32	0.0158	8	0.017	0.158	2.48	0.27	1.523	0	943.50	No
110	60		945.47	938.82							0.946	0	939.00	
											0.787			
59		350.00	999.62	992.04	0.0797	8	0.016	0.023	3.03	0.09	3.420	0	992.10	No
112	59		971.52	964.16							2.124	0	964.22	
											2.101			
25		350.00	971.52	963.96	0.0328	8	0.016	0.023	1.95	0.09	2.194	0	964.02	No
114	25		958.92	952.48							1.363	0	952.54	
											1.340			
34		145.00	958.92	951.79	0.0119	8	0.016	0.023	1.40	0.12	1.324	0	951.87	No
116	34		957.74	950.06							0.822	0	950.55	
											0.799			
63		191.34	961.00	953.97	0.0098	8	0.016	0.004	0.83	0.06	1.198	0	954.01	No
118	63		959.14	952.10							0.744	0	952.14	
											0.740			
51		280.34	959.14	952.00	0.0051	8	0.017	0.049	1.23	0.21	0.868	0	952.14	No
120	51		957.74	950.56							0.539	0	950.70	
											0.491			
61		309.27	957.74	950.43	0.0137	8	0.016	0.077	1.85	0.18	1.419	0	950.55	No
122	61		953.72	946.19							0.881	0	946.61	
											0.805			
47		191.00	953.72	946.49	0.0387	8	0.016	0.103	3.11	0.18	2.385	0	946.61	No
124	47		945.14	939.09							1.481	0	939.29	
											1.379			
46		100.86	945.14	939.09	0.0040	8	0.017	0.104	1.32	0.30	0.763	0	939.29	No
126	46		945.47	938.69							0.474	0	938.89	
											0.370			
12		265.72	945.47	938.59	0.0325	8	0.017	0.263	3.56	0.27	2.184	0	938.77	No
128	12		948.80	929.96							1.356	0	930.45	
											1.093			
28		208.49	948.80	930.23	0.0280	8	0.017	0.343	3.70	0.33	2.026	0	930.45	No
130	28		938.15	924.40							1.258	0	924.62	
											0.915			
65		260.69	938.15	924.29	0.0162	8	0.017	0.356	3.09	0.39	1.540	0	924.55	No
132	65		937.36	920.08							0.956	0	920.34	
											0.600			
52		288.34	937.36	919.98	0.0040	8	0.016	0.389	1.94	0.60	0.762	0	919.87	Yes
134	52		936.00	918.84							0.473	0	919.57	
											0.085			
26		288.34	936.00	918.74	0.0040	8	0.016	0.405	1.96	0.60	0.769	0	919.57	Yes
136	26		932.61	917.58							0.477	0	919.25	
											0.073			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		224.28	932.61	918.81	0.0029	8	0.015	0.411	1.73	0.66	0.647	10	919.25	No
138	1		927.80	918.17							0.402	4	918.74	
											-0.009			
2		250.00	927.80	918.02	0.0004	10	0.014	0.418	0.84	0.86	0.439	12	918.74	No
140	2		928.15	917.92							0.273	8	918.64	
											-0.146			

Ar27s

6/26/2009 10:44:09 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
2		96.00	920.49	912.39	0.0528	8	0.015	0.003	1.30	0.03	2.785	0	912.41	No
2	2		921.42	907.32							1.729	0	907.34	
											1.726			
3		184.53	966.26	954.85	0.0215	8	0.013	0.000	0.20	0.00	1.777	0	954.85	No
4	3		963.85	950.88							1.104	0	950.88	
											1.104			
14		196.70	963.85	950.78	0.0216	8	0.016	0.022	1.58	0.09	1.779	0	950.84	No
6	14		958.93	946.54							1.105	0	946.60	
											1.083			
25		178.30	958.93	946.31	0.0567	8	0.016	0.022	2.56	0.09	2.885	0	946.37	No
8	25		950.12	936.20							1.792	0	936.26	
											1.770			
13		275.00	950.12	935.97	0.0572	8	0.016	0.022	2.57	0.09	2.897	0	936.03	No
10	13		932.08	920.25							1.799	0	920.31	
											1.778			
6		225.00	915.49	907.58	0.0256	8	0.016	0.011	1.35	0.06	1.937	0	907.62	No
12	6		916.61	901.83							1.203	0	901.96	
											1.192			
10		150.80	955.35	943.72	0.0416	8	0.017	0.157	3.51	0.21	2.473	0	943.86	No
14	10		946.97	937.44							1.536	0	937.58	
											1.378			
16		179.39	946.97	937.16	0.0943	8	0.016	0.157	4.86	0.18	3.720	0	937.28	No
16	16		932.08	920.25							2.310	0	920.37	
											2.153			
7		245.61	932.08	920.00	0.0276	8	0.017	0.192	3.07	0.24	2.012	0	920.16	No
18	7		923.69	913.23							1.249	0	913.39	
											1.058			
4		350.85	923.69	913.11	0.0324	8	0.017	0.192	3.33	0.24	2.182	0	913.27	No
20	4		916.61	901.73							1.355	0	901.96	
											1.164			
11		132.00	952.90	944.35	0.0317	8	0.016	0.006	1.50	0.06	2.156	0	944.39	No
22	11		952.43	940.17							1.339	0	940.25	
											1.333			
15		277.34	1,086.90	1,073.77	0.1382	8	0.016	0.041	3.99	0.09	4.505	0	1,073.83	No
24	15		1,047.79	1,035.44							2.798	0	1,035.50	
											2.757			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
23		190.59	1,047.79	1,034.99	0.0822	8	0.016	0.041	3.08	0.09	3.474	0	1,035.05	No
26	23		1,032.61	1,019.32							2.158	0	1,019.38	
											2.117			
8		274.82	1,032.61	1,019.03	0.0591	8	0.016	0.041	2.61	0.09	2.946	0	1,019.09	No
28	8		1,014.55	1,002.78							1.830	0	1,002.84	
											1.789			
17		184.59	1,014.55	1,002.46	0.0978	8	0.016	0.041	3.36	0.09	3.790	0	1,002.52	No
30	17		996.84	984.40							2.354	0	984.46	
											2.313			
19		175.00	996.84	984.00	0.0977	8	0.016	0.041	3.36	0.09	3.788	0	984.06	No
32	19		979.33	966.90							2.352	0	966.96	
											2.312			
9		175.00	979.33	966.36	0.0692	8	0.016	0.041	2.83	0.09	3.187	0	966.42	No
34	9		964.94	954.25							1.980	0	954.31	
											1.939			
21		192.23	964.94	953.96	0.0705	8	0.016	0.041	2.85	0.09	3.217	0	954.02	No
36	21		952.43	940.41							1.998	0	940.47	
											1.957			
24		182.77	952.43	940.17	0.0451	8	0.016	0.047	2.71	0.12	2.573	0	940.25	No
38	24		942.93	931.93							1.598	0	932.01	
											1.551			
20		316.79	942.93	931.77	0.0415	8	0.016	0.086	2.91	0.15	2.468	0	931.87	No
40	20		929.40	918.63							1.533	0	918.73	
											1.447			
5		238.83	929.40	918.46	0.0409	8	0.016	0.086	2.89	0.15	2.449	0	918.56	No
42	5		924.02	908.70							1.521	0	908.80	
											1.435			
26		283.23	924.02	908.50	0.0059	8	0.017	0.086	1.43	0.24	0.933	0	908.66	No
44	26		921.42	906.82							0.580	0	906.98	
											0.494			
27		261.15	921.42	906.62	0.0059	8	0.016	0.251	1.94	0.42	0.931	0	906.90	No
46	27		920.71	905.08							0.578	0	905.36	
											0.327			
12		250.00	920.71	904.98	0.0039	8	0.016	0.251	1.70	0.48	0.759	0	905.30	No
48	12		919.07	904.00							0.471	0	904.32	
											0.220			
18		250.00	919.07	903.90	0.0039	8	0.016	0.251	1.70	0.48	0.759	0	904.22	No
50	18		912.82	902.92							0.471	0	903.24	
											0.220			
1		250.85	912.82	902.82	0.0040	8	0.016	0.251	1.65	0.45	0.761	0	903.12	No
52	1		916.61	901.83							0.473	0	902.13	
											0.222			

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
22		199.15	916.61	901.56	0.0031	10	0.016	0.456	1.76	0.48	1.226	0	901.96	No
54	22		915.50	900.94							0.761	0	901.34	
											0.305			

Ar28

6/26/2009 10:44:33 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
4		147.38	921.47	912.98	0.0238	8	0.013	0.000	0.20	0.00	1.867	0	912.98	No
2	4		917.68	909.48							1.160	0	909.48	
											1.160			
8		125.00	917.68	909.25	0.0871	8	0.013	0.000	0.20	0.00	3.576	0	909.25	No
4	8		913.95	898.36							2.221	0	898.36	
											2.221			
7		164.38	943.31	934.62	0.0585	8	0.013	0.000	0.20	0.00	2.931	0	934.62	No
6	7		934.82	925.00							1.820	0	925.00	
											1.820			
17		105.34	934.82	924.86	0.0096	8	0.013	0.000	0.20	0.00	1.186	0	924.86	No
8	17		932.06	923.85							0.737	0	923.85	
											0.737			
11		237.49	1,018.87	1,006.27	0.0586	8	0.013	0.000	0.20	0.00	2.934	0	1,006.27	No
10	11		1,002.97	992.35							1.822	0	992.37	
											1.822			
13		230.53	1,040.22	1,032.28	0.0448	8	0.017	0.149	3.64	0.21	2.564	0	1,032.42	No
12	13		1,031.50	1,021.96							1.592	0	1,022.10	
											1.443			
23		181.73	1,031.50	1,021.58	0.0939	8	0.016	0.149	4.85	0.18	3.712	0	1,021.70	No
14	23		1,013.00	1,004.52							2.306	0	1,004.64	
											2.157			
10		200.00	1,013.00	1,004.21	0.0438	8	0.017	0.149	3.60	0.21	2.536	0	1,004.35	No
16	10		1,002.97	995.45							1.575	0	995.59	
											1.426			
1		176.33	1,002.97	992.25	0.0841	8	0.016	0.149	4.59	0.18	3.513	0	992.37	No
18	1		988.71	977.43							2.182	0	977.55	
											2.033			
5		225.00	988.71	977.14	0.0558	8	0.016	0.149	3.74	0.18	2.862	0	977.26	No
20	5		975.81	964.59							1.777	0	964.71	
											1.628			
15		229.87	975.81	964.40	0.0354	8	0.017	0.149	3.24	0.21	2.279	0	964.54	No
22	15		966.99	956.27							1.415	0	956.41	
											1.266			
20		220.19	966.99	956.04	0.0275	8	0.017	0.149	2.85	0.21	2.009	0	956.18	No
24	20		958.07	949.99							1.247	0	950.13	
											1.098			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
19		200.00	958.07	949.80	0.0639	8	0.016	0.149	4.00	0.18	3.063	0	949.92	No
26	19		945.35	937.02							1.902	0	937.14	
											1.753			
3		203.52	945.35	936.76	0.0639	8	0.016	0.149	4.00	0.18	3.064	0	936.88	No
28	3		932.06	923.75							1.903	0	923.87	
											1.754			
14		189.22	932.06	923.49	0.0638	8	0.016	0.149	4.00	0.18	3.062	0	923.61	No
30	14		919.88	911.41							1.901	0	911.53	
											1.752			
2		182.26	919.88	911.15	0.0638	8	0.016	0.149	3.99	0.18	3.059	0	911.27	No
32	2		913.60	899.53							1.900	0	899.65	
											1.751			
16		210.70	950.48	942.69	0.0569	8	0.013	0.000	0.20	0.00	2.890	0	942.69	No
34	16		938.60	930.70							1.795	0	930.70	
											1.795			
22		223.63	943.57	935.19	0.0196	8	0.013	0.000	0.20	0.00	1.698	0	935.19	No
36	22		938.60	930.80							1.054	0	930.80	
											1.054			
18		210.07	938.60	930.47	0.0569	8	0.013	0.000	0.20	0.00	2.890	0	930.47	No
38	18		926.29	918.52							1.795	0	918.52	
											1.795			
6		262.62	926.29	918.27	0.0638	8	0.013	0.000	0.20	0.00	3.061	0	918.27	No
40	6		915.17	901.51							1.901	0	901.51	
											1.901			
21		310.00	915.17	901.27	0.0063	8	0.013	0.000	0.20	0.00	0.959	0	901.27	No
42	21		913.60	899.33							0.595	0	899.55	
											0.595			
12		166.38	913.60	899.33	0.0058	8	0.017	0.149	1.69	0.33	0.925	0	899.55	No
44	12		913.95	898.36							0.575	0	898.58	
											0.426			
9		186.00	913.95	898.09	0.0313	10	0.016	0.149	3.13	0.17	3.886	0	898.23	No
46	9		907.50	892.27							2.414	0	892.41	
											2.265			

Ar23s

6/26/2009 10:26:10 AM

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
4		130.00	889.90	883.03	0.0232	8	0.016	0.055	2.18	0.15	1.847	0	883.13	No
2	4		890.00	880.01							1.147	0	880.19	
											1.092			
1		350.00	890.00	880.01	0.0115	8	0.017	0.137	2.12	0.27	1.297	0	880.19	No
4	1		883.40	876.00							0.806	0	876.18	
											0.668			
7		350.00	883.40	875.40	0.0037	8	0.016	0.206	1.54	0.42	0.738	0	875.68	No
6	7		880.02	874.10							0.459	0	874.38	
											0.253			
2		350.00	880.02	874.00	0.0051	8	0.016	0.290	1.95	0.48	0.869	0	874.32	No
8	2		885.25	872.20							0.540	0	872.52	
											0.250			
6		350.00	885.25	872.10	0.0069	8	0.016	0.372	2.25	0.48	1.003	0	872.42	No
10	6		879.00	869.70							0.623	0	870.02	
											0.251			
5		330.00	879.00	869.60	0.0108	8	0.016	0.448	2.82	0.48	1.257	0	869.92	No
12	5		873.52	866.05							0.781	0	866.37	
											0.333			
3		350.00	873.52	865.94	0.0201	8	0.016	0.498	3.59	0.42	1.718	0	866.22	No
14	3		867.02	858.90							1.067	0	859.38	
											0.569			
8		331.24	867.02	858.80	0.0024	8	0.014	0.558	1.77	0.87	0.592	10	859.38	No
16	8		868.15	858.01							0.368	8	858.59	
											-0.191			

Ar29s

6/26/2009 10:44:59 AM

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
4		211.00	924.02	914.65	0.0102	8	0.016	0.003	0.85	0.06	1.223	0	914.69	No
2	4		920.49	912.50							0.760	0	912.58	
											0.757			
8		239.48	958.80	951.23	0.0047	8	0.013	0.000	0.20	0.00	0.832	0	951.23	No
4	8		957.65	950.10							0.517	0	950.10	
											0.517			
117		239.49	957.65	950.00	0.0047	8	0.016	0.021	0.98	0.15	0.832	0	950.10	No
6	117		956.46	948.87							0.517	0	948.97	
											0.496			
119		239.48	956.46	948.77	0.0039	8	0.016	0.021	0.90	0.15	0.759	0	948.87	No
8	119		955.38	947.83							0.472	0	947.97	
											0.451			
12		199.70	944.97	937.42	0.0055	8	0.016	0.017	0.94	0.12	0.895	0	937.50	No
10	12		943.90	936.33							0.556	0	936.41	
											0.539			
124		200.00	943.90	936.23	0.0055	8	0.016	0.017	0.95	0.12	0.899	0	936.31	No
12	124		947.83	935.13							0.558	0	935.21	
											0.541			
28		113.01	947.83	935.03	0.0073	8	0.016	0.017	1.10	0.12	1.038	0	935.11	No
14	28		942.05	934.20							0.645	0	934.28	
											0.628			
14		274.78	928.63	921.58	0.0087	8	0.016	0.017	1.19	0.12	1.128	0	921.66	No
16	14		926.79	919.20							0.700	0	919.28	
											0.683			
132		243.00	926.79	919.10	0.0086	8	0.016	0.017	1.19	0.12	1.126	0	919.18	No
18	132		924.59	917.00							0.700	0	917.08	
											0.683			
19		113.53	1,058.90	1,050.43	0.0193	8	0.016	0.007	1.17	0.06	1.683	0	1,050.47	No
20	19		1,056.82	1,048.24							1.045	0	1,048.28	
											1.039			
20		221.00	918.09	909.85	0.0051	8	0.016	0.031	1.02	0.15	0.866	0	909.95	No
22	20		916.64	908.72							0.538	0	908.82	
											0.507			
41		213.34	916.64	908.62	0.0063	8	0.016	0.031	1.13	0.15	0.960	0	908.72	No
24	41		915.31	907.28							0.596	0	907.38	
											0.566			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
80		105.37	915.31	907.08	0.0039	8	0.016	0.031	0.99	0.18	0.756	0	907.20	No
26	80		914.50	906.67							0.469	0	906.79	
											0.439			
27		268.97	914.50	906.51	0.0037	8	0.016	0.031	0.96	0.18	0.739	0	906.63	No
28	27		913.14	905.51							0.459	0	905.63	
											0.428			
139		108.04	913.14	905.41	0.0196	8	0.016	0.031	1.79	0.12	1.697	0	905.49	No
30	139		912.77	903.29							1.054	0	903.37	
											1.023			
22		233.90	953.30	947.59	0.0042	8	0.016	0.020	0.92	0.15	0.780	0	947.69	No
32	22		952.39	946.62							0.485	0	946.72	
											0.465			
31		318.83	952.39	946.57	0.0040	8	0.016	0.020	0.90	0.15	0.762	0	946.67	No
34	31		951.01	945.31							0.473	0	945.53	
											0.453			
30		107.44	989.31	979.69	0.0037	8	0.016	0.011	0.78	0.12	0.739	0	979.77	No
36	30		991.13	979.29							0.459	0	979.37	
											0.448			
38		157.46	1,042.73	1,034.67	0.0312	8	0.016	0.009	1.49	0.06	2.140	0	1,034.71	No
38	38		1,037.95	1,029.76							1.329	0	1,029.80	
											1.320			
6		131.47	1,037.95	1,029.65	0.0213	8	0.016	0.009	1.23	0.06	1.768	0	1,029.69	No
40	6		1,035.16	1,026.85							1.098	0	1,026.89	
											1.089			
45		256.25	1,031.65	1,023.44	0.0335	8	0.016	0.039	2.34	0.12	2.217	0	1,023.52	No
42	45		1,022.95	1,014.86							1.377	0	1,014.94	
											1.338			
136		210.62	1,022.95	1,014.68	0.0569	8	0.016	0.039	2.56	0.09	2.891	0	1,014.74	No
44	136		1,011.30	1,002.69							1.796	0	1,002.75	
											1.756			
84		183.26	1,011.30	1,002.43	0.0685	8	0.016	0.039	2.81	0.09	3.171	0	1,002.49	No
46	84		1,001.57	989.88							1.969	0	989.94	
											1.930			
149		348.72	1,001.57	989.68	0.0297	8	0.016	0.039	2.20	0.12	2.086	0	989.76	No
48	149		987.90	979.34							1.296	0	979.42	
											1.257			
47		354.85	943.50	935.54	0.0184	8	0.016	0.012	1.46	0.09	1.642	0	935.60	No
50	47		937.19	929.02							1.020	0	929.08	
											1.008			
151		185.54	937.19	928.92	0.0253	8	0.016	0.012	1.71	0.09	1.926	0	928.98	Yes
52	151		932.89	924.23							1.196	0	925.05	
											1.185			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
51		219.28	994.15	984.45	0.0236	8	0.016	0.006	1.29	0.06	1.861	0	984.49	No
54	51		991.13	979.28							1.156	0	979.32	
											1.150			
81		128.11	991.13	979.08	0.0077	8	0.016	0.016	1.12	0.12	1.065	0	979.16	No
56	81		992.00	978.09							0.662	0	978.17	
											0.645			
7		198.88	992.00	977.75	0.0495	8	0.016	0.033	2.39	0.09	2.697	0	977.81	No
58	7		975.44	967.90							1.675	0	967.96	
											1.642			
67		241.07	975.44	967.80	0.0122	8	0.016	0.033	1.41	0.12	1.338	0	967.88	No
60	67		972.09	964.86							0.831	0	964.94	
											0.798			
145		129.28	972.09	964.76	0.0162	8	0.016	0.033	1.63	0.12	1.544	0	964.84	No
62	145		970.39	962.66							0.959	0	962.74	
											0.926			
57		139.51	1,103.90	1,095.60	0.0252	8	0.016	0.018	1.71	0.09	1.925	0	1,095.66	No
64	57		1,100.60	1,092.08							1.195	0	1,092.14	
											1.177			
60		226.13	923.07	915.66	0.0051	8	0.016	0.018	0.92	0.12	0.868	0	915.74	No
66	60		922.14	914.50							0.539	0	914.58	
											0.521			
36		185.00	922.14	914.40	0.0047	8	0.016	0.018	0.88	0.12	0.831	0	914.48	No
68	36		921.31	913.53							0.516	0	913.61	
											0.498			
40		152.35	921.31	913.43	0.0055	8	0.016	0.018	0.94	0.12	0.894	0	913.51	No
70	40		920.49	912.60							0.555	0	912.68	
											0.537			
68		307.41	958.90	950.98	0.0075	8	0.016	0.012	0.93	0.09	1.050	0	951.04	No
72	68		957.00	948.67							0.652	0	948.73	
											0.640			
53		301.77	957.00	948.57	0.0198	8	0.016	0.018	1.51	0.09	1.704	0	948.63	No
74	53		952.06	942.60							1.058	0	942.70	
											1.041			
70		325.72	920.57	913.54	0.0055	8	0.016	0.020	0.95	0.12	0.901	0	913.62	No
76	70		919.03	911.74							0.559	0	911.82	
											0.540			
138		287.00	919.03	911.64	0.0094	8	0.016	0.021	1.24	0.12	1.177	0	911.72	No
78	138		917.88	908.93							0.731	0	909.01	
											0.711			
71		290.37	958.95	951.40	0.0059	8	0.016	0.021	0.98	0.12	0.933	0	951.48	No
80	71		957.05	949.68							0.579	0	949.76	
											0.559			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
113		295.00	957.05	949.58	0.0099	8	0.016	0.021	1.27	0.12	1.203	0	949.66	No
82	113		954.42	946.67							0.747	0	946.75	
											0.727			
74		224.34	1,002.50	993.87	0.0375	8	0.016	0.018	2.08	0.09	2.346	0	993.93	No
84	74		996.28	985.46							1.457	0	985.52	
											1.439			
33		250.47	996.28	985.35	0.0236	8	0.016	0.018	1.65	0.09	1.861	0	985.41	No
86	33		987.90	979.44							1.156	0	979.50	
											1.138			
91		355.53	987.90	979.24	0.0040	8	0.017	0.065	1.17	0.24	0.763	0	979.40	No
88	91		985.00	977.83							0.474	0	977.99	
											0.409			
78		229.51	964.79	956.62	0.0039	8	0.016	0.019	0.80	0.12	0.759	0	956.70	No
90	78		963.74	955.72							0.471	0	955.80	
											0.452			
42		229.00	963.74	955.62	0.0039	8	0.016	0.019	0.80	0.12	0.760	0	955.70	No
92	42		962.60	954.72							0.472	0	954.80	
											0.453			
21		160.47	962.60	954.62	0.0059	8	0.016	0.019	0.98	0.12	0.927	0	954.70	No
94	21		961.38	953.68							0.576	0	953.76	
											0.557			
93		348.78	1,168.50	1,147.60	0.0218	8	0.013	0.000	0.20	0.00	1.787	0	1,147.60	No
96	93		1,161.40	1,140.01							1.110	0	1,140.01	
											1.110			
140		350.00	1,161.40	1,139.68	0.1028	8	0.016	0.057	4.10	0.12	3.885	0	1,139.76	No
98	140		1,114.30	1,103.70							2.413	0	1,103.78	
											2.356			
59		275.39	1,114.30	1,103.41	0.0414	8	0.016	0.057	2.60	0.12	2.465	0	1,103.49	No
100	59		1,100.60	1,092.01							1.531	0	1,092.09	
											1.474			
16		260.35	1,100.60	1,091.88	0.0216	8	0.016	0.075	2.32	0.18	1.780	0	1,092.00	No
102	16		1,095.15	1,086.26							1.106	0	1,086.38	
											1.031			
144		352.12	1,095.15	1,086.06	0.0771	8	0.016	0.150	4.39	0.18	3.365	0	1,086.18	No
104	144		1,066.90	1,058.91							2.090	0	1,059.03	
											1.940			
118		340.14	1,066.90	1,058.60	0.0751	8	0.016	0.150	4.34	0.18	3.321	0	1,058.72	No
106	118		1,041.60	1,033.05							2.062	0	1,033.17	
											1.913			
116		247.00	1,041.60	1,032.81	0.0409	8	0.017	0.150	3.48	0.21	2.451	0	1,032.95	No
108	116		1,031.80	1,022.70							1.522	0	1,022.84	
											1.373			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
94 110	94	268.00	1,068.10 1,056.12	1,059.58 1,047.97	0.0433	8	0.016	0.026	2.24	0.09	2.522 1.566 1.541	0 0	1,059.64 1,048.03	No
65 112	65	297.80	1,056.12 1,042.89	1,047.80 1,034.87	0.0434	8	0.016	0.026	2.24	0.09	2.525 1.568 1.543	0 0	1,047.86 1,034.93	No
108 114	108	311.01	1,042.89 1,035.16	1,034.73 1,026.75	0.0257	8	0.016	0.026	1.72	0.09	1.941 1.205 1.180	0 0	1,034.79 1,026.81	No
43 116	43	250.00	1,035.16 1,032.71	1,026.65 1,024.19	0.0098	8	0.016	0.047	1.57	0.18	1.202 0.747 0.700	0 0	1,026.77 1,024.31	No
64 118	64	281.12	1,032.71 1,029.83	1,024.09 1,021.32	0.0099	8	0.016	0.047	1.57	0.18	1.203 0.747 0.700	0 0	1,024.21 1,021.44	No
95 120	95	304.00	934.20 924.00	920.22 917.57	0.0087	8	0.016	0.017	1.19	0.12	1.131 0.703 0.686	0 0	920.30 917.73	No
96 122	96	124.44	949.50 952.06	943.29 942.80	0.0039	8	0.016	0.005	0.67	0.09	0.760 0.472 0.467	0 0	943.35 942.86	No
44 124	44	260.06	952.06 952.44	942.60 941.58	0.0039	8	0.016	0.023	0.90	0.15	0.759 0.471 0.448	0 0	942.70 941.68	No
86 126	86	220.00	952.44 947.41	941.48 939.93	0.0071	8	0.016	0.036	1.20	0.15	1.017 0.632 0.596	0 0	941.58 940.03	No
58 128	58	214.60	947.41 945.70	939.83 936.21	0.0169	8	0.016	0.036	1.66	0.12	1.574 0.977 0.942	0 0	939.91 936.29	No
56 130	56	180.91	945.70 946.11	936.01 934.74	0.0070	8	0.016	0.039	1.20	0.15	1.015 0.631 0.592	0 0	936.11 935.16	No
100 132	100	302.33	1,041.13 1,039.16	1,032.87 1,030.97	0.0063	8	0.016	0.027	1.13	0.15	0.961 0.597 0.569	0 0	1,032.97 1,031.07	No
109 134	109	183.00	1,039.16 1,037.33	1,030.87 1,029.08	0.0098	8	0.016	0.027	1.26	0.12	1.198 0.744 0.717	0 0	1,030.95 1,029.16	No
99 136	99	148.37	1,037.33 1,036.00	1,028.98 1,027.25	0.0117	8	0.016	0.027	1.38	0.12	1.308 0.813 0.785	0 0	1,029.06 1,027.33	No

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
103		134.65	946.56	939.45	0.0054	8	0.016	0.005	0.62	0.06	0.886	0	939.49	No
138	103		947.48	938.73							0.550	0	938.85	
111		338.00	1,071.60	1,063.59	0.0180	8	0.016	0.013	1.44	0.09	0.546			
140	111		1,065.60	1,057.51							1.625	0	1,063.65	No
35		180.05	1,065.60	1,052.35	0.0231	8	0.016	0.013	1.63	0.09	1.009	0	1,057.57	
142	35		1,056.82	1,048.20							0.996			
147		290.39	1,056.82	1,048.00	0.0474	8	0.016	0.024	2.34	0.09	1.840	0	1,052.41	No
144	147		1,042.39	1,034.25							1.143	0	1,048.26	
121		154.64	917.91	910.17	0.0054	8	0.016	0.014	0.94	0.12	1.129			
146	121		916.80	909.33							2.637	0	1,048.06	No
46		219.91	916.80	909.23	0.0044	8	0.016	0.014	0.84	0.12	1.638	0	1,034.31	
148	46		915.70	908.27							1.614			
153		125.29	915.70	908.27	0.0054	8	0.016	0.014	0.94	0.12	0.893	0	910.25	No
150	153		915.31	907.59							0.555	0	909.41	
122		221.75	1,047.73	1,039.36	0.0098	8	0.016	0.017	1.27	0.12	0.541			
152	122		1,045.26	1,037.18							0.801	0	909.31	No
55		230.00	1,045.26	1,037.08	0.0122	8	0.016	0.017	1.19	0.09	0.497	0	908.35	
154	55		1,042.39	1,034.28							0.484			
126		339.84	1,085.36	1,077.14	0.0186	8	0.016	0.024	1.74	0.12	0.893	0	908.35	No
156	126		1,078.87	1,070.83							0.554	0	907.67	
90		267.04	1,078.87	1,070.68	0.0544	8	0.016	0.024	2.51	0.09	0.541			
158	90		1,064.33	1,056.16							1.201	0	1,039.44	No
26		309.59	1,064.33	1,055.94	0.0545	8	0.016	0.024	2.51	0.09	0.746	0	1,037.26	
160	26		1,047.22	1,039.07							0.729			
2		156.90	1,047.22	1,038.90	0.0293	8	0.016	0.024	1.84	0.09	1.337	0	1,037.14	No
162	2		1,042.39	1,034.31							0.830	0	1,034.34	
105		221.16	1,042.39	1,034.06	0.0519	8	0.016	0.068	2.91	0.12	0.814			
164	105		1,031.80	1,022.59							1.651	0	1,077.22	No
											1.025	0	1,070.91	
											1.002			
											2.825	0	1,070.74	No
											1.755	0	1,056.22	
											1.731			
											2.828	0	1,056.00	No
											1.757	0	1,039.13	
											1.733			
											2.072	0	1,038.96	No
											1.287	0	1,034.37	
											1.263			
											2.759	0	1,034.14	No
											1.714	0	1,022.67	
											1.646			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		47.41	1,031.80	1,022.42	0.0091	8	0.017	0.217	2.21	0.36	1.154	0	1,022.66	No
166	1		1,029.41	1,021.99							0.717	0	1,022.23	
											0.500			
24		221.25	1,029.41	1,021.73	0.0393	8	0.017	0.295	3.92	0.27	2.401	0	1,021.91	No
168	24		1,020.49	1,013.04							1.491	0	1,013.22	
											1.197			
61		196.38	1,020.49	1,012.86	0.0490	8	0.017	0.295	4.38	0.27	2.682	0	1,013.04	No
170	61		1,012.66	1,003.24							1.666	0	1,003.42	
											1.371			
5		258.90	1,012.66	1,003.12	0.0099	8	0.017	0.295	2.41	0.39	1.203	0	1,003.38	No
172	5		1,008.00	1,000.57							0.747	0	1,000.83	
											0.452			
101		334.72	1,008.00	1,000.47	0.0099	8	0.017	0.295	2.41	0.39	1.203	0	1,000.73	No
174	101		1,004.71	997.17							0.747	0	997.43	
											0.452			
34		334.72	1,004.71	997.05	0.0474	8	0.017	0.295	4.31	0.27	2.638	0	997.23	No
176	34		988.59	981.18							1.639	0	981.36	
											1.344			
75		330.45	988.59	980.97	0.0557	8	0.017	0.295	4.67	0.27	2.860	0	981.15	No
178	75		970.39	962.56							1.776	0	962.74	
											1.481			
76		301.62	970.39	962.39	0.0292	8	0.017	0.333	3.78	0.33	2.071	0	962.61	No
180	76		961.38	953.58							1.286	0	953.80	
											0.953			
50		180.28	961.38	953.48	0.0200	8	0.017	0.352	3.28	0.36	1.712	0	953.72	No
182	50		957.27	949.88							1.063	0	950.12	
											0.712			
148		180.29	957.27	949.78	0.0114	8	0.016	0.360	2.70	0.42	1.292	0	950.06	No
184	148		955.38	947.73							0.802	0	948.01	
											0.443			
87		213.25	955.38	947.63	0.0066	8	0.016	0.392	2.28	0.51	0.982	0	947.97	No
186	87		953.13	946.23							0.610	0	946.57	
											0.218			
123		213.26	953.13	946.13	0.0043	8	0.016	0.392	1.97	0.57	0.796	0	946.51	No
188	123		951.01	945.21							0.494	0	945.59	
											0.102			
92		131.91	951.01	945.11	0.0039	8	0.016	0.434	1.97	0.63	0.753	0	945.53	No
190	92		949.87	944.60							0.468	0	945.02	
											0.034			
62		126.29	949.87	944.53	0.0134	8	0.016	0.434	3.04	0.45	1.402	0	944.83	No
192	62		948.34	942.84							0.871	0	943.14	
											0.437			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
97											2.709	0	942.85	
194	97	157.83	948.34 946.11	942.63 934.74	0.0500	8	0.017	0.434	4.95	0.33	1.683 1.249	0	935.16	No
37											0.820	0	935.16	
196	37	294.78	946.11 942.24	934.74 933.39	0.0046	8	0.016	0.473	2.14	0.63	0.509 0.037	0	933.81	No
39											1.201	0	933.65	
198	39	224.08	942.24 939.04	933.29 931.09	0.0098	8	0.016	0.508	2.88	0.54	0.746 0.238	0	931.45	No
106											1.610	0	931.24	
200	106	346.09	939.04 932.89	930.94 924.83	0.0177	8	0.016	0.508	3.49	0.45	1.000 0.492	0	925.13	No
77											1.736	0	925.05	
202	77	310.42	932.89 928.63	924.73 918.36	0.0205	8	0.016	0.578	3.90	0.48	1.078 0.500	0	918.68	No
128											1.204	0	918.64	
204	128	326.06	928.63 923.60	918.26 915.04	0.0099	8	0.016	0.578	2.98	0.57	0.748 0.170	0	915.42	No
69											1.862	0	915.24	
206	69	248.04	923.60 919.68	914.94 909.08	0.0236	8	0.016	0.578	4.04	0.45	1.157 0.579	0	909.40	No
29											0.963	0	909.40	
208	29	278.41	919.68 915.38	908.98 907.22	0.0063	8	0.016	0.578	2.52	0.63	0.598 0.021	0	907.64	No
85											0.758	10	907.62	
210	85	225.08	915.38 915.98	907.12 906.24	0.0039	8	0.015	0.578	2.14	0.75	0.471 -0.107	6	906.74	No
54											1.482	0	906.48	
212	54	263.97	915.98 916.73	906.14 902.19	0.0150	8	0.016	0.578	3.44	0.51	0.921 0.343	0	902.75	No
130											2.633	0	1,051.47	
214	130	238.53	1,059.73 1,052.90	1,051.41 1,040.15	0.0472	8	0.016	0.022	2.33	0.09	1.635 1.613	0	1,040.21	No
115											2.014	0	1,040.06	
216	115	319.46	1,052.90 1,040.00	1,040.00 1,031.17	0.0276	8	0.016	0.022	1.79	0.09	1.251 1.229	0	1,031.23	No
134											1.667	0	931.62	
218	134	325.41	938.80 933.98	931.56 925.40	0.0189	8	0.016	0.017	1.48	0.09	1.035 1.018	0	925.86	No
89											1.796	0	925.86	
220	89	212.00	933.98 930.62	925.80 921.14	0.0220	8	0.016	0.017	1.59	0.09	1.116 1.099	0	921.20	No

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
137 222	137	170.90	957.04 953.08	947.19 944.92	0.0133	8	0.016	0.010	1.24	0.09	1.396 0.867 0.857	0 0	947.25 944.98	No
107 224	107	211.00	953.08 949.02	944.82 941.61	0.0152	8	0.016	0.010	1.33	0.09	1.495 0.928 0.918	0 0	944.88 941.67	No
141 226	141	186.20	1,043.71 1,042.98	1,035.45 1,033.70	0.0094	8	0.016	0.020	1.24	0.12	1.175 0.730 0.709	0 0	1,035.53 1,033.78	No
142 228	142	198.32	1,042.98 1,040.00	1,033.60 1,031.27	0.0118	8	0.016	0.020	1.39	0.12	1.313 0.816 0.796	0 0	1,033.68 1,031.35	No
112 230	112	284.66	1,040.00 1,036.00	1,031.07 1,027.15	0.0138	8	0.016	0.049	1.68	0.15	1.422 0.883 0.834	0 0	1,031.17 1,027.25	No
25 232	25	301.62	1,036.00 1,031.16	1,027.06 1,022.88	0.0139	8	0.017	0.082	2.03	0.21	1.426 0.886 0.804	0 0	1,027.20 1,023.02	No
18 234	18	280.00	1,031.16 1,028.70	1,022.78 1,013.40	0.0335	8	0.016	0.097	2.90	0.18	2.218 1.377 1.281	0 0	1,022.90 1,013.52	No
129 236	129	300.00	1,028.70 1,014.69	1,013.29 1,006.66	0.0221	8	0.016	0.097	2.35	0.18	1.801 1.119 1.022	0 0	1,013.41 1,006.78	No
143 238	143	146.41	985.43 985.00	977.90 977.33	0.0039	8	0.016	0.012	0.80	0.12	0.756 0.470 0.458	0 0	977.98 977.41	No
114 240	114	269.15	985.00 982.15	977.13 974.91	0.0083	8	0.017	0.094	1.68	0.24	1.100 0.683 0.589	0 0	977.29 975.07	No
49 242	49	350.00	982.15 984.35	974.81 973.43	0.0039	8	0.017	0.094	1.24	0.27	0.761 0.473 0.379	0 0	974.99 973.61	No
146 244	146	198.51	955.96 952.90	948.71 945.29	0.0172	8	0.016	0.018	1.41	0.09	1.590 0.988 0.970	0 0	948.77 945.35	No
3 246	3	285.00	952.90 949.02	945.09 941.61	0.0122	8	0.016	0.018	1.19	0.09	1.339 0.832 0.813	0 0	945.15 941.67	No
88 248	88	181.00	949.02 948.66	941.41 939.71	0.0094	8	0.016	0.033	1.39	0.15	1.174 0.729 0.696	0 0	941.51 939.81	No

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
32		149.81	948.66	939.51	0.0039	8	0.016	0.033	0.98	0.18	0.754	0	939.63	No
250	32		947.48	938.93							0.468	0	939.05	
											0.435			
10		183.00	947.48	938.73	0.0067	8	0.016	0.040	1.29	0.18	0.989	0	938.85	No
252	10		945.23	937.51							0.614	0	937.63	
											0.574			
150		188.27	1,035.21	1,027.01	0.0304	8	0.016	0.005	1.47	0.06	2.112	0	1,027.05	No
254	150		1,029.83	1,021.29							1.312	0	1,021.33	
											1.307			
120		333.63	1,029.83	1,021.11	0.0435	8	0.016	0.058	2.67	0.12	2.526	0	1,021.19	No
256	120		1,014.69	1,006.61							1.569	0	1,006.69	
											1.511			
66		208.76	1,014.69	1,006.41	0.0549	8	0.017	0.165	4.03	0.21	2.840	0	1,006.55	No
258	66		1,002.25	994.94							1.764	0	995.08	
											1.599			
73		189.24	1,002.25	994.59	0.1111	8	0.016	0.165	5.27	0.18	4.039	0	994.71	No
260	73		984.35	973.56							2.509	0	973.68	
											2.343			
135		152.16	984.35	973.43	0.0753	8	0.017	0.259	5.08	0.24	3.325	0	973.59	No
262	135		969.70	961.97							2.065	0	962.13	
											1.806			
52		318.05	969.70	961.67	0.0474	8	0.017	0.271	4.30	0.27	2.637	0	961.85	No
264	52		954.42	946.61							1.638	0	946.79	
											1.367			
83		343.48	954.42	946.44	0.0549	8	0.017	0.300	4.63	0.27	2.840	0	946.62	No
266	83		935.65	927.57							1.764	0	927.75	
											1.464			
154		327.00	956.20	948.13	0.0466	8	0.016	0.024	2.32	0.09	2.617	0	948.19	No
268	154		942.55	932.88							1.625	0	932.94	
											1.601			
82		206.56	942.55	932.74	0.0247	8	0.016	0.024	1.69	0.09	1.904	0	932.80	No
270	82		935.65	927.64							1.182	0	927.70	
											1.158			
98		147.39	935.65	927.32	0.0623	8	0.017	0.331	4.93	0.27	3.024	0	927.50	No
272	98		926.51	918.14							1.878	0	918.36	
											1.548			
133		136.70	926.51	918.00	0.0039	8	0.016	0.331	1.81	0.54	0.755	0	918.36	No
274	133		924.00	917.47							0.469	0	917.83	
											0.138			
11		204.50	924.00	917.37	0.0039	8	0.016	0.347	1.82	0.54	0.758	0	917.73	No
276	11		920.41	916.57							0.471	0	916.93	
											0.123			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
131		127.00	920.41	916.41	0.0155	8	0.017	0.362	3.02	0.39	1.509	0	916.67	No
278	131		918.38	914.44							0.937	0	914.70	
											0.575			
9		85.00	918.38	914.14	0.1428	8	0.017	0.362	7.00	0.24	4.579	0	914.30	Yes
280	9		916.73	902.00							2.844	0	902.75	
											2.482			
152		326.26	916.73	902.19	0.0042	10	0.015	0.946	2.44	0.67	1.418	12	902.75	No
282	152		912.05	900.83							0.881	4	901.39	
											-0.066			
156		348.83	949.70	942.35	0.0103	8	0.016	0.017	1.30	0.12	1.228	0	942.43	No
284	156		946.43	938.77							0.762	0	938.85	
											0.745			
72		119.42	946.43	938.67	0.0089	8	0.016	0.017	1.20	0.12	1.142	0	938.75	No
286	72		945.23	937.61							0.709	0	937.69	
											0.692			
17		280.01	945.23	937.41	0.0118	8	0.016	0.063	1.72	0.18	1.317	0	937.53	No
288	17		942.05	934.10							0.818	0	934.22	
											0.756			
48		288.25	942.05	934.00	0.0450	8	0.016	0.085	3.03	0.15	2.569	0	934.10	No
290	48		930.62	921.04							1.596	0	921.14	
											1.510			
63		277.26	930.62	920.94	0.0146	8	0.017	0.107	2.08	0.21	1.463	0	921.08	No
292	63		924.59	916.90							0.908	0	917.04	
											0.801			
155		260.29	924.59	916.80	0.0165	8	0.017	0.127	2.38	0.24	1.557	0	916.96	No
294	155		920.49	912.50							0.967	0	912.66	
											0.840			
15		302.46	920.49	912.40	0.0118	8	0.017	0.153	2.15	0.27	1.316	0	912.58	No
296	15		917.88	908.83							0.818	0	909.01	
											0.665			
127		313.43	917.88	908.73	0.0040	8	0.017	0.180	1.53	0.39	0.762	0	908.99	No
298	127		915.31	907.49							0.473	0	907.75	
											0.293			
102		313.64	915.31	907.39	0.0134	8	0.017	0.199	2.43	0.30	1.402	0	907.59	No
300	102		912.77	903.19							0.871	0	903.39	
											0.672			
104		163.37	912.77	903.09	0.0145	8	0.017	0.232	2.66	0.33	1.456	0	903.31	No
302	104		912.05	900.73							0.905	0	901.32	
											0.672			
125		154.50	912.05	900.66	0.0027	12	0.015	1.204	2.21	0.66	1.863	15	901.32	No
304	125		910.58	900.24							1.157	4	900.90	
											-0.047			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
110		247.85	910.58	900.14	0.0027	12	0.015	1.301	2.28	0.70	1.871	15	900.84	No
306	110		907.13	899.46							1.162	6	900.16	
											-0.139			
79		307.94	907.13	899.36	0.0033	12	0.015	1.400	2.46	0.68	2.046	15	900.04	No
308	79		903.48	898.35							1.271	6	899.03	
											-0.129			
23		162.00	903.48	895.24	0.0425	12	0.017	1.428	6.08	0.34	7.367	0	895.58	No
310	23		898.00	888.35							4.576	0	888.69	
											3.148			
13		309.05	898.00	888.21	0.0216	12	0.016	1.512	4.88	0.42	5.252	0	888.63	No
312	13		891.70	881.53							3.262	0	881.95	
											1.750			

Ar30s

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:45:18 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1			954.09	945.88							3.086	0	945.94	
2	1	194.88	947.74	933.24	0.0649	8	0.016	0.019	2.74	0.09	1.917	0	933.30	No
											1.897			
49			947.74	933.08							0.932	0	933.16	
4	49	312.54	939.00	931.23	0.0059	8	0.016	0.019	0.98	0.12	0.579	0	931.31	No
											0.560			
4			952.98	940.07							2.011	0	940.11	
6	4	253.00	941.34	933.10	0.0276	8	0.016	0.006	1.40	0.06	1.249	0	933.14	No
											1.243			
43			941.34	933.00							1.356	0	933.04	
8	43	133.27	939.00	931.33	0.0125	8	0.016	0.006	0.94	0.06	0.842	0	931.37	No
											0.836			
14			939.00	931.13							0.742	0	931.23	
10	14	48.00	938.99	930.95	0.0038	8	0.016	0.025	0.88	0.15	0.461	0	931.05	No
											0.435			
5			1,029.19	1,021.11							2.010	0	1,021.19	
12	5	224.95	1,022.97	1,014.92	0.0275	8	0.016	0.031	2.12	0.12	1.248	0	1,015.00	No
											1.217			
25			1,022.97	1,014.79							2.325	0	1,014.85	
14	25	127.70	1,018.32	1,010.09	0.0368	8	0.016	0.031	2.06	0.09	1.444	0	1,010.15	No
											1.413			
58			1,018.32	1,009.93							2.407	0	1,009.99	
16	58	272.40	1,007.25	999.18	0.0395	8	0.016	0.031	2.13	0.09	1.495	0	999.24	No
											1.464			
22			1,007.25	999.06							1.846	0	999.14	
18	22	142.98	1,003.95	995.74	0.0232	8	0.016	0.031	1.95	0.12	1.147	0	995.82	No
											1.116			
10			971.71	963.99							0.955	0	964.05	
20	10	136.76	971.33	963.14	0.0062	8	0.016	0.007	0.85	0.09	0.593	0	963.20	No
											0.586			
16			992.72	984.69							2.559	0	984.73	
22	16	85.19	988.85	980.89	0.0446	8	0.016	0.007	1.78	0.06	1.589	0	980.93	No
											1.583			
17			944.65	937.56							1.319	0	937.66	
24	17	297.77	941.28	934.03	0.0119	8	0.016	0.039	1.56	0.15	0.819	0	934.13	No
											0.780			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
94		178.35	941.28	933.93	0.0402	8	0.016	0.039	2.56	0.12	2.429	0	934.01	No
26	94		934.09	926.76							1.509	0	926.84	
											1.470			
96		223.82	934.09	926.76	0.0566	8	0.016	0.039	2.56	0.09	2.882	0	926.82	No
28	96		920.43	914.10							1.790	0	914.16	
											1.751			
9		30.83	920.43	913.75	0.1044	8	0.016	0.039	3.47	0.09	3.916	0	913.81	No
30	9		919.80	910.53							2.432	0	910.59	
											2.393			
18		180.00	898.00	885.35	0.0040	8	0.017	0.061	1.17	0.24	0.766	0	885.51	No
32	18		898.00	884.63							0.476	0	884.79	
											0.415			
44		205.00	898.00	884.53	0.0050	8	0.017	0.061	1.22	0.21	0.859	0	884.67	No
34	44		897.00	883.50							0.533	0	883.64	
											0.472			
95		156.00	897.00	883.40	0.0040	8	0.017	0.061	1.18	0.24	0.770	0	883.56	No
36	95		897.00	882.77							0.478	0	882.93	
											0.417			
20		280.83	967.45	959.29	0.0075	8	0.016	0.010	0.93	0.09	1.048	0	959.35	No
38	20		965.45	957.19							0.651	0	957.25	
											0.641			
27		200.80	1,026.47	1,011.99	0.0040	8	0.016	0.029	0.90	0.15	0.765	0	1,012.09	No
40	27		1,020.14	1,011.19							0.475	0	1,011.29	
											0.446			
33		200.65	1,020.14	1,010.99	0.0568	8	0.016	0.029	2.56	0.09	2.888	0	1,011.05	No
42	33		1,007.57	999.59							1.794	0	999.65	
											1.765			
34		241.18	1,007.57	999.27	0.1003	8	0.016	0.029	3.40	0.09	3.837	0	999.33	No
44	34		985.99	975.08							2.383	0	975.14	
											2.355			
64		153.44	985.99	974.86	0.0072	8	0.016	0.029	1.22	0.15	1.031	0	974.96	No
46	64		982.05	973.75							0.640	0	973.93	
											0.612			
30		329.73	1,016.10	1,008.50	0.0071	8	0.016	0.015	1.08	0.12	1.023	0	1,008.58	No
48	30		1,013.28	1,006.15							0.635	0	1,006.23	
											0.621			
11		167.73	1,013.28	1,006.05	0.0070	8	0.016	0.015	1.07	0.12	1.016	0	1,006.13	No
50	11		1,012.00	1,004.87							0.631	0	1,004.95	
											0.617			
31		260.00	1,036.34	1,024.62	0.0099	8	0.017	0.076	1.71	0.21	1.202	0	1,024.76	No
52	31		1,030.20	1,022.06							0.747	0	1,022.20	
											0.671			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
75		210.90	1,030.20	1,021.96	0.0098	8	0.017	0.076	1.70	0.21	1.200	0	1,022.10	No
54	75		1,028.09	1,019.89							0.746	0	1,020.03	
											0.669			
76		338.69	1,028.09	1,019.79	0.0179	8	0.016	0.076	2.12	0.18	1.622	0	1,019.91	No
56	76		1,022.58	1,013.72							1.007	0	1,013.84	
											0.931			
28		327.35	1,022.58	1,013.59	0.0711	8	0.016	0.076	3.41	0.12	3.231	0	1,013.67	No
58	28		998.61	990.31							2.007	0	990.39	
											1.931			
35		166.94	941.26	933.06	0.0074	8	0.016	0.017	1.10	0.12	1.044	0	933.14	No
60	35		940.00	931.82							0.649	0	931.90	
											0.632			
13		195.37	940.00	931.72	0.0039	8	0.016	0.017	0.80	0.12	0.761	0	931.80	No
62	13		938.99	930.95							0.472	0	931.03	
											0.456			
39		181.88	978.57	970.51	0.0090	8	0.016	0.007	1.02	0.09	1.151	0	970.57	No
64	39		977.00	968.87							0.715	0	968.93	
											0.707			
70		182.00	977.00	968.77	0.0176	8	0.016	0.007	1.12	0.06	1.607	0	968.81	No
66	70		974.00	965.57							0.998	0	965.61	
											0.990			
45		327.08	1,016.92	1,009.39	0.0071	8	0.016	0.018	1.08	0.12	1.023	0	1,009.47	No
68	45		1,014.40	1,007.06							0.635	0	1,007.14	
											0.617			
47		308.30	1,014.40	1,006.96	0.0071	8	0.016	0.018	1.08	0.12	1.021	0	1,007.04	No
70	47		1,012.00	1,004.77							0.634	0	1,004.85	
											0.616			
67		192.50	1,012.00	1,004.67	0.0071	8	0.016	0.033	1.20	0.15	1.018	0	1,004.77	No
72	67		1,010.26	1,003.31							0.633	0	1,003.41	
											0.600			
7		90.28	1,010.26	1,003.21	0.0057	8	0.016	0.045	1.19	0.18	0.911	0	1,003.33	No
74	7		1,010.57	1,002.70							0.566	0	1,002.82	
											0.520			
73		329.37	1,010.57	1,002.60	0.0343	8	0.016	0.045	2.37	0.12	2.245	0	1,002.68	No
76	73		1,002.00	991.29							1.395	0	991.37	
											1.349			
50		340.60	1,020.54	1,012.14	0.0334	8	0.016	0.021	1.96	0.09	2.213	0	1,012.20	No
78	50		1,010.71	1,000.78							1.374	0	1,000.84	
											1.354			
46		254.11	1,010.71	1,000.64	0.0197	8	0.016	0.021	1.51	0.09	1.700	0	1,000.70	No
80	46		1,003.95	995.64							1.056	0	995.70	
											1.035			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
99 82	99	260.56	1,003.95 998.61	995.54 990.31	0.0201	8	0.016	0.058	2.02	0.15	1.717 1.066 1.008	0 0	995.64 990.41	No
74 84	74	166.68	998.61 990.32	990.07 981.94	0.0488	8	0.016	0.139	3.49	0.18	2.676 1.662 1.523	0 0	990.19 982.06	No
41 86	41	111.25	990.32 989.90	981.83 981.00	0.0075	8	0.017	0.139	1.81	0.30	1.047 0.650 0.511	0 0	982.03 981.36	No
52 88	52	195.00	999.98 1,002.00	992.00 991.24	0.0039	8	0.016	0.003	0.53	0.06	0.756 0.470 0.467	0 0	992.04 991.28	No
89 90	89	164.27	1,002.00 995.85	991.04 985.59	0.0332	8	0.016	0.050	2.33	0.12	2.207 1.371 1.320	0 0	991.12 985.67	No
79 92	79	153.95	995.85 988.85	985.46 980.96	0.0292	8	0.016	0.050	2.19	0.12	2.072 1.287 1.236	0 0	985.54 981.04	No
53 94	53	55.53	988.85 985.11	980.46 971.70	0.1578	8	0.016	0.066	4.27	0.09	4.813 2.989 2.922	0 0	980.52 971.76	No
23 96	23	293.48	985.11 974.00	971.32 965.58	0.0196	8	0.016	0.066	2.21	0.18	1.695 1.052 0.986	0 0	971.44 965.70	No
29 98	29	254.78	974.00 962.86	965.37 950.32	0.0591	8	0.016	0.088	3.47	0.15	2.945 1.829 1.741	0 0	965.47 950.42	No
26 100	26	254.86	962.86 955.08	950.18 947.17	0.0118	8	0.017	0.088	1.87	0.21	1.317 0.818 0.730	0 0	950.32 947.31	No
54 102	54	122.17	941.35 940.10	934.06 933.59	0.0039	8	0.013	0.000	0.20	0.00	0.752 0.467 0.467	0 0	934.06 933.59	No
88 104	88	329.93	940.10 939.00	933.49 927.36	0.0186	8	0.013	0.000	0.20	0.00	1.652 1.026 1.026	0 0	933.49 927.36	No
55 106	55	222.87	1,036.40 1,035.90	1,028.31 1,027.43	0.0040	8	0.016	0.006	0.68	0.09	0.761 0.473 0.467	0 0	1,028.37 1,027.49	No
60 108	60	215.09	1,000.25 993.52	990.28 974.41	0.0738	8	0.016	0.025	2.92	0.09	3.291 2.044 2.019	0 0	990.34 974.47	No

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
61		299.54	993.52	974.23	0.0134	8	0.016	0.025	1.48	0.12	1.402	0	974.31	No
110	61		977.86	970.22							0.871	0	970.30	
											0.846			
51		253.00	977.86	970.12	0.0130	8	0.016	0.025	1.46	0.12	1.382	0	970.20	No
112	51		974.99	966.83							0.858	0	966.91	
											0.833			
71		252.50	974.99	966.73	0.0142	8	0.016	0.025	1.52	0.12	1.445	0	966.81	No
114	71		971.33	963.14							0.897	0	963.22	
											0.872			
21		218.77	971.33	962.94	0.0511	8	0.016	0.032	2.43	0.09	2.738	0	963.00	No
116	21		962.46	951.77							1.700	0	951.83	
											1.668			
100		332.73	962.46	951.65	0.0083	8	0.017	0.063	1.57	0.21	1.104	0	951.79	No
118	100		957.00	948.89							0.685	0	949.03	
											0.623			
62		334.83	957.00	948.79	0.0051	8	0.017	0.063	1.23	0.21	0.868	0	948.93	No
120	62		955.08	947.07							0.539	0	947.21	
											0.477			
93		200.50	955.08	946.97	0.0078	8	0.017	0.168	1.96	0.33	1.072	0	947.19	No
122	93		953.65	945.40							0.666	0	945.62	
											0.498			
37		266.98	953.65	945.20	0.0248	8	0.017	0.168	2.92	0.24	1.909	0	945.36	No
124	37		947.40	938.57							1.186	0	938.73	
											1.018			
2		238.00	947.40	938.47	0.0248	8	0.017	0.168	2.92	0.24	1.908	0	938.63	No
126	2		940.81	932.57							1.185	0	932.73	
											1.017			
83		238.60	940.81	932.47	0.0236	8	0.017	0.168	2.84	0.24	1.861	0	932.63	No
128	83		934.90	926.84							1.156	0	927.00	
											0.988			
63		300.55	943.41	932.07	0.0327	8	0.016	0.025	1.94	0.09	2.191	0	932.13	No
130	63		931.28	922.24							1.361	0	922.30	
											1.336			
97		276.23	931.28	922.12	0.0122	8	0.016	0.025	1.41	0.12	1.340	0	922.20	No
132	97		927.24	918.74							0.832	0	919.01	
											0.807			
8		155.33	927.24	918.61	0.0095	8	0.016	0.025	1.25	0.12	1.183	0	919.01	Yes
134	8		924.87	917.13							0.735	0	919.01	
											0.709			
59		250.01	924.87	918.93	0.0123	8	0.016	0.025	1.42	0.12	1.345	0	919.01	No
136	59		923.00	915.85							0.835	0	915.93	
											0.810			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
78		185.46	938.95	931.42	0.0219	8	0.016	0.006	1.25	0.06	1.793	0	931.46	No
138	78		939.00	927.36							1.113	0	927.40	
											1.107			
65		64.46	939.00	926.76	0.4865	8	0.015	0.007	3.95	0.03	8.451	0	926.78	No
140	65		906.90	895.40							5.249	0	895.66	
											5.242			
90		255.00	898.00	884.54	0.0040	8	0.016	0.032	1.00	0.18	0.766	0	884.66	No
142	90		897.00	883.52							0.476	0	883.64	
											0.444			
98		162.00	897.00	883.42	0.0040	8	0.016	0.032	1.00	0.18	0.768	0	883.54	No
144	98		897.00	882.77							0.477	0	882.89	
											0.445			
19		90.00	897.00	882.66	0.0040	8	0.017	0.093	1.25	0.27	0.766	0	882.84	No
146	19		896.34	882.30							0.476	0	882.54	
											0.383			
92		165.00	1,083.62	1,074.84	0.0234	8	0.016	0.053	2.19	0.15	1.853	0	1,074.94	No
148	92		1,079.32	1,070.98							1.151	0	1,071.08	
											1.098			
3		160.00	1,079.32	1,070.88	0.0234	8	0.016	0.053	2.19	0.15	1.853	0	1,070.98	No
150	3		1,075.30	1,067.14							1.151	0	1,067.24	
											1.098			
12		162.27	1,075.30	1,067.04	0.0181	8	0.016	0.053	1.92	0.15	1.631	0	1,067.14	No
152	12		1,072.17	1,064.10							1.013	0	1,064.20	
											0.960			
72		199.93	1,072.17	1,063.90	0.0083	8	0.016	0.053	1.44	0.18	1.101	0	1,064.02	No
154	72		1,070.37	1,062.25							0.684	0	1,062.37	
											0.631			
66		207.56	1,070.37	1,062.15	0.0098	8	0.016	0.053	1.57	0.18	1.201	0	1,062.27	No
156	66		1,068.32	1,060.11							0.746	0	1,060.23	
											0.693			
84		310.72	1,068.32	1,060.01	0.0059	8	0.017	0.053	1.32	0.21	0.932	0	1,060.15	No
158	84		1,066.41	1,058.17							0.579	0	1,058.31	
											0.527			
15		237.65	1,066.41	1,058.07	0.0354	8	0.016	0.053	2.41	0.12	2.279	0	1,058.15	No
160	15		1,060.15	1,049.66							1.416	0	1,049.74	
											1.363			
85		293.11	1,060.15	1,049.44	0.0750	8	0.016	0.053	3.50	0.12	3.317	0	1,049.52	No
162	85		1,035.90	1,027.47							2.060	0	1,027.55	
											2.008			
82		202.19	1,035.90	1,027.20	0.0588	8	0.016	0.059	3.10	0.12	2.938	0	1,027.28	No
164	82		1,023.87	1,015.31							1.825	0	1,015.39	
											1.766			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
32		302.53	1,023.87	1,015.03	0.0789	8	0.016	0.085	3.59	0.12	3.404	0	1,015.11	No
166	32		1,005.56	991.15							2.114	0	991.23	
											2.029			
69		298.94	1,005.56	990.95	0.0178	8	0.016	0.085	2.11	0.18	1.615	0	991.07	No
168	69		996.90	985.64							1.003	0	985.76	
											0.918			
101		268.65	996.90	985.54	0.0158	8	0.017	0.085	2.16	0.21	1.520	0	985.68	No
170	101		989.90	981.31							0.944	0	981.45	
											0.859			
40		195.25	989.90	981.20	0.0372	8	0.017	0.228	3.57	0.24	2.338	0	981.36	No
172	40		982.05	973.93							1.452	0	974.09	
											1.224			
77		118.99	982.05	973.75	0.0458	8	0.017	0.264	4.23	0.27	2.593	0	973.93	No
174	77		976.69	968.30							1.611	0	968.48	
											1.346			
68		158.92	976.69	968.06	0.0682	8	0.017	0.264	4.84	0.24	3.165	0	968.22	No
176	68		965.45	957.22							1.965	0	957.38	
											1.701			
91		152.34	965.45	956.93	0.0721	8	0.017	0.274	4.97	0.24	3.253	0	957.09	No
178	91		964.06	945.95							2.020	0	946.11	
											1.746			
48		268.00	964.06	945.67	0.0465	8	0.017	0.283	4.26	0.27	2.612	0	945.85	No
180	48		941.34	933.22							1.622	0	933.40	
											1.339			
38		136.20	941.34	933.12	0.0167	8	0.017	0.283	2.86	0.33	1.564	0	933.34	No
182	38		938.99	930.85							0.972	0	931.07	
											0.689			
36		206.75	938.99	930.75	0.0184	8	0.017	0.328	3.15	0.36	1.645	0	930.99	No
184	36		934.90	926.94							1.022	0	927.18	
											0.694			
87		277.90	934.90	926.74	0.0276	8	0.017	0.500	4.03	0.39	2.013	0	927.00	No
186	87		927.63	919.07							1.250	0	919.33	
											0.751			
81		209.50	927.63	918.97	0.0173	8	0.016	0.500	3.46	0.45	1.593	0	919.27	No
188	81		923.00	915.35							0.989	0	915.65	
											0.490			
42		68.50	923.00	915.25	0.0159	8	0.016	0.525	3.43	0.48	1.528	0	915.57	No
190	42		922.70	914.16							0.949	0	914.48	
											0.424			
56		192.39	922.70	913.99	0.0039	8	0.015	0.552	2.10	0.72	0.757	10	914.47	No
192	56		921.42	913.24							0.470	6	913.72	
											-0.082			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
6		220.12	921.42	913.13	0.0126	8	0.016	0.552	3.16	0.51	1.359	0	913.47	No
194	6		919.80	910.36							0.844	0	910.70	
											0.292			
80		187.49	919.80	910.26	0.0392	8	0.017	0.595	4.80	0.39	2.397	0	910.52	No
196	80		914.37	902.92							1.489	0	903.18	
											0.894			
57		184.25	914.37	902.76	0.0391	8	0.017	0.595	4.80	0.39	2.397	0	903.02	No
198	57		906.90	895.55							1.489	0	895.81	
											0.894			
24		296.30	906.90	895.40	0.0434	8	0.017	0.606	5.06	0.39	2.524	0	895.66	No
200	24		896.34	882.54							1.568	0	882.80	
											0.962			
86		123.45	896.34	882.30	0.0816	8	0.017	0.704	6.63	0.36	3.461	0	882.54	No
202	86		892.10	872.23							2.149	0	872.47	
											1.446			

Ar31s

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:45:40 AM

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
2		188.49	1,021.65	1,013.76	0.0098	8	0.016	0.022	1.26	0.12	1.197	0	1,013.84	No
2	2		1,020.38	1,011.92							0.744	0	1,012.00	
											0.722			
3		145.44	1,020.38	1,011.74	0.0758	8	0.016	0.022	2.96	0.09	3.337	0	1,011.80	No
4	3		1,011.96	1,000.71							2.072	0	1,000.77	
											2.051			
12		265.10	1,039.92	1,030.72	0.0158	8	0.016	0.047	1.79	0.15	1.522	0	1,030.82	No
6	12		1,035.96	1,026.54							0.945	0	1,026.64	
											0.898			
6		200.00	1,035.96	1,026.40	0.0510	8	0.016	0.047	2.89	0.12	2.735	0	1,026.48	No
8	6		1,027.49	1,016.21							1.699	0	1,016.29	
											1.652			
11		275.00	1,027.49	1,015.99	0.0552	8	0.016	0.047	3.00	0.12	2.847	0	1,016.07	No
10	11		1,011.96	1,000.81							1.768	0	1,000.89	
											1.721			
8		198.06	1,011.96	1,000.42	0.0765	8	0.016	0.068	3.54	0.12	3.352	0	1,000.50	No
12	8		992.95	985.26							2.082	0	985.34	
											2.014			
14		245.47	992.95	984.85	0.1258	8	0.016	0.114	5.07	0.15	4.298	0	984.95	No
14	14		964.11	953.97							2.669	0	954.07	
											2.555			
13		170.00	964.11	953.60	0.0567	8	0.016	0.114	3.77	0.18	2.884	0	953.72	No
16	13		953.87	943.97							1.791	0	944.09	
											1.677			
1		191.62	953.87	943.57	0.0724	8	0.016	0.114	3.85	0.15	3.261	0	943.67	No
18	1		939.59	929.69							2.025	0	929.79	
											1.911			
9		270.00	939.59	929.39	0.0729	8	0.017	0.256	5.00	0.24	3.271	0	929.55	No
20	9		919.01	909.71							2.032	0	909.87	
											1.776			
4		268.00	919.01	909.45	0.0532	8	0.017	0.256	4.27	0.24	2.795	0	909.61	No
22	4		904.06	895.19							1.736	0	895.35	
											1.480			
7		275.41	904.06	895.09	0.0394	8	0.017	0.256	3.93	0.27	2.406	0	895.27	No
24	7		898.80	884.23							1.494	0	884.41	
											1.238			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
16		326.00	898.80	884.10	0.0245	8	0.016	0.555	4.12	0.45	1.897	0	884.40	No
26	16		885.40	876.11							1.178	0	876.49	
											0.623			
5		330.50	885.40	876.01	0.0040	8	0.015	0.555	2.12	0.72	0.763	10	876.49	No
28	5		887.16	874.70							0.474	6	875.18	
											-0.081			
15		325.00	887.16	874.37	0.0024	12	0.016	0.555	1.70	0.46	1.739	0	874.83	No
30	15		887.60	873.60							1.080	0	874.06	
											0.525			
10		335.00	887.60	873.50	0.0024	12	0.016	0.555	1.69	0.46	1.735	0	873.96	No
32	10		889.00	872.71							1.077	0	873.17	
											0.523			

Ar32

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:46:10 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
5		31.95	894.30	886.28	0.3246	8	0.013	0.000	0.20	0.00	6.903	0	886.28	No
2	5		890.82	875.91							4.287	0	875.99	
											4.287			
7		135.00	909.45	901.20	0.0136	8	0.013	0.000	0.20	0.00	1.411	0	901.20	No
4	7		907.24	899.37							0.876	0	899.37	
											0.876			
9		125.00	888.69	880.64	0.0442	8	0.013	0.000	0.20	0.00	2.546	0	880.64	No
6	9		887.90	875.12							1.581	0	875.12	
											1.581			
10		275.00	890.04	881.92	0.0319	8	0.013	0.000	0.20	0.00	2.165	0	881.92	No
8	10		885.54	873.14							1.345	0	873.14	
											1.345			
11		160.62	903.75	886.61	0.0105	8	0.017	0.089	1.77	0.21	1.243	0	886.75	No
10	11		901.93	884.92							0.772	0	885.06	
											0.683			
8		216.49	901.93	884.82	0.0106	8	0.017	0.089	1.77	0.21	1.246	0	884.96	No
12	8		898.40	882.53							0.774	0	882.67	
											0.685			
15		186.00	902.50	883.86	0.0066	8	0.013	0.000	0.20	0.00	0.985	0	883.86	No
14	15		898.40	882.63							0.612	0	882.63	
											0.612			
1		90.03	898.40	882.43	0.0114	8	0.017	0.089	1.84	0.21	1.296	0	882.57	No
16	1		896.98	881.40							0.805	0	881.54	
											0.716			
17		334.91	896.98	881.30	0.0158	8	0.017	0.089	2.16	0.21	1.523	0	881.44	No
18	17		890.82	876.01							0.946	0	876.15	
											0.857			
12		202.27	890.82	875.81	0.0039	8	0.017	0.089	1.24	0.27	0.757	0	875.99	No
20	12		887.90	875.02							0.470	0	875.20	
											0.382			
13		200.78	887.90	874.92	0.0039	8	0.017	0.089	1.24	0.27	0.760	0	875.10	No
22	13		886.00	874.13							0.472	0	874.31	
											0.383			
2		201.45	886.00	874.03	0.0039	8	0.017	0.089	1.24	0.27	0.759	0	874.21	No
24	2		885.18	873.24							0.471	0	873.42	
											0.383			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
16		288.80	916.15	908.38	0.0315	8	0.013	0.000	0.20	0.00	2.152	0	908.38	No
26	16		907.24	899.27							1.337	0	899.27	
											1.337			
4		241.20	907.24	899.04	0.0495	8	0.013	0.000	0.20	0.00	2.697	0	899.04	No
28	4		895.72	887.09							1.675	0	887.09	
											1.675			
3		230.00	895.72	886.87	0.0590	8	0.013	0.000	0.20	0.00	2.942	0	886.87	No
30	3		885.18	873.31							1.827	0	873.32	
											1.827			
6		28.56	885.18	873.14	0.0035	8	0.017	0.089	1.17	0.27	0.717	0	873.32	No
32	6		885.54	873.04							0.445	0	873.22	
											0.357			
14		141.83	885.54	872.80	0.0467	8	0.016	0.089	3.09	0.15	2.618	0	872.90	No
34	14		884.30	866.18							1.626	0	866.28	
											1.537			

Ar33

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:46:43 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		345.00	883.15	875.90	0.0059	8	0.017	0.188	1.79	0.36	0.934	0	876.14	No
2	1		880.85	873.85							0.580	0	874.09	
											0.392			
8		101.00	880.85	873.65	0.0039	8	0.017	0.188	1.51	0.39	0.753	0	873.91	No
4	8		881.40	873.26							0.468	0	873.52	
											0.280			
4		200.00	881.40	873.06	0.0036	8	0.016	0.188	1.51	0.42	0.722	0	873.34	No
6	4		883.40	872.35							0.448	0	872.63	
											0.261			
7		181.00	883.40	872.25	0.0043	8	0.017	0.188	1.59	0.39	0.795	0	872.51	No
8	7		883.85	871.47							0.494	0	871.73	
											0.306			
3		242.00	883.85	871.27	0.0351	8	0.017	0.188	3.47	0.24	2.271	0	871.43	No
10	3		882.06	862.77							1.410	0	862.93	
											1.223			
5		251.93	885.93	877.40	0.0059	8	0.013	0.000	0.20	0.00	0.932	0	877.40	No
12	5		884.73	875.91							0.579	0	875.91	
											0.579			
6		271.61	884.73	875.81	0.0059	8	0.013	0.000	0.20	0.00	0.933	0	875.81	No
14	6		883.35	874.20							0.579	0	874.20	
											0.579			
2		280.00	883.35	874.10	0.0405	8	0.013	0.000	0.20	0.00	2.437	0	874.10	No
16	2		882.06	862.77							1.514	0	862.79	
											1.514			
9		82.00	882.06	862.57	0.0095	8	0.017	0.188	2.16	0.33	1.182	0	862.79	No
18	9		882.05	861.79							0.734	0	862.01	
											0.546			

Ar34s

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:53:39 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
3 2	3	276.36	1,023.85 1,006.00	1,015.65 998.11	0.0635	8	0.016	0.017	2.12	0.06	3.053 1.896 1.878	0 0	1,015.69 998.15	No
37 4	37	350.00	1,006.00 976.35	997.75 968.41	0.0838	8	0.016	0.017	2.44	0.06	3.508 2.179 2.161	0 0	997.79 968.45	No
6 6	6	87.59	1,015.64 1,015.15	1,007.58 1,006.61	0.0111	8	0.013	0.000	0.20	0.00	1.275 0.792 0.792	0 0	1,007.58 1,006.61	No
40 8	40	201.41	1,015.15 1,012.25	1,006.51 1,004.22	0.0114	8	0.016	0.012	1.15	0.09	1.292 0.802 0.791	0 0	1,006.57 1,004.28	No
11 10	11	153.00	1,008.84 1,003.85	1,000.00 993.92	0.0397	8	0.016	0.010	1.68	0.06	2.415 1.500 1.491	0 0	1,000.04 993.96	No
13 12	13	330.00	954.57 940.66	947.09 932.88	0.0431	8	0.016	0.016	2.23	0.09	2.514 1.562 1.545	0 0	947.15 932.94	No
15 14	15	325.00	940.66 926.66	932.70 913.70	0.0585	8	0.016	0.016	2.04	0.06	2.930 1.820 1.803	0 0	932.74 913.74	No
14 16	14	236.10	1,023.90 1,012.25	1,015.61 1,004.28	0.0480	8	0.016	0.016	1.84	0.06	2.654 1.649 1.633	0 0	1,015.65 1,004.32	No
27 18	27	232.47	1,012.25 991.25	1,003.98 982.05	0.0943	8	0.016	0.032	3.30	0.09	3.722 2.311 2.279	0 0	1,004.04 982.11	No
21 20	21	265.00	951.02 944.96	943.21 937.26	0.0225	8	0.016	0.030	1.92	0.12	1.816 1.128 1.098	0 0	943.29 937.34	No
5 22	5	267.46	944.96 936.99	937.13 928.80	0.0311	8	0.016	0.030	2.26	0.12	2.138 1.328 1.298	0 0	937.21 928.88	No
4 24	4	242.54	936.99 929.75	928.69 921.53	0.0295	8	0.016	0.030	2.20	0.12	2.082 1.293 1.263	0 0	928.77 921.80	No

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
24		348.01	929.75	921.74	0.0435	8	0.016	0.030	2.24	0.09	2.526	0	921.80	No
26	24		915.10	906.61							1.569	0	906.67	
											1.539			
22		345.00	992.34	984.39	0.0388	8	0.016	0.027	2.12	0.09	2.386	0	984.45	No
28	22		979.80	971.01							1.482	0	971.07	
											1.455			
32		235.73	979.80	970.81	0.0106	8	0.016	0.027	1.32	0.12	1.248	0	970.89	No
30	32		976.35	968.31							0.775	0	968.39	
											0.748			
35		341.70	976.35	968.21	0.0345	8	0.016	0.064	2.65	0.15	2.250	0	968.31	No
32	35		964.21	956.43							1.397	0	956.53	
											1.333			
52		330.00	964.21	956.33	0.0039	8	0.017	0.064	1.16	0.24	0.761	0	956.49	No
34	52		962.68	955.03							0.472	0	955.19	
											0.408			
10		350.00	962.68	954.85	0.0040	8	0.017	0.079	1.25	0.27	0.764	0	955.03	No
36	10		964.85	953.46							0.474	0	953.64	
											0.396			
30		350.00	964.85	953.45	0.0039	8	0.017	0.079	1.23	0.27	0.755	0	953.63	No
38	30		959.75	952.09							0.469	0	952.27	
											0.391			
26		87.59	967.90	960.86	0.0039	8	0.013	0.000	0.20	0.00	0.755	0	960.86	No
40	26		968.95	960.52							0.469	0	960.52	
											0.469			
28		150.42	961.00	952.88	0.0716	8	0.016	0.017	2.25	0.06	3.242	0	952.92	No
42	28		953.00	942.11							2.014	0	942.17	
											1.997			
38		276.58	953.00	942.11	0.0414	8	0.016	0.017	2.19	0.09	2.464	0	942.17	No
44	38		940.00	930.67							1.530	0	930.73	
											1.514			
29		43.00	994.61	987.35	0.0254	8	0.016	0.009	1.34	0.06	1.929	0	987.39	No
46	29		996.10	986.26							1.198	0	986.30	
											1.189			
31		282.00	981.62	973.69	0.0464	8	0.016	0.008	1.81	0.06	2.610	0	973.73	No
48	31		968.95	960.61							1.621	0	960.65	
											1.612			
33		347.74	968.95	960.42	0.0337	8	0.016	0.041	2.35	0.12	2.224	0	960.50	No
50	33		956.82	948.71							1.381	0	948.79	
											1.340			
62		350.00	956.82	948.59	0.0091	8	0.016	0.041	1.36	0.15	1.155	0	948.69	No
52	62		953.25	945.41							0.717	0	945.51	
											0.676			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
25		352.24	953.25	945.31	0.0115	8	0.016	0.041	1.53	0.15	1.298	0	945.41	No
54	25		949.21	941.27							0.806	0	941.37	
											0.765			
39		242.00	923.10	913.40	0.0220	8	0.016	0.008	1.25	0.06	1.798	0	913.44	No
56	39		916.58	908.07							1.117	0	908.11	
											1.109			
41		274.00	962.40	954.25	0.0114	8	0.016	0.015	1.15	0.09	1.295	0	954.31	No
58	41		958.72	951.12							0.804	0	951.18	
											0.789			
12		350.00	958.72	951.02	0.0043	8	0.016	0.015	0.84	0.12	0.799	0	951.10	No
60	12		957.24	949.50							0.496	0	949.58	
											0.481			
42		67.00	917.09	909.63	0.0037	8	0.016	0.002	0.51	0.06	0.740	0	909.67	No
62	42		917.50	909.38							0.460	0	909.42	
											0.458			
44		76.35	928.15	920.17	0.0861	8	0.013	0.000	0.20	0.00	3.554	0	920.17	No
64	44		926.66	913.60							2.208	0	913.60	
											2.208			
16		293.65	926.66	913.41	0.0040	8	0.016	0.020	0.90	0.15	0.762	0	913.51	No
66	16		921.05	912.25							0.473	0	912.35	
											0.453			
46		128.25	961.20	953.21	0.0097	8	0.016	0.006	0.83	0.06	1.191	0	953.25	No
68	46		959.75	951.97							0.740	0	952.01	
											0.735			
61		251.06	959.75	951.87	0.0102	8	0.017	0.089	1.74	0.21	1.226	0	952.01	No
70	61		957.24	949.30							0.761	0	949.44	
											0.672			
60		277.69	957.24	949.30	0.0329	8	0.017	0.128	3.12	0.21	2.198	0	949.44	No
72	60		948.77	940.16							1.365	0	940.30	
											1.237			
53		230.00	948.77	939.88	0.0884	8	0.016	0.128	4.25	0.15	3.603	0	939.98	No
74	53		929.33	919.54							2.238	0	919.64	
											2.110			
7		325.02	929.33	919.34	0.0221	8	0.017	0.128	2.56	0.21	1.802	0	919.48	No
76	7		921.05	912.15							1.119	0	912.29	
											0.991			
59		214.98	921.05	912.05	0.0039	8	0.017	0.161	1.45	0.36	0.757	0	912.29	No
78	59		919.21	911.21							0.470	0	911.45	
											0.310			
18		266.00	919.21	910.95	0.0059	8	0.017	0.161	1.70	0.33	0.931	0	911.17	No
80	18		917.50	909.38							0.578	0	909.60	
											0.417			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
9		256.00	917.50	909.18	0.0047	8	0.017	0.166	1.60	0.36	0.833	0	909.42	No
82	9		916.58	907.97							0.517	0	908.21	
											0.352			
56		247.00	916.58	907.87	0.0047	8	0.017	0.176	1.59	0.36	0.830	0	908.11	No
84	56		915.10	906.71							0.516	0	906.95	
											0.340			
43		164.27	915.10	906.47	0.0238	8	0.017	0.206	3.05	0.27	1.869	0	906.65	No
86	43		910.50	902.56							1.161	0	902.74	
											0.956			
20		350.00	910.50	902.46	0.0237	8	0.017	0.220	3.04	0.27	1.866	0	902.64	No
88	20		902.80	894.16							1.159	0	894.34	
											0.939			
23		114.72	902.80	894.06	0.0289	8	0.017	0.220	3.36	0.27	2.061	0	894.24	No
90	23		898.00	890.74							1.280	0	890.92	
											1.060			
48		318.00	1,028.95	1,020.67	0.0841	8	0.016	0.021	3.12	0.09	3.514	0	1,020.73	No
92	48		1,003.85	993.92							2.183	0	993.98	
											2.162			
51		238.00	1,003.85	993.59	0.0491	8	0.016	0.036	2.38	0.09	2.684	0	993.65	No
94	51		991.25	981.91							1.667	0	981.97	
											1.631			
45		193.24	991.25	981.81	0.1035	8	0.016	0.068	4.11	0.12	3.898	0	981.89	No
96	45		970.08	961.81							2.421	0	961.91	
											2.353			
49		326.19	970.08	961.81	0.0627	8	0.016	0.084	3.58	0.15	3.033	0	961.91	No
98	49		949.21	941.37							1.884	0	941.47	
											1.800			
55		194.43	949.21	941.17	0.0318	8	0.017	0.129	3.07	0.21	2.162	0	941.31	No
100	55		943.00	934.98							1.343	0	935.12	
											1.214			
34		66.16	943.00	934.87	0.0642	8	0.016	0.129	4.01	0.18	3.071	0	934.99	No
102	34		940.00	930.62							1.907	0	930.74	
											1.779			
2		334.49	940.00	930.33	0.0731	8	0.016	0.155	4.28	0.18	3.275	0	930.45	No
104	2		914.65	905.89							2.034	0	906.01	
											1.879			
36		227.15	914.65	905.59	0.0644	8	0.016	0.155	4.01	0.18	3.075	0	905.71	No
106	36		898.00	890.96							1.910	0	891.08	
											1.755			
19		224.39	898.00	890.54	0.0138	8	0.016	0.399	2.97	0.42	1.422	0	890.82	No
108	19		896.10	887.45							0.883	0	887.73	
											0.484			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
63		207.34	896.10	887.33	0.0110	8	0.016	0.399	2.76	0.45	1.271	0	887.63	No
110	63		892.92	885.05							0.789	0	885.35	
											0.390			
1		219.00	892.92	884.86	0.0055	8	0.016	0.399	2.15	0.54	0.897	0	885.22	No
112	1		894.00	883.66							0.557	0	884.04	
											0.158			
58		191.76	1,031.27	1,023.20	0.0239	8	0.013	0.000	0.20	0.00	1.873	0	1,023.20	No
114	58		1,025.87	1,018.62							1.163	0	1,018.62	
											1.163			
54		330.24	1,025.87	1,018.56	0.0978	8	0.016	0.033	3.36	0.09	3.789	0	1,018.62	No
116	54		996.10	986.26							2.353	0	986.32	
											2.320			
47		144.25	996.10	986.06	0.0074	8	0.016	0.042	1.36	0.18	1.044	0	986.18	No
118	47		991.50	984.99							0.648	0	985.11	
											0.606			
8		253.81	991.50	983.99	0.3244	8	0.016	0.042	6.12	0.09	6.901	0	984.05	No
120	8		934.50	901.65							4.286	0	901.71	
											4.244			
50		160.00	934.50	901.15	0.1074	8	0.016	0.051	3.52	0.09	3.972	0	901.21	No
122	50		894.00	883.96							2.467	0	884.04	
											2.416			
17		60.00	894.00	883.66	0.0060	8	0.016	0.451	2.33	0.57	0.939	0	884.04	No
124	17		896.00	883.30							0.583	0	883.68	
											0.132			
57		194.00	896.00	883.10	0.1419	8	0.017	0.451	7.45	0.27	4.564	0	883.28	No
126	57		888.61	855.58							2.834	0	855.76	
											2.384			

Ar35s

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:54:04 AM

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
7		197.86	994.00	984.00	0.0809	8	0.016	0.016	2.39	0.06	3.446	0	984.04	No
2	7		997.75	968.00							2.140	0	968.04	
											2.124			
14		278.15	880.48	872.87	0.0142	8	0.016	0.012	1.28	0.09	1.446	0	872.93	No
4	14		876.81	868.91							0.898	0	868.97	
											0.886			
46		185.13	876.81	868.81	0.0148	8	0.016	0.012	1.31	0.09	1.474	0	868.87	No
6	46		874.38	866.07							0.916	0	866.13	
											0.904			
100		136.70	874.38	865.97	0.0318	8	0.016	0.012	1.50	0.06	2.161	0	866.01	No
8	100		873.06	861.62							1.342	0	861.66	
											1.330			
17		115.00	929.33	921.80	0.0150	8	0.016	0.008	1.03	0.06	1.486	0	921.84	No
10	17		927.83	920.07							0.923	0	920.11	
											0.915			
22		146.64	873.73	866.01	0.0039	8	0.016	0.004	0.52	0.06	0.755	0	866.05	No
12	22		872.94	865.44							0.469	0	865.48	
											0.465			
27		190.69	887.70	879.07	0.0164	8	0.016	0.021	1.38	0.09	1.552	0	879.13	No
14	27		883.61	875.94							0.964	0	876.00	
											0.943			
40		189.03	883.61	875.84	0.0108	8	0.016	0.021	1.33	0.12	1.259	0	875.92	No
16	40		880.48	873.80							0.782	0	873.88	
											0.761			
51		241.06	880.48	873.61	0.0204	8	0.016	0.021	1.54	0.09	1.731	0	873.67	No
18	51		876.91	868.69							1.075	0	868.75	
											1.054			
90		119.97	876.91	868.59	0.0178	8	0.016	0.021	1.43	0.09	1.615	0	868.65	No
20	90		874.85	866.46							1.003	0	866.52	
											0.982			
72		146.37	874.85	866.36	0.0331	8	0.016	0.021	1.95	0.09	2.203	0	866.42	No
22	72		873.06	861.52							1.368	0	861.58	
											1.347			
35		339.98	942.40	933.39	0.0427	8	0.013	0.000	0.20	0.00	2.503	0	933.39	No
24	35		927.08	918.88							1.555	0	924.10	
											1.555			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
102		120.00	927.08	918.75	0.0213	8	0.013	0.000	0.20	0.00	1.766	0	924.10	No
26	102		924.10	916.20							1.097	0	924.10	
											1.097			
37		260.00	1,057.20	1,051.00	0.1738	8	0.016	0.024	3.51	0.06	5.052	0	1,051.04	No
28	37		1,014.90	1,005.81							3.137	0	1,005.85	
											3.113			
26		209.00	1,014.90	1,005.08	0.1065	8	0.016	0.024	3.51	0.09	3.954	0	1,005.14	No
30	26		990.00	982.82							2.456	0	982.88	
											2.432			
71		132.00	990.00	982.72	0.0575	8	0.016	0.024	2.58	0.09	2.906	0	982.78	No
32	71		981.80	975.13							1.805	0	975.19	
											1.781			
39		145.00	920.69	912.52	0.0359	8	0.016	0.008	1.59	0.06	2.295	0	912.56	No
34	39		916.75	907.32							1.425	0	907.40	
											1.417			
49		175.00	925.90	918.44	0.0207	8	0.016	0.008	1.21	0.06	1.745	0	918.48	No
36	49		922.25	914.81							1.084	0	914.85	
											1.075			
50		140.00	900.65	893.74	0.0039	8	0.016	0.021	0.89	0.15	0.753	0	901.00	Yes
38	50		901.50	893.20							0.467	0	901.00	
											0.446			
67		80.00	901.50	893.00	0.0038	8	0.016	0.021	0.88	0.15	0.742	0	901.00	Yes
40	67		901.00	892.70							0.461	0	901.00	
											0.440			
62		185.00	894.20	886.18	0.0167	8	0.016	0.007	1.09	0.06	1.566	0	886.22	No
42	62		891.10	883.09							0.973	0	883.13	
											0.965			
64		352.19	894.65	888.58	0.0316	8	0.016	0.012	1.50	0.06	2.154	0	888.62	No
44	64		885.18	877.45							1.338	0	877.49	
											1.326			
65		95.00	928.52	921.15	0.0080	8	0.016	0.006	0.75	0.06	1.084	0	921.19	No
46	65		927.83	920.39							0.673	0	920.43	
											0.668			
3		115.00	927.83	919.87	0.0097	8	0.016	0.017	1.26	0.12	1.190	0	919.95	No
48	3		926.34	918.76							0.739	0	918.84	
											0.722			
66		145.00	934.66	927.00	0.0306	8	0.016	0.009	1.47	0.06	2.118	0	927.04	No
50	66		931.28	922.57							1.315	0	922.61	
											1.307			
69		107.83	883.51	875.74	0.0347	8	0.016	0.029	2.00	0.09	2.257	0	875.80	No
52	69		879.58	872.00							1.402	0	872.06	
											1.372			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
41		162.09	879.58	871.80	0.0039	8	0.016	0.029	0.89	0.15	0.755	0	871.90	No
54	41		880.40	871.17							0.469	0	871.27	
											0.440			
55		231.94	880.40	870.96	0.0983	8	0.016	0.029	3.37	0.09	3.798	0	871.02	No
56	55		862.06	848.17							2.359	0	848.33	
											2.330			
73		171.00	932.55	924.98	0.0379	8	0.016	0.007	1.64	0.06	2.359	0	925.02	Yes
58	73		927.75	918.50							1.465	0	919.40	
											1.458			
74		142.00	924.10	916.00	0.0194	8	0.013	0.000	0.20	0.00	1.689	0	924.10	No
60	74		924.10	913.24							1.049	0	924.10	
											1.049			
103		41.01	924.10	916.00	0.0122	8	0.013	0.000	0.20	0.00	1.338	0	925.00	No
62	103		925.00	915.50							0.831	0	925.00	
											0.831			
19		407.47	925.00	917.50	-0.0222	3	0.000	0.000	0.20	1.00	0.000	0	926.55	No
64	19		931.00	926.55							0.000	0	926.55	
											0.000			
77		85.00	914.50	907.97	0.0038	8	0.016	0.006	0.66	0.09	0.743	0	908.03	No
66	77		916.75	907.65							0.462	0	907.71	
											0.456			
8		100.00	916.75	907.32	0.0058	8	0.016	0.017	0.97	0.12	0.923	0	907.40	No
68	8		917.11	906.74							0.573	0	906.82	
											0.556			
79		269.00	944.32	935.56	0.0828	8	0.016	0.010	2.42	0.06	3.486	0	935.60	No
70	79		922.46	913.30							2.165	0	913.34	
											2.154			
28		204.00	922.46	913.10	0.0137	8	0.016	0.010	1.26	0.09	1.420	0	913.16	No
72	28		918.00	910.30							0.882	0	910.44	
											0.871			
80		146.00	964.00	953.58	0.0040	8	0.016	0.022	0.90	0.15	0.764	0	953.68	No
74	80		963.40	953.00							0.474	0	953.10	
											0.453			
61		201.54	963.40	952.90	0.0244	8	0.016	0.022	1.68	0.09	1.893	0	952.96	No
76	61		956.00	947.98							1.176	0	948.04	
											1.154			
1		201.54	956.00	947.98	0.0372	8	0.016	0.022	2.07	0.09	2.337	0	948.04	No
78	1		948.50	940.48							1.452	0	940.57	
											1.430			
82		274.48	986.25	977.80	0.0357	8	0.016	0.018	2.03	0.09	2.290	0	977.86	No
80	82		997.75	968.00							1.422	0	968.06	
											1.404			

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
23 82	23	56.09	997.75 974.25	967.68 959.00	0.1548	8	0.016	0.036	4.23	0.09	4.767 2.960 2.924	0 0	967.74 959.06	No
83 84	83	167.37	883.26 882.49	875.03 873.98	0.0063	8	0.016	0.015	1.01	0.12	0.960 0.596 0.582	0 0	875.11 874.06	No
85 86	85	125.00	937.39 935.50	928.76 927.39	0.0110	8	0.016	0.021	1.34	0.12	1.269 0.788 0.766	0 0	928.84 927.47	No
86 88	86	85.00	936.19 935.50	928.53 927.72	0.0095	8	0.016	0.007	1.05	0.09	1.183 0.735 0.728	0 0	928.59 927.78	No
95 90	95	183.19	935.50 927.75	927.19 919.52	0.0419	8	0.016	0.029	2.20	0.09	2.479 1.540 1.511	0 0	927.25 919.58	No
21 92	21	229.00	927.75 914.50	919.32 906.99	0.0538	8	0.016	0.047	2.97	0.12	2.812 1.746 1.700	0 0	919.40 907.07	No
91 94	91	94.22	914.50 912.38	906.84 905.22	0.0172	8	0.016	0.047	1.87	0.15	1.589 0.987 0.940	0 0	906.94 905.32	No
92 96	92	226.16	898.18 891.10	889.59 883.19	0.0283	8	0.016	0.011	1.42	0.06	2.038 1.266 1.255	0 0	889.63 883.23	No
76 98	76	99.34	891.10 888.83	882.89 880.63	0.0228	8	0.016	0.026	1.93	0.12	1.828 1.135 1.109	0 0	882.97 880.71	No
38 100	38	130.50	888.83 885.18	880.33 877.40	0.0225	8	0.016	0.026	1.92	0.12	1.816 1.128 1.102	0 0	880.41 877.48	No
81 102	81	303.06	885.18 880.00	877.35 872.92	0.0146	8	0.016	0.046	1.73	0.15	1.465 0.910 0.864	0 0	877.45 873.02	No
93 104	93	145.00	930.83 931.28	923.23 922.67	0.0039	8	0.016	0.011	0.79	0.12	0.753 0.468 0.457	0 0	923.31 922.75	No
44 106	44	298.33	931.28 926.34	922.43 918.66	0.0126	8	0.016	0.035	1.61	0.15	1.362 0.846 0.811	0 0	922.53 918.76	No
57 108	57	325.07	926.34 922.84	918.56 914.71	0.0118	8	0.017	0.135	2.15	0.27	1.319 0.819 0.684	0 0	918.74 914.89	No

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
94		125.00	989.50	980.20	0.0282	8	0.016	0.022	1.80	0.09	2.033	0	980.26	No
110	94		985.91	976.68							1.263	0	976.74	
											1.241			
56		135.00	985.91	976.58	0.0100	8	0.016	0.022	1.28	0.12	1.212	0	976.66	No
112	56		981.80	975.23							0.753	0	975.31	
											0.731			
15		150.00	981.80	975.03	0.0097	8	0.016	0.046	1.41	0.15	1.195	0	975.13	No
114	15		984.20	973.57							0.742	0	973.67	
											0.697			
20		82.00	984.20	973.47	0.0095	8	0.017	0.066	1.68	0.21	1.182	0	973.61	No
116	20		985.40	972.69							0.734	0	972.83	
											0.668			
75		240.00	985.40	972.59	0.0545	8	0.016	0.066	2.98	0.12	2.828	0	972.67	No
118	75		965.25	959.52							1.756	0	959.60	
											1.690			
68		78.00	965.25	959.32	0.0403	8	0.016	0.066	2.87	0.15	2.431	0	959.42	No
120	68		966.00	956.18							1.510	0	956.28	
											1.444			
89		258.00	966.00	956.18	0.0609	8	0.016	0.066	3.15	0.12	2.989	0	956.26	No
122	89		948.50	940.48							1.856	0	940.57	
											1.790			
31		278.26	948.50	940.37	0.0040	8	0.017	0.107	1.32	0.30	0.765	0	940.57	No
124	31		947.00	939.26							0.475	0	939.46	
											0.368			
52		343.59	947.00	939.18	0.0337	8	0.016	0.107	2.90	0.18	2.224	0	939.30	No
126	52		935.85	927.61							1.381	0	927.73	
											1.274			
97		175.90	935.85	927.41	0.0039	8	0.017	0.107	1.31	0.30	0.759	0	927.61	No
128	97		938.75	926.72							0.471	0	926.92	
											0.364			
78		158.48	938.75	926.54	0.0039	8	0.017	0.107	1.31	0.30	0.758	0	926.74	No
130	78		931.00	925.92							0.471	0	926.12	
											0.364			
43		131.70	931.00	925.82	0.0024	8	0.017	0.148	1.20	0.39	0.597	0	926.08	No
132	43		933.00	925.50							0.371	0	925.76	
											0.223			
60		341.17	933.00	925.40	0.0150	8	0.017	0.185	2.57	0.30	1.484	0	925.60	No
134	60		928.00	920.28							0.922	0	920.48	
											0.737			
98		210.00	908.25	900.78	0.0238	8	0.016	0.006	1.30	0.06	1.868	0	914.73	Yes
136	98		922.84	895.79							1.160	0	914.73	
											1.154			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
30		268.04	922.84	914.59	0.0296	8	0.017	0.141	2.96	0.21	2.083	0	914.73	No
138	30		917.11	906.67							1.294	0	906.81	
											1.153			
63		318.57	917.11	906.54	0.0340	8	0.017	0.158	3.17	0.21	2.233	0	906.68	Yes
140	63		922.25	895.72							1.387	0	901.02	
											1.229			
16		105.96	922.25	895.59	0.0282	8	0.017	0.167	3.11	0.24	2.035	0	901.02	Yes
142	16		901.00	892.60							1.264	0	901.00	
											1.098			
10		280.22	901.00	900.98	0.0661	8	0.017	0.188	4.42	0.21	3.116	0	901.12	No
144	10		896.80	882.45							1.935	0	882.59	
											1.747			
47		54.00	896.80	881.82	0.2370	8	0.016	0.188	6.96	0.15	5.899	0	881.92	No
146	47		876.50	869.02							3.664	0	869.12	
											3.476			
25		138.02	876.50	865.49	0.0599	8	0.017	0.188	4.21	0.21	2.964	0	865.63	No
148	25		876.50	857.23							1.841	0	857.63	
											1.653			
99		121.64	887.72	879.26	0.0426	8	0.016	0.007	1.74	0.06	2.500	0	879.30	No
150	99		882.49	874.08							1.553	0	874.12	
											1.546			
29		168.65	882.49	873.88	0.0039	8	0.016	0.023	0.89	0.15	0.758	0	873.98	No
152	29		880.00	873.22							0.471	0	873.32	
											0.448			
96		118.40	880.00	872.82	0.0147	8	0.017	0.096	2.09	0.21	1.469	0	872.96	No
154	96		879.24	871.08							0.912	0	871.22	
											0.817			
84		350.00	879.24	870.98	0.0103	8	0.017	0.096	1.88	0.24	1.229	0	871.14	No
156	84		875.21	867.38							0.763	0	867.54	
											0.668			
54		215.42	875.21	867.20	0.0086	8	0.017	0.096	1.72	0.24	1.126	0	867.36	No
158	54		872.94	865.34							0.699	0	865.50	
											0.604			
58		135.94	872.94	865.24	0.0062	8	0.017	0.100	1.55	0.27	0.953	0	865.42	No
160	58		872.07	864.40							0.592	0	864.58	
											0.492			
59		215.86	872.07	864.30	0.0040	8	0.017	0.127	1.40	0.33	0.765	0	864.52	No
162	59		870.85	863.44							0.475	0	863.66	
											0.348			
42		95.43	870.85	863.24	0.0046	8	0.017	0.127	1.50	0.33	0.823	0	863.46	No
164	42		870.30	862.80							0.511	0	863.02	
											0.384			

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
6		340.79	870.30	862.70	0.0039	8	0.017	0.127	1.39	0.33	0.760	0	862.92	No
166	6		873.06	861.36							0.472	0	861.58	
											0.345			
18		113.33	873.06	861.16	0.0664	8	0.016	0.162	4.08	0.18	3.121	0	861.28	Yes
168	18		870.00	853.64							1.938	0	854.35	
											1.777			
101		350.00	967.75	960.20	0.0039	8	0.016	0.010	0.67	0.09	0.761	0	960.26	No
170	101		974.25	958.82							0.473	0	958.88	
											0.463			
33		247.38	974.25	958.60	0.0175	8	0.016	0.046	1.89	0.15	1.601	0	958.70	No
172	33		974.00	954.28							0.994	0	954.38	
											0.949			
34		238.09	974.00	954.18	0.0440	8	0.016	0.105	3.32	0.18	2.542	0	954.30	No
174	34		951.75	943.70							1.579	0	943.82	
											1.474			
48		116.93	951.75	943.35	0.0657	8	0.016	0.105	3.66	0.15	3.105	0	943.45	No
176	48		944.58	935.67							1.929	0	935.77	
											1.824			
24		238.73	944.58	935.45	0.0354	8	0.016	0.105	2.98	0.18	2.280	0	935.57	No
178	24		935.11	927.00							1.416	0	927.12	
											1.311			
12		350.00	935.11	926.86	0.0196	8	0.017	0.105	2.41	0.21	1.696	0	927.00	No
180	12		928.00	920.00							1.054	0	920.40	
											0.949			
45		224.93	928.00	920.18	0.0240	8	0.017	0.314	3.43	0.33	1.876	0	920.40	No
182	45		922.25	914.79							1.165	0	915.01	
											0.851			
13		220.00	922.25	914.69	0.0201	8	0.017	0.314	3.13	0.33	1.716	0	914.91	No
184	13		918.00	910.28							1.065	0	910.50	
											0.751			
9		238.45	918.00	910.18	0.0212	8	0.017	0.421	3.54	0.39	1.765	0	910.44	No
186	9		912.38	905.12							1.096	0	905.38	
											0.676			
11		215.55	912.38	905.02	0.0212	8	0.016	0.467	3.68	0.42	1.764	0	905.30	No
188	11		907.67	900.45							1.096	0	900.73	
											0.628			
5		302.04	907.67	900.27	0.0170	8	0.015	0.994	4.22	0.66	1.579	10	900.71	No
190	5		901.36	895.14							0.981	4	895.58	
											-0.013			
88		345.02	901.36	894.30	0.0246	8	0.016	0.994	4.84	0.60	1.899	0	894.70	No
192	88		893.08	885.83							1.179	0	886.23	
											0.186			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
87		282.01	893.08	885.73	0.0220	8	0.016	0.994	4.58	0.60	1.797	0	886.13	No
194	87		887.26	879.53							1.116	0	879.93	
											0.122			
4		284.42	887.26	879.43	0.0220	8	0.016	0.994	4.58	0.60	1.798	0	879.83	No
196	4		880.43	873.17							1.116	0	873.57	
											0.123			
70		243.77	880.43	873.07	0.0224	8	0.016	0.994	4.62	0.60	1.813	0	873.47	No
198	70		875.90	867.61							1.126	0	868.01	
											0.133			
53		314.00	875.90	860.33	0.0099	10	0.016	0.994	3.40	0.55	2.183	0	860.79	No
200	53		876.50	857.23							1.356	0	857.69	
											0.362			
32		314.17	876.50	857.13	0.0099	10	0.016	1.187	3.56	0.60	2.182	0	857.63	No
202	32		870.00	854.03							1.355	0	854.53	
											0.169			
2		329.30	870.00	853.89	0.0180	10	0.016	1.356	4.59	0.55	2.946	0	854.35	No
204	2		862.06	847.97							1.829	0	848.43	
											0.473			
36		328.00	862.06	847.87	0.0178	10	0.016	1.401	4.56	0.55	2.929	0	848.33	No
206	36		854.90	842.04							1.819	0	842.50	
											0.418			

Ar36

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:54:34 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		297.83	888.00	881.90	0.0040	8	0.016	0.268	1.71	0.48	0.763	0	882.22	No
2	1		892.50	880.72							0.474	0	881.04	
2		85.00	892.50	880.58	0.0609	8	0.017	0.268	4.57	0.24	0.206			
4	2		886.00	875.40							2.991	0	880.74	No
4		155.00	894.00	883.50	0.0545	8	0.013	0.000	0.20	0.00	1.858	0	875.56	
6	4		886.00	875.05							1.590			
5		188.00	886.00	874.95	0.0545	8	0.017	0.268	4.32	0.24	2.829	0	883.50	No
8	5		877.00	864.70							1.757	0	875.11	
3		90.00	877.00	864.60	0.0544	8	0.017	0.268	4.32	0.24	1.757			
10	3		872.00	859.70							2.829	0	875.11	No
6		129.00	872.00	859.60	0.0545	8	0.017	0.268	4.32	0.24	1.757	0	864.86	
12	6		866.00	852.57							1.489			
7		315.00	866.00	852.47	0.0548	8	0.017	0.268	4.33	0.24	2.827	0	864.76	No
14	7		850.00	835.22							1.756	0	859.86	
											1.488			
											2.829	0	859.76	No
											1.757	0	852.73	
											1.489			
											2.836	0	852.63	No
											1.761	0	835.38	
											1.493			

Ar37s

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:54:58 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		350.00	892.25	886.30	0.0043	8	0.017	0.165	1.53	0.36	0.799	0	886.54	No
2	1		894.85	884.78							0.496	0	885.02	
											0.331			
2		350.00	894.85	884.68	0.0277	8	0.017	0.221	3.29	0.27	2.015	0	884.86	No
4	2		888.10	875.00							1.252	0	875.18	
											1.031			
5		70.00	888.10	874.84	0.0520	8	0.017	0.221	4.22	0.24	2.763	0	875.00	No
6	5		881.75	871.20							1.716	0	871.46	
											1.495			
7		381.00	909.12	895.54	0.0077	8	0.016	0.350	2.30	0.45	1.061	0	895.84	No
8	7		900.75	892.62							0.659	0	892.92	
											0.309			
8		350.00	900.75	892.45	0.0549	8	0.017	0.407	4.91	0.30	2.839	0	892.65	No
10	8		881.75	873.23							1.763	0	873.43	
											1.357			
6		280.00	881.75	871.20	0.0513	8	0.017	0.663	5.50	0.39	2.743	0	871.46	No
12	6		866.50	856.85							1.704	0	857.11	
											1.041			
9		350.00	866.50	856.61	0.0298	8	0.016	0.724	4.70	0.48	2.093	0	856.93	No
14	9		853.75	846.17							1.300	0	846.49	
											0.575			
4		350.00	853.75	846.07	0.0138	8	0.016	0.770	3.63	0.60	1.425	0	846.47	No
16	4		849.25	841.23							0.885	0	841.63	
											0.115			
3		120.00	849.25	841.05	0.0504	8	0.016	0.788	5.68	0.42	2.721	0	841.33	No
18	3		849.90	835.00							1.690	0	835.28	
											0.902			

Ar38

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:55:20 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
3		283.07	869.10	858.98	0.0359	8	0.016	0.055	2.42	0.12	2.296	0	859.06	No
2	3		858.10	848.82							1.426	0	848.90	
1		325.00	858.10	848.72	0.0210	8	0.016	0.055	2.07	0.15	1.371			
4	1		859.15	841.89							1.757	0	848.82	No
2		100.00	859.15	841.89	0.1000	8	0.016	0.055	4.04	0.12	1.091	0	841.99	
6	2		847.00	831.89							1.036			
											3.832	0	841.97	No
											2.380	0	831.97	
											2.325			

Ar39S

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:55:42 AM

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
3		138.00	954.25	946.60	0.0290	8	0.016	0.103	2.69	0.18	2.063	0	946.72	No
2	3		950.25	942.60							1.281	0	942.72	
											1.179			
7		349.29	950.25	942.50	0.0352	8	0.016	0.103	2.97	0.18	2.274	0	942.62	No
4	7		938.85	930.20							1.412	0	930.32	
											1.309			
14		293.44	938.85	930.20	0.0489	8	0.016	0.103	3.16	0.15	2.680	0	930.30	No
6	14		924.25	915.84							1.665	0	915.94	
											1.562			
15		200.00	924.25	915.74	0.0597	8	0.016	0.103	3.49	0.15	2.961	0	915.84	No
8	15		916.25	903.80							1.839	0	903.90	
											1.736			
9		307.94	916.25	903.70	0.0123	8	0.017	0.103	2.05	0.24	1.344	0	903.86	Yes
10	9		909.20	899.91							0.835	0	900.58	
											0.732			
11		290.00	929.90	920.22	0.0384	8	0.017	0.218	3.63	0.24	2.374	0	920.38	No
12	11		921.51	909.09							1.474	0	909.25	
											1.256			
4		300.00	921.51	908.90	0.0134	8	0.017	0.218	2.56	0.33	1.404	0	909.12	No
14	4		912.80	904.87							0.872	0	905.09	
											0.654			
2		250.00	912.80	904.49	0.0499	8	0.017	0.218	4.14	0.24	2.706	0	904.65	No
16	2		907.25	892.02							1.681	0	892.18	
											1.463			
18		133.00	920.15	910.09	0.0350	8	0.016	0.061	2.68	0.15	2.268	0	910.19	No
18	18		918.00	905.43							1.409	0	905.53	
											1.347			
10		338.69	918.00	905.28	0.0079	8	0.017	0.061	1.53	0.21	1.078	0	905.42	No
20	10		912.10	902.60							0.669	0	902.74	
											0.608			
8		349.43	912.10	902.50	0.0079	10	0.016	0.061	1.45	0.14	1.953	0	902.62	Yes
22	8		909.20	899.74							1.213	0	900.58	
											1.151			
17		150.57	909.20	899.64	0.0078	10	0.017	0.178	1.90	0.24	1.945	0	900.58	Yes
24	17		907.70	898.46							1.208	0	900.57	
											1.030			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
13		350.00	907.70	898.29	0.0036	12	0.017	0.178	1.39	0.22	2.152	0	900.57	Yes
26	13		905.70	897.02							1.337	0	900.56	
											1.159			
1		76.36	905.70	896.92	0.0029	8	0.016	0.178	1.36	0.42	0.650	0	900.56	Yes
28	1		904.10	896.70							0.404	0	900.55	
											0.226			
5		350.00	904.10	896.80	0.0088	10	0.017	0.178	2.01	0.24	2.058	0	900.55	Yes
30	5		901.50	893.73							1.278	0	900.52	
											1.100			
12		350.00	901.50	893.73	0.0079	10	0.017	0.178	1.91	0.24	1.954	0	900.52	Yes
32	12		900.50	890.96							1.214	0	900.50	
											1.036			
16		245.20	900.50	890.86	0.0270	10	0.017	0.178	3.12	0.19	3.610	0	904.55	Yes
34	16		898.50	884.24							2.242	0	904.53	
											2.064			
19		75.00	912.80	904.49	0.1663	8	0.016	0.026	3.43	0.06	4.941	0	904.53	No
36	19		907.25	892.02							3.068	0	892.06	
											3.042			
6		235.79	907.25	891.59	0.0308	8	0.017	0.244	3.47	0.27	2.126	0	891.77	No
38	6		897.85	884.33							1.320	0	884.51	
											1.076			

Ar40s

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:56:01 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
2		88.27	967.50	960.96	0.1497	8	0.015	0.003	2.19	0.03	4.687	0	960.98	No
2	2		963.50	947.75							2.911	0	947.77	
26		96.52	963.50	947.15	0.1315	8	0.015	0.003	2.05	0.03	2.908			
4	26		942.00	934.46							4.393	0	947.17	No
10		67.68	920.00	911.17	0.0485	8	0.016	0.037	2.37	0.09	2.729	0	934.53	
6	10		916.50	907.89							2.726			
8		350.00	916.50	907.79	0.0641	8	0.016	0.037	2.72	0.09	2.667	0	911.23	No
8	8		902.11	885.36							1.657	0	907.95	
11		140.00	897.75	888.19	0.0039	8	0.017	0.133	1.37	0.33	1.620			
10	11		895.90	887.65							3.067	0	907.85	No
13		287.00	895.90	887.32	0.0039	8	0.017	0.133	1.39	0.33	1.905	0	885.53	
12	13		891.90	886.19							1.868			
20		277.00	891.90	886.09	0.0009	8	0.016	0.133	0.83	0.48	0.753	0	888.41	No
14	20		893.00	885.83							0.467	0	887.87	
5		178.00	893.00	885.72	0.0086	8	0.017	0.140	1.94	0.30	0.334			
16	5		894.00	884.19							0.760	0	887.54	No
16		114.00	1,009.00	1,001.60	0.0465	8	0.016	0.004	1.82	0.06	0.472	0	886.41	
18	16		1,004.00	996.30							0.339			
19		60.00	1,004.00	996.20	0.0200	8	0.016	0.004	1.19	0.06	0.371	0	886.41	No
20	19		1,003.00	995.00							0.231	0	886.15	
24		94.00	1,003.00	994.90	0.0525	8	0.016	0.004	1.93	0.06	0.097			
22	24		1,004.00	989.97							1.123	0	885.92	No
23		194.00	1,011.50	1,003.80	0.0329	8	0.016	0.012	1.53	0.06	0.698	0	884.42	
24	23		1,011.00	997.41							0.558			
											2.613	0	1,001.64	No
											1.623	0	996.34	
											1.618			
											1.714	0	996.24	No
											1.064	0	995.04	
											1.060			
											2.775	0	994.94	No
											1.723	0	990.01	
											1.719			
											2.199	0	1,003.84	No
											1.366	0	997.47	
											1.354			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
25											1.830	0	997.47	
26	25	149.49	1,011.00 1,005.00	997.41 994.00	0.0228	8	0.016	0.012	1.62	0.09	1.137 1.125	0	994.06	No
7											2.019	0	993.84	
28	7	138.00	1,005.00 1,004.00	993.80 989.97	0.0278	8	0.016	0.012	1.40	0.06	1.254 1.242	0	990.01	No
14											3.300	0	989.14	
30	14	326.57	1,004.00 972.10	989.08 964.86	0.0742	8	0.016	0.022	2.93	0.09	2.049 2.028	0	964.92	No
21											4.489	0	964.63	
32	21	109.79	972.10 954.10	964.59 949.52	0.1373	8	0.016	0.025	3.12	0.06	2.788 2.763	0	949.56	No
4											3.038	0	949.48	
34	4	130.64	954.10 947.10	949.42 941.21	0.0628	8	0.016	0.028	2.69	0.09	1.887 1.858	0	941.27	No
18											1.454	0	941.19	
36	18	161.05	947.10 944.60	941.11 938.79	0.0144	8	0.016	0.033	1.53	0.12	0.903 0.870	0	938.87	No
27											3.922	0	956.77	
38	27	171.41	965.25 944.60	956.75 938.79	0.1048	8	0.015	0.002	1.83	0.03	2.436 2.434	0	938.81	No
6											2.255	0	938.73	
40	6	108.84	944.60 942.00	938.65 934.88	0.0346	8	0.016	0.037	2.38	0.12	1.401 1.364	0	934.96	No
12											4.001	0	934.53	
42	12	81.62	942.00 934.40	934.47 925.57	0.1090	8	0.016	0.042	3.55	0.09	2.485 2.443	0	925.63	No
3											3.760	0	925.47	
44	3	272.04	934.40 906.71	925.39 899.20	0.0963	8	0.016	0.070	3.97	0.12	2.335 2.265	0	899.28	No
17											3.479	0	898.80	
46	17	162.05	906.71 902.11	898.72 885.36	0.0824	8	0.016	0.070	3.67	0.12	2.161 2.091	0	885.53	No
1											0.760	0	885.53	
48	1	175.44	902.11 894.16	885.31 884.62	0.0039	8	0.017	0.117	1.39	0.33	0.472 0.355	0	884.84	No
15											0.749	0	884.74	
50	15	109.90	894.16 894.00	884.52 884.10	0.0038	8	0.017	0.117	1.37	0.33	0.465 0.348	0	884.42	No
9											0.499	0	884.42	
52	9	106.00	894.00 893.00	884.00 883.82	0.0017	8	0.016	0.294	1.30	0.63	0.310 0.016	0	884.24	No

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
22		323.00	893.00	883.72	0.0032	10	0.017	0.294	1.57	0.38	1.235	0	884.04	No
54	22		896.30	882.70							0.767	0	883.02	
											0.473			

Ar41s

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:56:24 AM

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
1		268.00	908.46	903.78	0.0043	8	0.016	0.011	0.84	0.12	0.797	0	903.86	No
2	1		915.60	902.62							0.495	0	902.70	
											0.484			
2		245.00	874.76	867.74	0.0024	8	0.017	0.103	1.08	0.33	0.590	0	867.96	No
4	2		873.51	867.16							0.366	0	867.38	
											0.263			
15		225.00	873.51	864.64	0.0039	8	0.017	0.103	1.31	0.30	0.758	0	864.84	No
6	15		872.00	863.76							0.471	0	864.00	
											0.368			
4		113.00	888.00	877.44	0.0100	8	0.017	0.279	2.43	0.39	1.212	0	877.70	No
8	4		887.50	876.31							0.753	0	876.61	
											0.474			
5		300.29	922.60	914.37	0.0395	8	0.016	0.066	2.84	0.15	2.407	0	914.47	No
10	5		915.60	902.52							1.495	0	902.62	
											1.429			
13		200.90	915.60	902.42	0.0040	8	0.017	0.109	1.33	0.30	0.769	0	902.62	No
12	13		910.12	901.61							0.478	0	901.81	
											0.369			
21		350.00	910.12	901.47	0.0071	8	0.017	0.109	1.67	0.27	1.022	0	901.65	No
14	21		923.00	898.98							0.635	0	899.16	
											0.526			
11		216.00	925.25	919.23	0.0566	8	0.016	0.019	2.56	0.09	2.883	0	919.29	No
16	11		923.00	907.00							1.791	0	907.06	
											1.771			
9		350.00	923.00	898.78	0.0477	8	0.017	0.320	4.32	0.27	2.646	0	898.96	No
18	9		890.50	882.09							1.643	0	882.31	
											1.323			
17		46.87	890.50	882.03	0.0098	8	0.016	0.320	2.51	0.42	1.200	0	882.31	No
20	17		898.25	881.57							0.746	0	881.93	
											0.425			
8		139.97	898.25	881.57	0.0039	8	0.016	0.320	1.81	0.54	0.753	0	881.93	No
22	8		898.00	881.03							0.467	0	881.39	
											0.147			
14		234.30	898.00	880.83	0.0039	8	0.016	0.320	1.82	0.54	0.759	0	881.19	No
24	14		896.25	879.91							0.472	0	880.27	
											0.151			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
7		225.00	896.25	879.81	0.0039	8	0.016	0.320	1.82	0.54	0.758	0	880.17	No
26	7		894.25	878.93							0.471	0	879.29	
											0.150			
20		248.48	894.25	878.83	0.0067	8	0.016	0.320	2.15	0.45	0.990	0	879.13	No
28	20		890.50	877.17							0.615	0	877.47	
											0.295			
12		325.00	894.25	880.48	0.0099	8	0.017	0.158	2.08	0.30	1.204	0	880.68	No
30	12		890.50	877.27							0.748	0	877.47	
											0.590			
10		51.52	890.50	877.07	0.0148	8	0.016	0.478	3.19	0.45	1.472	0	877.37	No
32	10		887.50	876.31							0.914	0	876.61	
											0.436			
22		197.00	887.50	876.31	0.0424	8	0.016	0.799	5.41	0.45	2.495	0	876.61	No
34	22		877.00	867.96							1.549	0	868.26	
											0.751			
3		116.00	877.00	867.96	0.0400	8	0.016	0.799	5.26	0.45	2.423	0	868.26	Yes
36	3		872.00	863.32							1.505	0	864.00	
											0.707			
24		264.00	872.00	863.32	0.0015	12	0.015	0.917	1.65	0.68	1.373	15	864.00	No
38	24		877.80	862.93							0.853	6	863.65	
											-0.064			
23		146.00	897.35	888.56	0.0116	8	0.017	0.115	1.99	0.24	1.304	0	888.72	No
40	23		894.87	886.87							0.810	0	887.03	
											0.695			
18		346.00	894.87	886.77	0.0130	8	0.017	0.115	2.11	0.24	1.383	0	886.93	No
42	18		891.34	882.26							0.859	0	882.42	
											0.744			
16		346.00	891.34	882.16	0.0279	8	0.017	0.115	2.87	0.21	2.023	0	882.30	No
44	16		882.43	872.52							1.256	0	872.66	
											1.141			
19		346.00	882.43	872.42	0.0274	8	0.017	0.115	2.85	0.21	2.007	0	872.56	Yes
46	19		877.80	862.93							1.246	0	863.65	
											1.132			
6		270.00	877.80	862.93	0.0015	12	0.015	1.032	1.72	0.72	1.392	15	863.65	No
48	6		877.00	862.52							0.865	8	863.24	
											-0.167			

Ar42

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 10:56:49 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
5		211.39	957.00	948.69	0.1413	8	0.016	0.064	4.80	0.12	4.554	0	948.77	No
2	5		926.20	918.83							2.828	0	918.91	
6		134.52	926.20	918.21	0.1791	8	0.016	0.064	4.55	0.09	2.764			
4	6		906.83	894.12							5.128	0	918.27	No
1		350.03	906.83	893.60	0.0811	8	0.016	0.064	3.64	0.12	3.185	0	894.18	
6	1		874.00	865.23							3.120			
4		107.03	874.00	864.97	0.0474	8	0.016	0.064	2.78	0.12	3.450	0	893.68	No
8	4		869.30	859.90							2.142	0	865.31	
3		260.84	869.30	859.66	0.0177	8	0.016	0.064	2.11	0.18	2.078			
10	3		867.50	855.04							2.637	0	865.05	No
2		11.44	867.50	854.84	0.6416	8	0.016	0.064	8.61	0.09	1.638	0	859.98	
12	2		865.34	847.50							1.574			
											1.613	0	859.78	No
											1.002	0	855.16	
											0.937			
											9.706	0	854.90	No
											6.028	0	847.56	
											5.964			

Ar43

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:01:03 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		288.41	863.75	849.72	0.0099	8	0.017	0.130	1.97	0.27	1.205	0	849.90	No
2	1		855.75	846.87							0.748	0	847.05	
2		288.02	855.75	846.77	0.0099	8	0.017	0.130	1.97	0.27	0.618			
4	2		861.75	843.92							1.205	0	846.95	No
											0.749	0	844.10	
											0.619			

Ar44

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:01:19 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1														
2	1	92.18	846.92	839.43	0.0865	8	0.016	0.045	3.16	0.09	3.563	0	839.49	No
			847.90	831.46							2.213	0	831.52	
2											2.167			
4	2	92.18	847.90	831.36	0.0063	8	0.016	0.045	1.25	0.18	0.961	0	831.48	No
			848.19	830.78							0.597	0	830.90	
											0.552			

Ar45

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:01:34 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
4		348.52	850.10	841.10	0.0047	8	0.017	0.118	1.44	0.30	0.834	0	841.30	No
2	4		846.95	839.45							0.518	0	839.65	
1		110.00	846.95	839.25	0.0077	8	0.017	0.118	1.74	0.27	0.400			
4	1		848.26	838.40							1.065	0	839.43	No
3		146.00	848.26	838.30	0.0070	8	0.017	0.118	1.65	0.27	0.662	0	838.58	
6	3		848.48	837.28							0.543			
2		116.00	848.48	837.08	0.0615	8	0.016	0.118	3.92	0.18	1.013	0	838.48	No
8	2		845.60	829.95							0.629	0	837.46	
											0.511			
											3.004	0	837.20	No
											1.866	0	830.07	
											1.748			

Ar46

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:01:49 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		258.00	930.20	922.75	0.0354	8	0.016	0.048	2.41	0.12	2.281	0	922.83	No
2	1		920.86	913.61							1.416	0	913.69	
2		350.00	920.86	913.44	0.0351	8	0.016	0.048	2.40	0.12	1.368			
4	2		910.05	901.14							2.271	0	913.52	No
											1.411	0	901.22	
											1.363			

Ar47

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:02:05 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
2		32.50	902.25	895.07	0.0034	8	0.017	0.063	1.08	0.24	0.705	0	895.23	No
2	2		903.32	894.96							0.438	0	895.12	
											0.375			
1		102.50	903.32	894.79	0.0038	8	0.017	0.063	1.14	0.24	0.747	0	894.95	No
4	1		904.52	894.40							0.464	0	894.56	
											0.401			

Ar48

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:02:22 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		218.00	902.00	891.05	0.0040	8	0.017	0.101	1.32	0.30	0.765	0	891.25	No
2	1		901.00	890.18							0.475	0	890.38	
											0.375			
2		45.00	901.00	890.18	0.0040	8	0.017	0.101	1.33	0.30	0.766	0	890.38	No
4	2		900.00	890.00							0.476	0	890.20	
											0.375			

Ar49

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:02:38 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
8 2	8	84.00	917.20 912.50	909.59 904.67	0.0586	8	0.013	0.000	0.20	0.00	2.932 1.821 1.821	0 0	909.59 904.67	No
2 4	2	200.00	912.50 909.50	903.41 900.01	0.0170	8	0.013	0.000	0.20	0.00	1.580 0.981 0.981	0 0	903.41 900.01	No
14 6	14	253.00	901.42 896.94	892.20 887.22	0.0197	8	0.013	0.000	0.20	0.00	1.700 1.056 1.056	0 0	892.20 887.22	No
15 8	15	306.40	917.23 907.22	907.57 898.50	0.0296	8	0.013	0.000	0.20	0.00	2.085 1.295 1.295	0 0	907.57 898.54	No
18 10	18	115.21	907.22 896.94	898.54 886.64	0.1033	8	0.013	0.000	0.20	0.00	3.894 2.419 2.419	0 0	898.54 886.64	No
7 12	7	185.10	896.94 870.95	886.64 861.28	0.1370	8	0.013	0.000	0.20	0.00	4.485 2.785 2.785	0 0	886.64 861.28	No
5 14	5	113.29	870.95 864.54	860.90 855.44	0.0482	8	0.013	0.000	0.20	0.00	2.660 1.652 1.652	0 0	860.90 855.44	No
16 16	16	236.50	941.01 939.11	932.00 920.11	0.0503	8	0.016	0.127	3.55	0.18	2.717 1.687 1.560	0 0	932.12 920.23	No
13 18	13	151.16	939.11 919.79	919.87 910.80	0.0600	8	0.016	0.127	3.88	0.18	2.968 1.843 1.716	0 0	919.99 910.92	No
1 20	1	184.20	919.79 909.50	910.80 899.75	0.0600	8	0.016	0.127	3.87	0.18	2.968 1.843 1.716	0 0	910.92 899.87	No
11 22	11	46.96	909.50 905.70	899.75 897.17	0.0549	8	0.016	0.127	3.71	0.18	2.840 1.764 1.637	0 0	899.87 897.29	No
17 24	17	262.54	905.70 879.90	896.85 871.00	0.0985	8	0.016	0.127	4.48	0.15	3.802 2.361 2.234	0 0	896.95 871.10	No

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
6		97.50	879.90	870.62	0.0863	8	0.016	0.127	4.20	0.15	3.559	0	870.72	No
26	6		871.88	862.21							2.210	0	862.31	
											2.083			
4		186.14	871.88	862.00	0.0168	8	0.017	0.127	2.40	0.24	1.571	0	862.16	No
28	4		867.97	858.87							0.976	0	859.03	
											0.849			
12		346.59	867.97	858.77	0.0099	8	0.017	0.127	1.97	0.27	1.205	0	858.95	No
30	12		864.54	855.34							0.749	0	855.52	
											0.621			
10		194.10	864.54	855.24	0.0256	8	0.017	0.127	2.75	0.21	1.937	0	855.38	No
32	10		859.44	850.28							1.203	0	850.42	
											1.076			
9		219.31	859.44	850.28	0.0551	8	0.016	0.127	3.71	0.18	2.844	0	850.40	No
34	9		843.90	838.20							1.766	0	838.32	
											1.639			
3		200.31	843.90	838.00	0.0039	8	0.017	0.127	1.39	0.33	0.761	0	838.22	No
36	3		848.20	837.21							0.473	0	837.43	
											0.345			

Ar50

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:02:56 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		148.00	913.00	903.45	0.0040	8	0.017	0.093	1.25	0.27	0.765	0	903.63	No
2	1		912.00	902.86							0.475	0	903.04	
											0.382			
4		100.00	912.00	902.76	0.0040	8	0.017	0.093	1.25	0.27	0.766	0	902.94	No
4	4		912.00	902.36							0.476	0	902.54	
											0.383			
2		155.00	912.00	902.36	0.0047	8	0.017	0.093	1.35	0.27	0.826	0	902.54	No
6	2		911.00	901.64							0.513	0	901.82	
											0.420			
3		180.00	911.00	901.54	0.0040	8	0.017	0.093	1.25	0.27	0.766	0	901.72	No
8	3		911.00	900.82							0.476	0	901.00	
											0.383			
5		180.00	911.00	900.72	0.0040	8	0.017	0.093	1.25	0.27	0.766	0	900.90	No
10	5		910.00	900.00							0.476	0	900.18	
											0.383			

Ar51

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:03:16 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		108.00	778.40	776.90	0.1176	8	0.016	0.012	2.89	0.06	4.155	0	776.94	No
2	1		776.00	764.20							2.581	0	764.24	
											2.568			

Ar52

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:03:32 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
4		195.00	777.89	770.47	0.0129	8	0.013	0.000	0.20	0.00	1.377	0	770.47	No
2	4		776.60	767.95							0.856	0	767.95	
											0.856			
5		119.00	771.39	765.97	0.0039	8	0.013	0.000	0.20	0.00	0.753	0	765.97	No
4	5		775.00	765.51							0.468	0	765.53	
											0.468			
6		157.17	779.87	773.56	0.0519	8	0.013	0.000	0.20	0.00	2.761	0	773.56	No
6	6		775.56	765.40							1.715	0	765.40	
											1.715			
7		93.17	778.28	770.81	0.0040	8	0.017	0.064	1.17	0.24	0.764	0	770.97	No
8	7		779.33	770.44							0.474	0	770.60	
											0.411			
12		63.91	779.33	770.34	0.0038	8	0.017	0.064	1.13	0.24	0.743	0	770.50	No
10	12		777.40	770.10							0.461	0	770.26	
											0.397			
9		71.13	777.40	770.00	0.0114	8	0.016	0.064	1.69	0.18	1.293	0	770.12	No
12	9		776.50	769.19							0.803	0	769.31	
											0.739			
8		95.26	777.89	770.21	0.0116	8	0.013	0.000	0.20	0.00	1.302	0	770.21	No
14	8		776.50	769.11							0.809	0	769.13	
											0.809			
1		132.07	776.50	768.99	0.0085	8	0.017	0.064	1.58	0.21	1.116	0	769.13	No
16	1		776.60	767.87							0.693	0	768.01	
											0.629			
11		172.29	776.60	767.75	0.0129	8	0.016	0.064	1.80	0.18	1.375	0	767.87	No
18	11		775.00	765.53							0.854	0	765.65	
											0.791			
10		40.00	775.00	765.41	0.0090	8	0.016	0.064	1.50	0.18	1.150	0	765.53	No
20	10		775.56	765.05							0.714	0	765.17	
											0.650			
2		34.50	775.56	765.05	0.0412	8	0.016	0.064	2.90	0.15	2.458	0	765.15	No
22	2		775.30	763.63							1.527	0	763.73	
											1.463			
3		35.00	775.30	763.38	0.0671	8	0.016	0.064	3.31	0.12	3.140	0	763.46	No
24	3		776.50	761.03							1.950	0	761.11	
											1.886			

Ar53

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:03:47 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		117.66	775.89	768.33	0.0278	8	0.013	0.000	0.20	0.00	2.020	0	768.33	No
2	1		774.40	765.06							1.255	0	765.06	
											1.255			
2		252.45	774.02	766.50	0.0059	8	0.016	0.040	1.22	0.18	0.931	0	766.62	No
4	2		774.40	765.01							0.578	0	765.13	
											0.539			
4		198.72	774.40	764.81	0.0239	8	0.016	0.040	1.98	0.12	1.873	0	764.89	No
6	4		767.87	760.06							1.163	0	760.14	
											1.124			
3		312.63	769.06	761.20	0.0039	8	0.013	0.000	0.20	0.00	0.757	0	761.20	No
8	3		767.87	759.98							0.470	0	759.98	
											0.470			
6		132.83	769.82	762.58	0.0194	8	0.013	0.000	0.20	0.00	1.689	0	762.58	No
10	6		767.87	760.00							1.049	0	760.00	
											1.049			
5		141.19	767.87	759.86	0.0622	8	0.016	0.040	2.68	0.09	3.022	0	759.92	No
12	5		760.35	751.08							1.877	0	751.27	
											1.837			
7		60.50	760.35	751.17	0.0093	8	0.016	0.040	1.38	0.15	1.166	0	751.27	No
14	7		759.85	750.61							0.724	0	750.71	
											0.684			

Ar54

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:04:01 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
9		143.00	906.38	897.34	0.0556	8	0.013	0.000	0.20	0.00	2.857	0	897.34	No
2	9		897.81	889.39							1.774	0	889.86	
10		210.04	897.81	889.86	0.0950	8	0.013	0.000	0.20	0.00	1.774			
4	10		879.69	869.90							3.735	0	889.86	No
14		223.67	883.03	873.68	0.1108	8	0.013	0.000	0.20	0.00	2.320	0	869.90	
6	14		858.00	848.90							2.320			
2		299.12	858.00	848.37	0.1480	8	0.013	0.000	0.20	0.00	4.033	0	873.68	No
8	2		812.92	804.10							2.505	0	848.90	
3		307.23	812.92	803.50	0.1015	8	0.013	0.000	0.20	0.00	2.505			
10	3		782.70	772.31							4.661	0	848.37	No
1		209.92	782.70	772.17	0.0306	8	0.013	0.000	0.20	0.00	2.895	0	804.10	
12	1		775.70	765.75							2.895			
12		160.00	775.70	765.53	0.0428	8	0.013	0.000	0.20	0.00	3.861	0	803.50	No
14	12		777.75	758.68							2.398	0	772.31	
15		262.00	888.58	880.22	0.0394	8	0.013	0.000	0.20	0.00	2.398			
16	15		879.69	869.89							2.119	0	772.17	No
7		256.96	879.69	863.42	0.1208	8	0.013	0.000	0.20	0.00	1.316	0	765.75	
18	7		841.50	832.39							1.316			
13		189.22	841.50	831.79	0.1480	8	0.013	0.000	0.20	0.00	2.507	0	765.53	No
20	13		813.90	803.79							1.557	0	758.81	
17		142.59	872.06	864.87	0.1788	8	0.013	0.000	0.20	0.00	1.557			
22	17		851.85	839.37							2.406	0	880.22	No
21		164.52	889.78	882.34	0.0363	8	0.017	0.196	3.53	0.24	1.494	0	869.89	
24	21		888.79	876.37							1.494			
											4.211	0	863.42	No
											2.615	0	832.39	
											2.615			
											4.661	0	831.79	No
											2.895	0	804.01	
											2.895			
											5.124	0	864.87	No
											3.182	0	839.37	
											3.182			
											2.308	0	882.50	No
											1.434	0	876.53	
											1.238			

Existing Pipes - Sorted by Analysis Sequence

UserID / SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull / Qmax / Qexcess	NewDiam / ParDiam	HGL Up/Dn	Surchge
22 26	22	349.60	888.79 855.12	876.11 843.90	0.0921	8	0.016	0.196	4.80	0.18	3.678 2.284 2.089	0 0	876.23 844.02	No
4 28	4	127.88	855.12 851.85	843.64 839.18	0.0349	8	0.017	0.196	3.46	0.24	2.263 1.405 1.210	0 0	843.80 839.34	No
8 30	8	279.41	851.85 833.77	838.88 821.80	0.0611	8	0.017	0.196	4.25	0.21	2.996 1.861 1.665	0 0	839.02 821.94	No
6 32	6	350.00	833.77 830.10	821.56 819.48	0.0059	8	0.017	0.196	1.79	0.36	0.934 0.580 0.385	0 0	821.80 819.72	No
16 34	16	350.36	830.10 826.66	819.38 817.30	0.0059	8	0.017	0.196	1.79	0.36	0.934 0.580 0.384	0 0	819.62 817.54	No
19 36	19	300.00	826.66 813.90	817.20 803.49	0.0457	8	0.017	0.196	3.68	0.21	2.590 1.609 1.413	0 0	817.34 804.01	No
11 38	11	313.65	813.90 781.79	803.89 773.07	0.0983	8	0.016	0.196	4.96	0.18	3.798 2.359 2.163	0 0	804.01 773.19	No
5 40	5	158.42	781.79 777.75	772.69 758.67	0.0885	8	0.016	0.196	4.71	0.18	3.605 2.239 2.043	0 0	772.81 758.81	No
18 42	18	163.83	777.75 756.01	758.67 745.29	0.0817	8	0.017	0.196	4.92	0.21	3.463 2.151 1.955	0 0	758.81 745.43	No
20 44	20	51.73	756.01 754.50	745.11 744.68	0.0083	8	0.017	0.196	2.02	0.33	1.105 0.686 0.490	0 0	745.33 744.90	No

Ar55s

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:04:20 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
1		202.00	888.06	880.29	0.0322	8	0.016	0.070	2.57	0.15	2.175	0	880.39	No
2	1		881.42	873.78							1.351	0	873.88	
											1.281			
10		209.65	881.42	873.46	0.0973	8	0.016	0.070	3.99	0.12	3.780	0	873.54	No
4	10		860.96	853.06							2.347	0	853.14	
											2.277			
25		149.19	860.96	852.53	0.1615	8	0.016	0.070	5.14	0.12	4.870	0	852.61	No
6	25		838.12	828.43							3.025	0	828.51	
											2.954			
5		316.16	838.12	827.83	0.1418	8	0.016	0.070	4.81	0.12	4.563	0	827.91	No
8	5		793.30	783.00							2.834	0	783.08	
											2.764			
32		269.96	793.30	782.59	0.0595	8	0.016	0.070	3.12	0.12	2.954	0	782.67	No
10	32		776.70	766.54							1.835	0	766.62	
											1.765			
16		350.00	776.70	766.44	0.0340	8	0.016	0.070	2.64	0.15	2.234	0	766.54	No
12	16		764.50	754.54							1.388	0	754.70	
											1.318			
2		215.04	831.50	823.95	0.0217	8	0.016	0.008	1.24	0.06	1.786	0	823.99	Yes
14	2		828.50	819.28							1.109	0	819.96	
											1.101			
8		339.00	814.82	806.04	0.0723	8	0.016	0.017	2.26	0.06	3.259	0	806.08	No
16	8		791.09	781.52							2.024	0	781.56	
											2.007			
30		214.32	791.09	781.27	0.0518	8	0.016	0.017	2.45	0.09	2.758	0	781.33	No
18	30		779.81	770.17							1.713	0	770.23	
											1.696			
12		259.69	854.77	845.77	0.0964	8	0.016	0.028	3.34	0.09	3.763	0	845.83	No
20	12		829.94	820.73							2.337	0	820.79	
											2.309			
13		339.31	829.94	820.15	0.1470	8	0.016	0.028	4.12	0.09	4.646	0	820.21	No
22	13		779.81	770.26							2.886	0	770.32	
											2.857			
37		293.00	779.81	769.70	0.0981	8	0.016	0.050	3.37	0.09	3.795	0	769.76	No
24	37		749.75	740.96							2.357	0	741.02	
											2.306			

Existing Pipes - Sorted by Analysis Sequence

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
14 26	14	162.65	937.15 914.22	928.76 905.98	0.1401	8	0.016	0.159	5.35	0.15	4.535 2.816 2.657	0 0	928.86 906.08	No
29 28	29	157.80	914.22 889.90	905.38 878.74	0.1688	8	0.016	0.201	6.50	0.18	4.979 3.092 2.891	0 0	905.50 878.86	No
6 30	6	252.30	889.90 859.80	878.15 848.16	0.1189	8	0.016	0.201	5.45	0.18	4.178 2.594 2.394	0 0	878.27 848.28	No
31 32	31	237.02	859.80 850.85	847.88 842.85	0.0212	8	0.017	0.201	2.88	0.27	1.765 1.096 0.896	0 0	848.06 843.03	No
19 34	19	272.30	850.85 845.20	842.75 837.28	0.0201	8	0.017	0.201	2.80	0.27	1.717 1.067 0.866	0 0	842.93 837.46	No
26 36	26	196.07	845.20 837.90	837.16 828.77	0.0428	8	0.017	0.201	3.83	0.24	2.506 1.557 1.356	0 0	837.32 829.56	Yes
38 38	38	154.36	837.90 833.10	829.40 823.91	0.0356	8	0.017	0.201	3.49	0.24	2.285 1.419 1.219	0 0	829.56 824.07	No
15 40	15	84.48	748.76 749.75	741.48 740.84	0.0076	8	0.016	0.003	0.73	0.06	1.055 0.655 0.652	0 0	741.52 740.90	No
39 42	39	337.65	749.75 748.28	740.74 739.41	0.0039	8	0.017	0.064	1.16	0.24	0.761 0.472 0.409	0 0	740.90 739.57	No
22 44	22	75.00	748.28 749.98	739.21 732.14	0.0943	8	0.016	0.064	3.93	0.12	3.720 2.310 2.247	0 0	739.29 732.70	No
21 46	21	314.70	895.00 875.25	885.47 867.35	0.0576	8	0.016	0.018	2.58	0.09	2.908 1.806 1.787	0 0	885.53 867.41	No
11 48	11	314.70	875.25 837.88	866.98 828.38	0.1227	8	0.016	0.018	2.95	0.06	4.244 2.636 2.617	0 0	867.02 828.44	No
28 50	28	120.04	837.88 833.10	828.38 823.92	0.0372	8	0.016	0.018	2.07	0.09	2.336 1.451 1.432	0 0	828.44 823.98	No
7 52	7	249.49	833.10 828.50	823.71 819.88	0.0154	8	0.017	0.223	2.60	0.30	1.501 0.932 0.709	0 0	823.91 820.08	No

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
4		207.05	828.50	819.78	0.0326	8	0.017	0.242	3.57	0.27	2.186	0	819.96	No
54	4		821.00	813.04							1.358	0	813.22	
											1.116			
17		261.64	821.00	812.77	0.0946	8	0.017	0.242	5.29	0.21	3.727	0	812.91	No
56	17		799.00	788.02							2.315	0	788.48	
											2.073			
27		295.55	821.30	813.67	0.0649	8	0.016	0.014	2.14	0.06	3.086	0	813.71	Yes
58	27		805.94	794.50							1.917	0	797.84	
											1.903			
3		167.45	805.94	797.80	0.0540	8	0.016	0.014	1.96	0.06	2.815	0	797.84	No
60	3		799.00	788.76							1.749	0	788.80	
											1.735			
23		165.94	799.00	788.34	0.1319	8	0.017	0.258	6.25	0.21	4.401	0	788.48	No
62	23		776.85	766.45							2.733	0	766.59	
											2.475			
34		244.90	842.35	833.78	0.0614	8	0.016	0.026	2.66	0.09	3.002	0	833.84	No
64	34		826.59	818.75							1.864	0	818.81	
											1.838			
18		275.34	826.59	818.37	0.1253	8	0.016	0.026	3.80	0.09	4.290	0	818.43	No
66	18		793.48	783.86							2.664	0	783.92	
											2.638			
36		207.42	793.48	778.96	0.0605	8	0.016	0.026	2.64	0.09	2.980	0	779.02	No
68	36		776.85	766.41							1.851	0	766.47	
											1.825			
9		223.61	776.85	766.08	0.0421	8	0.017	0.287	4.06	0.27	2.487	0	766.26	No
70	9		764.50	756.66							1.545	0	756.84	
											1.257			
33		267.74	764.50	754.44	0.0154	8	0.017	0.367	3.01	0.39	1.501	0	754.70	No
72	33		758.22	750.33							0.932	0	750.59	
											0.565			
35		350.00	758.22	750.22	0.0395	8	0.017	0.382	4.40	0.33	2.409	0	750.44	No
74	35		744.91	736.38							1.496	0	736.60	
											1.115			
24		350.00	744.91	736.28	0.0107	8	0.016	0.392	2.72	0.45	1.253	0	736.58	No
76	24		749.98	732.54							0.778	0	732.84	
											0.386			
20		215.81	749.98	732.34	0.0075	8	0.016	0.456	2.52	0.54	1.050	0	732.70	No
78	20		740.50	730.72							0.652	0	731.08	
											0.197			

Ar56

Existing Pipes - Sorted by Analysis Sequence

6/26/2009 11:04:40 AM

UserID SEQ	G_ID	Length	Ground Up/Dn	Invert Up/Dn	Slope	Diam	"n"	DesignQ	DesVel	d/D	Qfull Qmax Qexcess	NewDiam ParDiam	HGL Up/Dn	Surchge
3		100.00	912.00	902.42	0.0030	8	0.013	0.000	0.20	0.00	0.664	0	902.42	No
2	3		912.00	902.12							0.412	0	902.12	
											0.412			
4		225.00	911.00	903.02	0.0040	8	0.013	0.000	0.20	0.00	0.766	0	903.02	No
4	4		911.00	902.12							0.476	0	902.12	
											0.476			
5		200.00	911.00	902.02	0.0040	8	0.013	0.000	0.20	0.00	0.766	0	902.02	No
6	5		911.00	901.22							0.476	0	901.22	
											0.476			
6		175.00	911.00	902.90	0.0040	8	0.013	0.000	0.20	0.00	0.766	0	902.90	No
8	6		911.00	902.20							0.476	0	902.20	
											0.476			
9		220.00	911.00	902.10	0.0040	8	0.013	0.000	0.20	0.00	0.766	0	902.10	No
10	9		911.00	901.22							0.476	0	901.22	
											0.476			
7		260.00	913.00	903.06	0.0040	8	0.017	0.060	1.17	0.24	0.766	0	903.22	No
12	7		912.00	902.02							0.476	0	902.18	
											0.416			
8		300.00	912.00	903.22	0.0037	8	0.013	0.000	0.20	0.00	0.734	0	903.22	No
14	8		912.00	902.12							0.456	0	902.12	
											0.456			
2		200.00	912.00	901.92	0.0035	8	0.017	0.060	1.10	0.24	0.717	0	902.08	No
16	2		911.00	901.22							0.445	0	901.38	
											0.385			
1		255.00	911.00	901.02	0.0040	8	0.017	0.060	1.17	0.24	0.766	0	901.18	No
18	1		910.00	900.00							0.476	0	900.16	
											0.416			

APPENDIX ‘L-4’

Flow Monitoring Report – V&A Engineering
Report dated May 2009

SANITARY SEWER FLOW MONITORING

City of Agoura Hills

May 2009

V&A

City of Agoura Hills

SANITARY SEWER FLOW MONITORING
AND
CAPACITY ANALYSIS

Prepared for:

VENTURA REGIONAL SANITATION DISTRICT
1001 Partridge Drive, Suite 150
Ventura, CA 93003-0704

Prepared by:

V&A
8291 Aero Place, Suite 110
San Diego, CA 92123

May 2009

<F:\09-0027\09-0027FRpt.doc >

TABLE OF CONTENTS

DESCRIPTION **PAGE NO.**

EXECUTIVE SUMMARY **1**
INTRODUCTION **4**
FLOW MONITORING METHODS AND PROCEDURES **5**
Meter Installation **5**
Explanation of Report Graphs and Definition of Terms **6**
FINDINGS **7**
Flow Monitoring Results **7**
Pipeline Capacity **7**

TABLES

Table 1. Summary of Flow Monitoring Data 1
Table 2. Flow Monitoring Results 7
Table 3. Average Dry Weather Flow and Peak Measured Flow as Percent of Capacity 8

FIGURES

Figure 1. Peak Flow Cross-Sectional View Snapshots 3
Figure 2. Map of Flow Monitoring Sites 4
Figure 3. Flow Meter Installation Diagram 5
Figure 4. Diagram of Hypothetical Diurnal Flow over Monitoring Period 6
Figure 5. MH 33 Average Daily Flow Graph 7
Figure 6. MH 259 Stage Curve 8
Figure 7. Peak Flow Cross-Sectional View Snapshots 9

APPENDIX A – Graphs, Figures and Tables

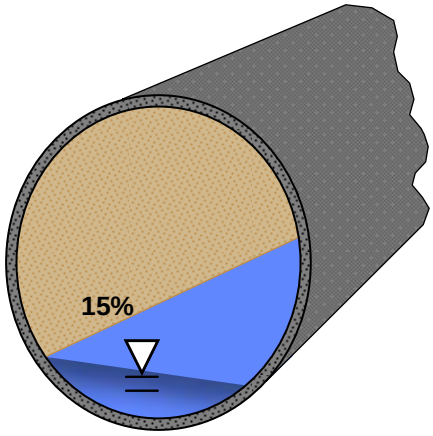
EXECUTIVE SUMMARY

V&A has completed a sanitary sewer flow monitoring and capacity study within the City of Agoura Hills, California. Nine sites were monitored for 4 weeks from March 24, 2009 to April 20, 2009. The purpose of this study was to investigate the existing flow volume through the sanitary sewer pipes at the flow monitoring locations, and identify the potential impacts on the capacity at the flow monitoring location.

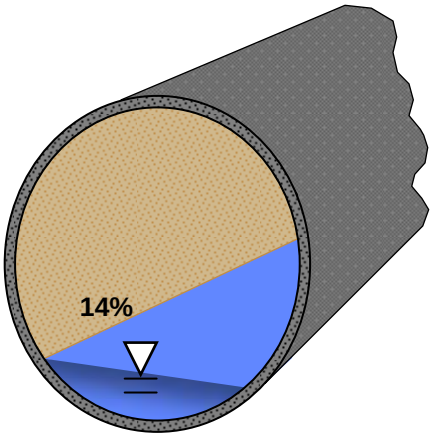
The results of the sanitary sewer flow monitoring are summarized in Table 1. Snapshots of the pipe cross-section during peak measured flows are illustrated in Figure 1. Please refer to Figure 2 for the flow monitoring site locations.

Table 1. Summary of Flow Monitoring Data

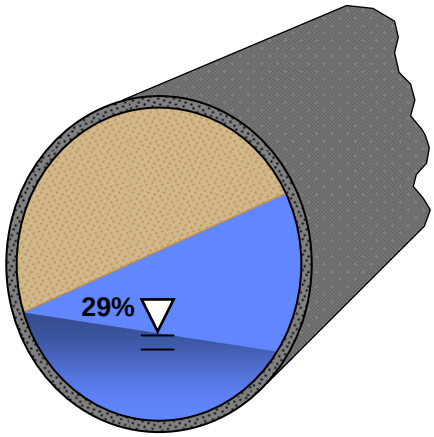
Site	Estimated 100% Capacity of Line (mgd)	ADWF			Peak Measured Flow		
		Total (mgd)	% of Capacity (by Volume)	% of Capacity (by Level)	Total (mgd)	% of Capacity (by Volume)	% of Capacity (by Level)
MH 25	9.00	0.17	1.9%	12.5%	0.26	2.9%	14.7%
MH 29	4.50	0.04	0.9%	6.7%	0.13	2.8%	13.9%
MH 33	1.90	0.09	4.7%	17.2%	0.24	12.4%	28.8%
MH 42	5.00	0.18	3.7%	16.2%	0.41	8.1%	24.0%
MH 84	4.00	0.01	0.2%	4.7%	0.04	1.1%	12.5%
MH 85	0.95	0.06	6.6%	22.5%	0.15	15.4%	33.1%
MH 178	1.10	0.09	8.0%	25.2%	0.27	24.4%	43.4%
MH 203	4.50	0.09	2.0%	11.4%	0.20	4.5%	17.1%
MH 259	1.70	0.14	8.2%	24.6%	0.35	20.7%	41.0%



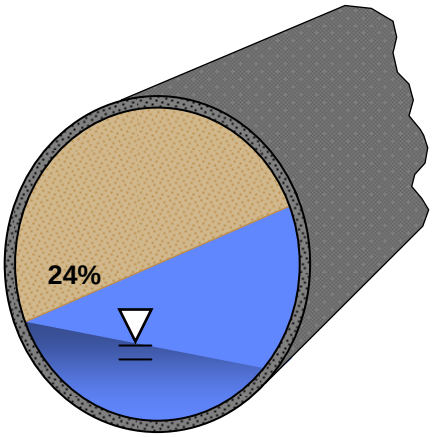
MH 25



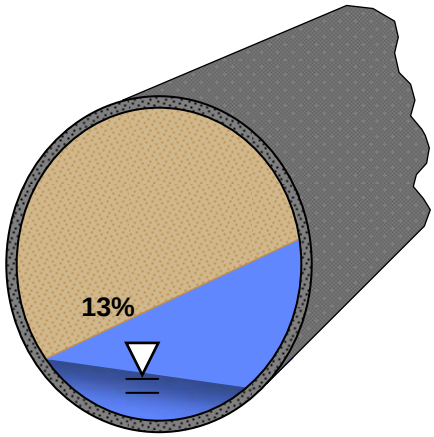
MH 29



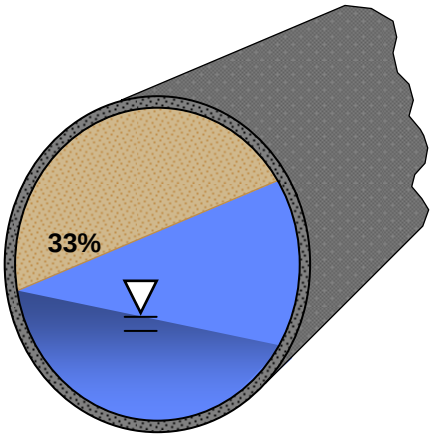
MH 33



MH 42



MH 84



MH 85

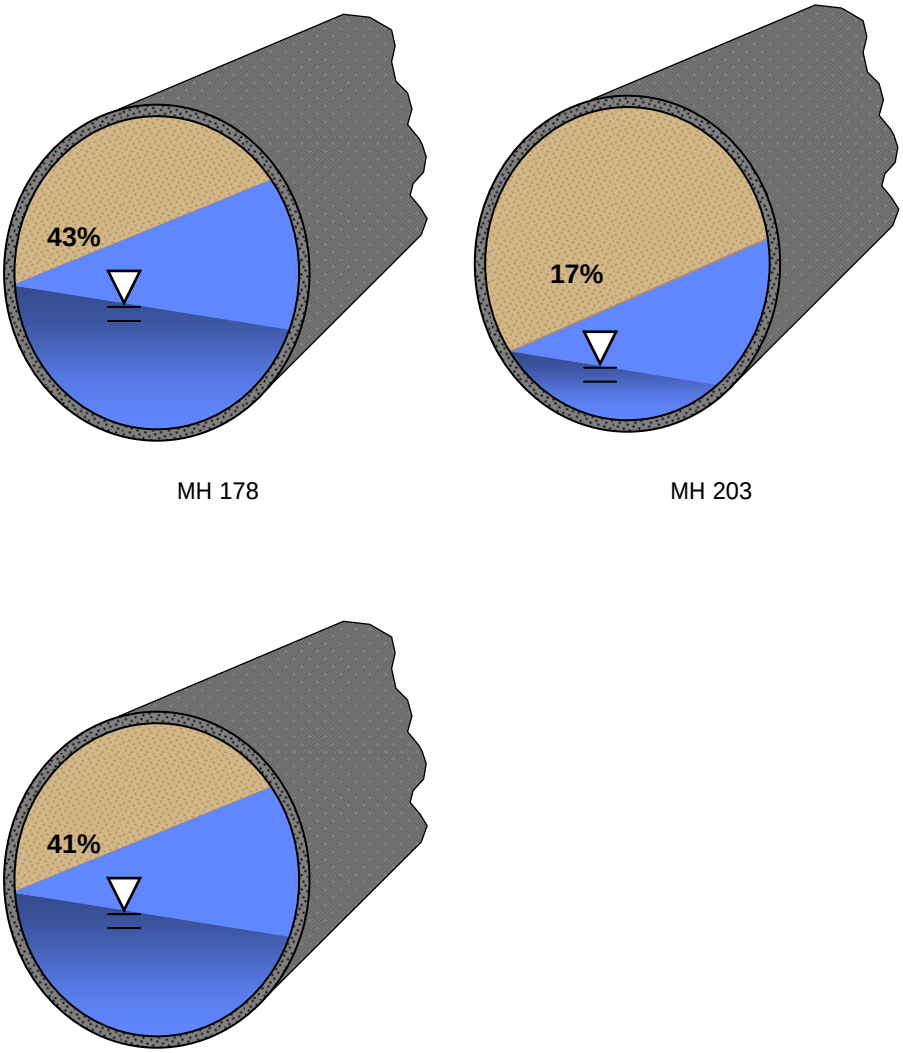


Figure 1. Peak Flow Cross-Sectional View Snapshots

INTRODUCTION

V&A was retained by the Ventura Regional Sanitation District (VRSD) to conduct a sanitary sewer flow monitoring and capacity study at nine locations within the City of Agoura Hills. The purpose of the study was to record and report the existing flow volume through the sanitary sewer pipe, and identify the potential impacts on the capacity at the flow monitoring locations. Flow monitoring was conducted over a 4-week period from March 24, 2009 to April 20, 2009. Figure 2 illustrates the location of the manholes where the flow meters were installed.

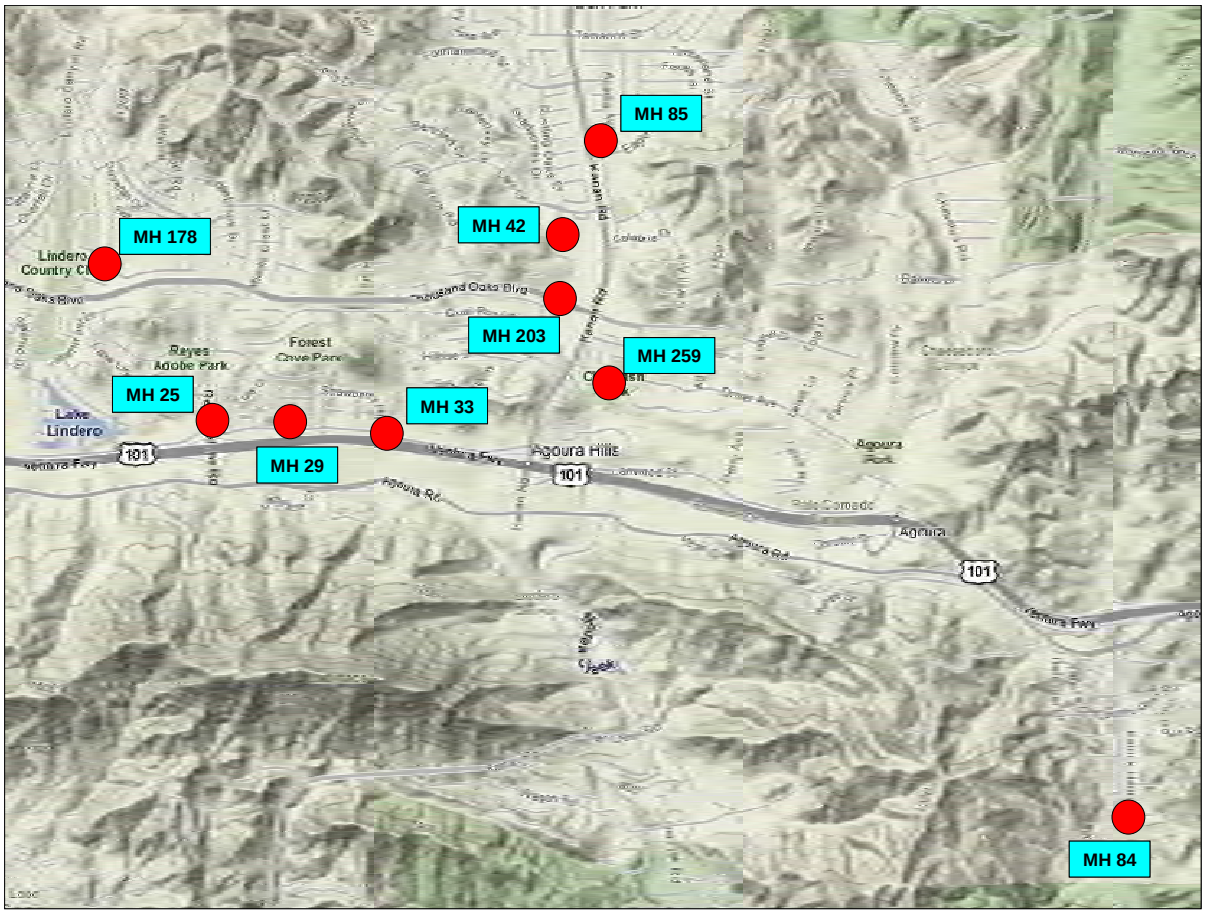


Figure 2. Map of Flow Monitoring Sites

FLOW MONITORING METHODS AND PROCEDURES

Meter Installation

Nine Isco 2150 area-velocity flow meters were installed by V&A in the sewer manholes shown in Figure 2. Isco meters use a pressure transducer to collect depth readings, and ultrasonic Doppler sensors on the probe determine the average fluid velocity. Figure 3 shows a diagram of a typical flow meter installation.

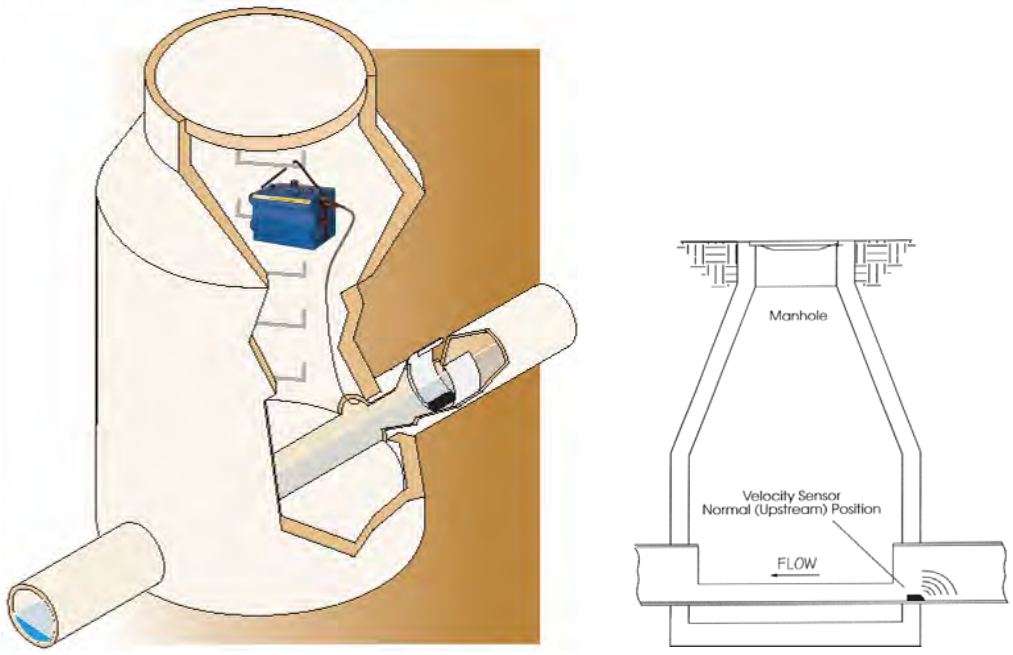


Figure 3. Flow Meter Installation Diagram

Manual level and velocity measurements were taken in the field during the flow meter installation and again when the meters were removed. These manual measurements are compared to the instantaneous level and velocity readings of the flow meters to ensure proper calibration and accuracy. The continuous depth and velocity readings were recorded by the flow meters in 15-minute increments and downloaded into a computer spreadsheet program where the data could be analyzed and made report-ready.

Explanation of Report Graphs and Definition of Terms

Flow versus time graphs are created by plotting the data recorded by the flow meters in 15-minute intervals. The graphs represent the diurnal flow curve recorded over a given monitoring period and represent the data in its rawest form. Figure 4 shows a typical diurnal flow curve and identified on this graph are the hypothetical peak, low, and average flows recorded over an example monitoring period. These graphs are useful in identifying the extreme limits of the flows being monitored, and identifying any trends that might be occurring at a particular site. The graphs for flow, level and velocity versus time for this project are provided in *Appendix A* of this report.

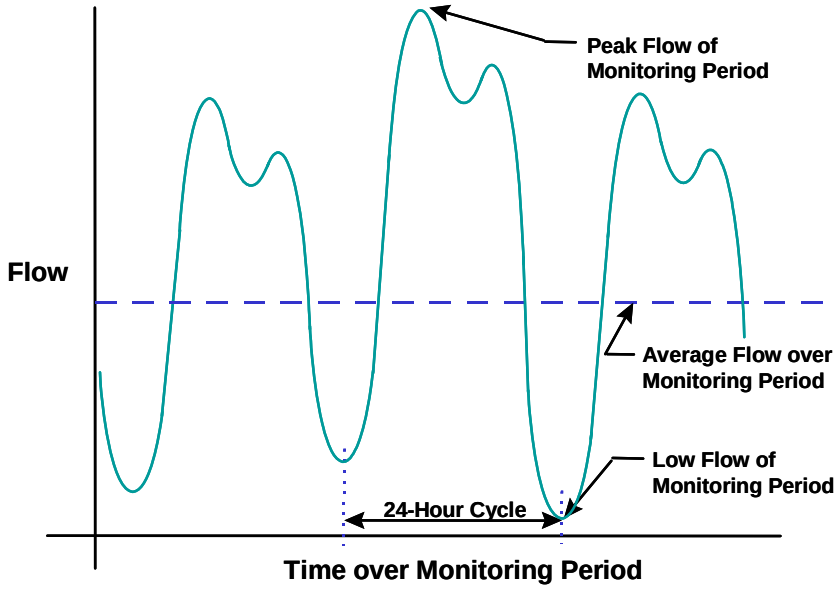


Figure 4. Diagram of Hypothetical Diurnal Flow over Monitoring Period

Dry weather flow is the flow that is caused by actual waste drainage from buildings in the area. Wet weather flow includes rain-dependent infiltration and inflow which may increase the flow through the sewer pipes. The flows recorded during this study were dry weather flows only.

FINDINGS

Flow Monitoring Results

The recorded flows showed diurnal flow patterns with peaks in the early morning and late afternoon hours. Figure 5 plots the average daily weekday and weekend flow for Manhole 33. Table 2 summarizes the flow monitoring data at the monitoring sites during the monitoring period. Additional plots and tables summarizing the flows at the monitoring sites are shown in *Appendix A.*

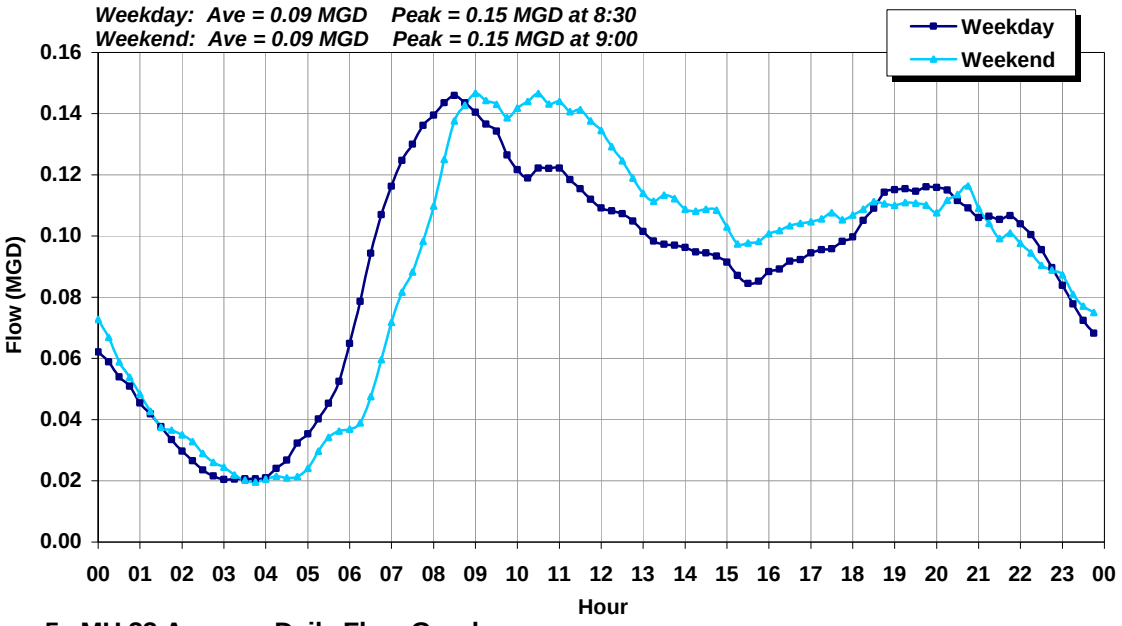


Figure 5. MH 33 Average Daily Flow Graph

Table 2. Flow Monitoring Results

Location	Weekday Average Flow (mgd)	Weekend Average Flow (mgd)	ADWF** (mgd)	Weekend to Weekday Ratio	Peak Measured Flow (mgd)	Peak to ADWF Ratio
MH 25	0.17	0.17	0.17	1.00	0.26	1.51
MH 29	0.04	0.04	0.04	0.89	0.13	3.20
MH 33	0.09	0.09	0.09	1.01	0.24	2.65
MH 42	0.18	0.19	0.18	0.99	0.41	2.20
MH 84	0.01	0.01	0.01	1.06	0.04	7.16
MH 85	0.06	0.06	0.06	0.98	0.15	2.34
MH 178	0.09	0.09	0.09	1.10	0.27	3.05
MH 203	0.09	0.09	0.09	1.01	0.20	2.21
MH 259	0.14	0.14	0.14	1.12	0.35	2.51

**ADWF calculated as (5*weekday+2*weekend)/7

[A] The ADWF graph is generated by averaging each 15-minute period for the weekday/weekend days of this study. The peak flows shown in this graph are not the same as peak measured flow, but a "typical expected" peak flow for an average day.

Pipeline Capacity

The pipeline capacity is estimated based on the measured data from the flow metering sites. The metered flow data is plotted over the Manning's Equation flow curve and extrapolated to a full-flow scenario, as shown in Figure 6 for Manhole 259.

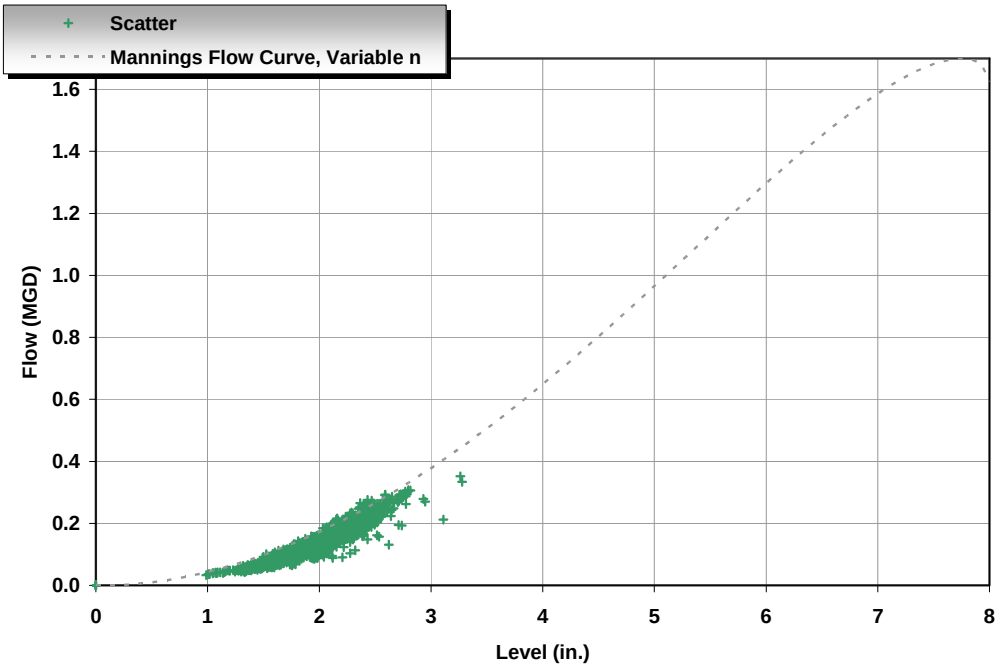


Figure 6. MH 259 Stage Curve

Table 3 summarizes the capacity data including the average dry weather flow and peak measured flow as a percent of the pipe capacity. Figure 7 shows the cross-sectional snapshots of these conditions.

Table 3. Average Dry Weather Flow and Peak Measured Flow as Percent of Capacity

Site	100% Capacity of Line (mgd)	ADWF (mgd)	ADWF as % of Capacity (by Volume)	ADWF as % of Capacity (by Level)	Peak Measured Flow (mgd)	Peak Flow as % of Capacity (by Volume)	Peak Flow as % of Capacity (by Level)
MH 25	9.00	0.17	1.9%	12.5%	0.26	2.9%	14.7%
MH 29	4.50	0.04	0.9%	6.7%	0.13	2.8%	13.9%
MH 33	1.90	0.09	4.7%	17.2%	0.24	12.4%	28.8%
MH 42	5.00	0.18	3.7%	16.2%	0.41	8.1%	24.0%
MH 84	4.00	0.01	0.2%	4.7%	0.04	1.1%	12.5%
MH 85	0.95	0.06	6.6%	22.5%	0.15	15.4%	33.1%
MH 178	1.10	0.09	8.0%	25.2%	0.27	24.4%	43.4%
MH 203	4.50	0.09	2.0%	11.4%	0.20	4.5%	17.1%
MH 259	1.70	0.14	8.2%	24.6%	0.35	20.7%	41.0%

ADWF = Average Dry Weather Flow

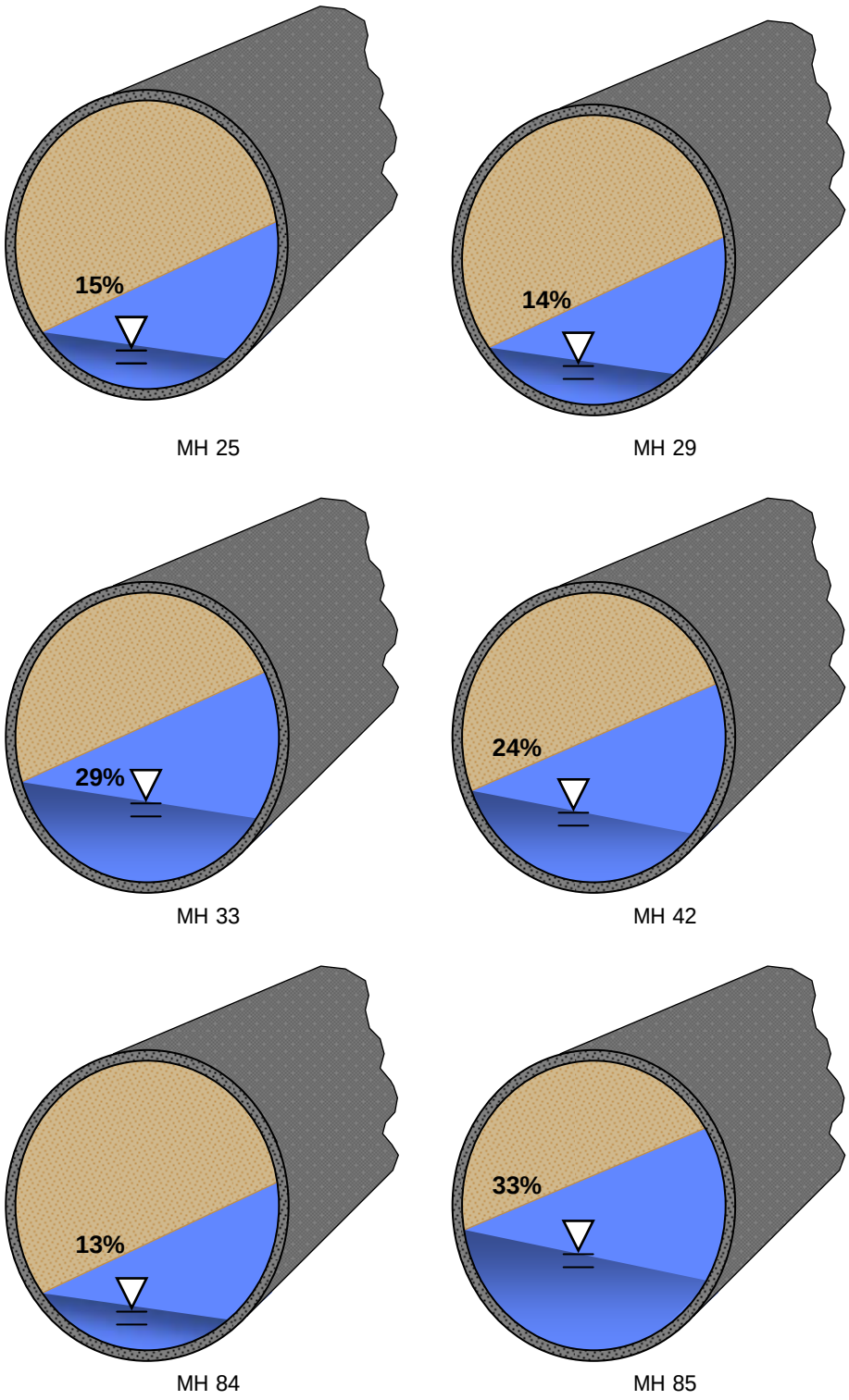


Figure 7. Peak Flow Cross-Sectional View Snapshots

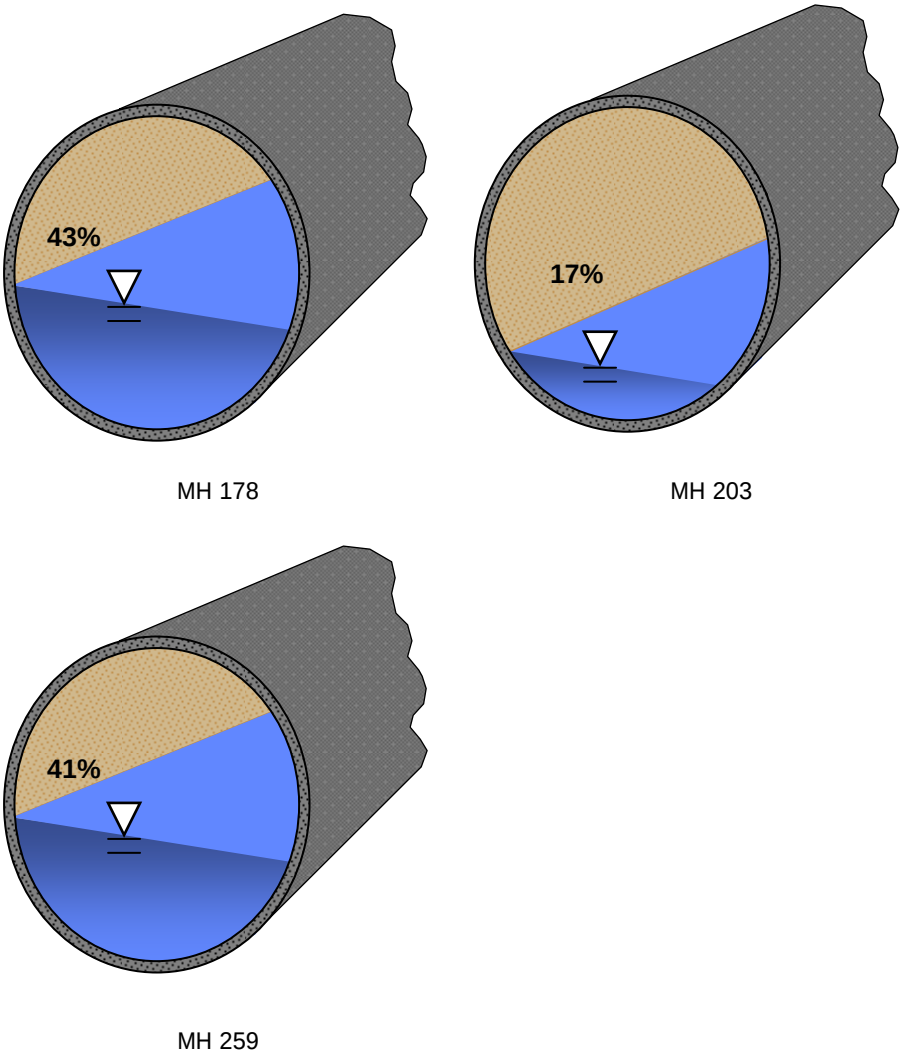


Figure 7. Peak Flow Cross-Sectional View Snapshots (cont.)

APPENDIX A

FLOW MONITORING SITE: GRAPHS, FIGURES & TABLES

Temporary Flow Monitoring Study

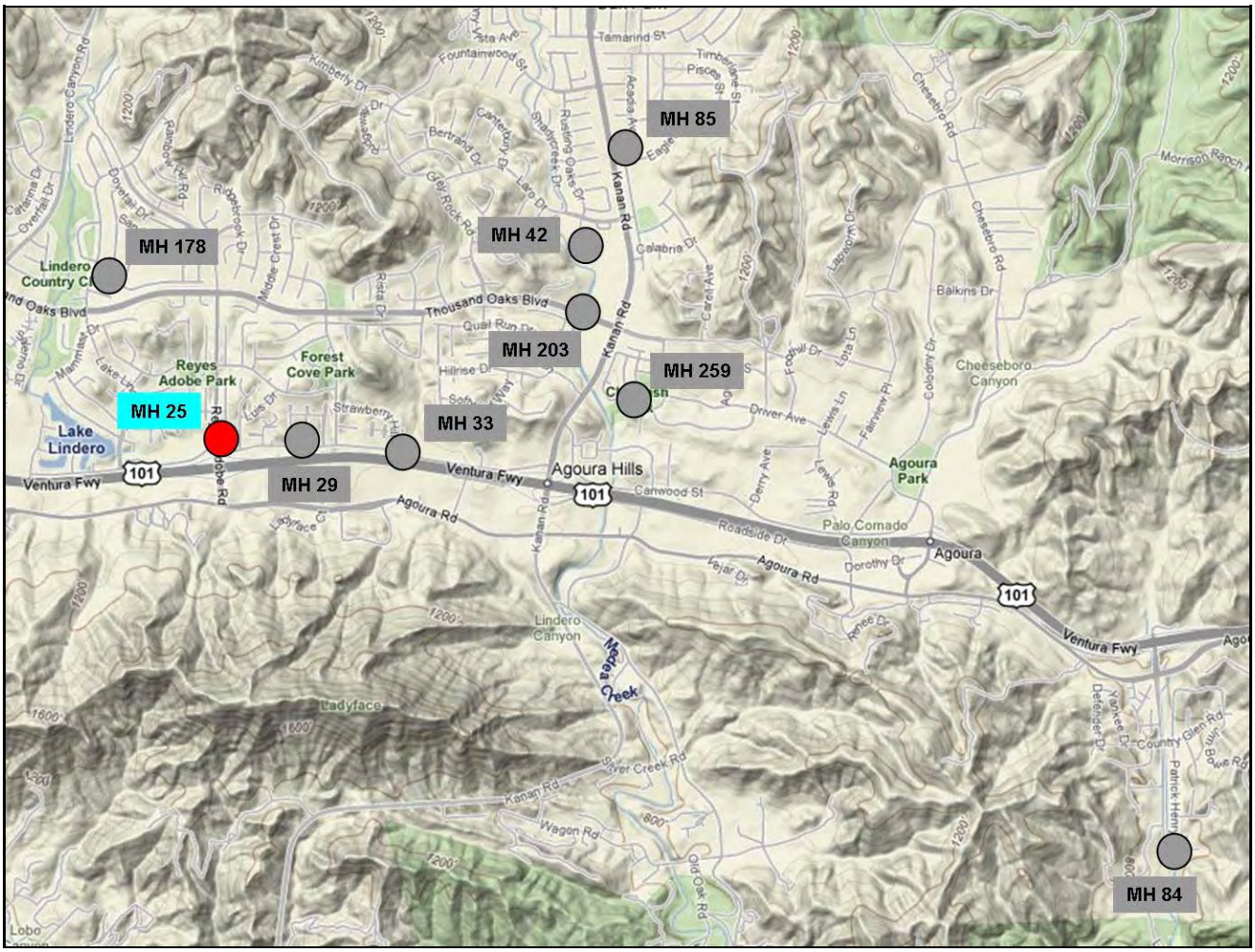
Sanitary Sewer Collection System

Monitoring Site: MH 25

Location: Canwood Street and Reyes Adobe Road

Size / Type Line: 10-inch Sanitary Sewer Pipe

Data Summary Report



Site Information Report

Monitoring Site: MH 25

Location: Canwood Street and Reyes Adobe Road

Diameter: 10 inches

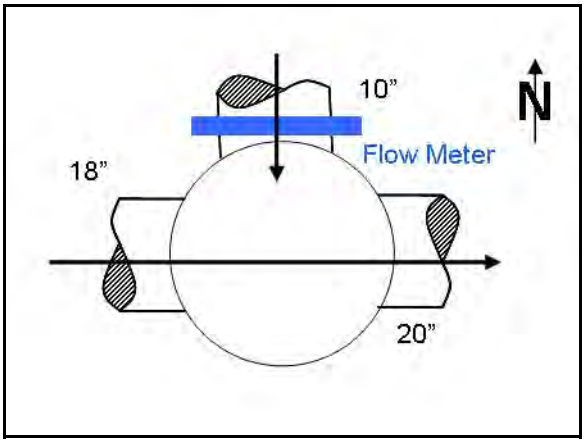
Average Dry Weather Flow: 0.17 *mgd*

Peak Measured Flow: 0.26 *mgd*

Satellite Map

Sanitary Map

Flow Sketch



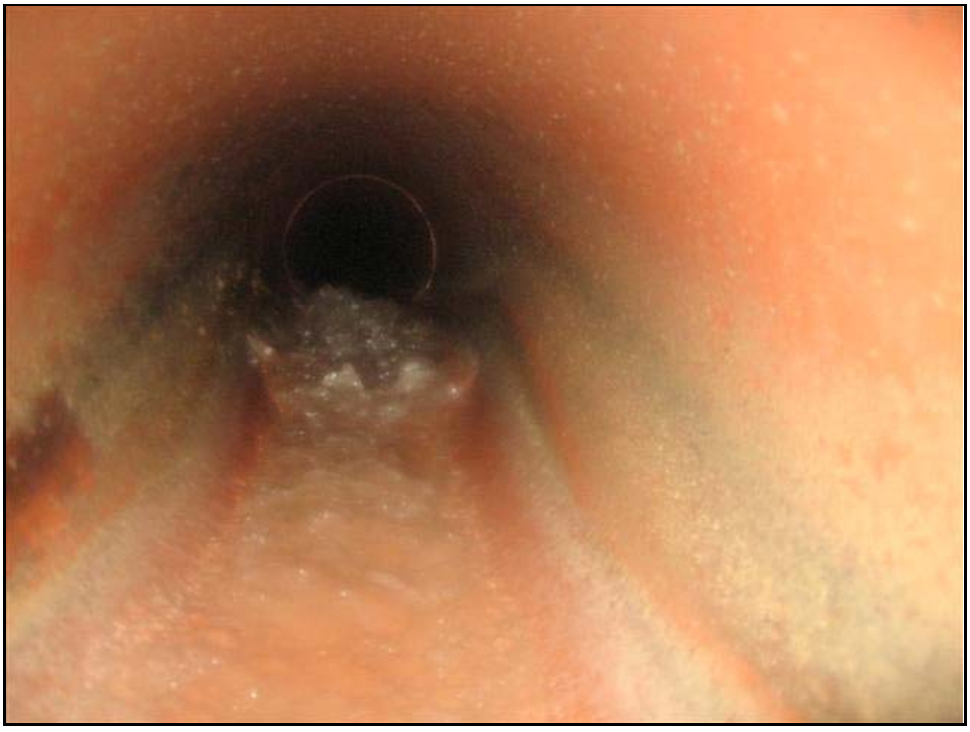
Street View Photo

Plan View Photo

	Site Information Report Photos	**Monitoring Site:** MH 25

Manhole Lid

East Inlet



	Site Information Report Photos	**Monitoring Site:** MH 25

North Inlet

West Outlet

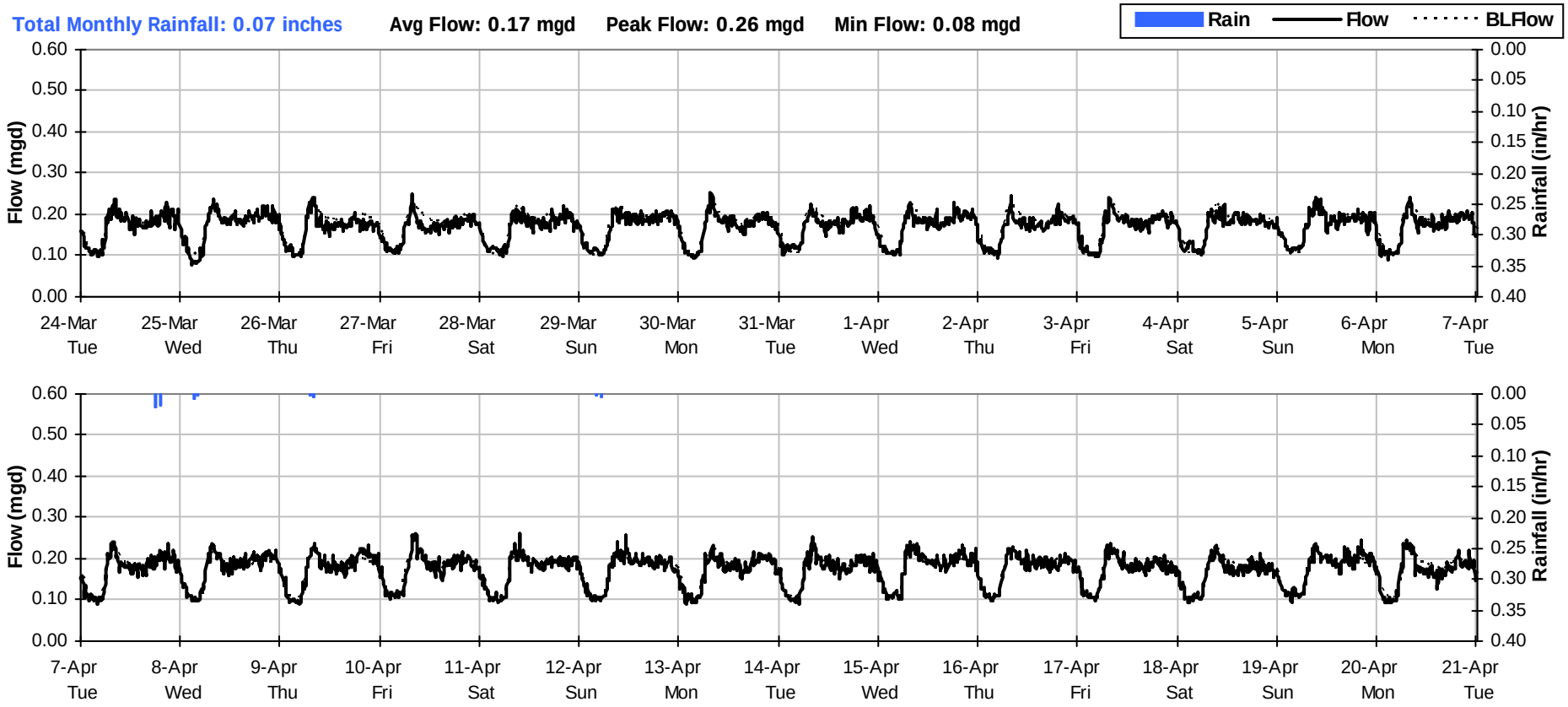
Period Flow Summary

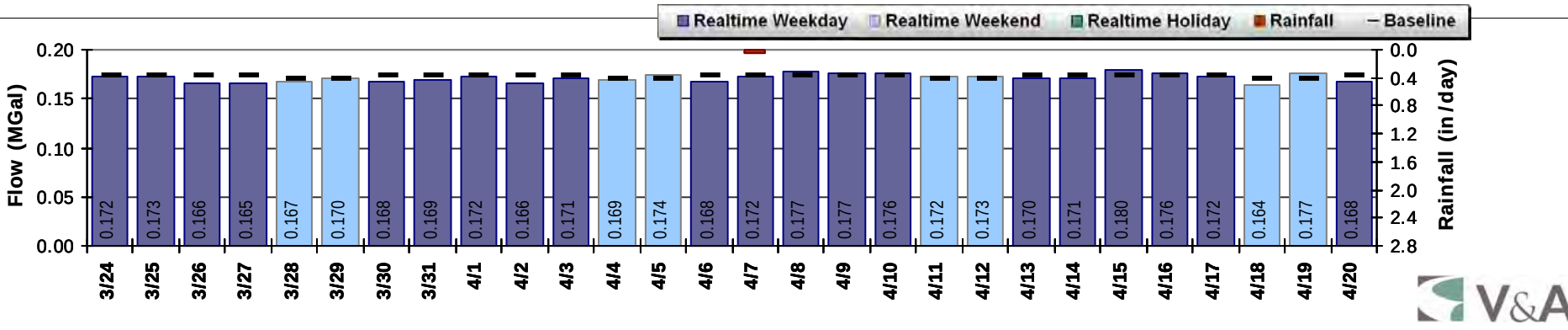
March 24, 2009 to April 21, 2009

Monitoring Site:

MH 25

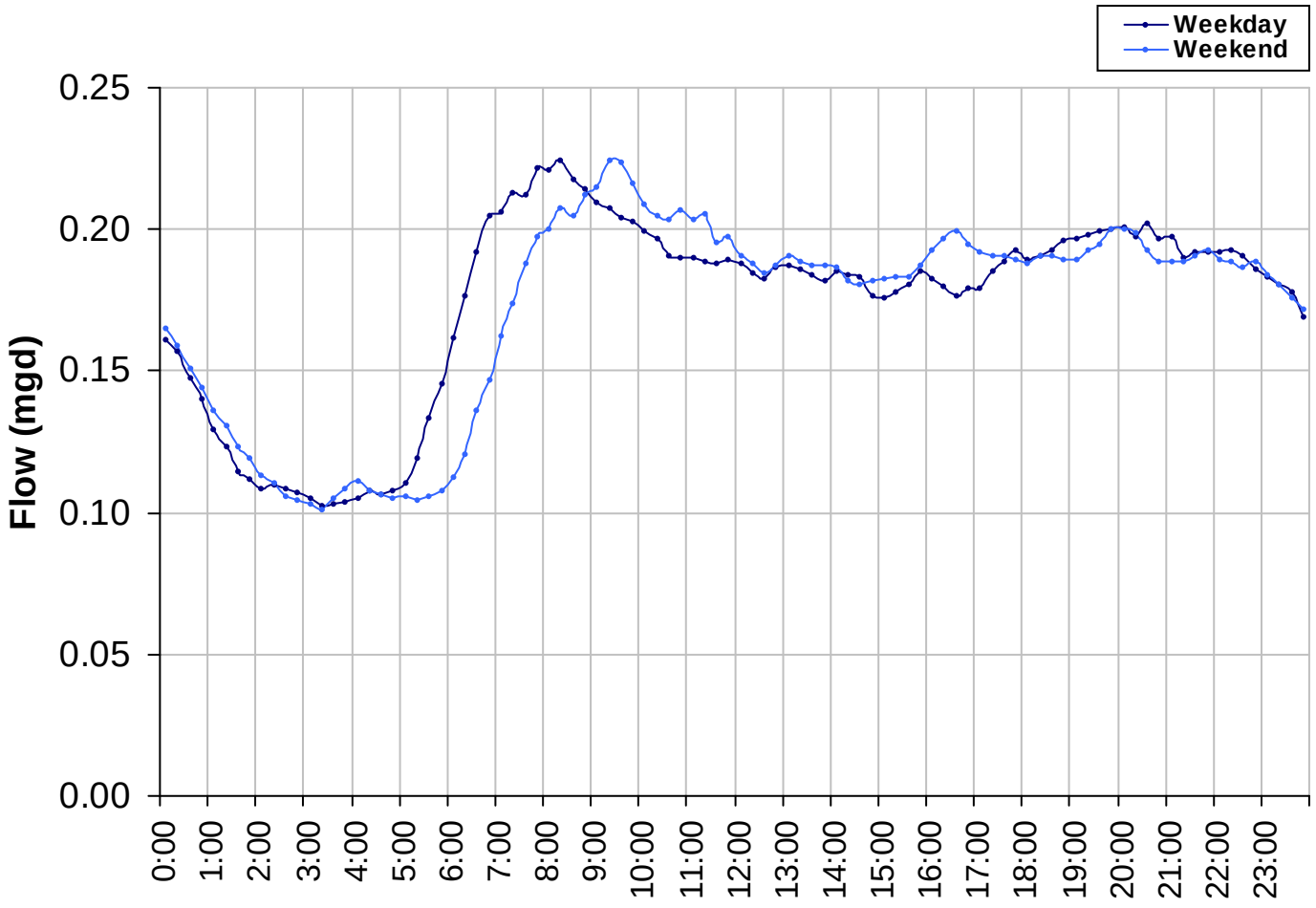
Total Monthly Rainfall: 0.07 inches **Avg Flow: 0.17 mgd** **Peak Flow: 0.26 mgd** **Min Flow: 0.08 mgd**





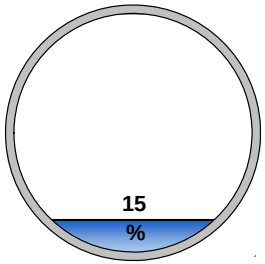
Average Dry Weather Flow

Monitoring Site:
MH 25



Peak Measured Flow:

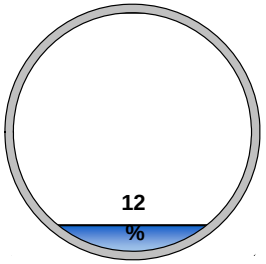
0.26 *mgd*



Peak measured flow shown in weekly graphs on following pages

Average Dry Weather Flow:

0.17 *mgd*

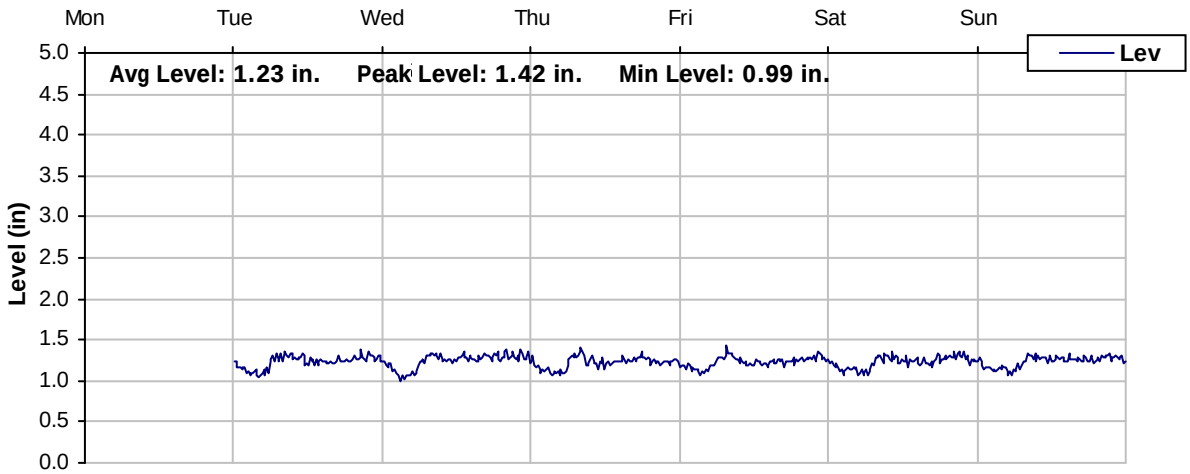


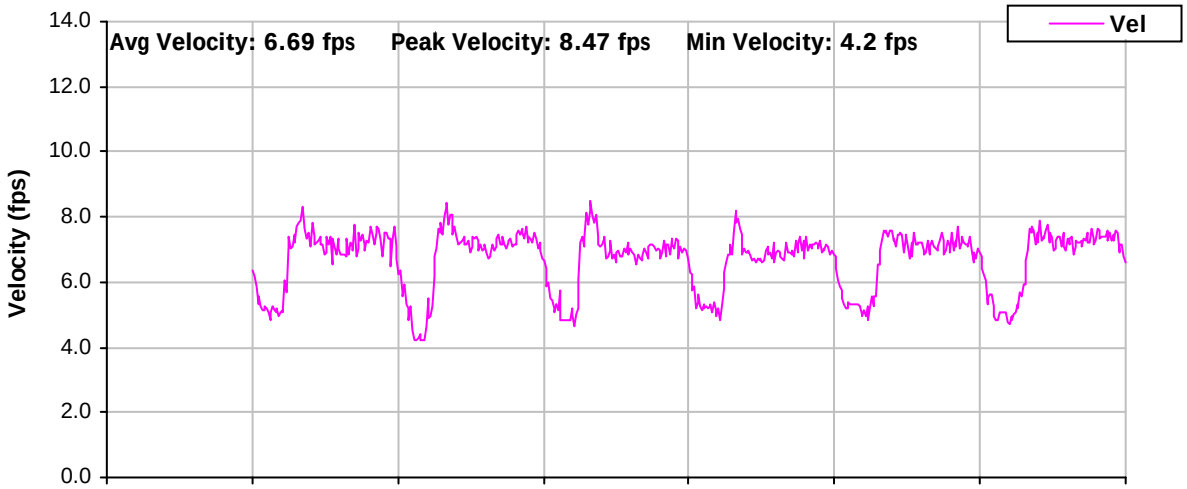
Level, Velocity and Flow

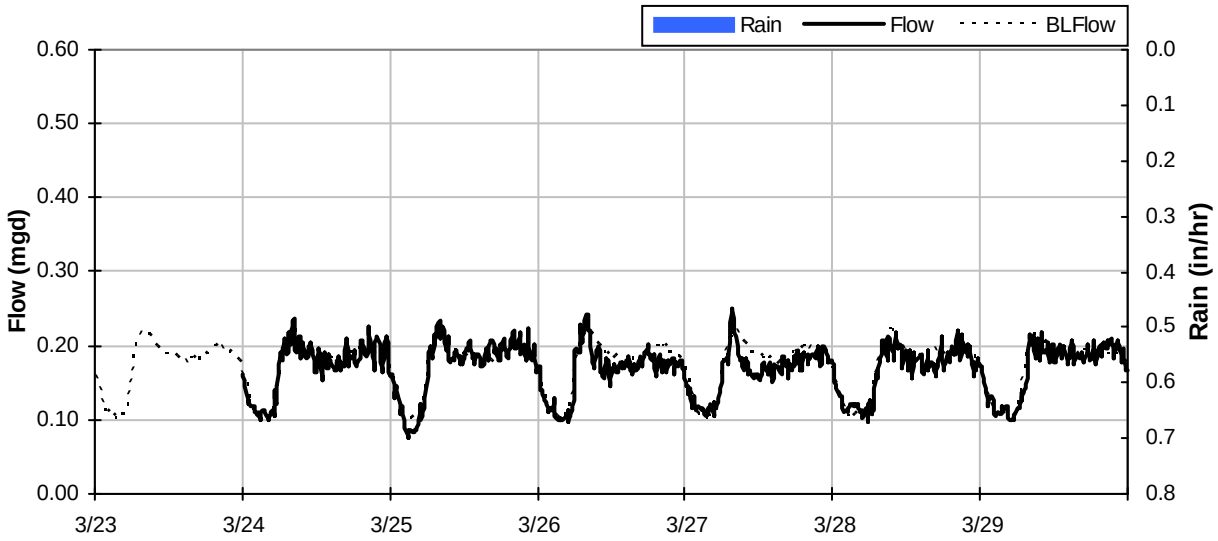
From 3/23/2009 to 3/30/2009

Monitoring Site:

MH 25







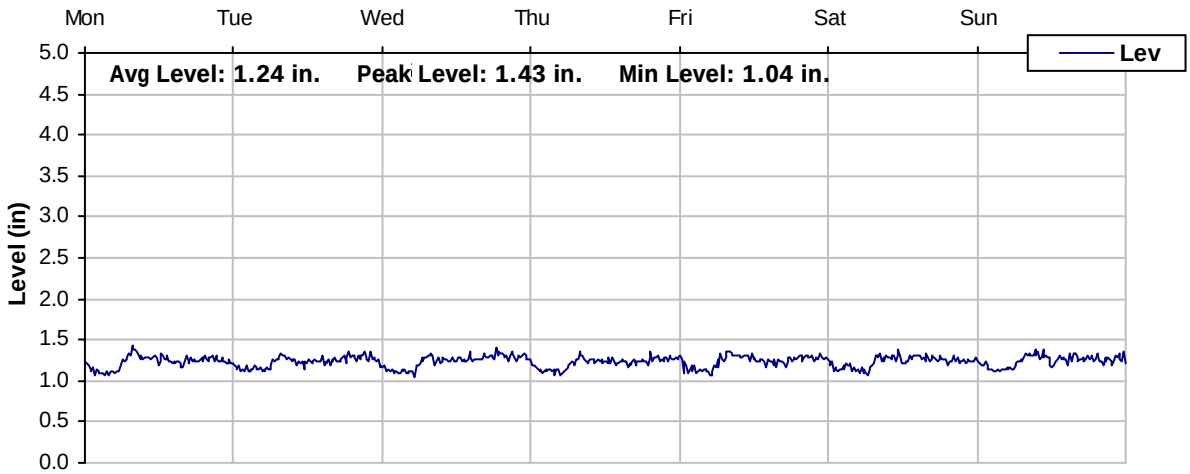
Avg Flow: 0.169 mgd **Peak Flow: 0.25 mgd** **Min Flow: 0.076 mgd**

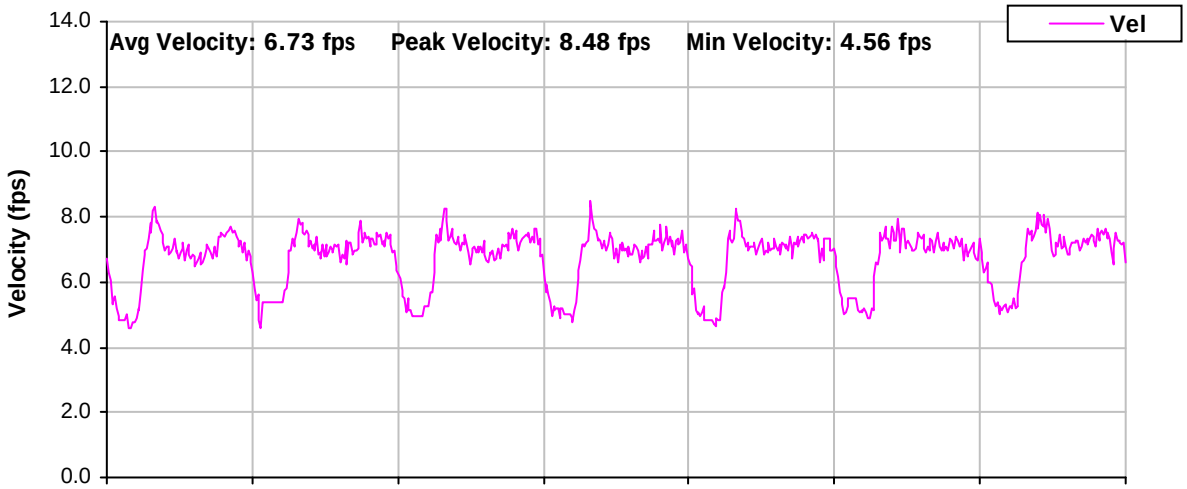
Level, Velocity and Flow

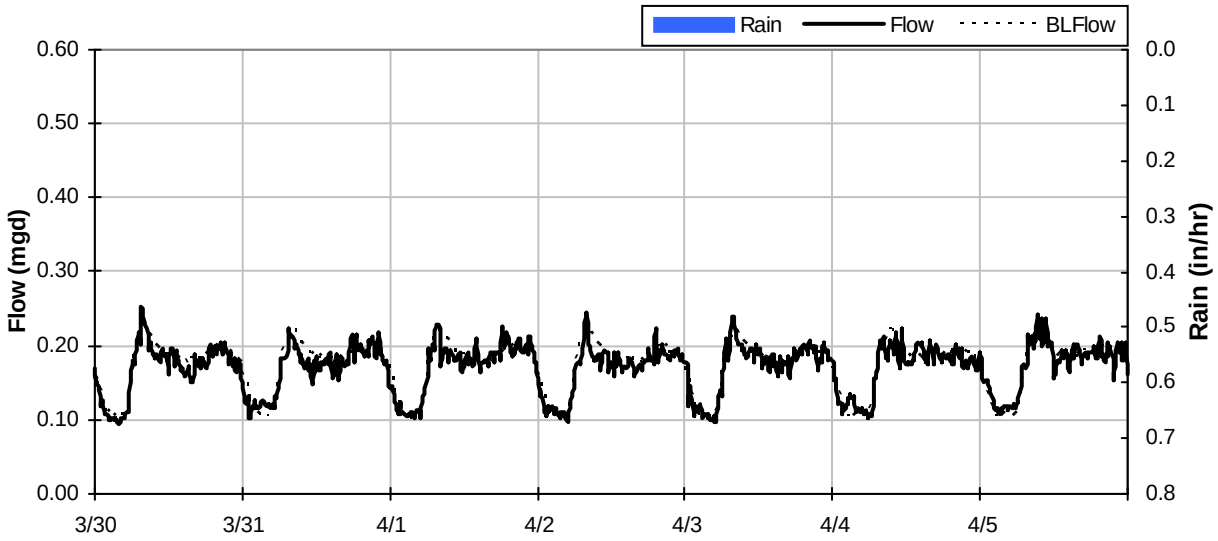
From 3/30/2009 to 4/6/2009

Monitoring Site:

MH 25







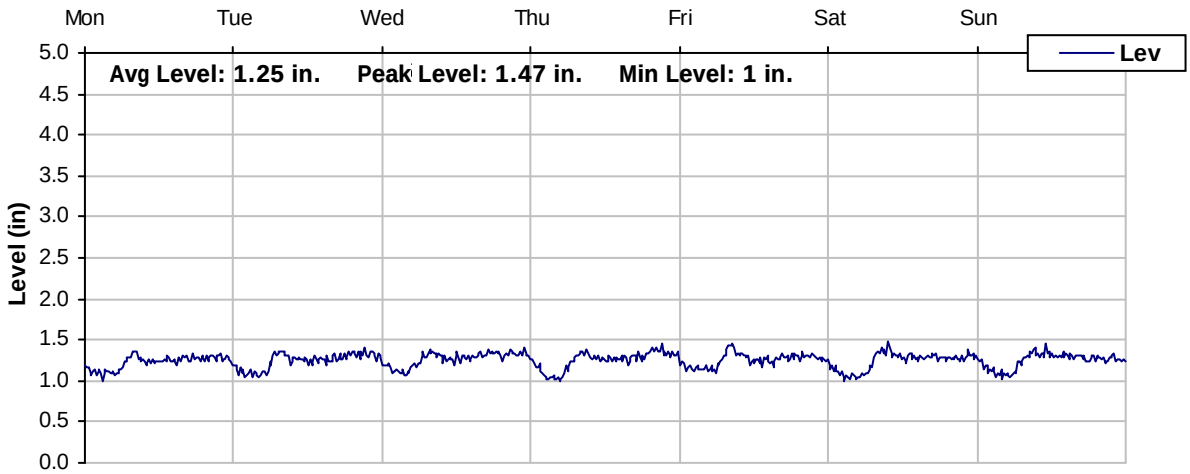
Avg Flow: 0.17 mgd **Peak Flow: 0.253 mgd** **Min Flow: 0.094 mgd**

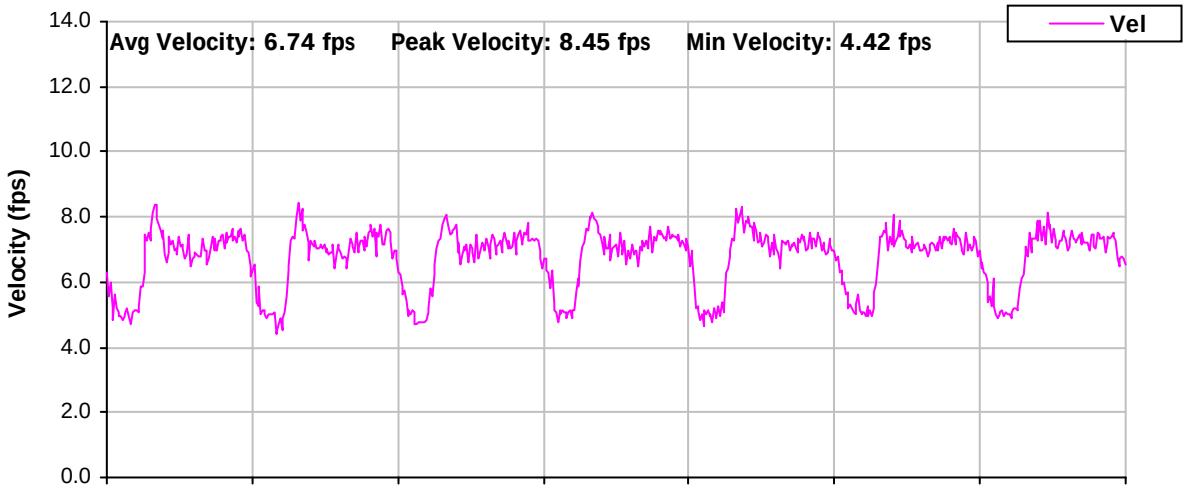
Level, Velocity and Flow

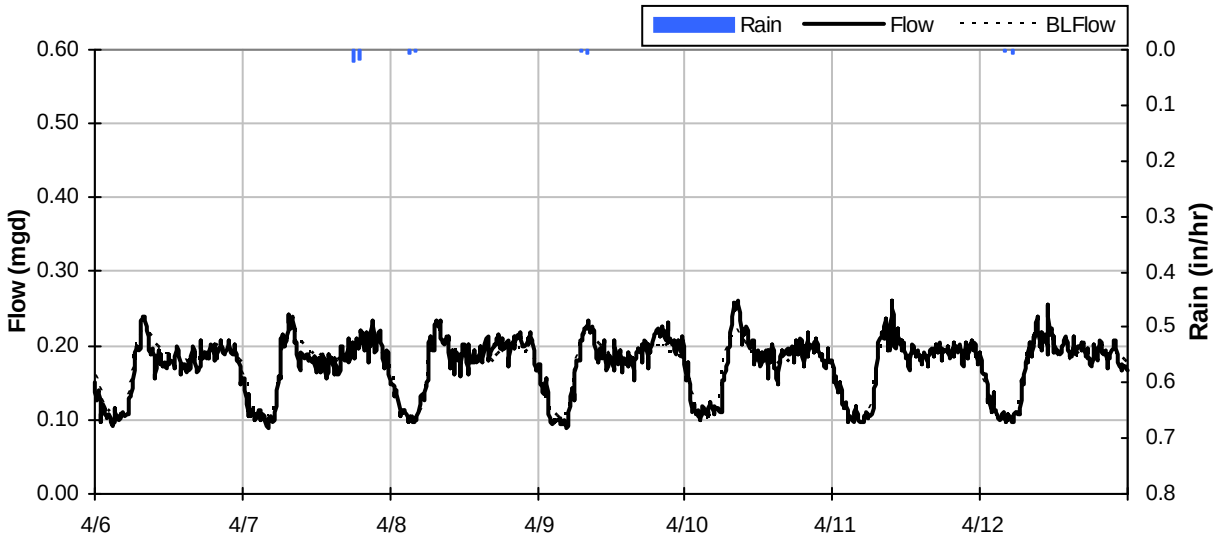
From 4/6/2009 to 4/13/2009

Monitoring Site:

MH 25







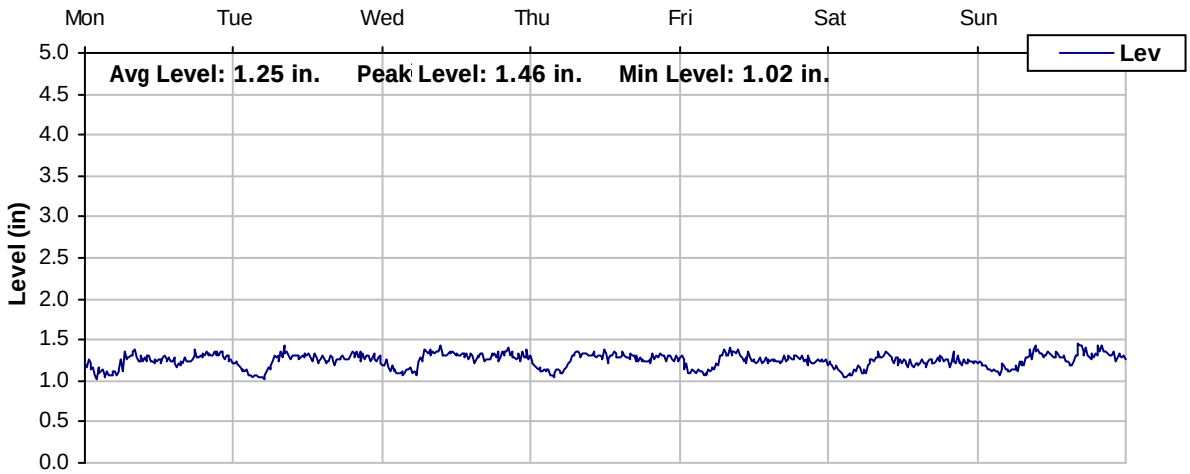
Avg Flow: 0.174 mgd **Peak Flow: 0.261 mgd** **Min Flow: 0.088 mgd**

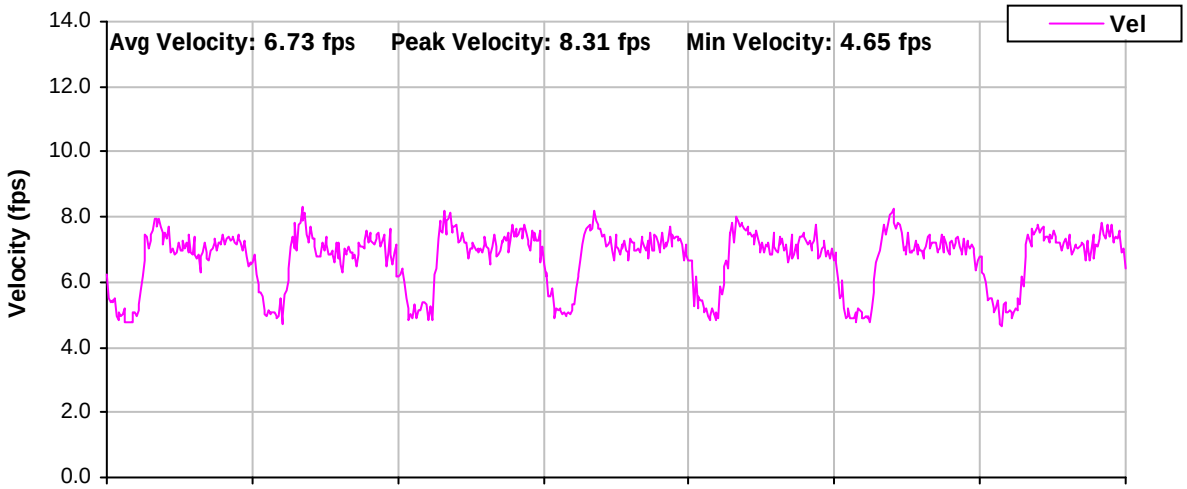
Level, Velocity and Flow

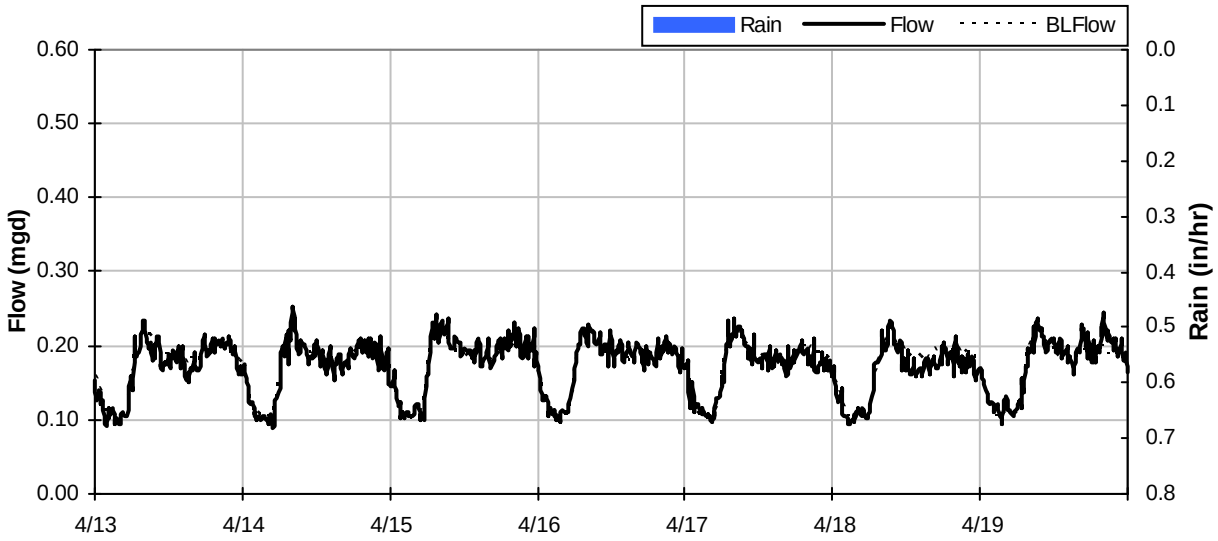
From 4/13/2009 to 4/20/2009

Monitoring Site:

MH 25







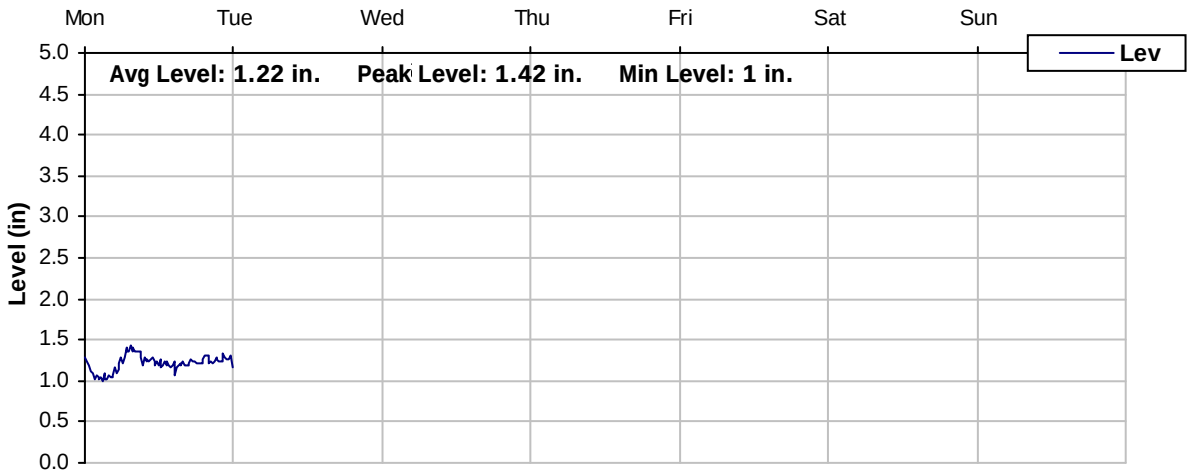
Avg Flow: 0.173 mgd **Peak Flow: 0.253 mgd** **Min Flow: 0.09 mgd**

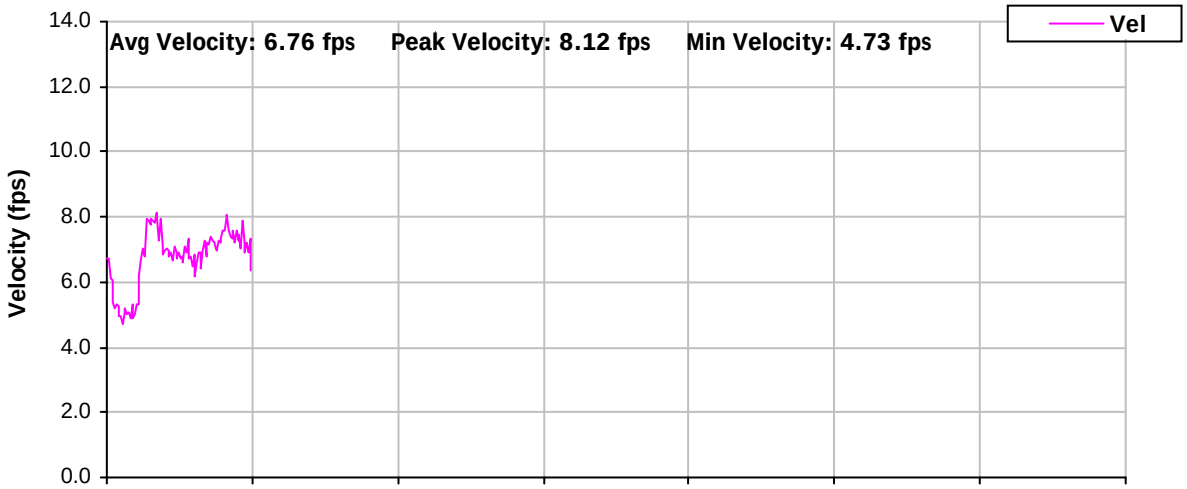
Level, Velocity and Flow

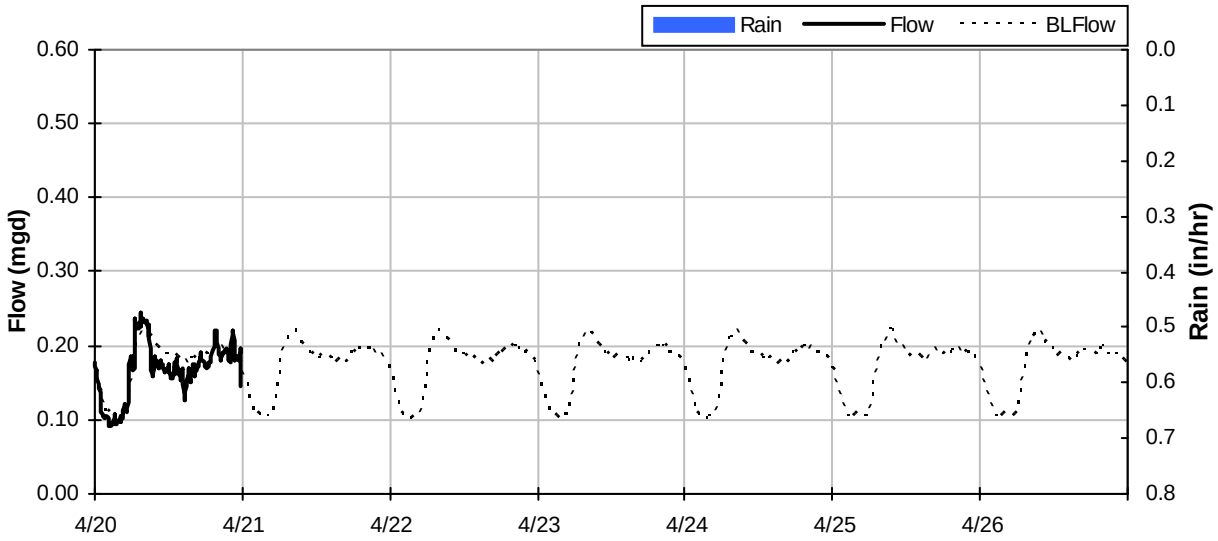
From 4/20/2009 to 4/27/2009

Monitoring Site:

MH 25







Avg Flow: 0.168 mgd **Peak Flow: 0.244 mgd** **Min Flow: 0.092 mgd**

Temporary Flow Monitoring Study

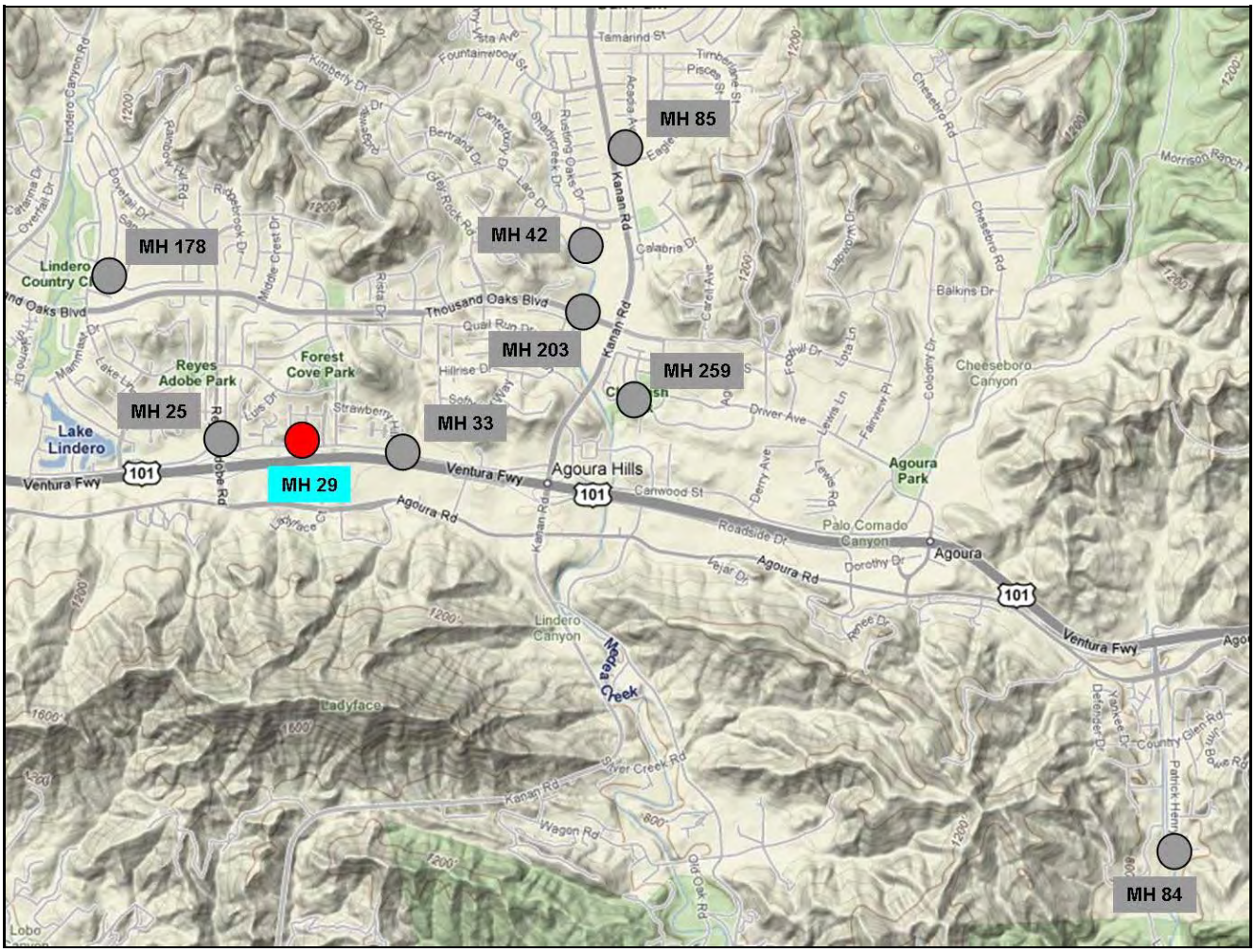
Sanitary Sewer Collection System

Monitoring Site: MH 29

Location: Canwood Street and Christian Court

Size / Type Line: 8-inch Sanitary Sewer Pipe

Data Summary Report



Site Information Report

Monitoring Site: MH 29

Location: Canwood Street and Christian Court

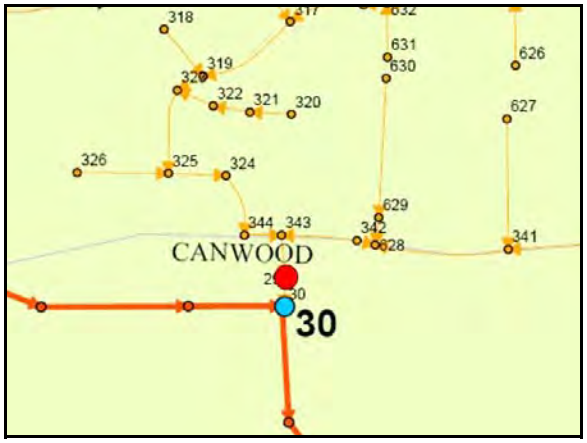
Diameter: 8 inches

Average Dry Weather Flow: 0.04 *mgd*

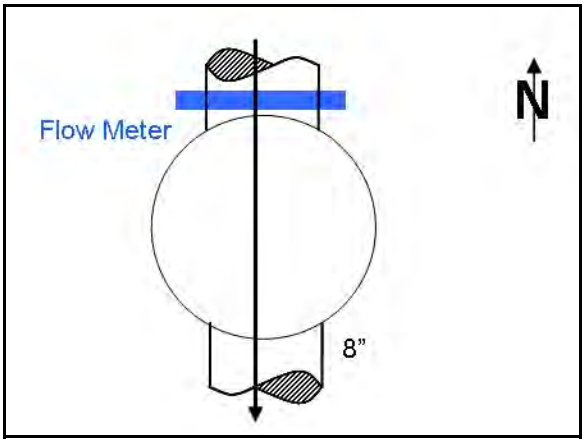
Peak Measured Flow: 0.13 *mgd*

Satellite Map

Sanitary Map



Flow Sketch



Street View Photo

Plan View Photo

V&A

	Site Information Report Photos	**Monitoring Site:** MH 29

North Inlet

North Inlet

	Site Information Report Photos	**Monitoring Site:** MH 29

South Oulet

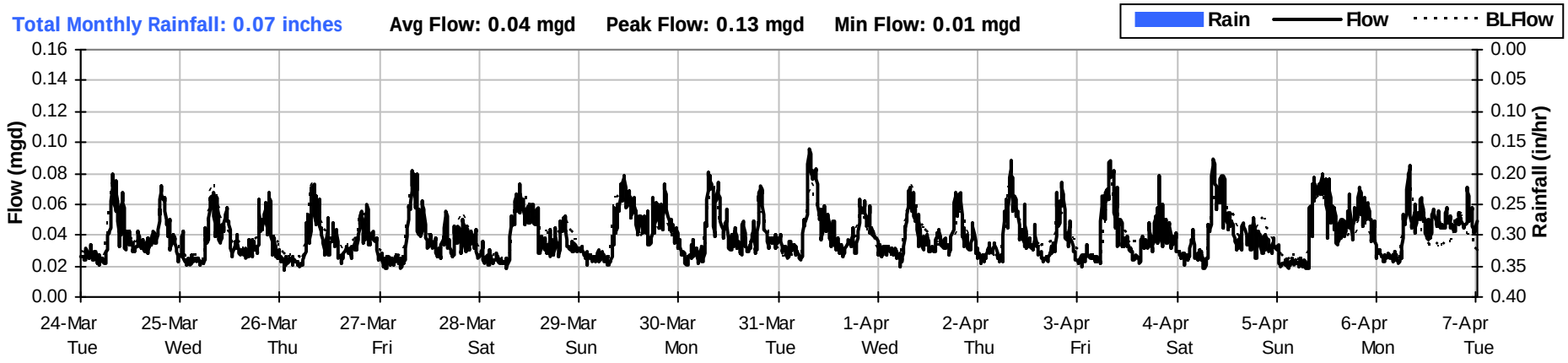
Period Flow Summary

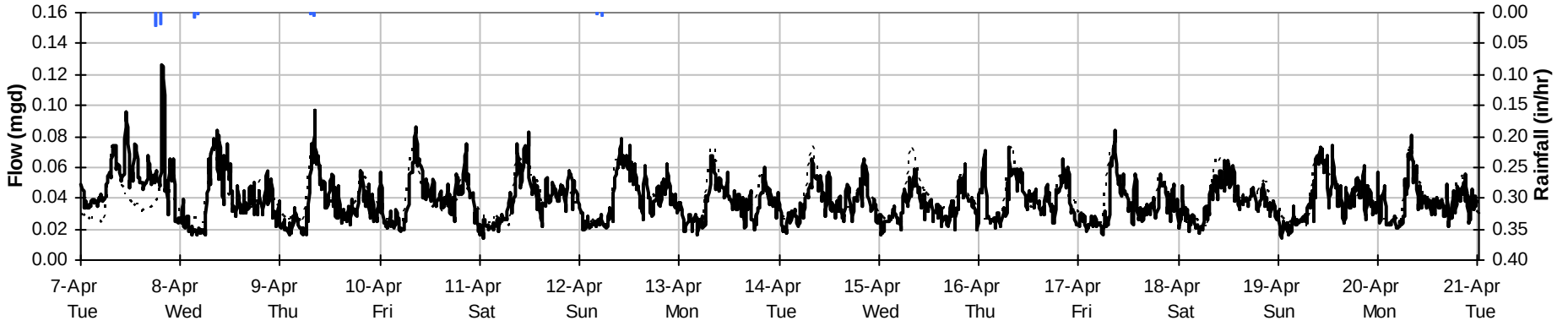
March 24, 2009 to April 21, 2009

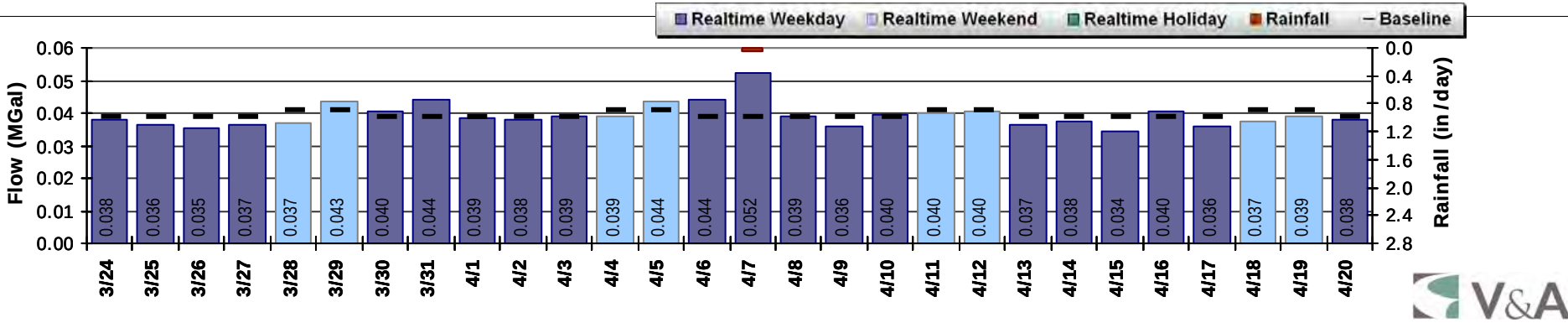
Monitoring Site:

MH 29

Total Monthly Rainfall: 0.07 inches **Avg Flow: 0.04 mgd** **Peak Flow: 0.13 mgd** **Min Flow: 0.01 mgd**



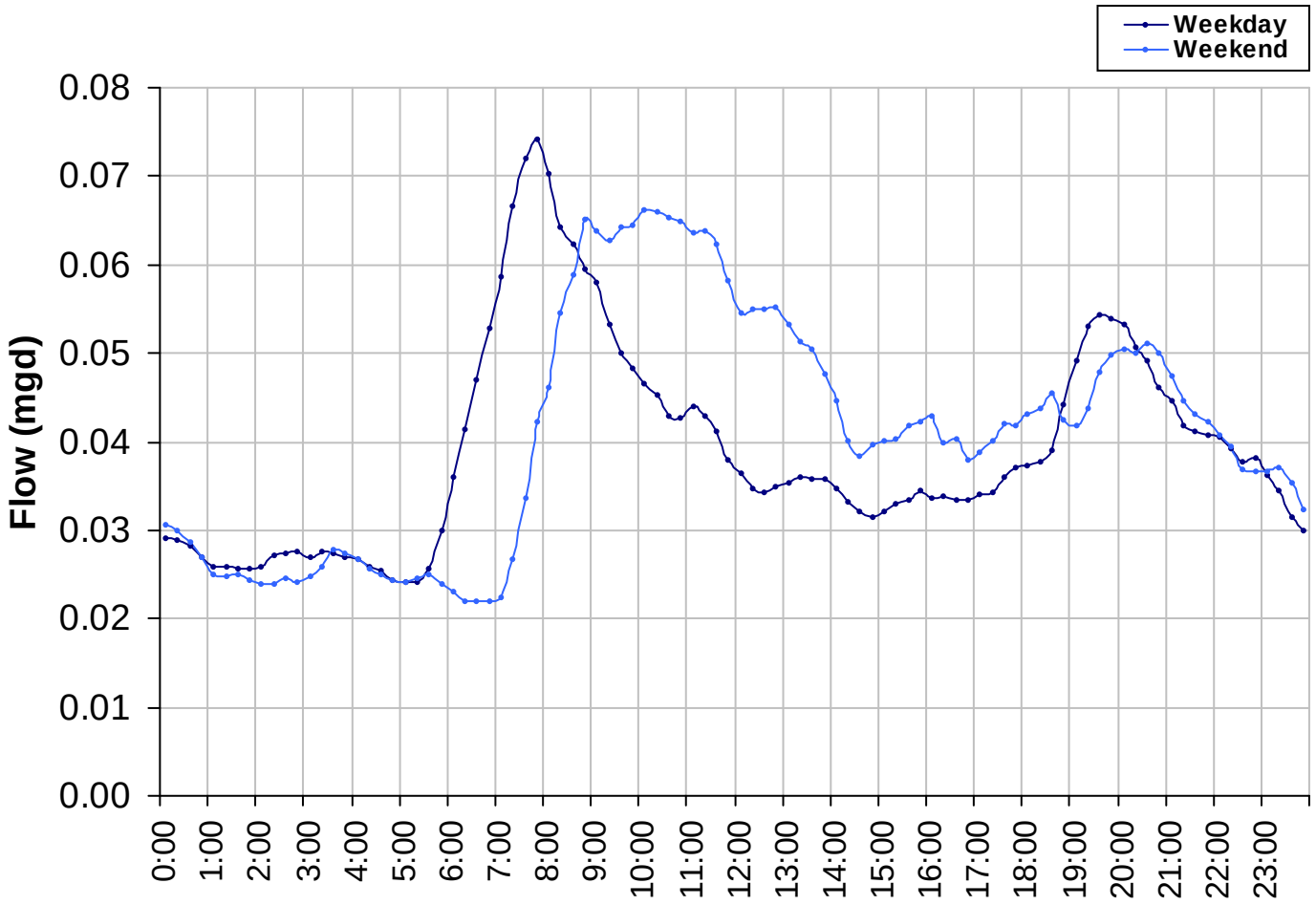




V&A

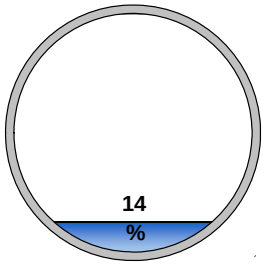
Average Dry Weather Flow

Monitoring Site:
MH 29



Peak Measured Flow:

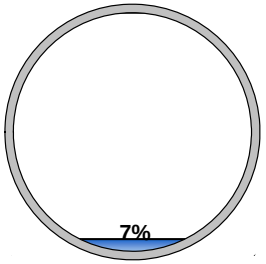
0.13 *mgd*



Peak measured flow shown in weekly graphs on following pages

Average Dry Weather Flow:

0.04 *mgd*

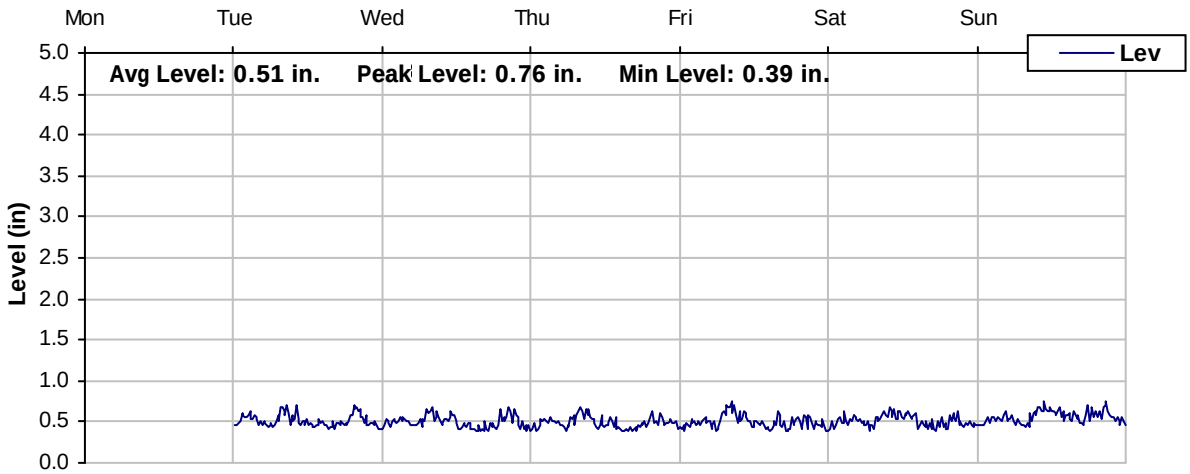


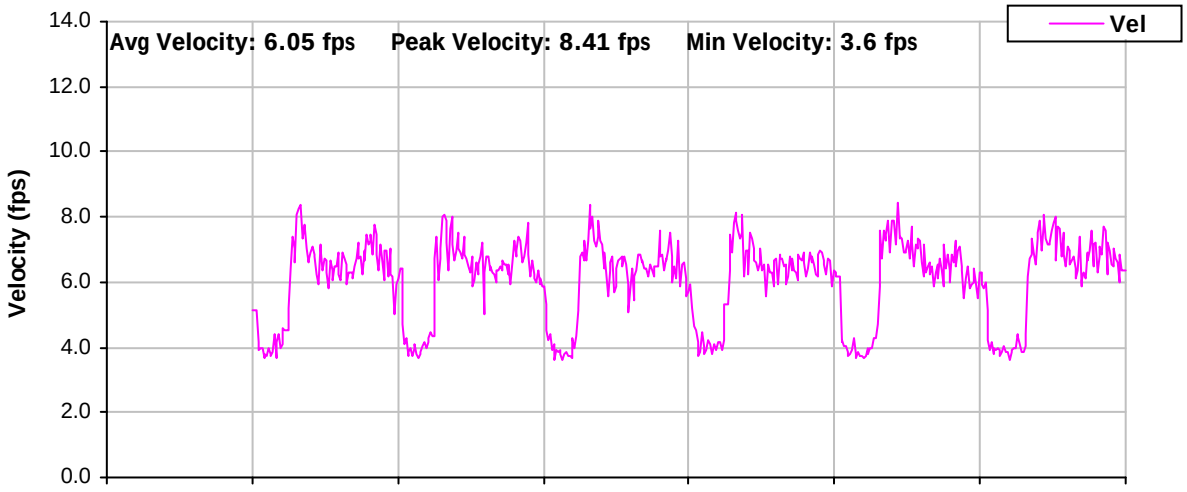
Level, Velocity and Flow

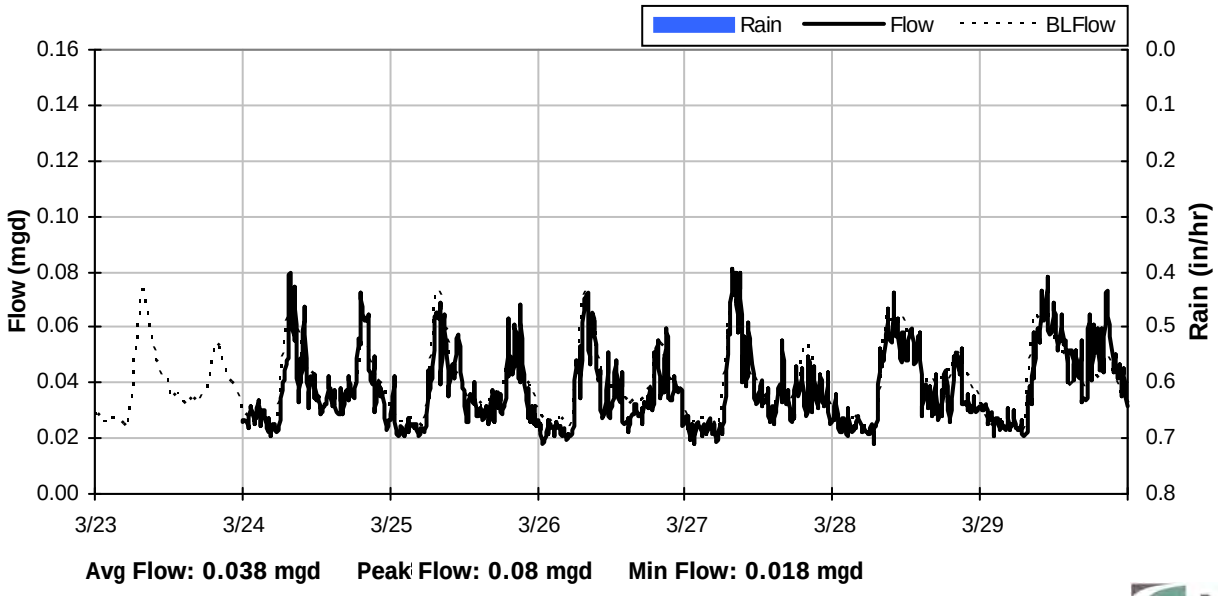
From 3/23/2009 to 3/30/2009

Monitoring Site:

MH 29







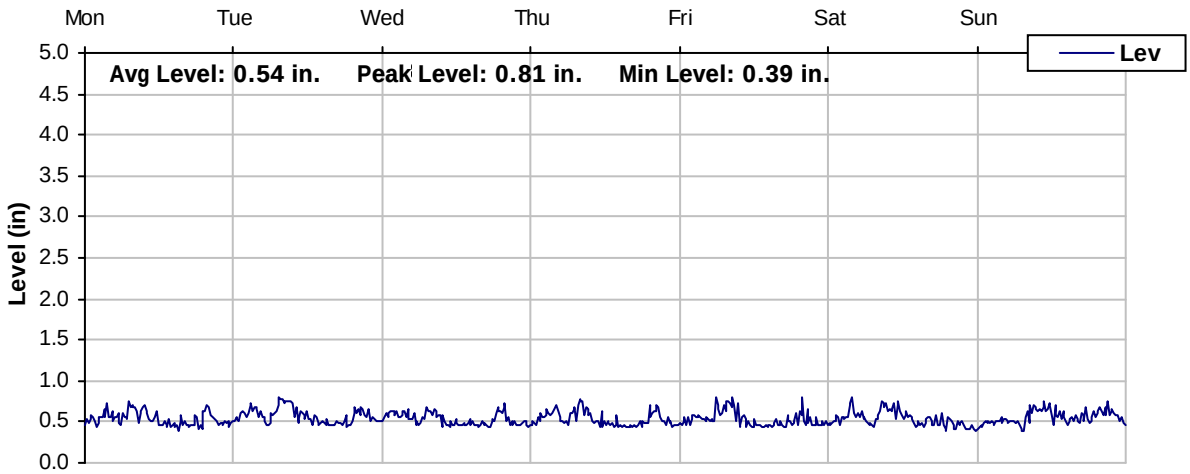
Avg Flow: 0.038 mgd **Peak Flow: 0.08 mgd** **Min Flow: 0.018 mgd**

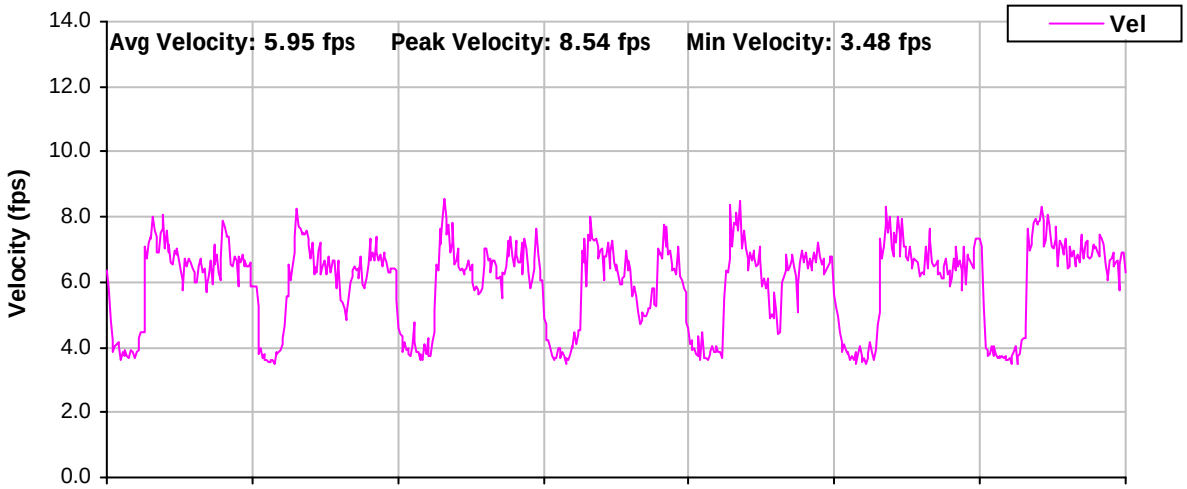
Level, Velocity and Flow

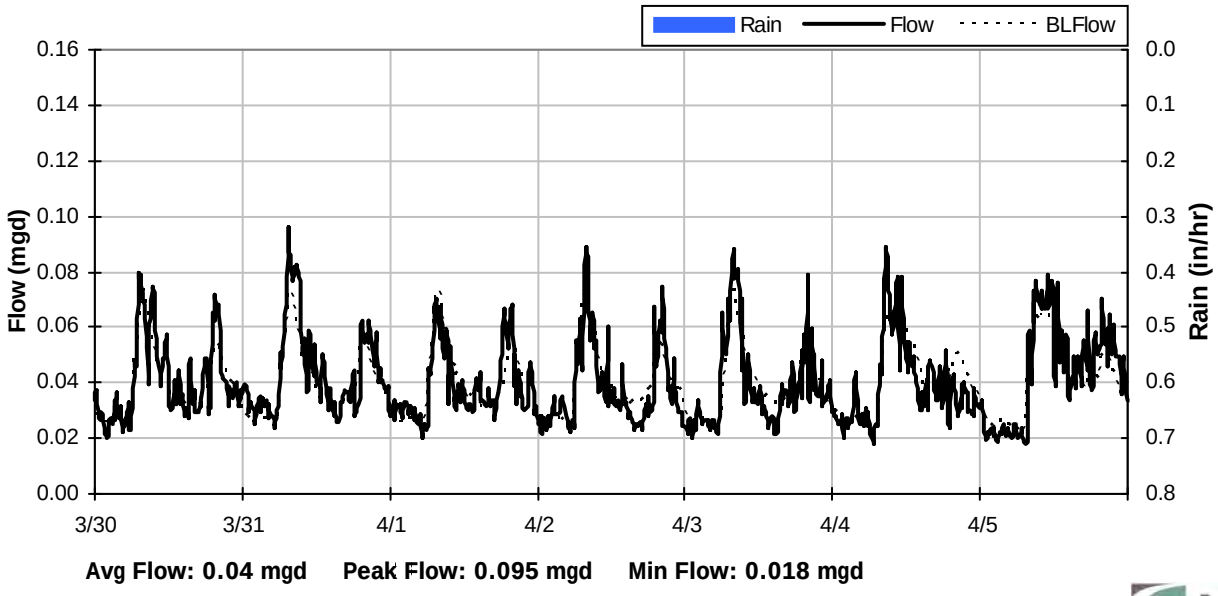
From 3/30/2009 to 4/6/2009

Monitoring Site:

MH 29







Avg Flow: 0.04 mgd **Peak Flow: 0.095 mgd** **Min Flow: 0.018 mgd**

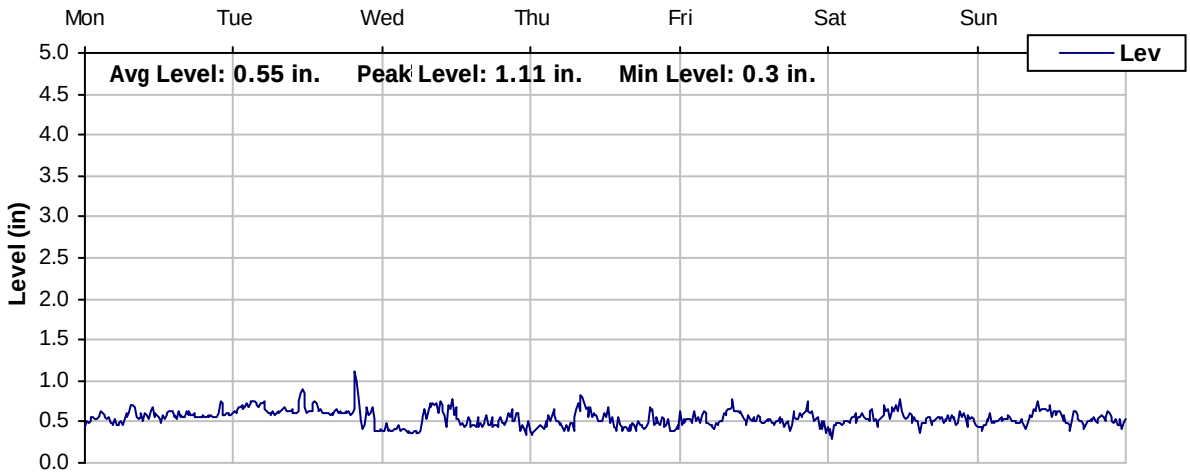
V&A

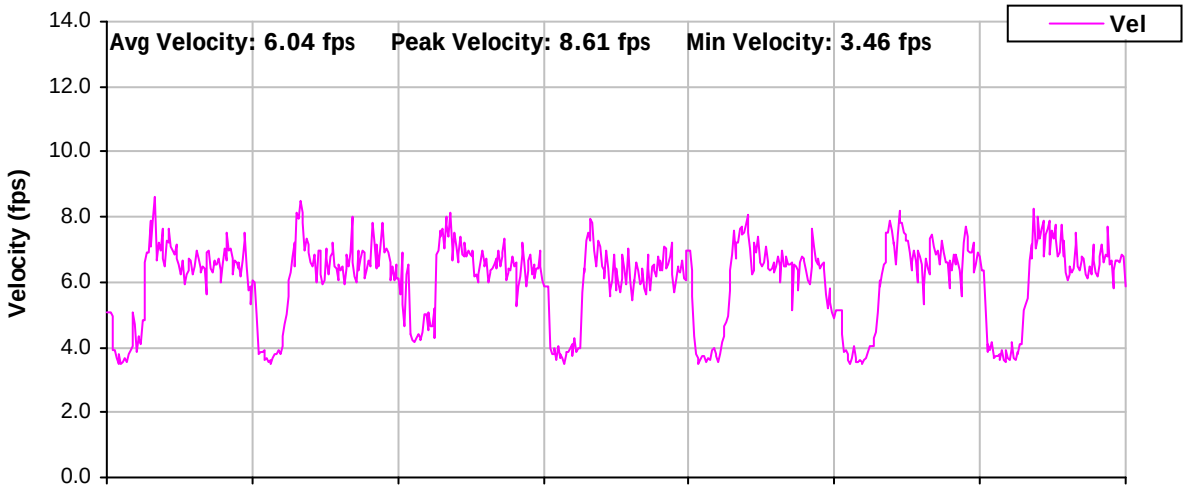
Level, Velocity and Flow

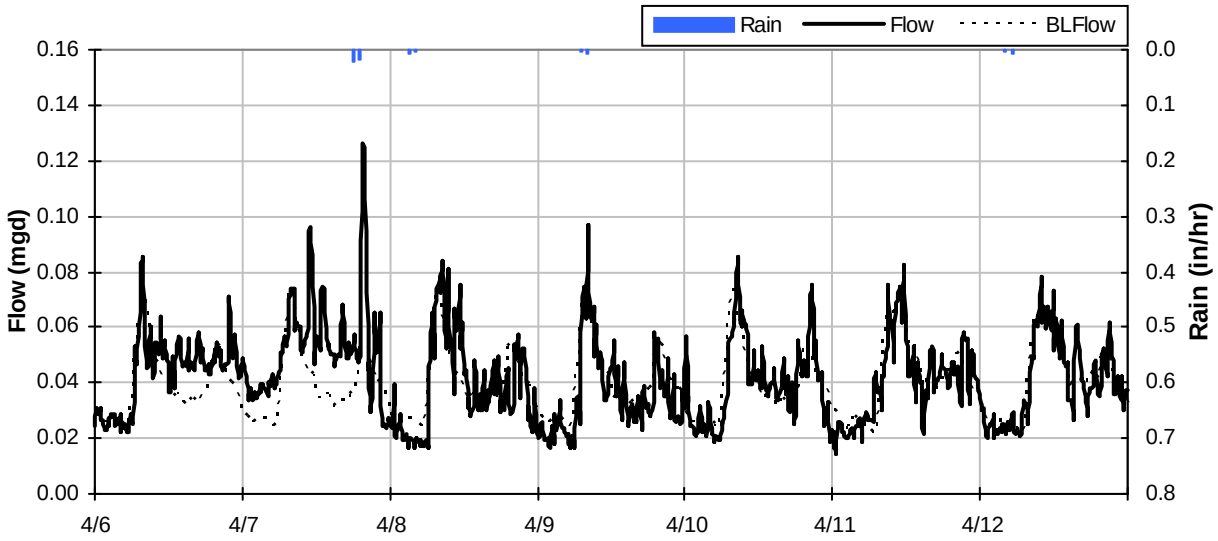
From 4/6/2009 to 4/13/2009

Monitoring Site:

MH 29







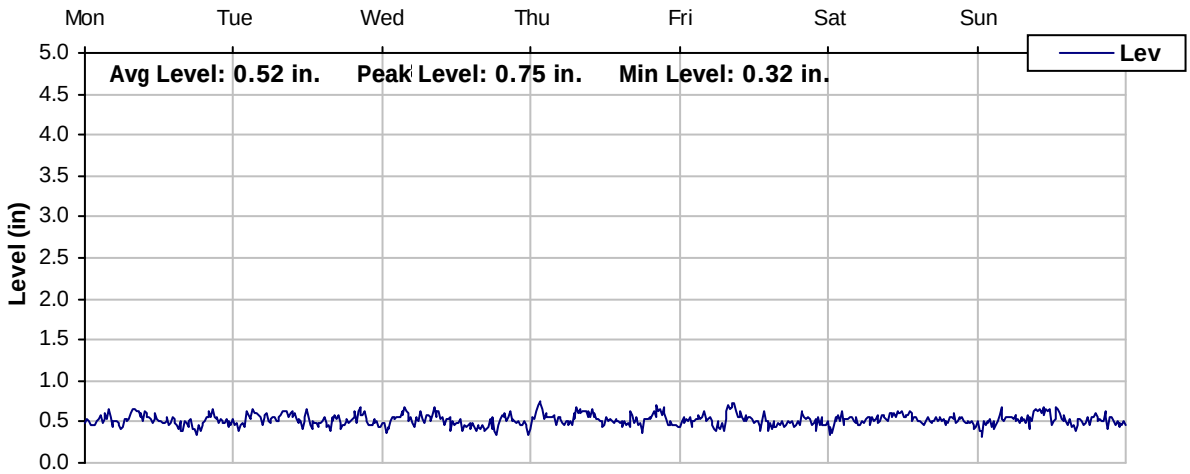
Avg Flow: 0.042 mgd **Peak Flow: 0.127 mgd** **Min Flow: 0.014 mgd**

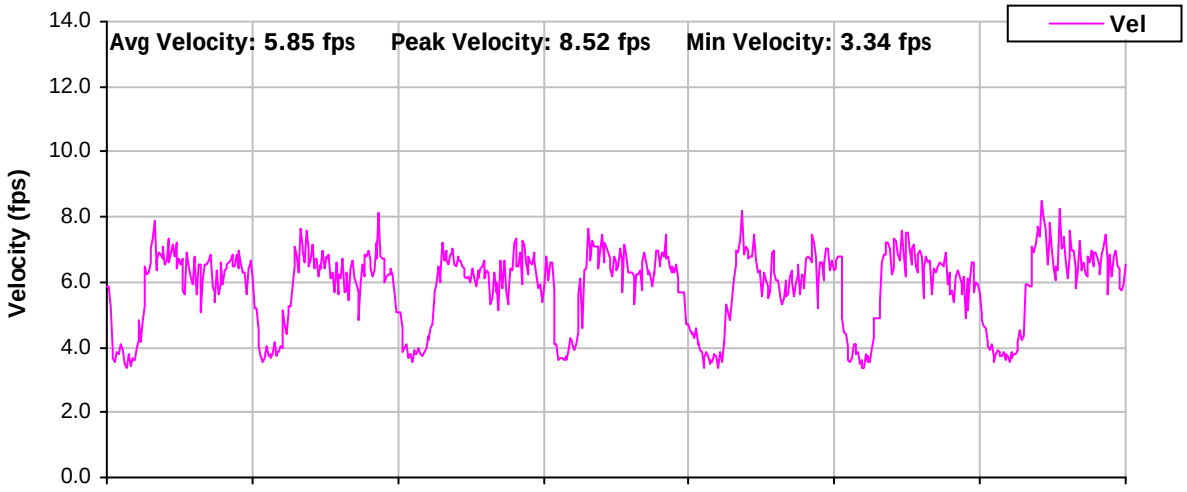
Level, Velocity and Flow

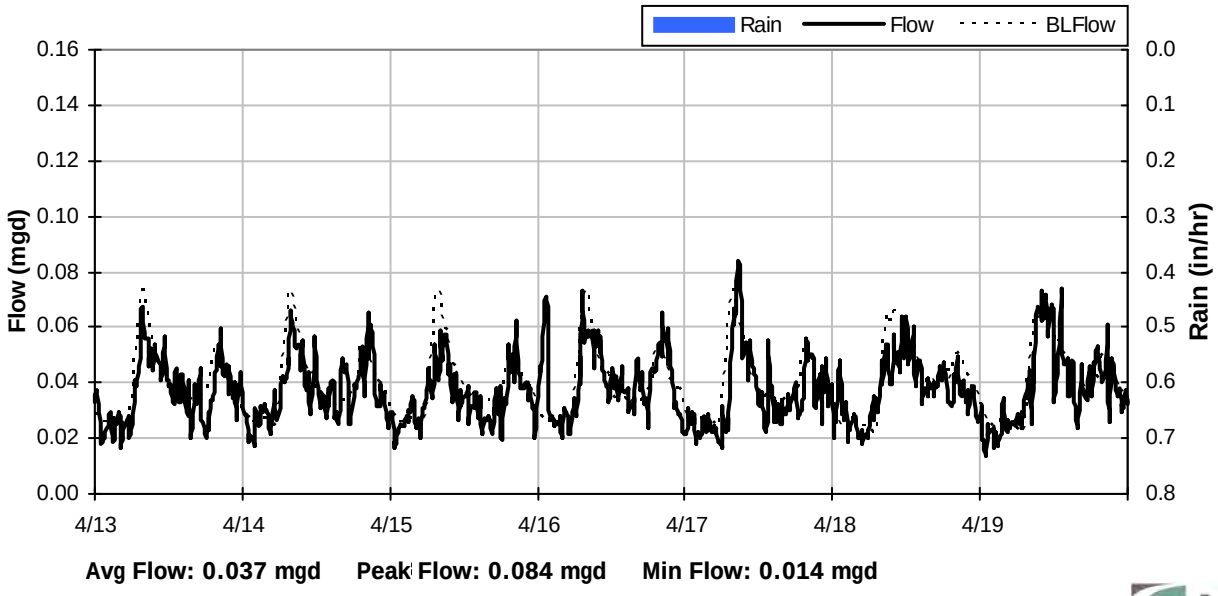
From 4/13/2009 to 4/20/2009

Monitoring Site:

MH 29







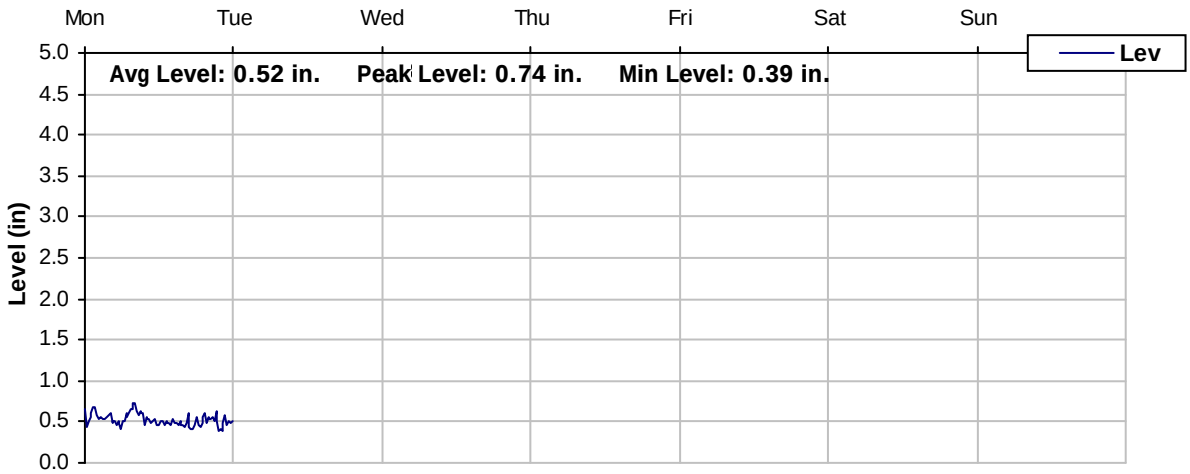
Avg Flow: 0.037 mgd **Peak Flow: 0.084 mgd** **Min Flow: 0.014 mgd**

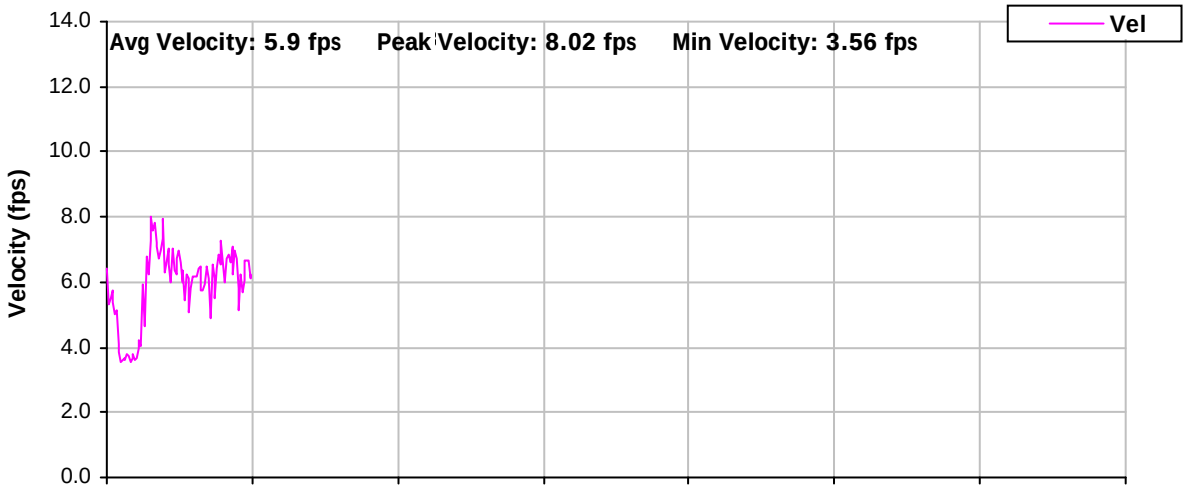
Level, Velocity and Flow

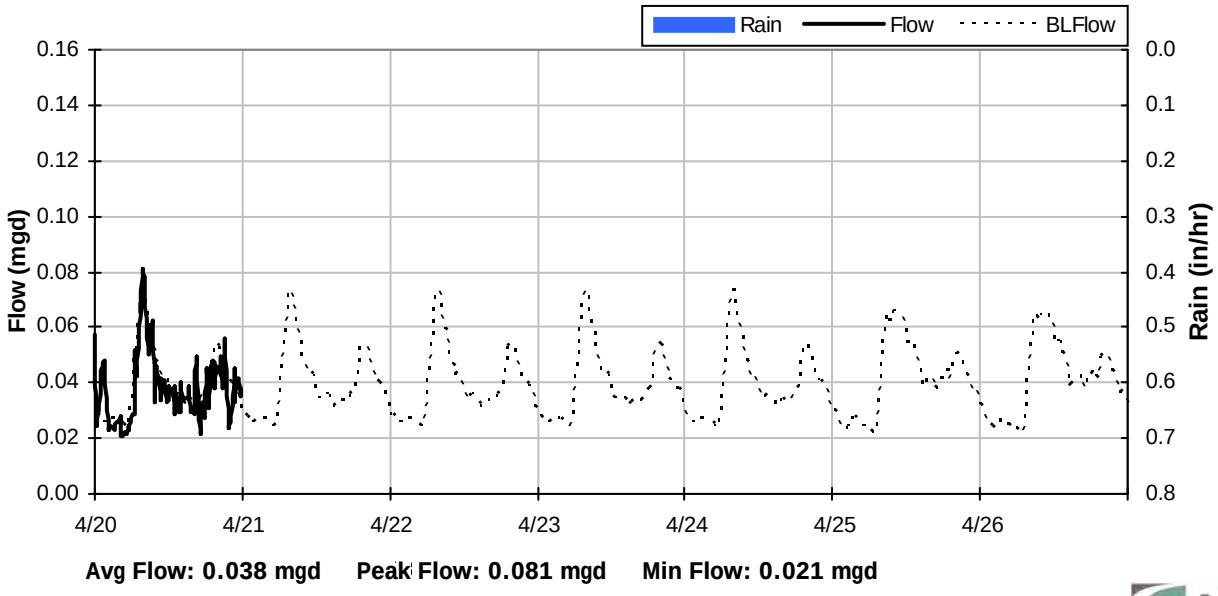
From 4/20/2009 to 4/27/2009

Monitoring Site:

MH 29







Avg Flow: 0.038 mgd **Peak Flow: 0.081 mgd** **Min Flow: 0.021 mgd**

Temporary Flow Monitoring Study

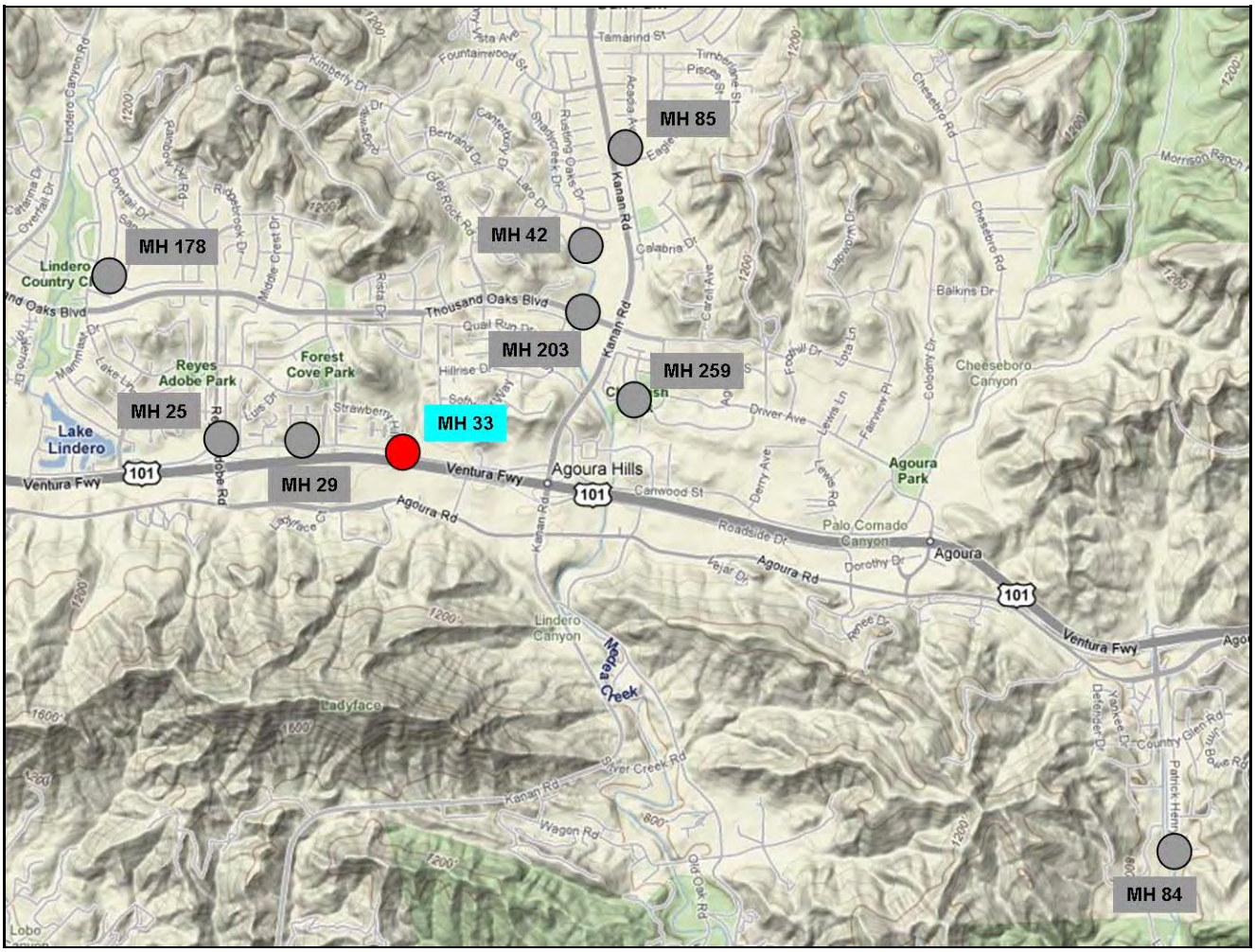
Sanitary Sewer Collection System

Monitoring Site: MH 33

Location: Canwwod Street, east of Strawberry Hill Drive

Size / Type Line: 8-inch Sanitary Sewer Pipe

Data Summary Report



Site Information Report

Monitoring Site: MH 33

Location: Canwwod Street, east of Strawberry Hill Drive

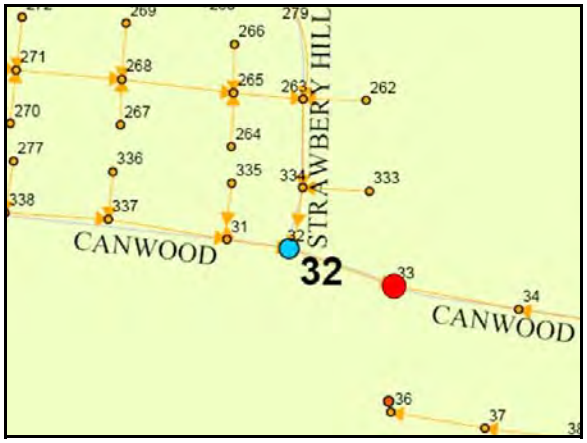
Diameter: 8 inches

Average Dry Weather Flow: 0.09 *mgd*

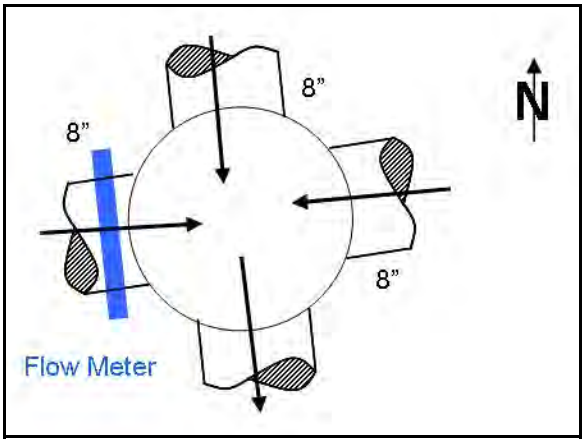
Peak Measured Flow: 0.24 *mgd*

Satellite Map

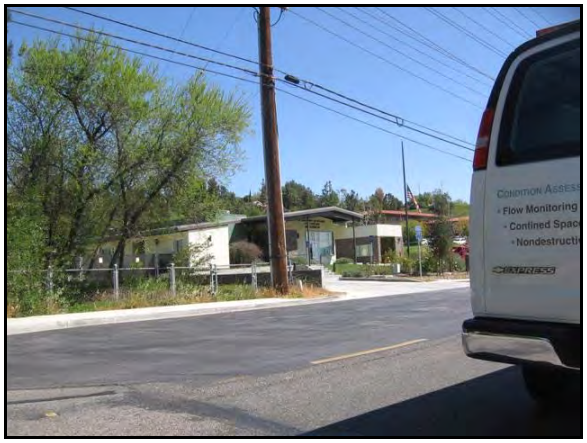
Sanitary Map



Flow Sketch



Street View Photo



Plan View Photo

	Site Information Report Photos	**Monitoring Site:** MH 33

Manhole Lid

East Inlet

	Site Information Report Photos	**Monitoring Site:** MH 33

North Inlet

West Inlet

	Site Information Report Photos	**Monitoring Site:** MH 33

South Outlet

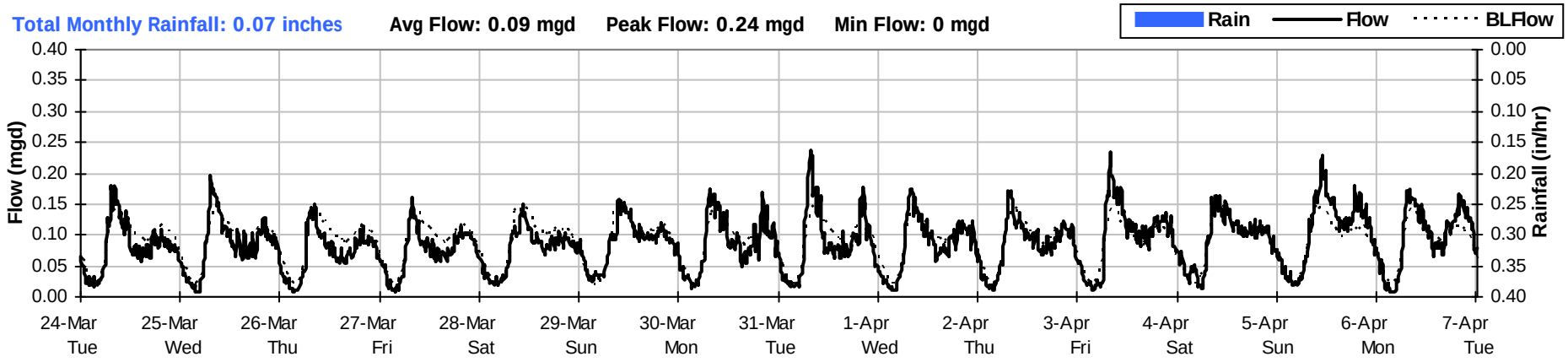
Period Flow Summary

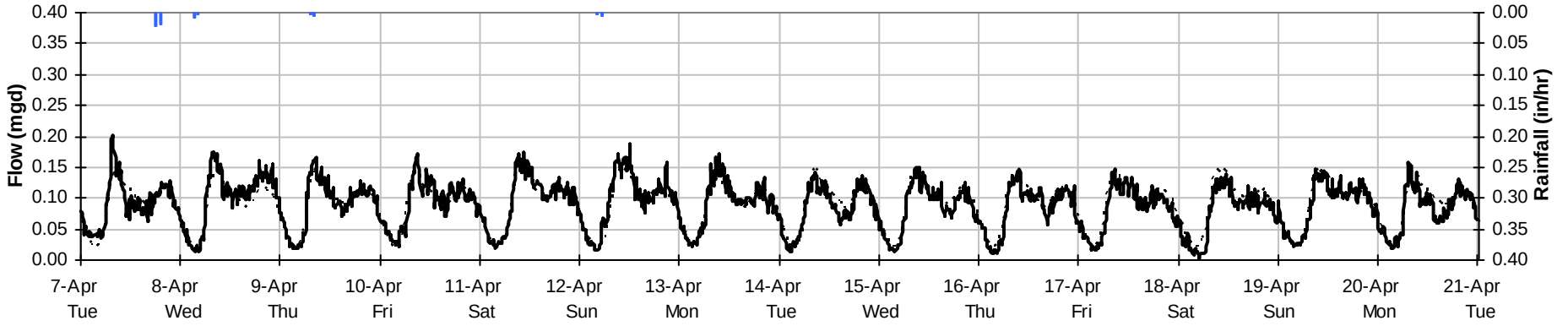
March 24, 2009 to April 21, 2009

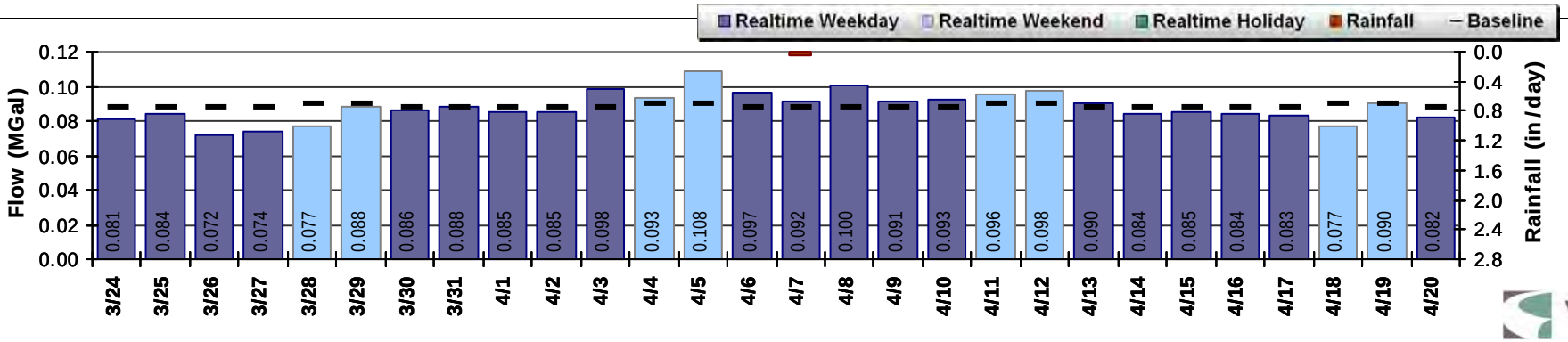
Monitoring Site:

MH 33

Total Monthly Rainfall: 0.07 inches **Avg Flow: 0.09 mgd** **Peak Flow: 0.24 mgd** **Min Flow: 0 mgd**

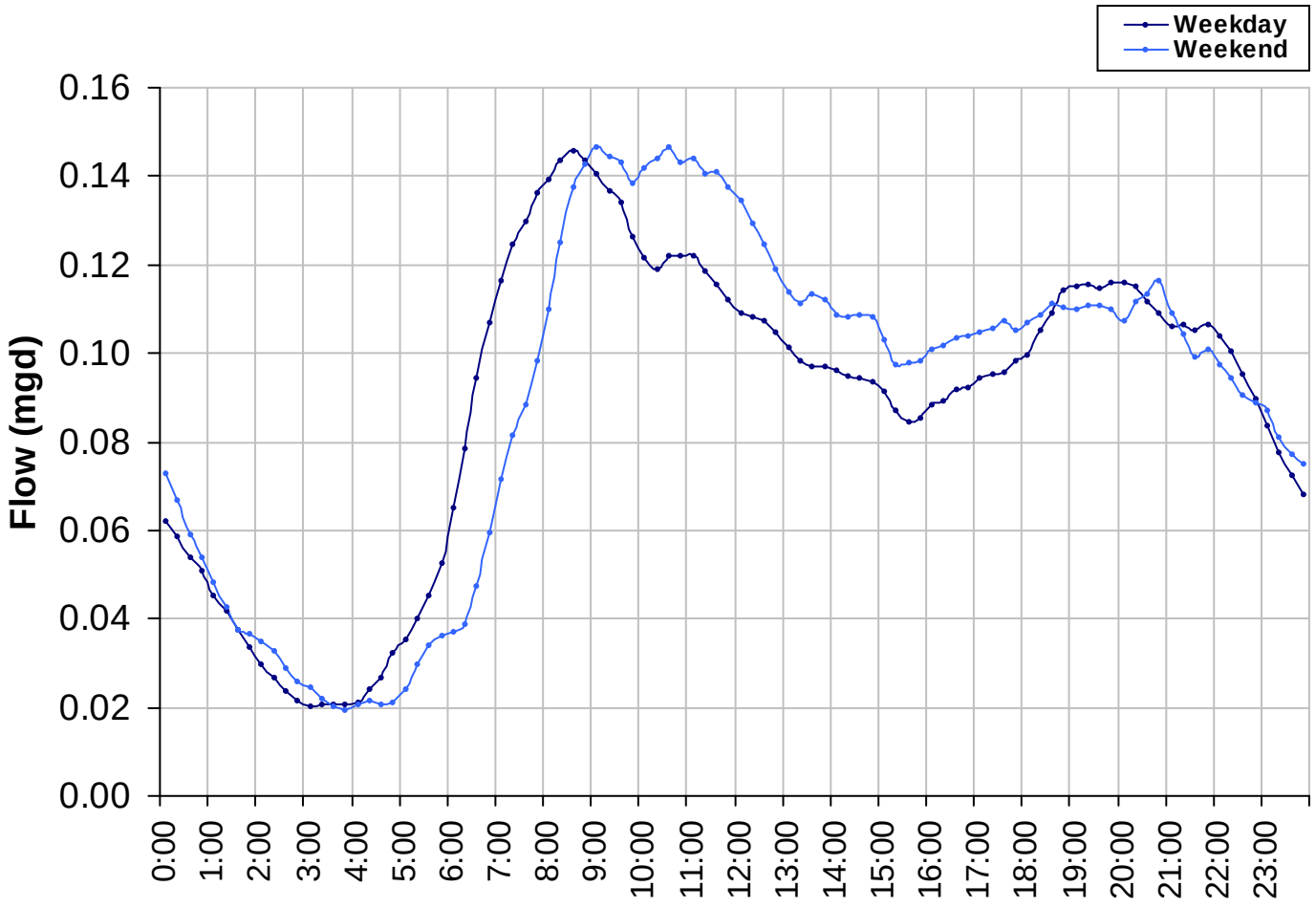






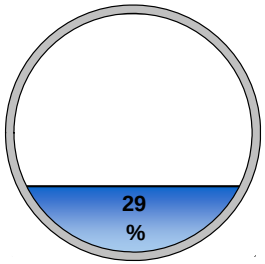
Average Dry Weather Flow

Monitoring Site:
MH 33



Peak Measured Flow:

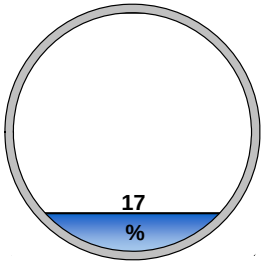
0.24 *mgd*



Peak measured flow shown in weekly graphs on following pages

Average Dry Weather Flow:

0.09 *mgd*

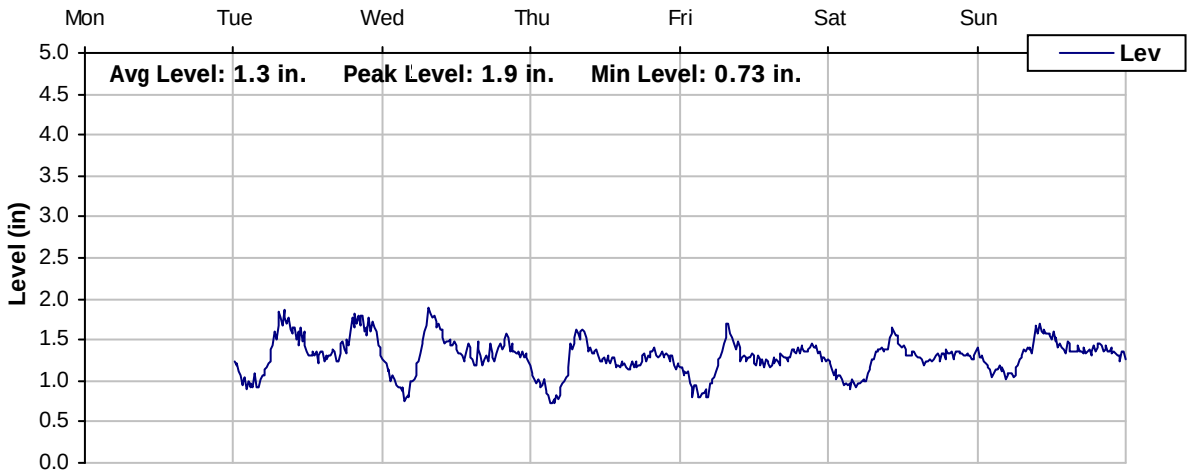


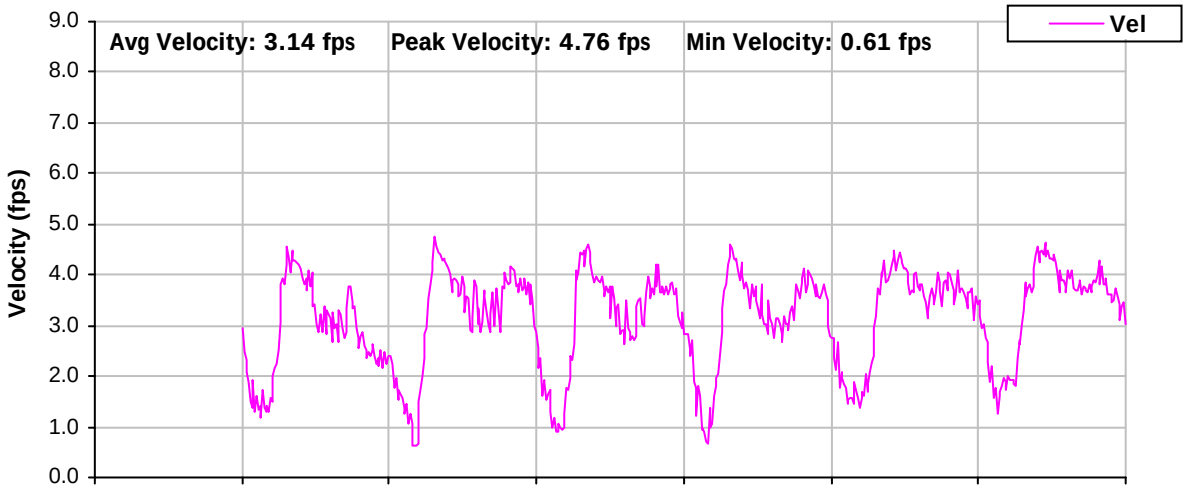
Level, Velocity and Flow

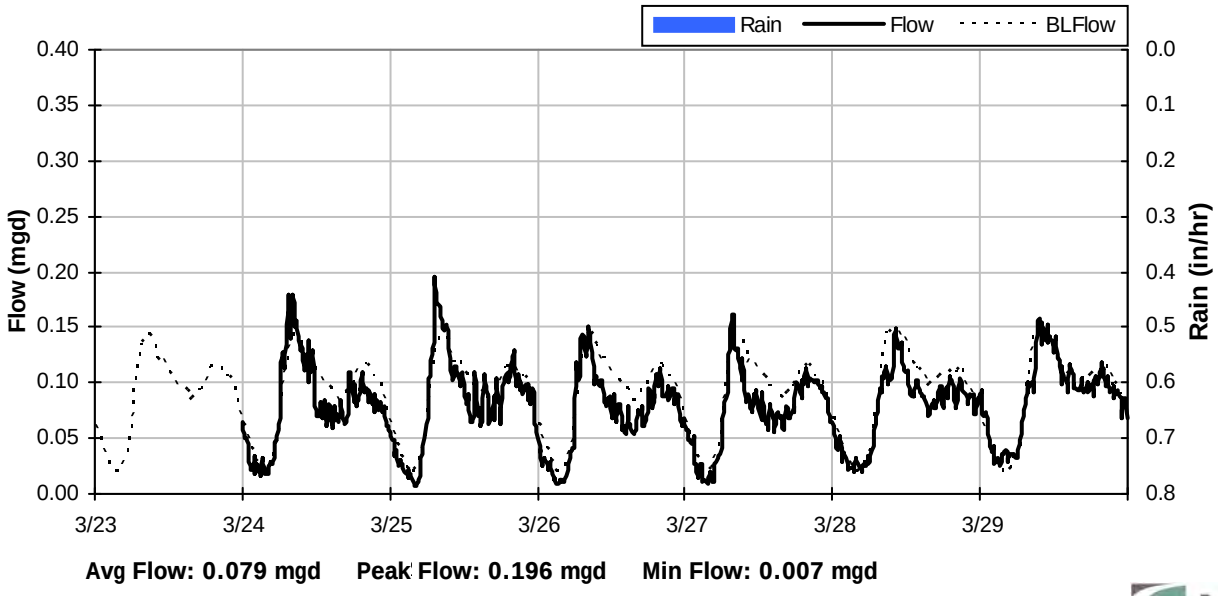
From 3/23/2009 to 3/30/2009

Monitoring Site:

MH 33







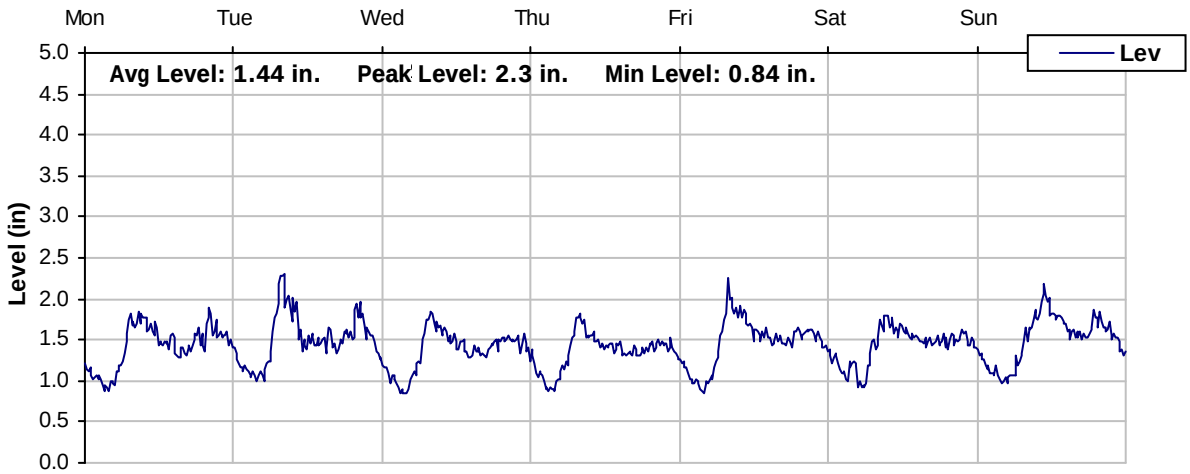
Avg Flow: 0.079 mgd **Peak Flow: 0.196 mgd** **Min Flow: 0.007 mgd**

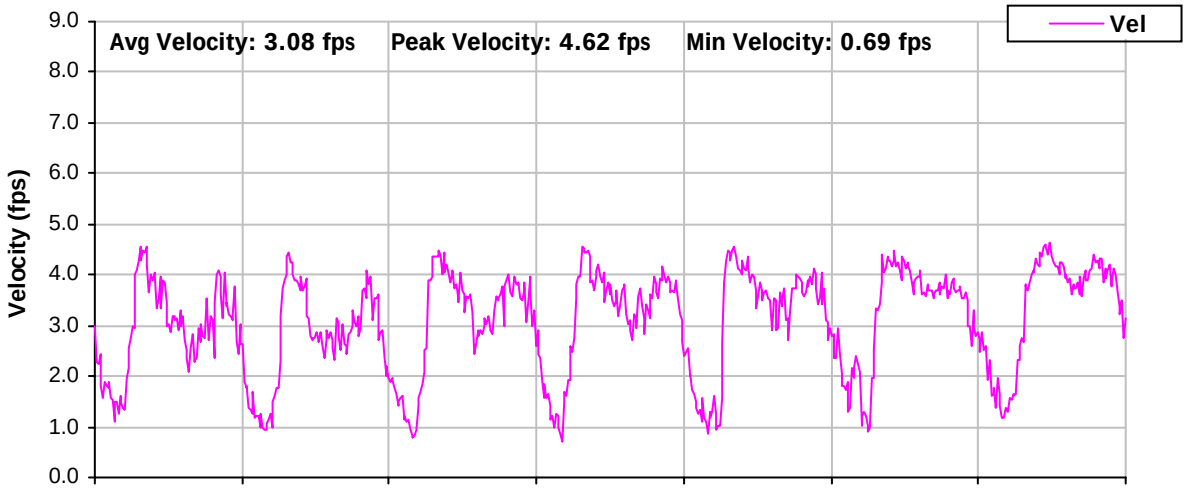
Level, Velocity and Flow

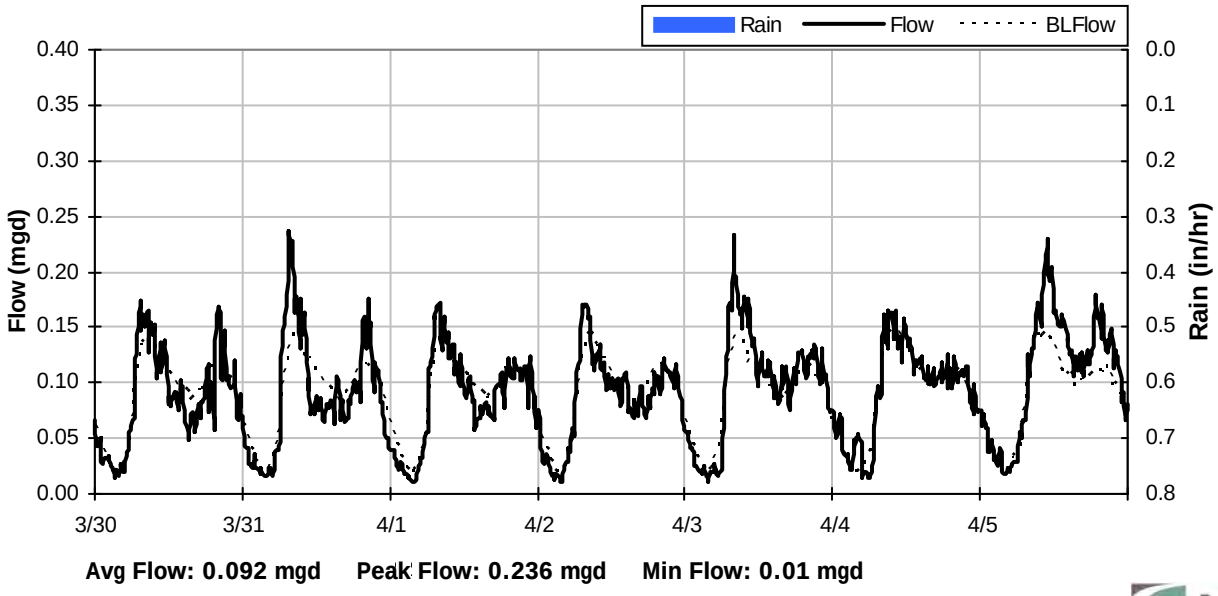
From 3/30/2009 to 4/6/2009

Monitoring Site:

MH 33







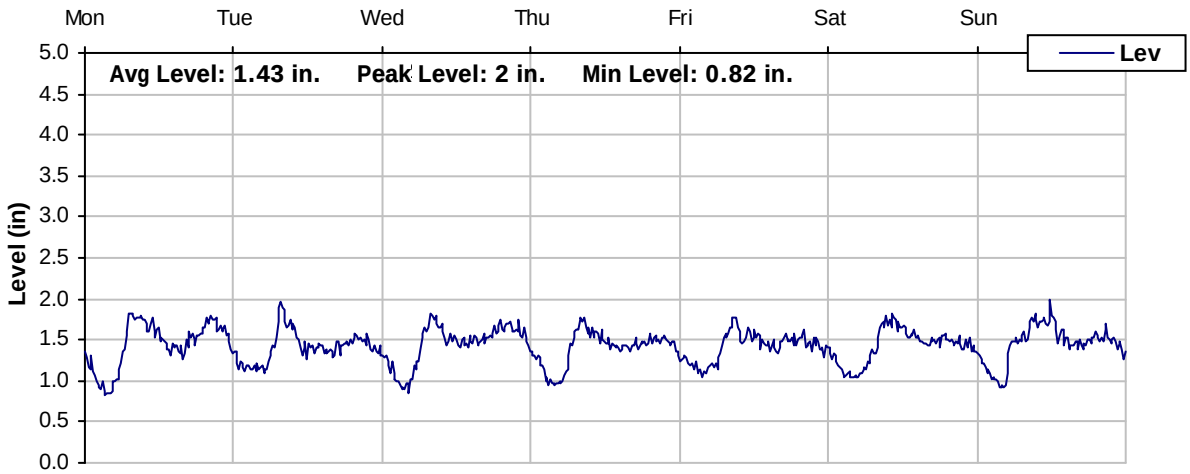
Avg Flow: 0.092 mgd **Peak Flow: 0.236 mgd** **Min Flow: 0.01 mgd**

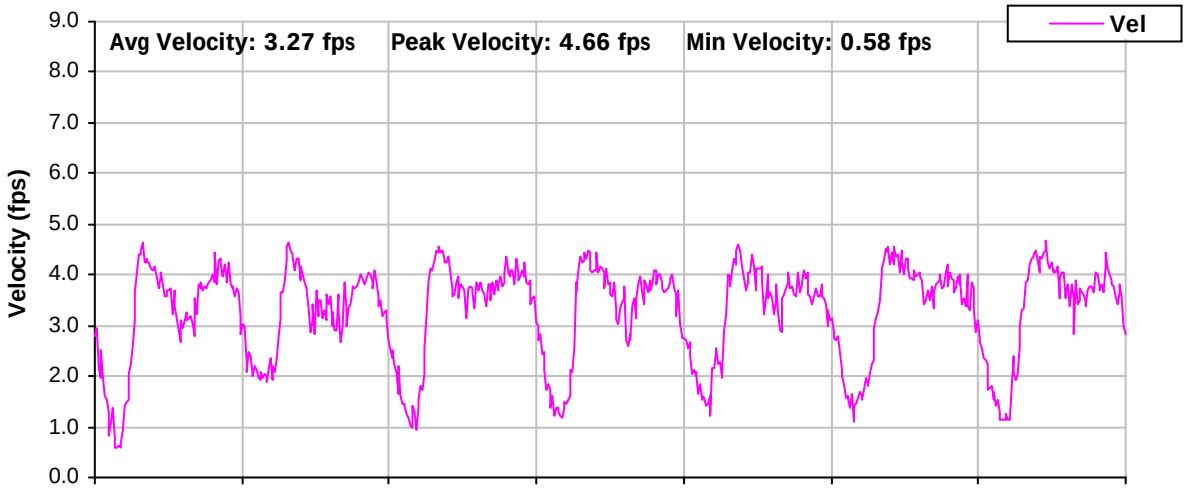
Level, Velocity and Flow

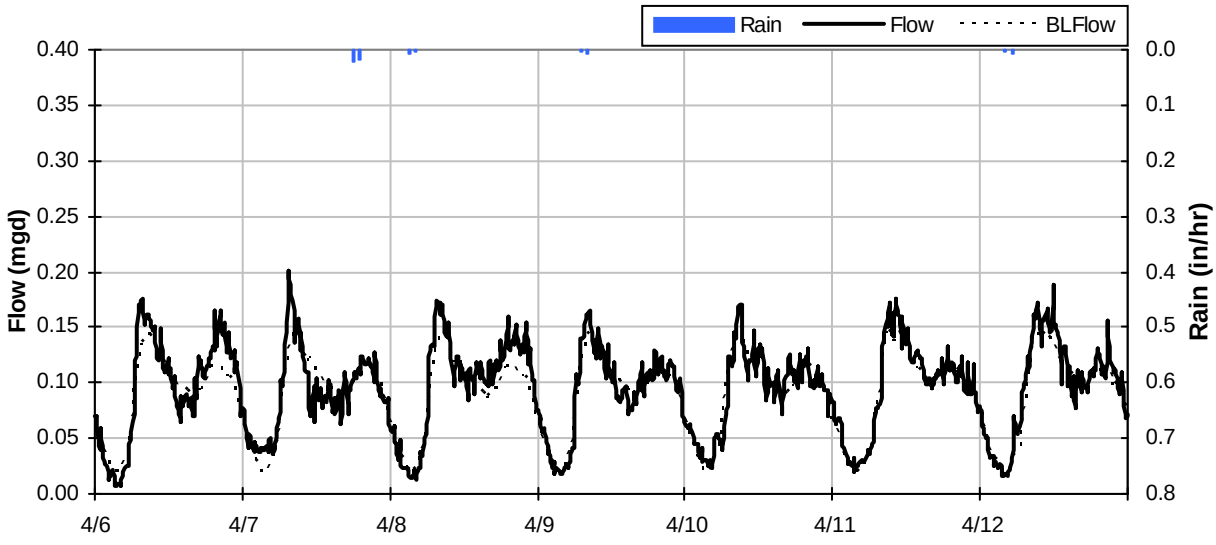
From 4/6/2009 to 4/13/2009

Monitoring Site:

MH 33







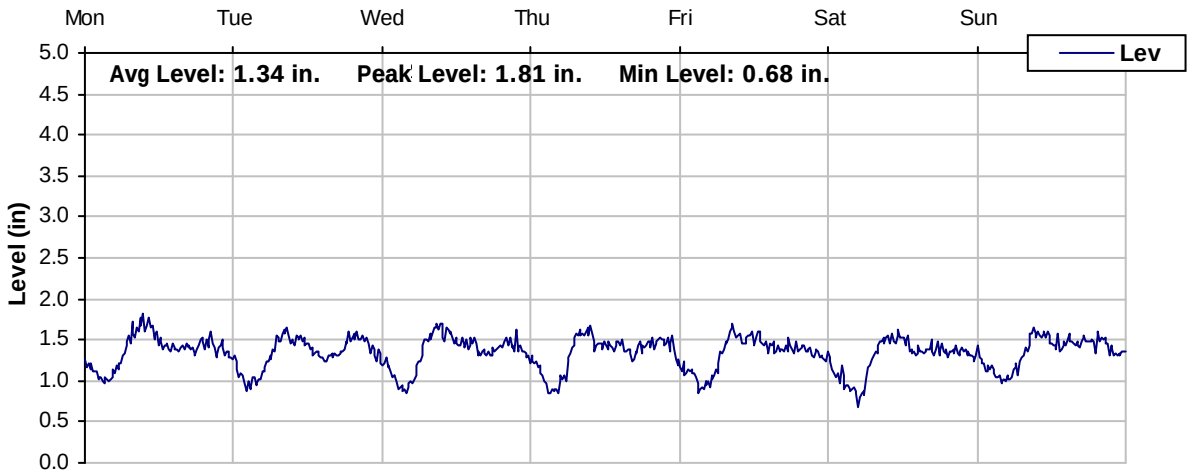
Avg Flow: 0.095 mgd **Peak Flow: 0.201 mgd** **Min Flow: 0.007 mgd**

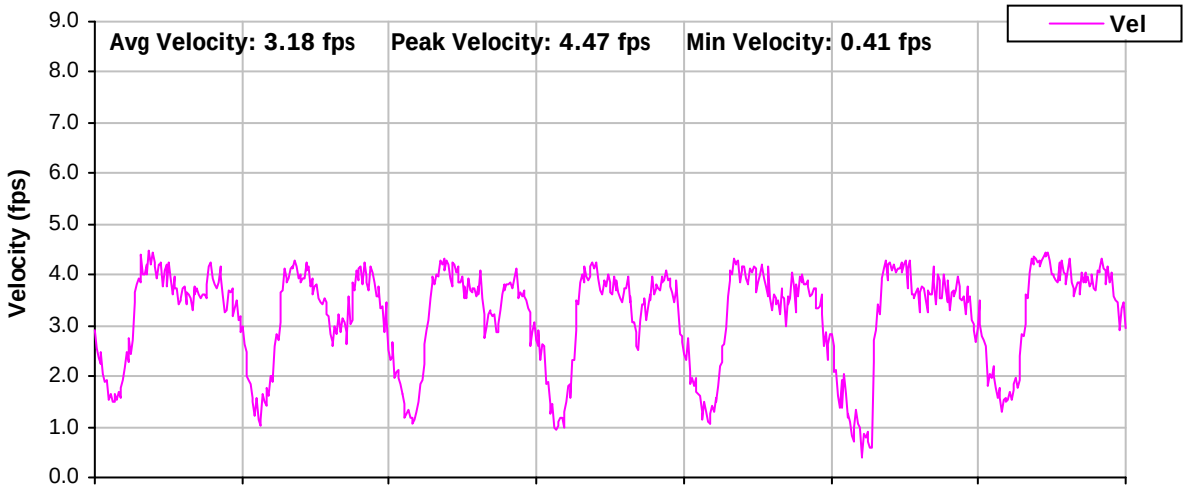
Level, Velocity and Flow

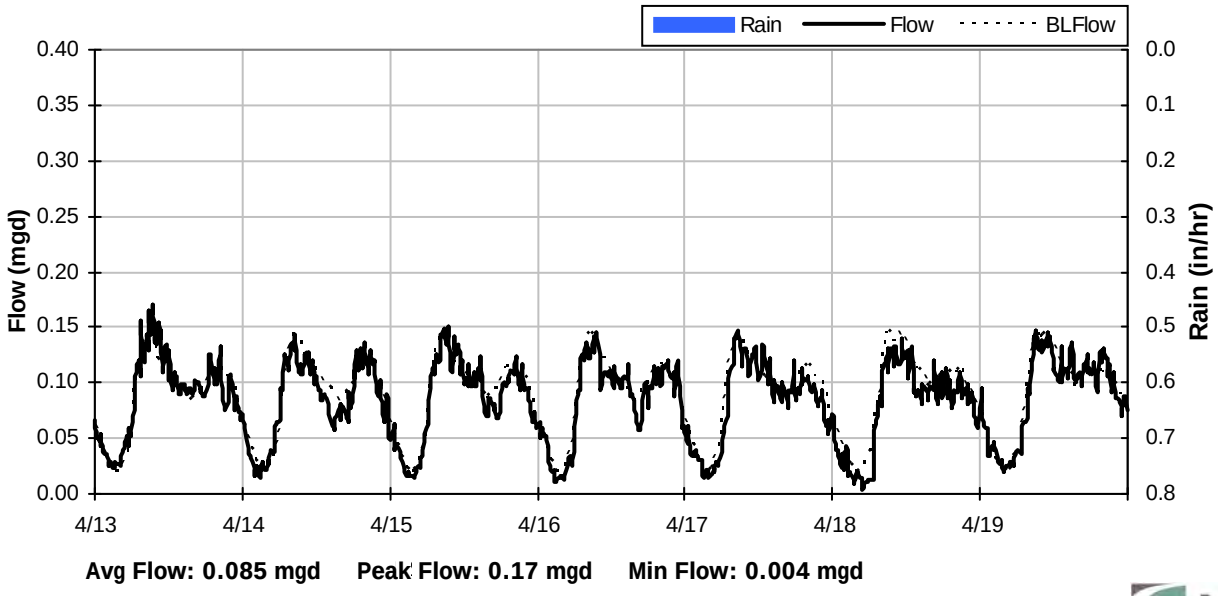
From 4/13/2009 to 4/20/2009

Monitoring Site:

MH 33







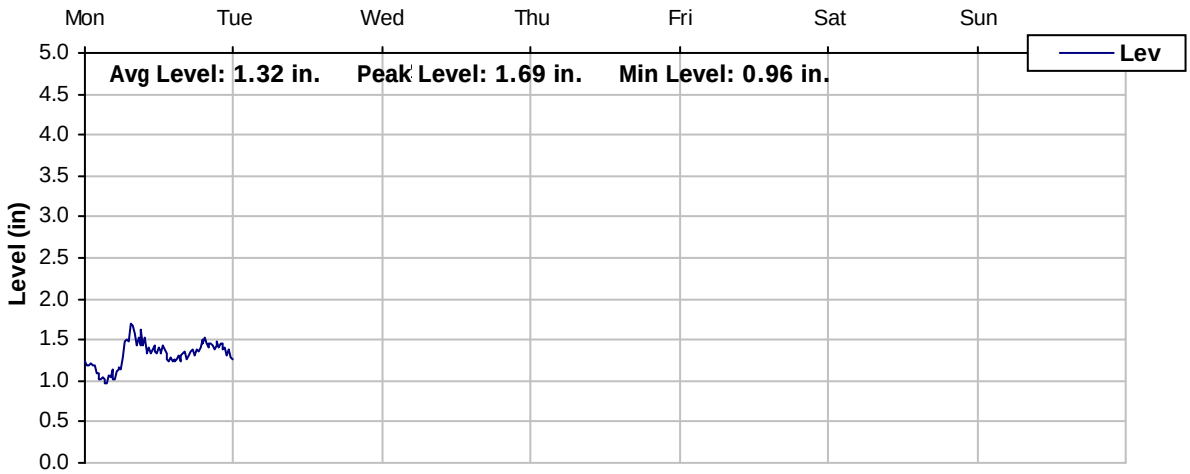
Avg Flow: 0.085 mgd **Peak Flow: 0.17 mgd** **Min Flow: 0.004 mgd**

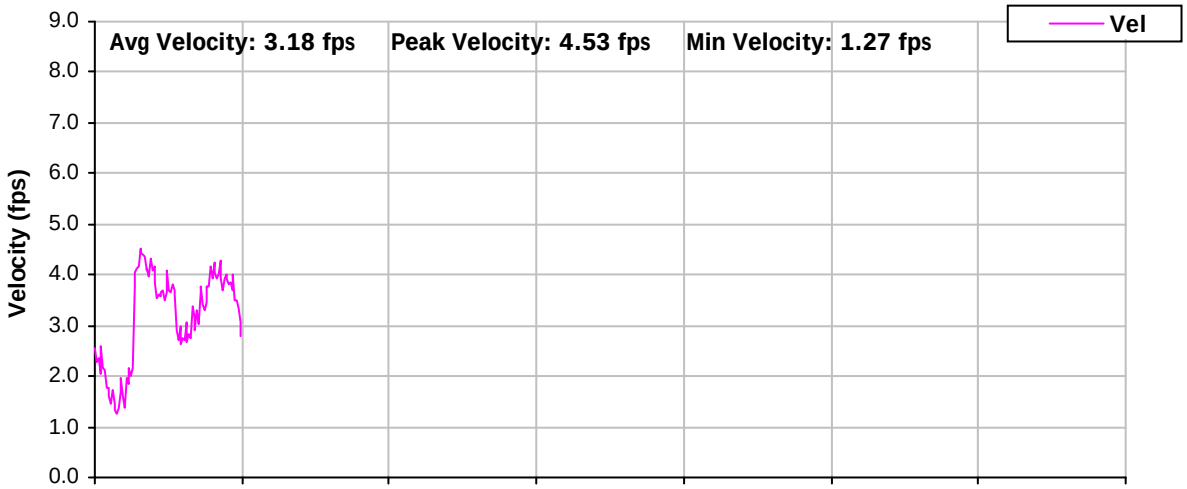
Level, Velocity and Flow

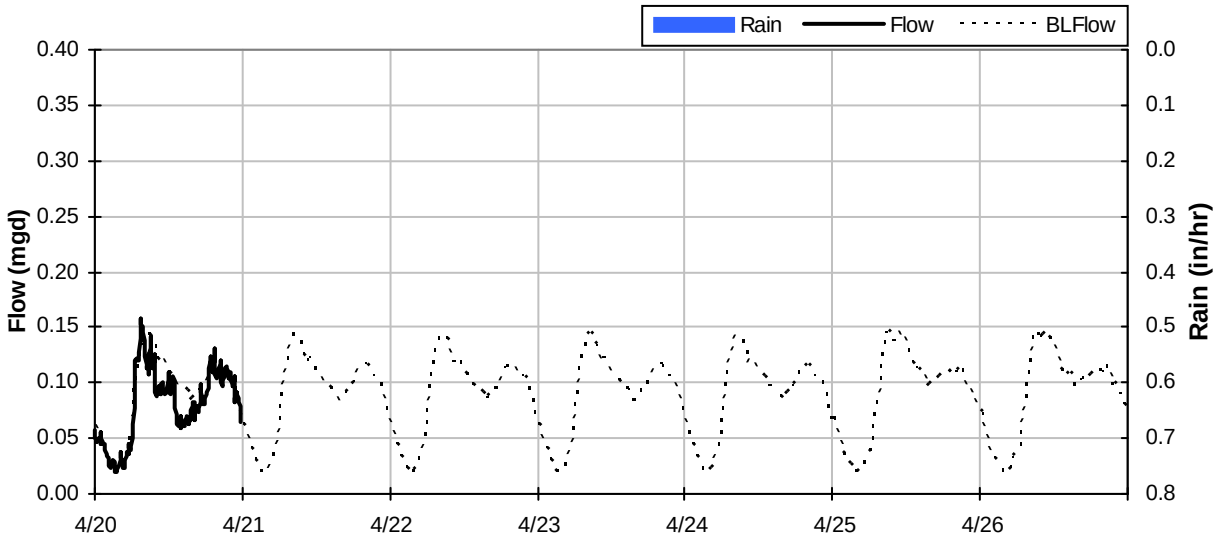
From 4/20/2009 to 4/27/2009

Monitoring Site:

MH 33







Avg Flow: 0.082 mgd **Peak Flow: 0.157 mgd** **Min Flow: 0.02 mgd**

Temporary Flow Monitoring Study

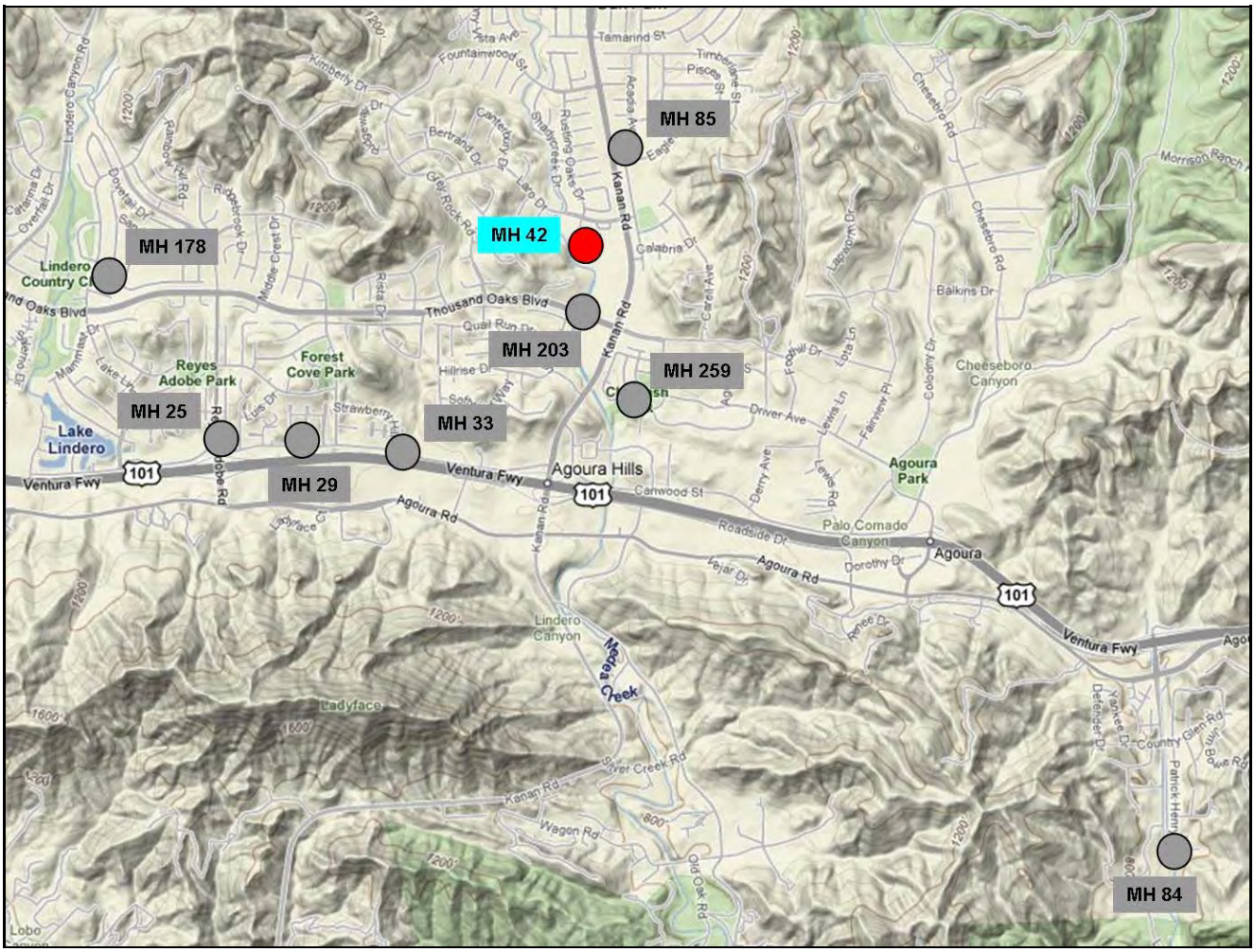
Sanitary Sewer Collection System

Monitoring Site: MH 42

Location: Rustling Oaks Drive, south of Laro Drive

Size / Type Line: 12-inch Sanitary Sewer Pipe

Data Summary Report



Site Information Report

Monitoring Site: MH 42

Location: Rustling Oaks Drive, south of Laro Drive

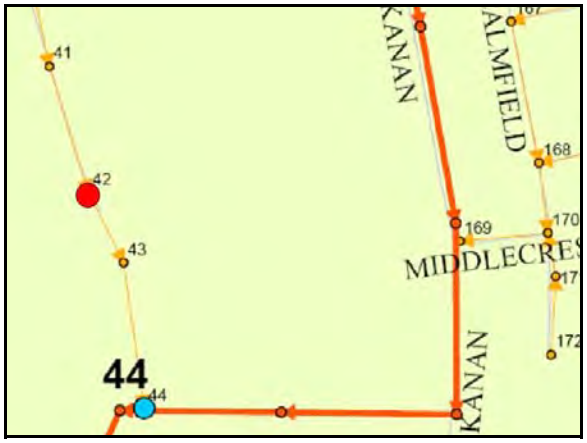
Diameter: 12 inches

Average Dry Weather Flow: 0.18 *mgd*

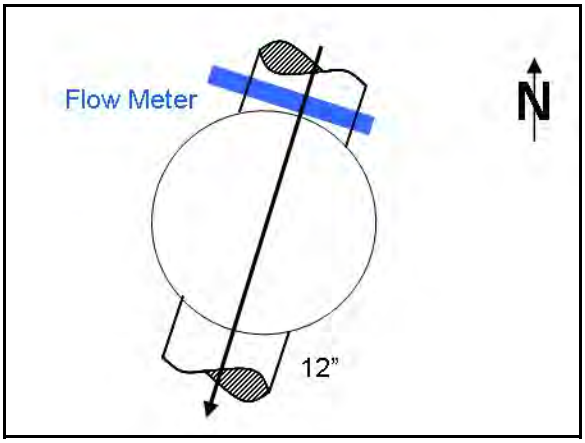
Peak Measured Flow: 0.41 *mgd*

Satellite Map

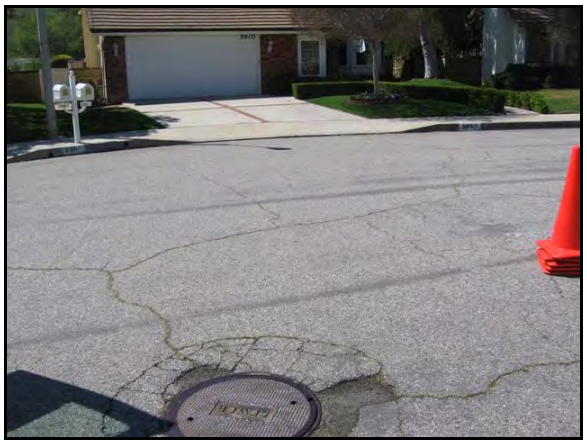
Sanitary Map



Flow Sketch



Street View Photo



Plan View Photo

V&A

	Site Information Report Photos	**Monitoring Site:** MH 42

Manhole Lid

North Inlet

	Site Information Report Photos	**Monitoring Site:** MH 42

South Outlet

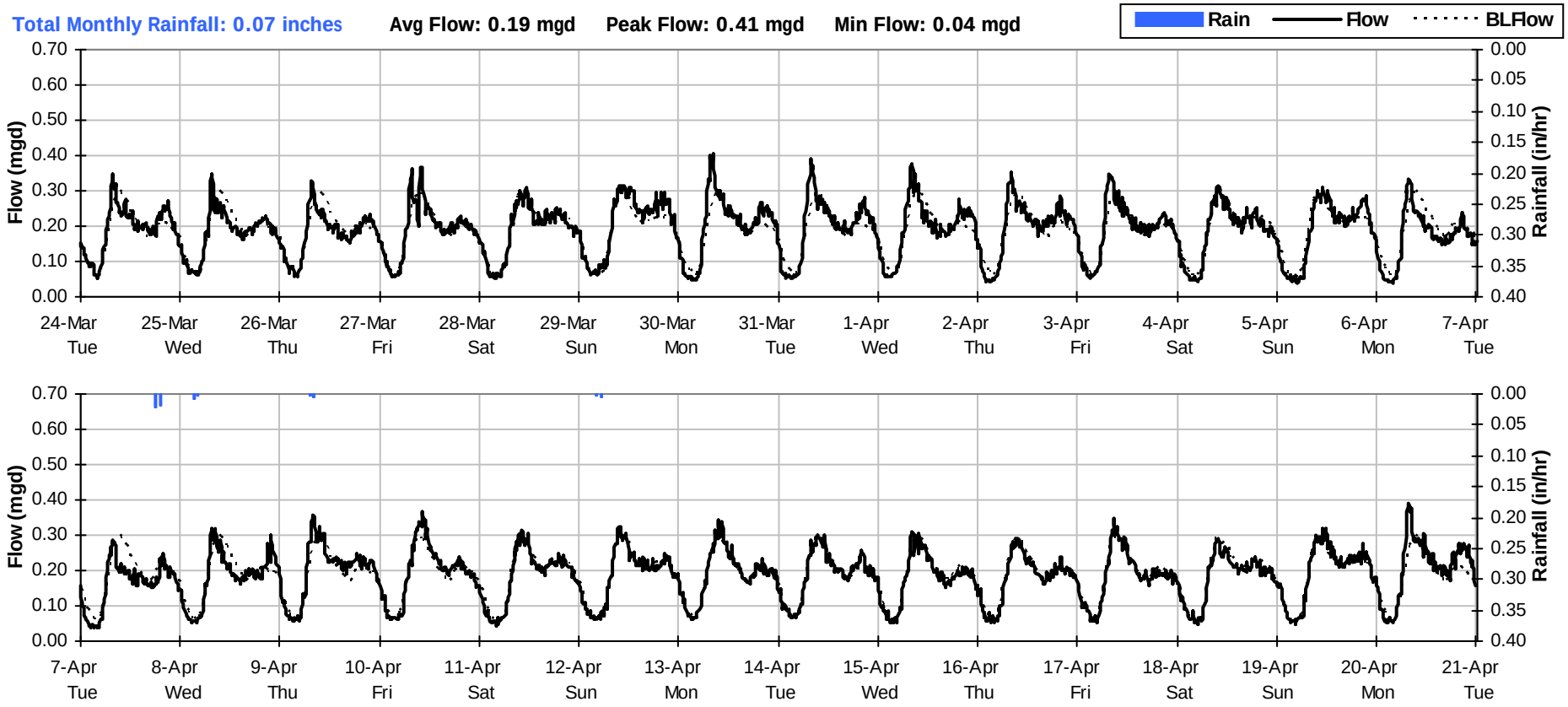
Period Flow Summary

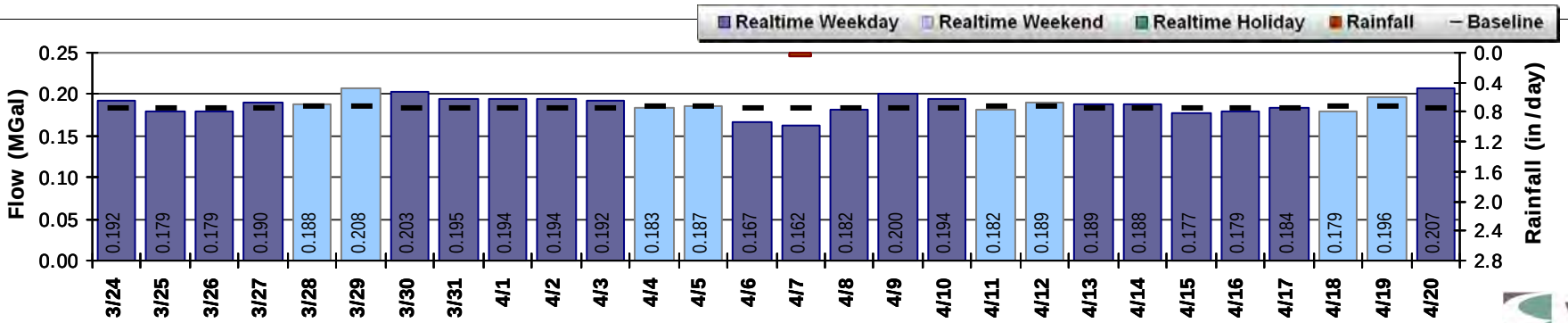
March 24, 2009 to April 21, 2009

Monitoring Site:

MH 42

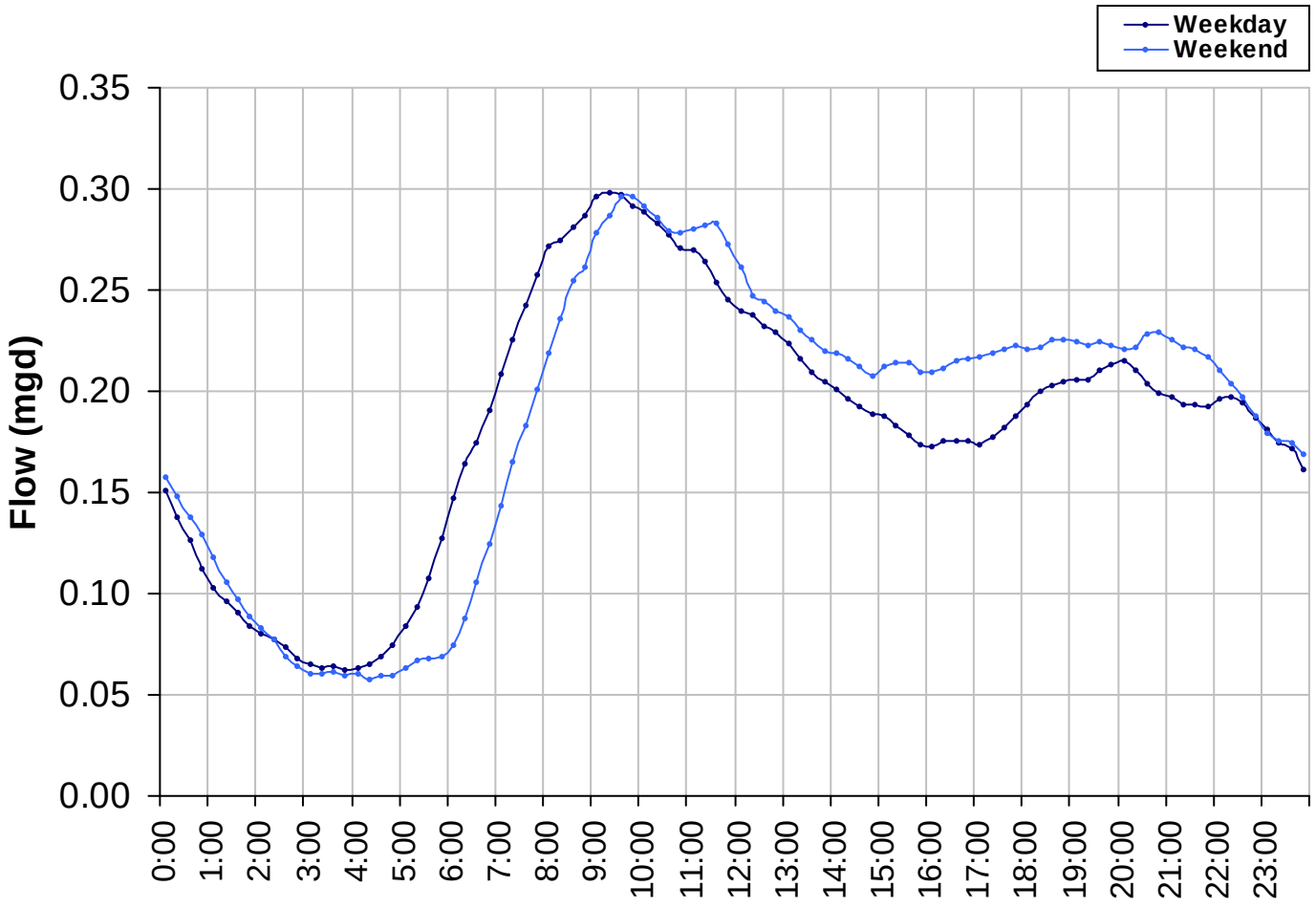
Total Monthly Rainfall: 0.07 inches **Avg Flow: 0.19 mgd** **Peak Flow: 0.41 mgd** **Min Flow: 0.04 mgd**





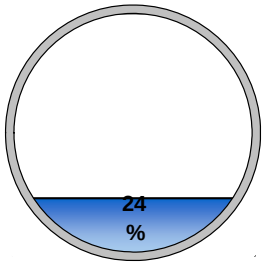
Average Dry Weather Flow

Monitoring Site:
MH 42



Peak Measured Flow:

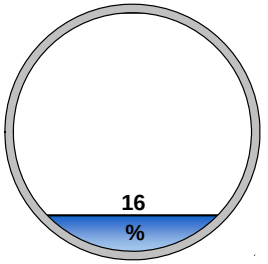
0.41 *mgd*



Peak measured flow shown in weekly graphs on following pages

Average Dry Weather Flow:

0.18 *mgd*

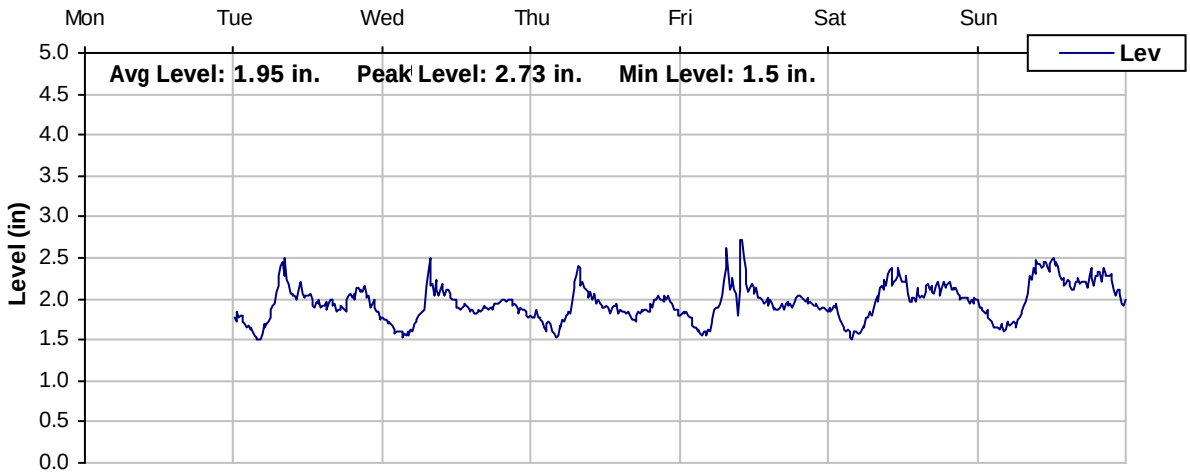


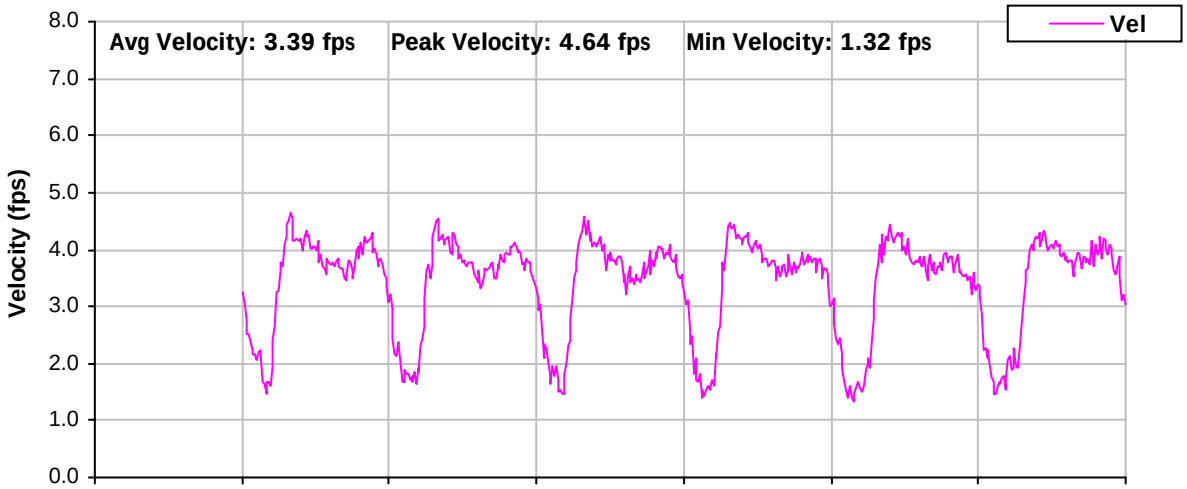
Level, Velocity and Flow

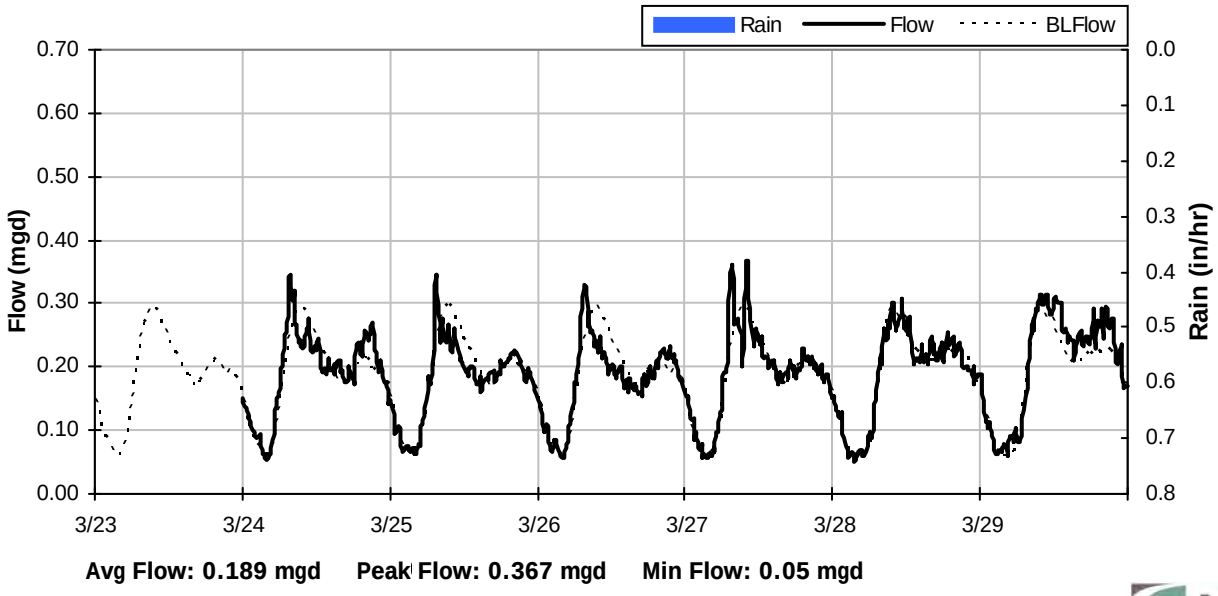
From 3/23/2009 to 3/30/2009

Monitoring Site:

MH 42







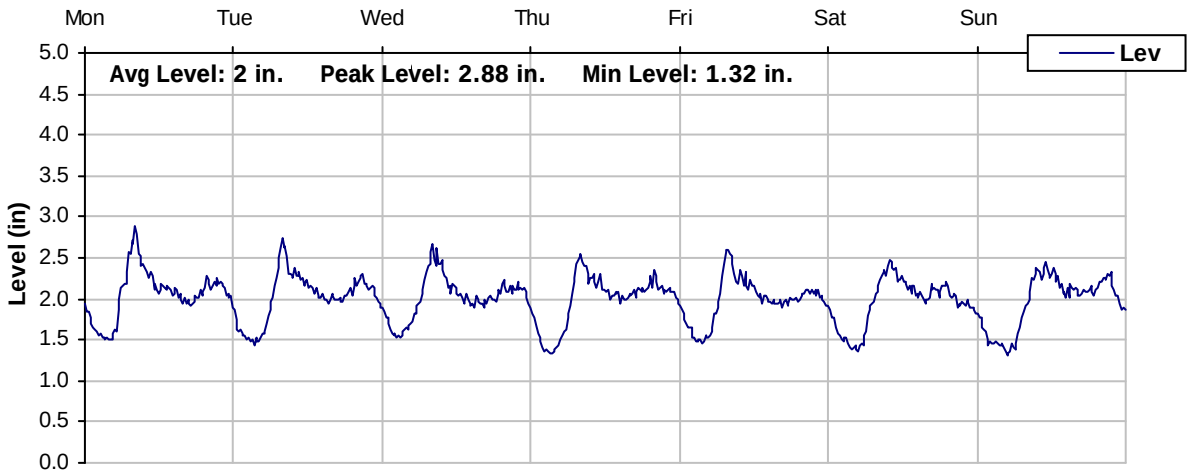
Avg Flow: 0.189 mgd **Peak Flow: 0.367 mgd** **Min Flow: 0.05 mgd**

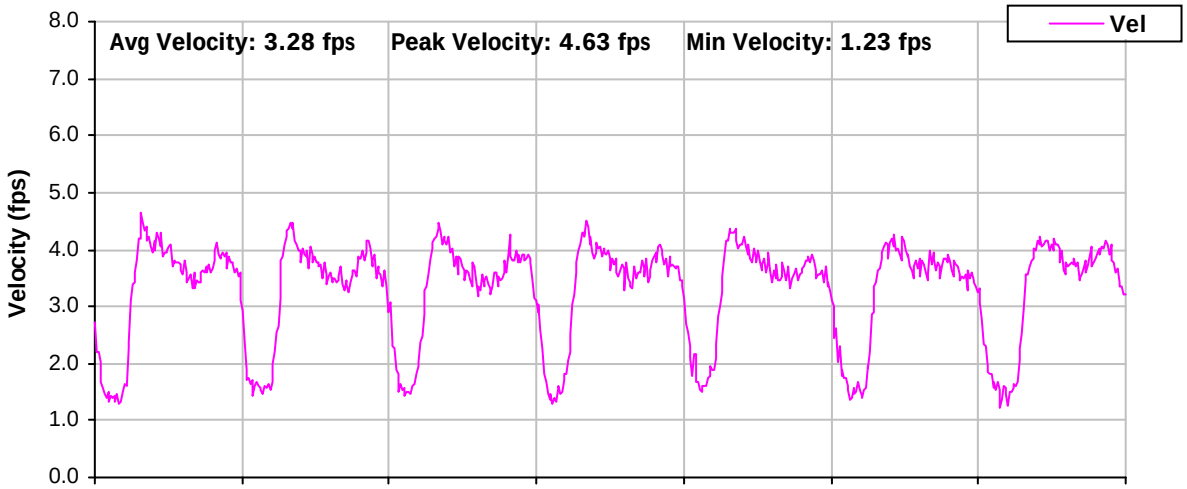
Level, Velocity and Flow

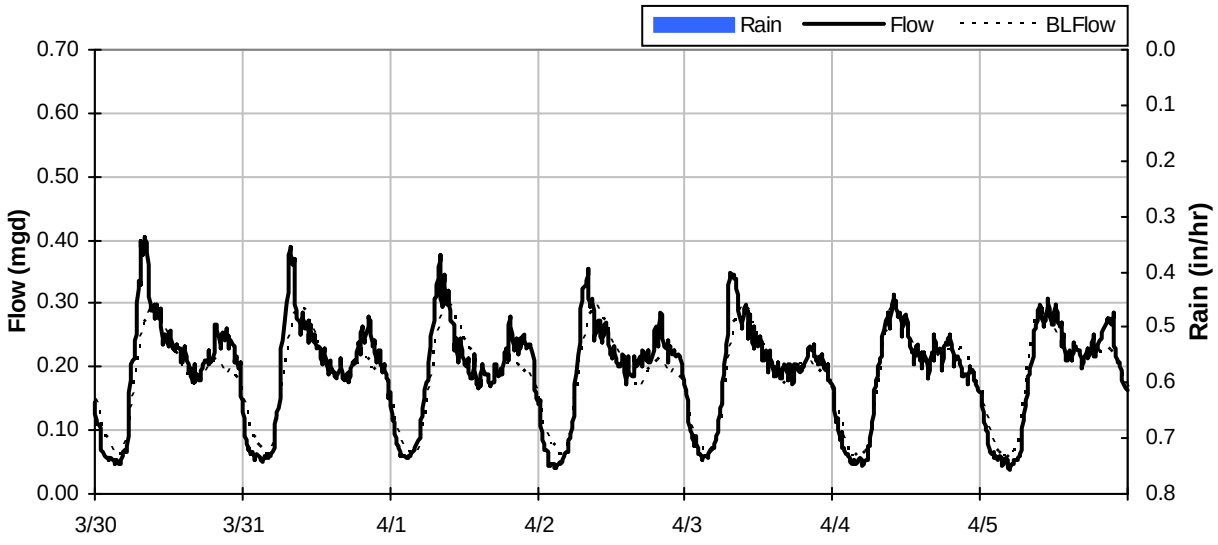
From 3/30/2009 to 4/6/2009

Monitoring Site:

MH 42







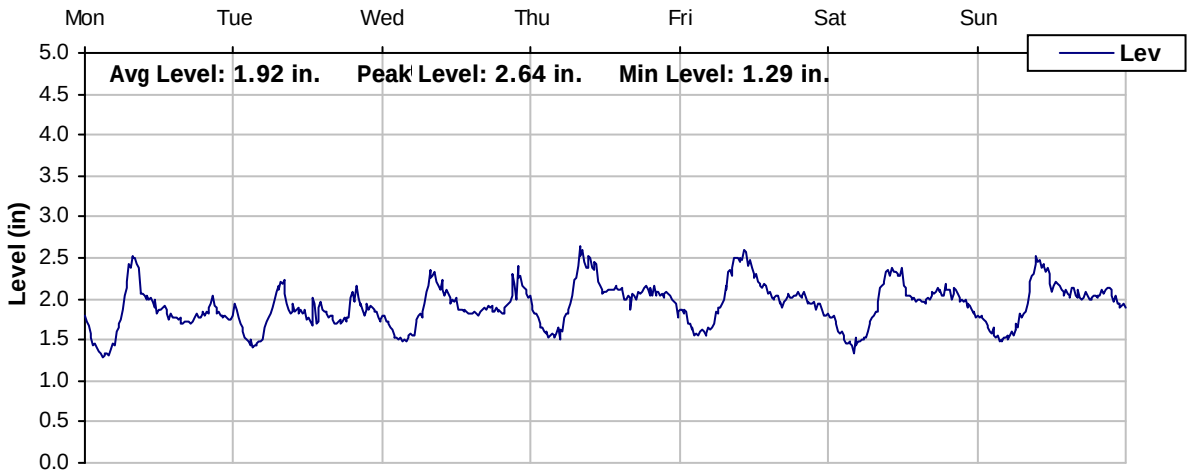
Avg Flow: 0.193 mgd **Peak Flow: 0.406 mgd** **Min Flow: 0.039 mgd**

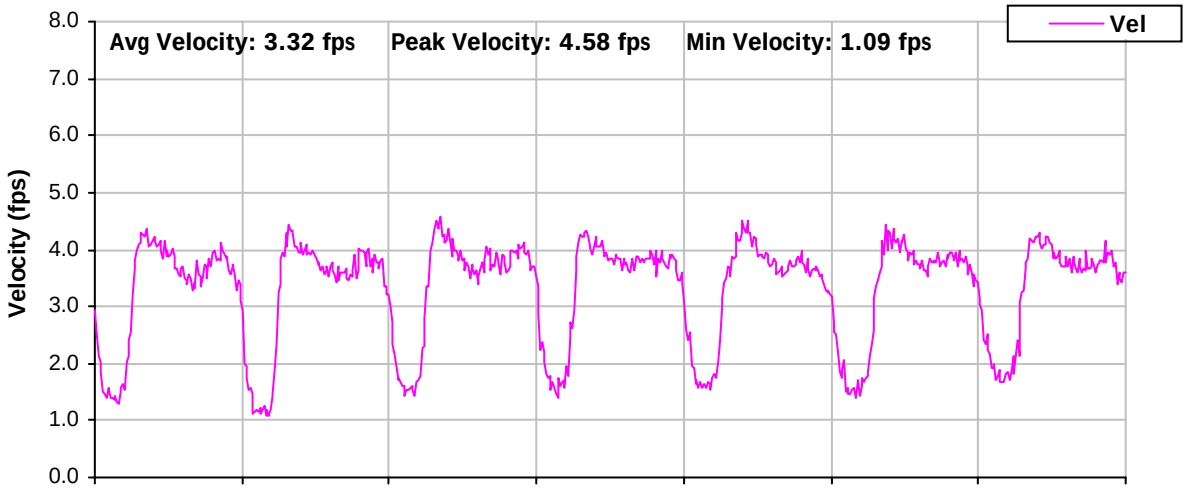
Level, Velocity and Flow

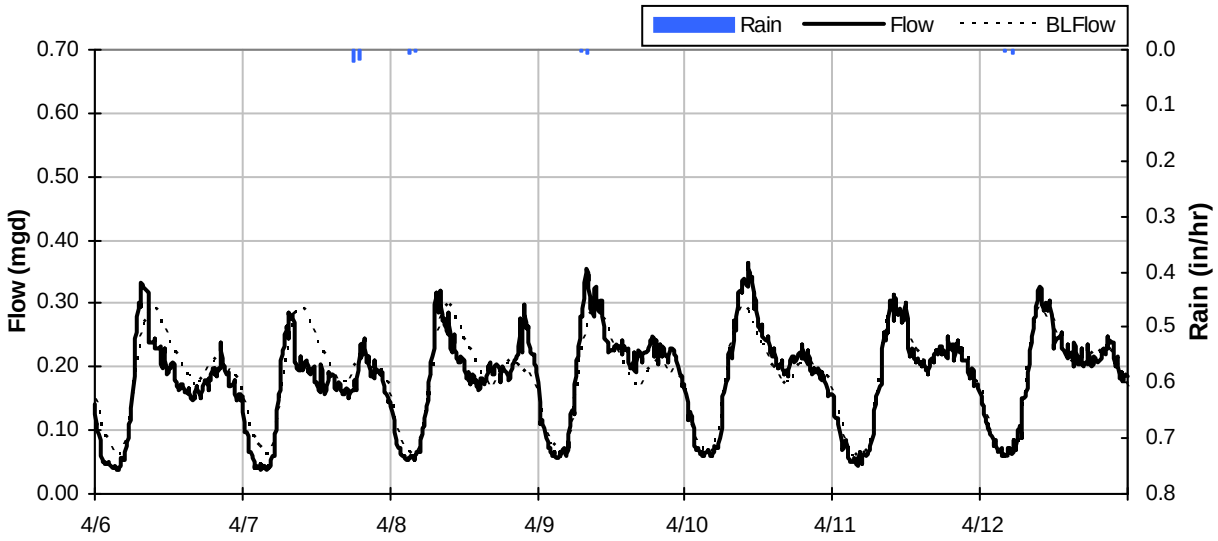
From 4/6/2009 to 4/13/2009

Monitoring Site:

MH 42







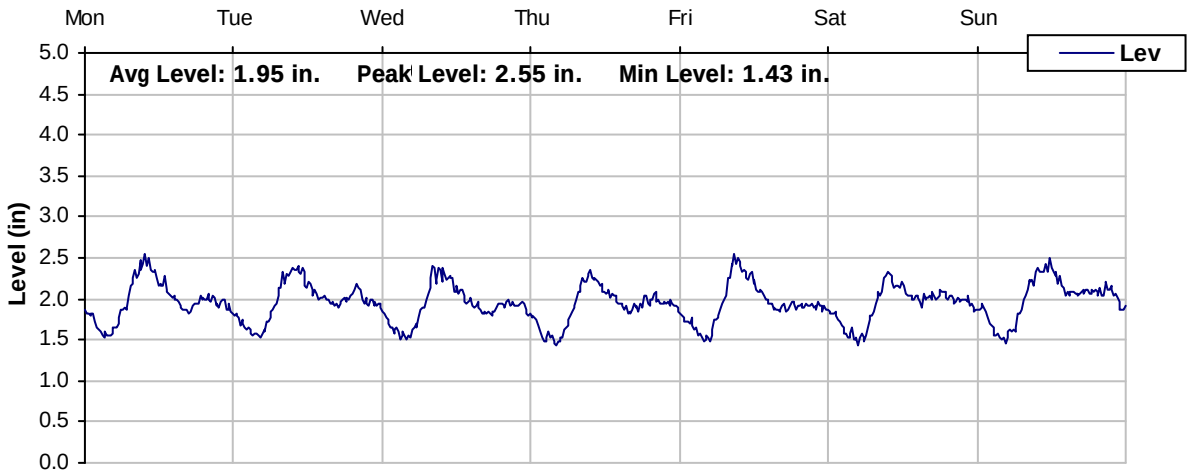
Avg Flow: 0.182 mgd **Peak Flow: 0.364 mgd** **Min Flow: 0.038 mgd**

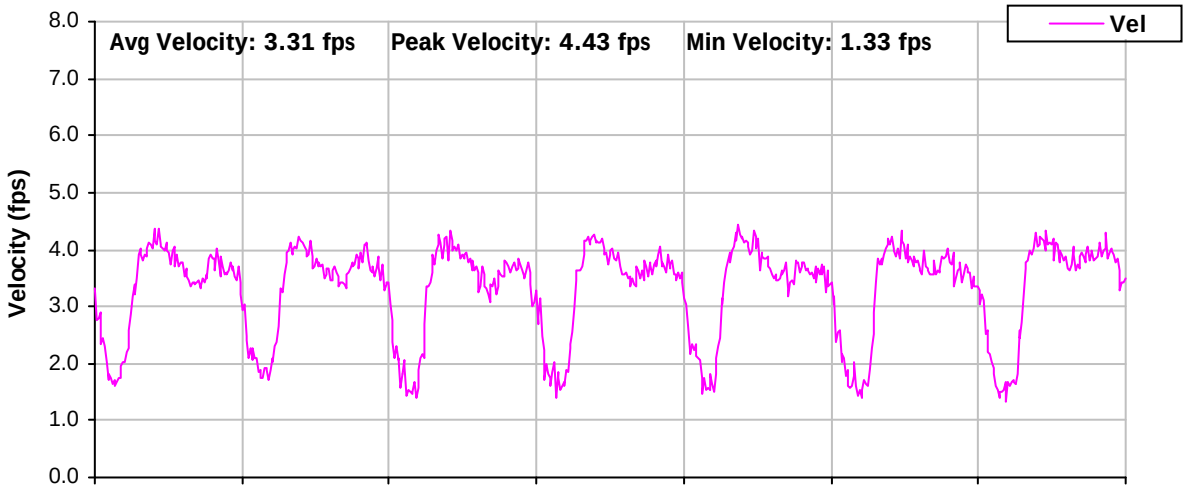
Level, Velocity and Flow

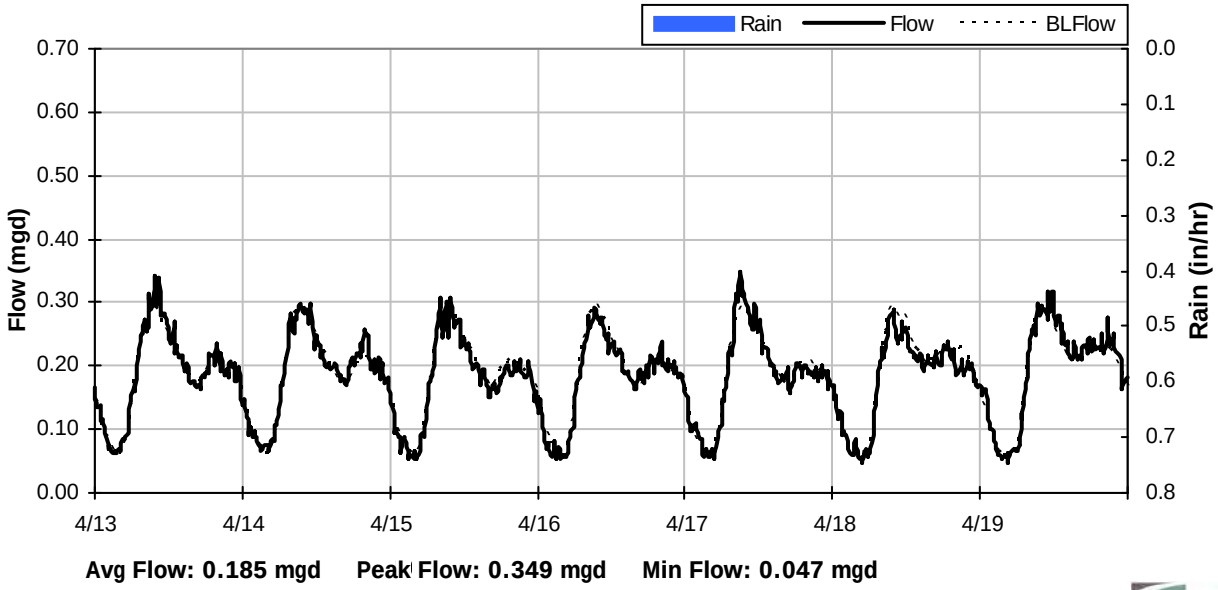
From 4/13/2009 to 4/20/2009

Monitoring Site:

MH 42







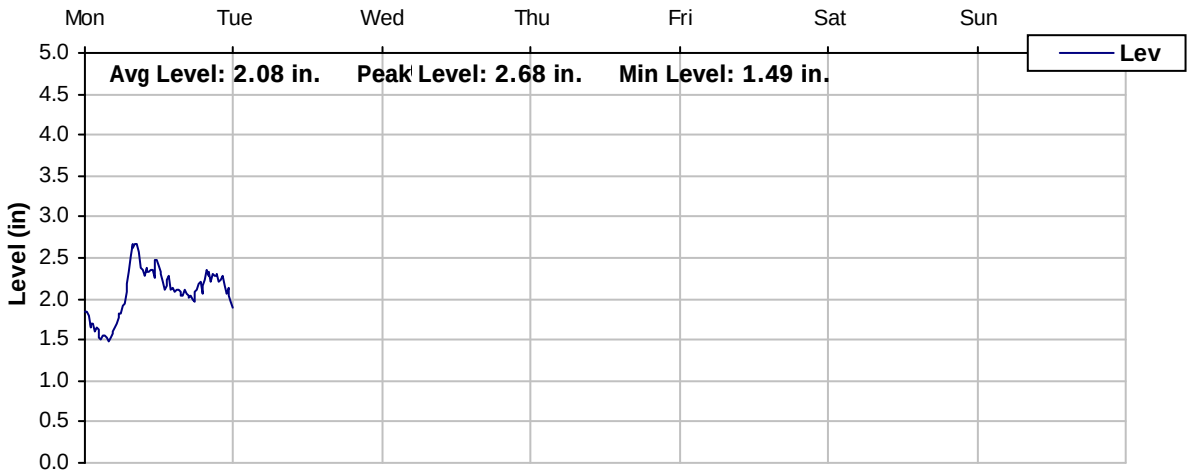
Avg Flow: 0.185 mgd **Peak Flow: 0.349 mgd** **Min Flow: 0.047 mgd**

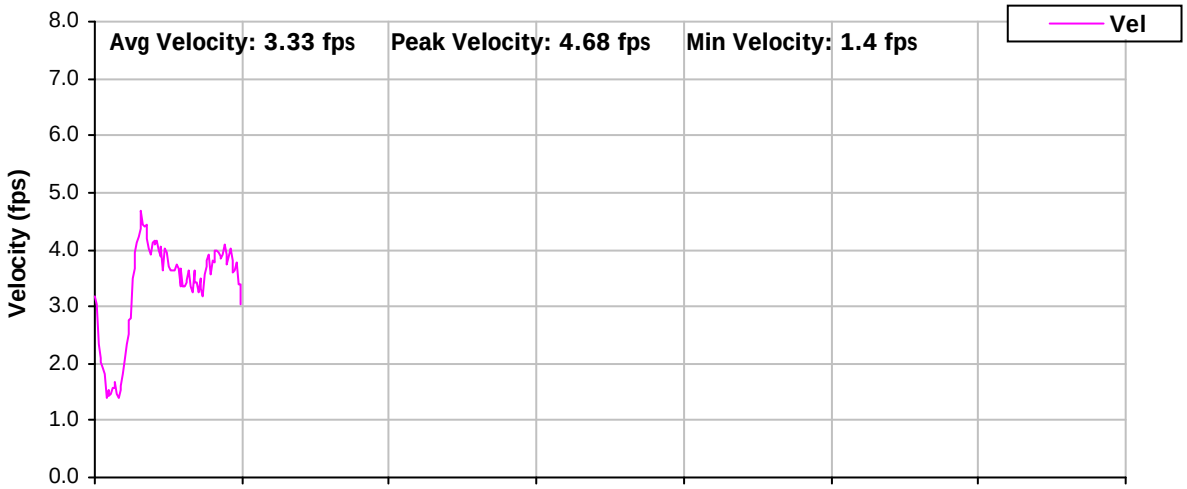
Level, Velocity and Flow

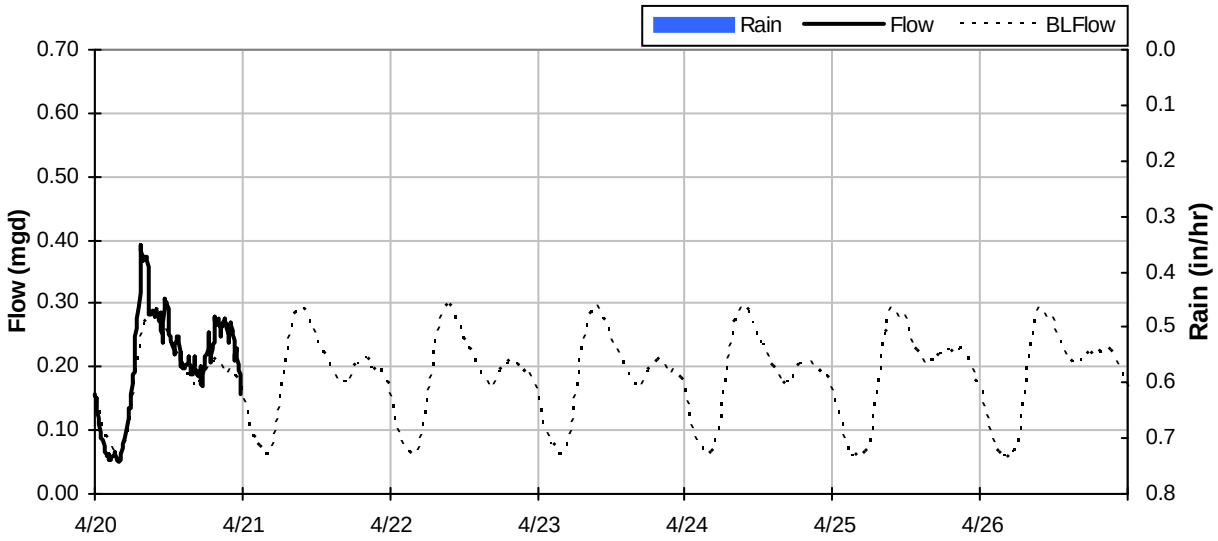
From 4/20/2009 to 4/27/2009

Monitoring Site:

MH 42







Avg Flow: 0.207 mgd **Peak Flow: 0.392 mgd** **Min Flow: 0.051 mgd**

Temporary Flow Monitoring Study

Sanitary Sewer Collection System

Monitoring Site: MH 84

Location: Park Vista Road and Patrick Henry Place

Size / Type Line: 8-inch Sanitary Sewer Pipe

Data Summary Report

Site Information Report

Monitoring Site: MH 84

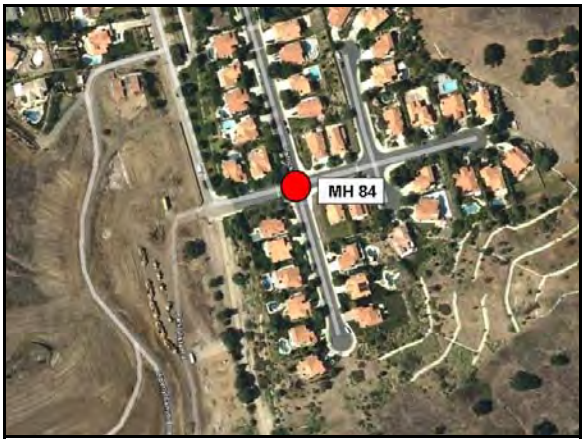
Location: Park Vista Road and Patrick Henry Place

Diameter: 8 inches

Average Dry Weather Flow: 0.01 *mgd*

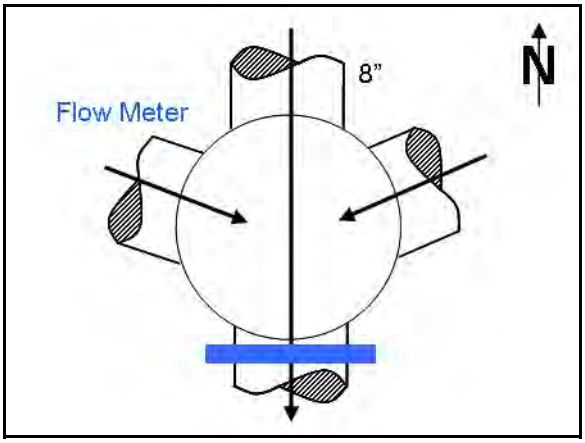
Peak Measured Flow: 0.04 *mgd*

Satellite Map

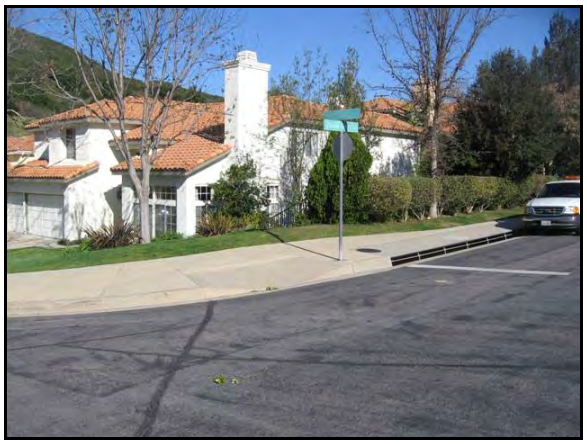


Sanitary Map

Flow Sketch



Street View Photo

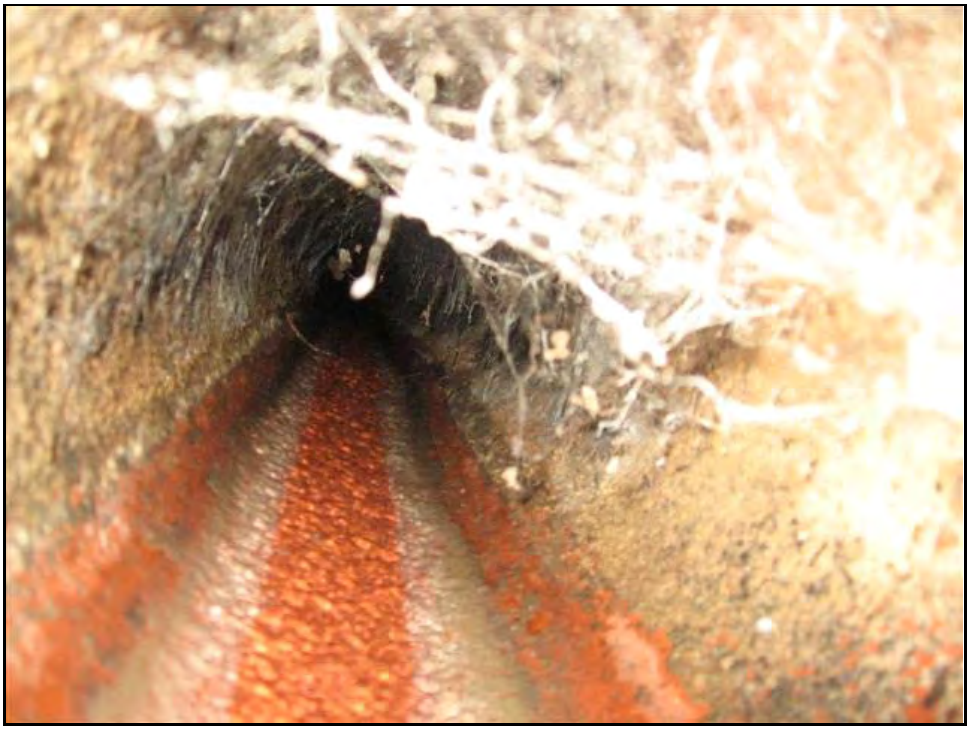


Plan View Photo

	Site Information Report Photos	**Monitoring Site:** MH 84

Manhole Lid

East Inlet



	Site Information Report Photos	**Monitoring Site:** MH 84

North Inlet

South Inlet

	Site Information Report Photos	**Monitoring Site:** MH 84

West Outlet

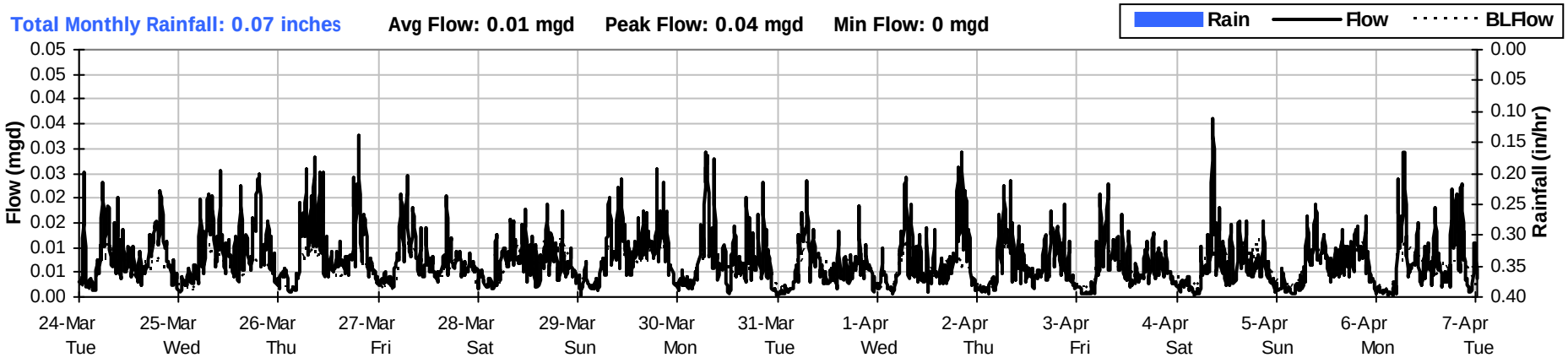
Period Flow Summary

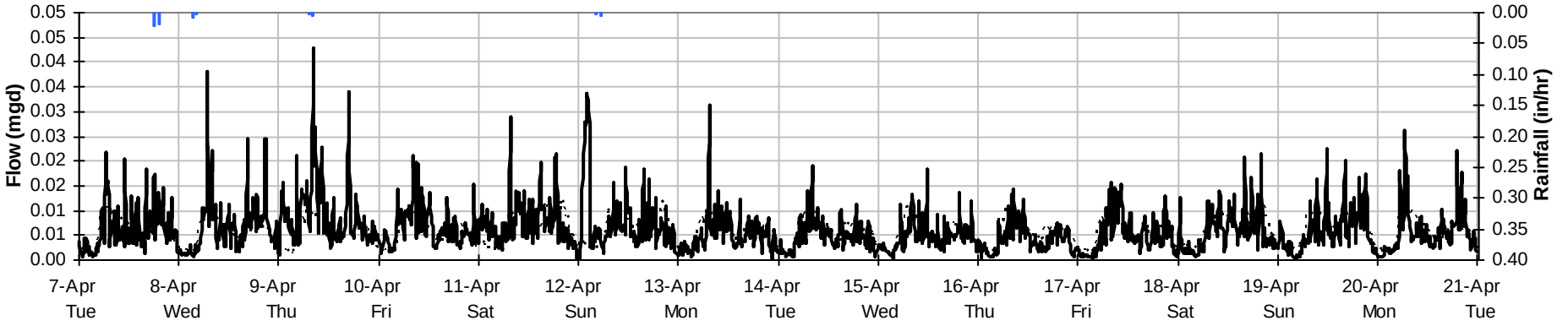
March 24, 2009 to April 21, 2009

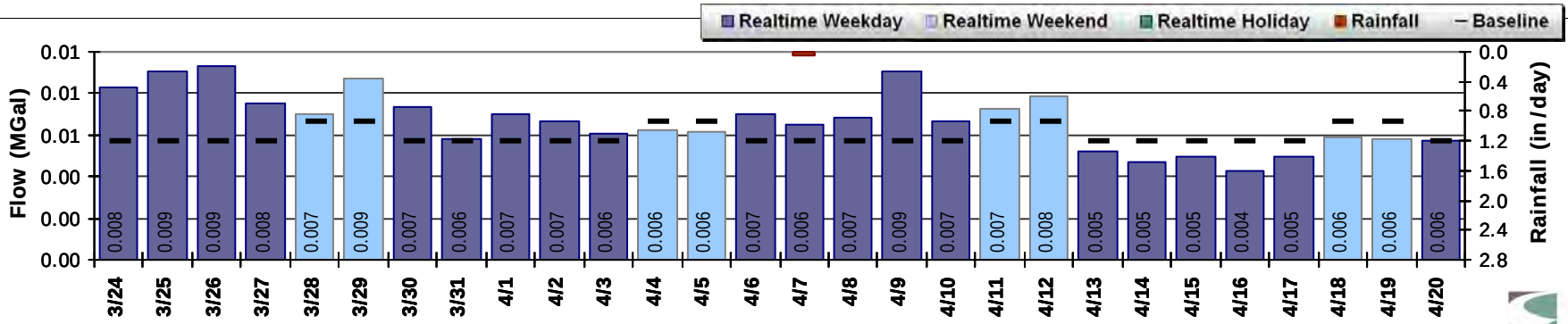
Monitoring Site:

MH 84

Total Monthly Rainfall: 0.07 inches **Avg Flow: 0.01 mgd** **Peak Flow: 0.04 mgd** **Min Flow: 0 mgd**

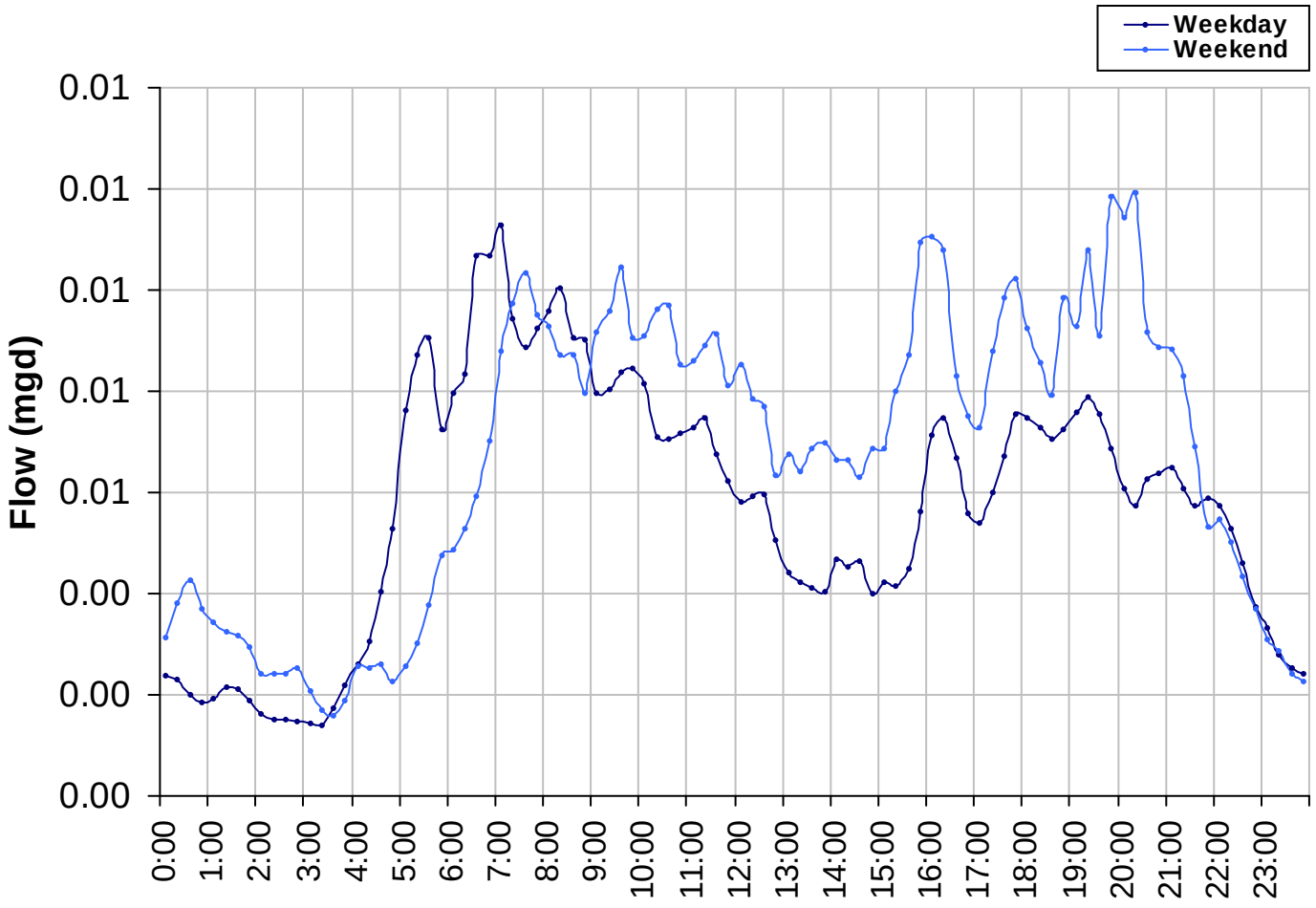






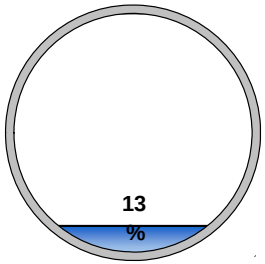
Average Dry Weather Flow

Monitoring Site:
MH 84



Peak Measured Flow:

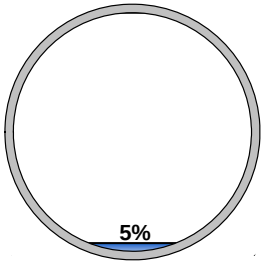
0.04 *mgd*



Peak measured flow shown in weekly graphs on following pages

Average Dry Weather Flow:

0.01 *mgd*

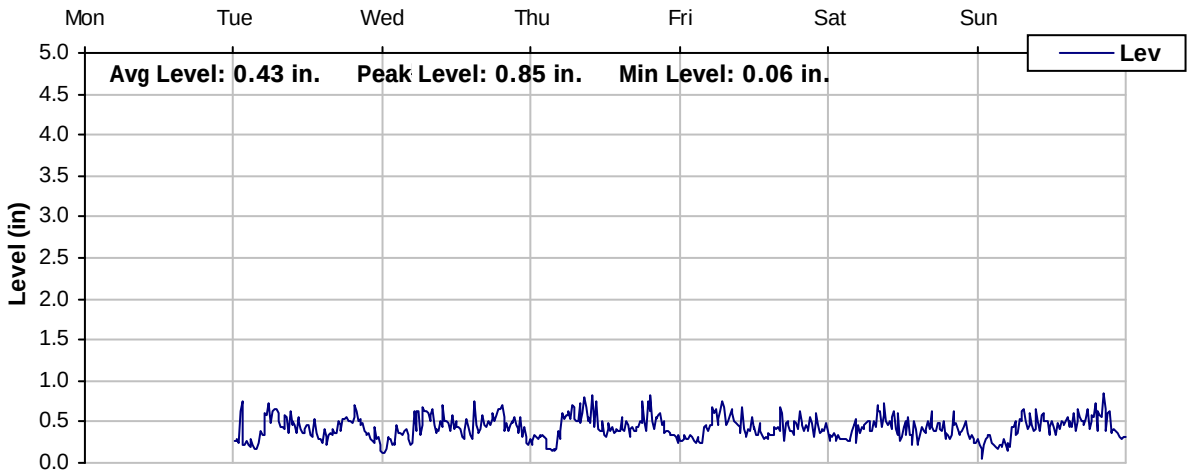


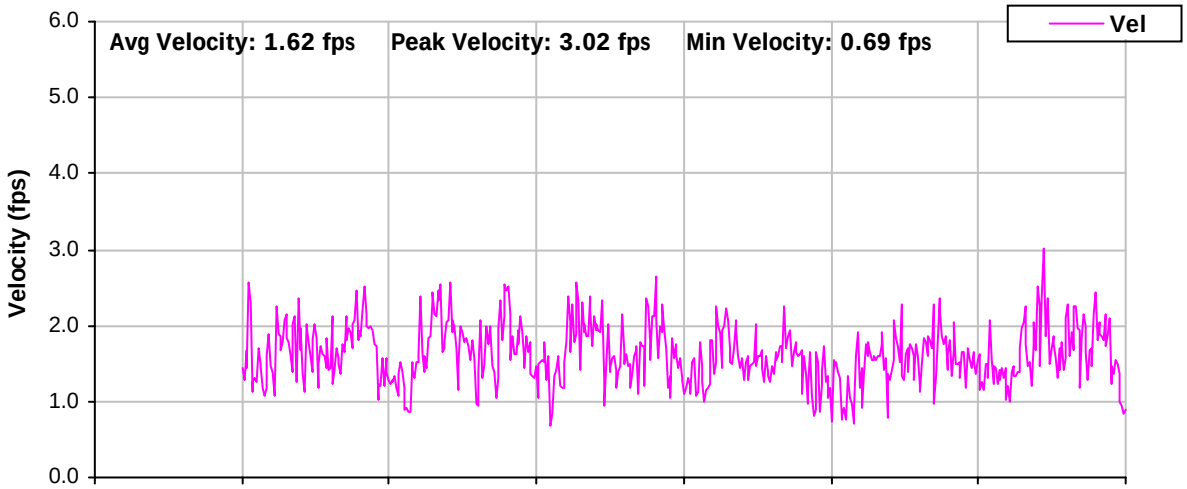
Level, Velocity and Flow

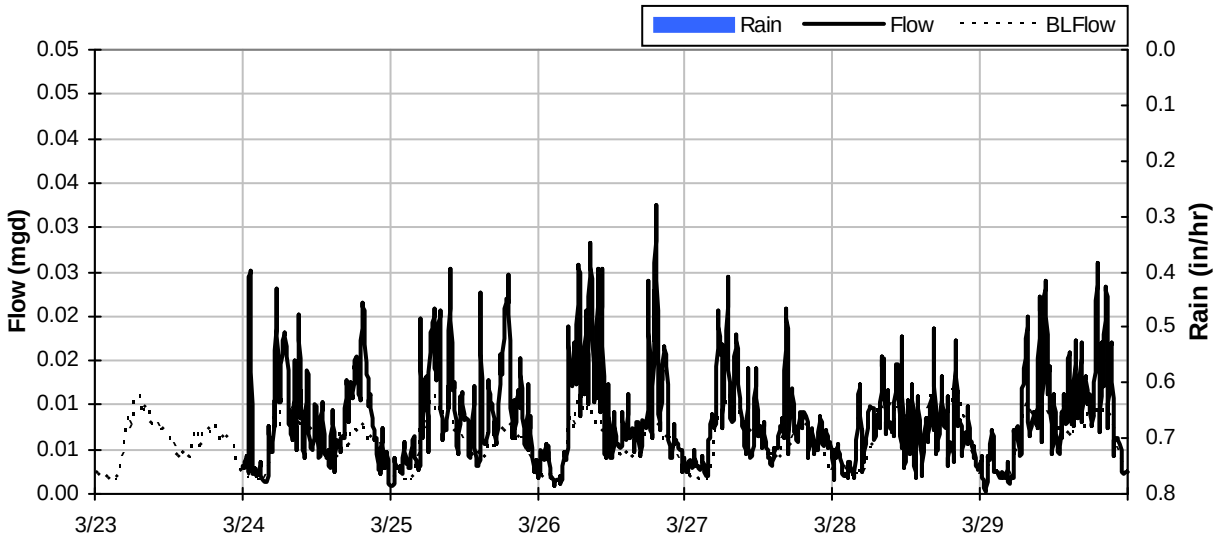
From 3/23/2009 to 3/30/2009

Monitoring Site:

MH 84







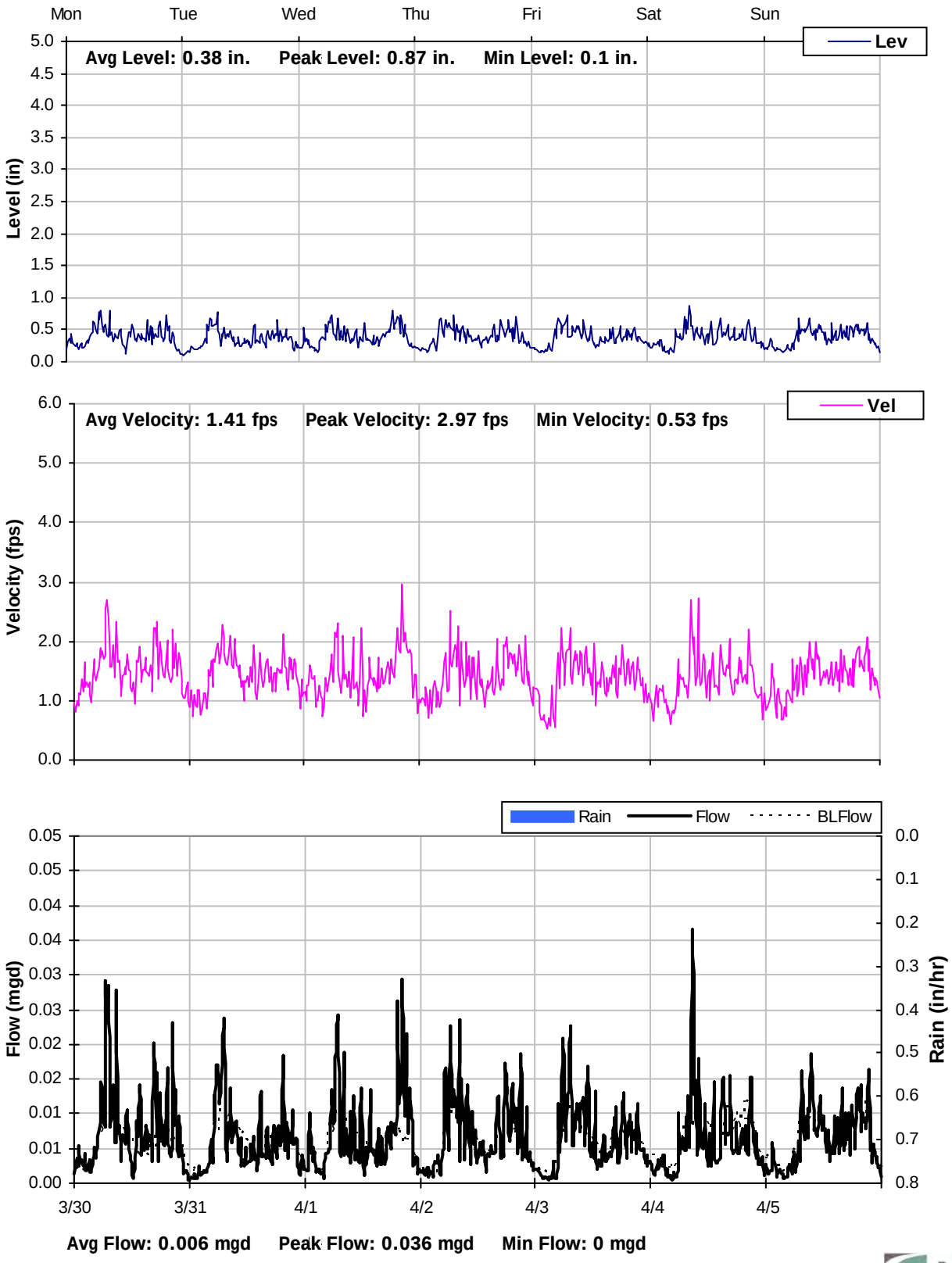
Avg Flow: 0.008 mgd **Peak Flow: 0.033 mgd** **Min Flow: 0 mgd**

Level, Velocity and Flow

From 3/30/2009 to 4/6/2009

Monitoring Site:

MH 84

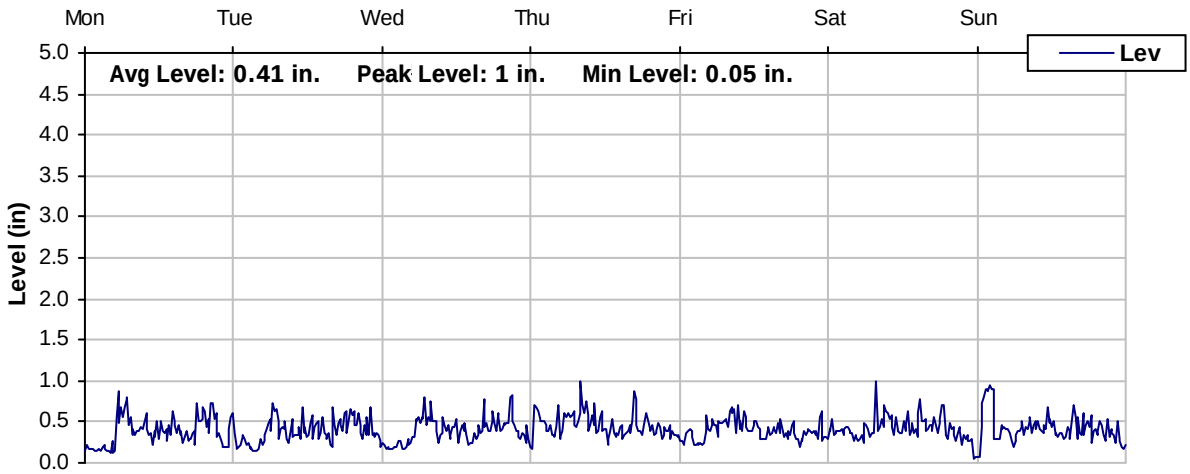


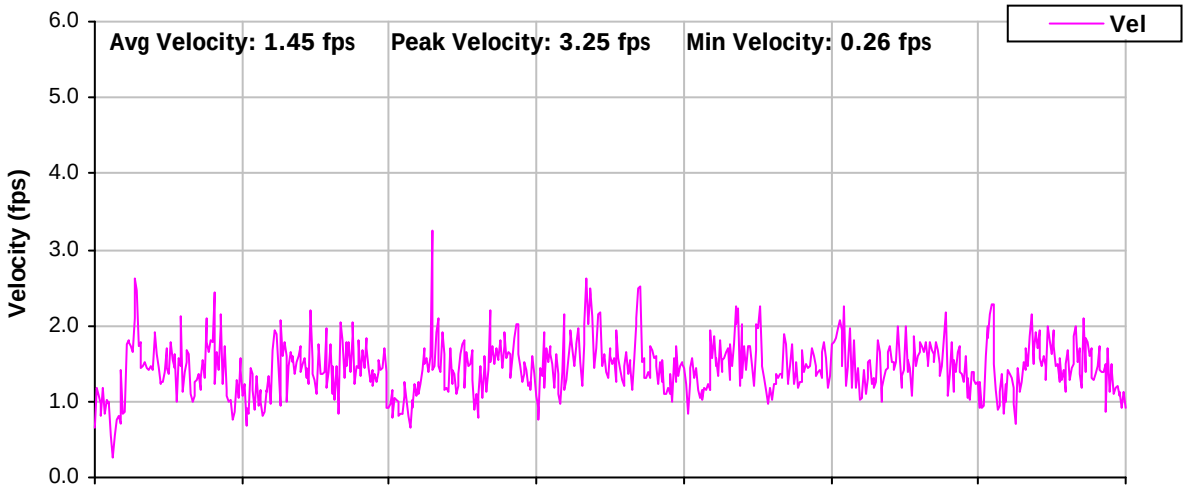
Level, Velocity and Flow

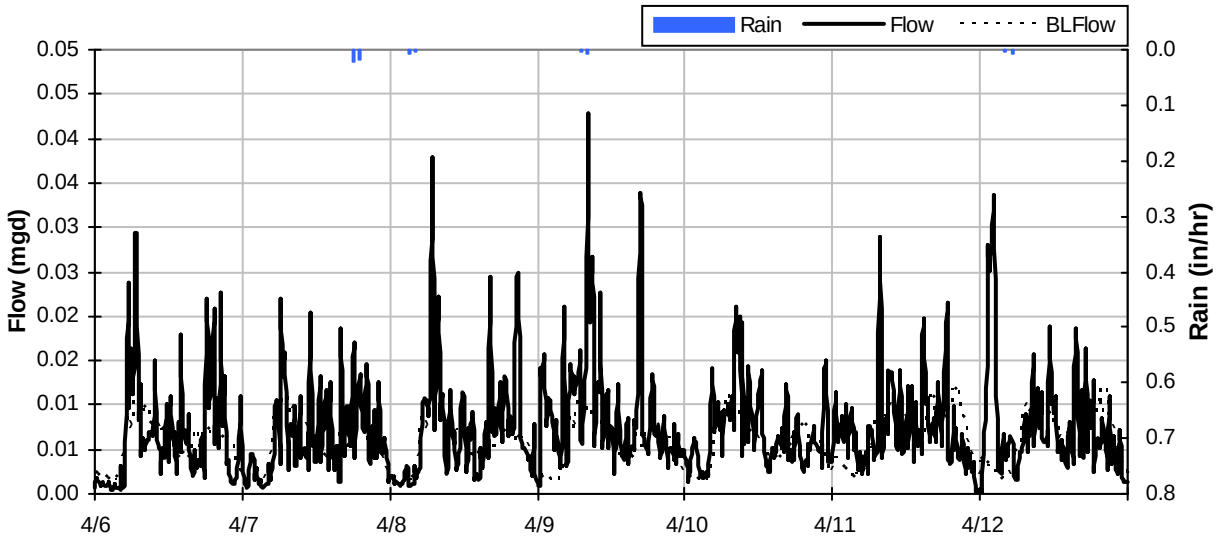
From 4/6/2009 to 4/13/2009

Monitoring Site:

MH 84







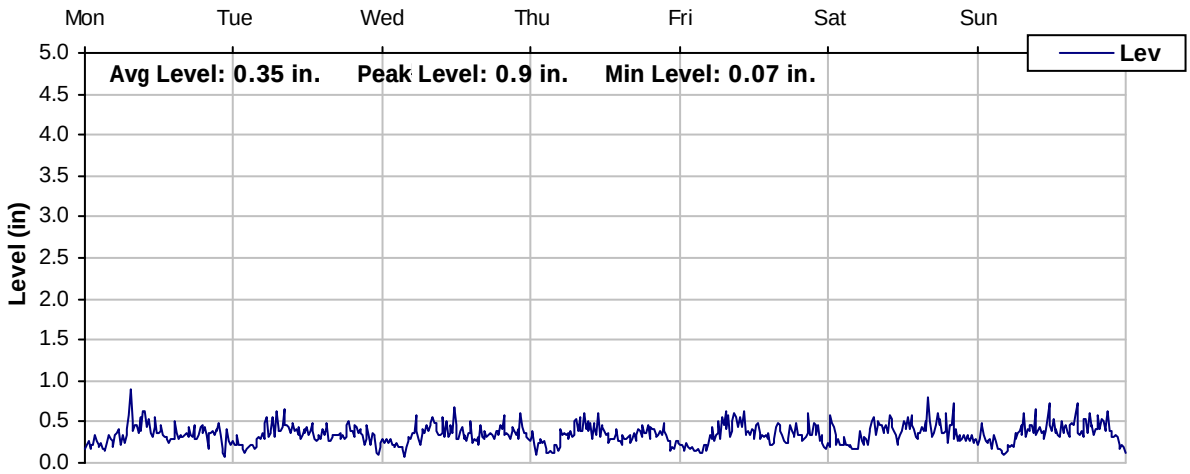
Avg Flow: 0.007 mgd **Peak Flow: 0.043 mgd** **Min Flow: 0 mgd**

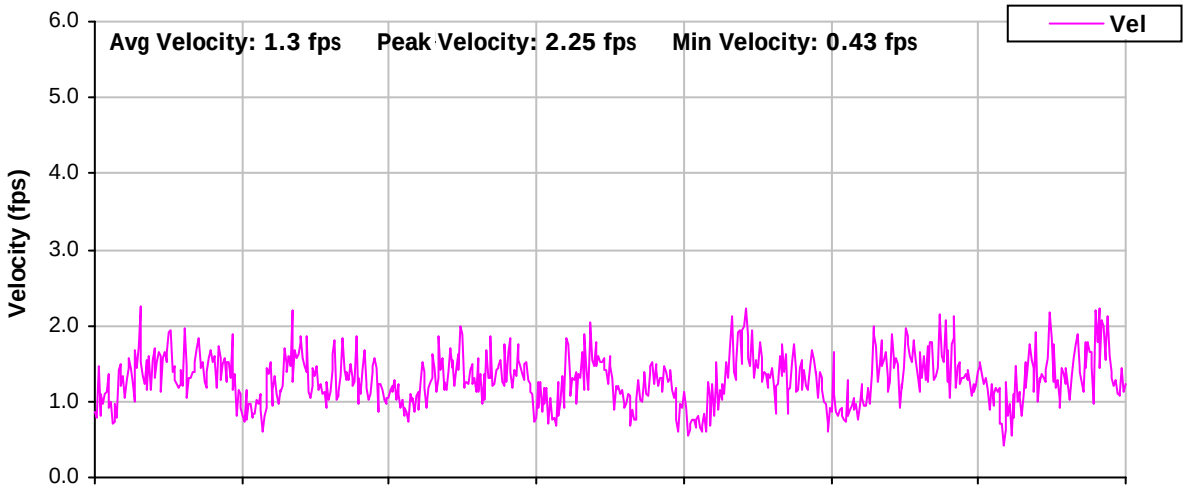
Level, Velocity and Flow

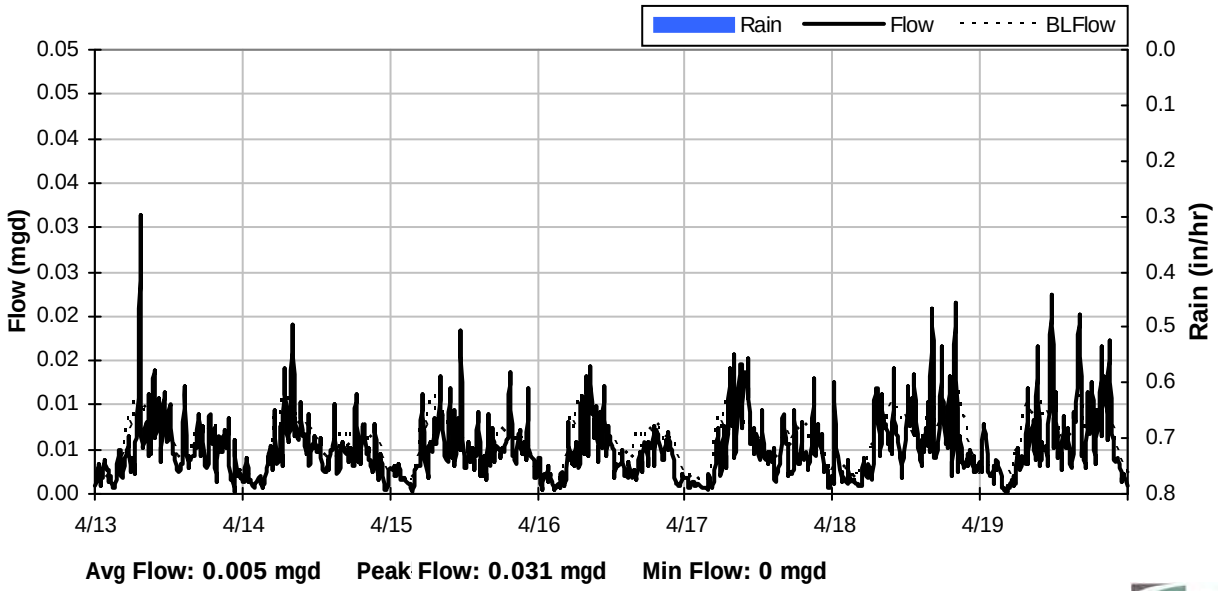
From 4/13/2009 to 4/20/2009

Monitoring Site:

MH 84







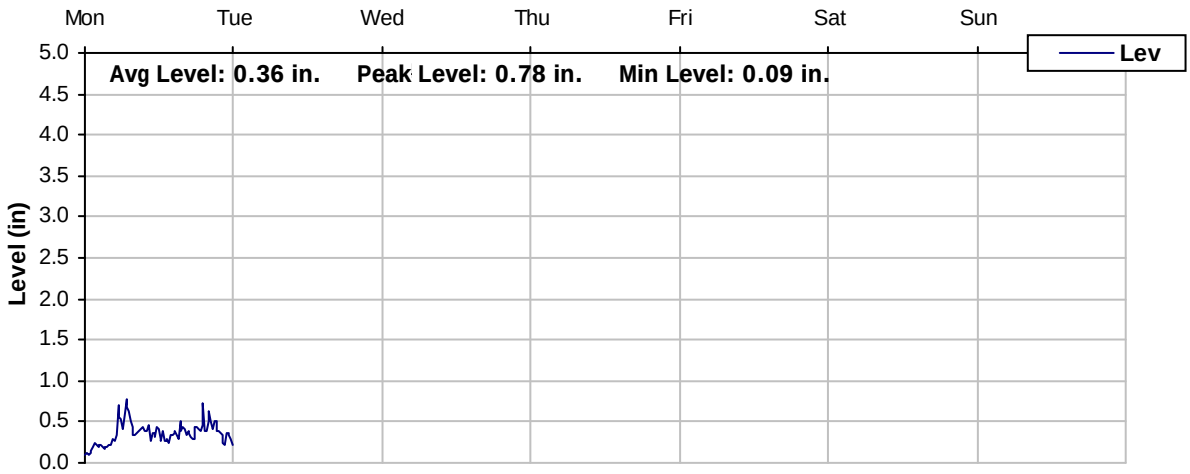
Avg Flow: 0.005 mgd **Peak Flow: 0.031 mgd** **Min Flow: 0 mgd**

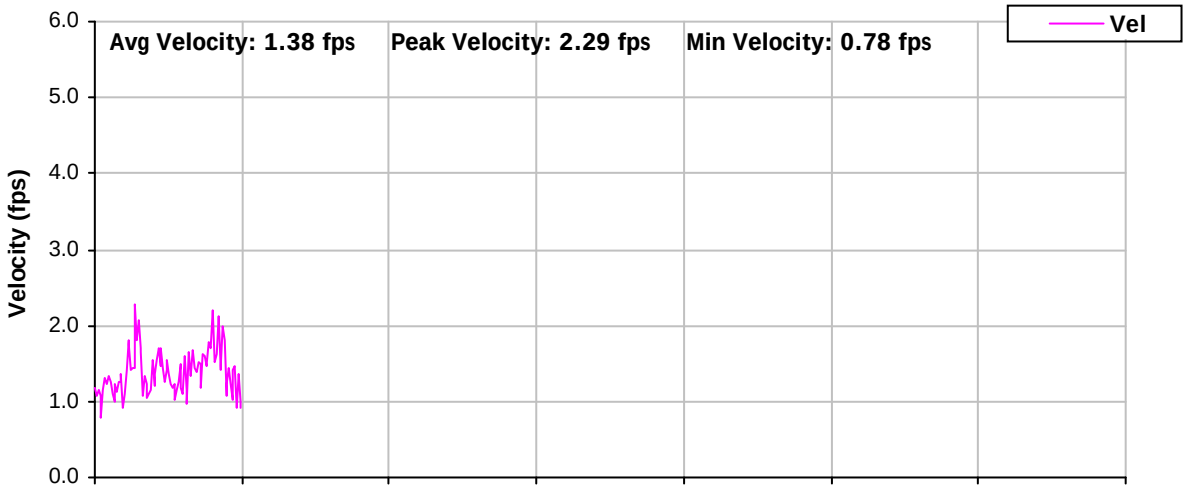
Level, Velocity and Flow

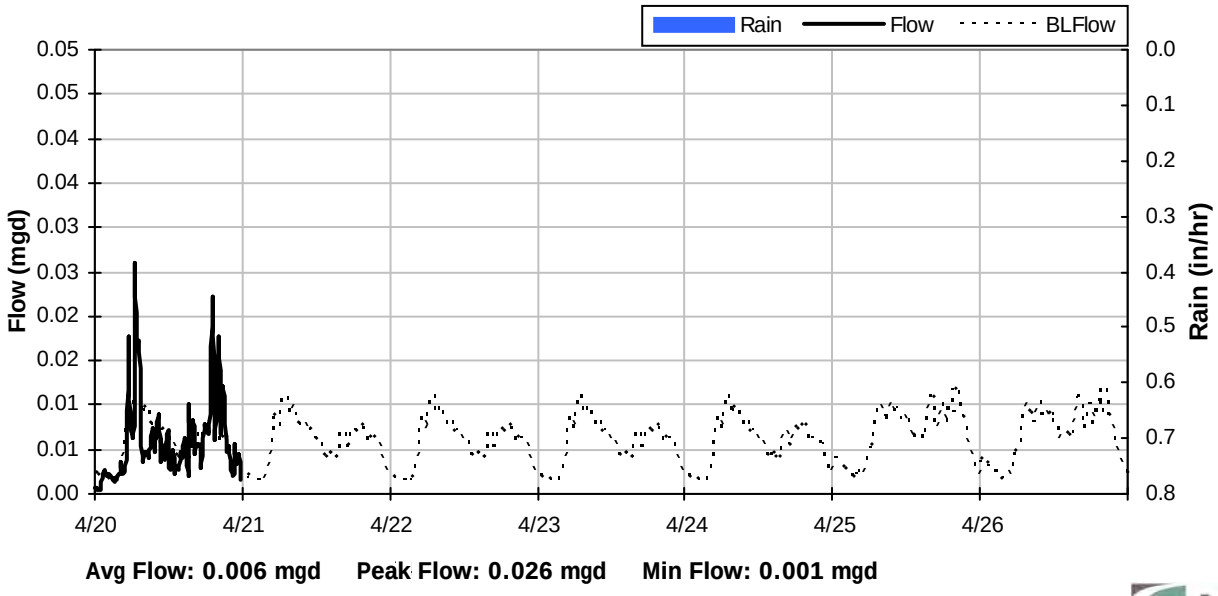
From 4/20/2009 to 4/27/2009

Monitoring Site:

MH 84







Avg Flow: 0.006 mgd **Peak Flow: 0.026 mgd** **Min Flow: 0.001 mgd**

Temporary Flow Monitoring Study

Sanitary Sewer Collection System

Monitoring Site: MH 85

Location: Dargan Street, west of Acadia Avenue

Size / Type Line: 10-inch Sanitary Sewer Pipe

Data Summary Report

Site Information Report

Monitoring Site: MH 85

Location: Dargan Street, west of Acadia Avenue

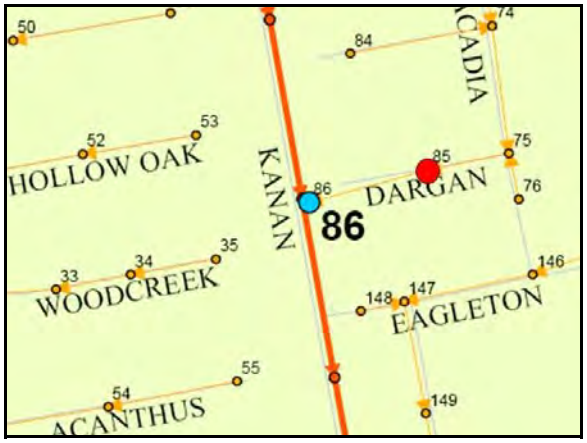
Diameter: 10 inches

Average Dry Weather Flow: 0.06 *mgd*

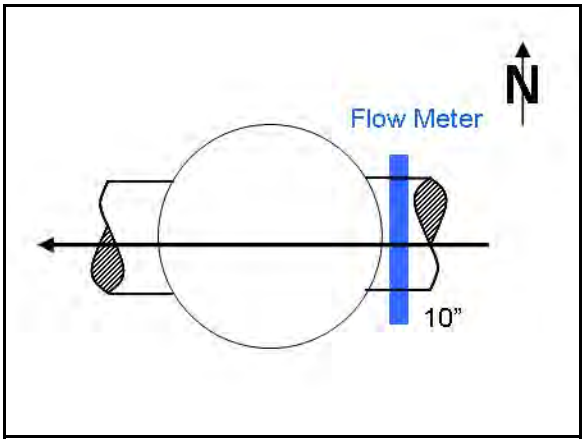
Peak Measured Flow: 0.15 *mgd*

Satellite Map

Sanitary Map



Flow Sketch



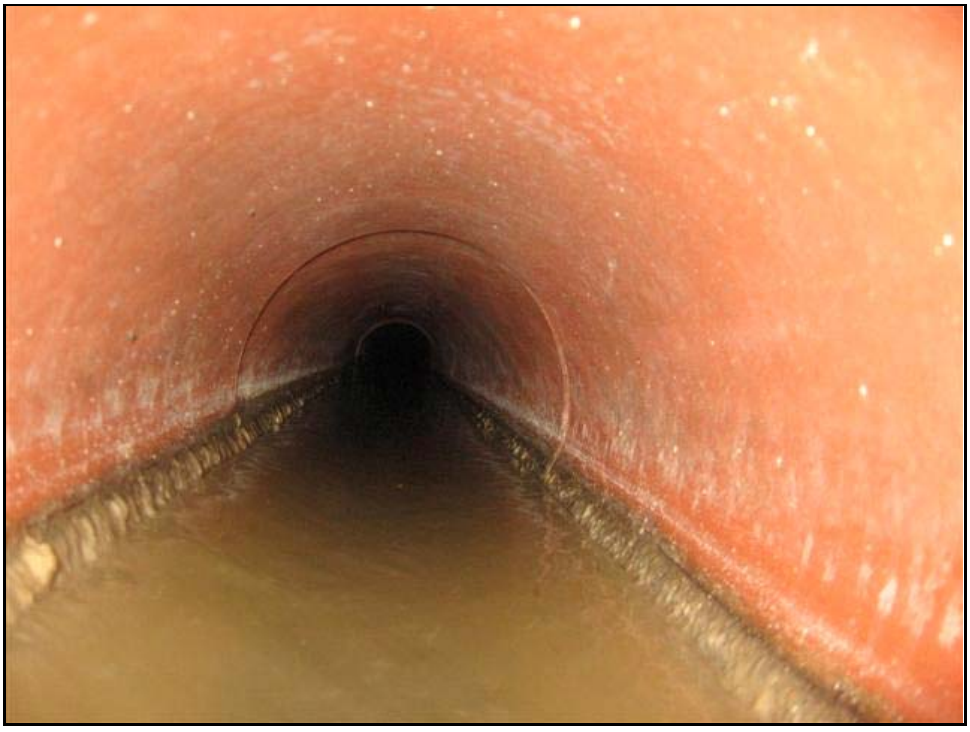
Street View Photo

Plan View Photo

	Site Information Report Photos	**Monitoring Site:** MH 85

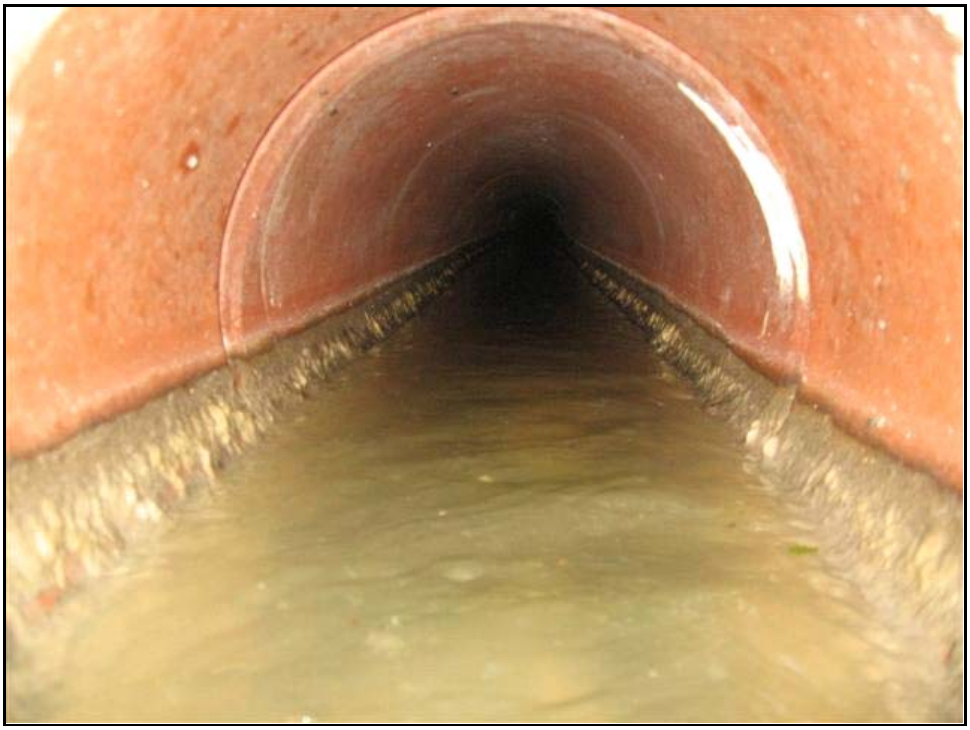
Manhole Lid

East Inlet



	Site Information Report Photos	**Monitoring Site:** MH 85

West Outlet



V&A

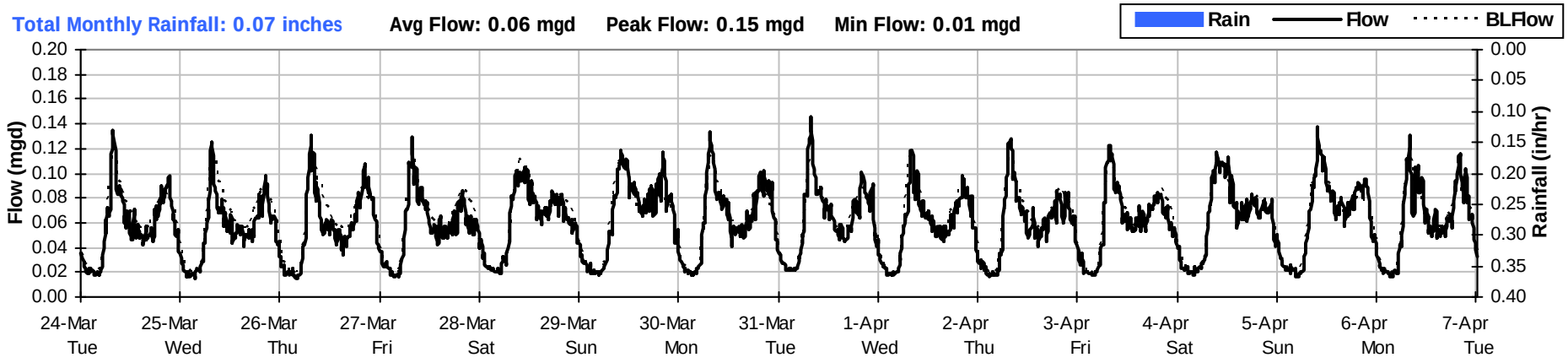
Period Flow Summary

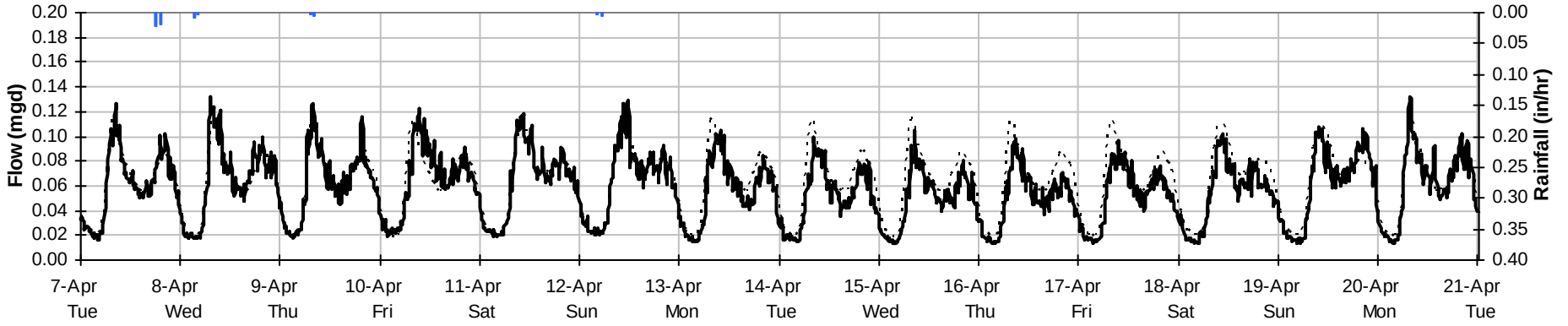
March 24, 2009 to April 21, 2009

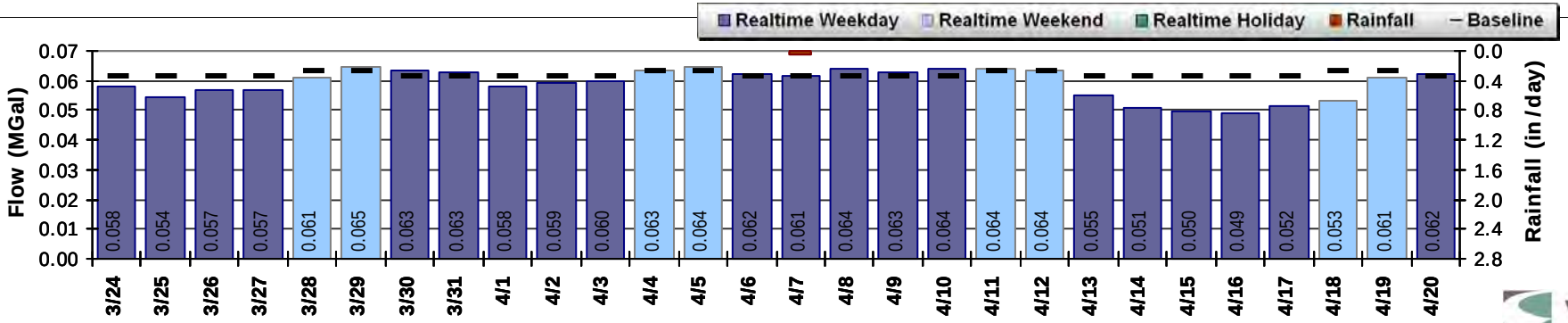
Monitoring Site:

MH 85

Total Monthly Rainfall: 0.07 inches **Avg Flow: 0.06 mgd** **Peak Flow: 0.15 mgd** **Min Flow: 0.01 mgd**



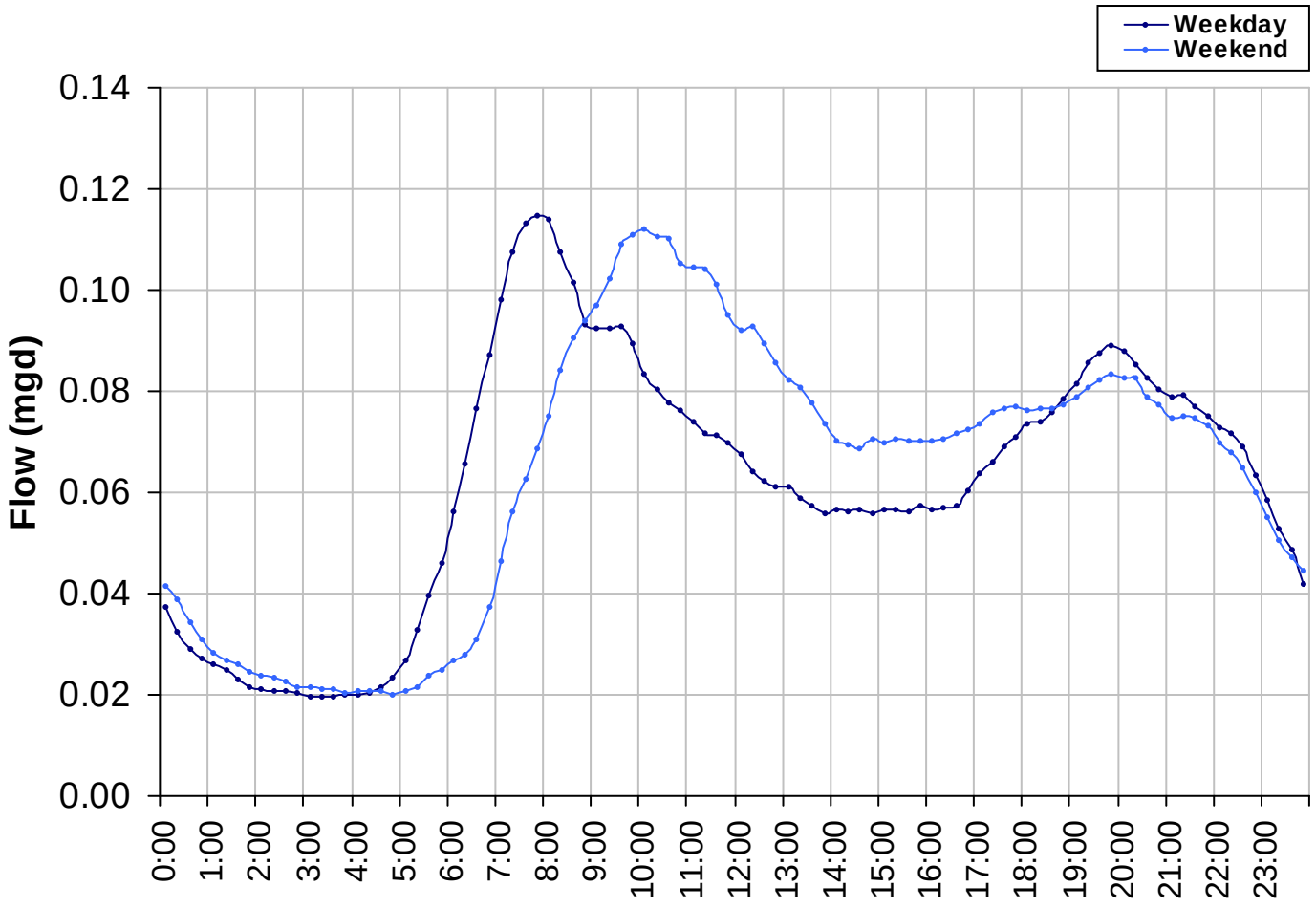




V&A

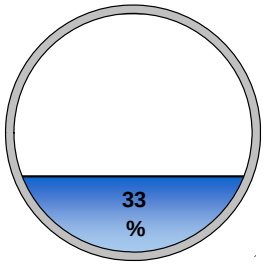
Average Dry Weather Flow

Monitoring Site:
MH 85



Peak Measured Flow:

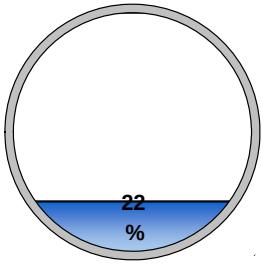
0.15 *mgd*



Peak measured flow shown in weekly graphs on following pages

Average Dry Weather Flow:

0.06 *mgd*

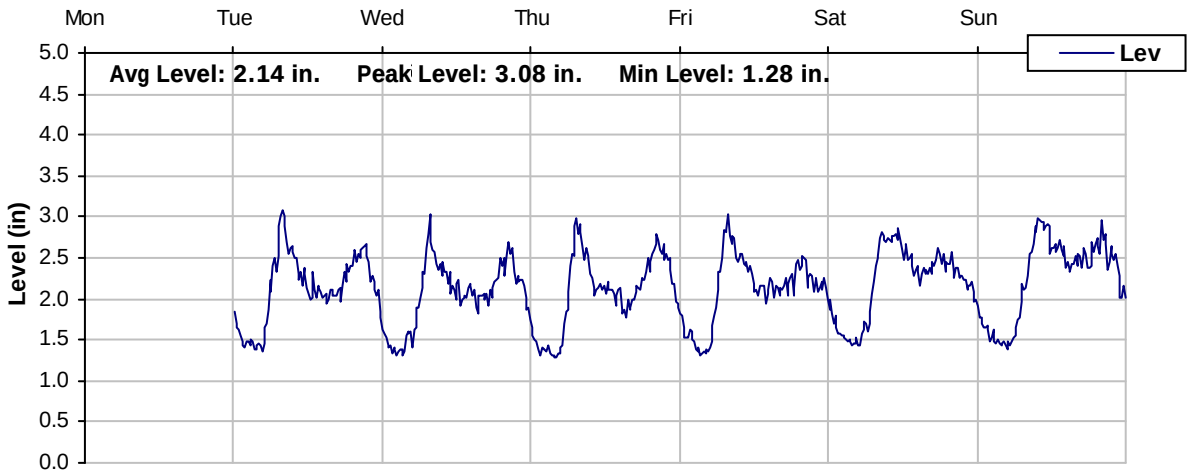


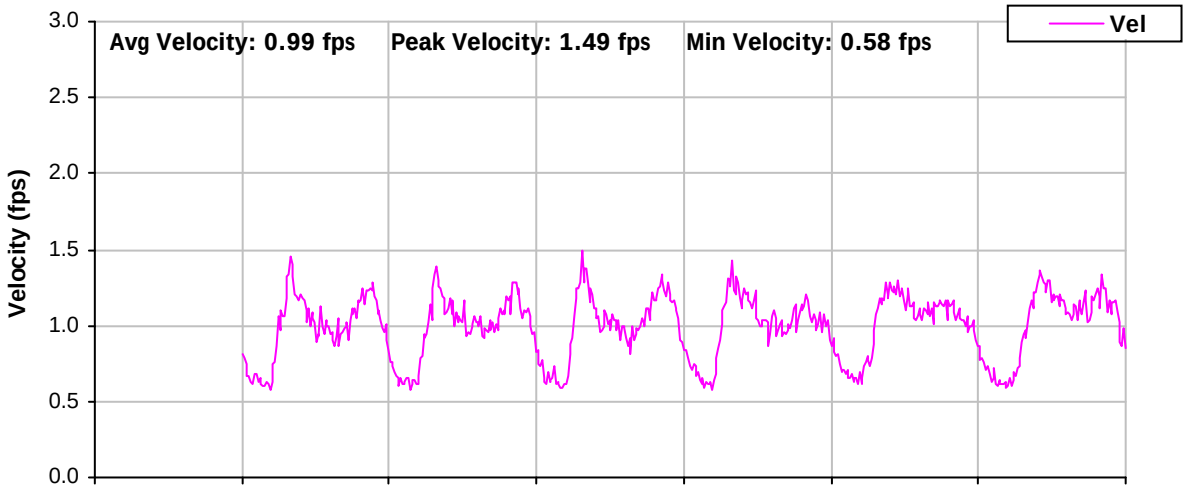
Level, Velocity and Flow

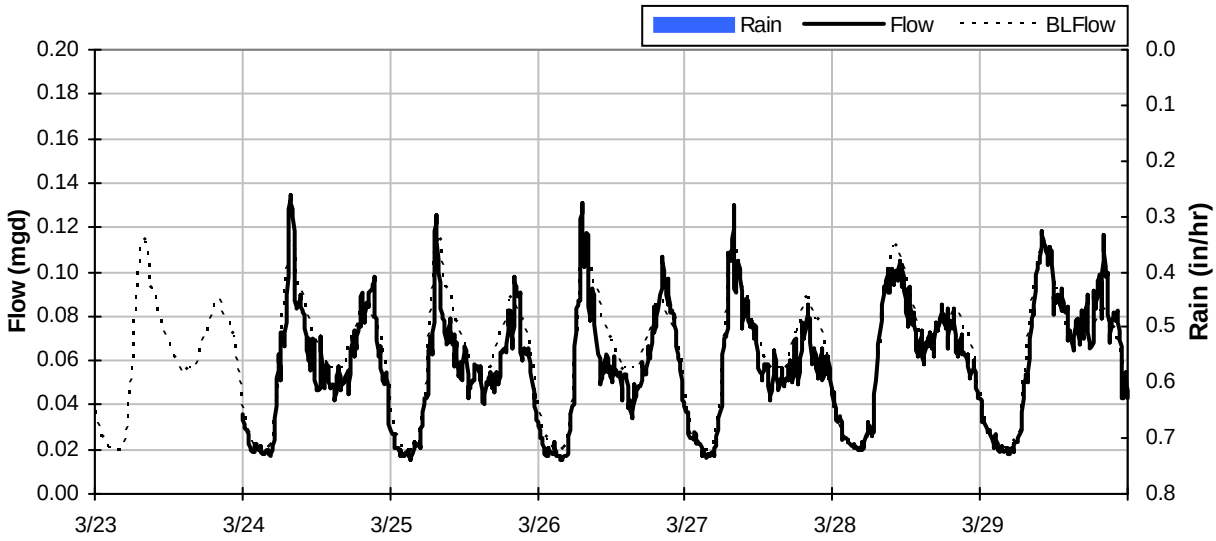
From 3/23/2009 to 3/30/2009

Monitoring Site:

MH 85







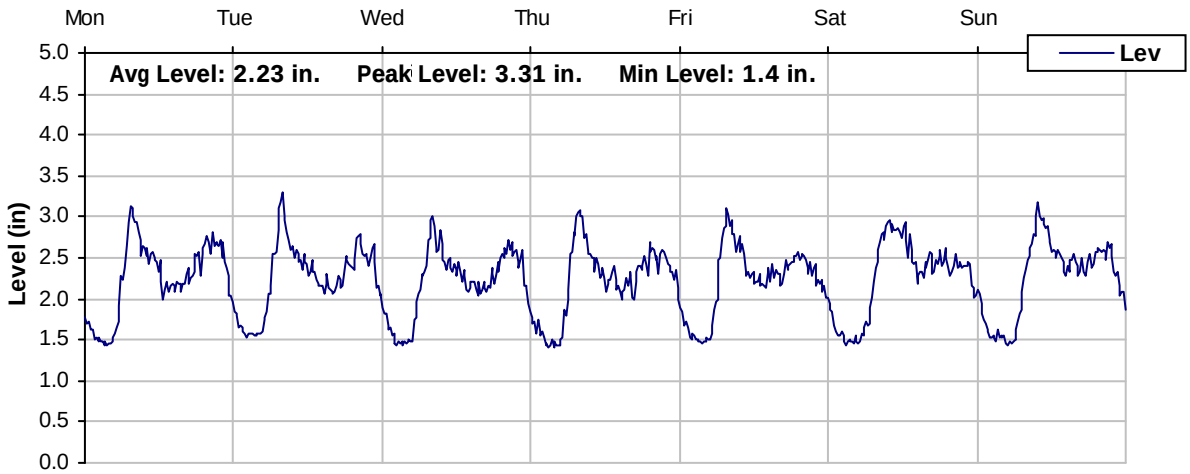
Avg Flow: 0.059 mgd **Peak Flow: 0.134 mgd** **Min Flow: 0.016 mgd**

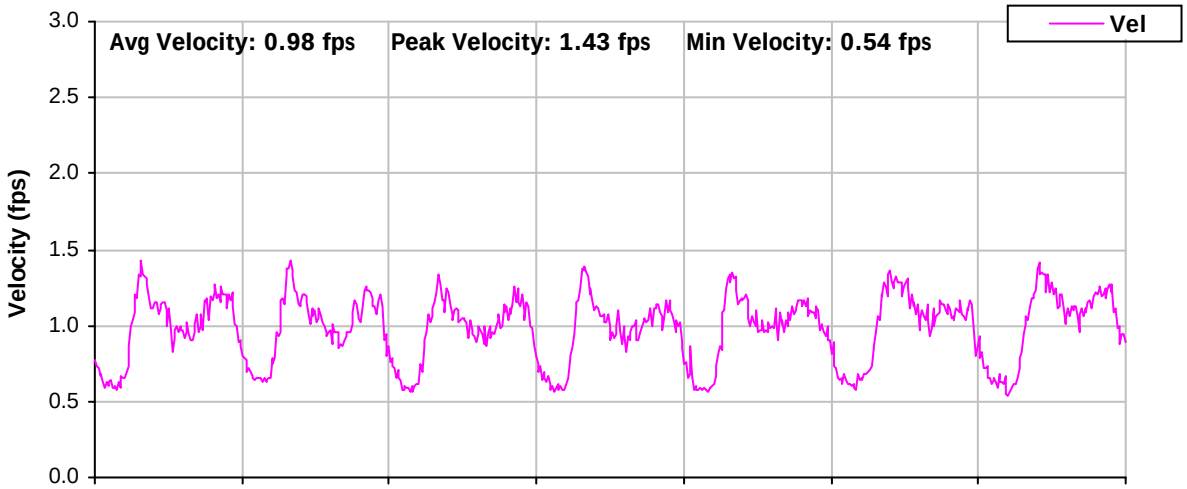
Level, Velocity and Flow

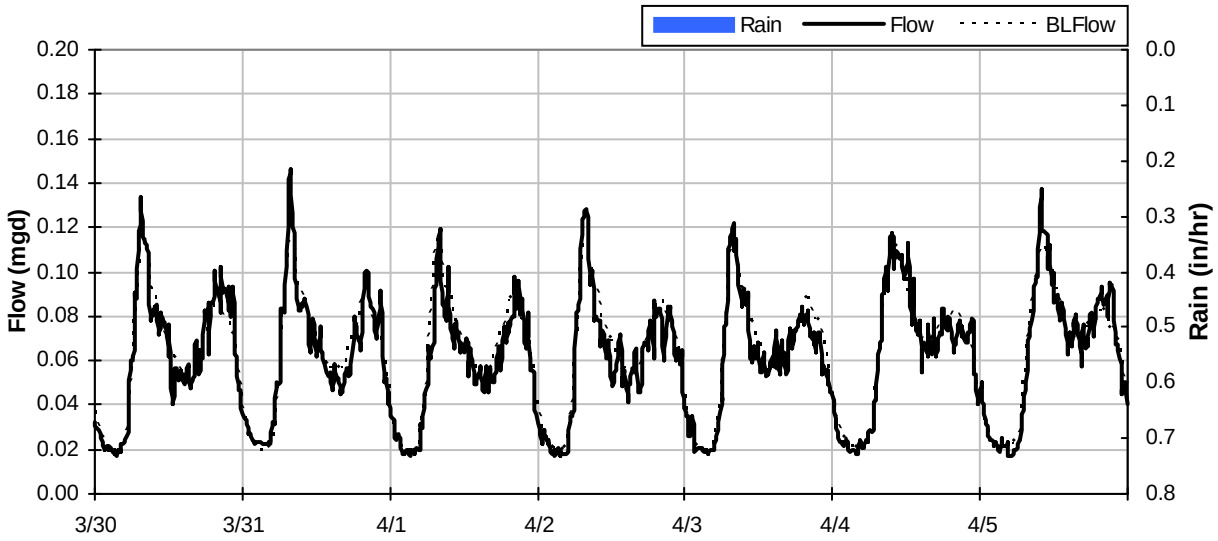
From 3/30/2009 to 4/6/2009

Monitoring Site:

MH 85







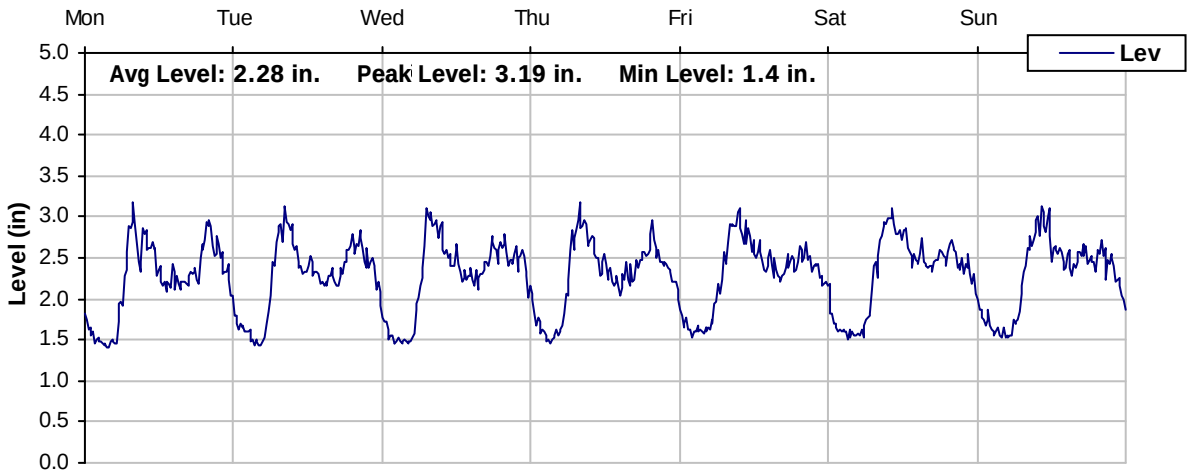
Avg Flow: 0.062 mgd **Peak Flow: 0.146 mgd** **Min Flow: 0.017 mgd**

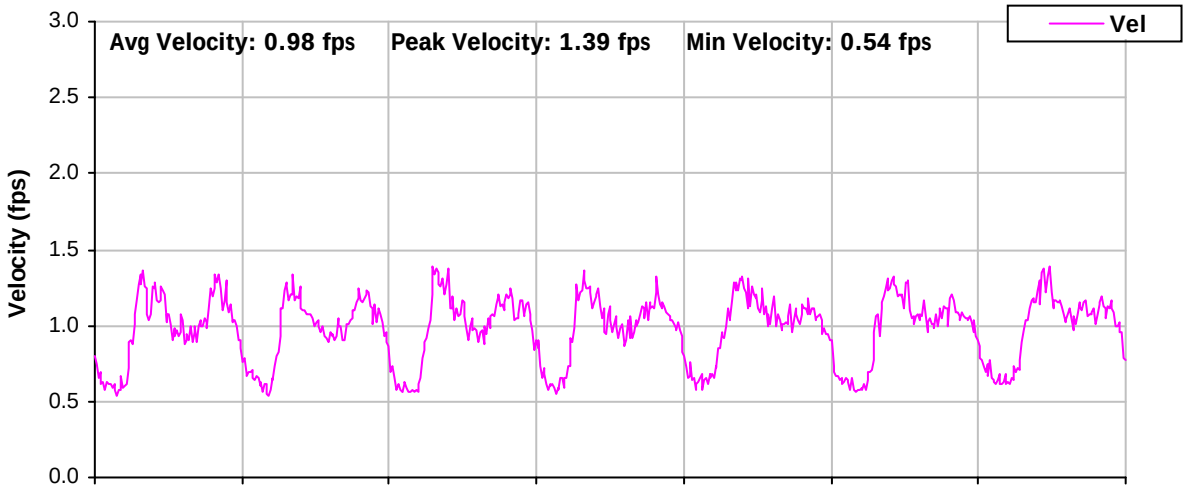
Level, Velocity and Flow

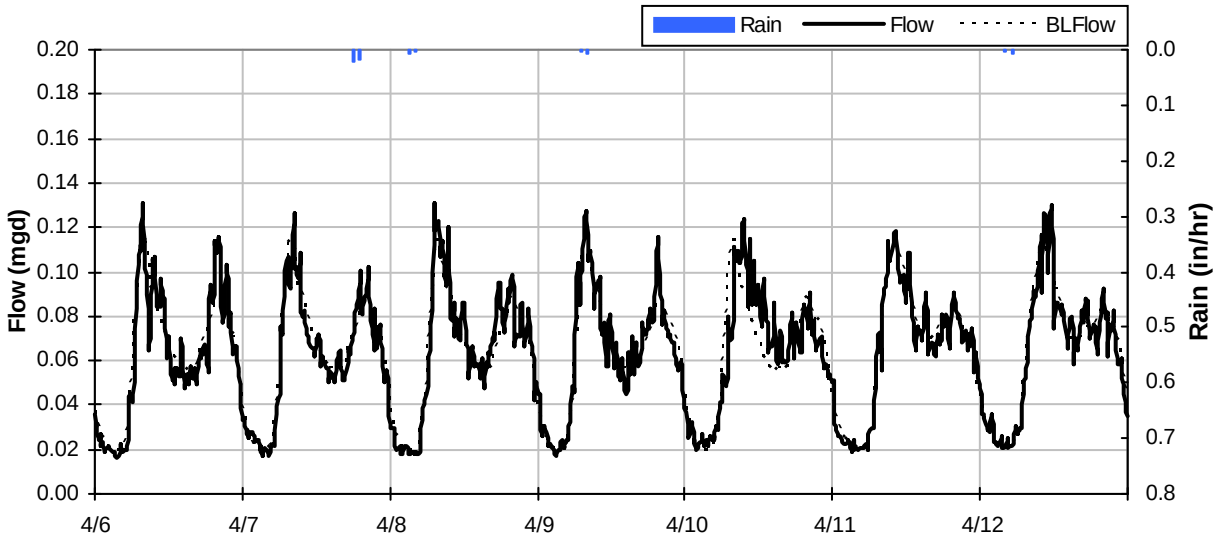
From 4/6/2009 to 4/13/2009

Monitoring Site:

MH 85







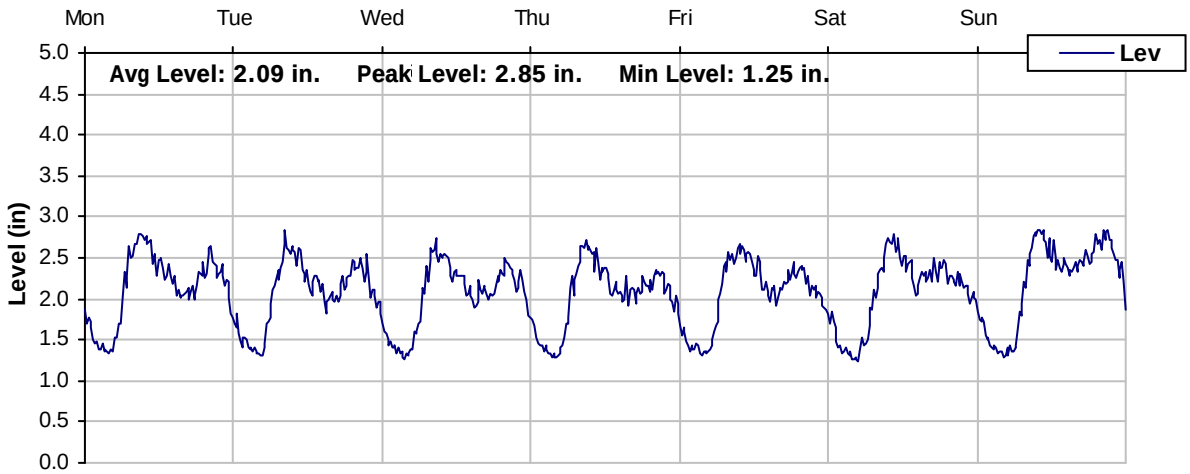
Avg Flow: 0.063 mgd **Peak Flow: 0.131 mgd** **Min Flow: 0.016 mgd**

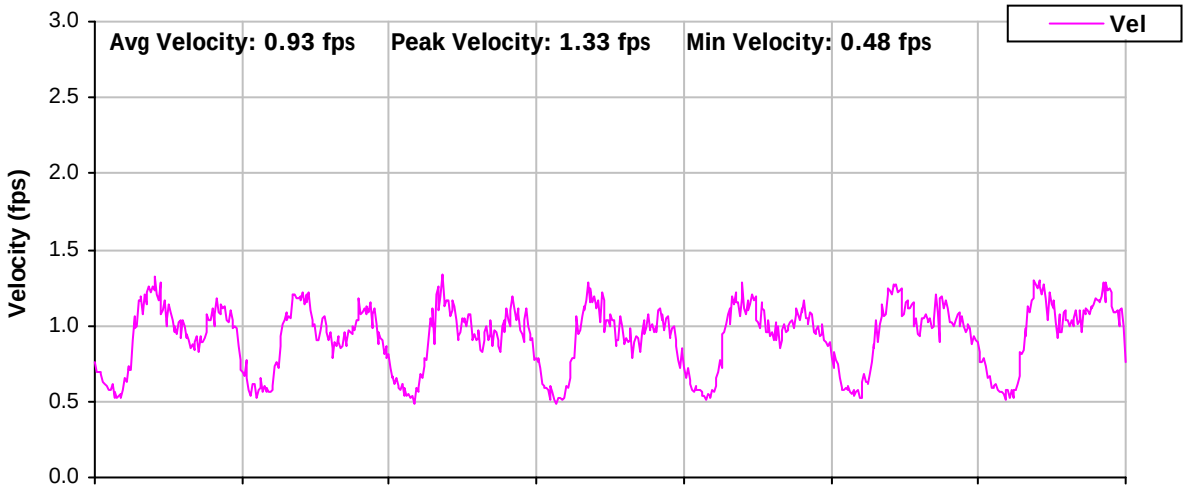
Level, Velocity and Flow

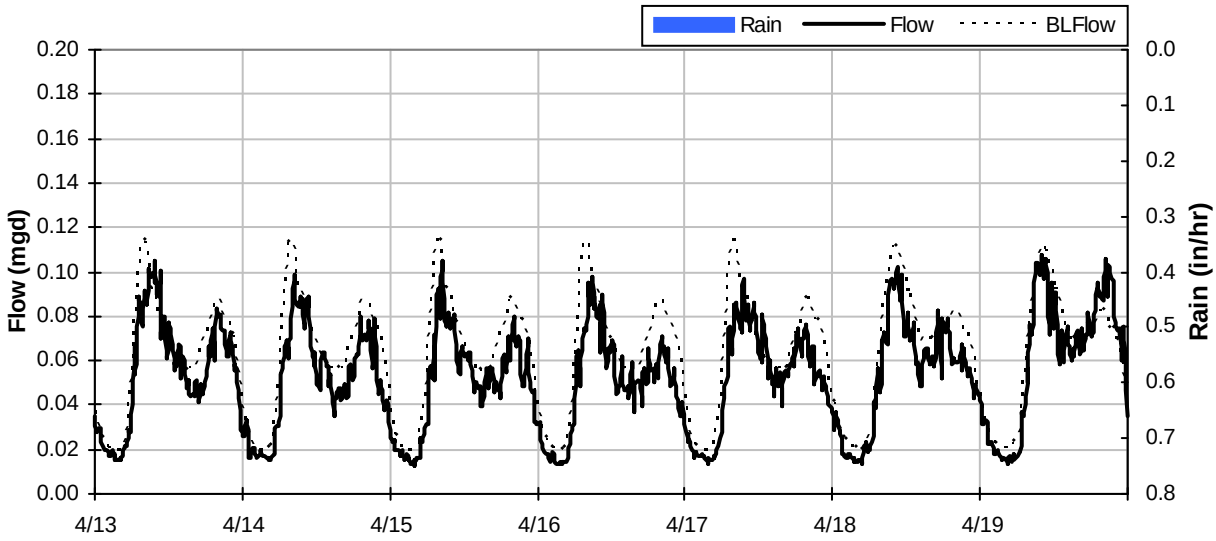
From 4/13/2009 to 4/20/2009

Monitoring Site:

MH 85







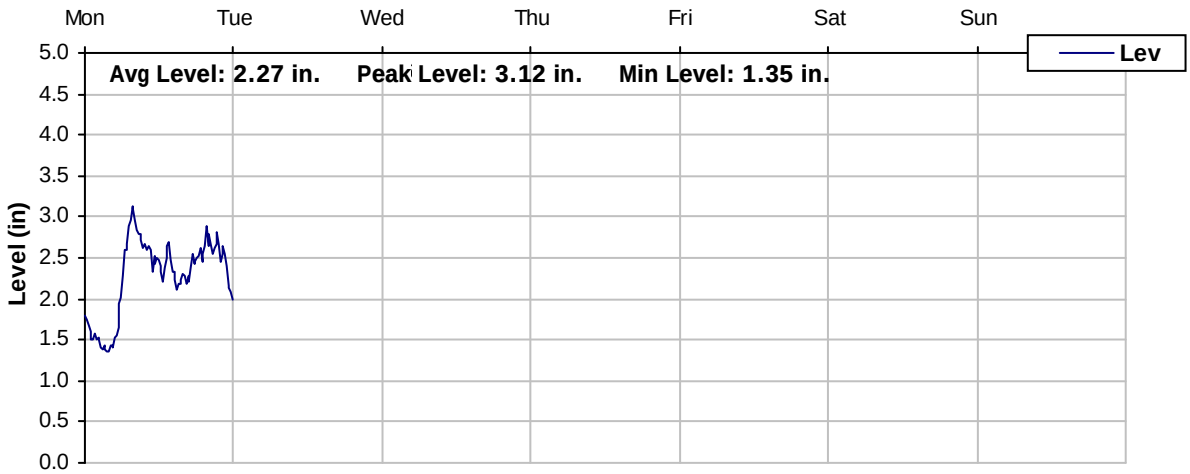
Avg Flow: 0.053 mgd **Peak Flow: 0.108 mgd** **Min Flow: 0.013 mgd**

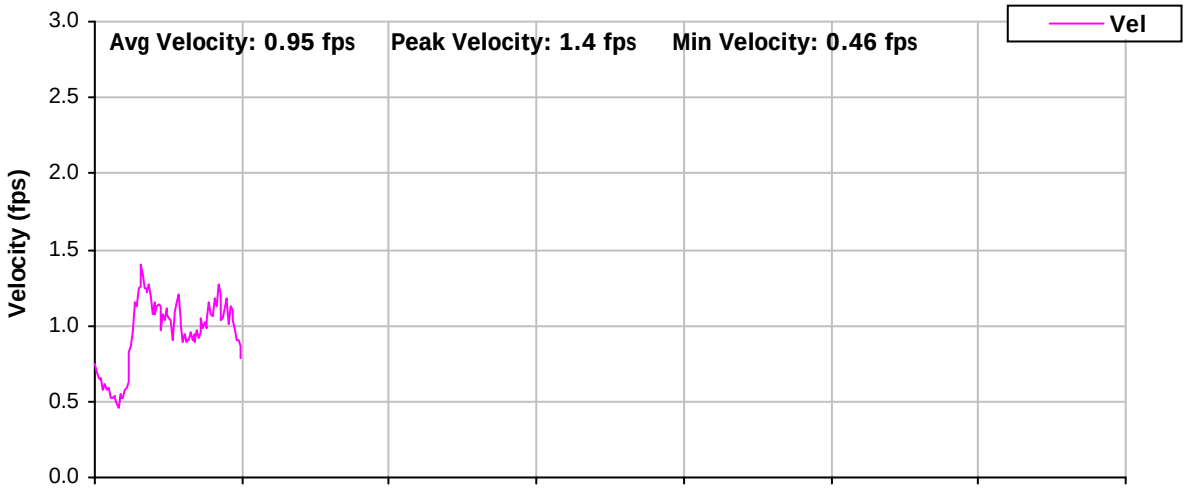
Level, Velocity and Flow

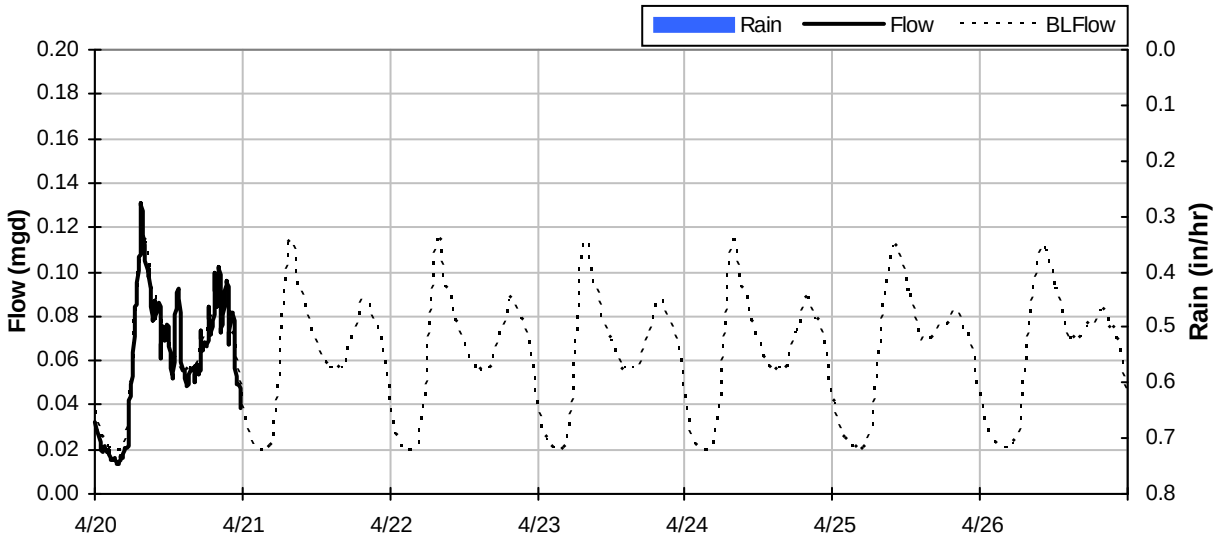
From 4/20/2009 to 4/27/2009

Monitoring Site:

MH 85







Avg Flow: 0.062 mgd **Peak Flow: 0.131 mgd** **Min Flow: 0.013 mgd**

Temporary Flow Monitoring Study

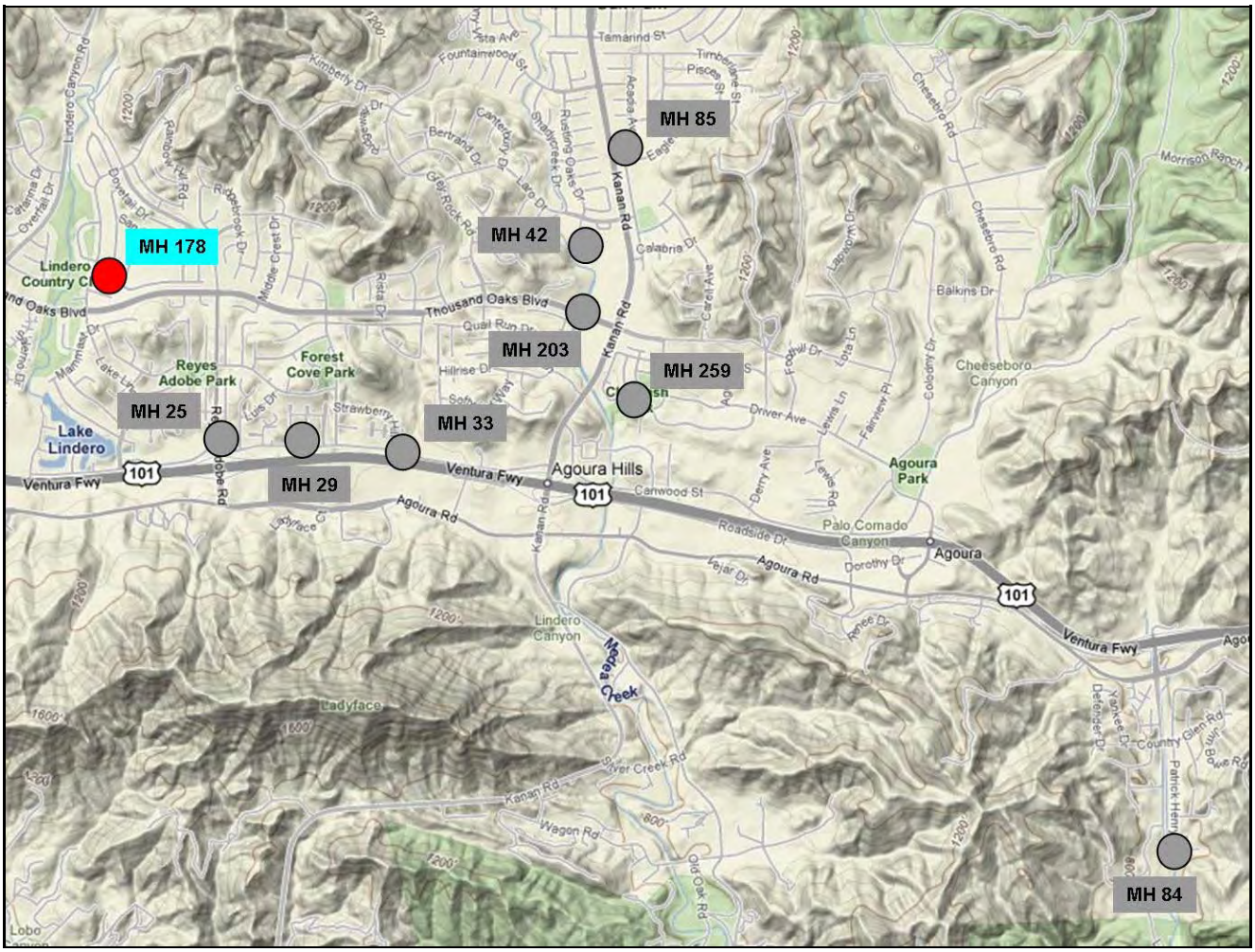
Sanitary Sewer Collection System

Monitoring Site: MH 178

Location: Rainbow View Drive and Wheelhouse Lane

Size / Type Line: 8-inch Sanitary Sewer Pipe

Data Summary Report



Site Information Report

Monitoring Site: MH 178

Location: Rainbow View Drive and Wheelhouse Lane

Diameter: 8 inches

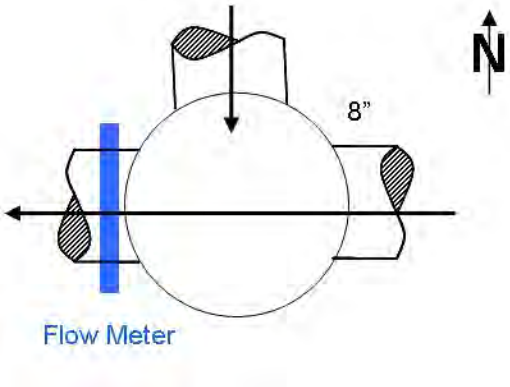
Average Dry Weather Flow: 0.09 *mgd*

Peak Measured Flow: 0.27 *mgd*

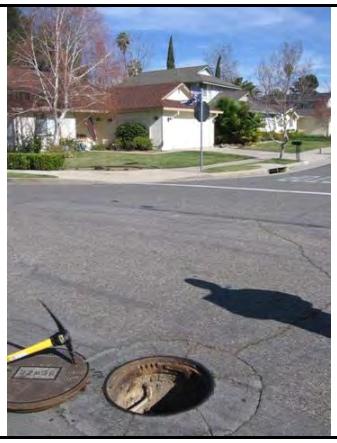
Satellite Map

Sanitary Map

Flow Sketch



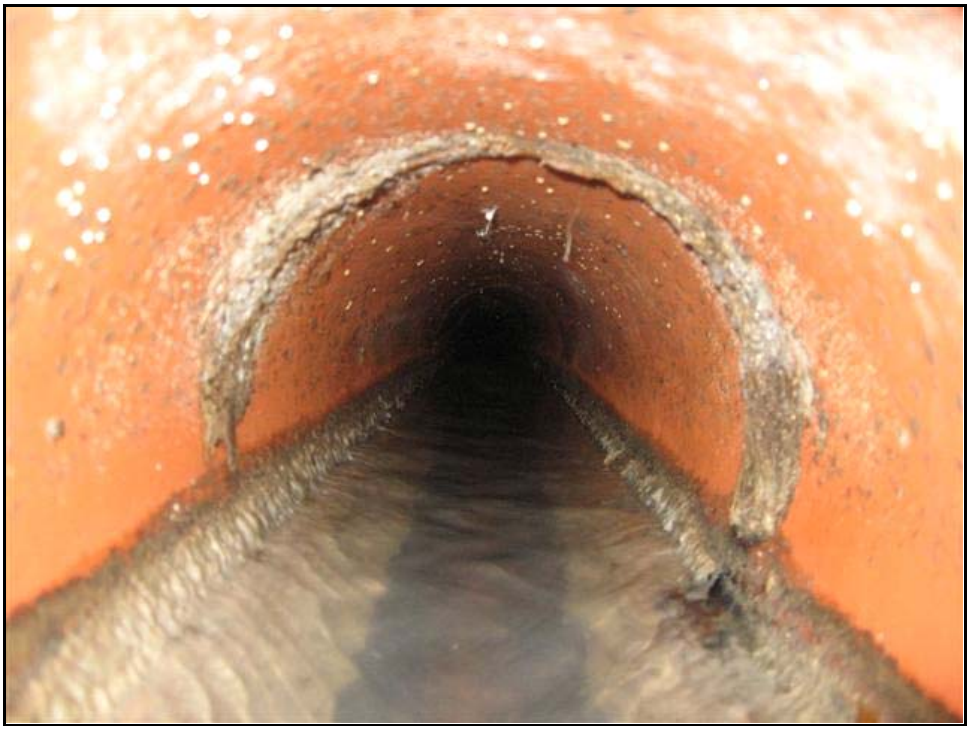
Street View Photo



Plan View Photo

	Site Information Report Photos	**Monitoring Site:** MH 178

East Inlet



North Inlet

	Site Information Report Photos	**Monitoring Site:** MH 178

West Outlet

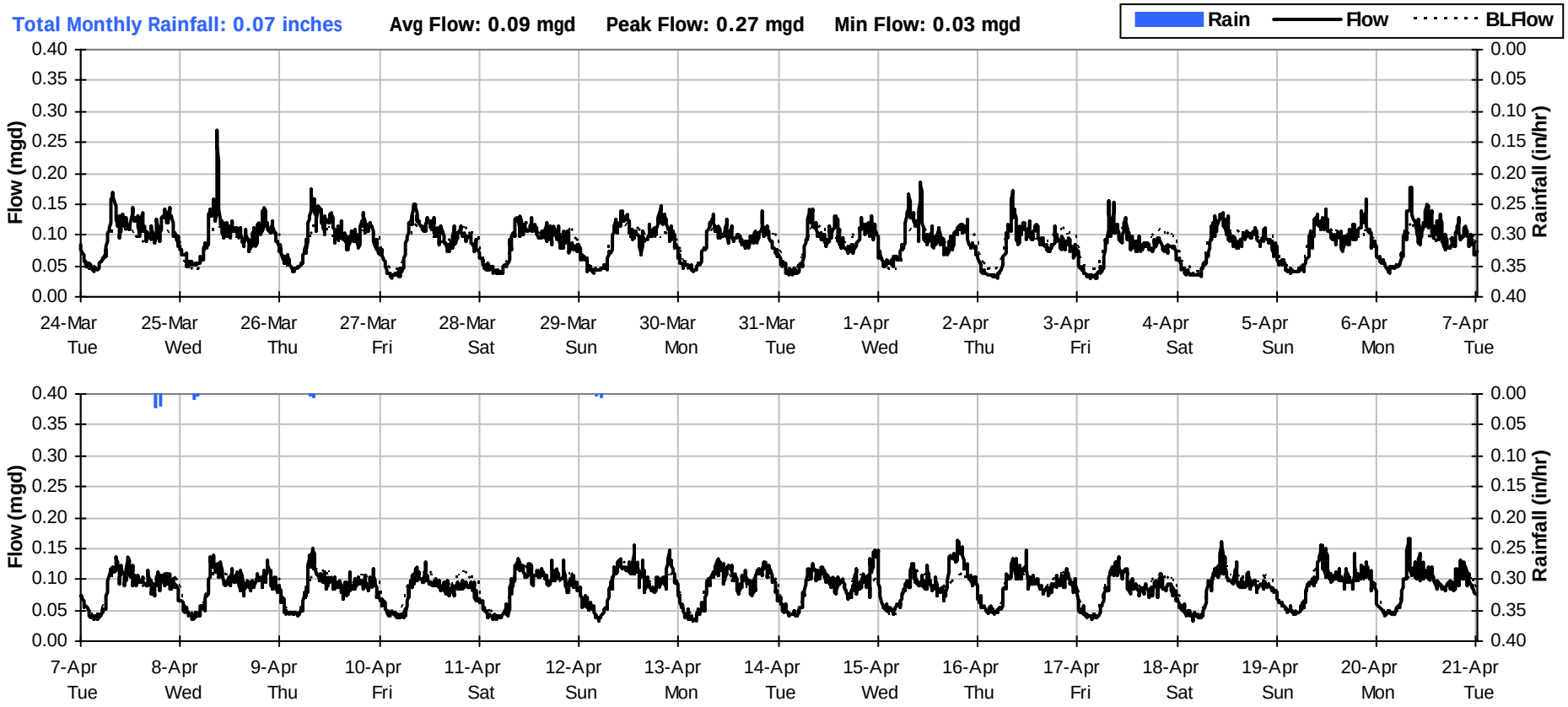
Period Flow Summary

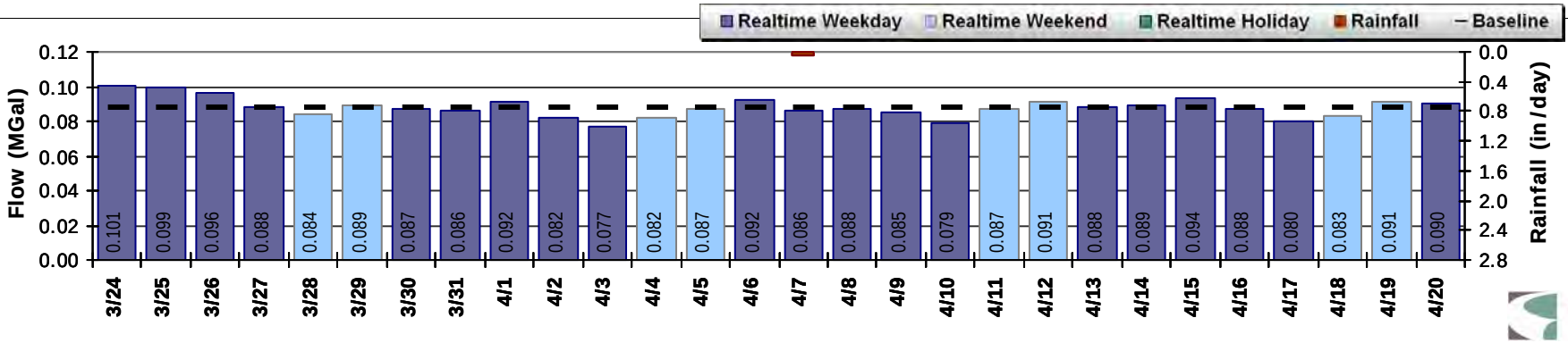
March 24, 2009 to April 21, 2009

Monitoring Site:

MH 178

Total Monthly Rainfall: 0.07 inches **Avg Flow: 0.09 mgd** **Peak Flow: 0.27 mgd** **Min Flow: 0.03 mgd**

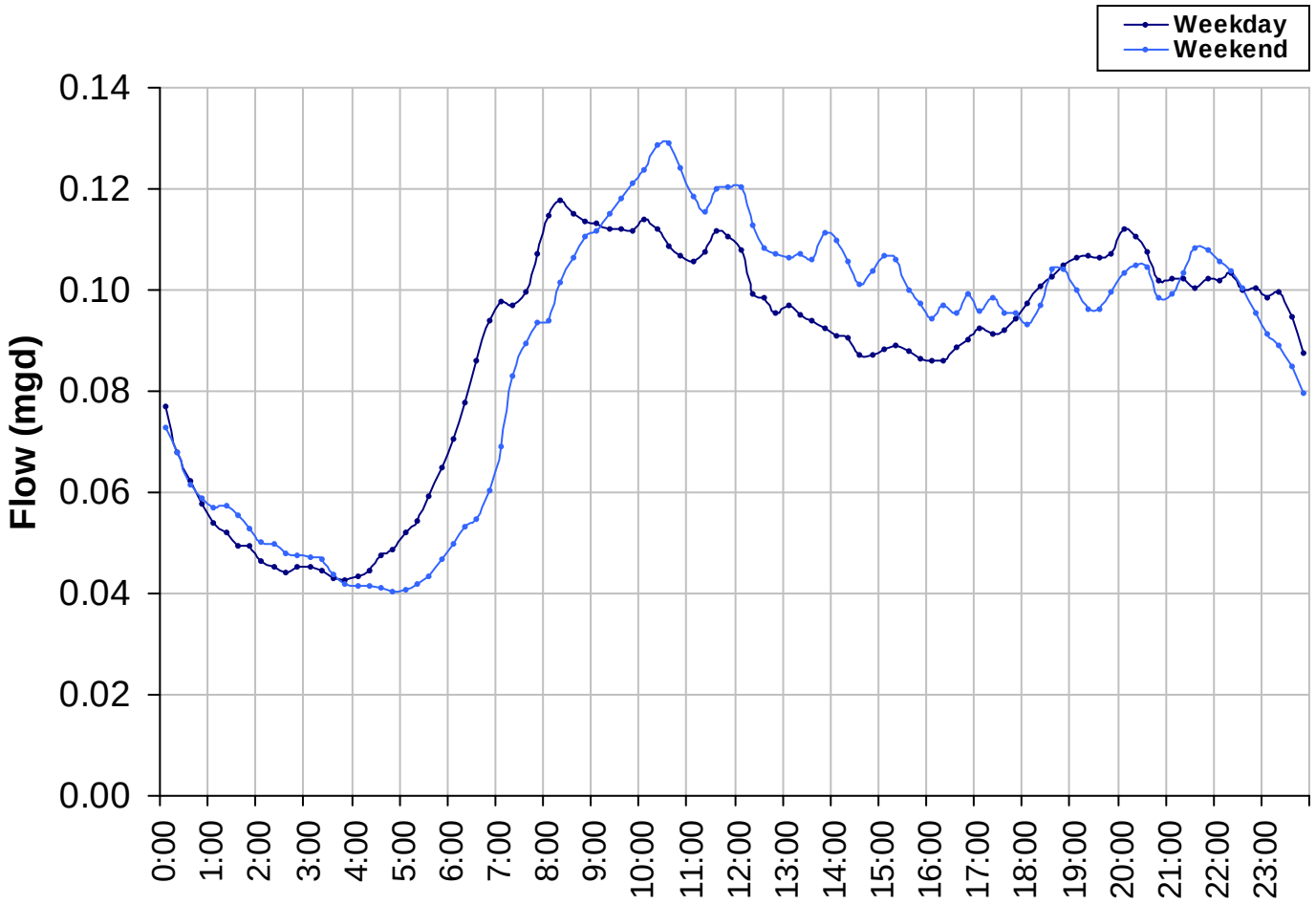




V&A

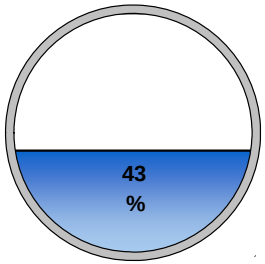
Average Dry Weather Flow

Monitoring Site:
MH 178



Peak Measured Flow:

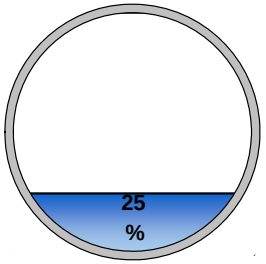
0.27 *mgd*



Peak measured flow shown in weekly graphs on following pages

Average Dry Weather Flow:

0.09 *mgd*

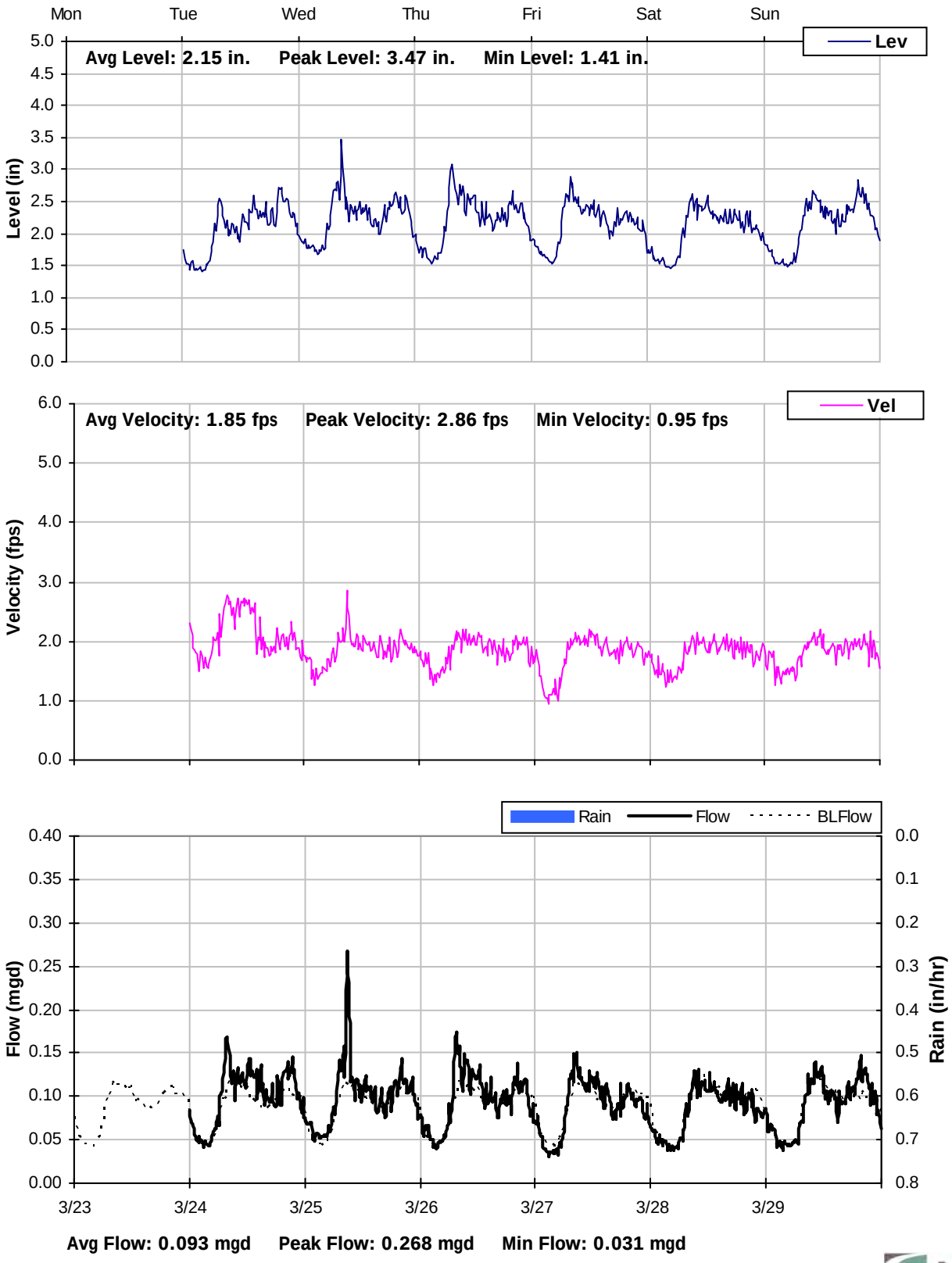


Level, Velocity and Flow

From 3/23/2009 to 3/30/2009

Monitoring Site:

MH 178

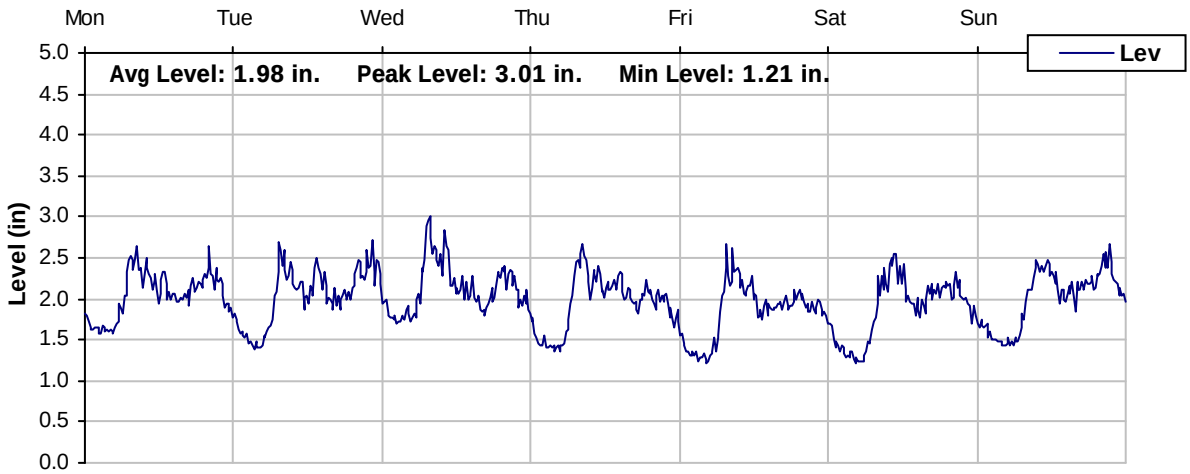


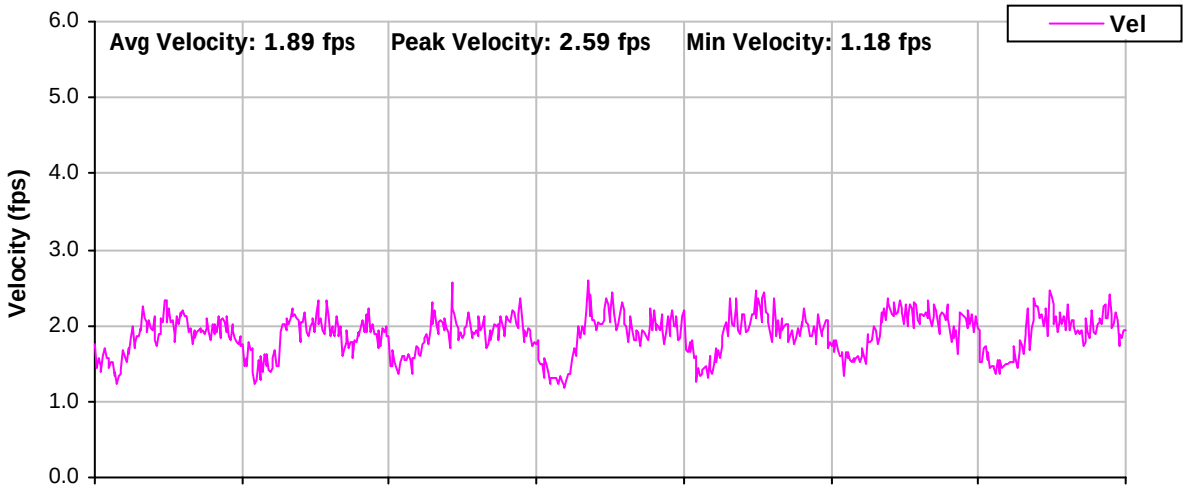
Level, Velocity and Flow

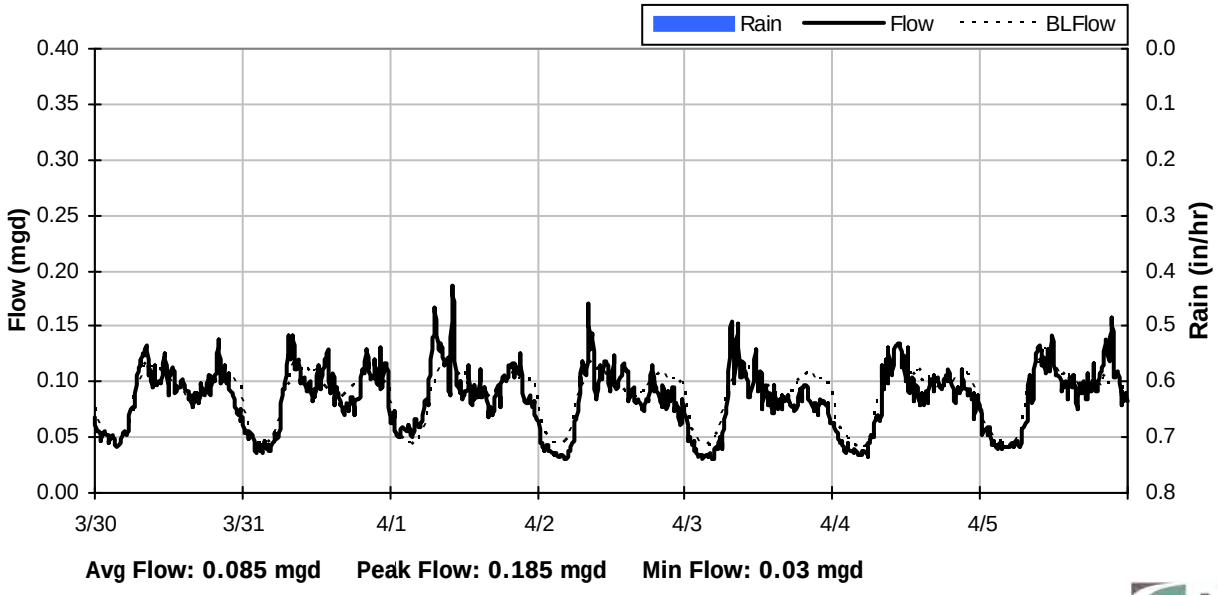
From 3/30/2009 to 4/6/2009

Monitoring Site:

MH 178







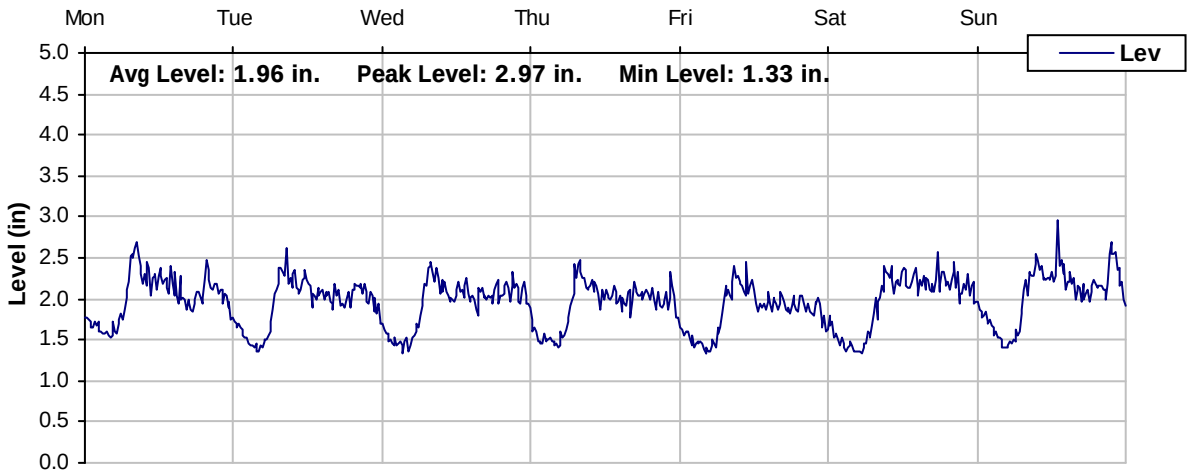
Avg Flow: 0.085 mgd **Peak Flow: 0.185 mgd** **Min Flow: 0.03 mgd**

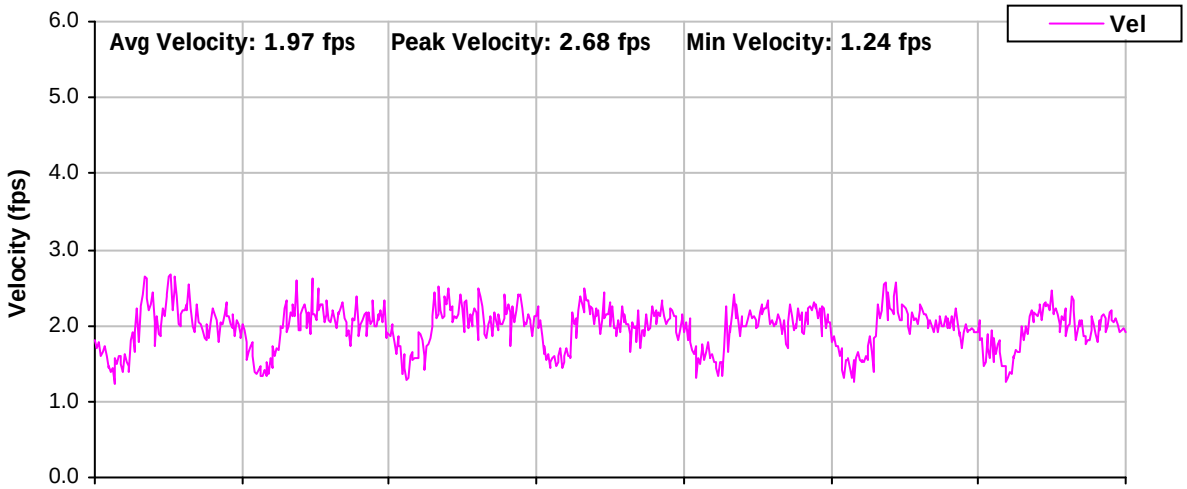
Level, Velocity and Flow

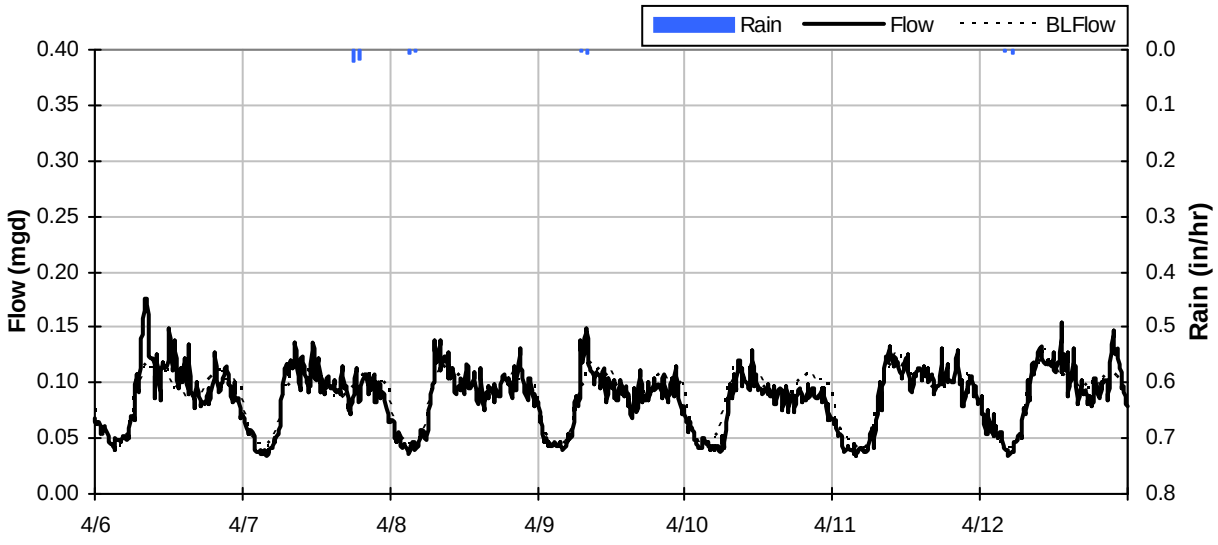
From 4/6/2009 to 4/13/2009

Monitoring Site:

MH 178







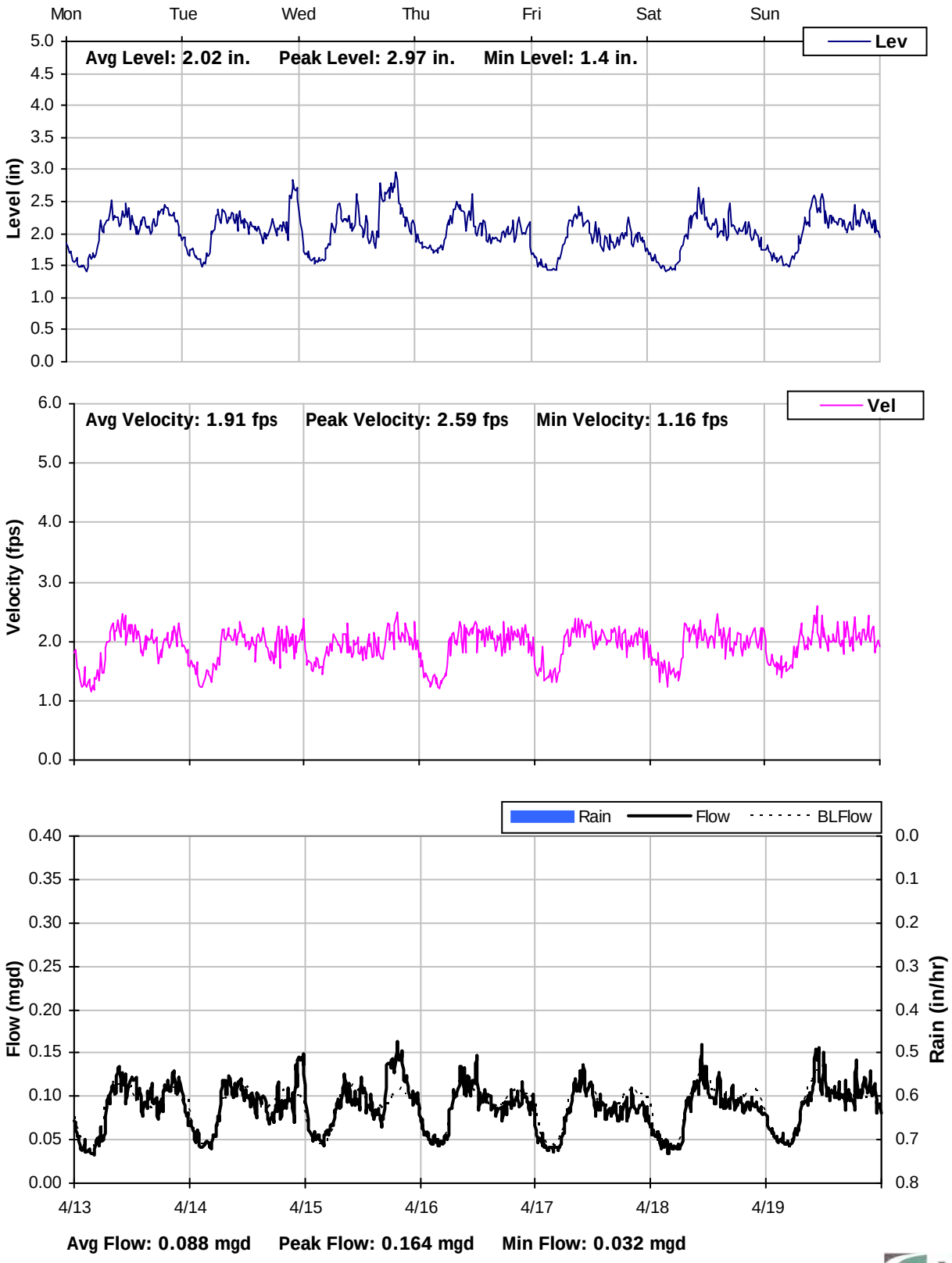
Avg Flow: 0.087 mgd **Peak Flow: 0.176 mgd** **Min Flow: 0.034 mgd**

Level, Velocity and Flow

From 4/13/2009 to 4/20/2009

Monitoring Site:

MH 178

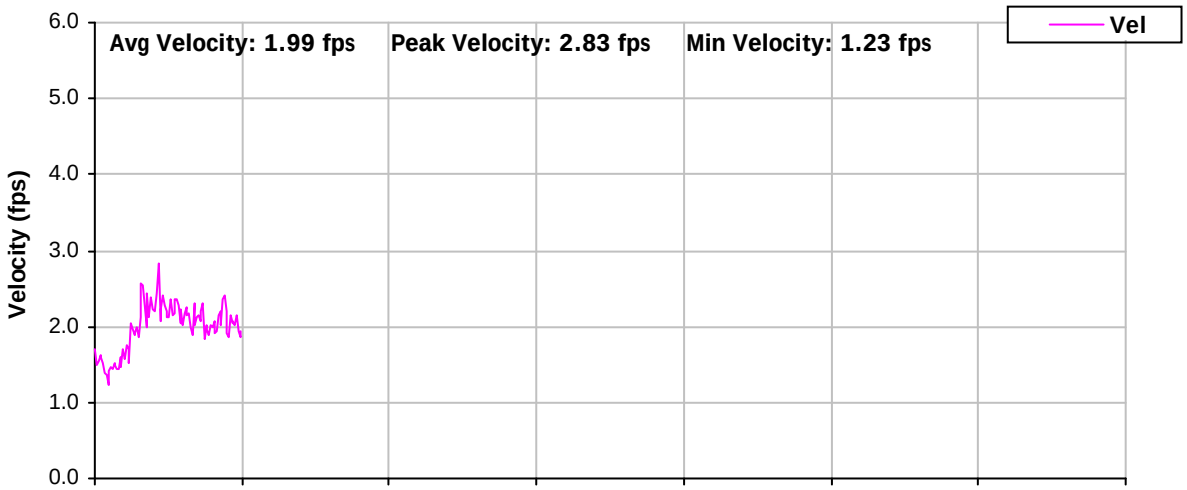


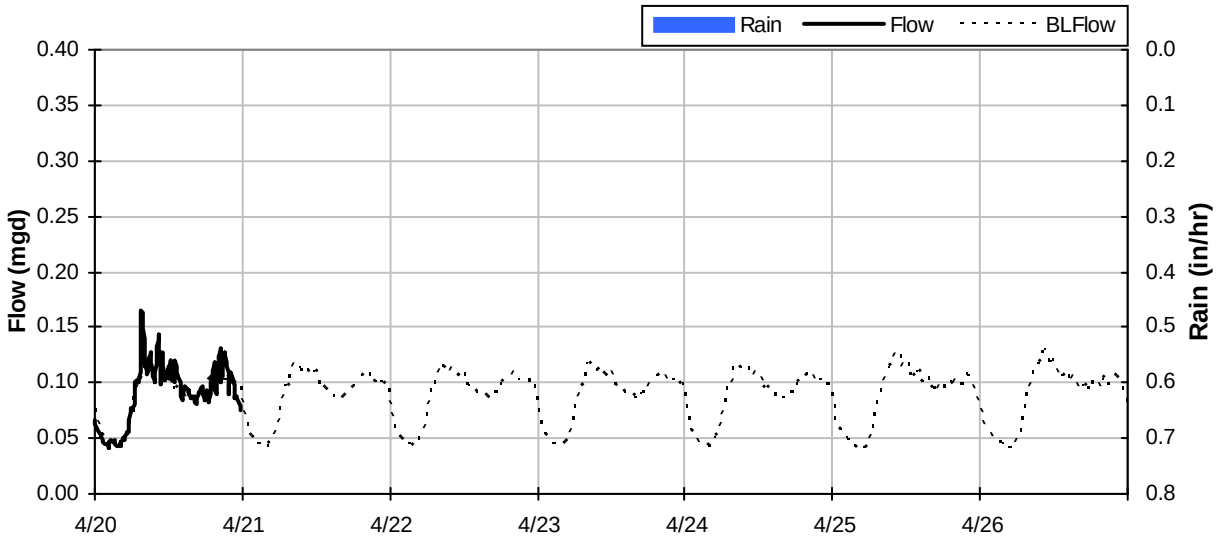
Level, Velocity and Flow

From 4/20/2009 to 4/27/2009

Monitoring Site:

MH 178





Avg Flow: 0.09 mgd **Peak Flow: 0.165 mgd** **Min Flow: 0.041 mgd**

Temporary Flow Monitoring Study

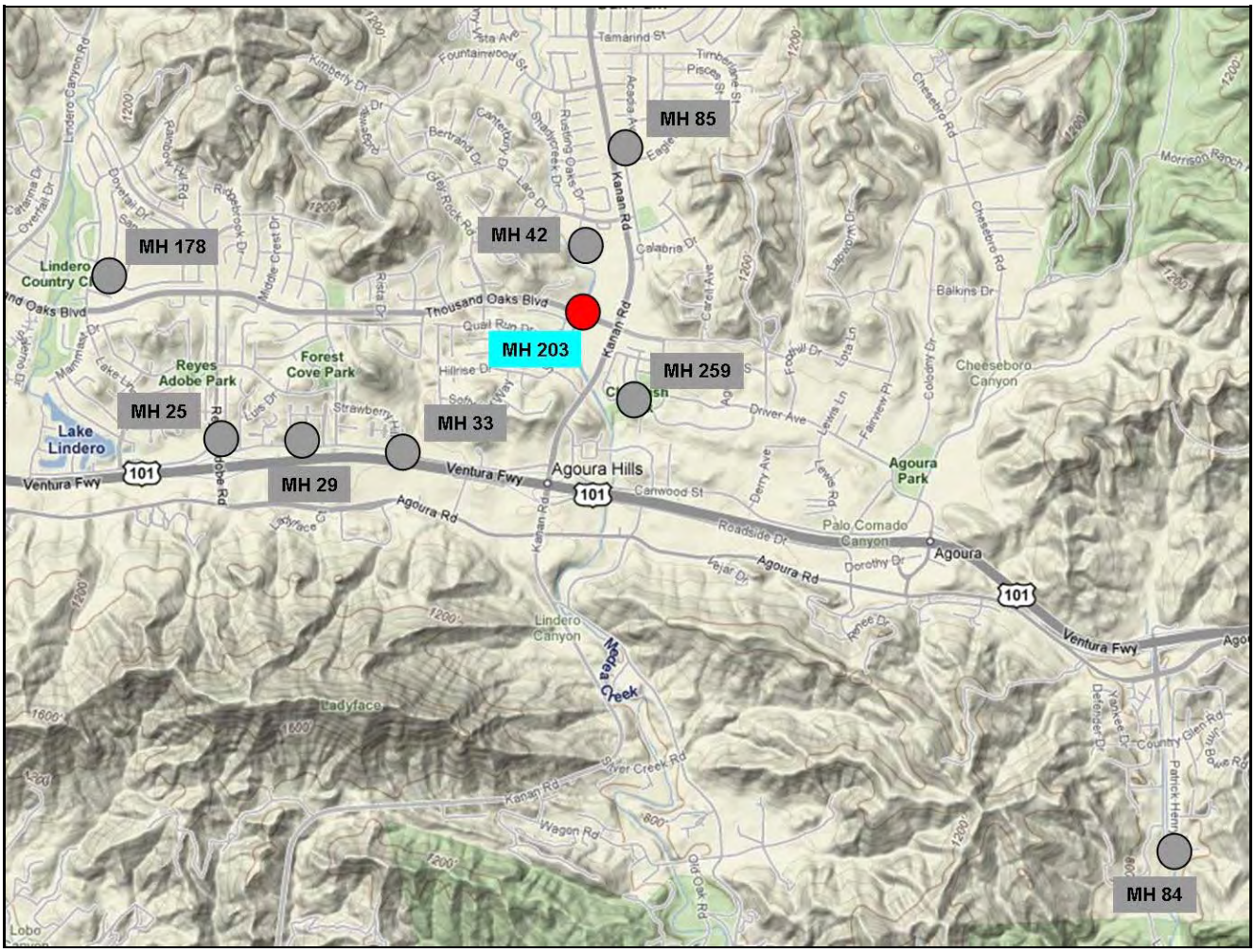
Sanitary Sewer Collection System

Monitoring Site: MH 203

Location: Thousand Oaks Boulevard, west of Kanan Road

Size / Type Line: 8-inch Sanitary Sewer Pipe

Data Summary Report



Site Information Report

Monitoring Site: MH 203

Location: Thousand Oaks Boulevard, west of Kanan Road

Diameter: 8 inches

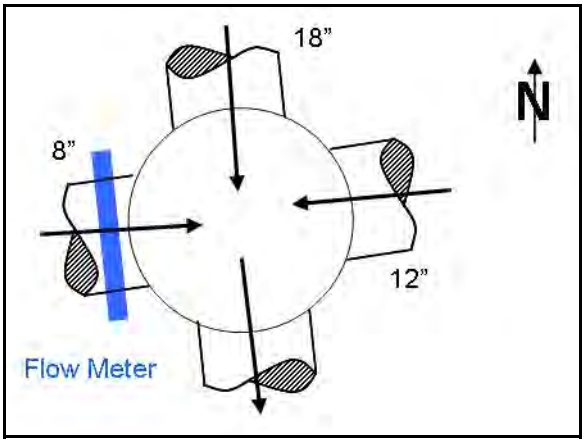
Average Dry Weather Flow: 0.09 *mgd*

Peak Measured Flow: 0.20 *mgd*

Satellite Map

Sanitary Map

Flow Sketch



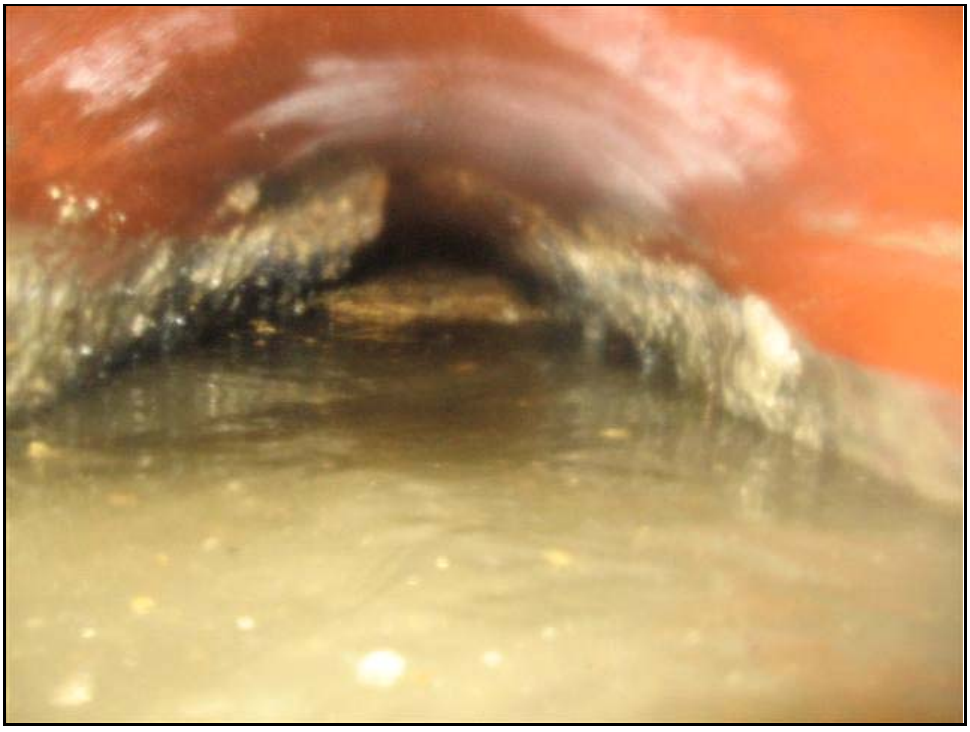
Street View Photo

Plan View Photo

	Site Information Report Photos	**Monitoring Site:** MH 203

Manhole Lid

East Inlet



	Site Information Report Photos	**Monitoring Site:** MH 203

North Inlet

West Inlet

	Site Information Report Photos	**Monitoring Site:** MH 203

South Outlet

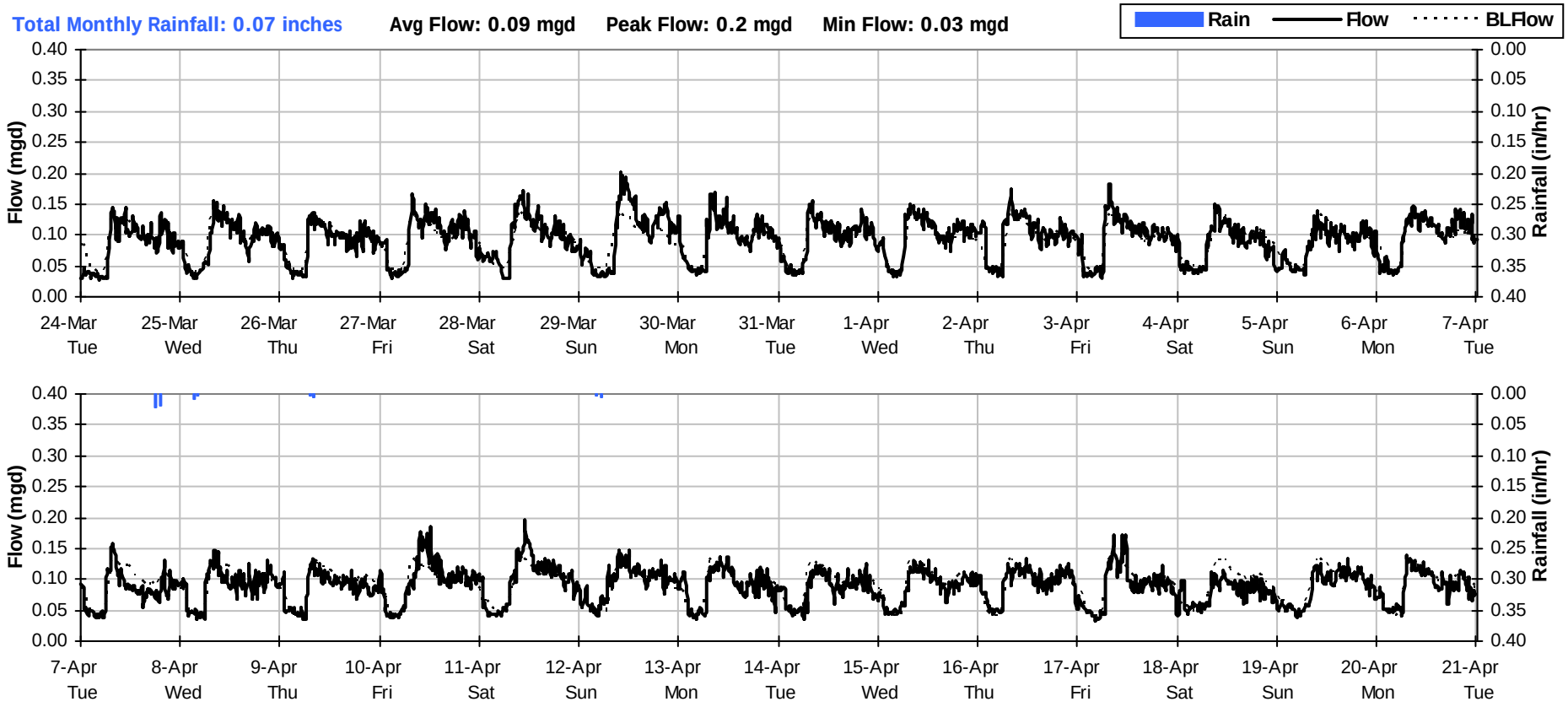
Period Flow Summary

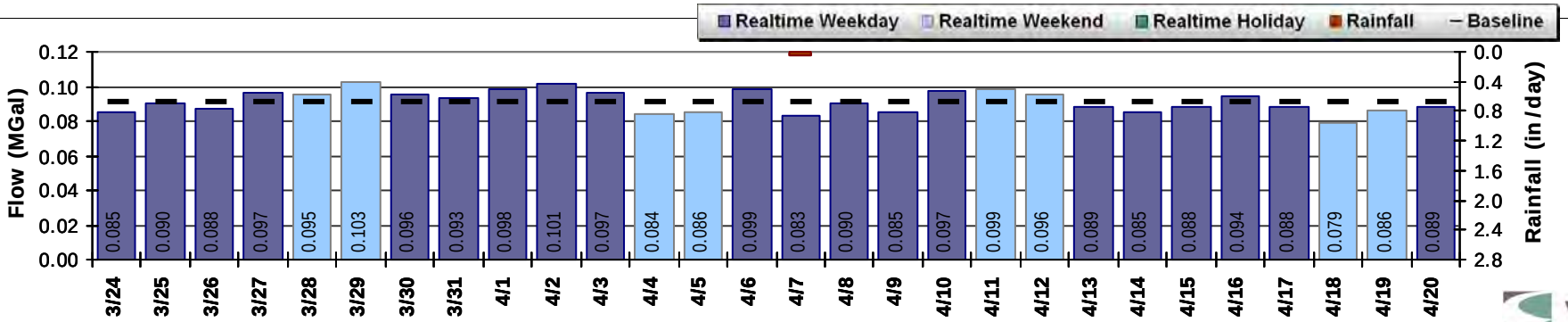
March 24, 2009 to April 21, 2009

Monitoring Site:

MH 203

Total Monthly Rainfall: 0.07 inches **Avg Flow: 0.09 mgd** **Peak Flow: 0.2 mgd** **Min Flow: 0.03 mgd**

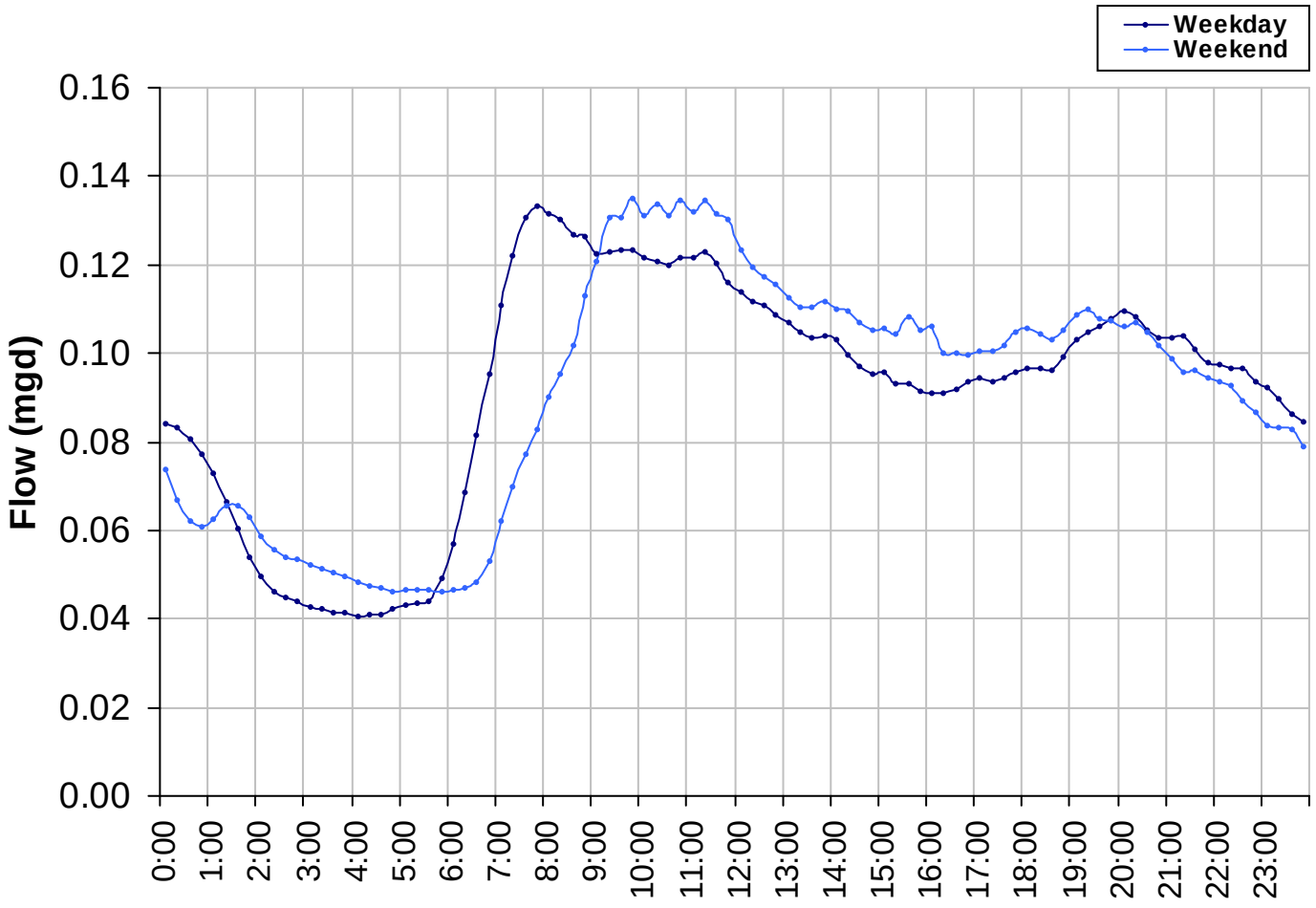




V&A

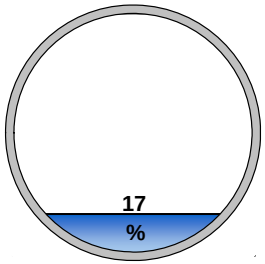
Average Dry Weather Flow

Monitoring Site:
MH 203



Peak Measured Flow:

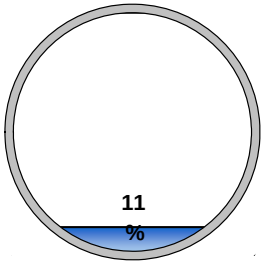
0.20 *mgd*



Peak measured flow shown in weekly graphs on following pages

Average Dry Weather Flow:

0.09 *mgd*

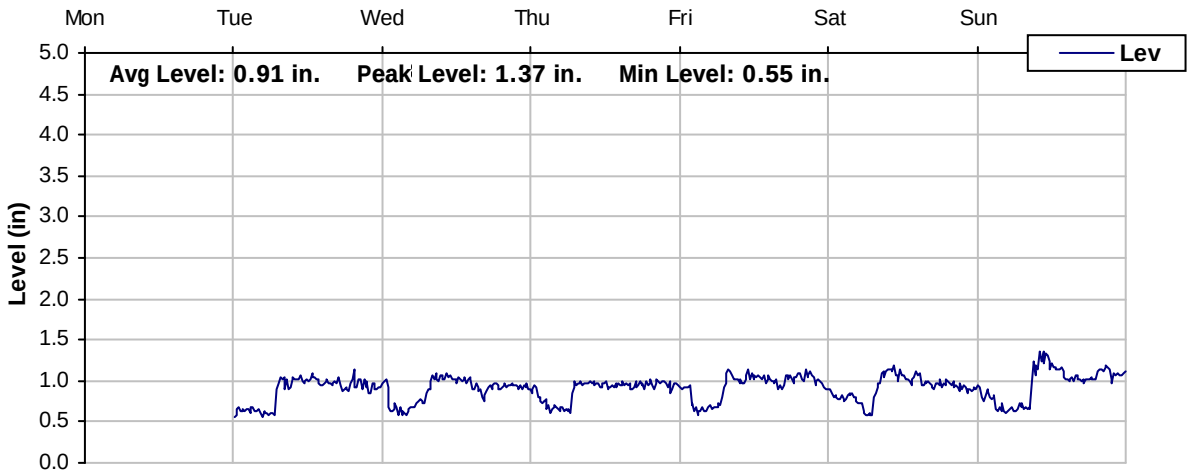


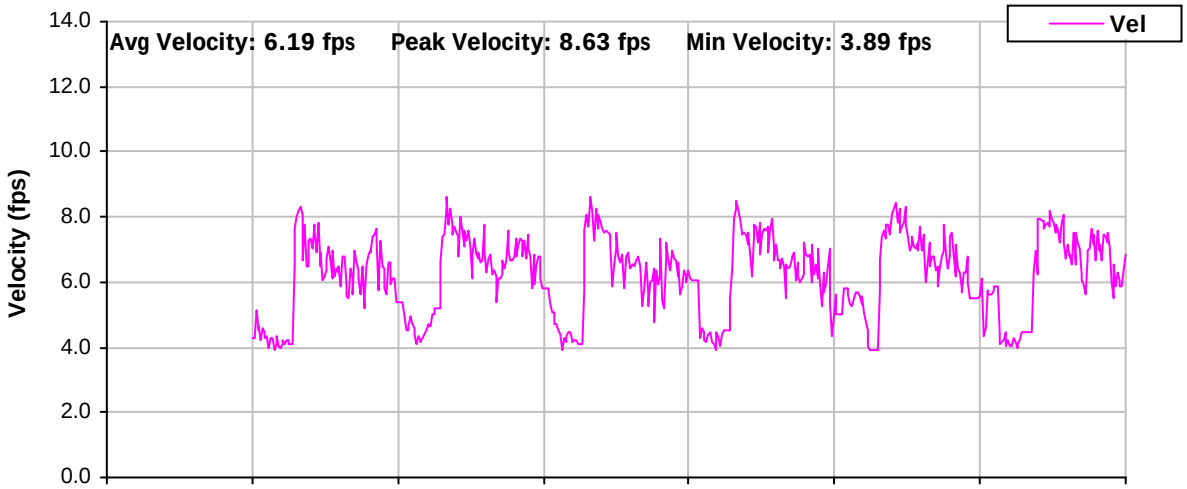
Level, Velocity and Flow

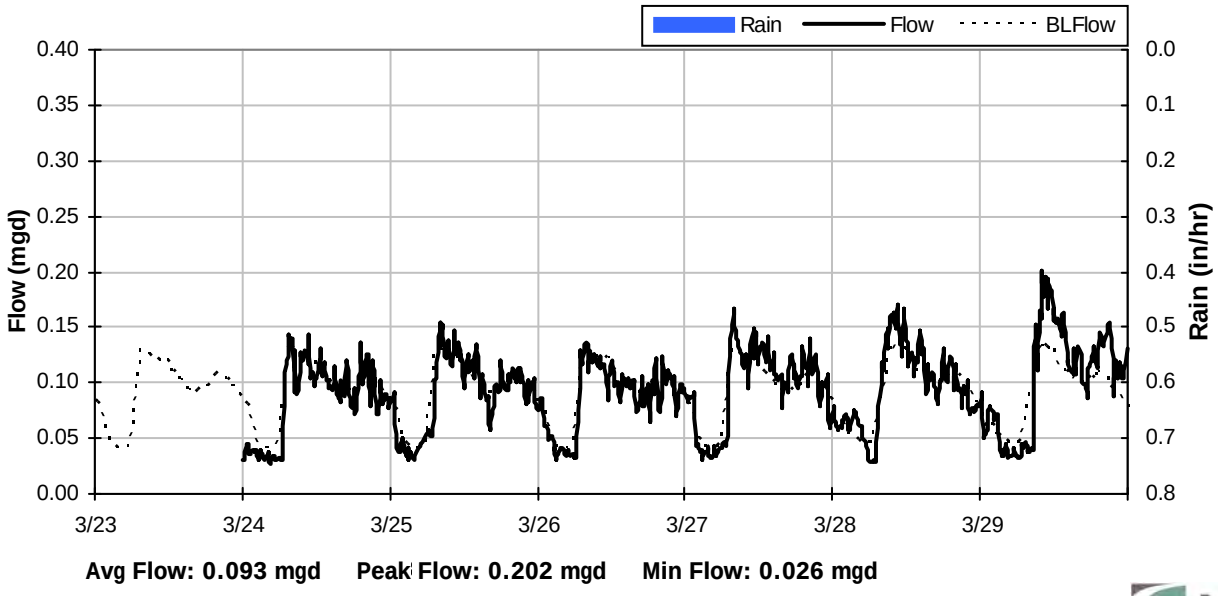
From 3/23/2009 to 3/30/2009

Monitoring Site:

MH 203







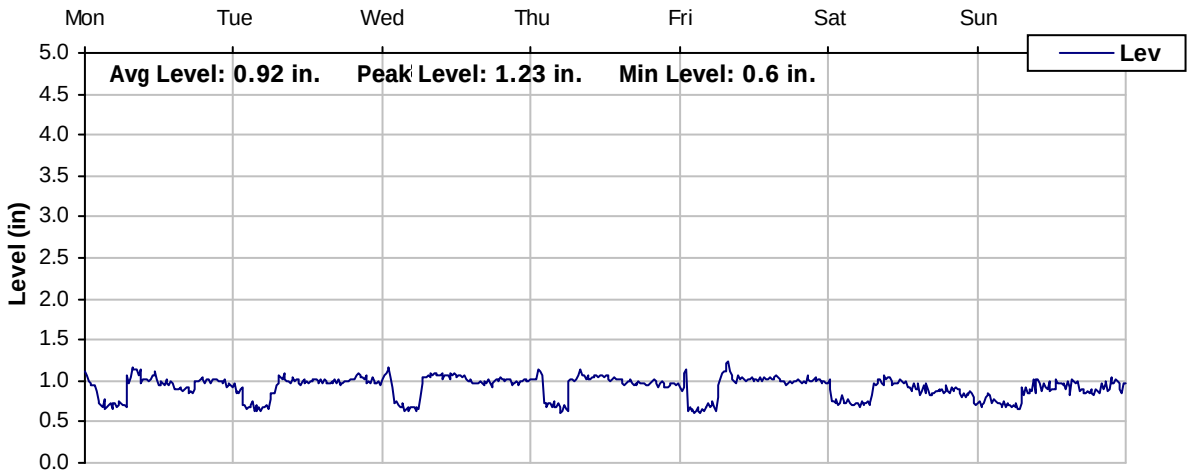
Avg Flow: 0.093 mgd **Peak Flow: 0.202 mgd** **Min Flow: 0.026 mgd**

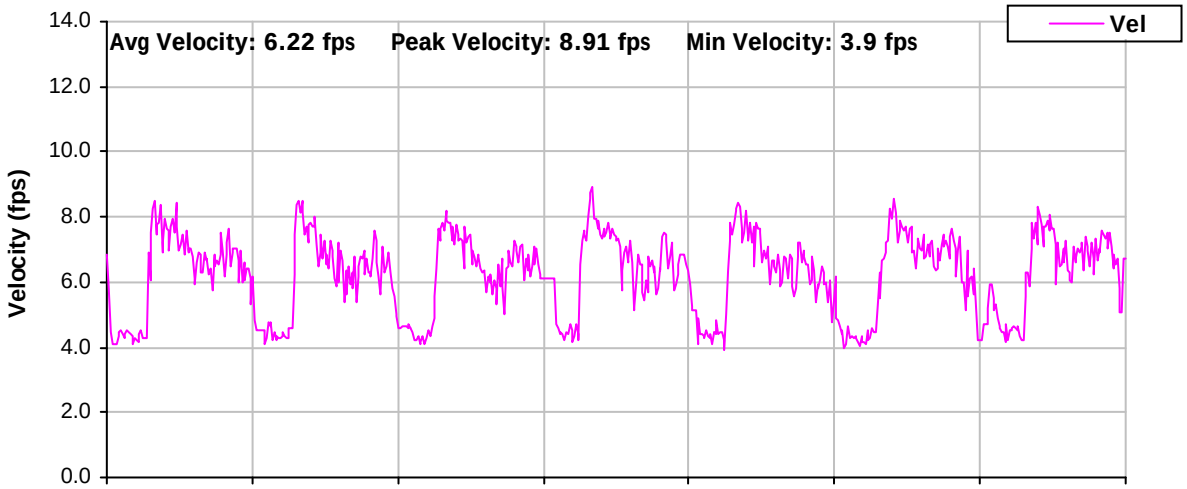
Level, Velocity and Flow

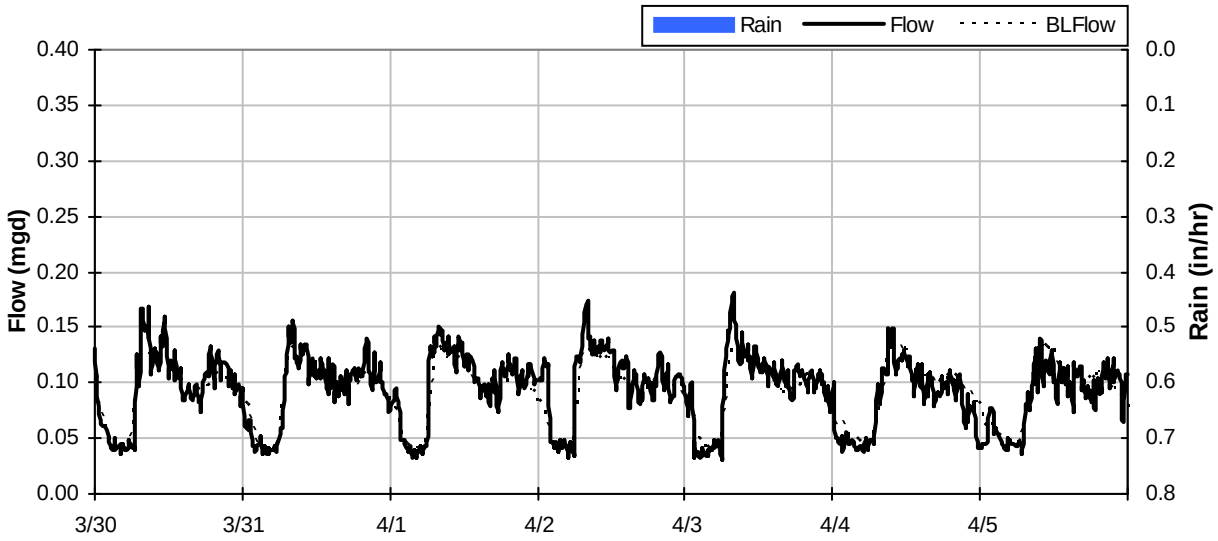
From 3/30/2009 to 4/6/2009

Monitoring Site:

MH 203







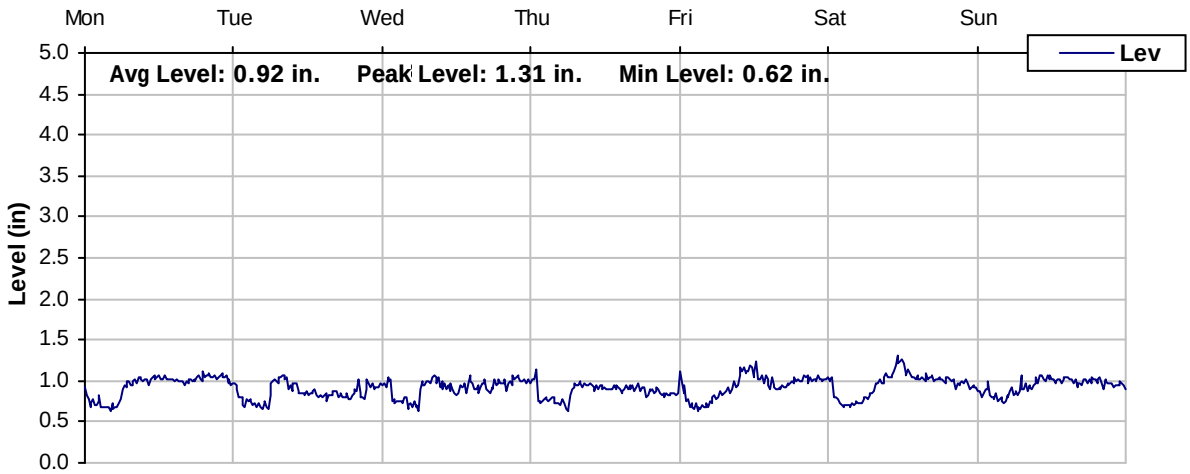
Avg Flow: 0.094 mgd **Peak Flow: 0.181 mgd** **Min Flow: 0.031 mgd**

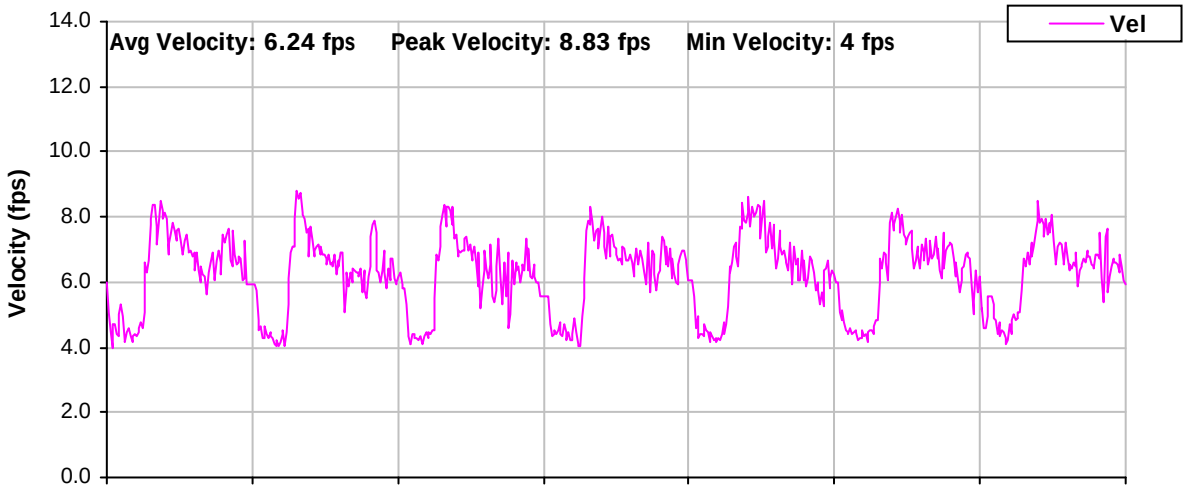
Level, Velocity and Flow

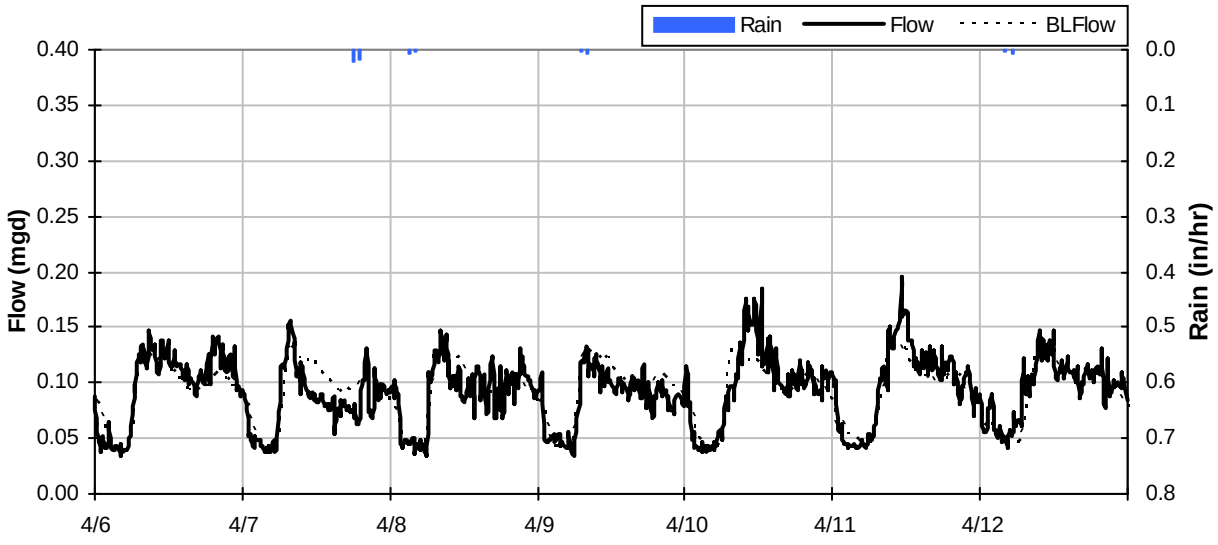
From 4/6/2009 to 4/13/2009

Monitoring Site:

MH 203







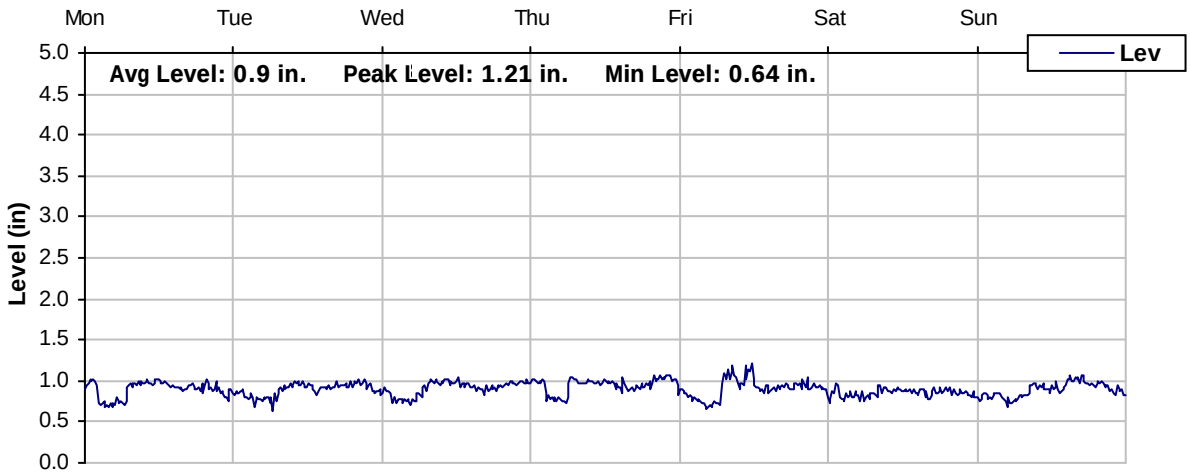
Avg Flow: 0.093 mgd **Peak Flow: 0.196 mgd** **Min Flow: 0.034 mgd**

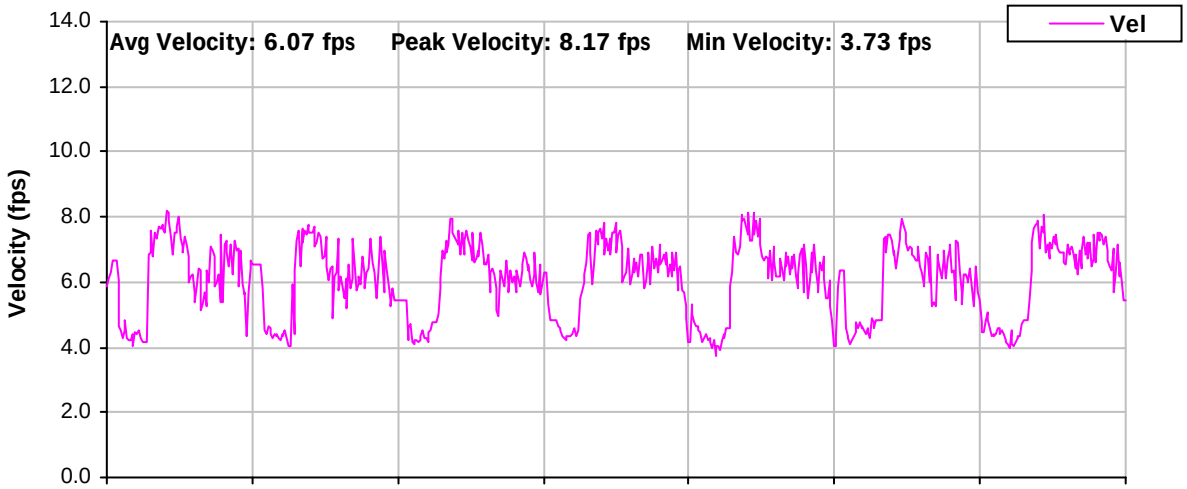
Level, Velocity and Flow

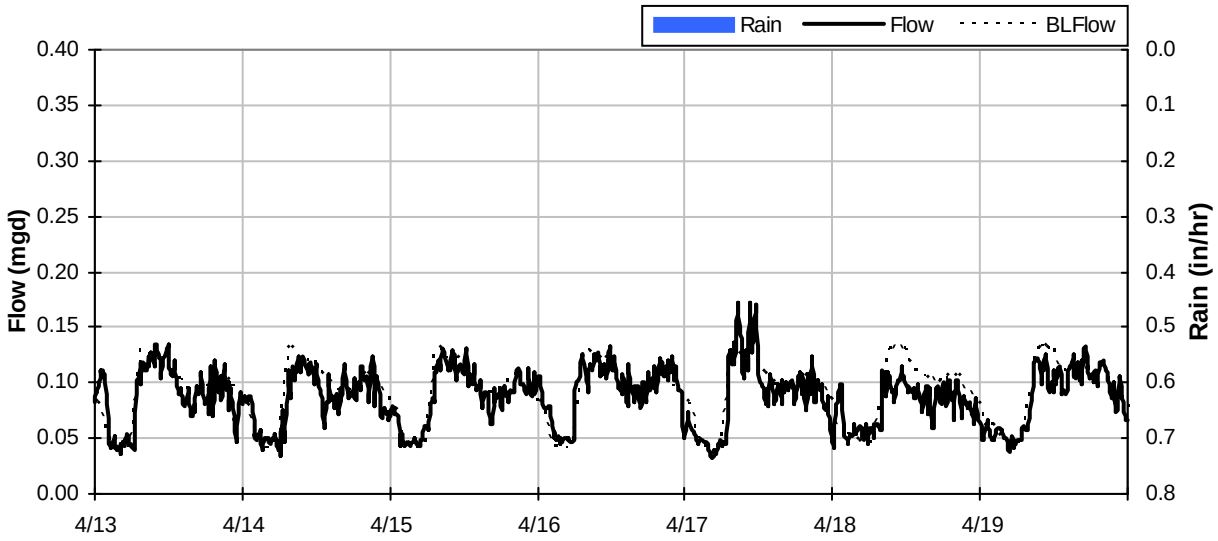
From 4/13/2009 to 4/20/2009

Monitoring Site:

MH 203







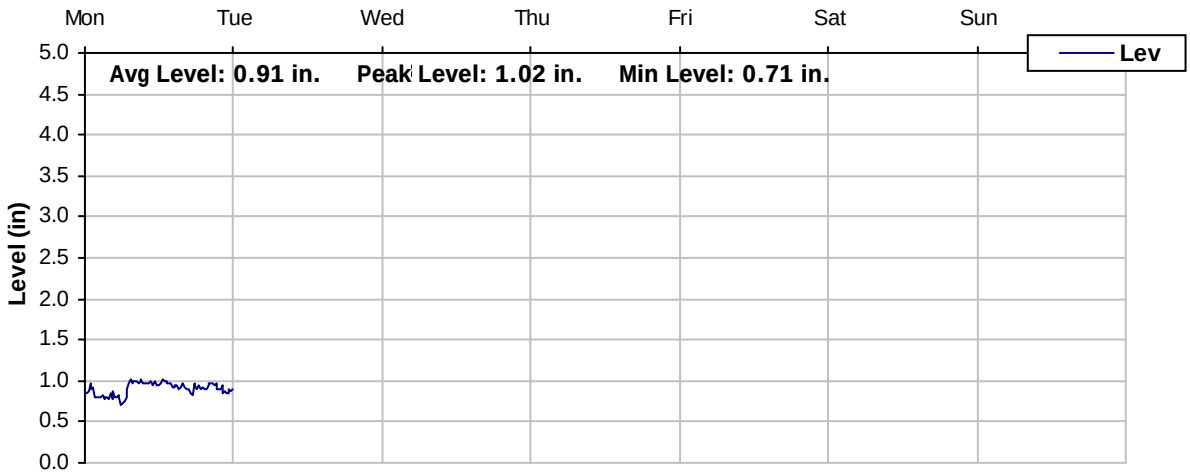
Avg Flow: 0.087 mgd **Peak Flow: 0.171 mgd** **Min Flow: 0.032 mgd**

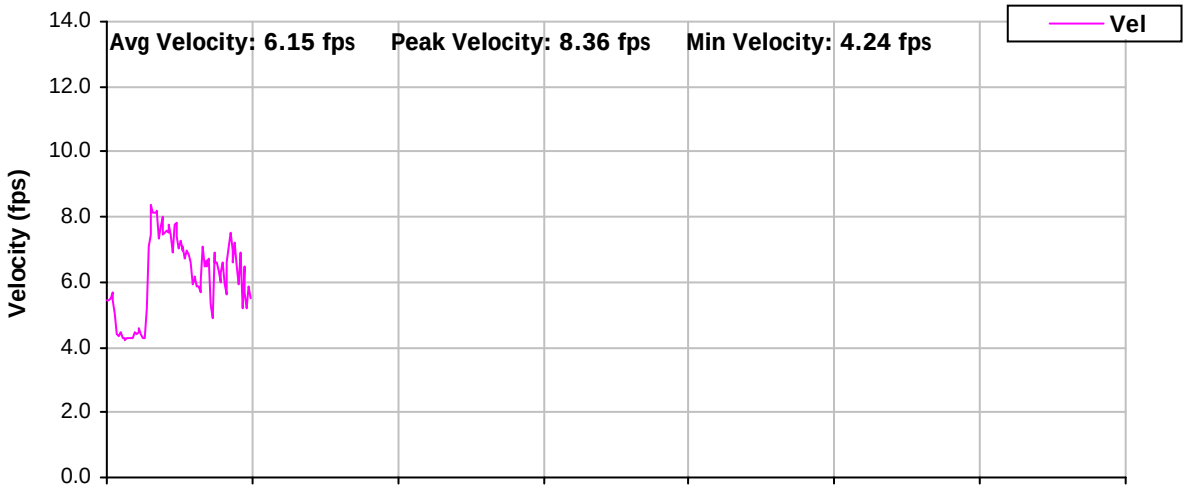
Level, Velocity and Flow

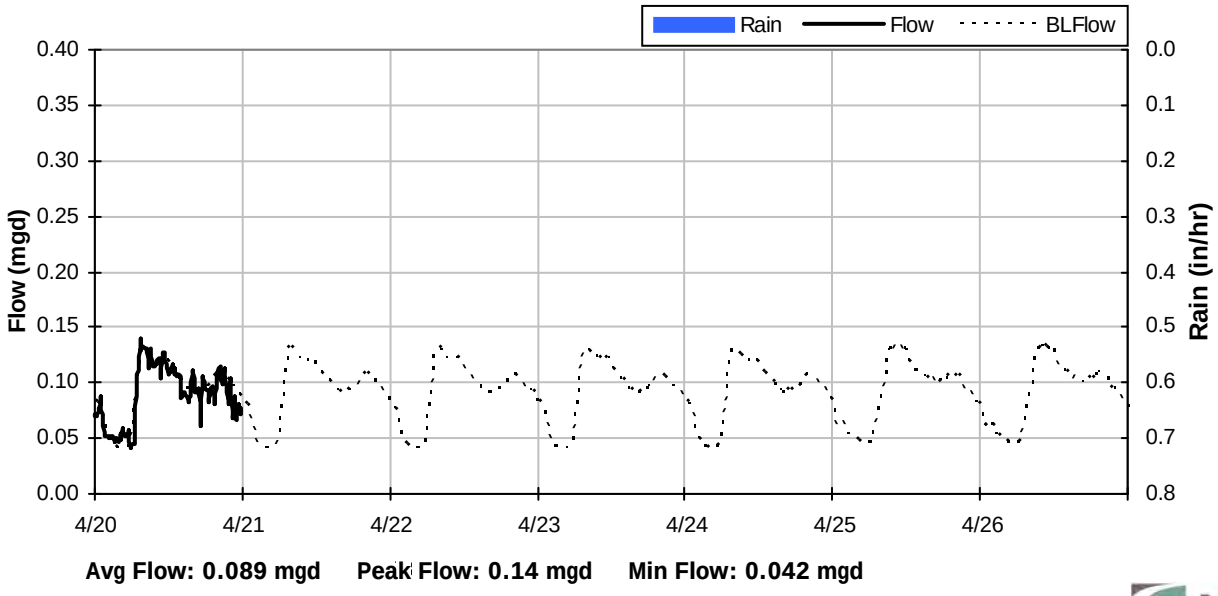
From 4/20/2009 to 4/27/2009

Monitoring Site:

MH 203







Avg Flow: 0.089 mgd **Peak Flow: 0.14 mgd** **Min Flow: 0.042 mgd**

Temporary Flow Monitoring Study

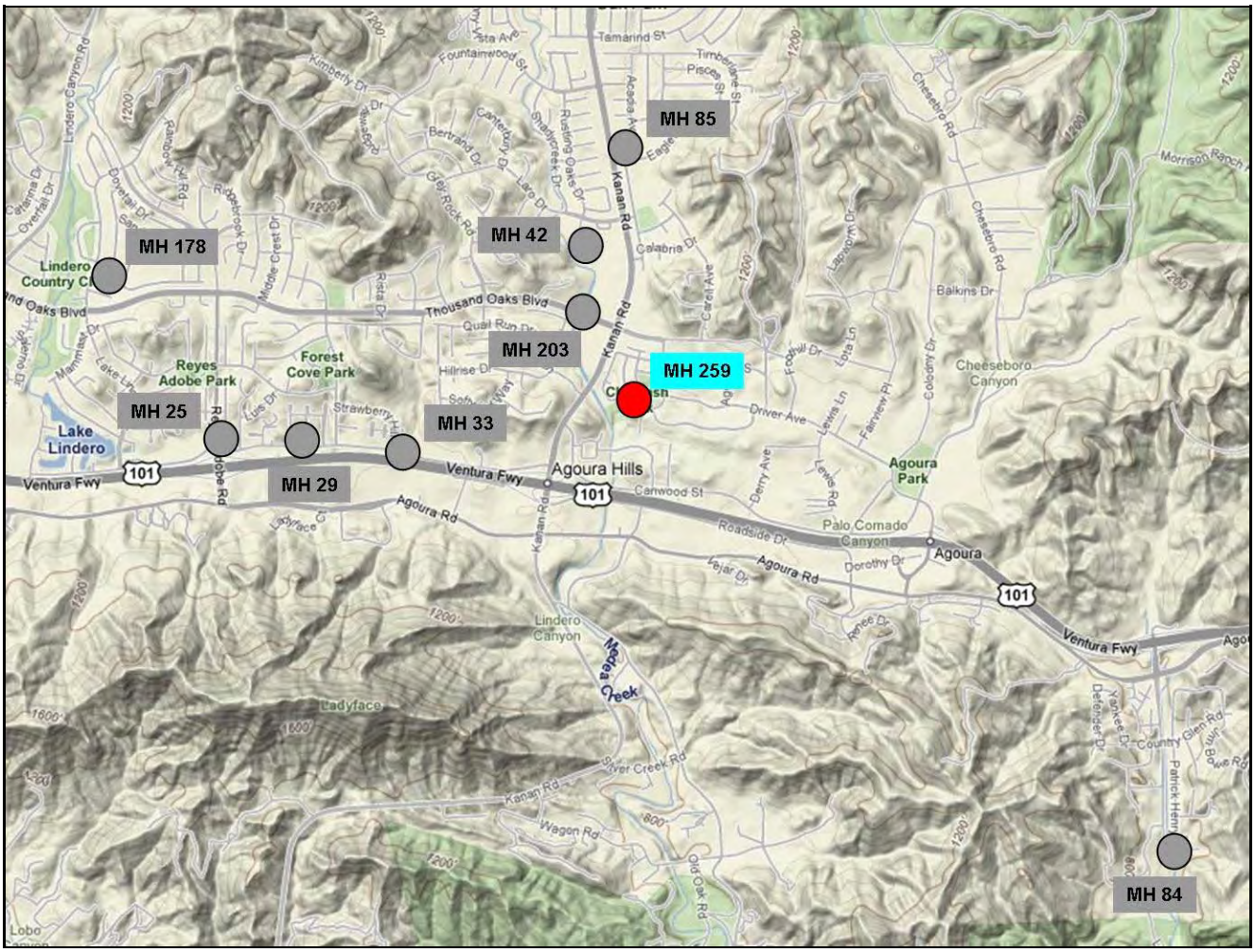
Sanitary Sewer Collection System

Monitoring Site: MH 259

Location: Chumash Park near Medea Valley Drive

Size / Type Line: 8-inch Sanitary Sewer Pipe

Data Summary Report



Site Information Report

Monitoring Site: MH 259

Location: Chumash Park near Medea Valley Drive

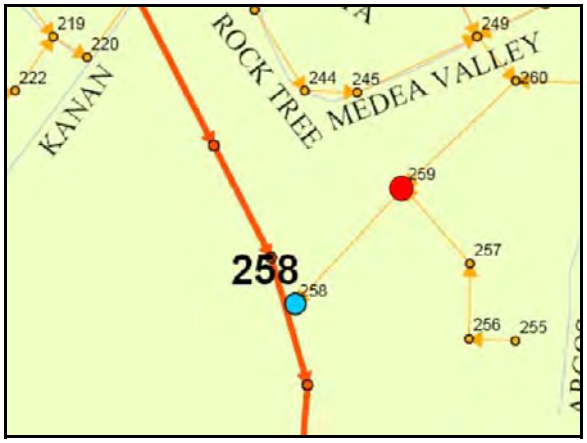
Diameter: 8 inches

Average Dry Weather Flow: 0.14 *mgd*

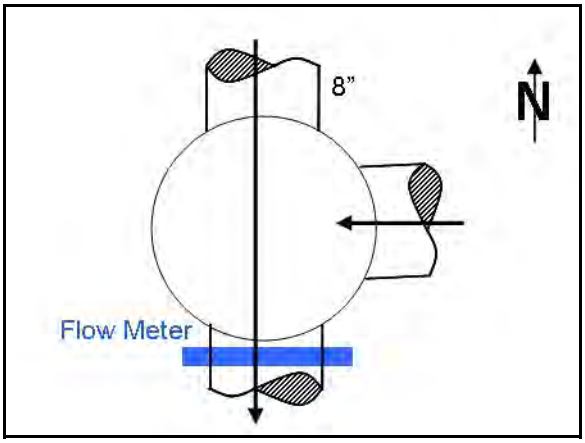
Peak Measured Flow: 0.35 *mgd*

Satellite Map

Sanitary Map



Flow Sketch



Street View Photo

Plan View Photo

	Site Information Report Photos	**Monitoring Site:** MH 259

East Inlet

South Inlet

	Site Information Report Photos	**Monitoring Site:** MH 259

West Outlet

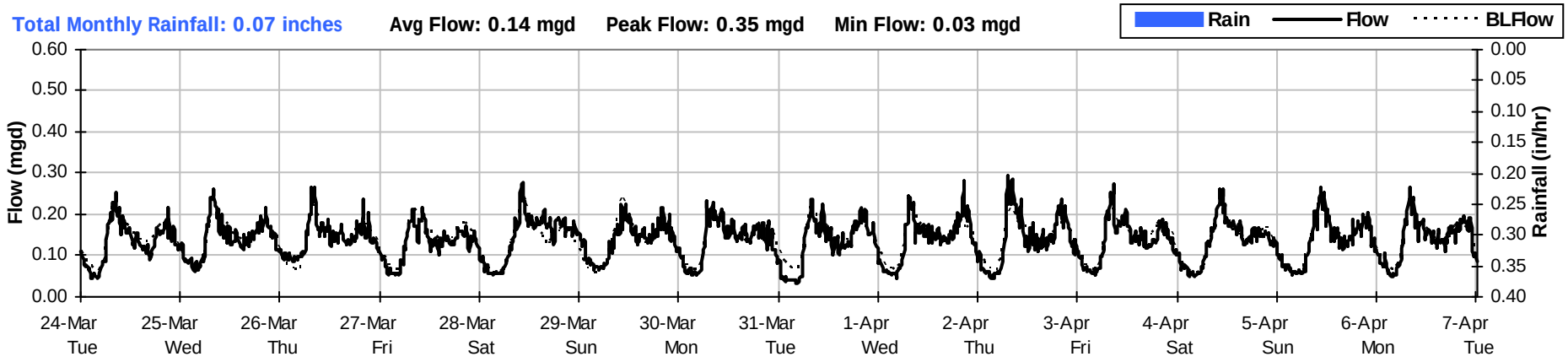
Period Flow Summary

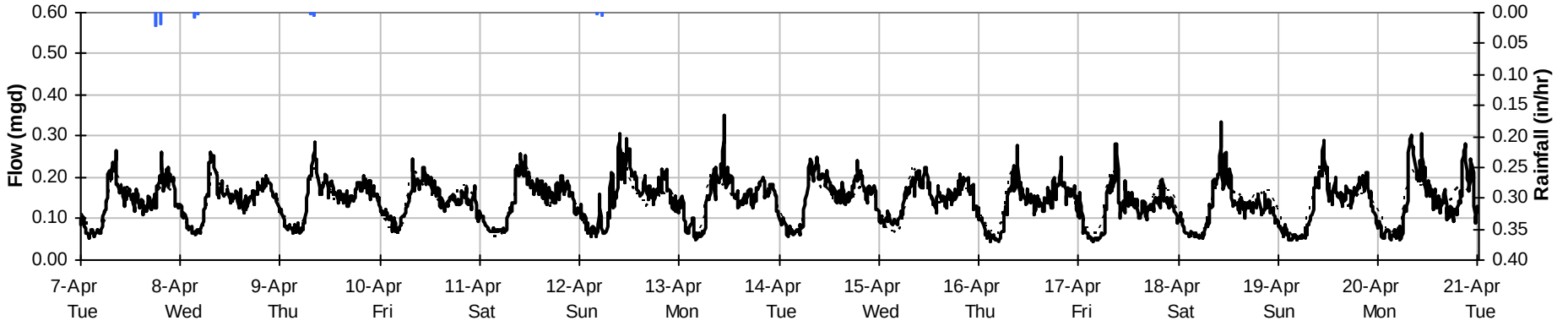
March 24, 2009 to April 21, 2009

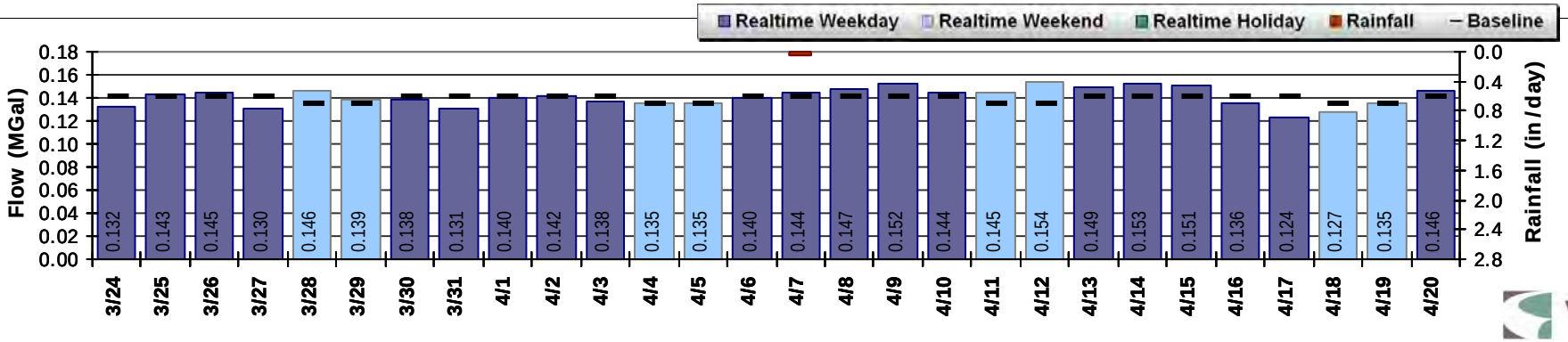
Monitoring Site:

MH 259

Total Monthly Rainfall: 0.07 inches **Avg Flow: 0.14 mgd** **Peak Flow: 0.35 mgd** **Min Flow: 0.03 mgd**

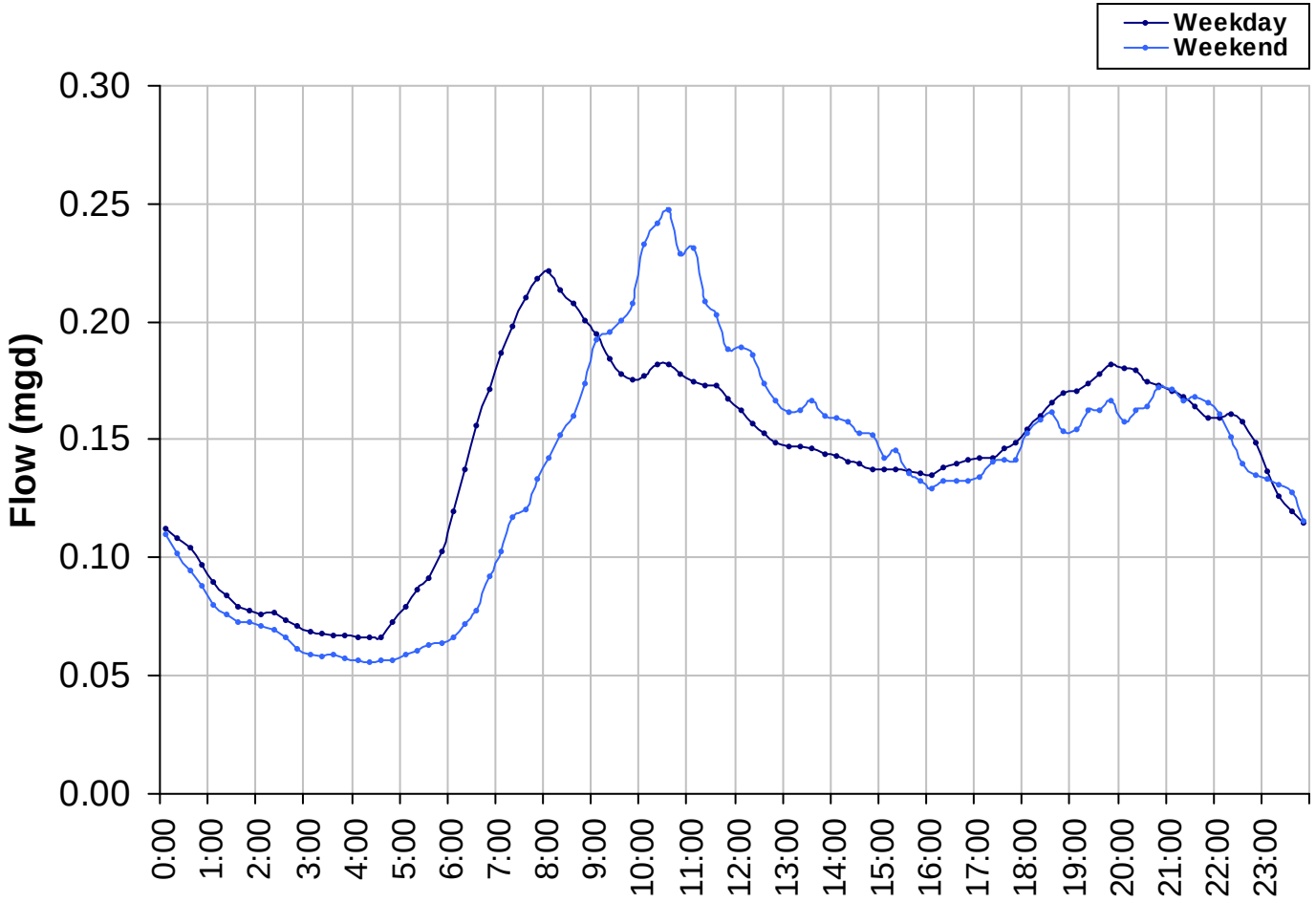






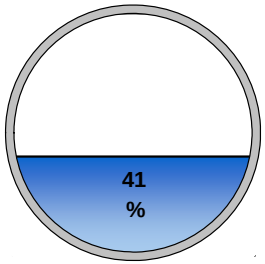
Average Dry Weather Flow

Monitoring Site:
MH 259



Peak Measured Flow:

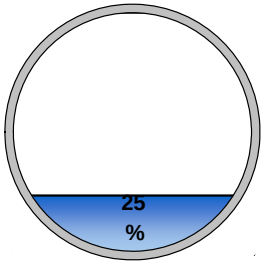
0.35 *mgd*



Peak measured flow shown in weekly graphs on following pages

Average Dry Weather Flow:

0.14 *mgd*

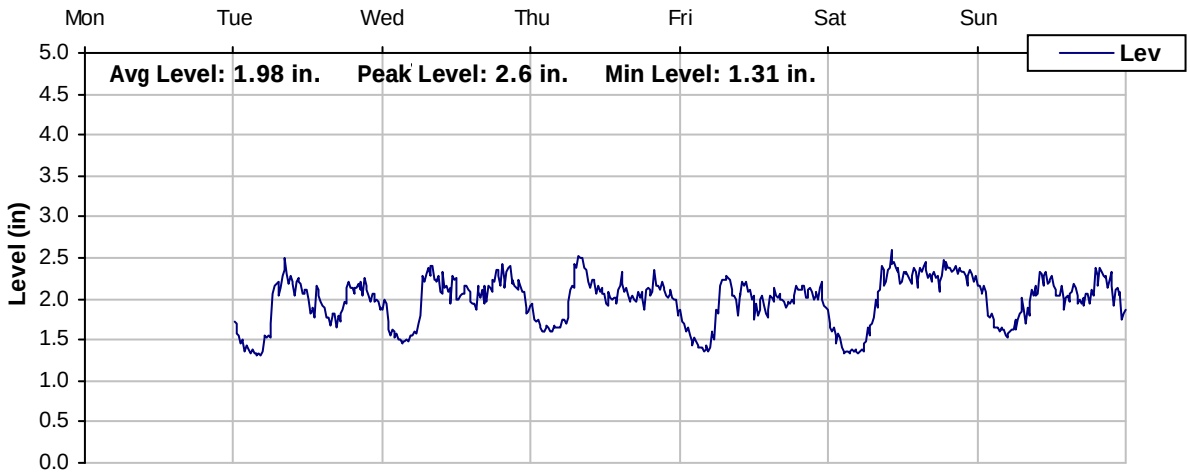


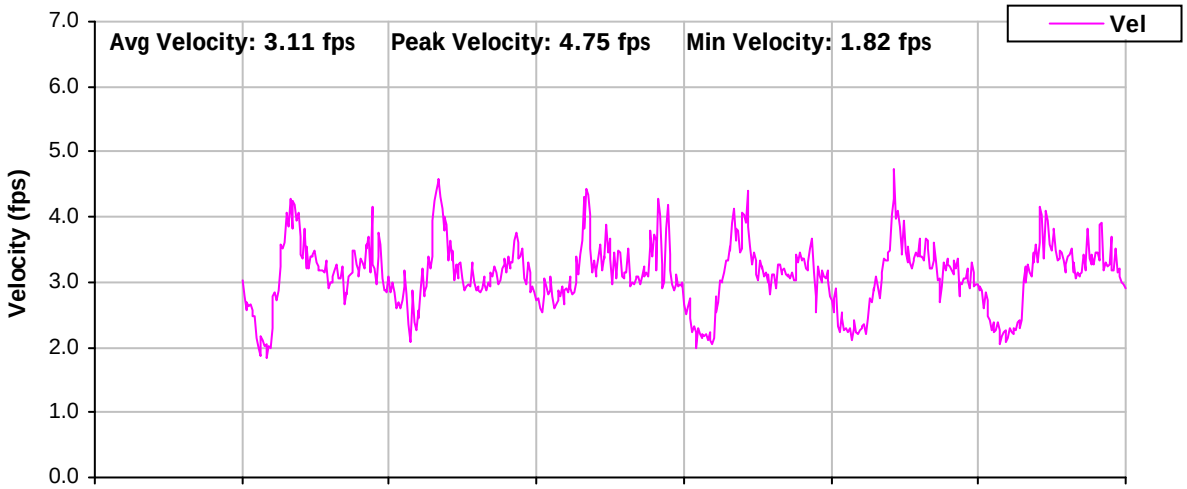
Level, Velocity and Flow

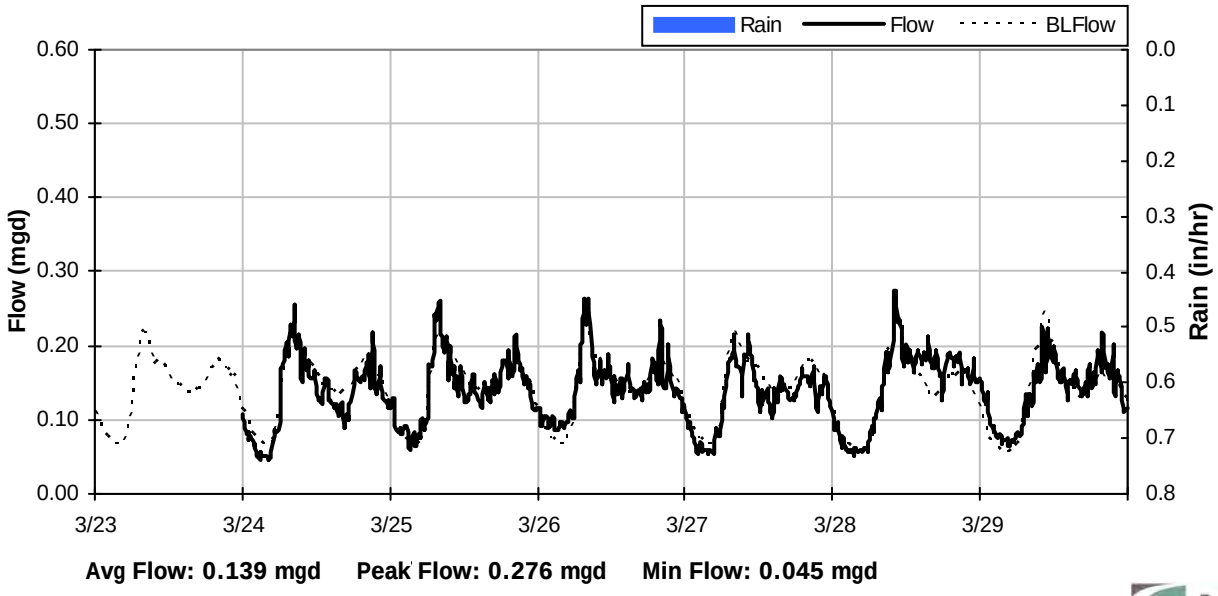
From 3/23/2009 to 3/30/2009

Monitoring Site:

MH 259







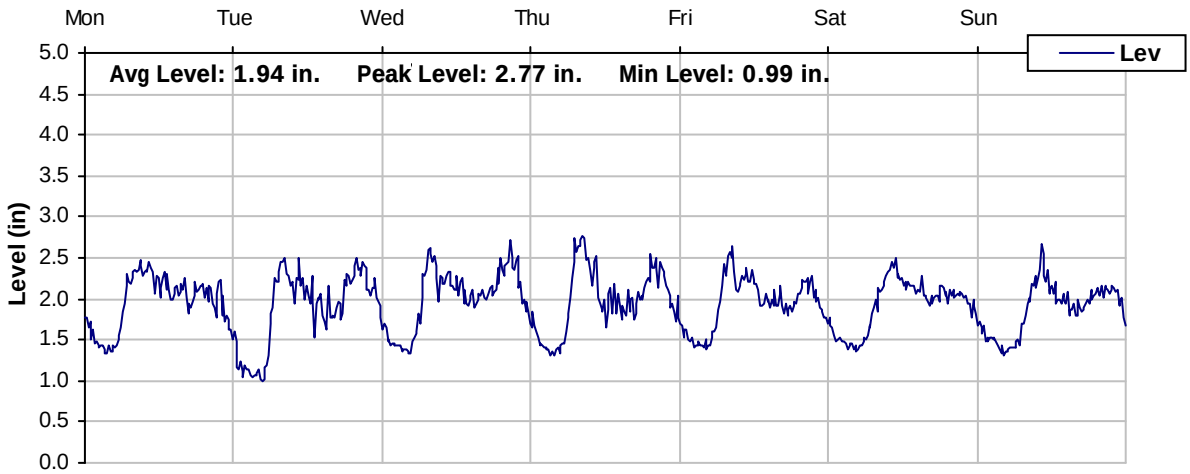
Avg Flow: 0.139 mgd **Peak Flow: 0.276 mgd** **Min Flow: 0.045 mgd**

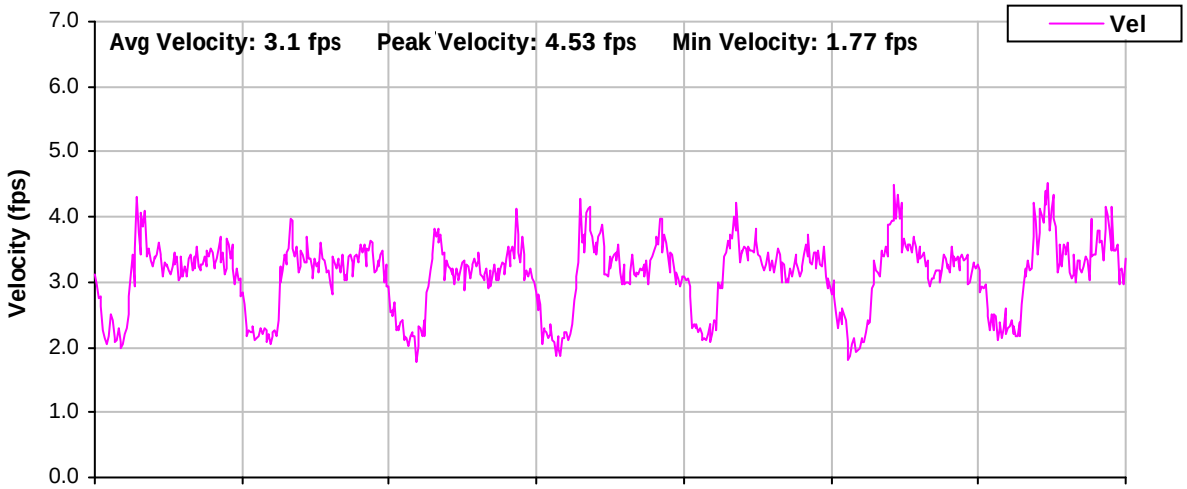
Level, Velocity and Flow

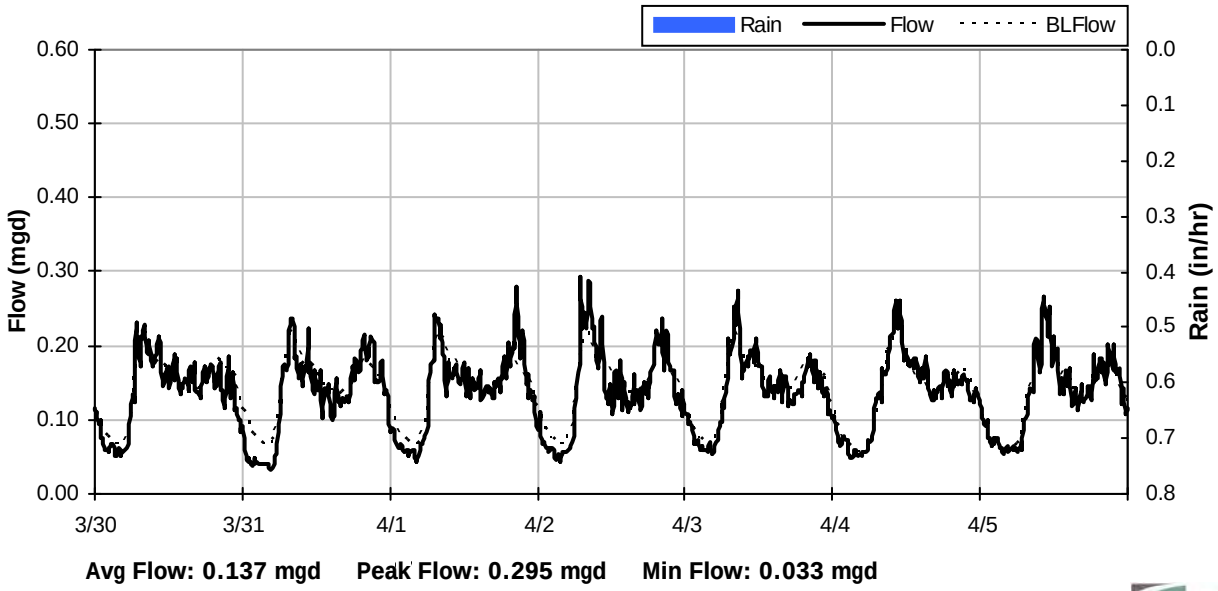
From 3/30/2009 to 4/6/2009

Monitoring Site:

MH 259







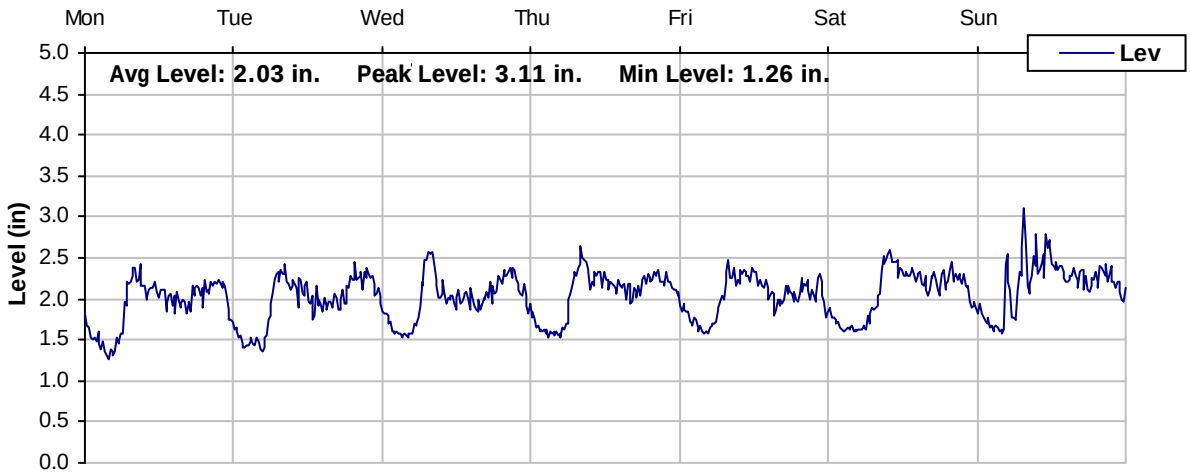
Avg Flow: 0.137 mgd **Peak Flow: 0.295 mgd** **Min Flow: 0.033 mgd**

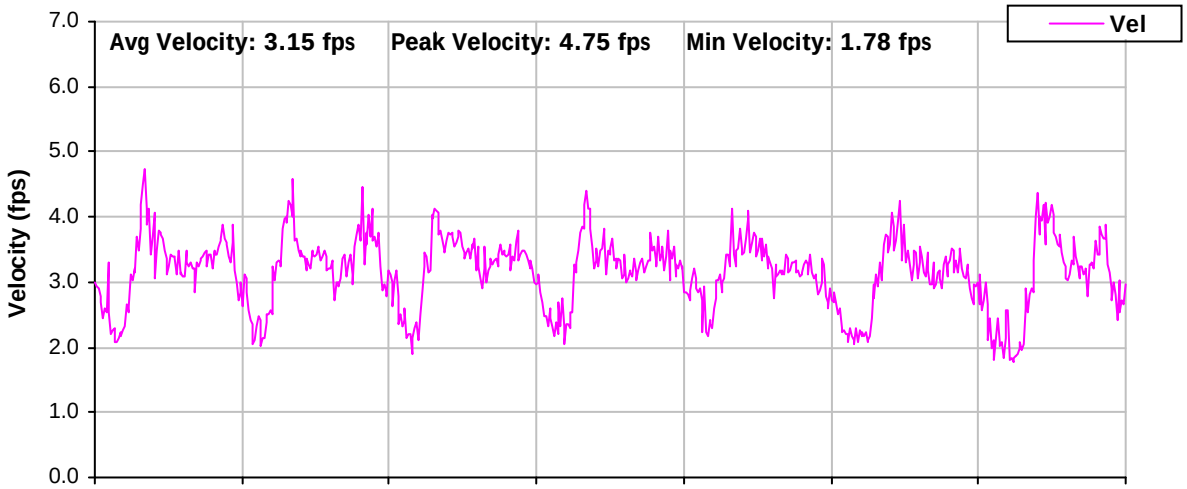
Level, Velocity and Flow

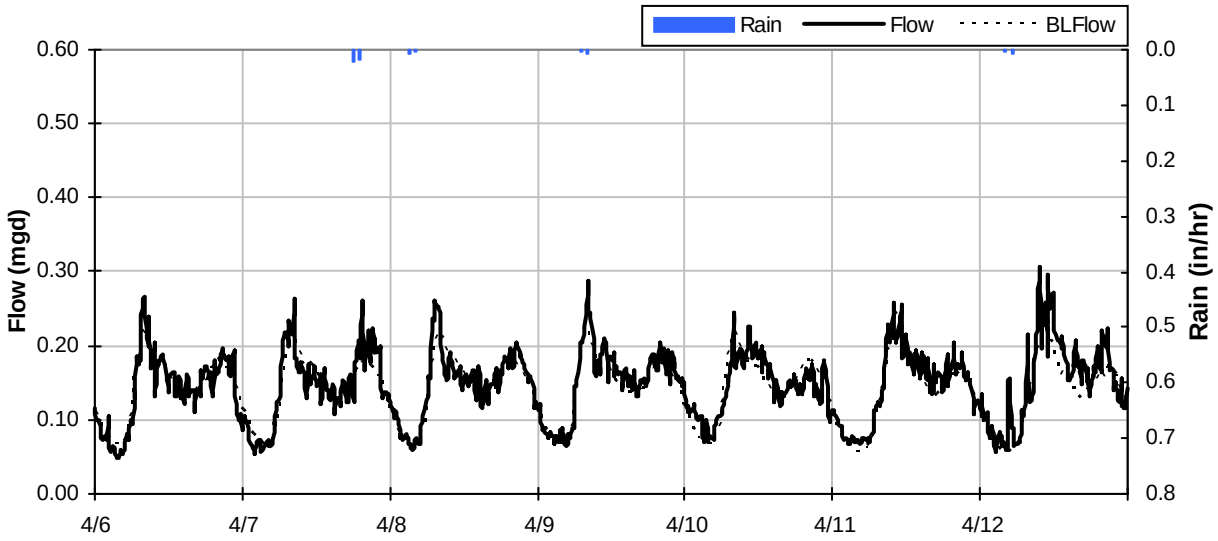
From 4/6/2009 to 4/13/2009

Monitoring Site:

MH 259







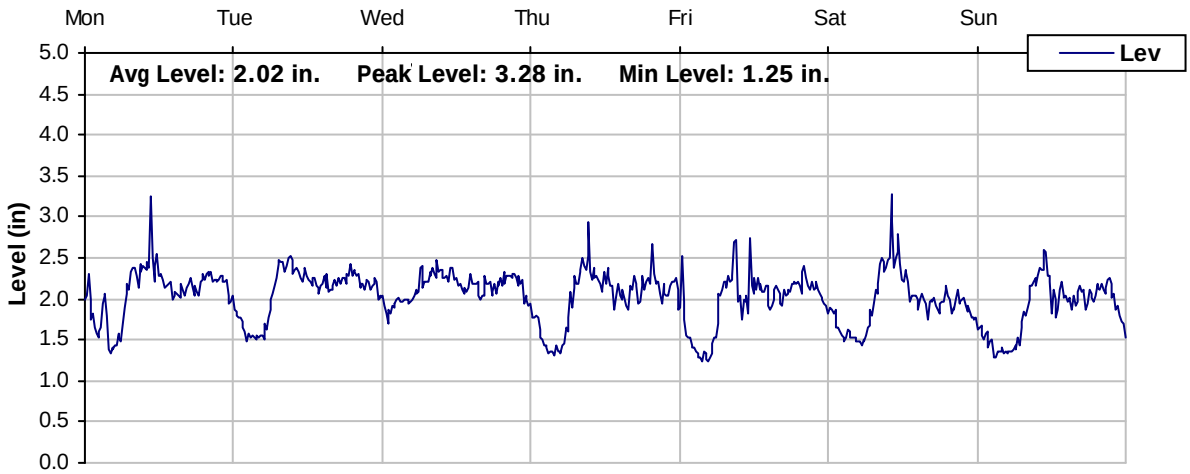
Avg Flow: 0.147 mgd **Peak Flow: 0.307 mgd** **Min Flow: 0.049 mgd**

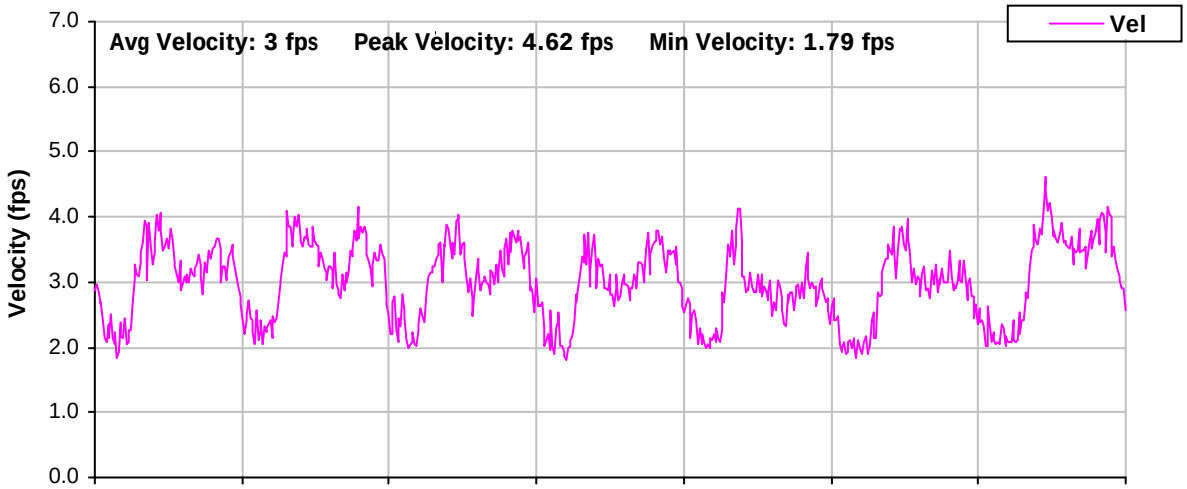
Level, Velocity and Flow

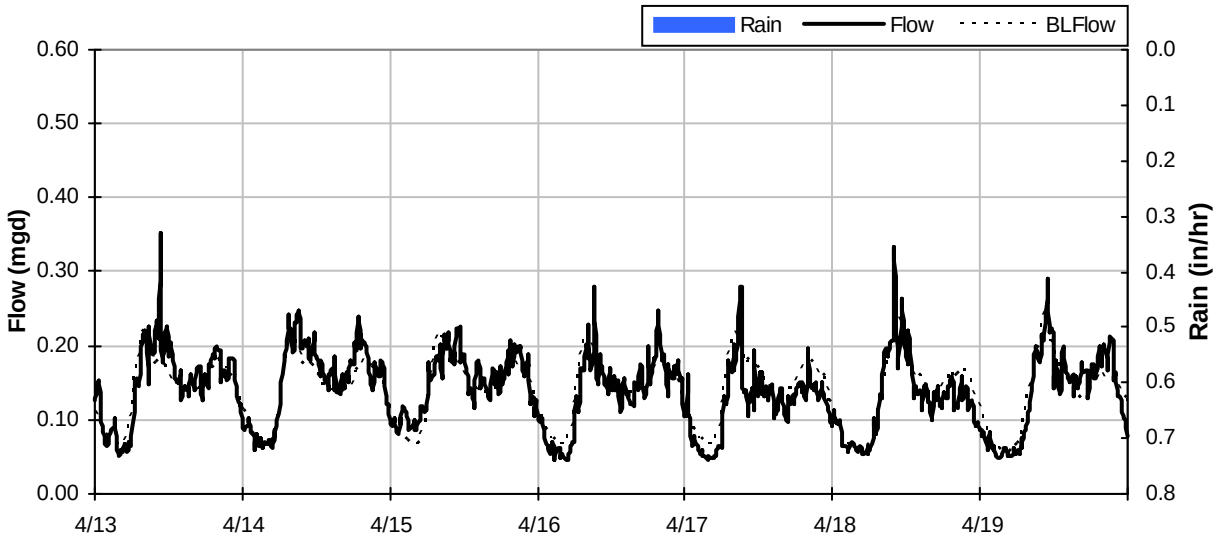
From 4/13/2009 to 4/20/2009

Monitoring Site:

MH 259







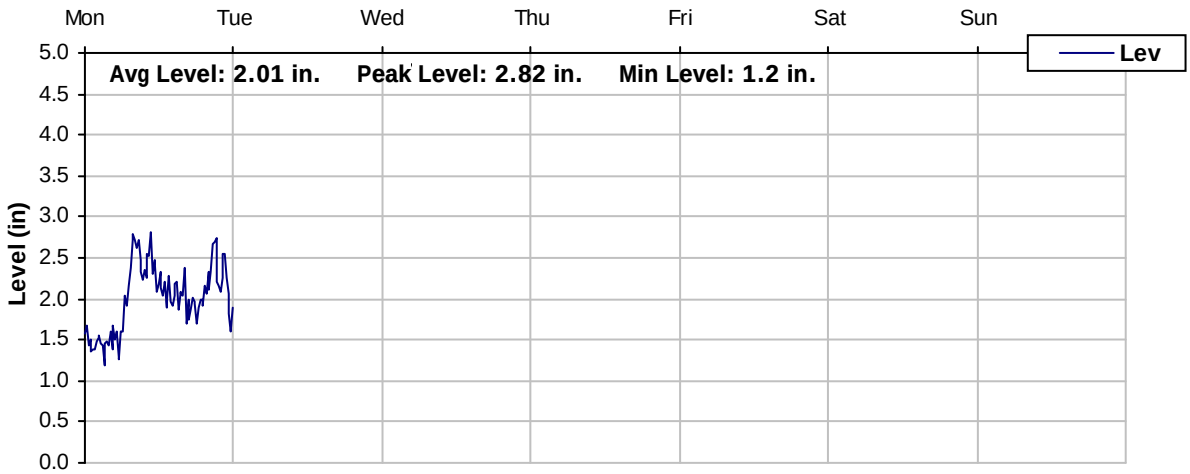
Avg Flow: 0.139 mgd **Peak Flow: 0.352 mgd** **Min Flow: 0.044 mgd**

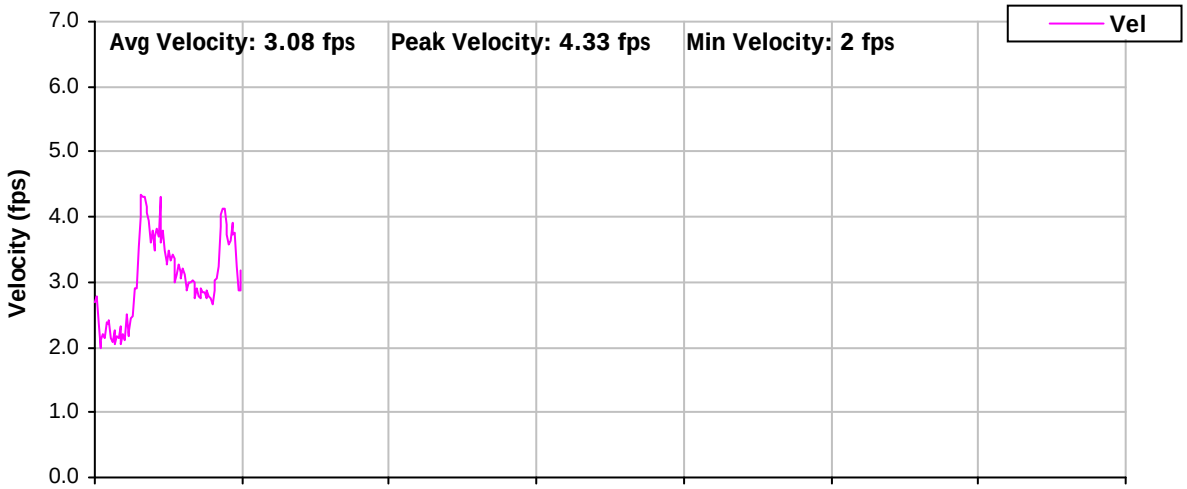
Level, Velocity and Flow

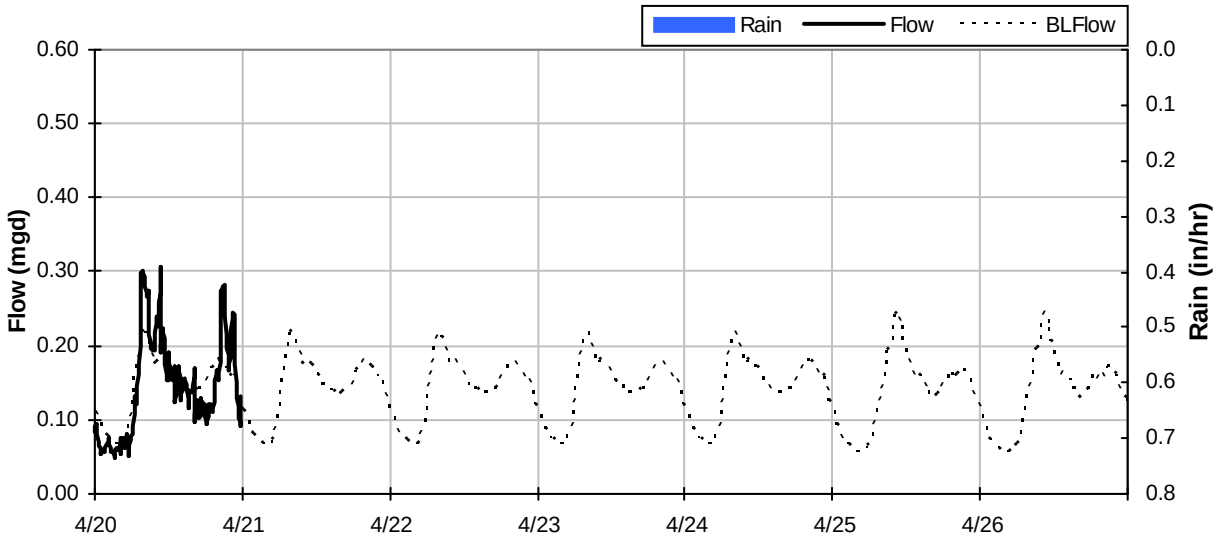
From 4/20/2009 to 4/27/2009

Monitoring Site:

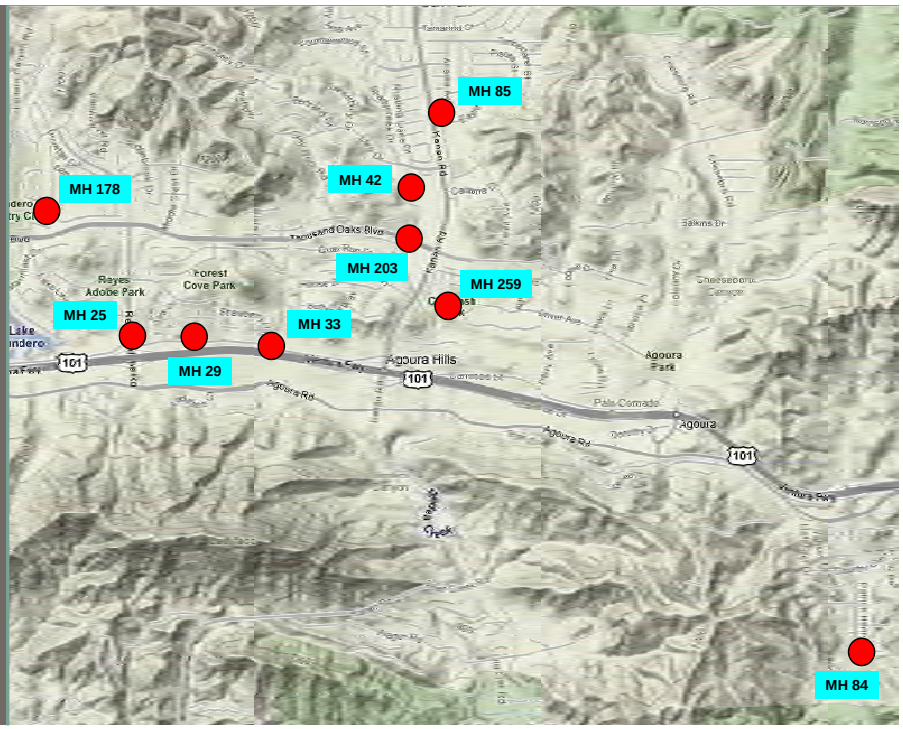
MH 259







Avg Flow: 0.146 mgd **Peak Flow: 0.306 mgd** **Min Flow: 0.048 mgd**



V&A

Oakland
1999 Harrison Street, Suite 975
Oakland, CA 94612
510.903.6600 **Tel**
510.903.6601 **Fax**

San Diego
8291 Aero Place, Suite 110
San Diego, CA 92123
858.576.0226 **Tel**
858.576.0004 **Fax**

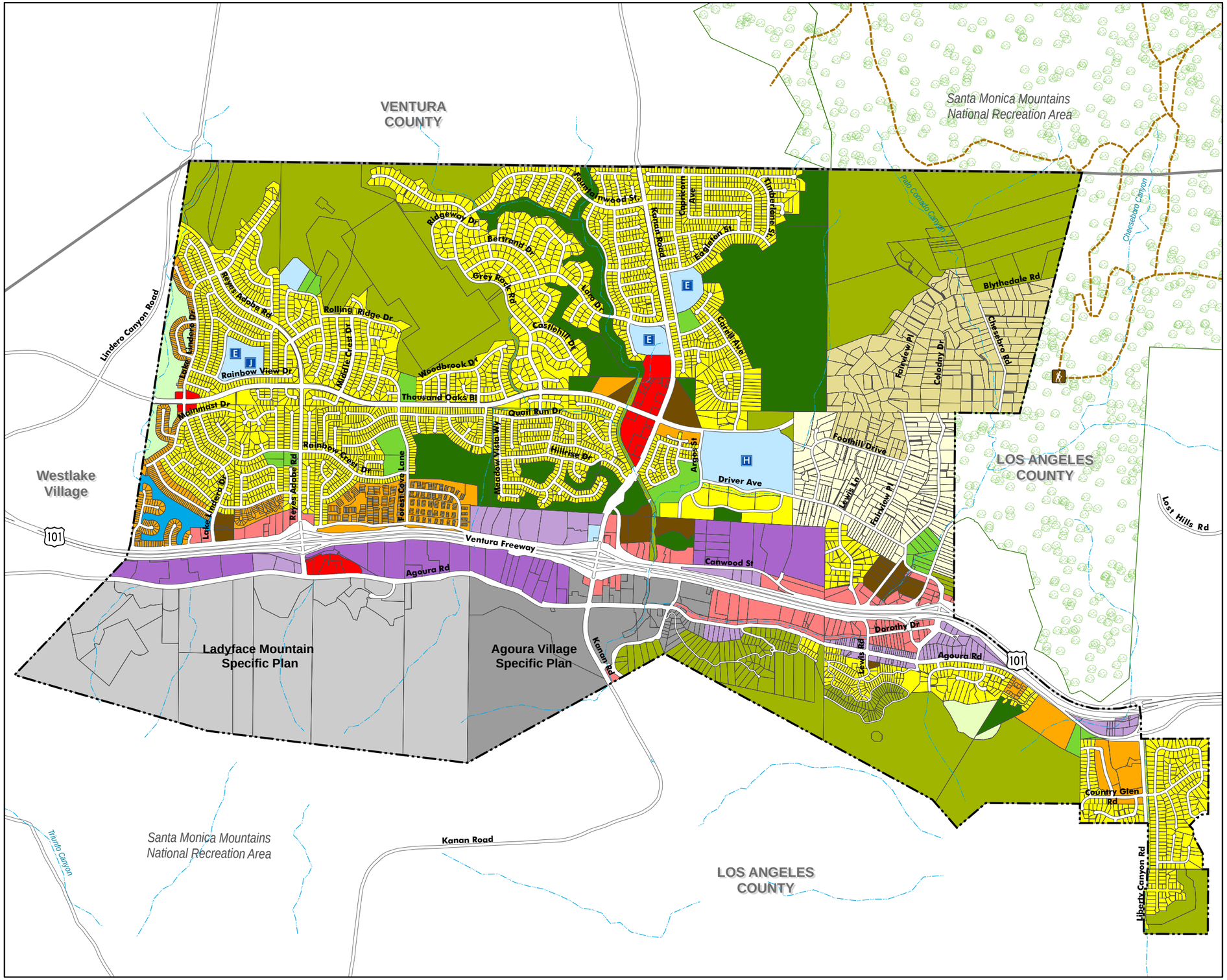
Seattle
14900 Interurban Avenue, Suite 268
Seattle, WA 96818
206.674.4560 **Tel**
206.674.4561 **Fax**

Houston
One Riverway, Suite 1700
Houston, TX 77056
713.840.6490 **Tel**
713.840.6491 **Fax**

vaengineering.com

APPENDIX ‘L-5’

City Land Use Designations Map



General Plan Land Use

Land Use Designations

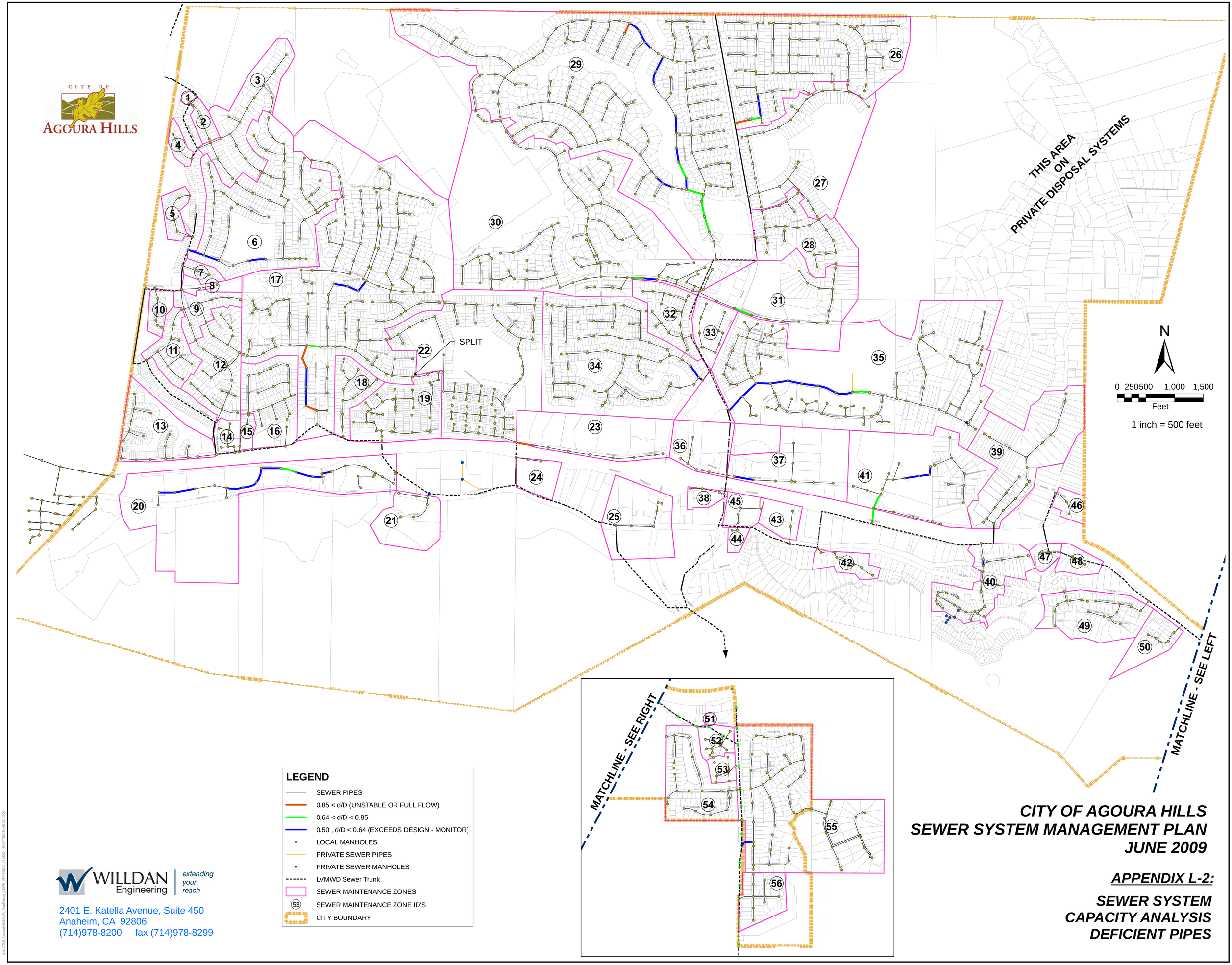
- Rural Residential (RR)
- Very Low-Residential (<2 du/ac) (RV)
- Low Density-Residential (1-2 du/ac) (RL)
- Single Family-Residential (2-6 du/ac) (RS)
- Medium Density-Residential (6-15 du/ac) (RM)
- High Density-Residential (15-20 du/ac) (HDR)
- Commercial Shopping Center (CS)
- Commercial Retail/Service (CRS)
- Commerical Recreation (CR)
- Business Park Office Retail (BP-OR)
- Business Park-Manufacturing (BP-M)
- Public Facility (PF)
- Open Water (OW)
- Local Park (P)
- Restricted Open Space (OS/R)
- Open Space/Deed Restricted (OS/R/DR)
- Agoura Village Specific Plan (SP)
- Ladyface Specific Plan (SP)

Base Map Features

- County Boundary
- City Boundary
- Water Courses
- Santa Monica Mountains National Recreation Area
- Trails and Fire Roads
- Trail Head/Parking
- Schools

Last Updated: November 21, 2006

0 1,000 2,000 3,000 4,000 Feet



CITY OF AGOURA HILLS
SEWER SYSTEM MANAGEMENT PLAN
JUNE 2009

APPENDIX L-2:

SEWER SYSTEM CAPACITY ANALYSIS DEFICIENT PIPES

POLICIES FOR MANAGING AVAILABLE SEWER CAPACITY

INTRODUCTION

In 2009 the City serves the wastewater disposal needs of approximately 23,350 people. The community sewers receive and convey approximately 3.6 million gallons per day of wastewater to regional CSD trunk sewers and wastewater treatment plants.

The purpose of this document is to describe the policies and practices followed by the City in tracking and determining the remaining available capacity within its sanitary sewer system. Tracking (monitoring) is necessary because of the significant lead time required for accomplishing such improvements as sewer rehabilitation or facility expansion without overloading sewage facilities. The objective is to enable the City to:

- Become more aware of how the sewer facilities are performing in order to take steps necessary to avoid (prevent) a SSO or nuisance problem due to operations.

- Provide all local decision makers with information needed to make informed decisions about the capacity of the wastewater system and its ability to accommodate new or increased connections.

- Make commitments for new or upsized connections with confidence that there is adequate capacity to serve additional demand as well as existing customers.

- Determine when the issuance of additional building permits must be curtailed until sewer facility improvements are completed so that facilities are maintained in compliance with discharge permit criteria.

- Have more lead time to plan and arrange financing for needed sewer system upgrades.

LEGAL MANDATE TO MANAGE WASTEWATER ALLOCATIONS

Local sewering entities have a crucial role in providing safe and adequate wastewater systems and high quality operational performance. These entities face many challenges to maintain and operate their systems in compliance with Federal and State laws and regulations. Cost continues to increase to keep these increasingly complex facilities operating properly, and the ability to raise rates to keep pace with costs is a challenge.

Perhaps most challenging is the need to manage the allocation of flow for new or expanding customer discharges in conformance with local land use, water and sewage plans, and the NPDES and local permit limits. The agency responsible for issuing building/development

approvals and permits must ensure adequate capacity is or will be reasonably available without impairing water quality or threatening public health and safety.

ACTIONS TO BE TAKEN TO MANAGE AVAILABLE SEWER CAPACITY

Sewering entities are expected to manage their facility capacities responsibly and to ensure sewer systems remain within design capacity. In order to accomplish these expectations, it is necessary to prepare a planning and engineering tool used to monitor the relationship between sewer facility capacity and population/economic growth while complying with statutes and regulations relative to discharges. Such tool could be a Municipal Sewage Capacity Plan/Report (MSCP/R).

A MSRC/P would contain information on sewage system capacity including the demand created by both the existing and proposed development. To ensure the accuracy of such report will require the City to monitor flows, evaluate the need for additional capacity, identify deficiencies, take proactive, corrective steps to maintain system capacity, and to undertake orderly and timely projects to maintain or improve the system capacity. These actions for a successful reporting tool will be accomplished through the application of the following policies:

1. Develop a moving 10 year capital improvement program that:

    a. Includes pro-active sanitary sewer system improvements to correct and prevent system failures and overflows,

    b. Addresses current and reasonably anticipated regulatory requirements,

    c. Provides sewer capacity in a timely manner to accommodate system expansion and redevelopment,

    d. Maintains level of service standards that are desired and acceptable to the community.

2. Actively manage the sanitary sewer conveyance system through a data collection and analysis process that determines wastewater usage by development type, projects future demand, and identifies inflow/infiltration deficiencies.

3. Issue development approvals based upon available capacity of the sanitary sewer system.

4. Implement work process and data management systems improvements for sewer service management, operation, and maintenance that comply with SSMP regulations and result in more effective and efficient sewer service.

5. Abate storm water inflow and groundwater infiltration to maintain capacity for sewer service and minimize service costs.

6. Expand the production and annual average use of recycled water to reduce the cost and environmental risk of effluent disposal and reduce reliance upon potable water sources.

7. Implement complete asset management program for sustaining the sewer infrastructure through optimized service levels, managed risks, and minimized life-cycle costs of asset ownership

Appendix “M”

Policies for Managing Available Sewer Capacity

POLICIES FOR MANAGING AVAILABLE SEWER CAPACITY

INTRODUCTION

In 2009 the City serves the wastewater disposal needs of approximately 23,350 people. The community sewers receive and convey approximately 3.6 million gallons per day of wastewater to regional CSD trunk sewers and wastewater treatment plants.

The purpose of this document is to describe the policies and practices followed by the City in tracking and determining the remaining available capacity within its sanitary sewer system. Tracking (monitoring) is necessary because of the significant lead time required for accomplishing such improvements as sewer rehabilitation or facility expansion without overloading sewage facilities. The objective is to enable the City to:

- Become more aware of how the sewer facilities are performing in order to take steps necessary to avoid (prevent) a SSO or nuisance problem due to operations.

- Provide all local decision makers with information needed to make informed decisions about the capacity of the wastewater system and its ability to accommodate new or increased connections.

- Make commitments for new or upsized connections with confidence that there is adequate capacity to serve additional demand as well as existing customers.

- Determine when the issuance of additional building permits must be curtailed until sewer facility improvements are completed so that facilities are maintained in compliance with discharge permit criteria.

- Have more lead time to plan and arrange financing for needed sewer system upgrades.

LEGAL MANDATE TO MANAGE WASTEWATER ALLOCATIONS

Local sewering entities have a crucial role in providing safe and adequate wastewater systems and high quality operational performance. These entities face many challenges to maintain and operate their systems in compliance with Federal and State laws and regulations. Cost continues to increase to keep these increasingly complex facilities operating properly, and the ability to raise rates to keep pace with costs is a challenge.

Perhaps most challenging is the need to manage the allocation of flow for new or expanding customer discharges in conformance with local land use, water and sewage plans, and the NPDES and local permit limits. The agency responsible for issuing building/development

approvals and permits must ensure adequate capacity is or will be reasonably available without impairing water quality or threatening public health and safety.

ACTIONS TO BE TAKEN TO MANAGE AVAILABLE SEWER CAPACITY

Sewering entities are expected to manage their facility capacities responsibly and to ensure sewer systems remain within design capacity. In order to accomplish these expectations, it is necessary to prepare a planning and engineering tool used to monitor the relationship between sewer facility capacity and population/economic growth while complying with statutes and regulations relative to discharges. Such tool could be a Municipal Sewage Capacity Plan/Report (MSCP/R).

A MSRC/P would contain information on sewage system capacity including the demand created by both the existing and proposed development. To ensure the accuracy of such report will require the City to monitor flows, evaluate the need for additional capacity, identify deficiencies, take proactive, corrective steps to maintain system capacity, and to undertake orderly and timely projects to maintain or improve the system capacity. These actions for a successful reporting tool will be accomplished through the application of the following policies:

1. Develop a moving 10 year capital improvement program that:

    a. Includes pro-active sanitary sewer system improvements to correct and prevent system failures and overflows,

    b. Addresses current and reasonably anticipated regulatory requirements,

    c. Provides sewer capacity in a timely manner to accommodate system expansion and redevelopment,

    d. Maintains level of service standards that are desired and acceptable to the community.

2. Actively manage the sanitary sewer conveyance system through a data collection and analysis process that determines wastewater usage by development type, projects future demand, and identifies inflow/infiltration deficiencies.

3. Issue development approvals based upon available capacity of the sanitary sewer system.

4. Implement work process and data management systems improvements for sewer service management, operation, and maintenance that comply with SSMP regulations and result in more effective and efficient sewer service.

5. Abate storm water inflow and groundwater infiltration to maintain capacity for sewer service and minimize service costs.

6. Expand the production and annual average use of recycled water to reduce the cost and environmental risk of effluent disposal and reduce reliance upon potable water sources.

7. Implement complete asset management program for sustaining the sewer infrastructure through optimized service levels, managed risks, and minimized life-cycle costs of asset ownership

Appendix “N”

CCTV Inspection Report

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

GAIL FARBER, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

December 9, 2008

IN REPLY PLEASE
REFER TO FILE: SM-1

Mr Ramiro Adeva, City Engineer
City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301

Attention Mr Jay Patel

Dear Mr Adeva:

CONSOLIDATED SEWER MAINTENANCE DISTRICT
CONDITION ASSESSMENT PROGRAM REPORT
PROJECT Y0TV0506F

This letter is to inform you that as part of the Sewer Condition Assessment Program, the County of Los Angeles Department of Public Works Consolidated Sewer Maintenance District has completed the closed-circuit television (CCTV) inspection of 29,407 feet or approximately 10.2 percent of the City of Agoura Hills' sewer system

The enclosed report outlines the structural and maintenance ratings of your system based on the Pipeline Assessment and Certification Program's rating methodology Included in the report are the following:

- Condition Assessment Report
- Project Overview Map (Enclosure 1)
- Quick Maintenance Rating Report Priority List and Quick Maintenance Rating Map (Enclosure 2)
- Quick Structural Rating Report Priority List and Quick Structural Rating Map (Enclosure 3)
- Infrastructure Inspection Reports for Grades 4 and 5 (Enclosure 4)
- CCTV Sewer Inspection Project Schedule (Enclosure 5)

The Condition Assessment Report will provide you with details regarding the maintenance and structural condition of your city's sewer mainlines This information can be included in your agency's Sewer System Management Plan as a reference in Chapter 8 0 System Evaluation and Capacity Assurance Plan The segments with critical maintenance issues have been cleaned and, in some instances, have been incorporated into our routine cleaning schedule for continued monitoring In addition, the segments with severe structural defects have either been repaired or will be scheduled for repair as part of the ongoing Accumulative Capital Outlay Project

If you have any questions regarding this report or the Condition Assessment Program, please contact Mr Robert Swartz at (626) 300-3367, Monday through Friday, 8 a m to 4 p.m., or at rswartz@dpw.lacounty.gov

Very truly yours,

GAIL FARBER
Director of Public Works

Keith E Lehto

for MANUEL DEL REAL
Assistant Deputy Director
Sewer Maintenance Division

PK kk
1589

Enc

bc: Programs Development (Ghazarian, Pilker)

bc: KL, RS, FV, File (Project Y0TV0506F), SPINDLE

CONDITION ASSESSMENT REPORT
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
CONSOLIDATED SEWER MAINTENANCE DISTRICT

PROJECT NAME:	Y0TV0506F	PROJECT MGR:	Fernando Villaluna
PROJECT DATE:	06/27/06 – 08/04/06	CONTACT NO:	(626) 300-3380
SUP. DISTRICT(s):	3	MAP PAGE(S):	1065 & 1066
Report By:	Phyo Kyaw	Report Date:	11/17/08

INTRODUCTION

As part of the Sewer Condition Assessment Program, the County of Los Angeles Department of Public Works Consolidated Sewer Maintenance District has completed the closed-circuit television (CCTV) inspection of 29,407 feet or approximately 10.2 percent of the City of Agoura Hills' sewer system.

The Sewer Condition Assessment Program utilizes the Pipeline Assessment and Certification Program (PACP) Quick Rating methodology to rank the structural and maintenance condition of your system based on industry standards.

PROJECT AREA AND DESCRIPTION

Project Y0TV0506F included sewer lines located in Unincorporated County of Los Angeles area and the Cities of Agoura Hills, Calabasas, Hidden Hills, Malibu, Rancho Palos Verdes and Westlake Village. Enclosed for your reference is an overview map of the project area within your City (Enclosure 1).

DEFECT GRADE DESCRIPTION

The Quick Rating indicates the number of occurrences for the highest severity grade for each pipe segment for either maintenance or structural defects. A grade of 1 indicates that a pipe segment is in excellent condition with minor defects, while a grade of 5 indicates that a pipe segment may require immediate attention. A detailed breakdown of the five possible defect grades is as follows:

Grade	Description	Estimate time to Failure
1:	**EXCELLENT: Minor Defects.**	Unlikely in the foreseeable future
2:	**GOOD: Defects that have not begun to deteriorate.**	20 years or more
3:	**FAIR: Moderate defects that will continue to deteriorate.**	10 to 20 years
4:	**POOR: Sever defects that will become grade 5 defects within the foreseeable future.**	5 to 10 years
5:	**IMMEDIATE ATTENTION: Defects requiring immediate attention.**	Has failed or will likely fail within the next 5 years

MAINTENANCE REPORT

Our inspection revealed that approximately 90.4 percent of the system televised was free of blockages or restrictions that would impede sewer flows. However, the remaining 9.6 percent of the inspected pipe segments within the City of Agoura Hills had a PACP maintenance grade of 4 or 5 as indicated in the Quick Maintenance Rating Table shown below. These segments have been incorporated into our routine cleaning schedule with corrective action taken as noted on the Quick Maintenance Rating Report Priority List (Enclosure 2). Also included is a color-coded map showing the quick maintenance rating for each pipe segment.

QUICK MAINTENANCE RATING TABLE

DEFECT GRADE	PIPE LENGTH (FT)	PERCENT TOTAL INSPECTED PIPE LENGTH	NO. SEGMENTS
1: Excellent	5,837	19.9	31
2: Good	15,446	52.5	58
3: Fair	5,292	18.0	25
4: Poor	2,212	7.5	9
5: Immediate Attention	620	2.1	3
TOTAL	29,407	100.0	126

STRUCTURAL REPORT

Our inspection revealed that approximately 96.7 percent of the inspected pipe segments within the City of Agoura Hills were free of severe structural defects. However, the remaining 3.3 percent of the inspected pipe segments had a PACP structural grade of 4 or 5 as indicated in the Quick Structural Rating Table shown below. These segments have been placed on a priority list based on the severity and the need for action. For Items 1 through 4 in the Quick Structural Rating Report Priority List (Enclosure 3) which require a corrective action, the proposed corrective method will be scheduled in the next 24 months as part of the ongoing Accumulative Capital Outlay Project. A color-coded map showing the Quick Structural Rating for each pipe segment is located in Enclosure 3. Copies of the actual inspection reports for these 4 segments are included in Enclosure 4.

QUICK STRUCTURAL RATING TABLE

DEFECT GRADE	PIPE LENGTH (FT)	PERCENT TOTAL INSPECTED PIPE LENGTH	NO. SEGMENTS
1: Excellent	23,363	79.4	100
2: Good	3,751	12.8	16
3: Fair	1,321	4.5	6
4: Poor	796	2.7	3
5: Immediate Attention	176	0.6	1
TOTAL	29,407	100.0	126

FUTURE PROJECTS

The Sewer Condition Assessment Program will be performing future closed-circuit television (CCTV) inspection of the remaining sewer lines within the City of Agoura Hills. For your reference, the CCTV Sewer Inspection project schedule for the City of Agoura Hills is listed in Enclosure 5.

ENCLOSURE 1:

Project Overview Map

PROJECT OVERVIEW MAP

CCTV PROJECT

Y0TV0506F

Supervisorial District 3 & 4
City of Agoura Hills, Calabasas, Hidden Hills, Malibu, Rancho Palos Verdes, Westlake Village & County Unincorporated

0 1,000 2,000 3,000 4,000

Feet

Legend

SMD Sanitary Sewers

- Other
- 4
- 8
- 10
- 12
- 15
- 18

SMD Manholes

- Other

MH Type

- Standard
- Siphon
- Trap
- Shallow
- Drop
- SMD Pump Satations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Trunk Mh
- Non SMD Maintained MH
- SMD Operations Maps
- Y0TV0506F

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

SEPTEMBER 2008

Y0TV0506F_Overview.mdx

ENCLOSURE 2:

- Quick Maintenance Rating Report Priority List
- Quick Maintenance Rating Map

ENCLOSURE 2
QUICK MAINTENANCE RATING REPORT PRIORITY LIST
CITY OF AGOURA HILLS (Y0TV0506F)
as of 08/04/06

Item No.	QMR	Start MH	End MH	Street	Observation	Corrective Action Taken
1	5148	1065-0095	1065-0091	RAINBOW CREST	Deposits	Hydrojet (Completed 10/22/08)
2	5100	1065-0050	1065-0049	EASEMENT by CANWOOD and PASSAGEWAY	Deposits	Hydrojet (Completed 10/22/08)
3	5100	1066-0069	1066-0068	LAKE LINDERO Dr	Deposits	Hydrojet (Completed 11/12/08)
4	422D	1066-0027	1065-0049	EASEMENT by CANWOOD and REYESADOBE	Roots	Rodder (Completed 10/22/08))
5	4139	1066-0010	1066-0011	CANWOOD ST	Deposits	Hydrojet (Completed 10/29/08)
6	4131	1065-0079	1065-0073	LAKE LINDERO Dr	Deposits	Hydrojet (Completed 10/22/08)
7	4131	1065-0018	1065-0019	JON DODSON	Camera underwater	Hydrojet (Completed 03/02/07)
8	4131	1066-0012	1066-0013	CANWOOD ST	Deposits	Hydrojet (Completed 10/29/08)
9	4131	1066-0008	1066-0009	LAKE CREST DR	Deposits; Infiltration Weeper	Hydrojet (Completed 11/12/08)
10	4121	1065-0015	1065-0019	RAINBOW CREST	Camera underwater	Hydrojet (Completed 10/22/08)
11	4111	1065-0197	1065-0196	WHEELHOUSE LN	Deposits	Hydrojet (Completed 11/12/08)

The following line segments received a Quick Maintenance Rating of above 4000 due to the observation of Root Ball or Deposit inside the lateral connection. CSMD does not maintain lateral lines: it is the responsibility of the parcel owner to maintain their respective lateral lines to facilitate the flow of wastewater from their property to the mainline. Therefore, these lines were not included on the Prioirty List above identified with maintenance deficiencies in need of immediate attention by CSMD.

Item No.	QMR	Start MH	End MH	Street	Observation
1	4111	1065-0039	1065-0345	ALDREN CT	Roots in lateral

ENCLOSURE 2

CCTV PROJECT

Y0TV0506F

Supervisorial District 3
AGOURA HILLS

QUICK MAINTENANCE RATING (QMR)

Legend

SMD Sanitary Sewers

QMR

- 1: EXCELLENT
- 2: GOOD
- 3: FAIR
- 4: POOR
- 5: IMMEDIATE ATTENTION

SMD Manholes

- Other

MH Type

- Standard
- Siphon
- Trap
- Shallow
- Drop
- SMD Pump Satations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Trunk Mh
- Non SMD Maintained MH
- SMD Operations Maps
- CCTV Project Area

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

SEPTEMBER 2008

0506F_11x17_QMR_AGH.mdx

ENCLOSURE 3:

- Quick Structural Rating Report Priority List
- Quick Structural Rating Map

ENCLOSURE 3
QUICK STRUCTURAL RATING REPORT PRIORITY LIST
CITY OF AGOURA HILLS (Y0TV0506F)
as of 08/04/06

Item No.	QSR	Start MH	End MH	Street	Observation: Location	Proposed Corrective Method	Length of Repair (FT)
1	5231	1066-0024	1065-0069	EASEMENT by LAKE LINDERO Dr and CANWOOD ST	Broken and deformed: 12', 24;	Lining: MH to MH	176
2	4121	1065-0118	1065-0117	MAINMAST DR	Fractures: 5'	Structural integrity in tact. No action needed.	-
3	4100	1065-0085	1065-0086	RAINBOW CREST	Fractures: 8'	Lining: MH to MH	230
4	4100	1065-0196	1065-0195	WHEELHOUSE LN	Fracture: 1'	Structural integrity in tact. No action needed.	-

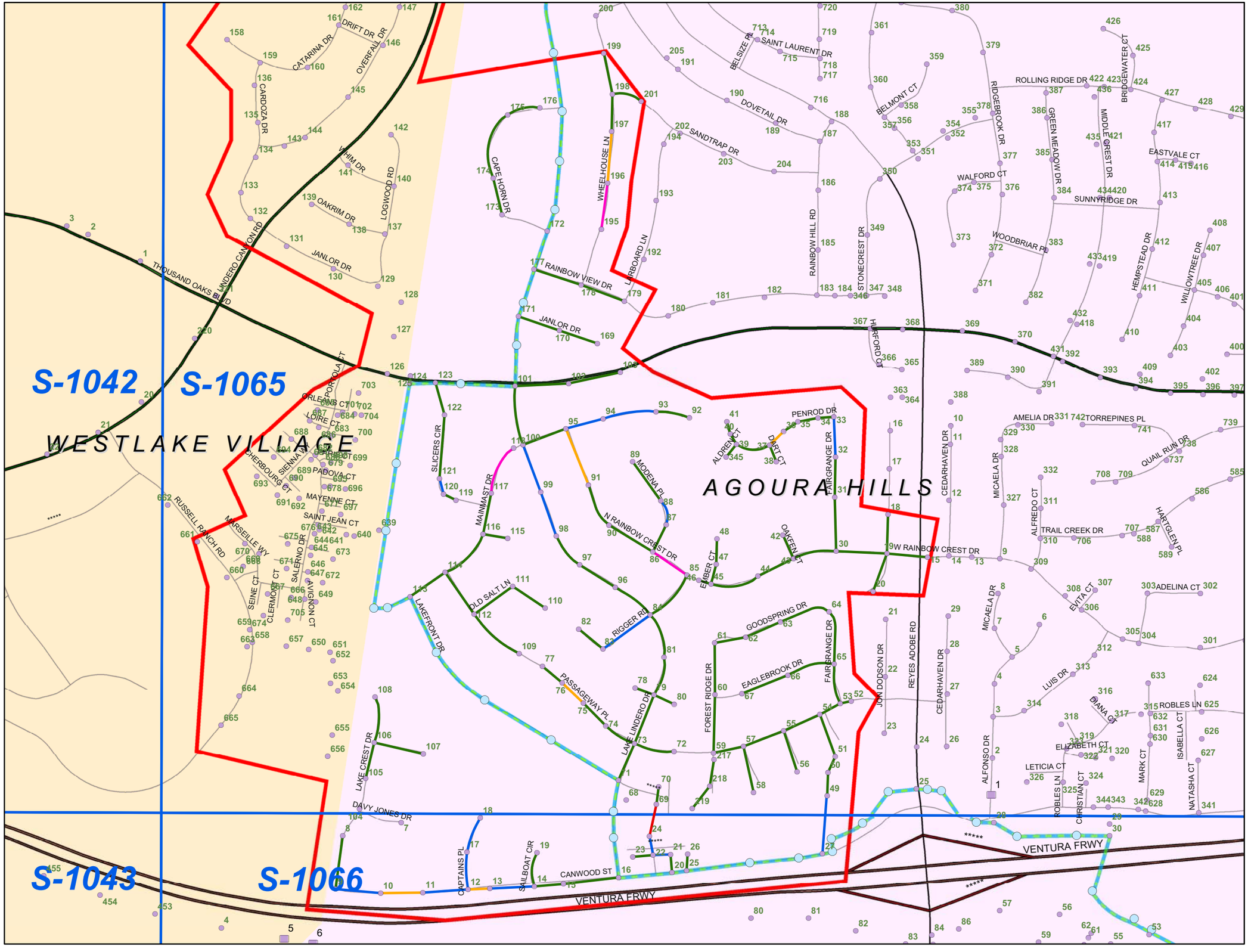
ENCLOSURE 3

CCTV PROJECT

Y0TV0506F

Supervisorial District 3
AGOURA HILLS

QUICK STRUCTURAL RATING (QSR)



0 250 500 750 1,000

Legend Feet

SMD Sanitary Sewers

QSR

- 1: EXCELLENT
- 2: GOOD
- 3: FAIR
- 4: POOR
- 5: IMMEDIATE ATTENTION

SMD Manholes

- Other

MH Type

- Standard
- Siphon
- Trap
- Shallow
- Drop
- P — SMD Pump Satations
- WTP — SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Trunk Mh
- Non SMD Maintained MH
- SMD Operations Maps
- CCTV Project Area

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

SEPTEMBER 2008

0506F_11x17_QSR_AGH.mdx

ENCLOSURE 4:

Infrastructure Inspection Reports for Grades 4 and 5

National Plant Services, INC.
1461 Harbor Avenue
Long Beach, CA 90813-2741
Tel: (800) 445-3614, Fax: (562) 495-1528

Inspection report

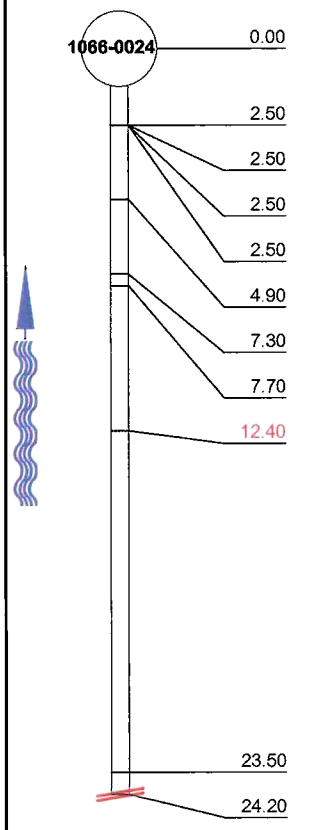
Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20060731	**YOTV056E**	**1 Dry**	**Anthony Hernandez**	**779**	**33925**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
176.00	**LACDPW**	**ZLAS**		**J Jetting**	**1066**

Street:	**LAKE LINDERO Dr**	Flow Control:	**N Not Controlled**	Start MH:	**1066-0024**
City:	**ZLAS**	Year Renewed		End MH:	**1065-0069**
Location Code:	**C Light Highway**	Tape/Media #:	**A004**	Total length surveyed:	**24.7 ft**

Purpose:	**F Routine Assessment**	Dia/Height:	**C Circular 8/8**
Use:	**SS Sanitary**	Material:	**VCP Vitrified Clay Pipe** Pipe Joint length:
Drain. Area:	**1066**	Lining:	
		Category:	

Comment:

Location details: **CANWOOD ST**



1:75 position	observation	MPEG	photo	grade
0.00	Manhole, within 8 inch: NO, Remarks: 1066-0024	00:01:07	630	
2.50	Roots Fine Joint, from 4 to 8 o'clock, within 8 inch: YES	00:02:04	631	
2.50	Crack Circumferential, from 3 to 5 o'clock, within 8 inch: YES	00:02:37	632	
2.50	Crack Longitudinal, at 9 o'clock, within 8 inch: YES	00:03:09	633	
2.50	Crack Circumferential, from 6 to 8 o'clock, within 8 inch: YES	00:03:43	634	
4.90	Water Level, 10 %, within 8 inch: NO	00:04:08	635	
7.30	Crack Multiple, from 7 to 5 o'clock, within 8 inch: NO	00:04:35	636	
7.70	Roots Fine Joint, from 7 to 5 o'clock, within 8 inch: YES	00:5:10	637	
12.40	Broken, from 7 to 5 o'clock, within 8 inch: YES	00:06:26	638	S 5
23.50	Crack Longitudinal, at 8 o'clock, within 8 inch: NO	00:07:20	639	
24.20	Abandoned Survey, within 8 inch: NO, Remarks: DUE TO BROKEN PIPE	00:11:05	640	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5100	**0000**	**5**	**0**	**5**	**5**	**0**	**5**

National Plant Services, INC.
1461 Harbor Avenue
Long Beach, CA 90813-2741
Tel: (800) 445-3614, Fax: (562) 495-1528

Inspection report

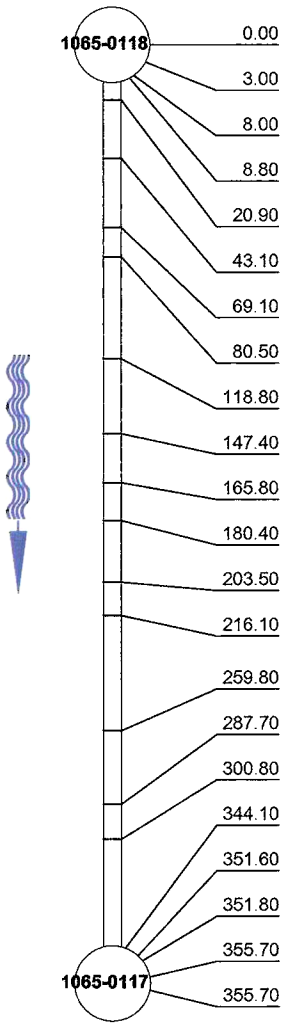
Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20060720	**YOTV0506F**	**1 Dry**	**Gilbert Contreras**	**984**	**33857**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
295.00	**LACDPW**	**AGH**		**J Jetting**	**1065**

Street:	**MAINMAST DR**	Flow Control:	**N Not Controlled**	Start MH:	**1065-0118**
City:	**AGH**	Year Renewed		End MH:	**1065-0117**
Location Code:	**C Light Highway**	Tape/Media #:	**G012**	Total length surveyed:	**355.7 ft**

Purpose:	**F Routine Assessment**	Dia/Height:	**C Circular 8/8**		
Use:	**SS Sanitary**	Material:	**VCP Vitrified Clay Pipe**	Pipe Joint length:	**5.0**
Drain. Area:	**1065**	Lining:			
		Category:			

Comment:

Location details: **Lake Lindero Dr**



1 875	position	observation	MPEG	photo	grade
	0.00	Manhole, within 8 inch: NO, Remarks: 1065-0118	00:00:45	2209	
	3.00	Fracture Multiple, from 7 to 5 o'clock, within 8 inch: NO	00:01:58	2210	
	8.00	Water Level, 10 %, within 8 inch: NO	00:02:47	2211	
	8.80	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:3:10	2212	
	20.90	Alignment Left, within 8 inch: NO	00:03:54	2213	
	43.10	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:04:54	2214	
	69.10	General Observation, within 8 inch: NO, Remarks: joint length 5'	00:06:21	2215	
	80.50	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:07:01	2216	
	118.80	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:08:42	2217	
	147.40	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:10:03	2218	
	165.80	Tap Break-in Active, at 3 o'clock, 4" within 8 inch: NO	00:11:07	2219	
	180.40	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:12:01	2220	
	203.50	Tap Factory Active, at 9 o'clock, 4", within 8 inch: NO	00:13:12	2221	
	216.10	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:14:05	2222	
	259.80	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:15:51	2223	
	287.70	Tap Factory Active, at 9 o'clock, 4", within 8 inch: NO	00:17:19	2224	
	300.80	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:18:13	2225	
	344.10	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:20:06	2226	
	351.60	Fracture Circumferential, from 7 to 6 o'clock, within 8 inch: NO	00:21:06	2227	
	351.80	Tap Factory Active, at 9 o'clock, 4", within 8 inch: NO	00:21.27	2228	
	355.70	Vermin Cockroach, within 8 inch: NO	00:22:26	2229	
	355.70	Manhole, within 8 inch: NO, Remarks: 1065-0117	00:22:49	2230	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	**0000**	**0**	**0**	**0**	**0**	**0**	**0**

National Plant Services, INC.
1461 Harbor Avenue
Long Beach, CA 90813-2741
Tel: (800) 445-3614, Fax: (562) 495-1528

Inspection report

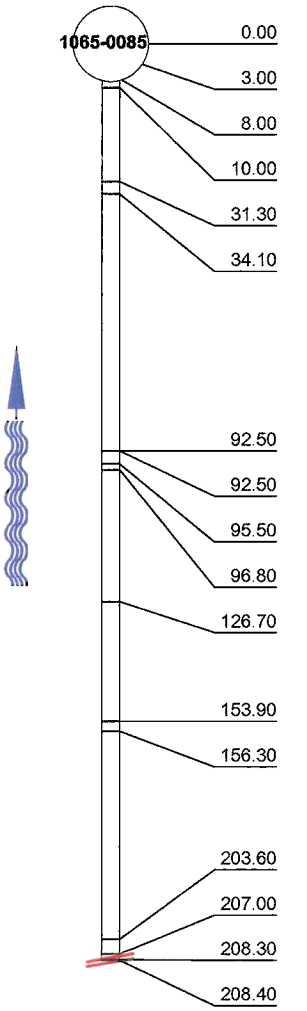
Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20060720	**YOTV0506F**	**1 Dry**	**Gilbert Contreras**	**989**	**33825**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
230.00	**LACDPW**	**AGH**		**J Jetting**	**1065**

Street:	**RAINBOW CREST**	Flow Control:	**N Not Controlled**	Start MH:	**1065-0085**
City:	**AGH**	Year Renewed		End MH:	**1065-0086**
Location Code:	**C Light Highway**	Tape/Media #:	**G012**	Total length surveyed:	**208.4 ft**

Purpose:	**F Routine Assessment**	Dia/Height:	**C Circular 8/8**		
Use:	**SS Sanitary**	Material:	**VCP Vitrified Clay Pipe**	Pipe Joint length:	**5.0**
Drain. Area:	**1065**	Lining:			
		Category:			

Comment:

Location details: **Rigger Rd**



1:525 position	observation	MPEG	photo	grade
0.00	Manhole, within 8 inch: NO, Remarks: 1065-0085	00:00:43	2275	
3.00	Alignment Left, within 8 inch: NO	00:01:32	2276	
8.00	Water Level, 10 %, within 8 inch: NO	00:02:16	2277	
10.00	Fracture Multiple, from 12 to 5 o'clock, within 8 inch: YES	00:03:21	2278	
31.30	Tap Factory Active, at 9 o'clock, 4", within 8 inch: NO	00:04:23	2279	
34.10	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:04:51	2280	
92.50	Tap Factory Active, at 9 o'clock, 4", within 8 inch: NO	00:06:53	2281	
92.50	Roots Medium Lateral, at 9 o'clock, 20 %, within 8 inch: NO	00:07:16	2282	
95.50	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:07:46	2283	
96.80	Water Level, 20 %, within 8 inch: NO	00:08:09	2284	
126.70	General Observation, within 8 inch: NO, Remarks: joint length 5'	00:09:27	2285	
153.90	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:10:30	2286	
156.30	Tap Factory Active, at 9 o'clock, 4", within 8 inch: NO	00:11:01	2287	
203.60	Water Level, 10 %, within 8 inch: NO	00:12:43	2288	
207.00	Deposits Settled Compacted, from 5 to 7 o'clock, 10 %, within 8 inch: NO	00:13:12	2289	
208.30	Deposits Settled Compacted, from 3 to 5 o'clock, 15 %, within 8 inch: YES	00:13:47	2290	
208.40	Abandoned Survey, within 8 inch: NO, Remarks: completes inspection of e	00:14:25	2291	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	**0000**	**0**	**0**	**0**	**0**	**0**	**0**

National Plant Services, INC.
1461 Harbor Avenue
Long Beach, CA 90813-2741
Tel: (800) 445-3614, Fax: (562) 495-1528

Inspection report

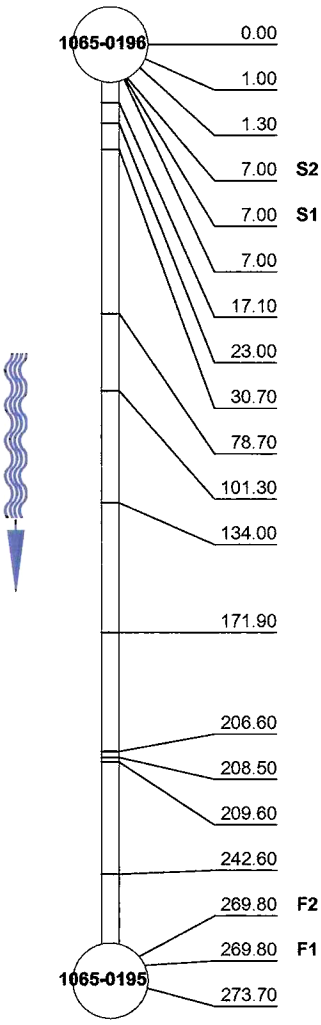
Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20060714	**YOTV056E**	**1 Dry**	**Anthony Hernandez**	**738**	**33701**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
271.00	**LACDPW**	**ZLAS**		**J Jetting**	**1065**

Street:	**WHEELHOUSE LN**	Flow Control:	**N Not Controlled**	Start MH:	**1065-0196**
City:	**ZLAS**	Year Renewed		End MH:	**1065-0195**
Location Code:	**C Light Highway**	Tape/Media #:	**A001**	Total length surveyed:	**273.7 ft**

Purpose:	**F Routine Assessment**	Dia/Height:	**C Circular 8/8**
Use:	**SS Sanitary**	Material:	**VCP Vitrified Clay Pipe** Pipe Joint length:
Drain. Area:	**1065**	Lining:	
		Category:	

Comment:

Location details: **RAINBOW VIEW**



1:675 position		observation	MPEG	photo	grade
0.00		Manhole, within 8 inch: NO, Remarks: 1065-0196	00:00:57	175	
1.00		Fracture Multiple, from 8 to 4 o'clock, within 8 inch: NO	00:02:52	176	
1.30		Infil Weeper, from 2 to 2 o'clock, within 8 inch: NO	00:03:27	177	
7.00	**S2**	Deposits Attached Encrustation, from 7 to 5 o'clock, 5 %, within 8 inch: NO, Start	00:05:30	178	
7.00	**S1**	Deposits Attached Grease, from 5 to 7 o'clock, 5 %, within 8 inch: NO, Start	00:05:09	179	
7.00		Water Level, 5 %, within 8 inch: NO	00:05:50	180	
17.10		General Observation, within 8 inch: NO, Remarks: PIPE JOINT LENGTH 5	00:06:48	181	
23.00		Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:07:39	182	
30.70		Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:08:11	183	
78.70		Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:09:45	184	
101.30		Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:10:44	185	
134.00		Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:11:57	186	
171.90		Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:13:15	187	
206.60		Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:14:53	188	
208.50		Alignment Right, within 8 inch: NO	00:15:30	189	
209.60		Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:15:47	190	
242.60		Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:16:53	191	
269.80	**F2**	Deposits Attached Encrustation, from 7 to 5 o'clock, 5 %, within 8 inch: NO, End	00:18:12	192	
269.80	**F1**	Deposits Attached Grease, from 5 to 7 o'clock, 5 %, within 8 inch: NO, End	00:17:53	193	
273.70		Manhole, within 8 inch: NO, Remarks: 1065-0195	00:19:42	194	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	**0000**	**0**	**0**	**0**	**0**	**0**	**0**

ENCLOSURE 5:

CCTV Sewer Inspection
Project Schedule

Agoura Hills

CCTV PROJECT SCHEDULE

FISCAL YEAR	YARD	SUP DIST	PROJECT NAME	LENGTH (FT)*
2005-2006	S	3	Y0TV0506F	29,407
2009-2010	S	3	3_1	160,618
2014-2015	S	3	3_2	97,132
			TOTAL (FT)	**287,157**
			TOTAL (MILES)	**54**

* Approximate length as of July 2005, actual project length may vary.

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

GAIL FARBER, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

July 9, 2013

IN REPLY PLEASE
REFER TO FILE: SM-1

Mr. Ramiro Adeva
Director of Public Works
City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301

Attention Ms. Charmaine Yambao

Dear Mr. Adeva:

CONSOLIDATED SEWER MAINTENANCE DISTRICT
CONDITION ASSESSMENT PROGRAM REPORT
PROJECT NO. Y0TV0910A

This letter is to inform you that as part of our Sewer Condition Assessment Program, the County of Los Angeles Department of Public Works Consolidated Sewer Maintenance District has completed the closed-circuit television inspection of 157,231 feet or 55.5 percent of the City of Agoura Hills' sewer system.

The enclosed report outlines the structural and maintenance ratings of your system based on the Pipeline Assessment and Certification Program's (PACP Version 6.0.1) rating methodology. Included in the report are the following:

- Condition Assessment Report
- Project Overview Map (Enclosure 1)
- Quick Maintenance Rating Report Priority List and Quick Maintenance Rating Map (Enclosure 2)
- High Water Levels List and Map (Enclosure 2)
- Infiltration List and Map (Enclosure 2)
- Quick Structural Rating Report Priority List, Quick Structural Rating Map, and Lining Projects Map (Enclosure 3)
- Infrastructure Inspection Reports for Grades 4 and 5 (Enclosure 4)

The Condition Assessment Report provides details regarding the maintenance and structural condition of your City's sewer mainlines. This information should be included in your agency's Sewer System Management Plan as a reference in Chapter 8.0 System Evaluation and Capacity Assurance Plan. The segments with critical maintenance issues have been cleaned and, where appropriate, incorporated into our enhanced maintenance schedule for continued monitoring. In addition, the segments with severe structural defects have either been repaired or will be scheduled for repair as part of our ongoing Accumulative Capital Outlay Program.

If you have any questions regarding this report or the Condition Assessment Program, please contact Mr. Robert Swartz, Sewer Maintenance Division, at (626) 300-3367, Monday through Friday, 8 a.m. to 4 p.m., or rswartz@dpw.lacounty.gov.

Very truly yours,

GAIL FARBER
Director of Public Works

Martin Mouno

RAJESH PATEL
Assistant Deputy Director
Sewer Maintenance Division

EL:sb EL
H:\SMHOME\GYoung\Memos.Letters\2414.doc

Enc.

bc: RP, MM, RS, FV, File (CAPR Project No. Y0TV0910A), SPINDLE

CONDITION ASSESSMENT REPORT
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
CONSOLIDATED SEWER MAINTENANCE DISTRICT

PROJECT NAME:	Y0TV0910A	PROJECT MGR:	Eric Liu
PROJECT DATE:	07/21/2010	CONTACT NO:	(626) 300-3369
SUP. DISTRICT(s):	3	MAP PAGE(S):	1065, 1066, 1090, 1091
Report By:	Eric Liu	Report Date:	06/06/2013

INTRODUCTION

As part of our Sewer Condition Assessment Program, the County of Los Angeles Department of Public Works Consolidated Sewer Maintenance District (District) has completed the closed-circuit television (CCTV) inspection of 157,231 feet or 55.5 percent of the City of Agoura Hills' (City) sewer system as part of this condition assessment report.

To date, the District has completed the CCTV inspection of 186,638 feet or 65.9 percent of the City's sewer system. In addition to this report, one previous condition assessment report dated December 9, 2008, was transmitted to your City. A copy of this report can also be found on the District's website at http://dpw.lacounty.gov/smd/cctv/city/. The remaining 34.1 percent of the City's sewer system is scheduled for CCTV inspection in Fiscal Year 2013-14.

The Sewer Condition Assessment Program utilizes the Pipeline Assessment and Certification Program (PACP Version 6.0.1) Quick Rating methodology to rank the structural and maintenance condition of your system based on industry standards.

PROJECT AREA AND DESCRIPTION

Project No. Y0TV0910A included sewer lines located in the unincorporated County of Los Angeles and in the Cities of Agoura Hills, Rancho Palos Verdes, Rolling Hills Estates, and Westlake Village. Enclosed for your reference is an overview map of the project area within your City (Enclosure 1).

DEFECT GRADE DESCRIPTION

The Quick Rating indicates the number of occurrences for the highest severity grade for each pipe segment for either maintenance or structural defects. A grade of 1 indicates that a pipe segment is in excellent condition with minor defects while a grade of 5 indicates that a pipe segment may require immediate attention. A detailed breakdown of the five possible defect grades is as follows:

Grade	Defect Grade Description
1:	MINOR
2:	MINOR TO MODERATE
3:	MODERATE
4:	SIGNIFICANT
5:	MOST SIGNIFICANT

MAINTENANCE REPORT

Our inspection revealed that approximately 86.2 percent of the system televised was free of blockages or restrictions that would impede sewer flows. However, the remaining 13.8 percent of the inspected pipe segments within the City area had a PACP maintenance grade of 3, 4, or 5 as indicated in the Quick Maintenance Rating Table shown below. These segments have been incorporated into our enhanced maintenance schedule with corrective action taken as noted on the Quick Maintenance Rating Report Priority List (Enclosure 2).

In addition, a color-coded map showing the quick maintenance rating for each pipe segment is provided in Enclosure 2.

QUICK MAINTENANCE RATING TABLE

DEFECT GRADE	PIPE LENGTH (FT)	PERCENT TOTAL INSPECTED PIPE LENGTH	NO. SEGMENTS
1: Minor	99,110	63.0	453
2: Minor to Moderate	36,460	23.2	159
3: Moderate	11,176	7.1	48
4: Significant	7,702	4.9	39
5: Most Significant	2,783	1.8	16
TOTAL	157,231	100.0	715

Lateral Notices

Also included on the Quick Maintenance Rating Report Priority List are deficiencies discovered inside lateral connections to the mainline. The District does not maintain lateral lines. It is the responsibility of the property owner to maintain their respective lateral lines to facilitate the flow of wastewater from their property to the mainline. As a result of this condition assessment, 4 notices will be sent to property owners in your City notifying them of the maintenance issues discovered in their lateral. A sample lateral notice letter is provided in Enclosure 2 for your reference.

High Water Levels

Our inspection revealed that approximately 97.5 percent of the system televised has adequate capacity. Approximately 2.5 percent of the segments inspected exhibited deficiencies associated with high water levels. Capacity of the sewer pipe can be determined by analyzing several PACP codes, including Water Level, Water Mark, and miscellaneous remarks, which indicated the camera was underwater or there were sags in the line. A sewer pipe is typically considered at capacity when the sewer pipe is flowing half full. However, there are conditions in which the water level or water mark has reached 50 percent of capacity or greater due to heavy flows in adjoining pipes, a temporary stoppage due to debris in the sewer lines, or a sag in the line. Therefore, additional review of the pipe segments exhibiting high water level concerns was conducted to determine if any capacity issues exist. The sewer segments associated with high water levels appear to be the result of sags in the line, which do not impact its capacity. The pipe segments with sags have been cleaned to remove any debris in the lines.

All sewer pipes where Water Level, Water Mark, and miscellaneous remarks of camera underwater or sags in the line are at or above 50 percent capacity, have been listed and analyzed on the High Water Level Table in Enclosure 2. The nature of these high water level conditions is also summarized on this table.

Infiltration

Our inspection revealed that approximately 4.2 percent of the system included in this project has infiltration within the pipe segment. Infiltration is the ingress of groundwater into the sewers through a defect or porous area of the pipe wall. All sewer pipes where infiltration was found are listed on the Infiltration Table (Enclosure 2). This table also provides the proposed corrective action for these impacted sewer segments. If a corrective method is proposed, the remediation will be scheduled in the next 24 months as part of our ongoing Accumulative Capital Outlay Program.

A map showing the sewer lines with high water levels and infiltration is provided in Enclosure 2.

STRUCTURAL REPORT

Our inspection revealed that approximately 98.8 percent of the inspected pipe segments within the City were free of severe structural defects. The remaining 1.2 percent of the inspected pipe segments had a PACP structural grade of 4 and 5 as indicated in the Quick Structural Rating Table shown below. These segments have been placed on a priority list based on the severity and the need for action. For Items 1 through 6 in the Quick Structural Rating Report Priority List (Enclosure 3), which require a corrective action, the proposed repair or replacement will be scheduled in the next 24 months as part of our ongoing Accumulative Capital Outlay Program.

A color-coded map showing the Quick Structural Rating for each pipe segment is located in Enclosure 3. Copies of the actual inspection report for these 6 segments are included in Enclosure 4. A map showing the sewer lines that need lining is also provided in Enclosure 3.

QUICK STRUCTURAL RATING TABLE

DEFECT GRADE	PIPE LENGTH (FT)	PERCENT TOTAL INSPECTED PIPE LENGTH	NO. SEGMENTS
1: Minor	150,331	95.6	686
2: Minor to Moderate	5,041	3.2	20
3: Moderate	579	0.4	3
4: Significant	391	0.2	2
5: Most Significant	889	0.6	4
TOTAL	157,231	100.0	715

FUTURE PROJECTS

The Sewer Condition Assessment Program will perform CCTV inspections of the remaining sewer lines within the City according to the following schedule:

FISCAL YEAR	PROJECT NAME	LENGTH (FT)	PERCENTAGE OF SYSTEM	STATUS
2005-2006	Y0TV0506F	29,407	10.4	COMPLETED
2009-2010	Y0TV0910A	157,231	55.5	COMPLETED
2013-2014	Y0TV1314A	96,600	34.1	FUTURE
TOTAL		283,238	100.0	

ENCLOSURE 1:

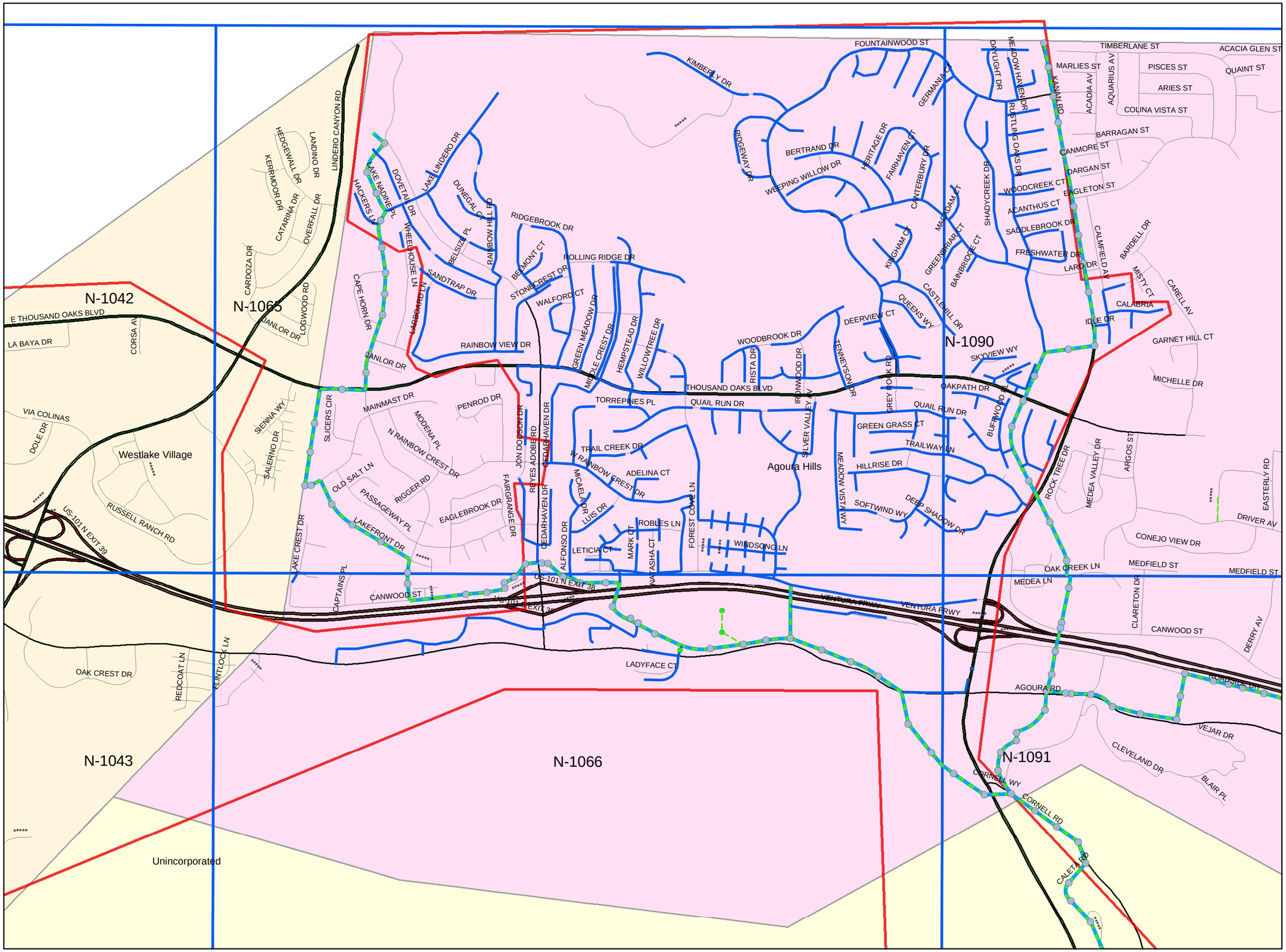
Project Overview Map

OVERVIEW MAP

CCTV PROJECT

Y0TV0910A

AGOURA HILLS



Legend

SMD Sanitary Sewers

- SMD Sanitary Sewers

SMD Manholes

- Other

Manhole Type

- Standard
- DROP
- Shallow
- Trap
- Siphon
- SMD Pump Stations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Non SMD Maintained MH
- SMD Operations Maps
- CCTV PROJECT AREA

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

JUNE 2013

ENCLOSURE 2:

- Quick Maintenance Rating Report Priority List
- Quick Maintenance Rating Map
- High Water Levels
- Infiltration
- High Water Levels and Infiltration Map
- Sample Lateral Notice Letter

ENCLOSURE 2

QUICK MAINTENANCE RATING REPORT PRIORITY LIST

CITY OF AGOURA HILLS (Y0TV0910A)

as of 07/21/10

Item No.	QMR	Start MH	End MH	Street	Observation	Corrective Action Taken
1	523C	1066-0029	1066-0030	EASEMENT	Roots; infiltration runner	Hydro (05/24/2013) Lining: MH to MH
2	5141	1065-0183	1065-0182	RAINBOW VIEW DR	Deposit in MH 182; grease in lateral	Hydro (10/29/2012) Lateral notice will be sent to property owner.
3	5141	1065-0533	1090-0365	FOUNTAINWOOD ST	Camera underwater	Hydro (12/17/2012)
4	5141	1065-0629	1065-0628	EASEMENT	Deposit; infiltration runner	Hydro (12/21/2012) CSMD will repair MH.
5	5131	1090-0207	1090-0208	ROCK CREEK RD	Deposit; infiltration dripper	Hydro (12/07/2012)
6	512S	1065-0260	1090-0208	TRAILWAY LN	Deposit; deposit in MH 208	Hydro (07/23/2012)
7	512O	1065-0182	1065-0181	RAINBOW VIEW DR	Deposit; grease in lateral	Hydro (10/29/2012) Lateral notice will be sent to property owner.
8	512C	1090-0314	1090-0204	EASEMENT	Deposit	Hydro (12/07/2012)
9	512A	1065-0180	1065-0181	RAINBOW VIEW DR	Deposit in MH 181	Hydro (10/29/2012)
10	5100	1065-0203	1065-0204	SAND TRAP DR	Heavy deposit; debris in MH 204	Hydro (12/14/2012)
11	5100	1065-0268	1065-0269	Private Rd	Debris in MH 269	Hydro (07/23/2012)
12	5100	1065-0374	1065-0375	WALFORD CT	Deposit; deposit in MH 375	Hydro (12/14/2012)
13	5100	1065-0400	1065-0399	OAKVISTA CT	Deposit; deposit in MH 400	Hydro (12/14/2012)
14	5100	1065-0528	1065-0527	FOUNTAINWOOD ST	Obstacle; debris; camera underwater	Hydro (12/17/2012)
15	5100	1090-0052	1090-0053	HOLLOW OAK CT	Deposit; debris; infiltration runner	Hydro (12/07/2012) Sectional Liner (Completed 08/22/11)
16	5100	1090-0340	1090-0341	BUFFWOOD PL	Infiltration runner	CSMD will repair MH.
17	4C26	1065-0392	1065-0391	LANGFIELD CT	Camera underwater	Hydro (12/14/2012)
18	4B2J	1090-0168	1090-0170	CALMFIELD AV	Camera underwater	Hydro (12/07/2012)
19	4922	1065-0447	1065-0456	MEADOWMIST WY	Camera underwater	Hydro (12/14/2012)
20	4221	1065-0579	1065-0573	EDINBURGH CT	Infiltration runner	CSMD will repair MH.
21	4135	1090-0354	1090-0353	LARO DR	Camera underwater	Hydro (12/07/2012)
22	4134	1065-0431	1065-0392	THOUSAND OAKS BV	Camera underwater	Hydro (12/14/2012)
23	4134	1065-0532	1065-0533	FOUNTAINWOOD ST	Camera underwater	Hydro (12/17/2012)
24	4131	1065-0184	1065-0183	RAINBOW VIEW DR	Deposit in MH 183 & MH 184	Hydro (10/29/2012)
25	4131	1065-0718	1065-0717	RAINBOW HILL RD	Deposit in MH 717; infiltration dripper	Hydro (12/10/2012)
26	4131	1090-0043	1090-0044	EASEMENT	Infiltration dripper	No action needed.
27	412J	1065-0028	1065-0027	CEDARHAVEN DR	Infiltration runner	Lining: MH to MH
28	412E	1090-0355	1090-0354	LARO DR	Deposit near MH 354	Hydro (12/07/2012)
29	412D	1065-0186	1065-0185	RAINBOW HILL RD	Grease; infiltration runner	Hydro (12/14/2012) Lining: MH to MH
30	412B	1090-0369	1090-0370	Private Rd	Deposit	Hydro (12/07/2012)
31	412B	1090-0364	1090-0363	FOUNTAINWOOD ST	Watermark	No action needed.
32	412A	1065-0367	1065-0366	HURFORD CT	Watermark	No action needed.
33	412A	1090-0347	1090-0348	Private Rd	Watermark	No action needed.
34	4124	1065-0315	1065-0317	ROBLES DR	Infiltration runner	CSMD will repair MH.
35	4124	1090-0348	1090-0370	Private Rd	Infiltration runner	CSMD will repair MH.
36	4123	1065-0317	1065-0319	ROBLES DR	Infiltration runner	CSMD will repair MH.
37	4122	1065-0023	1065-0024	EASEMENT	Sag	Hydro (12/21/2012)
38	4122	1066-0048	1066-0047	LADYFACE CR	Deposit in MH 47	Hydro (12/10/2012)
39	4121	1065-0258	1065-0257	TRAILWAY LN	Debris; rocks; debris in MH 257	Hydro (07/23/2012)

ENCLOSURE 2

QUICK MAINTENANCE RATING REPORT PRIORITY LIST

CITY OF AGOURA HILLS (Y0TV0910A)

as of 07/21/10

Item No.	QMR	Start MH	End MH	Street	Observation	Corrective Action Taken
40	4121	1065-0341	1065-0628	CANWOOD ST	Infiltration runner	CSMD will repair MH.
41	4121	1065-0555	1065-0550	FAIRHAVEN CT	Infiltration runner	CSMD will repair MH.
42	4121	1065-0573	1065-0572	BERTRAND DR	Infiltration runner	CSMD will repair MH.
43	4121	1065-0580	1065-0579	EDINBURGH CT	Infiltration runner	CSMD will repair MH.
44	4111	1090-0319	1090-0321	EASEMENT	Alignment down	No action needed.
45	4100	1065-0184	1065-0346	RAINBOW VIEW DR	Deposit in MH 346	Hydro (10/29/2012)
46	4100	1065-0274	1065-0273	Private Rd	Deposit near MH 273	Hydro (07/23/2012)
47	4100	1065-0574	1065-0573	BERTRAND DR	Deposit in MH 573	Hydro (12/21/2012)
48	4100	1065-0612	1065-0613	EMERSON CT	Deposit	Hydro (12/21/2012)
49	4100	1066-0029	1065-0343	CANWOOD ST	Deposit attached	Hydro (05/24/2013)
50	4100	1090-0008	1090-0009	MEADOW HAVEN DR	Deposit; debris	Hydro (12/10/2012)
51	4100	1090-0225	1090-0224	DEEP SHADOW DR	Deposit in MH 224	Hydro (12/07/2012)
52	4100	1065-0297	1065-0296	EASEMENT	Alignment down	No action needed.
53	4100	1065-0628	1065-0342	CANWOOD ST	Infiltration runner	CSMD will repair MH.
54	4100	1066-0060	1066-0061	EASEMENT	Alignment down	No action needed.
55	4100	1090-0332	1090-0333	EASEMENT	Alignment up	No action needed.
56	3B27	1090-0021	1090-0022	SHADYCREEK DR	Sag	Hydro (12/10/2012)
57	3A00	1090-0024	1090-0039	LARO DR	Grease	Hydro (12/10/2012)
58	3A00	1090-0040	1090-0041	RUSTLING OAKS DR	Sag	Hydro (12/10/2012)
59	372C	1090-0022	1090-0023	SHADYCREEK DR	Sag	Hydro (12/10/2012)
60	3600	1090-0039	1090-0040	RUSTLING OAKS DR	Grease	Hydro (12/10/2012)
61	3500	1090-0033	1090-0034	WOODCREEK CT	Deposit	Hydro (12/07/2012)
62	332J	1065-0192	1065-0179	LARBOARD LN	Grease; infiltration dripper	Hydro (10/29/2012)
63	3312	1090-0048	1090-0047	CATHERWOOD CT	Small deposit	No action needed.
64	3300	1065-0587	1065-0588	TRAILCREEK DR	Small deposit	No action needed.
65	322I	1065-0193	1065-0194	LARBOARD LN	Grease	Hydro (10/29/2012)
66	3216	1065-0206	1065-0207	DOVETAIL DR	Root in lateral	Lateral notice will be sent to property owner.
67	3214	1065-0211	1065-0212	DOVETAIL DR	Root in lateral	Lateral notice will be sent to property owner.
68	3212	1065-0004	1065-0003	ALFONSO DR	Light grease	No action needed.
69	3200	1065-0616	1065-0523	KIMBERLY DR	Sag	Hydro (12/21/2012)
70	3200	1065-0570	1065-0569	WEEPING WILLOW DR	Infiltration dripper	No action needed.
71	312T	1065-0193	1065-0192	LARBOARD LN	Grease	Hydro (10/29/2012)
72	312R	1065-0203	1065-0202	SAND TRAP DR	Grease	Hydro (07/20/2012)
73	312G	1065-0249	1065-0255	BRIDLE GLEN ST	Camera underwater	Hydro (07/23/2012)
74	312D	1066-0078	1066-0076	Private Rd	Small deposit	No action needed.
75	312C	1090-0208	1090-0209	TRAILWAY LN	Small deposit	No action needed.
76	312A	1090-0360	1090-0354	BAINBRIDGE CT	Small deposit	No action needed.
77	3129	1065-0202	1065-0201	SAND TRAP DR	Infiltration dripper	No action needed.
78	3126	1065-0432	1065-0431	MIDDLE CREST DR	Infiltration dripper	No action needed.

ENCLOSURE 2

QUICK MAINTENANCE RATING REPORT PRIORITY LIST

CITY OF AGOURA HILLS (Y0TV0910A)

as of 07/21/10

Item No.	QMR	Start MH	End MH	Street	Observation	Corrective Action Taken
79	3125	1065-0547	1090-0364	GERMANIA CT	Debris	Hydro (12/21/2012)
80	3125	1065-0613	1065-0614	EMERSON CT	Deposit	Hydro (12/21/2012)
81	3122	1065-0618	1065-0617	KIMBERLY DR	Small deposit	No action needed.
82	3121	1065-0003	1065-0002	ALFONSO DR	Infiltration dripper	No action needed.
83	3121	1065-0314	1065-0003	LUIS DR	Infiltration dripper	No action needed.
84	3121	1065-0569	1065-0568	WEEPING WILLOW DR	Infiltration dripper	No action needed.
85	3121	1065-0730	1065-0731	LAKE LINDERO DR	Small deposit near MH 730	No action needed.
86	3112	1065-0279	1065-0263	STRAWBERRY HILL DR	Deposit attached	Hydro (07/23/2012)
87	3112	1090-0328	1090-0327	Private Rd	Small deposit	No action needed.
88	3112	1090-0343	1090-0342	QUAIL RUN DR	Small deposit	No action needed.
89	3100	1065-0442	1065-0441	MEADOWMIST WY	Deposit in MH 441	Hydro (12/14/2012)
90	3100	1065-0468	1065-0469	CAMBRIDGE CT	Deposit; debris	Hydro (12/17/2012)
91	3100	1065-0476	1065-0477	GREY ROCK RD	Deposit attached	Hydro (12/17/2012)
92	3100	1065-0556	1065-0555	FAIRHAVEN CT	Deposit near MH 555	Hydro (12/17/2012)
93	3100	1065-0707	1065-0706	TRAIL CREEK DR	Deposit	Hydro (12/10/2012)
94	3100	1090-0312	1090-0313	Private Rd	Debris; sag	Hydro (12/07/2012)
95	3100	1065-0207	1065-0208	LAKE LINDERO DR	Small root	No action needed.
96	3100	1065-0277	1065-0338	Private Rd	Small deposit	No action needed.
97	3100	1065-0496	1065-0495	KINGHAM CT	Infiltration dripper	No action needed.
98	3100	1065-0566	1065-0565	CRESTHAVEN CT	Infiltration dripper	No action needed.
99	3100	1065-0575	1065-0574	BERTRAND DR	Small deposit	No action needed.
100	3100	1065-0577	1065-0574	BRAEMAR CT	Small deposit near MH 574	No action needed.
101	3100	1065-0578	1065-0577	BRAEMAR CT	Small deposit near MH 577	No action needed.
102	3100	1066-0031	1066-0032	CANWOOD ST	Infiltration dripper	No action needed.
103	3100	1090-0175	1090-0174	GLEAM CT	Small deposit	No action needed.

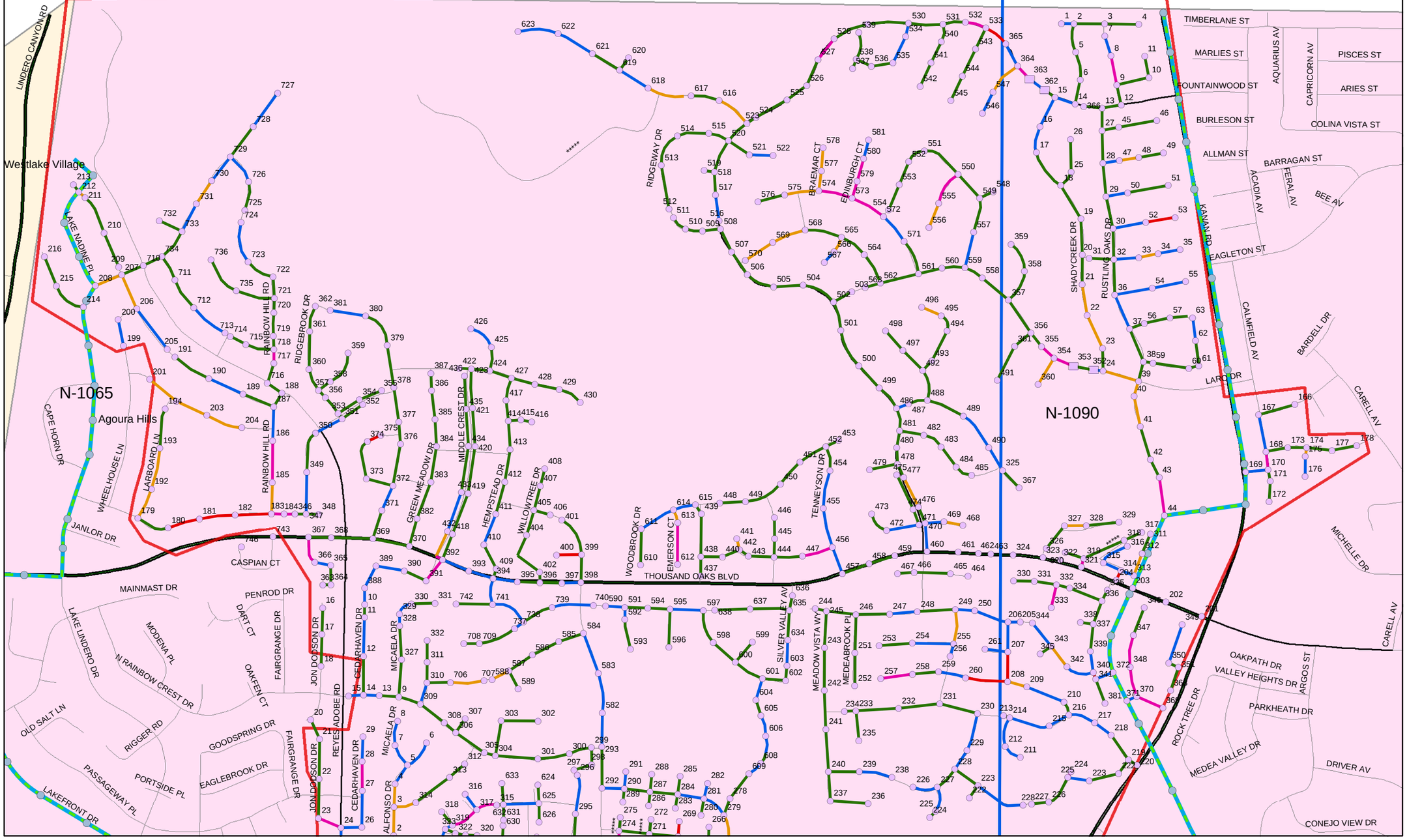
ENCLOSURE 2

CCTV PROJECT

Y0TV0910A

AGOURA HILLS

QUICK MAINTENANCE RATING (QMR)



0 380 760 1,140 1,520

Feet

Legend

SMD Sanitary Sewers

QMR

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- Other

Manhole Type

- Standard
- DROP
- Shallow
- Trap
- Siphon
- P — SMD Pump Stations
- WTP — SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Non SMD Maintained MH
- SMD Operations Maps
- CCTV PROJECT AREA

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

JUNE 2013

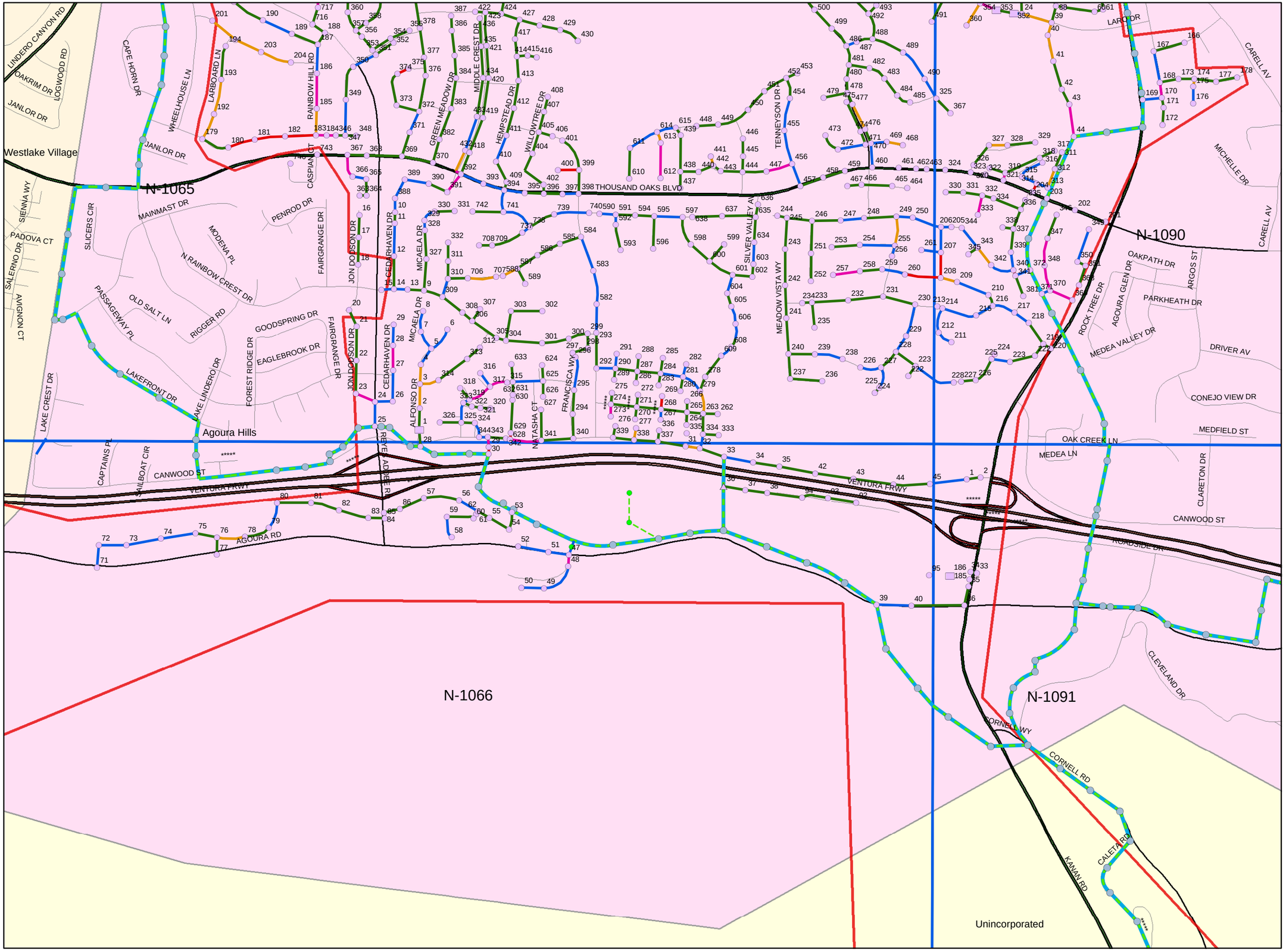
ENCLOSURE 2

CCTV PROJECT

Y0TV0910A

AGOURA HILLS

QUICK MAINTENANCE RATING (QMR)



0 410 820 1,230 1,640

Feet

Legend

SMD Sanitary Sewers

QMR

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- Other

Manhole Type

- Standard
- DROP
- Shallow
- Trap
- Siphon
- SMD Pump Stations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Non SMD Maintained MH
- SMD Operations Maps
- CCTV PROJECT AREA

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

JUNE 2013

ENCLOSURE 2
HIGH WATER LEVELS
CITY OF AGOURA HILLS (Y0TV0910A)

as of 07/21/10

Item No.	QMR	START MH	END MH	STREET	OBSERVATION	
1	5141	1065-0533	1090-0365	FOUNTAINWOOD ST	Camera underwater	(30% - 70%): 180' - 200'
2	5100	1065-0528	1065-0527	FOUNTAINWOOD ST	Camera underwater	(30% - 70%): 42' - 97'
3	4C26	1065-0392	1065-0391	LANGFIELD CT	Camera underwater	(50% - 70%): 44' - 92'
4	4B2J	1090-0168	1090-0170	CALMFIELD AV	Camera underwater	(50% - 70%): 25' - 100'
5	4922	1065-0447	1065-0456	MEADOWMIST WY	Camera underwater	(30% - 50%): start MH - 14'
6	4135	1090-0354	1090-0353	LARO DR	Camera underwater	(30% - 50%): 33' - 55', 68' - 100', 138'- 198'
7	4134	1065-0431	1065-0392	THOUSAND OAKS BV	Camera underwater	(30% - 70%): 25' - 42'
8	4134	1065-0532	1065-0533	FOUNTAINWOOD ST	Camera underwater	(30% - 70%): start MH - 20', 146' - 160'
9	412B	1090-0364	1090-0363	FOUNTAINWOOD ST	Watermark	
10	412A	1065-0367	1065-0366	HURFORD CT	Watermark	
11	412A	1090-0347	1090-0348	Private Rd	Watermark	
12	4122	1065-0023	1065-0024	EASEMENT	Sag	(30% - 60%): 140' - 200'
13	3B27	1090-0021	1090-0022	SHADYCREEK DR	Sag	(50%): 124' - 150'
14	3A00	1090-0040	1090-0041	RUSTLING OAKS DR	Sag	(30% - 50%): 54' - 106'
15	372C	1090-0022	1090-0023	SHADYCREEK DR	Sag	(50%): 7' - 30', 180' - 195'
16	3200	1065-0616	1065-0523	KIMBERLY DR	Sag	(30% - 70%): 118' - 125'
17	312G	1065-0249	1065-0255	BRIDLE GLEN ST	Camera underwater	(30% - 50%): 245' - 260'
18	3100	1090-0312	1090-0313	Private Rd	Sag due to debris	(30% - 50%): 118' - 145'

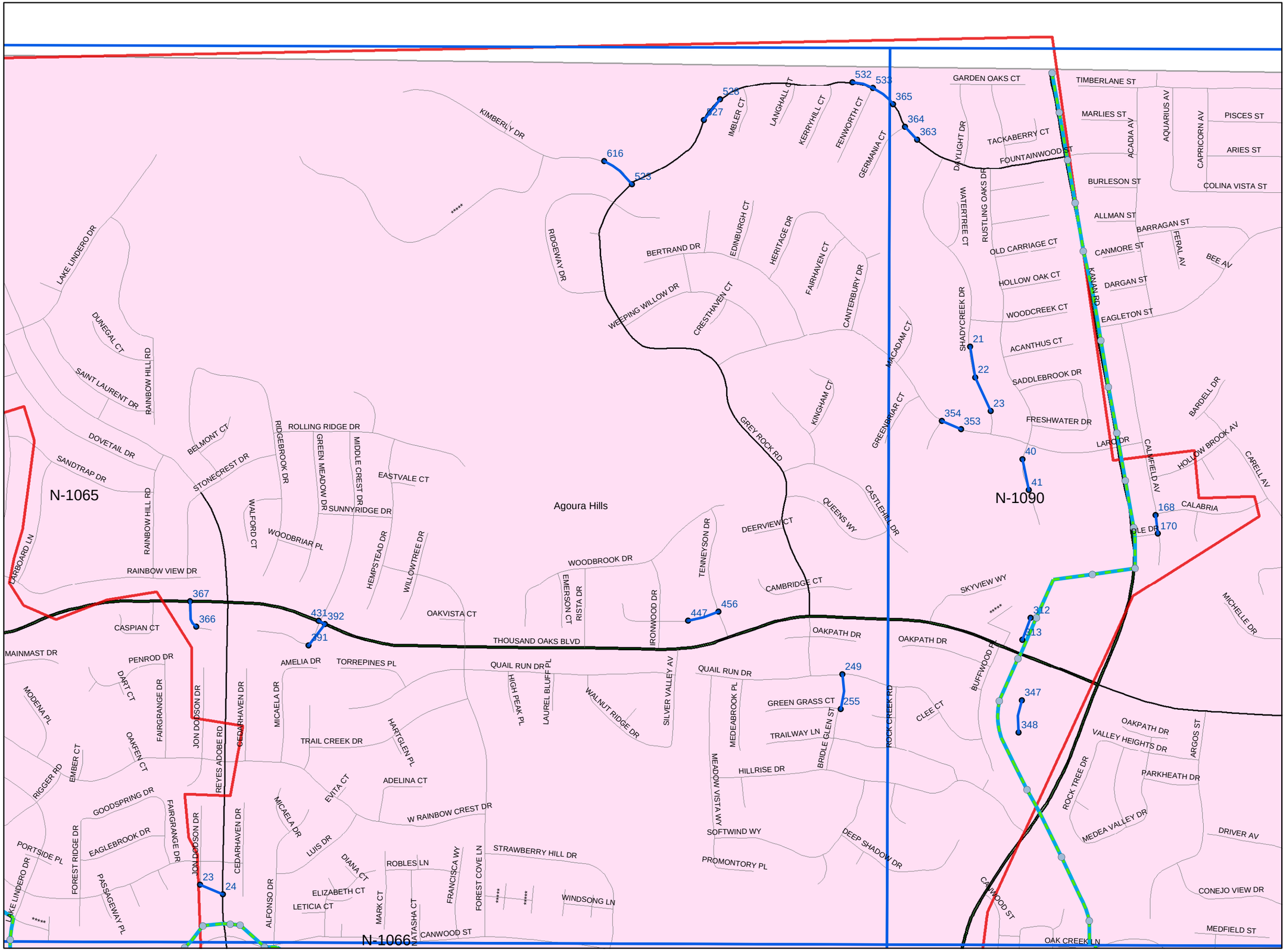
ENCLOSURE 2

CCTV PROJECT

Y0TV0910A

AGOURA HILLS

HIGH WATER LEVELS



0 340 680 1,020 1,360

Feet

Legend

- High Water Levels
- MH: High Water Levels

SMD Manholes

- Other

Manhole Type

- Standard
- DROP
- Shallow
- Trap
- Siphon
- SMD Pump Stations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Non SMD Maintained MH
- SMD Operations Maps
- CCTV PROJECT AREA

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

JUNE 2013

ENCLOSURE 2
INFILTRATION
CITY OF AGOURA HILLS (Y0TV0910A)
as of 07/21/10

ITEM NO.	QMR	START MH	END MH	STREET	OBSERVATION	PROPOSED CORRECTIVE METHOD	LENGTH OF REPAIR (FT)
1	523C	1066-0029	1066-0030	EASEMENT	Infiltration runner: 6'	Lining: MH to MH	108
2	5141	1065-0629	1065-0628	EASEMENT	Infiltration runner in MH 628	Chemical Grouting	
3	5131	1090-0207	1090-0208	ROCK CREEK RD	Infiltration dripper: 244'	Infiltration is minimal. No action needed.	
4	5100	1090-0052	1090-0053	HOLLOW OAK CT	Infiltration runner: 270'	Lining: MH to MH	270
5	5100	1090-0340	1090-0341	BUFFWOOD PL	Infiltration runner in MH 340	Chemical Grouting	
6	4221	1065-0579	1065-0573	EDINBURGH CT	Infiltration runner in MH 573	Chemical Grouting	
7	4131	1065-0718	1065-0717	RAINBOW HILL RD	Infiltration dripper in MH 717	Infiltration is minimal. No action needed.	
8	4131	1090-0043	1090-0044	EASEMENT	Infiltration dripper in MH 44	Infiltration is minimal. No action needed.	
9	412J	1065-0028	1065-0027	CEDARHAVEN DR	Infiltration runner: 293'	Infiltration is minimal. No action needed.	
10	412D	1065-0186	1065-0185	RAINBOW HILL RD	Infiltration runner: 349'	Lining: MH to MH	352
11	4124	1065-0315	1065-0317	ROBLES DR	Infiltration runner in MH 317	Chemical Grouting	
12	4124	1090-0348	1090-0370	Private Rd	Infiltration runner near MH 370	Chemical Grouting	
13	4123	1065-0317	1065-0319	ROBLES DR	Infiltration runner in MH 317	Chemical Grouting	
14	4121	1065-0341	1065-0628	CANWOOD ST	Infiltration runner in MH 628	Chemical Grouting	
15	4121	1065-0555	1065-0550	FAIRHAVEN CT	Infiltration runner in MH 555	Chemical Grouting	
16	4121	1065-0573	1065-0572	BERTRAND DR	Infiltration runner in MH 573	Chemical Grouting	
17	4121	1065-0580	1065-0579	EDINBURGH CT	Infiltration runner in MH 579	Chemical Grouting	
18	4100	1065-0628	1065-0342	CANWOOD ST	Infiltration runner in MH 628	Chemical Grouting	
19	332J	1065-0192	1065-0179	LARBOARD LN	Infiltration dripper: 83', 102'	Infiltration is minimal. No action needed.	
20	322I	1065-0193	1065-0194	LARBOARD LN	Infiltration dripper: 1'	Infiltration is minimal. No action needed.	
21	3212	1065-0004	1065-0003	ALFONSO DR	Infiltration dripper in MH 3	Infiltration is minimal. No action needed.	
22	3200	1065-0570	1065-0569	WEEPING WILLOW DR	Infiltration dripper near MH 569	Infiltration is minimal. No action needed.	
23	3129	1065-0202	1065-0201	SAND TRAP DR	Infiltration dripper in MH 202	Infiltration is minimal. No action needed.	
24	3126	1065-0432	1065-0431	MIDDLE CREST DR	Infiltration dripper: 237'	Infiltration is minimal. No action needed.	
25	3121	1065-0003	1065-0002	ALFONSO DR	Infiltration dripper in MH 3	Infiltration is minimal. No action needed.	
26	3121	1065-0314	1065-0003	LUIS DR	Infiltration dripper in MH 3	Infiltration is minimal. No action needed.	
27	3121	1065-0569	1065-0568	WEEPING WILLOW DR	Infiltration dripper near MH 568	Infiltration is minimal. No action needed.	
28	3100	1065-0496	1065-0495	KINGHAM CT	Infiltration dripper in MH 496	Infiltration is minimal. No action needed.	
29	3100	1065-0566	1065-0565	CRESTHAVEN CT	Infiltration dripper near MH 566	Infiltration is minimal. No action needed.	
30	3100	1066-0031	1066-0032	CANWOOD ST	Infiltration dripper in MH 32	Infiltration is minimal. No action needed.	

ENCLOSURE 2

CCTV PROJECT

Y0TV0910A

AGOURA HILLS

INFILTRATION

0 370 740 1,110 1,480

Feet

Legend

- Infiltration
- MH: Infiltration

SMD Manholes

- Other

Manhole Type

- Standard
- DROP
- Shallow
- Trap
- Siphon
- SMD Pump Stations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Non SMD Maintained MH
- SMD Operations Maps
- CCTV PROJECT AREA

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

JUNE 2013

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

GAIL FARBER, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: SM-1

{Date}

Current Property Owner

Dear Property Owner:

SEWER LATERAL ROOT INTRUSION

As the agency responsible for the maintenance of the sanitary sewer system in your area, the County of Los Angeles Consolidated Sewer Maintenance District (District) is providing you with this courtesy notice informing you that the sewer lateral serving the property located at XXXX, requires maintenance per **County Code 20.24.080 Maintenance of Sewer Laterals**.

"***All house laterals, industrial connection sewers, septic tank outlet connections to STEP system, and appurtenances thereto existing as of January 23, 1953, or thereafter constructed, shall be maintained by the owner of the property served in a safe and sanitary condition, and all devices or safeguards which are required by this Division 2 for the operation thereof shall be maintained in good working order***."

Using closed-circuit television (CCTV) camera technology, the District recently televised the sanitary sewer mainline and discovered the presence of roots in your sewer lateral connection. The intrusion of the roots from your lateral may block the flow of sewage in the mainline sewer causing a sanitary sewer overflow upstream of your property.

Since the CCTV inspection, the sewer mainline has been cleaned and blockages from root growth have been removed; however, the root blockage in your sewer lateral is still present. As the property owner, you are responsible for the entire length of the sewer lateral, which includes the portion that extends beyond the property line into the public right of way. We request that you contact a qualified plumbing contractor to service your sewer lateral within 90 days to remove roots and any other obstructions that may cause a sewage backup.

SAMPLE

Prior to your plumbing contractor servicing your lateral, please notify the District's sewer maintenance yard in your area at (XXX) XXX-XXXX to arrange for authorization to access the downstream manhole.

During your lateral service, your plumbing contractor must protect the District's sewer mainlines from dislodged roots and other debris by utilizing catcher baskets at the manhole downstream from your lateral connection.

After your lateral has been serviced, please notify Mr. Fernando Villaluna, Sewer Maintenance Division, at (626) 300-3380 or fvillaluna@dpw.lacounty.gov.

For your reference, we have enclosed photos of your lateral connection showing the presence of the root blockage. Also enclosed are some literature on ways of minimizing sewer overflows and damage to your home.

Thank you for helping the Department of Public Works keep the public's sewers clean and in good working order.

Very truly yours,

GAIL FARBER
Director of Public Works

RAJESH PATEL
Assistant Deputy Director
Sewer Maintenance Division

XXXX

Enc.

SAMPLE

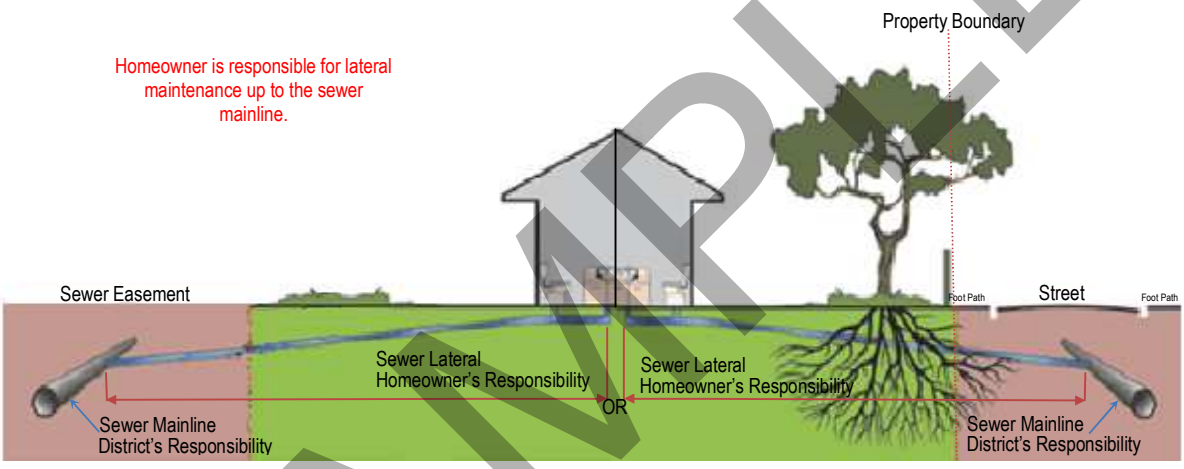
XXXX
Roots at Lateral Connection

SAMPLE

Minimizing Sewer Overflows and Damage to Your Home

The sewer system within the County of Los Angeles Consolidated Sewer Maintenance District (District) is comprised of a series of underground pipes. Many are publicly owned; however, the sewer laterals are entirely owned by the private property owner they serve. The laterals extend from the building to the mainline within the street (or within an easement at the rear of your home). The laterals are typically four inches in diameter while the District's mainline is typically at least eight inches in diameter. The private property owner is responsible for the entire length of the lateral, which includes the portion that may be located within the public right of way (under the asphalt and street landscaping).

SEWER LATERALS – AREAS OF RESPONSIBILITY



Sewer backups can cause tremendous damage to the interior of a home. In order to minimize these, the District provides continual maintenance services for the public sewer mainlines.

Unfortunately, sewer laterals are often not maintained by private property owners until a disaster strikes. "Out of sight, out of mind" is a typical approach to sewer lateral maintenance and operation by many. It is our hope that we can provide you various means of addressing these issues and thus minimize your risk of an overflow entering your home.

The three methods we suggest are:

1. Maintain your lateral through proper cleaning, repair, and replacement
2. Do not place improper items into the sewer or make improper connections to the sewer
    a. Keep rainwater out of the sewer lines as it overwhelms the capacity of the sewer lines and may cause sewer spills.
    b. Do not pour fats, oils, and grease in your drains as these products harden and stick to the inside of the sewer pipes, which build up and may eventually cause a blockage in the sewer pipe.
3. Install a backflow preventer and cleanout in your sewer lateral.

SAMPLE

ENCLOSURE 3:

- Quick Structural Rating Report Priority List
- Quick Structural Rating Map
- Rehabilitation Projects Map

ENCLOSURE 3
QUICK STRUCTURAL RATING REPORT PRIORITY LIST
AGOURA HILLS (Y0TV0910A)
as of 07/21/10

ITEM NO.	QSR	START MH	END MH	STREET	OBSERVATION: LOCATION	PROPOSED CORRECTIVE ACTION	LENGTH OF REPAIR (FT)
1	5A00	1066-0054	1066-0053	EASEMENT	Fractures: 113' - 158'	Lining: MH to MH	186
2	5100	1065-0448	1065-0449	WOODBROCK DR	Broken with visible soil: 160'	Sectional Liner (Completed 08/22/11)	
3	5100	1065-0576	1065-0575	BERTRAND DR	Broken with visible soil: 233'	Sectional Liner (Completed 08/22/11)	
4	5100	1090-0052	1090-0053	HOLLOW OAK CT	Broken with infiltration: 270'	Lining: MH to MH	270
5	4131	1065-0407	1065-0405	WILLOWBROOK DR	Broken void visible: 74'	Structural integrity in tact. No action needed.	
6	4131	1090-0311	1090-0312	Private Rd	Fractures: 86' - 92'	Structural integrity in tact. No action needed.	

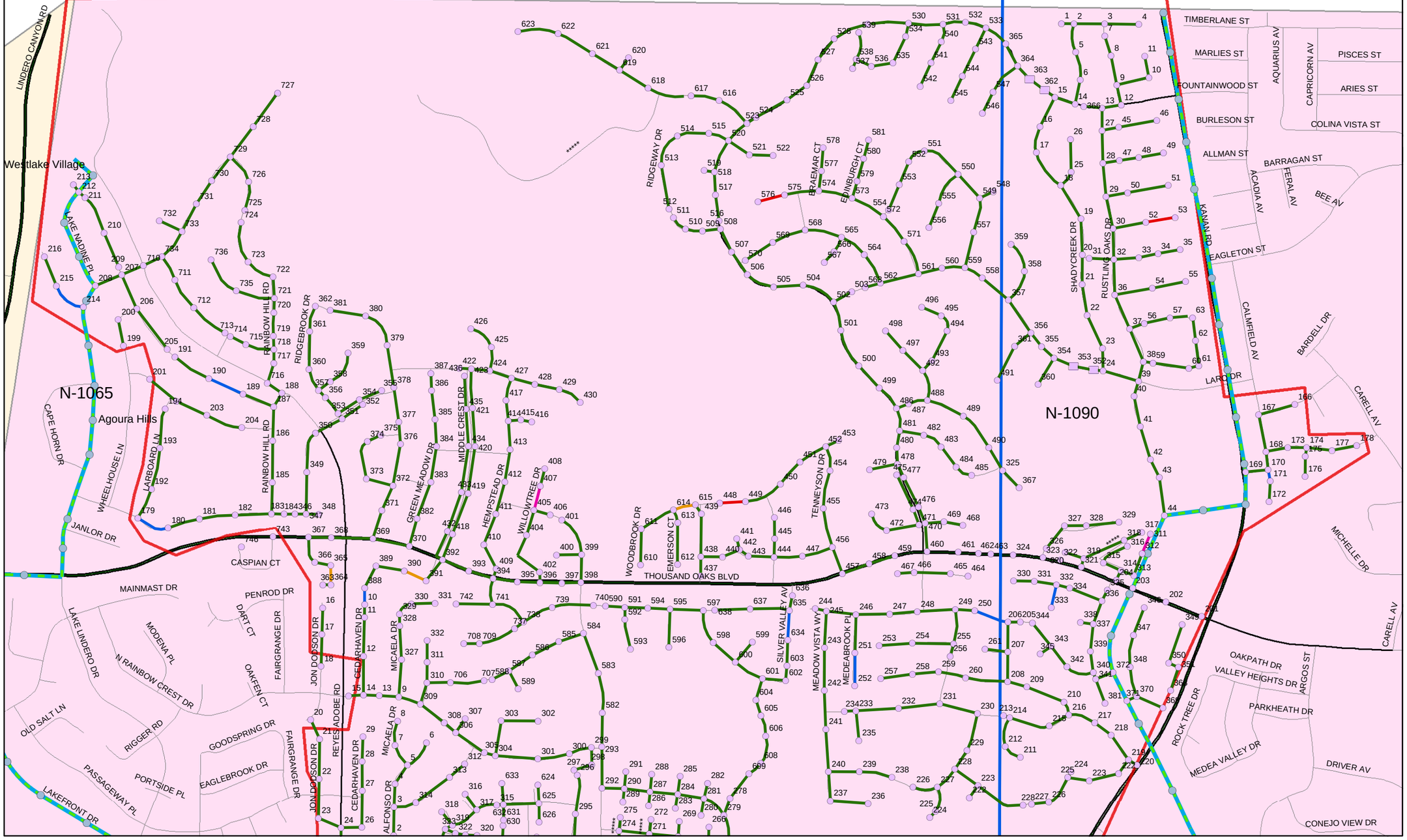
ENCLOSURE 3

CCTV PROJECT

Y0TV0910A

AGOURA HILLS

QUICK STRUCTURAL RATING (QSR)



Legend

SMD Sanitary Sewers

QSR

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- Other

Manhole Type

- Standard
- DROP
- Shallow
- Trap
- Siphon
- SMD Pump Stations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Non SMD Maintained MH
- SMD Operations Maps
- CCTV PROJECT AREA

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

JUNE 2013

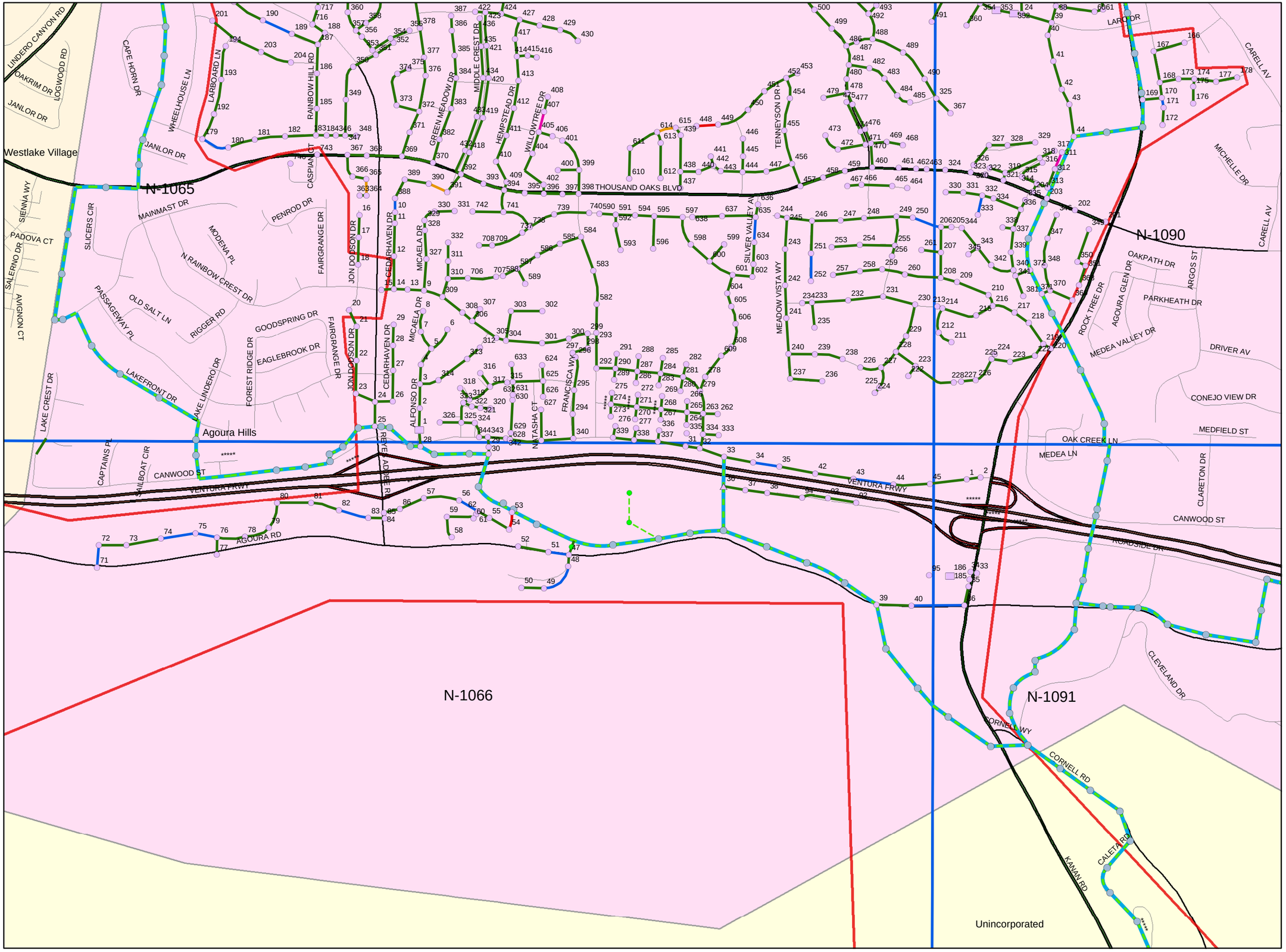
ENCLOSURE 3

CCTV PROJECT

Y0TV0910A

AGOURA HILLS

QUICK STRUCTURAL RATING (QSR)



0 410 820 1,230 1,640

Feet

Legend

SMD Sanitary Sewers

QSR

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- Other

Manhole Type

- Standard
- DROP
- Shallow
- Trap
- Siphon
- SMD Pump Stations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Non SMD Maintained MH
- SMD Operations Maps
- CCTV PROJECT AREA

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

JUNE 2013

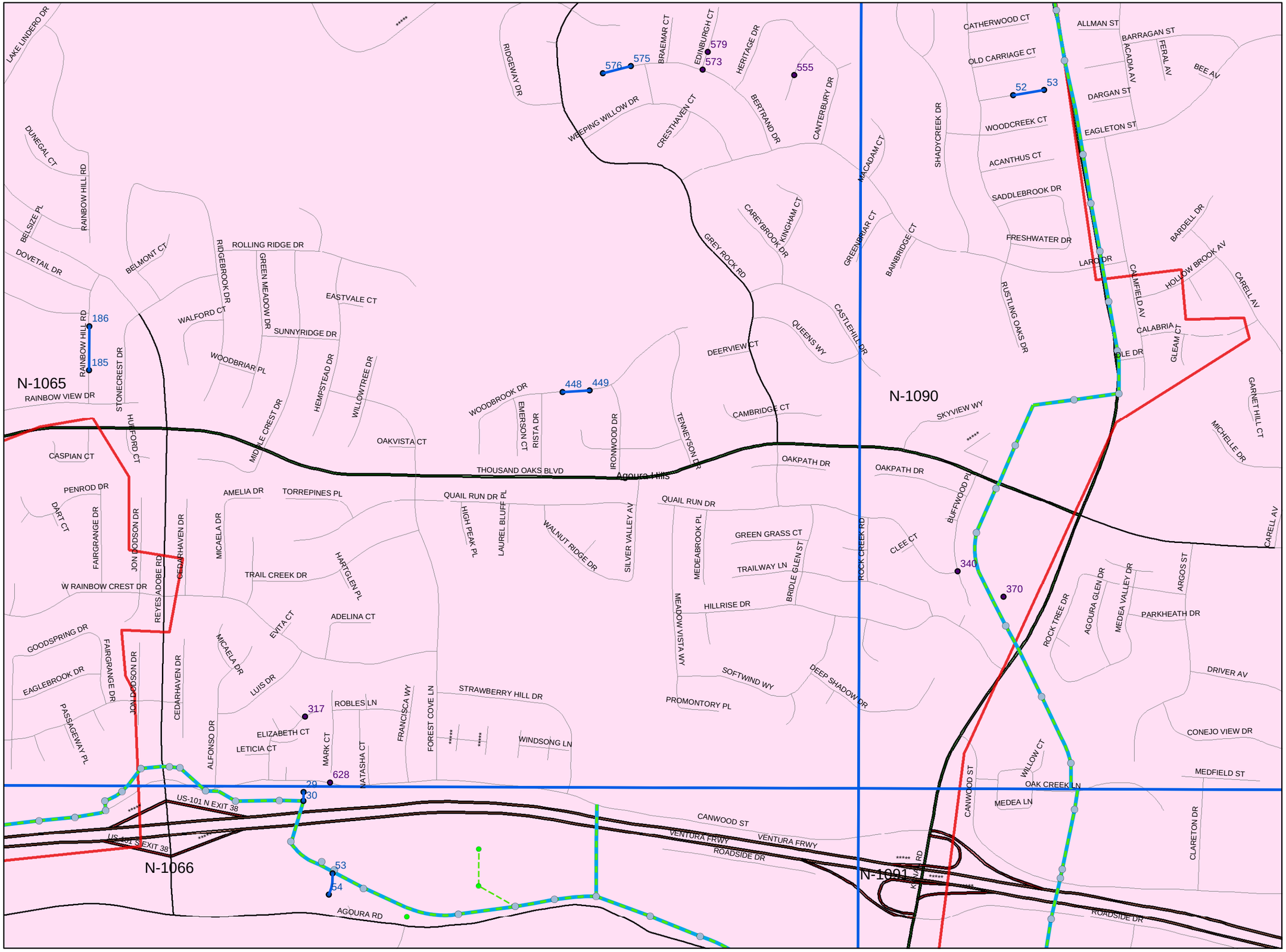
ENCLOSURE 3

CCTV PROJECT

Y0TV0910A

AGOURA HILLS

LINING & CHEMICAL GROUTING



0 330 660 990 1,320

Feet

Legend

- Lining
- MH: Chemical Grouting

SMD Manholes

- Other

Manhole Type

- Standard
- DROP
- Shallow
- Trap
- Siphon
- SMD Pump Stations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- Non SMD Maintained MH
- SMD Operations Maps
- CCTV PROJECT AREA

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

JUNE 2013

ENCLOSURE 4:

Infrastructure Inspection Reports for Grades 4 and 5

WinCan America, Inc.
1730 Montano Road NE, Suite E
Albuquerque, NM 87107
Tel: (505) 341.0109, Fax: (505) 341.0133

Inspection report

Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20100921	**Y0TV0910A**	**Dry**	**Rigo Alvarez**	**3415**	**513373**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
190.00	**LACDPW**	**AGH**		**Jetting**	**1066**

Street: **EASEMENT**	Flow Control: **Not Controlled**	Start MH: **1066-0054**
City: **AGH**	Year Renewed	End MH: **1066-0053**
Location Code: **Easement/Right of Way**	Tape/Media #: **R311-119**	pipe length: **186.3 ft**

Reason for inspection: **Routine Assessment**	Dia/Height: **Circular 12"/12"**
Use of Sewer: **Sanitary**	Material: **Vitrified Clay Pipe** Pipe Length:
Drain. Area: **0053/1066-0054/1066**	Lining Method:
	Category:

Remark::

1:475 position		observation	MPEG	photo	grade
0.00		Manhole, within 8 inch: NO, Remarks: 1066-0054	00:00:21	6	
8.90		Water Level, 5 %, within 8 inch: NO	00:01:49	7	M 2
15.50		General Observation, within 8 inch: NO, Remarks: Pipe joint Length 6'	00:02:40	8	
113.00	**S1**	Broken, from 8 to 4 o'clock, within 8 inch: NO, Start	00:05:37	9, b	S 5
159.10	**F1**	Broken, from 8 to 4 o'clock, within 8 inch: NO, End	00:07:50	11, b	S 5
186.30		Manhole, within 8 inch: NO, Remarks: 1066-0053	00:09:44	13	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5200	**2100**	**10**	**2**	**12**	**5**	**2**	**4**

WinCan America, Inc.
1730 Montano Road NE, Suite E
Albuquerque, NM 87107
Tel: (505) 341.0109, Fax: (505) 341.0133

Inspection report

Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20100616	**Y0TV0910A**	**Dry**	**Rigo Alvarez**	**2879**	**33482**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
216.00	**LACDPW**	**AGH**	**06/11/2010**	**Jetting**	**1065**

Street:	**WOODBROCK DR**	Flow Control:	**Not Controlled**	Start MH:	**1065-0448**
City:	**AGH**	Year Renewed		End MH:	**1065-0449**
Location Code:	**Light Highway**	Tape/Media #:	**R311-091**	pipe length:	**213.7 ft**

Reason for inspection:	**Routine Assessment**	Dia/Height:	**Circular 8"/8"**
Use of Sewer:	**Sanitary**	Material:	**Reinforced Plastic Pipe (Truss Pipe)** Pipe Length:
Drain. Area:	**0448/1065-0449/1065**	Lining Method:	
		Category:	

Remark::

1:525 position	observation	MPEG	photo	grade
0.00	Manhole, within 8 inch: NO, Remarks: 1065-0448	00:00:26	501	
6.40	Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:01:19	502	
13.00	Water Level, 5 %, within 8 inch: NO	00:01:42	503	M 2
25.90	General Observation, within 8 inch: NO, Remarks: Pipe joint Length 13'	00:02:17	504	
71.10	Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:03:30	505	
160.60	Broken Soil Visible, from 12 to 2 o'clock, within 8 inch: NO	00:06:46	506, b	S 5
177.80	Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:07:45	508	
213.70	Manhole, within 8 inch: NO, Remarks: 1065-0449	00:09:08	509	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5100	**2100**	**5**	**2**	**7**	**5**	**2**	**3.5**

WinCan America, Inc.
1730 Montano Road NE, Suite E
Albuquerque, NM 87107
Tel: (505) 341.0109, Fax: (505) 341.0133

Inspection report

Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20100617	**Y0TV0910A**	**Dry**	**Rigo Alvarez**	**2905**	**33381**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
231.00	**LACDPW**	**AGH**	**06/11/2010**	**Jetting**	**1065**

Street:	**BERTRAND DR**	Flow Control:	**Not Controlled**	Start MH:	**1065-0576**
City:	**AGH**	Year Renewed		End MH:	**1065-0575**
Location Code:	**Light Highway**	Tape/Media #:	**R311-092**	pipe length:	**236.4 ft**

Reason for inspection:	**Routine Assessment**	Dia/Height:	**Circular 8"/8"**
Use of Sewer:	**Sanitary**	Material:	**Reinforced Plastic Pipe (Truss Pipe)** Pipe Length:
Drain. Area:	**0575/1065-0576/1065**	Lining Method:	
		Category:	

Remark::

1:600 position	observation	MPEG	photo	grade
0.00	Manhole, within 8 inch: NO, Remarks: 1065-0576	00:00:26	756	
5.80	Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:01:11	757	
9.40	Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:01:34	758	
13.80	Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:01:58	759	
22.20	Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:02:28	760	
33.00	Water Level, 5 %, within 8 inch: NO	00:02:57	761	M 2
46.00	General Observation, within 8 inch: NO, Remarks: Pipe eJoint Length 13'	00:03:32	762	
56.70	Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:03:58	763	
63.90	Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:04:26	764	
158.90	Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:06:38	765	
197.90	Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:07:43	766	
233.50	Broken Soil Visible, from 11 to 1 o'clock, within 8 inch: NO	00:10:32	767, b	S 5
236.40	Manhole, within 8 inch: NO, Remarks: 1065-0575	00:11:46	769	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5100	**2100**	**5**	**2**	**7**	**5**	**2**	**3.5**

WinCan America, Inc.
1730 Montano Road NE, Suite E
Albuquerque, NM 87107
Tel: (505) 341.0109, Fax: (505) 341.0133

Inspection report

Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20100623	**Y0TV0910A**	**Dry**	**Rigo Alvarez**	**3049**	**33218**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
252.00	**LACDPW**	**AGH**	**06/18/2010**	**Jetting**	**1090**

Street:	**HOLLOW OAK CT**	Flow Control:	**Not Controlled**	Start MH:	**1090-0052**
City:	**AGH**	Year Renewed		End MH:	**1090-0053**
Location Code:	**Light Highway**	Tape/Media #:	**R311-096**	pipe length:	**270.7 ft**

Reason for inspection:	**Routine Assessment**	Dia/Height:	**Circular 8"/8"**
Use of Sewer:	**Sanitary**	Material:	**Reinforced Plastic Pipe (Truss Pipe)** Pipe Length:
Drain. Area:	**0052/1090-0053/1090**	Lining Method:	
		Category:	

Remark::

1:675 position		observation	MPEG	photo	grade
0.00		Manhole, within 8 inch: NO, Remarks: 1090-0052	00:00:27	465	
15.20		Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:01:25	466	
29.60		Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:01:59	467	
32.30		Water Level, 5 %, within 8 inch: NO	00:02:16	468	M 2
44.50		General Observation, within 8 inch: NO, Remarks: Pipe joint Length 13'	00:03:03	469	
54.70		Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:03:29	470	
105.30		Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:04:49	471	
147.60		Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:06:03	472	
167.90		Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:06:48	473	
173.70		Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:07:15	474	
236.20		Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:09:00	475	
265.20		Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:09:56	476	
267.70		Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:10:17	477	
269.20	S1	Deposits Attached Other, from 4 to 8 o'clock, 20 %, within 8 inch: NO, Start	00:10:57	478, b	M 3
270.50		Infil Runner, at 2 o'clock, within 8 inch: NO	00:11:35	480, b	M 4
270.50		Broken Soil Visible, from 12 to 2 o'clock, within 8 inch: NO	00:12:39	482, b	S 5
270.70		Abandoned Survey, within 8 inch: NO, Remarks: Due To Deposits Attached	00:15:15	484, b	
270.70	F1	Deposits Attached Other, from 4 to 8 o'clock, 20 %, within 8 inch: NO, End	00:16:18	486	M 3

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
5100	**4132**	**5**	**12**	**17**	**5**	**3**	**3.4**

WinCan America, Inc.
1730 Montano Road NE, Suite E
Albuquerque, NM 87107
Tel: (505) 341.0109, Fax: (505) 341.0133

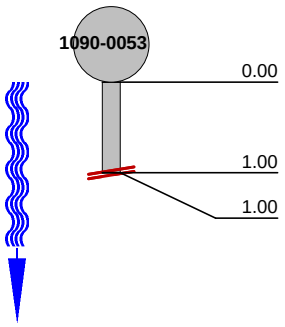
Inspection report

Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20100623	**Y0TV0910A**	**Dry**	**Rigo Alvarez**	**3048**	**33218**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
252.00	**LACDPW**	**AGH**	**06/18/2010**	**Jetting**	**1090**

Street:	**HOLLOW OAK CT**	Flow Control:	**Not Controlled**	Start MH:	**1090-0053**
City:	**AGH**	Year Renewed		End MH:	**1090-0052**
Location Code:	**Light Highway**	Tape/Media #:	**R311-096**	pipe length:	**1 ft**

Reason for inspection:	**Routine Assessment**	Dia/Height:	**Circular 8"/8"**
Use of Sewer:	**Sanitary**	Material:	**Reinforced Plastic Pipe (Truss Pipe)** Pipe Length:
Drain. Area:	**0052/1090-0053/1090**	Lining Method:	
		Category:	

Remark::



1:25	position	observation	MPEG	photo	grade
	0.00	Manhole, within 8 inch: NO, Remarks: 1090-0053	00:00:27	461	
	1.00	Deposits Attached Other, from 3 to 9 o'clock, 50 %, within 8 inch: NO, Remarks: From Mh Channel	00:01:47	462, b	M 5
	1.00	Abandoned Survey, within 8 inch: NO, Remarks: Due To Deposits Attached	00:02:53	464	

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
0000	**5100**	**0**	**5**	**5**	**0**	**5**	**5**

WinCan America, Inc.
1730 Montano Road NE, Suite E
Albuquerque, NM 87107
Tel: (505) 341.0109, Fax: (505) 341.0133

Inspection report

Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20100616	**Y0TV0910A**	**Dry**	**Rigo Alvarez**	**2876**	**33557**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
211.00	**LACDPW**	**AGH**	**06/11/2010**	**Jetting**	**1065**

Street:	**WILLOWBROOK DR**	Flow Control:	**Not Controlled**	Start MH:	**1065-0407**
City:	**AGH**	Year Renewed		End MH:	**1065-0405**
Location Code:	**Light Highway**	Tape/Media #:	**R311-091**	pipe length:	**241.6 ft**

Reason for inspection:	**Routine Assessment**	Dia/Height:	**Circular 8"/8"**
Use of Sewer:	**Sanitary**	Material:	**Reinforced Plastic Pipe (Truss Pipe)** Pipe Length:
Drain. Area:	**0405/1065-0407/1065**	Lining Method:	
		Category:	

Remark::

1:600	position	observation	MPEG	photo	grade
1065-0407					
	0.00	Manhole, within 8 inch: NO, Remarks: 1065-0407	00:00:28	475	
	8.60	Water Level, 5 %, within 8 inch: NO	00:1:10	476	M 2
	21.20	General Observation, within 8 inch: NO, Remarks: Pipe Joint Length 13'	00:01:47	477	
	45.90	Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:02:34	478	
	55.80	Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:03:09	479	
	74.30	Roots Fine Joint, from 8 to 9 o'clock, within 8 inch: YES	00:04:11	480	
	74.30	Broken, from 7 to 9 o'clock, within 8 inch: YES	00:04:44	481, b	S 4
	76.30	Broken, from 7 to 8 o'clock, within 8 inch: YES	00:05:51	483, b	S 4
	76.40	Roots Fine Joint, from 10 to 4 o'clock, within 8 inch: YES	00:06:30	485, b	
	124.10	Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:07:58	487	
	129.80	Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:08:30	488	
	180.20	Tap Factory Active, at 3 o'clock, 6", within 8 inch: NO	00:09:58	489	
	199.00	Tap Factory Active, at 9 o'clock, 6", within 8 inch: NO	00:10:46	490	
	241.60	Manhole, within 8 inch: NO, Remarks: 1065-0405	00:12:19	491	
1065-0405					

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4200	**2100**	**8**	**2**	**10**	**4**	**2**	**3.33**

WinCan America, Inc.
1730 Montano Road NE, Suite E
Albuquerque, NM 87107
Tel: (505) 341.0109, Fax: (505) 341.0133

Inspection report

Date:	P.O.#:	Weather:	Surveyed By:	section number:	PSR:
20100709	**Y0TV0910A**	**Dry**	**Martin Garcia**	**3248**	**32882**
Total Pipe Length:	Survey Customer:	System Owner:	Clean Date:	Pre-Cleaned:	Map Grid #:
180.00	**LACDPW**	**AGH**	**07/08/2010**	**Jetting**	

Street:	**PRIVATE RD**	Flow Control:	**Not Controlled**	Start MH:	**1090-0311**
City:	**AGH**	Year Renewed		End MH:	**1090-0312**
Location Code:	**Light Highway**	Tape/Media #:	**M317-056**	pipe length:	**177 ft**

Reason for inspection:	**Routine Assessment**	Dia/Height:	**Circular 8"/8"**
Use of Sewer:	**Sanitary**	Material:	**Vitrified Clay Pipe** Pipe Length:
Drain. Area:	**0311/1090-0312/1090**	Lining Method:	
		Category:	

Remark::

1:450 position	observation	MPEG	photo	grade
1090				
1090-0311				
0.00	Manhole, within 8 inch: NO, Remarks: 1090-0311	00:00:20	1109	
6.00	Water Level, 5 %, within 8 inch: NO	00:00:45	1110	M 2
10.90	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:01:18	1111	
68.50	Tap Factory Active, at 3 o'clock, 4", within 8 inch: NO	00:03:12	1112	
86.40	Fracture Multiple, from 12 to 4 o'clock, within 8 inch: YES	00:04:07	1113, b	S 4
91.90	Fracture Longitudinal, at 2 o'clock, within 8 inch: YES	00:04:52	1115, b	S 3
91.90	Crack Longitudinal, at 4 o'clock, within 8 inch: YES	00:05:04	1117, b	S 2
177.00	Manhole, within 8 inch: NO, Remarks: 1090-0312	00:07:57	1119	
1090-0312				

QSR	QMR	SPR	MPR	OPR	SPRI	MPRI	OPRI
4131	**2100**	**9**	**2**	**11**	**3**	**2**	**2.75**

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

MARK PESTRELLA, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

February 5, 2019

IN REPLY PLEASE
REFER TO FILE: SM-1

Mr. Greg Ramirez, City Manager
City of Agoura Hills
30001 Ladyface Court
Agoura Hills, CA 91301

Attention Ms. Kimberly Rodrigues

Dear Mr. Ramirez:

CONSOLIDATED SEWER MAINTENANCE DISTRICT
CONDITION ASSESSMENT PROGRAM REPORT
PROJECT NO. Y0TV1314A2

This letter is to inform you that Los Angeles County Public Works Consolidated Sewer Maintenance District has completed its condition assessment of the City of Agoura Hills' sewer system.

The enclosed Condition Assessment Report provides details regarding the maintenance and structural condition of your sewer mainlines. Please note that two previous reports covering the balance of your system were transmitted to your City on December 9, 2008, and July 9, 2013. The information contained in all three reports should be included in your agency's Sewer System Management Plan as a reference in Chapter 8, System Evaluation and Capacity Assurance Plan.

The segments with critical maintenance issues have been cleaned and, where appropriate, incorporated into our enhanced maintenance schedule for continued monitoring. In addition, segments with severe structural defects have either been repaired or will be scheduled for corrective action as part of the ongoing Accumulative Capital Outlay Program.

If you have any questions regarding this report or the Condition Assessment Program, please contact Ms. Kari Eskridge, Sewer Maintenance Division, at (626) 300-3390, Monday through Thursday, 7 a.m. to 5 p.m. or at keskridge@dpw.lacounty.gov.

Very truly yours,

MARK PESTRELLA
Director of Public Works

WILLIAM J. WINTER
Assistant Deputy Director
Sewer Maintenance Division

JG:nv
H:\SMHOME\SEWER\2019\LETTERS & MEMOS\1178.DOCX

Enc.

CONDITION ASSESSMENT REPORT
LOS ANGELES COUNTY PUBLIC WORKS
CONSOLIDATED SEWER MAINTENANCE DISTRICT

100% SUMMARY

SUP. DISTRICT(S)	3	City:	Agoura Hills
Report By:	Jonathan Gonzalez	Report Date:	9/17/2018

INTRODUCTION

As part of the Sewer Condition Assessment Program, the Los Angeles County Public Works Consolidated Sewer Maintenance District (District) has completed the closed-circuit television inspection of 275,522 feet or 100 percent of the City of Agoura Hills' (City) sewer system.

The closed-circuit television inspection of the City was completed in three projects (Project Nos. Y0TV0506F, Y0TV0910A, and Y0TV1314A2). A copy of the Condition Assessment Reports for Project Nos. Y0TV0506F and Y0TV0910A can be found in the District's website at http://dpw.lacounty.gov/smd/cctv/city/. Enclosed for your reference is the Condition Assessment Report for Project No. Y0TV1314A2.

SUMMARY MAINTENANCE REPORT

Our inspection revealed that approximately 83.2 percent of the system televised was free of significant blockages or restrictions that would impede sewer flows. The remaining 16.8 percent of the inspected pipe segments within the City had a Pipeline Assessment and Certification Program (PACP) maintenance grade of 3, 4, or 5 as indicated in the Quick Maintenance Rating Table shown below. These segments have been addressed with corrective action taken as noted in the enclosed reports.

QUICK MAINTENANCE RATING TABLE

DEFECT GRADE	PIPE LENGTH (FT)	PERCENT TOTAL INSPECTED PIPE LENGTH	NO. OF SEGMENTS
1: Minor	153,402	55.7	724
2: Minor to Moderate	75,620	27.5	324
3: Moderate	24,096	8.7	109
4: Significant	16,906	6.1	80
5: Most Significant	5,498	2.0	29
TOTAL	275,522	100.0	1,266

SUMMARY STRUCTURAL REPORT

Our inspection revealed that approximately 96.0 percent of the inspected pipe segments within the City were free of significant structural defects. The remaining 4.0 percent of the inspected pipe segments had a PACP structural grade of 4 or 5 as indicated in the Quick Structural Rating Table shown below. The priority lists for these items are located in the enclosed reports.

QUICK STRUCTURAL RATING TABLE

DEFECT GRADE	PIPE LENGTH (FT)	PERCENT TOTAL INSPECTED PIPE LENGTH	NO. OF SEGMENTS
1: Minor	239,969	87.0	1,114
2: Minor to Moderate	19,213	7.0	79
3: Moderate	5,403	2.0	23
4: Significant	8,251	3.0	37
5: Most Significant	2,686	1.0	13
TOTAL	275,522	100.0	1,266

CONDITION ASSESSMENT REPORT
LOS ANGELES COUNTY PUBLIC WORKS
CONSOLIDATED SEWER MAINTENANCE DISTRICT

PROJECT NAME:	Y0TV1314A2	PROJECT MGR:	ERIC LIU
PROJECT DATE:	02/24/15	CONTACT NO:	(626) 300-3369
SUP. DISTRICT(s):	3	MAP PAGE(S):	1090, 1091, 1118
Report By:	Jonathan Gonzalez	Report Date:	8/17/18

INTRODUCTION

The District conducted a condition assessment of 88,884 feet or 32.3 percent of the City's entire sewer system as part of Project No. Y0TV1314A2.

The enclosed Condition Assessment Report outlines the structural and maintenance ratings of your system based on the PACP's (Version 6.0.1) rating methodology. Included in the report are the following:

- Project Overview Map (Enclosure 1)
- Quick Maintenance Rating Map, High Water Levels List and Map, Infiltration List and Map, and sample lateral notice (Enclosure 2)
- Quick Structural Rating Report Priority List and Quick Structural Rating Priority Map (Enclosure 3)

The Sewer Condition Assessment Program utilizes the PACP Quick Rating methodology to rank the structural and maintenance condition of your system based on industry standards.

PROJECT AREA AND DESCRIPTION

Project No. Y0TV1314A2 included sewer lines located in the unincorporated County of Los Angeles and the Cities of Agoura Hills, Calabasas, Hidden Hills, Malibu, and Santa Clarita. Enclosed for your reference is an overview map of the project area within your City (Enclosure 1).

DEFECT GRADE DESCRIPTION

The Quick Rating indicates the number of occurrences for the highest severity grade for each pipe segment for either maintenance or structural defects. A grade of 1 indicates that a pipe segment is in excellent condition with minor defects while a grade of 5 indicates that a pipe segment may require immediate attention. A legend of the five possible defect grades is as follows:

Grade	Defect Grade Description
1:	MINOR
2:	MINOR TO MODERATE
3:	MODERATE
4:	SIGNIFICANT
5:	MOST SIGNIFICANT

MAINTENANCE REPORT

Our inspection revealed that approximately 81.2 percent of the system televised in your City as part of Project No. Y0TV1314A2 was free of significant blockages or restrictions that would impede sewer flows. The remaining 18.8 percent of the pipe segments within the City had a PACP maintenance grade of 3, 4, or 5 as indicated in the Quick Maintenance Rating Table shown below. These segments have been incorporated into our periodic cleaning schedule with corrective action taken.

A color-coded map showing the quick maintenance rating for each pipe segment is provided in Enclosure 2.

QUICK MAINTENANCE RATING TABLE

DEFECT GRADE	PIPE LENGTH (FT)	PERCENT TOTAL INSPECTED PIPE LENGTH	NO. OF SEGMENTS
1: Minor	48,455	54.5	240
2: Minor to Moderate	23,714	26.7	107
3: Moderate	7,628	8.6	36
4: Significant	6,992	7.9	32
5: Most Significant	2,095	2.3	10
TOTAL	88,884	100.0	425

Lateral Notices

Also included in the maintenance inspection reports are private lateral deficiencies discovered during the assessment of the mainline. The District does not maintain lateral lines. It is the responsibility of the property owner to maintain their respective lateral lines to facilitate the flow of wastewater from their property to the mainline. Letters have been sent to property owners in your City notifying them of the maintenance issues detected in their laterals. A sample lateral notice letter is provided in Enclosure 2 for your reference

High Water Levels

Our inspection revealed that approximately 99.4 percent of the system televised has adequate capacity. Approximately 0.6 percent of the segments inspected exhibited visual signs associated with high water levels. The capacity of the sewer pipe can be determined by analyzing several PACP codes, including Water Level, Water Mark, and miscellaneous remarks, which indicate the camera was underwater or there were sags in the line. A sewer pipe is considered at capacity when 50 percent of the diameter of the sewer pipe is full of water. However, there are conditions in which the Water Level or Water Mark has reached 50 percent or greater due to heavy flows in adjoining pipes, a temporary stoppage caused by debris in the sewer lines, or a sag in the line. Therefore, additional review of these pipe segments was conducted to determine if any capacity issues exist.

All sewer pipes where the Water Level, Water Mark, and miscellaneous remarks of camera underwater or sags in the line are at or above 50 percent capacity have been listed and analyzed on the High Water Level Table in Enclosure 2. The nature of these high water level conditions is also summarized on this table.

A map showing the sewer lines with high water levels is provided in Enclosure 2.

Infiltration

Our inspection revealed that approximately 0.4 percent of the system included in your City as part of Project No. Y0TV1314A2 has infiltration within the pipe segments. Infiltration is the ingress of groundwater into the sewers through a defect or porous area of the pipe wall. All sewer pipes where infiltration was found are listed on the Infiltration Table in Enclosure 2. This table also provides the proposed corrective action for these impacted sewer segments. If a corrective action is proposed, the work will be programmed in the next 24 months as part of our ongoing Accumulative Capital Outlay Program.

A map showing the sewer lines with infiltration is provided in Enclosure 2.

STRUCTURAL REPORT

Our inspection revealed that approximately 90.3 percent of the inspected pipe segments within the City were free of severe structural defects. The remaining 9.7 percent of the inspected pipe segments had a PACP structural grade of 4 or 5 as indicated in the Quick Structural Rating Table shown below. These segments have been placed on a priority list based on the severity and the need for action. For items 1 through 40 in the Quick Structural Rating Report Priority List (Enclosure 3), which warrant a corrective action, the proposed corrective action will be programmed in the next 24 months as part of the ongoing Accumulative Capital Outlay Program.

A color-coded map showing the Quick Structural Rating for each pipe segment is located in Enclosure 3.

QUICK STRUCTURAL RATING TABLE

DEFECT GRADE	PIPE LENGTH (FT)	PERCENT TOTAL INSPECTED PIPE LENGTH	NO. OF SEGMENTS
1: Minor	66,275	74.7	328
2: Minor to Moderate	10,421	11.7	43
3: Moderate	3,503	3.9	14
4: Significant	7,064	7.9	32
5: Most Significant	1,621	1.8	8
TOTAL	88,884	100.0	425

CONDITION ASSESSMENT PROJECTS

The Sewer Condition Assessment Program performed the condition assessment of the sewer lines within the City according to the following schedule:

FISCAL YEAR	PROJECT NAME	LENGTH (FT)	PERCENTAGE OF SYSTEM	STATUS
2005-06	Y0TV0506F	29,407	10.7	COMPLETED
2009-10	Y0TV0910A	157,231	57.0	COMPLETED
2013-14	Y0TV1314A2	88,884	32.3	COMPLETED
TOTAL		275,522	100.0	

ENCLOSURE 1

Project Overview Map

ENCLOSURE 1

CCTV PROJECT

Y0TV1314A2

Agoura Hills

OVERVIEW MAP

Public Works
LOS ANGELES COUNTY

0 730 1,460 2,190 2,920
Feet

Legend

SMD Manholes

U Other

Manhole Type

(Standard
* DROP
Shallow
W Trap
? Siphon
i SMD Pump Stations
Q SMD Treatment Plants

Maintained by Others:

Trunk Sewerlines
Non SMD Sanitary Sewers
(Non SMD Maintained MH
SMD Operations Maps
Y0TV1314A2

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

N-1065 N-1066 N-1067 N-1090 N-1091 N-1092 N-1117 N-1118 N-1119

Agoura Hills
Unincorporated
Calabasas
Unincorporated
Calabasas
Unincorporated

KIMBERLY DR
RIDGEWAY DR
BERTRAND DR
IMBLER CT
LANGHALL CT
KERRYHILL CT
FENWORTH CT
GERMANIA CT
GARDEN OAKS CT
FOUNTAINWOOD ST
RUSTLING OAKS DR
SHADY CREEK DR
HERITAGE DR
FAIRHAVEN CT
CANTERBURY DR
LARO DR
CAREYBROOK DR
CASTLEHILL DR
GREY ROCK RD
WOODBROOK DR
IRONWOOD DR
TENNYSON DR
CAMBRIDGE CT
SKYVIEW WY
THOUSAND OAKS BLVD
QUAIL RUN DR
OAKPATH DR
BUFFWOOD PL
GREEN GRASS CT
TRAILWAY LN
HILLRISE DR
MEADOW VISTA WY
SOFTWIND WY
FRANCISCA WY
FOREST COVE LN
WINDSONG LN
TIMBERLANE ST
ACACIA GLEN ST
MARLIES ST
PISCES ST
QUAINT ST
ARIES ST
COLINA VISTA ST
ALLMAN ST
ACADIA AV
EAGLETON ST
CALMFIELD AV
BARDELL DR
CARELL AV
CALABRIA
IDYLE DR
MICHELLE DR
ARGOS ST
MEDEA LN
CLARETON DR
CANWOOD ST
VENTURA FRWY
AGOURA RD
DERRY AV
TULARE LN
LEWIS RD
COLODNY DR
DOROTHY DR
US-101 N EXIT 35
VEJAR DR
CLEVELAND DR
BLAIR PL
LAURA LA PLANTE DR
RENEE DR
KNIGHT DR
CL ROBLEDA
VIA AMISTOSA
CL MONTECILLO
CORNELL RD
CALETA RD
SILVER CREEK RD
KANAN RD
MALIBU VIEW CT
CASTLE VIEW DR
OLD MILL CREEK LN
WAGON RD
MEDEA CREEK RD
LIBERTY CANYON RD
BLYTHEDALE RD
FAIRVIEW PL
CHESEBRO RD
PALO COMADO DR
LARWORTH DR
BALKINS DR
COLODNY DR
FOUNTAIN PL
FOOTHILL DR
EASTERLY RD
DRIVER AV
CONEJO VIEW DR
MEDFIELD ST
LEWIS RD
DEVORE CT
FAIRVIEW PL
CHESEBRO CANYON RD
MORRISON RANCH RD
CALAIS CT
PROVENCE DR
ALSACE DR
LAS VIRGENES RD
BRITTANY CT
ESTWARD DR
AMBRIDGE DR
CANGAS DR
DRIVER AV
DE BERRY DR
HELMOND DR
CALAMINE DR
GARRET DR
CANWOOD ST
DANTES VIEW DR
LUDGATE DR
PARKVILLE RD
US-101 N EXIT 34
VENDELL RD
ROWDELL ST
YANKEE DR
DEFENDER DR
COUNTRY GLEN RD
FREETOWN LN
REVERE WY
PATRICK HENRY PL
UNITED RD
JIM BOWIE RD
LOST HILLS RD
MALIBU HILLS RD
HOT SPRINGS PL
COUNTRY CREEK LN
WILLOW GLEN ST
OAK GLEN CT
LOST SPRINGS DR
ORCHID LN
POPPYSEED PL
LAS VIRGENES RD

ENCLOSURE 2

- Quick Maintenance Rating Map
- High Water Levels List
- Infiltration List
- High Water Levels and Infiltration Map

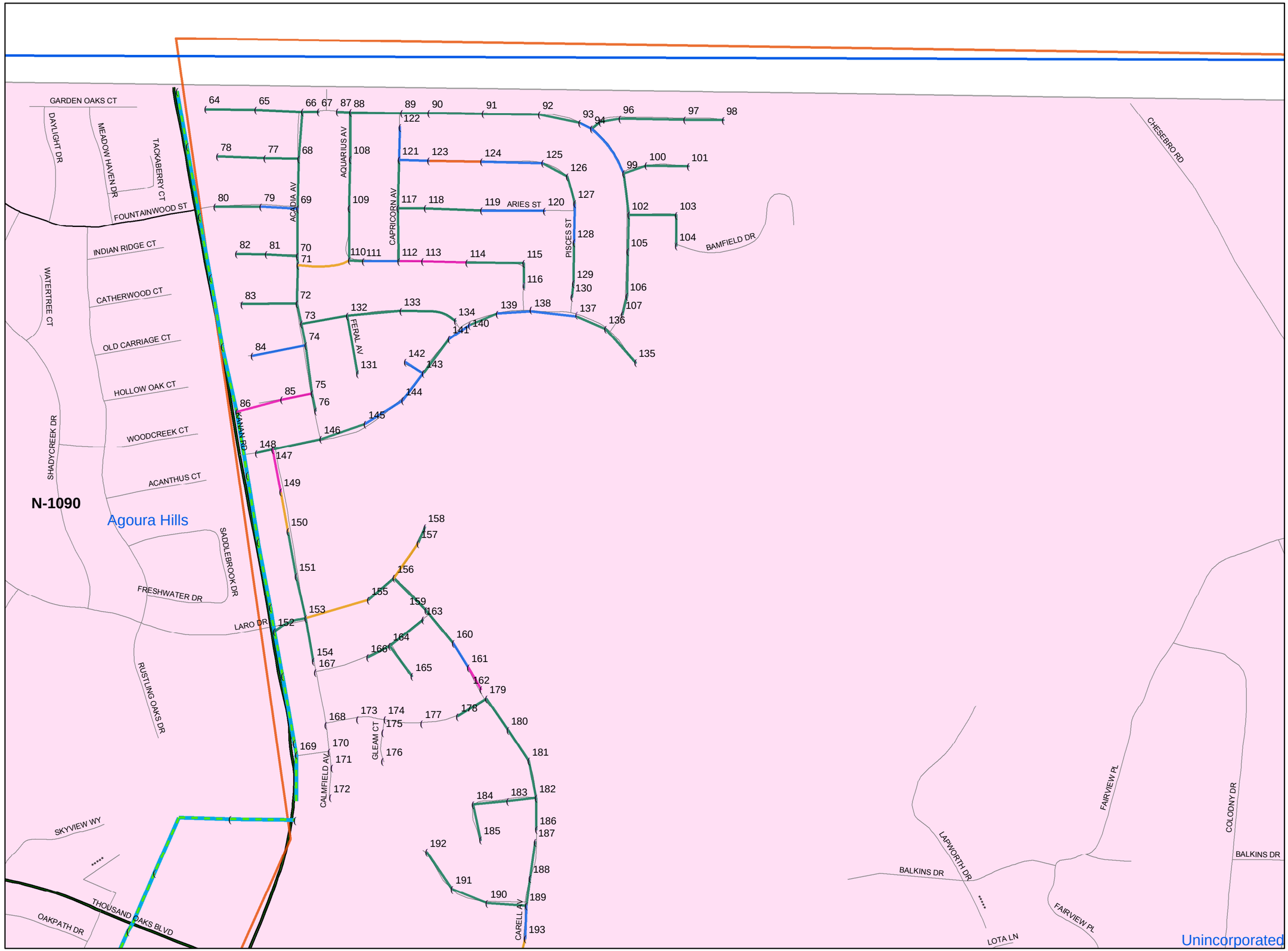
ENCLOSURE 2

CCTV PROJECT

Y0TV1314A2

AGOURA HILLS

QUICK MAINTENANCE RATING



Legend

SMD Sanitary Sewers

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- U Other

Manhole Type

- (Standard
- * DROP
- Shallow
- W Trap
- ? Siphon
- SMD Pump Stations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- (Non SMD Maintained MH
- SMD Operations Maps
- Y0TV1314A2

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

ENCLOSURE 2

CCTV PROJECT

Y0TV1314A2

AGOURA HILLS

QUICK MAINTENANCE RATING

Public Works
LOS ANGELES COUNTY

O

0 240 480 720 960
Feet

Legend

SMD Sanitary Sewers

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- U Other

Manhole Type

- (Standard
- * DROP
- Shallow
- W Trap
- ? Siphon
- i SMD Pump Stations
- Q SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- (Non SMD Maintained MH
- SMD Operations Maps
- Y0TV1314A2

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

ENCLOSURE 2

CCTV PROJECT

Y0TV1314A2

AGOURA HILLS

QUICK MAINTENANCE RATING

Public Works
LOS ANGELES COUNTY

0 260 520 780 1,040
Feet

Legend

SMD Sanitary Sewers

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- U Other

Manhole Type

- (Standard
- * DROP
- Shallow
- W Trap
- ? Siphon
- SMD Pump Stations
- Q SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- (Non SMD Maintained MH
- SMD Operations Maps
- Y0TV1314A2

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

ENCLOSURE 2

CCTV PROJECT

Y0TV1314A2

AGOURA HILLS

QUICK MAINTENANCE RATING

Public Works
LOS ANGELES COUNTY

0 225 450 675 900
Feet

Legend

SMD Sanitary Sewers

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- U Other

Manhole Type

- (Standard
- * DROP
- Shallow
- W Trap
- ? Siphon
- SMD Pump Stations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- (Non SMD Maintained MH
- SMD Operations Maps
- Y0TV1314A2

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

Agoura Hills

N-1091

N-1118

Unincorporated

N-1092

N-1119

Calabasas

CANWOOD ST

VENTURA FRWY

US-101 N EXIT 34

US-101 S EXIT 34

AGOURA RD

VENDELL RD

ROWDELL ST

YANKEE DR

DEFENDER DR

TARRYTOWN LN

REVERE WY

TIFFANY CT

PARKVIEW CT

LIBERTY CANYON RD

PARK VISTA RD

PARK COLONY CT

PATRICK HENRY PL

JOELTON DR

UNITED RD

OAK SUMMIT RD

JIM BOWIE RD

KAYS LN

MARKS RD

DAVIDS RD

ENCLOSURE 2
HIGH WATER LEVELS
CITY OFAGOURA HILLS (Y0TV1314A2)

ITEM NO.	QMR	START MH	END MH	STREET	OBSERVATION: LOCATION	CAPACITY	CORRECTIVE ACTION
1	5141	1091-0172	1091-0174	TULARE LN	Water mark (80%)	YES	No action needed*
2	5121	1091-0105	1091-0106	DRIVER AV	Sag	NO	No action needed*
3	4232	1090-0147	1090-0149	CALMFIELD AV	Camera underwater	YES	No action needed*
4	4200	1090-0085	1090-0086	DARGAN ST	Camera underwater	YES	No action needed*
5	4100	1090-0075	1090-0085	DARGAN ST	Water level high (50%)	YES	No action needed*
6	4100	1091-0090	1091-0093	DERRY AV	Water mark (50%)	YES	No action needed*

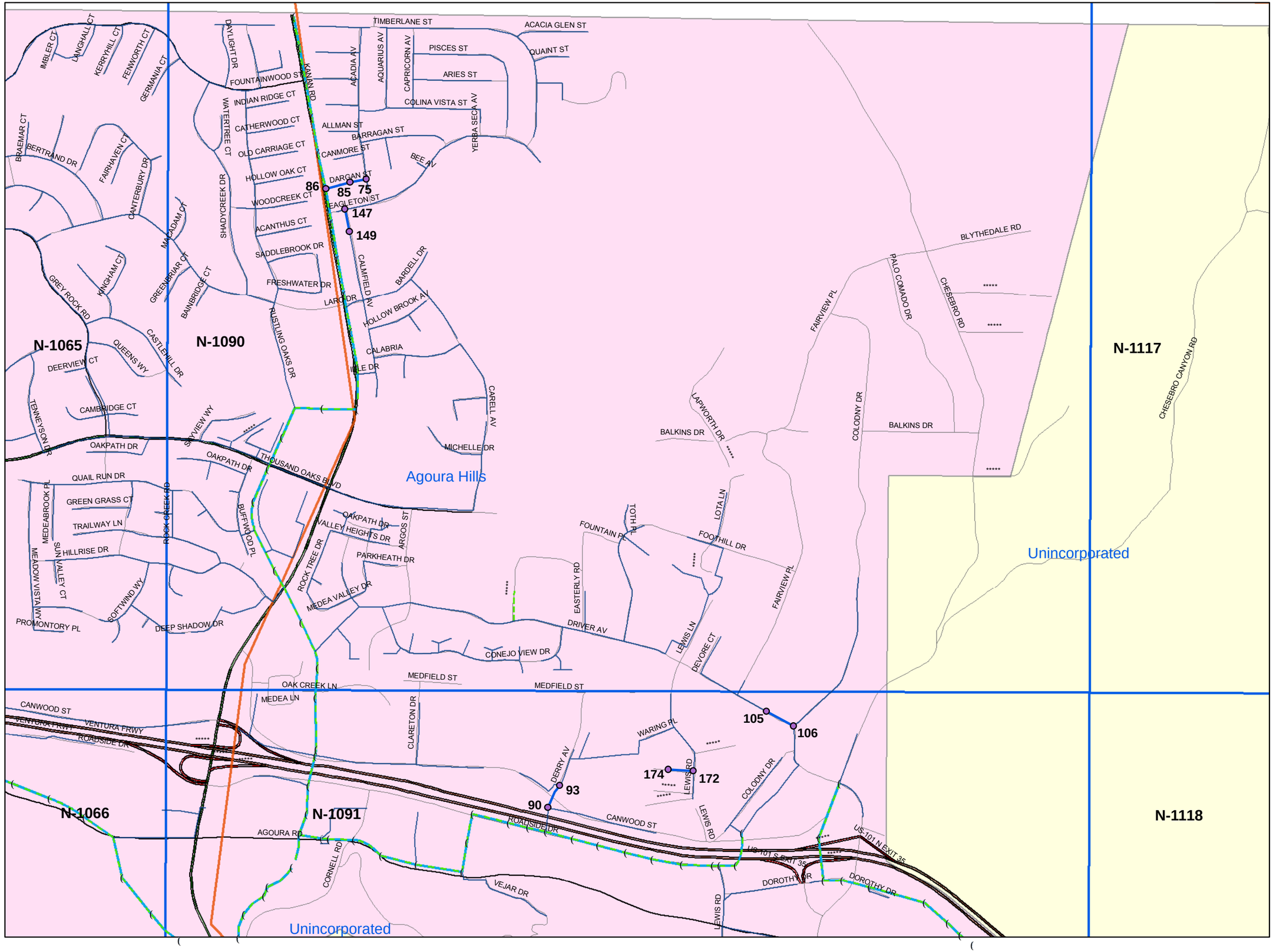
ENCLOSURE 2

CCTV PROJECT

Y0TV1314A2

Agoura Hills

HIGH WATER LEVEL



Public Works
LOS ANGELES COUNTY

0 440 880 1,320 1,760
Feet

Legend

- HIGH WATER LEVELS
- INFILTRATION

SMD Manholes

- U Other

Manhole Type

- (Standard
- * DROP
- Shallow
- W Trap
- ? Siphon
- SMD Pump Stations
- SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- (Non SMD Maintained MH
- SMD Operations Maps
- Y0TV1314A2

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

ENCLOSURE 2
INFILTRATION
CITY OF AGOURA HILLS (Y0TV1314A2)

ITEM NO.	QMR	START MH	END MH	STREET	OBSERVATION: LOCATION	PROPOSED CORRECTIVE METHOD
1	5141	1118-0094	1118-0096	COUNTRY GLEN RD	Infiltration	No action needed
2	4222	1090-0113	1090-0114	COLINA VISTA ST	Infiltration	No action needed
3	4123	1090-0293	1090-0294	DRIVER AV	Infiltration	No action needed
4	4100	1090-0112	1090-0113	COLINA VISTA ST	Infiltration	Injection Grout
5	4100	1090-0283	1090-0284	CONEJO DR	Infiltration	No action needed

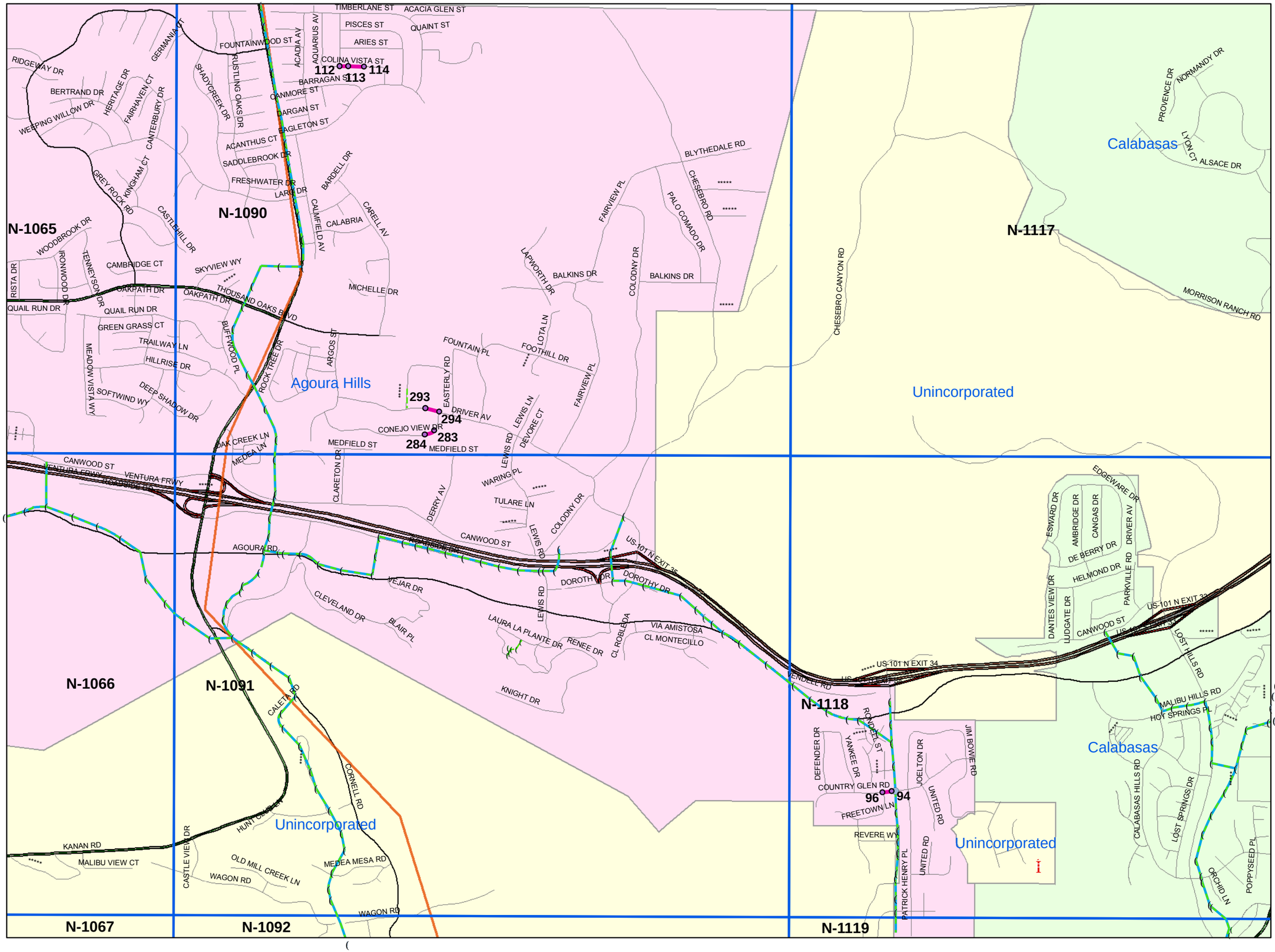
ENCLOSURE 2

CCTV PROJECT

Y0TV1314A2

Agoura Hills

INFILTRATION



0 660 1,320 1,980 2,640

Feet

Legend

- HIGH WATER LEVELS
- INFILTRATION

SMD Manholes

- U Other

Manhole Type

- (Standard
- * DROP
- Shallow
- W Trap
- ? Siphon
- i SMD Pump Stations
- Q SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- (Non SMD Maintained MH
- SMD Operations Maps
- Y0TV1314A2

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angeles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

ENCLOSURE 3

- Quick Structural Rating Report Priority List
- Quick Structural Rating Map

ENCLOSURE 3
QUICK STRUCTURAL RATING REPORT PRIORITY LIST
CITY OF AGOURA HILLS (Y0TV1314A2)

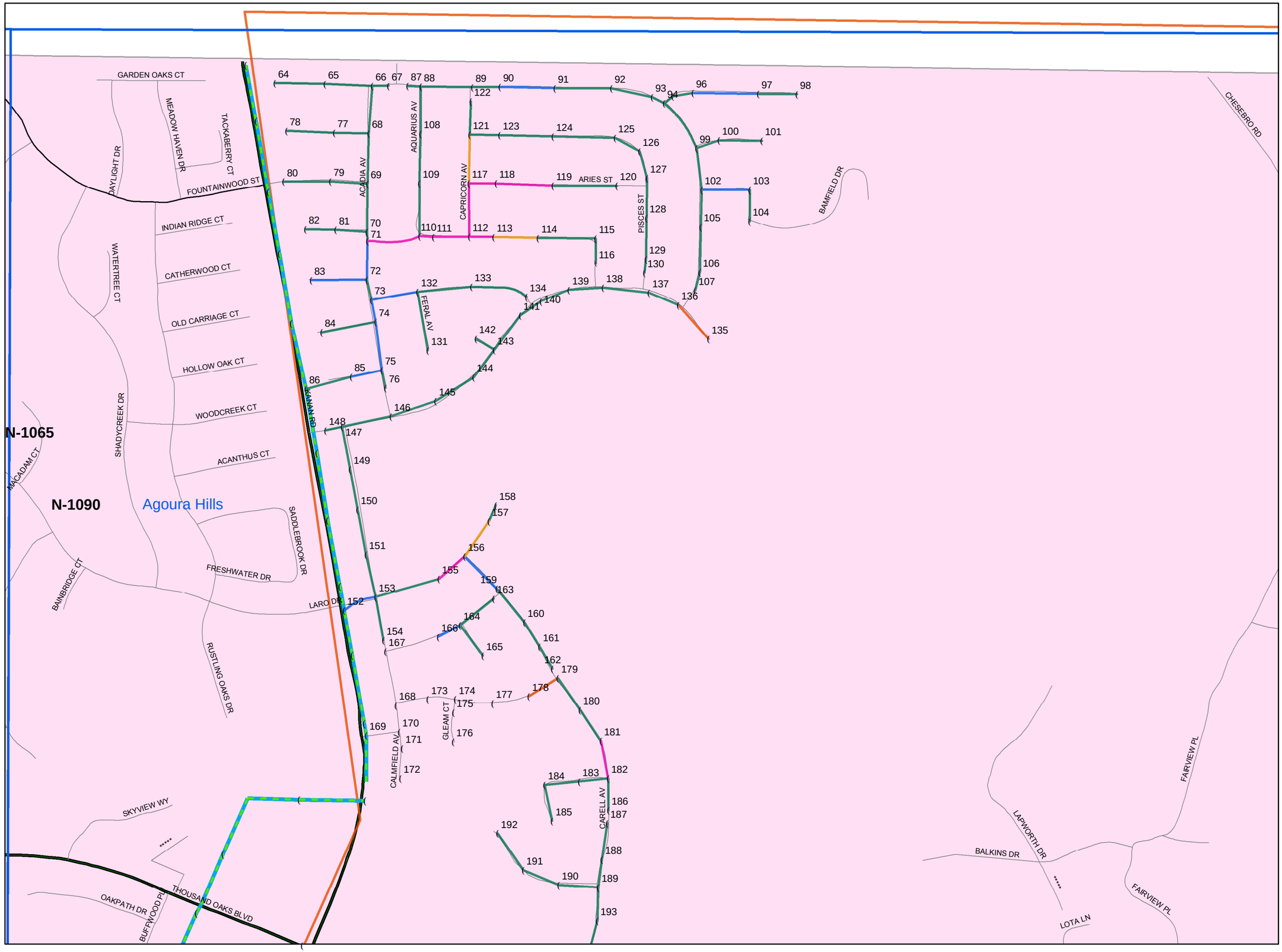
ITEM NO.	START MH	END MH	STREET	OBSERVATION	PROPOSED CORRECTIVE ACTION
1	1118-0067	1118-0070	COUNTRY GLEN RD	Hole	Point Repair
2	1118-0076	1118-0077	PROVIDENT RD	Fracture, Hole	Point Repair
3	1091-0105	1091-0106	DRIVER AV	Deformed	No action needed*
4	1091-WEST	1091-0119	AGOURA RD	Broken	Lining
5	1091-0111	1091-TRNK	DOROTHY DR	Broken	Lining
6	1118-0062	1118-0061	JIM BOWIE RD	Hole	Point Repair
7	1090-0135	1090-0136	EAGLETON ST	Broken	Point Repair
8	1090-0178	1090-0179	CALABRIA DR	Broken	No action needed*
9	1118-0067	1118-0068	JOELTON DR	Fractures	No action needed*
10	1118-0060	1118-0061	JIM BOWIE RD	Fractures	No action needed*
11	1118-0064	1118-0065	GADSHILL LN	Fracture	No action needed*
12	1118-0058	1118-0059	JIM BOWIE RD	Fracture	No action needed*
13	1090-0112	1090-0117	CAPRICORN AV	Fracture	No action needed*
14	1091-0118	1091-0119	CALLE ROBLEDA	Joint offset	No action needed*
15	1118-0057	1118-0058	JIM BOWIE RD	Fractures	Point Repair
16	1118-0100	1118-0101	COUNTRY GLEN RD	Fractures	No action needed*
17	1091-0108	1091-0109	DRIVER AV	Sag	No action needed*
18	1090-0299	1090-0310	DRIVER AV EASEMENT	Fractures	No action needed*
19	1119-0001	1119-0084	PATRICK HENRY PL	Fractures	No action needed*
20	1091-0009	1091-TRNK	CANWOOD ST	Fractures	No action needed*
21	1091-0022	1091-TRNK	AGOURA RD EASEMENT	Fractures	No action needed*
22	1118-0053	1118-0054	JIM BOWIE RD	Broken	Point Repair

*Structural deficiencies are categorized into groups of defects or observations with a wide range of severity. Each of these deficiencies received additional post inspection review and some of these were determined not likely to interfere with the normal operation of the sewer line due to the severity, size, and/or location of the deficiency. These segments will be reviewed during the next cycle of CCTV inspections.

ENCLOSURE 3
QUICK STRUCTURAL RATING REPORT PRIORITY LIST
CITY OF AGOURA HILLS (Y0TV1314A2)

ITEM NO.	START MH	END MH	STREET	OBSERVATION	PROPOSED CORRECTIVE ACTION
23	1090-0071	1090-0110	AQUARIUS AV EASEMENT	Fractures	No action needed*
24	1118-0078	1118-0079	PATRICK HENRY PL	Fractures	No action needed*
25	1118-0089	1118-0090	UNITED RD	Fractures	No action needed*
26	1091-0098	1091-0099	DERRY AVE	Fractures	No action needed*
27	1091-0100	1091-0101	WARING PL EASEMENT	Fractures	No action needed*
28	1118-0104	1118-0109	ENDEAVOR ST	Fractures	No action needed*
29	1118-0107	1118-0108	DEFENDER DR	Fractures	No action needed*
30	1118-0109	1118-0110	ENDEAVOR ST	Fractures	No action needed*
31	1090-0110	1090-0111	COLINA VISTA ST	Fractures	No action needed*
32	1090-0111	1090-0112	COLINA VISTA ST	Fractures	No action needed*
33	1090-0112	1090-0113	COLINA VISTA ST	Fractures	No action needed*
34	1118-0114	1118-0117	LIBERTY CANYON RD	Fractures	No action needed*
35	1090-0117	1090-0118	ARIES ST	Fractures	No action needed*
36	1090-0118	1090-0119	ARIES ST	Fractures	No action needed*
37	1090-0155	1090-0156	BARDELL DR	Fractures	No action needed*
38	1090-0182	1090-0181	CARELL AV	Fractures	No action needed*
39	1090-0283	1090-0284	CONEJO DR	Fractures	No action needed*
40	1090-0396	1090-0397	LOTA LN PVT RD	Fractures	No action needed*

*Structural deficiencies are categorized into groups of defects or observations with a wide range of severity. Each of these deficiencies received additional post inspection review and some of these were determined not likely to interfere with the normal operation of the sewer line due to the severity, size, and/or location of the deficiency. These segments will be reviewed during the next cycle of CCTV inspections.



ENCLOSURE 3

CCTV PROJECT

Y0TV1314A2

AGOURA HILLS

QUICK STRUCTURAL RATING

Public Works
LOS ANGELES COUNTY

0 240 480 720 960
Feet

Legend

SMD Sanitary Sewers

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- U Other

Manhole Type

- (Standard
- * DROP
- Shallow
- W Trap
- ? Siphon
- SMD Pump Stations
- Q SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- (Non SMD Maintained MH
- SMD Operations Maps
- Y0TV1314A2

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

ENCLOSURE 3

CCTV PROJECT

Y0TV1314A2

AGOURA HILLS

QUICK STRUCTURAL RATING

Public Works
LOS ANGELES COUNTY

0 250 500 750 1,000
Feet

Legend

SMD Sanitary Sewers

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- U Other

Manhole Type

- (Standard
- * DROP
- Shallow
- W Trap
- ? Siphon
- i SMD Pump Stations
- Q SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- (Non SMD Maintained MH
- SMD Operations Maps
- Y0TV1314A2

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

ENCLOSURE 3

CCTV PROJECT

Y0TV1314A2

AGOURA HILLS

QUICK STRUCTURAL RATING

Public Works
LOS ANGELES COUNTY

0 250 500 750 1,000
Feet

Legend

SMD Sanitary Sewers

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- U Other

Manhole Type

- (Standard
- * DROP
- Shallow
- W Trap
- ? Siphon
- i SMD Pump Stations
- Q SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- (Non SMD Maintained MH
- SMD Operations Maps
- Y0TV1314A2

This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

Agoura Hills

Unincorporated

N-1090

N-1091

OAK CREEK LN
MEDFIELD ST
CLARETON DR
ROCK TREE DR
AGOURA GLEN DR
MEDEA VALLEY DR
ARGOS ST
EASTERLY RD
FOOTHILL DR
LEWIS LN
FAIRVIEW PL
COLODNY DR
CHESEBRO CANYON RD
CHESEBRO RD
DERRY AV
LEWIS RD
DRIVER AV
CANWOOD ST
US-101 N EXIT 35
US-101 S EXIT 35
DOROTHY DR
PALO COMADO CANYON RD
AGOURA RD
LAURA LA PLANTE DR
CL ROBLEDA
RENEE DR
CANYON WY
KNIGHT DR
VENTURA FRWY
ROADSIDE DR
CORNELL RD
CLEVELAND DR
VEJAR DR
BLAIR PL
CALETA RD

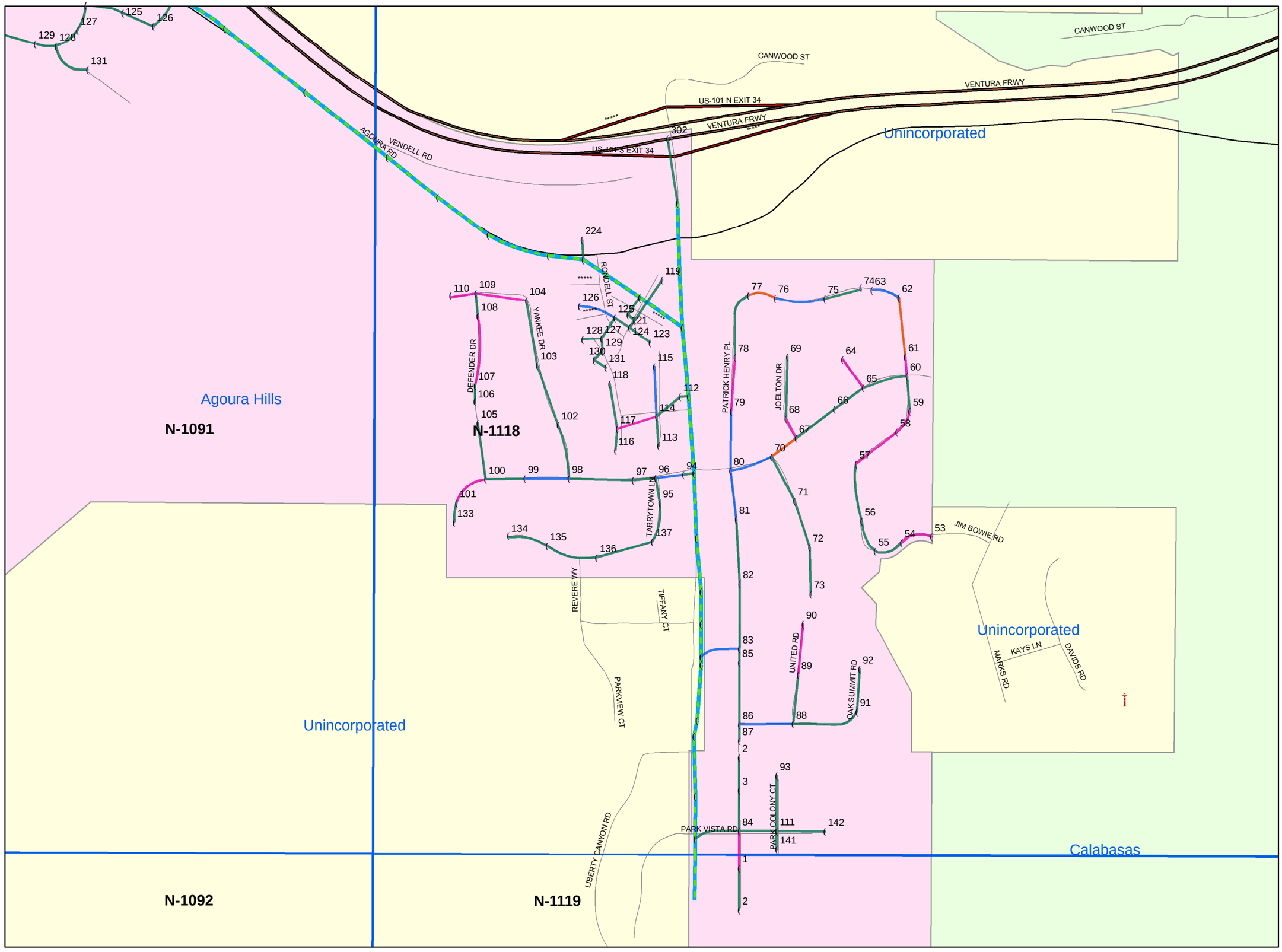
ENCLOSURE 3

CCTV PROJECT

Y0TV1314A2

AGOURA HILLS

QUICK STRUCTURAL RATING



0 225 450 675 900

Feet

Legend

SMD Sanitary Sewers

- 1: MINOR
- 2: MINOR TO MODERATE
- 3: MODERATE
- 4: SIGNIFICANT
- 5: MOST SIGNIFICANT

SMD Manholes

- U Other

Manhole Type

- (Standard
- * DROP
- Shallow
- W Trap
- ? Siphon
- SMD Pump Stations
- Q SMD Treatment Plants

Maintained by Others:

- Trunk Sewerlines
- Non SMD Sanitary Sewers
- (Non SMD Maintained MH
- SMD Operations Maps
- Y0TV1314A2

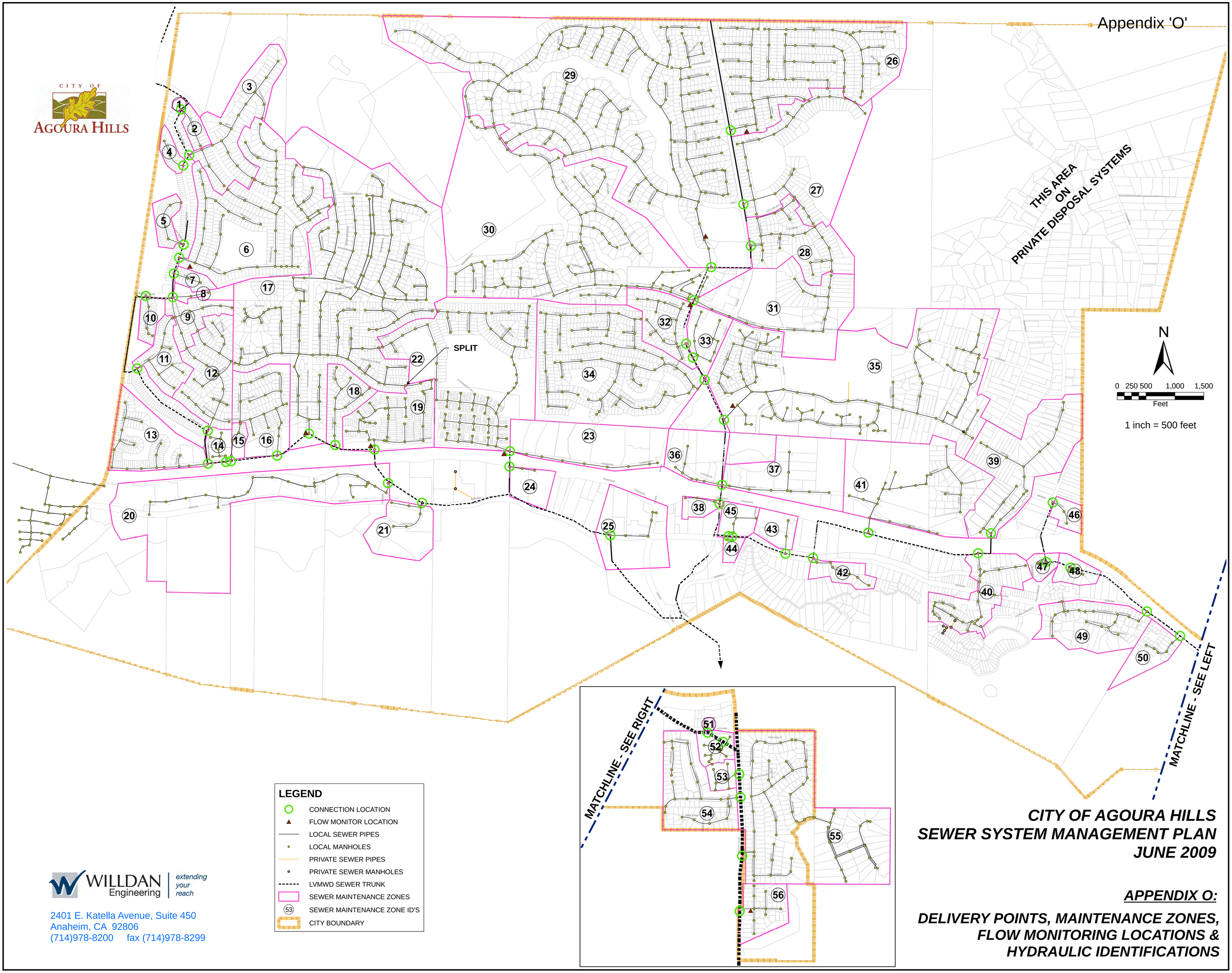
This map is intended only for internal operations of the Los Angeles County Sewer Maintenance Districts. Los Angles County expressly disclaims any liability for any inaccuracies which may be present in this map. Data contained in this map is produced in whole or part from the Thomas Bros. Maps® digital database. This map is copyrighted, and reproduced with permission granted, by Thomas Bros. Maps®. All rights reserved.

September 2018

Appendix “O”

Location Map: Delivery Points, Maintenance Zones, Flow Monitoring Locations, and Hydraulic Identifications

Appendix 'O'



WILLDAN Engineering | extending your reach

2401 E. Katella Avenue, Suite 450
Anaheim, CA 92806
(714)978-8200 fax (714)978-8299

CITY OF AGOURA HILLS
SEWER SYSTEM MANAGEMENT PLAN
JUNE 2009

APPENDIX O:

DELIVERY POINTS, MAINTENANCE ZONES, FLOW MONITORING LOCATIONS & HYDRAULIC IDENTIFICATIONS

Appendix “P”

Industrial Waste Agreement

— Co. Engineer

AGREEMENT--INDUSTRIAL WASTE 43362

THIS AGREEMENT, made and entered into this 23rd day of Nov., 1982, by and between the COUNTY OF LOS ANGELES, hereinafter sometimes referred to as "County," and the CITY OF AGOURA HILLS, hereinafter sometimes referred to as "City;"

W I T N E S S E T H :

THAT WHEREAS, the City on December 8, 1982 adopted an ordinance continuing all County ordinances in effect for one hundred twenty (120) days and will have within said one hundred twenty (120) day period adopted by reference, the Los Angeles County Ordinance as set forth in Los Angeles County Code, Title 20, Utilities, Division 2, Sanitary Sewers and Industrial Waste; and

WHEREAS, the City is desirous of contracting with the County for the enforcement of such ordinance provisions and the performance of services with respect to industrial waste as in said ordinance set forth; and

WHEREAS, the County of Los Angeles is agreeable to rendering such services on the terms and conditions hereinafter set forth; and

WHEREAS, such contract is authorized and provided for by the provisions of Section 56-1/2 of the Charter of the County of Los Angeles and Article 1, Chapter 1, Part 2, Division 1, Title 5, of the Government Code:

NOW, THEREFORE, IT IS AGREED AS FOLLOWS:

1. The County agrees, through the Engineer of the County of Los Angeles, to provide enforcement of the industrial waste provisions of the above-referred to City ordinance and the necessary services incident thereto.

Such services shall only encompass duties and functions of the type coming within the jursidiction of, and customarily rendered by, the County Engineer of the County of Los Angeles under the Charter of said County, the statutes of the State, and the various County ordinances.

The level of service provided shall be that same basic level of service that now is and shall be hereafter during the term of this agreement provided for unincorporated areas of the County of Los Angeles by said Engineer.

The rendition of such services, the standards of performance, and other matters incidental to the performance of such services, including the controlling of personnel so employed, shall remain in the County. In the event of dispute between the parties as to the extent of the duties and functions to be rendered hereunder or the level or manner of performance of such service, the determination thereof made by the Engineer of the County shall be final and conclusive as between the parties.

The services shall include the enforcement of any applicable State statutes and all provisions of the above-referred to City ordinance as the same now exists or may be hereafter amended.

The services shall include the inspection of open sanitary fills only in the event that the City, by action of its Council, requests such services.

2. To facilitate the performance of said functions, it is agreed that the County shall have full cooperation and assistance from the City, its officers, agents, and employees.

3. For the purpose of performing said functions, County shall furnish and supply all necessary labor, supervision, equipment, and supplies necessary to maintain the level of service to be rendered hereunder.

Notwithstanding anything hereinbefore contained, it is agreed that in all instances wherein special supplies, stationery, notices, forms, and the like must be issued in the name of said City, the same shall be supplied by said City at its own cost and expense.

4. All persons employed in the performance of such services and functions for said City shall be County employees, and no City employee as such shall be taken over by said County, and no person employed hereunder shall have any City pension, civil service, or any status or right.

For the purpose of performing such services and functions and for the purpose of giving official status to the performance thereof where necessary, every County officer and employee engaged in the performance of any service hereunder shall be deemed to be an officer or employee of said City while performing services for said County, which services are within the scope of this agreement and are purely municipal functions.

5. City shall not be called upon to assume any liability for the direct payment of any salaries, wages, or other compensation to any County personnel performing services hereunder for said County or any liability other than that provided for in this agreement.

Except as herein otherwise specified, the City shall not be liable for compensation or indemnity to any County employee for injury or sickness arising out of his employment.

6. The Assumption of Liability agreement executed by the parties to this agreement and approved by the Board of Supervisors on December 27, 1977, currently in effect is hereby made a part of and incorporated into this agreement as if set out in full herein unless said Assumption of Liability agreement is expressly superceded by subsequent agreement hereafter entered into between the parties hereto.

7. This contract is entered into with the understanding that the City will maintain in full force and effect, including the amount of fees provided, an ordinance substantially identical with the provisions of County Code, Title 20, Division 2. This contract may be terminated by the County without necessity of notice if City does not enact amendments to said ordinance in accordance with amendments to County Code, Title 20, Division 2. within one hundred twenty days after request to do so by County. The County Engineer acting on behalf of the County, may use discretion and need not request City to adopt amendments which do not apply to the City.

8. County agrees to collect fees called for in the City's ordinance and to account therefor to the City quarterly. County agrees to pay City, within sixty days following each calendar quarter, all of the excess over expenditures for services, and City agrees to pay County, within said sixty days, any deficit

between expenditures for services and total fees collected. The County fees for service for the purpose of this agreement, shall be based upon fees to be determined by the County Auditor-Controller in accordance with the policies and procedures established by the Board of Supervisors. These fees shall be adjusted by County annually effective the first day of July of each year to reflect the estimated cost of such service in accordance with the policies and procedures for the determination of such fees as adopted by the Board of Supervisors of County.

9. It is further agreed that the City shall not be charged for periodic inspections of facilities for pretreatment of industrial waste prior to discharge into sanitary sewers in the event that the cost of such services has been defrayed by funds of a sewer maintenance district.

10. The County agrees to keep such books and records and in such form and manner as the County Auditor of the County of Los Angeles shall specify. Said books shall be open for examination by said City at all reasonable times.

11. This contract shall become effective on the date hereinabove first mentioned and will run for a period ending June 30, 1983. This contract shall be automatically renewed from year to year for successive one year periods thereafter. Notwithstanding, the provisions of this paragraph, the County may terminate this agreement at any time by giving thirty (30) days prior written notice to the City. The City may terminate this

agreement as of the first day of July of any year upon giving thirty (30) days prior written notice to the County.

IN WITNESS WHEREOF, THE City of AGOURA HILLS, by Resolution duly adopted by its City Council, caused this agreement to be signed by its Mayor and attested by its Clerk, and the County of Los Angeles, by order of its Board of Supervisors, has caused these presents to be subscribed by the Chairman of said Board and the seal of said Board to be affixed thereto and attested by the Clerk of said Board, all on the day and year first above written.

CITY OF Agoura Hills

By Frances J. Parley
Mayor

COUNTY OF LOS ANGELES

By _____
Chairman
Board of Supervisors

ATTEST:

E Fredrick Bien
City Clerk

COUNTY OF LOS ANGELES CALIFORNIA

ADOPTED
BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

NOV 23 1982

ATTEST:

JAMES S. MIZE, Executive Officer
Clerk of the Board of Supervisors

By Darlene Hudson
Deputy

APPROVED AS TO FORM

JOHN H. LARSON, County Counsel

Helen J. Parker
Deputy

JAMES S. MIZE
EXECUTIVE OFFICER

I hereby certify that pursuant to Section 25103 of the Government Code, delivery of this document has been made.

JAMES S. MIZE
Executive Officer-Clerk of
the Board of Supervisors

By Darlene Hudson
Deputy

Appendix “Q”

SSMP Update Extension Letter

CITY OF AGOURA HILLS

"Gateway to the Santa Monica Mountains National Recreation Area"

June 4, 2025

Ms. Susana Arredondo
Executive Officer
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Attention: Isabella Suarez

RE: Request for Time Extension - Sewer System Management Plan Update for the City of Agoura Hills

Dear Ms. Arrendondo:

This letter serves to formally request a three-month extension on the submission of the updated Sewer System Management Plan (SSMP) for the City of Agoura Hills (City). The current deadline is August 2, 2025.

Los Angeles County, on behalf of agencies within the Consolidated Sewer Maintenance District (CSMD), submitted a letter to the Los Angeles Regional Water Quality Control Board dated May 1, 2025, requesting an extension of the Sewer Maintenance District (SMD) Update deadline to September 2, 2025, due to the Eaton and Palisades wildfire emergencies.

Additionally, as the City is a member of the CSMD some of the components of the City's SSMP refer to the SMD SSMP. The County's current schedule to finalize and approve the 2025 SMD SSMP will not allow the City to update its SSMP to reference the most up to date document prior to the City's deadline.

Given these circumstances, we respectfully request an extension of the City's submission deadline to November 3, 2025.

If you have any questions, please contact me or Mr. Kelly Fisher, Deputy Director of Public Works, at (818) 597-7338 or kfisher@agourahillscity.gov.

Sincerely,

Charmaine Yambao

Public Works Director/City Engineer

Encl.: Request for Time Extension SSMP CSMD

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

MARK PESTRELLA, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

IN REPLY PLEASE
REFER TO FILE: SM-1

May 1, 2025

Ms. Susana Arredondo, Executive Officer
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Attention Isabella Suarez

Dear Ms. Arredondo:

REQUEST FOR TIME EXTENSION
SEWER SYSTEM MANAGEMENT PLAN
CONSOLIDATED SEWER MAINTENANCE DISTRICT

This letter serves to formally request a four-month extension on the submission of the updated Sewer System Management Plan (SSMP) for the 30 member Cities and 2 unincorporated County areas (Northwest and South County Sanitation District) listed on the Enclosure and are within the Consolidated Sewer Maintenance District.

The original deadlines of May 2, 2025, and August 2, 2025, are no longer feasible due to the extensive recovery efforts undertaken by Los Angeles County Public Works in response to the recent Eaton and Palisades fires. Additionally, the earliest we can obtain Los Angeles County Board of Supervisors adoption of the SSMP is August 5, 2025.

Given these extraordinary circumstances, we respectfully request an extension of the submission deadline to September 2, 2025.

If you have any questions, please contact me or your staff may contact Mr. Voltaire Llana, Sewer Maintenance Division, at (626) 300-3343 or vllana@pw.lacounty.gov.

Very truly yours,

MARK PESTRELLA, PE
Director of Public Works

ANDREW NGUMBA, PE
Assistant Deputy Director
Sewer Maintenance Division

VL:nv
H:\SMHOME\SEWER\2025\LETTERS & MEMOS\2025-81.DOCX025-81

Enc.

ATTACHMENT 1

List of Cities and Unincorporated LA County area impacted and WDID number.

	Sanitation Sewer System	WDID NO.
1	AGOURA HILLS	4SSO11366
2	ARTESIA	4SSO10364
3	BALDWIN PARK	4SSO10366
4	BELL GARDENS	4SSO10368
5	BELLFLOWER	4SSO10369
6	CALABASAS	4SSO11447
7	CARSON	4SSO10374
8	COMMERCE	4SSO10377
9	CUDAHY	4SSO10380
10	DIAMOND BAR	4SSO10382
11	DUARTE	4SSO10384
12	GLENDORA	4SSO10389
13	HAWAIIAN GARDENS	4SSO10390
14	LA CANADA FLINTRIDGE	4SSO10397
15	LA MIRADA	4SSO10399
16	LAKEWOOD	4SSO10402
17	LAWNDALE	4SSO10403
18	LOMITA	4SSO10404
19	MAYWOOD	4SSO10409
20	PALOS VERDES ESTATES	4SSO10414
21	PARAMOUNT	4SSO10415
22	PICO RIVERA	4SSO10417
23	RANCHO PALOS VERDES	4SSO10420
24	ROSEMEAD	4SSO10424
25	SAN DIMAS	4SSO10425
26	SANTA CLARITA	4SSO10429
27	SANTA FE SPRINGS	4SSO10430
28	SOUTH EL MONTE	4SSO10434
29	TEMPLE CITY	4SSO10437
30	WALNUT	4SSO10441
31	Unincorporated County Area CSMD-NW/County Sanitation District CS	4SSO11374
32	Unincorporated County Area CSMD South/County Sanitation District CS	4SSO11365

Appendix “R”

SSMP Change Log

City of Agoura Hills

Sewer System Management Plan
Change Log

Date	SSMP Element/Section	Description of Change/Revision Made	Change Authorized by
10/13/25	Title Page	Added City WDID and SSMP Update date.	Charmaine Yambao, City of Agoura Hills
10/13/25	Signature Page	Updated signed date.	Charmaine Yambao, City of Agoura Hills
10/13/25	Table of Contents	Updated chapter and section titles to reflect updated document.	Charmaine Yambao, City of Agoura Hills
10/13/25	Appendices	Updated titles for appendices in SMD SSMP to reflect 2025 SMD SSMP Update.	Charmaine Yambao, City of Agoura Hills
10/13/25	Appendices	Added Appendix Q: 2025 SSMP Update Extension Letter and Appendix R: SSMP Update Change Log.	Charmaine Yambao, City of Agoura Hills
10/13/25	Abbreviations	Added newly identified abbreviations.	Charmaine Yambao, City of Agoura Hills
10/13/25	All Sections	Replaced “SSO” terminology with “spill” as applicable throughout the document to reflect the terminology of the 2022 Order.	Charmaine Yambao, City of Agoura Hills
10/13/25	Definitions	Added definitions for “CIWQS” “Spill” and “Water of the State”. Revised publish date and link of Federal Register under “Waters of the United States” definition.	Charmaine Yambao, City of Agoura Hills
10/13/25	Executive Summary	Updated the executive summary section with City history of the plan, revised frequency of audits and updates per 2022 Order, and CIWQS upload/certification requirements. Relocated discussion on sewer system capacity evaluation and CCTV investigation to Chapter 8.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 1.1	Added section title. Updated the timeline of SSMP updates. Added reference to 2022 Order and LRO certification of continued coverage.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 1.2	Section added to include SSMP Update Schedule based on the 2022 Order.	Charmaine Yambao, City of Agoura Hills

10/13/25	Section 1.3	Section added to provide overview of sewer system assets and service area.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 2.2	Updated the section title and designated LRO.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 2.4.1	Organizational chart updated.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 2.4.2	Positions and descriptions of responsibilities updated.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 2.4.3	Divisions and descriptions of responsibilities updated.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 2.4.5	Updated the Spill Reporting Procedures Flow Chart based on the 2022 Order.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 2.4.6	Updated the City's Directory including contact names, phone numbers, and emails.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 3.1.2	Added the section for authority to collaborate with storm sewer agencies to coordinate emergency spill response based on the 2022 Order.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 3.1.6	Added reference to the code section for additional enforcement.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 3.1.8	Added section for Authority to obtain easement accessibility agreements for locations requiring sewer system operations and maintenance.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 4.1	Added section for City Sewer Mapping System.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 4.2	Updated annual sewer service charge information.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 4.2.1	Added section for CCTV inspections activities.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 4.2.2	Added language on inspection frequency.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 4.2.4	Added language on inspection frequency.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 4.2.6	Added section for Root Foaming preventive maintenance activities.	Charmaine Yambao, City of Agoura Hills

10/13/25	Section 4.2.7	Added section for Periodic Maintenance activities.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 4.3.1	Updated the CSMD annual charges.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 4.3.2	Updated the CSMD annual charges.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 4.4	Updated SMD SSMP section referenced. Added training topics and CSMD attended trainings.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 4.5	Updated SMD SSMP section referenced.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 5.1	Added reference to SMD SSMP section on design criteria and construction standards.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 5.2	Specified SMD staff conducting pumping stations inspections.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 6.1	Language was added on the City's SERP.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 6.1.2	Updated the SMD SSMP appendix referenced.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 6.1.3	Updated the title and added language on traffic control training.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 6.1.4	Added language on the methods to eliminate or minimize discharge of a spill.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 6.1.7	Updated Regulatory Agencies Notification and Time Frame table per 2022 Order.	Charmaine Yambao, City of Agoura Hills
10/13/25	Chapter 7	Updated program name to Sewer Pipe Blockage Control Program based on the 2022 Order.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 7.1	Added information about community events, website resources, inspections and public outreach schedule.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 7.2	Updated SMD SSMP section referenced.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 7.4	Updated SMD SSMP section referenced. Added information about the permit conditions.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 7.5	Added reference to LACO Code Section 20.36.400 and section 7.6 of the SMD SSMP.	Charmaine Yambao, City of Agoura Hills

10/13/25	Section 7.6	Updated SMD SSMP section referenced and information on spill events contributed to FOG.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 7.7	Added language on CSMD's role and methods.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 8.1	Added language on City's 2009 Sewer System Capacity Evaluation, condition assessments, and CIP projects.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 8.2	Revised language about the capacity assessment based on the 2022 Order.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 8.3	Added section for Prioritization of Corrective Action based on the 2022 Order.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 8.4	Updated SMD SSMP section referenced.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 8.5	Added section for Capital Improvement Plan based on the 2022 Order.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 8.6	Updated State Assistance Program links.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 9.1	Updated section title to Maintenance of Information.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 9.2	Updated section title to Monitoring of Implementation and Effectiveness of the SSMP. Added language on adaptive management and audit findings.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 9.3	Added section for Program Audits and related language based on the 2022 Order.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 9.4	Updated section title to Assessment Preventative Operation and Maintenance Program.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 9.5	Updated the spill event dates to 2022-2025.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 9.5.1a	Updated the Reported City Spills based on the 2022-2025 years.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 9.5.1b	Updated the Agoura Hills Spill Locations 2022-2025.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 9.5.1c	Revised language on stored spill data.	Charmaine Yambao, City of Agoura Hills

10/13/25	Section 10.1	Added language on elements of the audit and reporting requirements.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 10.2	Updated SSMP certification process.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 10.3	Updated SSMP Update frequency.	Charmaine Yambao, City of Agoura Hills
10/13/25	Chapter 11	Updated name to Communication Program based on the 2022 Order.	Charmaine Yambao, City of Agoura Hills
10/13/25	Section 11.1	Added language on spill communication procedure.	Charmaine Yambao, City of Agoura Hills
10/13/25	Appendix K	Updated language to reflect 2022 Order and 2025 SMD SSMP Update.	Charmaine Yambao, City of Agoura Hills
10/13/25	Appendix N	Added CCTV Inspection Reports from 2008 and 2013.	Charmaine Yambao, City of Agoura Hills

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE: **OCTOBER 22, 2025**

TO: **HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**

FROM: **NATHAN HAMBURGER, CITY MANAGER**

BY: **LUKAS QUACH, BUILDING OFFICIAL**

SUBJECT: **INTRODUCE AND WAIVE FULL READING OF ORDINANCE NO. 25-480; ADOPTING BY REFERENCE THE 2025 EDITION OF THE CALIFORNIA BUILDINGS STANDARDS CODE COMPRISED OF THE 2025 EDITIONS OF THE ADMINISTRATIVE, BUILDING, RESIDENTIAL, ELECTRICAL, MECHANICAL, PLUMBING, ENERGY, WILDLAND URBAN INTERFACE, HISTORICAL BUILDING, FIRE, EXISTING BUILDING, GREEN BUILDING STANDARDS, AND REFERENCED STANDARDS CODE, AND THE 2024 EDITION OF THE INTERNATIONAL PROPERTY MAINTENANCE CODE, AND AMENDING ARTICLES III AND VIII OF THE AGOURA HILLS MUNICIPAL CODE, APPROVING A CEQA EXEMPTION DETERMINATION, AND SET A PUBLIC HEARING FOR NOVEMBER 12, 2025**

Every three years, the State of California adopts a new set of model codes to establish uniform standards for the construction and alteration of buildings, electrical systems, plumbing systems, mechanical systems, and fire and life safety systems. The California Building Standards Commission, in early 2025, adopted the Triennial 2025 Edition of the California Code of Regulations, Title 24, consisting of the Administrative Code, Building Code, Residential Code, Electrical Code, Mechanical Code, Plumbing Code, Energy Code, Wildland Urban Interface, Historical Building Code, Fire Code, Existing Building Code, Green Buildings Standards Code, and Reference Standards Code, also known collectively as the 2025 California Building Standards Code. All jurisdictions in California are required to adopt the California Building Standards Code.

The 2025 California Building Standard Code will take effect statewide on January 1, 2026, and will be in effect in all jurisdictions in California as of that date, regardless of whether local jurisdictions have adopted it. Local jurisdictions may adopt amended versions of the California Codes, but only if they are stricter than the base California Codes and such amendments are subsequently approved by the California Building Standards Commission. The State Building Standards Code provides the minimum construction standards. Under state law, local jurisdictions are permitted to make amendments to the State Code if there are local conditions that make it reasonably necessary because of local climatic, geological, or topographical conditions.

A new State law added another set of parameters to the code-adoption process. Assembly Bill (AB) 130, recently signed by the Governor into law, placed a moratorium on new local amendments to residential building standards from October 1, 2025, to June 1, 2031. The moratorium imposes restrictions on the ability of local governments to make changes to residential building standards, applicable to both newly constructed and existing dwellings. Local governments are still permitted to adopt amendments to residential building standards when the modifications meet one of these conditions:

1. The changes or modifications are substantially equivalent to those previously filed by the city's governing body and were effective as of September 30, 2025.

2. The commission considers these changes or modifications necessary as emergency standards to safeguard health and safety.
3. The changes or modifications pertain to home hardening measures.
4. The building standards relate to home hardening and are proposed for adoption by a local fire prevention district in accordance with Section 13869.7.
5. Changes or modifications are essential to implement a local code amendment that aligns with a general plan approved on or before June 10, 2025, permitting mixed-fuel residential construction consistent with federal law, while also promoting all-electric construction as part of a strategy to reduce greenhouse gas emissions.
6. The changes or modifications are related to administrative practices, proposed for adoption during the interim period in accordance with Section 18942, and exclusively result in any of the following:
    - Reductions in the time required for a local agency to issue a post-entitlement permit.
    - Alterations to a local agency's post-entitlement fee structure.
    - Modernization of, or the adoption of, new permitting platforms and software utilized by the local agency.
    - Reductions in the cost of internal operations for a local agency.
    - Establishment, alteration, or removal of local programs related to the enforcement of, or complaints about, building code violations.

Highlights of the State Code Updates from the 2022 Edition to the 2025 Edition

With each code adoption cycle, the California Building Standards Code is updated to clarify ambiguous language and to bring consistency where conflicts exist among the various codes. The updated version also includes additional code provisions to address current building-related issues as highlighted below:

Building Code

- The Wildland–Urban Interface (WUI) has been adopted as Part 7 of Title 24. It integrates the new Fire Hazard Severity Zone (FHSZ) maps. It expands Chapter 7A requirements for construction within these zones, emphasizing the use of ignition-resistant materials and the coordination of defensible space.
- Structural & Seismic Updates: The incorporation of ASCE 7 seismic design maps, wind speed revisions, and updated load combinations is included. The code now streamlines compliance by replacing many prescriptive local rules with direct references to national standards, such as ASCE 7 (for structural loads) and TMS 402 (for masonry).
- Accessibility & Housing: There are clarifications to Chapter 11A and 11B provisions concerning multifamily housing accessibility.

Residential Code

- Clean up California definitions to align with model code language.
- Repeal all of Section R337 – Material and construction methods for exterior wildfire exposure and replace with a note directing the code user to the new California Wildland Urban Interface Code.

Energy Code

- Energy Code (Part 6): There are enhanced efficiency standards concerning envelope performance, electrification readiness, and photovoltaic plus battery storage requirements in certain occupancies.
    - Single-family: heat pump is the prescriptive space-heating path statewide. Gas space heat is still possible, but only through the performance method. The code also tightens heat-pump sizing and control requirements.
    - Stronger electric-ready & HPWH readiness
      Examples: updated 30A branch-circuit requirement for heat-pump water heater "electric-ready" when gas water heating is installed; expanded refrigerant-charge verification for heat pumps.
    - PV and battery are now paired for many nonresidential and high-rise multifamily projects. Where a PV system is required, a battery energy storage system is also required under the 2025 rules (with limited exceptions evaluated by CEC).

- Tighter envelope/fenestration plus mechanical/ventilation refinements. Lower (more stringent) mandatory/prescriptive U-factors for single-family windows; additional prescriptive details like cathedral-ceiling path; ventilation/controls updates (e.g., HRV/ERV fault-indicator display with rater verification).

CALGreen

- Electric Vehicle (EV) Infrastructure: CALGreen increases the number of required EV-ready spaces for both residential and non-residential projects, aligning with state electrification goals. The previous focus on making spaces "EV Capable" is gone. The 2025 code replaces it with mandates to install actual Level 2 EV chargers and receptacle outlets now. The requirements are more stringent and complex, shifting from simple parking space percentages to dwelling-unit-based formulas.
    - Multifamily: If there is more than one parking space per dwelling unit, at least one charging receptacle per unit is required. If fewer than one parking space per unit is provided, all spaces must have charging facilities.
    - Hotel/Motel: 40% of parking spaces must have charging receptacles, and 25% must have chargers.

Highlights of Proposed City of Agoura Hills Amendments

Exhibit A. A list of all the amendments in the ordinance is shown in the attached Exhibit A, with specific amendments identified, along with the status of each amendment. Under the status column, the amendment is identified as an existing amendment if the amendment is carried from the previous cycle. The proposed amendment status indicates that a new amendment is being proposed.

Administrative Amendments. Administrative amendments that are necessary for the City to carry out procedures relating to civil, administrative, or criminal processes and remedies are adopted differently from the building standards that they enforce. Since they do not establish building standards, they may be adopted without the express findings that such modifications are reasonably necessary because of local climatic, geological, or topographical conditions. The majority of the administrative amendments are carried over from the previous code cycle, such as extending plan check and permit expiration to 12 months; providing criteria for plan check and permit extension and refund; and imposing a penalty for doing work without a permit.

Building Standards Amendments. The amendments affecting the construction standards of new buildings, additions, and alterations to existing buildings are required to be supported by findings based on local climatic, geological, or topographical conditions. Additionally, with the AB130 moratorium, making amendments to the building standards affecting residential dwellings must also fall within the exceptions outlined in AB130. With such restrictions, only a few new Agoura Hills amendments are proposed for this code adoption cycle.

The Building and Safety Division is proposing amendments to building standards in the California Building, Residential, Plumbing, Wildland Urban Interface, and California Green Buildings Standards (CALGreen) Codes. The majority of the “amendments” are amendments adopted in the 2022 code cycle are now being carried forward as allowed in the first AB130 exception above.

The two new areas that staff is proposing amendments to are related to the newly adopted California Wildland Urban Interface Code and the California Green Buildings Code (CALGreen).

California Wildland Urban Interface Code Construction Standard for all of Agoura Hills. With the State's adoption of the 2025 Wildland–Urban Interface (WUI) Code, staff relocates the amendments previously made in Chapter 7A of the California Building Code (CBC) and Section R337 of the California Residential Code (CRC) to the amendments in the WUI Code. This includes mandating the use of ignition-resistant building materials and construction methods for all new constructions, additions, alterations, and repairs of structures within the City. This reflects the City's desire to enforce the same construction standards throughout the City as it is required for the structures located in the VHFHSZ, without designating the entire City in this fire zone.

CALGreen Reach Code. Relating to CALGreen, staff is proposing removing the Reach Code provisions as the All-Electric Provision is unenforceable due to the Berkeley Decision (CRA V. City of Berkeley). The provisions relating to Electric Vehicle (EV) charging for Residential and Non-Residential are proposed with the following amendments:

- Retain the electric vehicle (EV) provisions from the Reach Code for single-family and dual-residence homes, requiring them to be EV Ready.
- For Multifamily and Hotel/Motel buildings, the new 2025 base Code EV requirements exceed the current Reach Code. AB130 prohibits any new amendments to increase EV requirements beyond this level for Multifamily, and since Hotel/Motel is grouped in the same code section as Multifamily, no new amendments are proposed.
- For Non-Residential EV requirements, staff proposes adopting a local Tier 1 level EV requirement as highlighted below. This will raise minimum sustainability standards for non-residential projects, aligning with the City Council's Climate Action and Adaptation Plan (CAAP) and sustainability goals while avoiding conflicts with AB 130. A simplified comparison of the three codes includes:
    - Reach Code Requirements: Approximately 30% of spaces must be EV capable, with 33% EV Charging Stations (EVCS).
    - 2025 Calgreen Mandatory: Approximately 20% of spaces must be EV capable, with 75% EVCS for Office and Retail (50% for others).
    - **2025 Calgreen Tier 1 EV: Approximately 30% of spaces must be EV capable, with 75% EVCS for Office and Retail (50% for others).**

Grading and Drainage. Agoura Hills has hilly terrain that needs to be graded and properly drained when any construction is proposed to ensure safe development. By carrying forward the adoption of Appendix J of the California Building Code and its previously adopted amendments, the City has the guidelines and technical provisions to enforce grading requirements. The proposed new amendments, establishing more defined thresholds for the grading permit requirement, are incorporated into Appendix J of the California Building Code. The proposed administrative amendment is to clarify the exemptions from permits in Section J103.2 of Appendix J (Grading Requirements) in the California Building Code. The amendment is made to provide applicants with objective standards for when permit exemptions would apply - when earthwork is less than 50 cubic yards and meets certain prescribed conditions. This amendment aims to ensure uniformity in the review of plans and their enforcement. It also reduces ambiguity for applicants, thereby facilitating and streamlining the permitting process.

In addition to the administrative amendments that are being carried forward, below is a summary of some of the building standards amendments that are being carried forward, along with the Appendices that are adopted by a state agency that the City is required to enforce.

Seismic Structural Provisions. These amendments relating to the technical seismic provisions are carried forward as they are necessary to ensure that new buildings and structures, and additions or alterations to existing buildings or structures, are designed and constructed in accordance with the scope and objectives of the California Building Codes.

Voluntary Seismic Retrofit. Carrying forward the amendment for the earthquake mitigation standards in Appendix A of the Existing Building Code enables building owners to seismically upgrade their older buildings to a nationally recognized standard voluntarily, which will not only result in a more earthquake-resistant building, but may also result in lower insurance rates for our residents and business owners.

Automatic Gas Shut-off Valves. Carrying forward the amendment to the California Plumbing Code requires the installation of earthquake gas shut-off valves for new construction, remodel/addition with a valuation greater than $10,000, and when the property is being sold.

The Housing and Community Development Department (HCD) adopted Appendix BB (Tiny Houses), Appendix BF (Patio Covers), Appendix BK of the CRC (Cob Construction - Monolithic Adobe), Appendix BL (Hemp-Lime - Hempcrete Construction), Appendix BN (Extended Plate Wall Construction), Appendix BO (Existing Buildings and Structures), Appendix CI (Swimming Pool Safety Act), and Appendix CJ (Emergency Housing)

Expedited Review of Small Residential Rooftop Solar Energy System Permits and Expedited Review of Electric Vehicle Charging Station Permits. Re-adoption of Section 8216 and Section 8217, respectively, in Chapter 2 of Article VIII of the Agoura Hills Municipal Code to provide an expedited permitting process for Electric Vehicle Charging Stations (EVCS) and Small Residential Rooftop Solar (PV) Energy Systems to comply with State Assembly Bill 1236 and State Assembly Bill 2188.

2024 International Property Maintenance Code (IPMC). The 2024 IPMC is not a part of the California Building Standards Code, as it was not adopted by the governing State agencies. It would not be enforceable unless specifically adopted by the local jurisdiction. The Building Standards Code generally applies to the construction of new buildings, and additions and alterations to existing buildings, and does not address the general upkeep or maintenance of the structure or property. The Property Maintenance Code fills this gap. Notwithstanding other provisions of the Agoura Hills Municipal Code, the adoption of the 2024 IPMC establishes minimum requirements to provide a reasonable level of health, safety, property protection, and general welfare for its occupants and the public. The provisions set minimum requirements for the responsibility of owners, an owner's authorized agent, operators, and occupants; for the occupancy of existing structures and premises; and, for administration, enforcement, and penalties of violations.

Los Angeles County Fire Department Amendments

The Los Angeles County Fire Department is currently engaged in drafting comprehensive District-wide amendments to the California Fire Code. Additionally, the Fire Department is working on developing amendments to the new California Wildland-Urban Interface Code. These efforts are expected to be completed after the City's adoption timeline. Consequently, the City will need to adopt both the Los Angeles County Fire Code and the Los Angeles County Wildland-Urban Interface Code once they have been officially adopted by the County.

FISCAL IMPACT

There is minimal fiscal impact associated with adopting the updated California Building Code regulations. They may include additional training in plan checking, inspection, and permitting staff; updating handouts and websites; the indirect training time of applicants; and outreach to the community. The funds have been allocated to the Building and Safety Division as part of the budgeting process.

RECOMMENDATION

Staff respectfully recommends the City Council introduce and waive further reading of Ordinance No. 25-480, and set the Public Hearing for the adoption of the Ordinance for Wednesday, November 12, 2025.

Attachments

AH-Ordinance 25-480 Intro.pdf
Exhibit A-Code Amendment Summary.pdf

ORDINANCE NO. 25-480

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF AGOURA HILLS, CALIFORNIA, ADOPTING BY REFERENCE THE 2025 EDITION OF THE CALIFORNIA BUILDING STANDARDS CODE COMPRISED OF THE 2025 EDITIONS OF THE ADMINISTRATIVE, BUILDING, RESIDENTIAL, ELECTRICAL, MECHANICAL, PLUMBING, ENERGY, WILDLAND-URBAN INTERFACE, HISTORICAL BUILDING, FIRE, EXISTING BUILDING, GREEN BUILDING STANDARDS, AND REFERENCED STANDARDS CODES, AND THE 2024 EDITION OF THE INTERNATIONAL PROPERTY MAINTENANCE CODE, AMENDING ARTICLES III and VIII OF THE AGOURA HILLS MUNICIPAL CODE, AND APPROVING A CEQA EXEMPTION DETERMINATION

WHEREAS, it is the desire and intent of the City Council of the Agoura Hills to provide citizens with the greatest degree of structural, fire and life safety in buildings in the most cost-effective manner by adopting that body of regulations referred to as the California Building Standards Code with amendments specific to the City of Agoura Hills; and

WHEREAS, the City Council has determined that the provisions of the California Building Standards Code shall be adopted as modified, changed, and amended, as provided for in this ordinance, based upon the specific findings, and that said Council takes said action in order to more fully preserve and protect the public health, safety, welfare, and property.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF AGOURA HILLS HEREBY ORDAINS AS FOLLOWS:

SECTION 1. Sections 3100 and 3101 of Chapter 1 (Fire Prevention) of Article III (Public Safety) of the Agoura Hills Municipal Code are hereby amended to read as follows:

"**3100. Adoption of California Fire Code, 2025 Edition.**

Pursuant to California Government Code §§ 50022.1 to 50022.8, the California Fire Code, 2025 Edition, published as Title 24, Part 9, of the California Code of Regulations, including Appendix P (Temporary Haunted Houses, Ghost Walks and Similar Amusement Uses) and all supplements and errata thereto (collectively "CFC"), is adopted by reference, subject to the amendments, additions, and deletions set forth below.

In the event of any conflict between provisions of the California Fire Code, 2025 Edition, the governing Los Angeles County Fire Code, or any amendment to the 2025 California Building Code adopted and contained in the Agoura Hills Municipal Code, the more restrictive provision shall control to the fullest extent permitted by law.

One true copy of the CFC is on file in the office of the Building Official and is available for public inspection as required by law.

3101. Modifications to the 2025 California Fire Code.

a) Section 101.1 is amended to read as follows:

101.1 Title. These regulations shall be known as the Fire Code of the City of Agoura Hills, hereinafter referred to as “this code”.

b) Section 103.1 is amended to read as follows:

103.1 *General.* *The office of fire prevention is established within the jurisdiction under the direction of the fire code official for* the implementation, administration and enforcement of the provisions of this code

Exception: *For the enforcement of the sprinkler systems for one- or two-family dwellings and the townhouses, the Building Official or the Fire Official, at the discretion of the City Manager, shall be the responsible authority having jurisdiction.*

c) Section 903.2.8 is amended to read as follows:

903.2.8 Group R. An automatic sprinkler system installed in accordance with Section 903.3 shall be provided throughout all buildings with a Group R fire area.

Fire sprinkler systems shall be installed in mobile homes, manufactured homes and multifamily manufactured homes with two dwelling units in accordance with Title 25 of the California Code of Regulations.

Exceptions:

1. Existing Group R-3 occupancies converted to Group R-3.1 occupancies not housing bedridden clients, not housing non-ambulatory clients above the first floor, and not housing clients above the second floor.

2. Existing Group R-3 occupancies converted to Group R-3.1 occupancies housing only one bedridden client and complying with Section 435.8.3.3 of the California Building Code.

3. Pursuant to Health and Safety Code, Section 13113, occupancies housing ambulatory children only, none of whom are mentally ill children or children with intellectual disabilities, and the buildings or portions thereof in which such children are housed are not more than two stories in height, and buildings or portions thereof housing such children have an automatic fire alarm system activated by approved smoke detectors.

4. Pursuant to Health and Safety Code, Section 13143.6, occupancies licensed for protective social care which house ambulatory clients only,

DRAFT

none of whom is a child (under the age of 18 years), or who is elderly (65 years of age or over). When not used in accordance with area or height increases for automatic fire sprinklers allowed in the California Building Code, an automatic sprinkler system installed in accordance with Section 903.3.1.2 shall be allowed in Group R-2.1 occupancies.
An automatic sprinkler system designed in accordance with Section 903.3.1.3 shall not be utilized in Group R-2.1 or R-4 occupancies.

d) Section 903.2.11 is amended to read as follows:

903.2.11 - Specific building areas and hazards. In all occupancies other than Group U, an automatic sprinkler system shall be installed for building design or hazards in the locations set forth in Sections 903.2.11.1 through *903.2.11.7.*

e) Section 903.2.11.7 is added to read as follows:

903.2.11.7 Where Required. *An automatic fire sprinkler system shall be installed in every occupancy which is newly constructed or which is modified, reconstructed, or remodeled by adding 50 percent or more of the floor area of the existing occupancy, within any 12-month period, within the City of Agoura Hills.*

Exceptions:

1. *Detached private garages, sheds, and agricultural buildings less than 1,000 square feet in area and separated from other structures by a minimum of six feet, are exempt from the fire sprinkler requirement.*

2. *Detached gazebos, pergolas, and carports open on two or more sides, that are separated from other structures by a minimum of six feet are exempt from the fire sprinkler requirement.*

3. *Detached U occupancies, separated from other structures by a minimum of six feet, built entirely out of non-combustible materials, and with no combustible storage, are exempt from the fire sprinkler requirement.*

For the purpose of requiring the automatic fire sprinkler systems specified in this chapter, the entire floor area within the building footprint, including attached garage area shall be considered.

An automatic fire sprinkler system need not be installed in spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided those spaces or areas are equipped throughout with an automatic fire alarm system and are separated from the remainder of the building by fire barriers consisting of not less than 1-hour fire-resistance-rated walls and 2-hour fire-resistance-rated floor/ceiling assemblies.

DRAFT

SECTION 2. Chapters 1 (Administration) and 2 (Construction Codes) are hereby amended in Article VIII (Building Regulations) of the Agoura Hills Municipal Code to read as follows:

"Chapter 1 ADMINISTRATION

8100. Adoption of codes.
8101. Building Official designated.
8102. Administration of adopted codes.
8103. Violations and Penalties

Chapter 2 CONSTRUCTION CODES

8200. Reserved.
8201. California Administrative Code
8202. California Building Code with local amendments.
8202.5. California Residential Code with local amendments.
8203. California Electrical Code with local amendments.
8204. California Mechanical Code with local amendments.
8205. California Plumbing Code with local amendments.
8206. California Energy Code
8207. California Wildland-Urban Interface Code with local amendments.
8208. California Historical Building Code with local amendments.
8209. Reserved.
8210. California Existing Building Code with local amendments.
8211. California Green Building Standards Code with local amendments.
8212. California Referenced Standards Code
8213. Reserved.
8214. Reserved.
8215. Reserved.
8216 Expedited Review of Small Residential Rooftop Solar Energy System Permits.
8217 Expedited Review of Electric Vehicle Charging Station Permits
8218. Reserved.
8219. Reserved.

Chapter 1—ADMINISTRATION

8100. Adoption of Codes.

For the purpose of prescribing regulations for erecting, construction, enlargement, alteration, repair, improving, removal, conversion, demolition, occupancy, equipment use, height and area of buildings and structures in the City, the 2025 editions of the California Administrative Code, Building Code, Residential Code, Electrical Code, Mechanical Code, Plumbing Code, Energy Code, Wildland-Urban Interface, Historical Building Code,

DRAFT

Fire Code, Green Building Standards Code, Existing Building Code, and Referenced Standards Code, collectively comprising the California Building Standards Code, are hereby adopted by reference, with certain amendments, as the Building Regulations of the City of Agoura Hills. For the purpose of prescribing regulations for grading and excavations, Appendix "J" of the California Building Code with amendments is adopted and will continue to be enforced.

8101. Building Official designated.

The Building Official is hereby designated as the authority charged with the administration and enforcement of Article VIII of the Agoura Hills Municipal Code with the exception of Appendix "J" of the California Building Code, which will be enforced by the Director of Public Works or his/her designee. Where the "authority having jurisdiction" is used in the adopted codes, it shall mean the Building Official.

8102. Administration of adopted codes.

Except as specified in this Article, the administration and enforcement of Article VIII shall be in accordance with the Administration Chapters of the California Building Code and California Residential Code as adopted in Section 8100 and amended in Section 8201, Section 8202, and Section 8202.5.

8103. Violations and Penalties.

In addition to any other applicable provision of this Article VIII, any person, firm, partnership, association, corporation or joint venture violating any of the provisions of Article VIII shall be guilty of a misdemeanor.

Chapter 2—CONSTRUCTION CODES

8200. Reserved.

8201. California Administrative Code adopted.

The 2025 Edition of the California Administrative Code, published by the International Code Council, and all amendments, supplements and errata thereto, is hereby adopted by reference and shall be applicable to the City of Agoura Hills, and referred to as the "Administrative Code of the City of Agoura Hills."

One copy of the California Administrative Code of the City of Agoura Hills shall be kept on file in the Building Official's office for public inspection.

8202. California Building Code Adopted with Local Amendments

A. Adoption of California Building Code, 2025 Edition.

DRAFT

Pursuant to California Government Code Section 50022.2, the California Building Code, 2025 Edition, published as Title 24, Part 2, of the California Code of Regulations, including Appendix I (Patio Covers), Appendix P (Sleeping Lofts), Appendix Q (Emergency Housing), and Appendix J (Grading) and all supplements and errata thereto (collectively "CBC"), is adopted by reference, subject to the amendments, additions and deletions set forth below.

One true copy of the CBC is on file in the office of the Building Official and is available for public inspection as required by law.

B. Amendments to the 2025 California Building Code.

a) The second paragraph of Section 1.8.8.1 is amended to read as follows:

The City Council shall serve as the local appeals board or housing appeals board as specified in California Health and Safety Code Sections 17920.5 and 17920.6.

b) Section 1.8.8.4 is added to read as follows:

***1.8.8.4 Limitation of Authority**. The Local Appeals Board and the Housing Appeals Board shall not have jurisdiction to consider, decide or rule on whether persons are responsible or not responsible for violations and public nuisances of the Agoura Hills Municipal Code, as well as on actions that are required by the City of responsible persons to correct or otherwise abate violations and/or public nuisances.*

This limitation of authority shall also apply to any board that is established by the 2025 Residential, Electrical, Mechanical, Plumbing, Energy, Wildland-Urban Interface, Fire, Existing Building, and Green Building Standards Codes, as adopted by the City.

c) Section 101.1 is amended to read as follows:

101.1 Title. These regulations shall be known as the Building Code of *the City of Agoura Hills*, hereinafter referred to as "this code".

d) Section 101.4.5 is amended to read as follows:

101.4.5. Fire Prevention. The provisions of the *California* Fire Code *as amended and adopted by the City of Agoura Hills* shall apply to matters affecting or relating to structures, processes and premises from the hazard of fire and explosion arising from the storage, handling or use of structures, materials or device; from conditions hazardous to life, property or public welfare in the occupancy of structures or premises; and from the construction, extension, repair, alteration or removal of fire suppression, automatic sprinkler systems and alarm systems or fire hazards in the structure or on the premises from occupancy or operation.

e) Section 103.3 is amended to read as follows:

DRAFT

103.3 Deputies. In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the Building Official shall have the authority to appoint a deputy Building Official, related technical officers, inspectors, *plan examiners,* and other employees. Such employees shall have powers as delegated by the Building Official.

f) Section 105.1 is amended to read as follows:

105.1 Required. *All persons who intend to construct, enlarge, alter, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, component or device, the installation of which is regulated by the Technical Codes in Article VIII of the Agoura Hills Municipal Code, shall first make written application to the Building Official and obtain each required permit. Parking lots shall not be paved, improved, striped, or restriped unless a separate permit for each parking lot has first been obtained from the Building Official.*

No person shall undertake or cause grading to occur on land without the prior procurement of a grading permit unless such grading is exempt from a permit as provided for in Section J103.2 of Appendix J.

Whenever any work or installation or grading has been commenced without a permit in violation of this section, a Stop Work Order shall immediately be issued by the Building Official and a special investigation to identify the nature and extent of the unpermitted work or installation shall be made. Based on the findings of the investigation, conditions may be given to the violator to correct any unpermitted conditions to the satisfaction of the Building Official and/or the City Engineer prior to the issuance of the permit and to continue work. An investigation fee shall be paid in addition to customary fees for each permit which the work had started prior to, or at the time of, the issuance of a permit or permits. Failure to pay a special investigation fee in full constitutes cause to deny the issuance of a permit or permits. The investigation fee shall be as specified by resolution of the City Council.

The payment of the investigation fee shall not exempt any person from compliance with all other provisions of the Agoura Hills Municipal Code, or from any penalty prescribed by law for failing to obtain each required permit.

g) Section 105.2, under **Building -** items 1 through 13 are amended, and items 14 through 18 are added**;** under **Electrical -** items 4 and 5 are added, and a new category titled **Grading** is added**,** to read as follows:

Building:

1. One-story detached accessory structures used as tool and storage sheds, *shade structures*, playhouses, *or similar uses that are accessory to detached*

one and two-family dwellings, and similar uses, provided the floor area does not exceed 120 square feet *and is not more than 14 feet in height above adjacent grade.* It is permissible that these structures still be regulated by *Part 7 California Wildland Urban Interface Code,* despite the exemption from permit.

2. Fences, other than swimming pool barriers or *other than masonry or concrete, not over 6 feet high, measured from finished grade immediately adjacent to the fence to the top of the finished fence.*

3. Oil derricks.

4. Retaining walls *or masonry/concrete fence wall, less than 2 feet in height measured from grade immediately adjacent to the wall* to the top of the wall, *and not* supporting a surcharge.

5. Water tanks supported directly on grade if the capacity is not greater than 5000 gallons and the ratio of height to diameter or width is not greater than 2:1.

6. Sidewalks, driveways, *platforms and walkways associated with one and two-family dwellings*, not more than 30 inches above grade *at any point* and not *located* over any basement or story below, *nor supporting any structure above and are not part of an accessible route.*

7. Painting, papering, tiling, carpeting, cabinets, counter tops, and similar finish work.

8. Temporary motion picture, television, and theater stage sets and scenery *structures that are erected and maintained for a specific period of time in connection with a filming permit that is issued pursuant to Article VI, Chapter 6 of the Agoura Hills Municipal Code. Electrical installations (including the use of generators) and gas installations for sets and structures require a permit before they occur.*

9. Prefabricated swimming pools accessory to a Group R-3 Occupancy that are less than *18* inches deep, do not exceed 5,000 gallons, and are installed entirely above ground.

10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.

11. Swings and other playground equipment accessory to detached one- and two-family dwellings.

12. Window awnings *supported by an exterior wall* in group R-3 and U occupancies*, that are less than 12 square feet of shade cover and do not*

DRAFT

project more than 48 inches from exterior wall and do not require additional support.

13. Non-fixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches in height.

14. *Detached one-story shade covers for animals when the covers are not over 12 feet in height above adjacent grade, not more than 400 feet of roof area and open on 3 sides minimum.*

15. *Readily removable plastic-covered hoop structures, with a maximum 12 feet in height, with no in-ground footings or foundation.*

16. *Replacement of residential exterior door when the door frame is not removed.*

17. *Replacement of a kitchen appliance with a similar appliance in the same location. This exception does not apply if the work includes opening the walls or replacing or altering the plumbing or electrical systems.*

18. *Flagpoles that are 20 feet or less in height above finish grade when fully extended.*

Electrical:

1. Repairs and maintenance: Minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

2. Radio and television transmitting stations: The provisions of this code shall not apply to electrical equipment used for radio and television transmissions, but do apply to equipment and wiring for a power supply and the installations of towers and antennas.

3. Temporary testing systems: A permit shall not be required for the installation of any temporary system required for the testing or servicing of electrical equipment or apparatus.

4. *Removal of abandoned electrical wiring and conduits. "Abandoned" means such wiring and conduits that are not energized.*

5. *Low-voltage electric wiring/system (under 25 volt or 50 watts).*

Gas:

1. Portable heating appliance.

DRAFT

2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

Mechanical:

1. Portable heating appliance.

2. Portable ventilation equipment.

3. Portable cooling unit.

4. Steam, hot or chilled water piping within any heating or cooling equipment regulated by this code.

5. Replacement of any part that does not alter its approval or make it unsafe.

6. Portable evaporative cooler.

7. Self-contained refrigeration system containing 10 pounds (4.54 kg) or less of refrigerant and actuated by motors of 1 horsepower (0.75 kW) or less.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe, provided, however, that if any concealed trap, drain pipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.

2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures and the removal and reinstallation of water closets, provided that such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

Grading:

1. All grading that is exempt from a permit shall be pursuant to Section J103.2 of Appendix "J" of this code or other reference codes accepted by the Building Official.

h) Section 105.3.2 is amended to read as follows:

105.3.2 Time Limitation of Application. *Unless extended or reinstated as provided herein, an* application for permit is deemed abandoned if an applicant has not satisfied all requirements for a permit for proposed work or actions within twelve (12) months *of tender of an application to the Building and Safety Division. The Building Official is authorized to grant one or more extensions of time for additional periods not*

DRAFT

exceeding ninety (90) days each to complete all requirements for a permit. An applicant seeking an initial extension shall tender a request to the Building Official prior to the date the application is deemed abandoned. In order to be eligible for any further extensions, an applicant shall tender a subsequent request or requests to the Building Official before a prior extension period expires. Each extension request shall be requested in writing and justifiable cause demonstrated, as determined by the Building Official.

When an application has been deemed abandoned, a permit shall not be issued prior to the application being reinstated or a new application tendered with new fees paid. Requests to reinstate an application that has been deemed abandoned shall be submitted to the Building Official, in writing, demonstrating justifiable cause and are subject to the approval of the Building Official. If approved by the Building Official, the fee shall be one half (1/2) of the amount of the original plan review fee, provided that the period of time following the Building Official's date of determination of abandonment of the original application has not exceeded six (6) months, no changes have been made or will be made in the original submittal and the construction codes under which the original application was submitted are the same as the current construction codes in effect. To reinstate a application when the period of time following the Building Official's date of determination of abandonment of the original application has exceeded six (6) months; or changes have been made or will be made in the original submittal; or current construction codes are different from those construction codes under which the original application was submitted, the permittee shall be required to pay a new full permit fee and that person shall comply with all construction codes in effect on the date of the new permit application.

i) Section 105.3.2.1 is added to read as follows:

105.3.2.1 Time limitation of application in connection with an unpermitted structure. *Unless extended or reinstated as provided herein, an* application for a permit is deemed abandoned if an applicant has not satisfied all requirements for a permit in connection with an unpermitted structure as defined in Section 111.1.1 of this code within ninety (90) calendar days of tender of an application therefor to the Building and Safety Division. T*he Building Official is authorized to grant one or more extensions of time for additional periods not exceeding thirty (30) days each to complete all requirements for a permit. An applicant seeking an initial extension shall tender a request to the Building Official prior to the date the application is deemed abandoned. In order to be eligible for any further extensions, an applicant shall tender a subsequent request or requests to the Building Official before a prior extension period expires. Each extension request shall be requested in writing and justifiable cause demonstrated, as determined by the Building Official.*

j) Section 105.5 is amended to read as follows:

105.5 Expiration *of permit*. *Unless extended or reinstated as provided herein, every permit issued, except those under Subsection 105.5.2, shall be deemed suspended*

or abandoned and shall automatically expire and become null and void unless the permittee completes at least twenty percent (20%) of the total work or actions authorized by a permit (as determined by the Building Official) for Group R-3 Occupancies, and at least ten percent (10%) of the total work or actions authorized by a permit (as determined by the Building Official) for all other occupancies, and the permittee obtains a successful inspection from the Building Official within the first twelve (12) months from the permit's issuance date. An issued permit shall also be deemed suspended or abandoned and shall automatically expire and become null and void if the permittee does not complete at least an additional twenty percent (20%) of the total work or actions authorized by a permit (as determined by the Building Official) for Group R-3 Occupancies, and at least an additional ten percent (10%) of the total work or actions authorized by a permit (as determined by the Building Official) for all other occupancies, and the permittee obtains a subsequent successful inspection within twelve (12) months from a prior successful inspection. A successful inspection is defined as an inspection that is required by Section 110 of Chapter 1, Division II of the 2025 California Building Code (as adopted by Section 8100 of the Agoura Hills Municipal Code), during which the Building Official or a designee thereof determined that the inspected work or actions met all applicable minimum code requirements and he/she approved and documented that work as successful. Notwithstanding prior timely successful inspections, a permit shall automatically expire and become null and void if the permittee does not obtain a final inspection approval from a building inspector for completion of all work or actions authorized by a permit as follows: (i) within three (3) years from the date of issuance of a permit having a valuation of less than $250,000.00; (ii) within four (4) years from the date of issuance of a permit having a valuation of between $250,000.00 and $1,000,000.00; and, (iii) within five (5) years from the date of issuance of a permit having a valuation of more than $1,000,000.00.

The Building Official may grant one (1) extension of a permit for a period not exceeding one hundred eighty (180) days, provided he/she receives a written request stating justifiable cause, prior to the expiration date of a permit. The Building Official may deny the request for a permit extension if her/she determines that justifiable cause was not shown in the request.

When a permit that was issued pursuant to Section 105.1 has expired, work shall not recommence prior to obtaining a new permit, which shall be subject to Section 105.5.2 of this code. Requests to reinstate an expired permit shall be submitted to the Building Official, in writing, demonstrating justifiable cause and are subject to the approval of the Building Official. If approved by the Building Official, the fee shall be one half (1/2) of the amount of the original permit fee, provided that the expiration period of the original permit has not exceeded six (6) months, no changes have been made or will be made in the original approved plans and specifications, and the construction codes under which the original permit was issued are the same as the current construction codes in effect. To reinstate a permit when the expiration period of the original permit has exceeded six (6) months; or changes have been made or will be made in the original approved plans and specifications; or current construction codes are different

DRAFT

from those construction codes under which the original permit was issued the permittee shall be required to pay a new full permit fee and that person shall comply with all construction codes in effect on the date of the new permit application.

k) Section 105.5.1 is amended to read as follows:

***105.5.1 Expiration**. Every permit issued before January 1, 2019, that did not automatically expire and become null and void by December 31, 2025, pursuant to the code then in effect, shall be deemed abandoned and shall automatically expire and be null and void if the permittee does not thereafter obtain a subsequent successful inspection within 180 days from a prior successful inspection. A successful inspection is defined as an inspection that is required by Section 110 of Chapter 1, Division II of the 2025 California Building Code (as adopted by Section 8100 of the Agoura Hills Municipal Code), during which the Building Official or a designee thereof determined that the inspected work or actions met all applicable minimum code requirements and he/she approved and documented that work as successful. The Building Official may grant one extension of a permit subject to this subsection for a period not exceeding 180 days, provided he/she receives a written request stating a justifiable case, prior to the expiration date of the permit. The Building Official may deny the request for a permit extension if her/she determines that justifiable cause was not shown in the request.*

When a permit subject to this subsection has expired, work shall not recommence prior to obtaining a new permit, which shall be subject to Section 105.5.2 of this code. Payment of a full permit fee is required.

l) Section 105.5.2 is added to read as follows:

***105.5.2 Expiration of permit in connection with an unpermitted structure.** Notwithstanding Section 105.5 or any other provision of this code to the contrary, if a permit is issued in order to bring an unpermitted structure (as defined in Section 111.1.1 of this code) or other unlawful condition into compliance with any applicable law, or ordinance, such permit shall automatically expire and become null and void ninety (90) calendar days after the date on which the permit was issued. The Building Official may extend the validity of the permit for a period not exceeding ninety (90) calendar days beyond the initial ninety (90) day limit upon written request by the applicant filed with the Building Official prior to the expiration date of the original permit.*

m) Section 105.6 is amended to read as follows:

105.6 Suspension or revocation. *The Building Official is authorized to suspend or revoke a permit issued under the provisions of this code or other relevant laws, ordinances, rules, or regulations, wherever and whenever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or regulations or any of the provisions of this code.*

The Building Official may also withhold inspections or approvals or suspend or revoke permit, where work is being performed in violation of approved plans, conditions of approval or permit, or applicable laws, and/or where work is being done not in accordance with the direction of the Building Official or this code.

The Building Official is authorized to suspend or revoke a permit if he/she, or a designee thereof, determines work is occurring in connection therewith between the hours of 7:00 p.m. and 7:00 a.m., Monday through Saturday and any time on Federal Holidays, which results in violations of the noise regulations located in Article 9, Chapter 6, Part 2, Division 6 of the Agoura Hills Municipal Code, and the permittee has not received prior written permission from the city manager to create such noise at that time.

The Building Official is authorized to suspend or revoke a permit issued under the provisions of this code if dust is generated in excess of local, state or federal standards or conditions of project approval.

n) Section 105.7 is amended to read as follows:

105.7 Placement of permit. The building permit or copy shall be kept on the site of the work until completion of the project. *Required permits and approved plans shall be maintained in good condition and be posted or otherwise made available at job site such as to allow the Building Official to conveniently make the required review, inspection and entries related to the project.*

o) Section 105.8 is added to read as follows:

***105.8 Responsibility of permittee**. It shall be the duty of every person who performs work for the installation or repair of building, structure, electrical, gas, mechanical or plumbing systems, for which this code is applicable, to comply with this code. Building permits shall be presumed by the City to incorporate all of the work that the applicant, the applicant's agent, employees and/or contractors shall carry out. Said proposed work shall be in accordance with the approved plans and with all requirements of this code and any other laws or regulations applicable thereto. No city approval shall relieve or exonerate any person from the responsibility of complying with the provisions of this code nor shall any vested rights be created for any work performed in violation of this code.*

p) Section 105.9 is added to read as follows:

***105.9 Transferability.** No permit issued pursuant to Article VIII of the Agoura Hills Municipal Code shall be transferable to any other person or apply to any location other than that stated in the permit, unless justifiable cause is demonstrated to the satisfaction of the Building Official and approved in writing*

DRAFT

q) Section 109.4 is amended to read as follows:

109.4 Work commencing before permit issuance. Any person who commences any work for which a permit is required by this code before obtaining the necessary permits *shall be subject to a special investigation by the Building Official before a permit may be issued for such work. An investigation fee, in addition to the permit fee, shall be collected whether or not a permit is then or subsequently issued. The investigation fee shall be equal to the amount of the permit fee required for such work by this code, or as identified in the latest fees adopted by the City Council of the City of Agoura Hills.*

r) Section 109.5.1 is added to read as follows:

109.5.1 Re-inspection Fee. *A re-inspection fee may be assessed for each inspection or re-inspection when such portion of work for which inspection is called is not complete or when corrections previously called for are not made. This section is not to be interpreted as requiring re-inspection 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 inspections before the job is ready for such inspection or re-inspection.*

Re-inspection fees may be assessed when the inspection record permit card is not posted or otherwise available on the work site, the approved plans are not readily available for the inspector, for failure to provide access on the date for which the inspection is requested, or for deviation from the plans requiring the approval of the Building Official. Where re-inspection fees have been assessed, no additional inspection of the work shall be performed until the required fees identified by the latest fees adopted by the City of Agoura Hills have been paid.

s) Section 109.6.1 is added to read as follows:

109.6.1 Refund Policy. *The plan review fee for any project that has been reviewed will not be refunded since the review has been conducted already. When a project has been reviewed, approved and a permit has been issued, but no work or inspections has taken place and a refund is requested, the City will refund 80% of the original permit fee for which no work or inspection has been performed. There will be no refund given if the project has commenced and inspection taken place. The Building Official makes the final determination whether a refund is due for a specific project.*

t) Section 109.7 is added to read as follows:

109.7 Plan review fees. *When submittal documents are required by Section 107, a plan review fee shall be paid at the time of submitting the submittal documents for plan review. Said plan review fee shall be in accordance with the schedule as established by the applicable governing authority.*

DRAFT

The plan review fees specified in this section are in addition to and separate fees from the permit fees specified in Section 109.2.

Where submittal documents are incomplete or changed so as to require additional plan review, or where the project involves deferred submittal items as defined in Section 107.3.4.1, an additional plan review fee may be charged at a rate established by the applicable governing authority.

When submittal documents are for a project involving production housing (track home), the plan review fee shall be based on full plan review for the first model home/unit and 20% of the fee for any reproduction of that model home/unit. If the model home/unit and the reproduction units are not the same size and configuration, which would require a plan review, a full plan review fee or additional fee may apply, as determined by the Building Official.

u) Section 110.1.1 is added to read as follows:

110.1.1 Setback and height certification. *When determined by the Building Official, a survey and certification may be required to confirm that the building or structure is placed on the site in accordance with the approved location and setback distances and to confirm that it does not exceed the approved building height shown on the approved plans.*

v) Section 110.3.4.2 is added to read as follows:

110.3.4.2 Roof sheathing and shear inspection. *Prior to a complete framing inspection, a roof sheathing and shear inspection shall be made after roof sheathing and all structural shear panels or walls are in place and secured by nailing or other approved methods.*

w) Exception for Section 110.3.6 is deleted

x) Section 111.1.1 is added to read as follows:

111.1.1 Unpermitted Structures. *No person shall own, use, occupy, or maintain an unpermitted structure. For purposes of this subsection, "unpermitted structure" shall be defined as any building or structure, or portion thereof, that was erected, constructed, enlarged, altered, repaired, moved, improved, removed, connected, converted, demolished, or equipped with regulated devices, fixtures or installations, at any point in time by any person, without the required permit(s) having first been obtained from the Building Official, or with a valid permit as issued by the Building Official which subsequently expired and became null and void. An unpermitted structure also includes one for which a building permit has been suspended or revoked.*

y) Section 111.2 is amended to read as follows:

DRAFT

111.2 Certificate issued. After the Building Official or his/her designee inspects the building or structure and finds no violation of the provisions of this code or other laws that are enforced by *the city*, the Building Official shall issue a certificate of occupancy that contains the following:

1. The *building* permit number.
2. The address of the structure.
3. The name and address of the owner or the owner's authorized agent.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code *for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.*
6. The name of the Building Official.
7. The edition of the code under which the permit was issued.
8. The use and occupancy, in accordance with the provisions of Chapter 3 *of the California Building Code*.
9. The type of construction as defined in Chapter 6 *of the California Building Code.*
10. The designed occupant load.
11. Where an automatic sprinkler system is provided, whether the sprinkler system is required
12. Any special stipulations and conditions of the building permit.
13. *Assessor's Parcel Number.*
14. *Zoning designation.*
15. *The date of certificate issuance.*

z) Section 111.3 is amended to read as follows:

111.3 Temporary Certificate of Occupancy (TCO) *The Building Official may, in writing, authorize temporary occupancy of any building or structure, or portion thereof, that lacks a permanent certificate of occupancy for any reason, provided patent conditions in open and accessible portions of the building or structure do not reveal a substantial hazard to an occupant or occupants.*

Applications for a temporary certificate of occupancy shall be on a city-approved form. Such applications shall be accompanied by a fee to process the application and for the inspection of the building or structure to determine its suitability for a temporary certificate of occupancy. Such fees shall be established by the City Council by resolution.

A temporary certificate of occupancy is valid for a period of time to be specified by the Building Official in the certificate. The city attorney may require applicants for a temporary certificate of occupancy to execute an indemnification, as approved by the city attorney, in favor of the city and its employees as a prerequisite to receiving a temporary certificate of occupancy.

DRAFT

The Building Official may extend the period of a temporary certificate of occupancy in writing, as well as impose conditions thereto. Property owners shall acknowledge and agree to said conditions in writing. The breach of any condition thereof shall render a temporary certificate of occupancy null and void without further action by the city. In such event, the owners shall cause all use and occupancy of the building or structure to be terminated by a date required by the Building Official. Use or occupancy of a building or structure, or allowing the use or occupancy of a building or structure, with an expired a temporary certificate of occupancy is a violation of this code and unlawful. Failing to cause the termination of all uses and occupancy in a structure after a termination date is a violation of this code and unlawful. The boards established by Section 1.8.8 do not have jurisdiction to consider, decide or rule decisions pertaining to the issuance, expiration or nullification of a temporary certificate of occupancy, or with regard to any other matter relating thereto.

The Building Official is authorized to adopt regulations or procedures, such as requiring security deposit or bond, for implementation of this section.

aa) Section 111.4 is amended to read as follows:

111.4 Revocation. The Building Official *may, in writing, suspend or revoke a certificate of occupancy whenever the Building Official determines that* the certificate was issued in error, or on the basis of incorrect information supplied*, or* when it is determined that the building, structure *or premises,* or portion thereof, is in violation of any provision of this code*, or other relevant laws, ordinances, rules and/or regulations. Use or occupancy of a building or structure, or allowing the use or occupancy of a building or structure, with a suspended or revoked certificate of occupancy is a violation of this code and unlawful. The boards established by Section 1.8.8 do not have jurisdiction to consider, decide or rule pertaining to the issuance, suspension or revocation of a certificate of occupancy, or with regard to any other matter relating thereto.*

bb) Section 112.3 is amended and subsections 112.3.1, 112.3.2, and 112.3.3 are added to read as follows:

112.3 Authority to Disconnect Service Utilities. *The powers granted the Building Official pursuant to this subsection extend to all buildings, structures or systems (including electrical, plumbing and mechanical) that are regulated by this code and its references. This subsection supersedes all similar provisions in other codes that are part of Article VIII of the Agoura Hills Municipal Code.*

112.3.1 Authority to Disconnect Electric Utility. *The Building Official is hereby empowered to disconnect or to require in writing the discontinuance of electric utility service to buildings, structures or premises, or portions thereof, or to wiring, devices or materials where such buildings, structures or premises, or portions thereof, are determined to be a hazard to life, health and/or property, or where they lack permits and required inspection approvals.*

The Building Official is hereby empowered to disconnect or to require in writing the discontinuance of electric utility service as a means of preventing, restraining, correcting or abating any violation of this code, or other relevant laws, ordinances, rules or regulations.

The electrical service shall remain disconnected or electrical utility service shall remain discontinued until the code violation has been abated to the satisfaction of the Building Official, or until the installation of such wiring, devices or materials have been made safe as directed by the Building Official; or until a permit has been issued and the work has been inspected and approved by the Building Official.

112.3.2 Authority to Disconnect Gas Utility. *The Building Official is hereby empowered to disconnect or to require in writing the discontinuance of gas utility service to buildings, structures or premises, or portions thereof, or to appliances, devices or materials where such buildings, structures or premises, or portions thereof, are determined to be a hazard to life, health and/or property, or where they lack permits and required inspection approvals.*

The Building Official is hereby empowered to disconnect or to require in writing the discontinuance of gas utility service as a means of preventing, restraining, correcting or abating any violation of this code, or other relevant laws, ordinances, rules or regulations.

The gas service shall remain disconnected or gas utility service shall remain discontinued until the code violation has been abated to the satisfaction of the Building Official, or until the installation of such appliances, devices or materials have been made safe as directed by the Building Official; or until a permit has been issued and the work has been inspected and approved by the Building Official.

112.3.3 Authority to Disconnect Water Utility. *The Building Official is hereby empowered to disconnect or to require the property owner to disconnect the water utility service to buildings, structures or premises, or portions thereof, or to fixtures, devices or materials where such buildings, structures or premises, or portions thereof, are determined to be a hazard to life, health, property or to the environment, or where they lack permits and required inspection approvals.*

The Building Official is hereby empowered to disconnect or to require the property owner to disconnect the water utility service as a means of preventing, restraining, correcting or abating any violation of this code, or other relevant laws, ordinances, rules or regulations.

DRAFT

The water service shall remain disconnected or water utility service shall remain discontinued until the code violation has been abated to the satisfaction of the Building Official, or until the installation of such appliances, devices or materials have been made safe as directed by the Building Official; or until a permit has been issued and the work has been inspected and approved by the Building Official.

cc) Section 113 is deleted in its entirety.

dd) Sections 114.1 is amended to read as follows:

114.1 Unlawful Acts. *It is unlawful for any property owner and/or other responsible person to erect, construct, alter, extend, repair, move, remove, demolish, or occupy any building or structure, as well as any regulated equipment, system or installation, or cause same to be done, in conflict with this code. It is unlawful for any for any property owner and/or other responsible person to conduct or maintain, whether due to action or inaction, any building or structure, as well as any regulated equipment, system or installation in violation of this code. It is unlawful for any property owner and/or other responsible person to conduct or maintain grading on land that occurred without a permit.*

ee) Section 114.4 is amended to read as follows:

114.4 Violation Penalties. *Any person who violates, or who maintains a violation of this Code or who fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the approved construction documents or who fails to comply with a directive or order of the Building Official, or of a permit or certificate issued under the provisions of this code, shall be subject to penalties as prescribed by law as follows:*

(a) Any person, firm, partnership, association, corporation or joint venture violating any of the provisions of the California Building Standards Code or other code(s) adopted in Article VIII of the Agoura Municipal Code shall be guilty of a misdemeanor. Any person violating a stop work order issued pursuant to Section 115.1 of this chapter shall be guilty of a misdemeanor. Any person who continues to occupy or any person who enters a structure that has been posted "unsafe" by the Building Official pursuant to Section 116 of this chapter shall be guilty of a misdemeanor.

(b) Each day that person, firm, association, corporation or joint venture violates any of the provisions of the California Building Standards Code or other code(s) adopted in Article VIII of the Agoura Municipal Code is a separate offense and shall be punishable thereof as provided in the Agoura Hills Municipal Code.

ff) Section 115.1 is amended to read as follows:

DRAFT

115.1 Authority. Whenever the Building Official finds any work regulated by this code being performed in a manner either contrary to the provisions of this code, *or without a permit,* or dangerous, or unsafe, the Building Official is authorized to issue a stop work order.

gg) Section 116.1 is amended to read as follows:

116.1 Unsafe Conditions. *Any building, structure or equipment that has any or all of the conditions hereinafter described shall constitute an unsafe or dangerous building or structure:*

(a) Structural inadequacies, damage, deficiencies, defects or deterioration, as well as nearby hazardous embankments or excavations, that could cause a building or structure to partially or completely collapse or fail.

(b) Electrical, plumbing or mechanical work or installations, which because of a defect in materials or installation, or due to some other faulty operating or other condition, pose a risk of explosion or fire.

(c) Unsanitary or unhealthful conditions that are present in a building or structure.

(d) All forms of construction, as well as electrical, plumbing or mechanical work, systems, fixtures, appliances or other installations for which all required permits and inspection approvals have not been obtained from the Building Official.

(e) Occupancy or use for which a building or structure was not designed or intended, or that results in a change in the occupancy classification thereof.

(f) Inadequate egress from a building or structure.

(g) A vacant building or structure that is not secured against unauthorized entry.

(h) Any condition that violates any regulation in Article VIII of the Agoura Hills Municipal Code.

Any or all of the foregoing conditions endanger the health, safety or welfare of occupants, persons who may enter the premises, or the public. Unsafe structures shall be taken down and removed or made safe

hh) *Section 116.3.1 is added to read as follows:*

Section 116.3.1 Orders to Vacate. *Notwithstanding any other provision of this code, if the Building Official or a designee thereof, determines a condition is present in a building or structure or on premises that constitutes an immediate danger or hazard to the health, safety or welfare of occupants or to the public, the Building Official may order persons to vacate buildings, structures, premises, or portions*

DRAFT

thereof. Such orders may include orders to not re-enter, as well authorize limited entry subject to written conditions. Conditions may include, but not be limited to, requiring buildings, structures, and premises to be secured from entry or access by means that are acceptable to the Building Official. Orders shall advise persons of their appeal rights as discussed in this subsection.

Orders may be personally served on an occupant, or served by first class mail and posted on the premises containing the immediate danger or hazard. If an owner does not occupy said premises, a copy of the order shall be also sent by first class mail to the owner as identified by Los Angeles County Assessor records. For owner-occupied properties, the issuance date of an order is the date of its personal service. For non-owner occupied properties, the issuance date of an order is the date an order to the owner and any occupant(s), or a copy thereof, are deposited in a U.S. Postal Service mail container and posted on the premises. Failure of any person to receive an order shall not affect its validity, or the appeal period. When identifying a mailing address for an owner, the Building Official shall consider such information as shown in Los Angeles County Assessor records.

Orders issued pursuant to this subsection, and any conditions thereof, are appealable by a property owner or occupant on a City-approved form that must be received by the City Clerk's Office within ten days of an order's issuance. Appellants shall state all grounds for their appeal in said form. Failure to tender an appeal in a timely manner constitutes a waiver of the right to appeal, in which case an order is final.

If a timely appeal is made, the Building & Safety Department shall provide ten days advance written notice to the appealing party or parties of the date, time and place of the hearing. A timely appeal does not stay an order, or any conditions thereof. Failure of any person to receive a notice of hearing shall not affect its validity.

Timely appeals shall be heard by the housing or local appeals board, as applicable. Appeal hearings are informal and rules of evidence do not apply. Failure of an appellant or appellants to appear at a hearing constitutes a waiver of the right to appeal, in which case the order is final. The housing or local appeals board, as applicable shall, within ten days following the hearing, issue a written decision upholding, modifying, or reversing the order or conditions thereof, notice of which shall be sent to the appellant(s) by first class mail. Such decisions are not appealable. The notice of decision shall contain the following statement: "The [Housing Appeals Board/Local Appeals Board] decision is final, and judicial review of this decision is subject to the provisions and time limits set forth in Cal. Code of Civil Procedure §§ 1094.5 and 1094.6."

Orders may be accompanied by, or combined with, Stop Work Order or Notices of Violations (which are not appealable). Orders shall be rescinded in writing when the Building Official determines that the immediate danger or hazard has been fully corrected or abated with all permits, approvals and inspections as required by the Agoura Hills Municipal Code.

DRAFT

ii) Sections 116.4 and 116.5 are deleted.

jj) Section 116.6 is added to read as follows:

Section 116.6 Violations. *It is unlawful and a public nuisance for any person to maintain an unsafe or dangerous building or structure. Each and every day that a building or structure is maintained in an unsafe or dangerous condition is a new violation of this code. It is a violation of this code and unlawful for any person to fail to comply with an order to vacate, as well as all conditions thereof. Each such violation shall be a misdemeanor.*

kk) Section 903.2.11.7 is added to read as follows:

903.2.11.7 Where Required. *An automatic fire sprinkler system shall be installed in every occupancy which is newly constructed or which is modified, reconstructed, or remodeled by adding 50 percent or more of the floor area of the existing occupancy, within any 12-month period, within the City of Agoura Hills.*

Exceptions:

1. *Detached private garages, sheds, and agricultural buildings less than 1,000 square feet in area and separated from other structures by a minimum of six feet, are exempt from the fire sprinkler requirement.*

2. *Detached gazebos, pergolas, and carports open on two or more sides, that are separated from other structures by a minimum of six feet are exempt from the fire sprinkler requirement.*

3. *Detached U occupancies, separated from other structures by a minimum of six feet, built entirely out of non-combustible materials, and with no combustible storage, are exempt from the fire sprinkler requirement.*

For the purpose of requiring the automatic fire sprinkler systems specified in this chapter, the entire floor area within the building footprint, including attached garage area shall be considered.

An automatic fire sprinkler system need not be installed in spaces or areas in telecommunications buildings used exclusively for telecommunications equipment, associated electrical power distribution equipment, batteries and standby engines, provided those spaces or areas are equipped throughout with an automatic fire alarm system and are separated from the remainder of the building by fire barriers consisting of not less than 1-hour fire-resistance-rated walls and 2-hour fire-resistance-rated floor/ceiling assemblies.

DRAFT

ll) Section 1613.8 is added to read as follows:

1613.8 Seismic design provisions for hillside buildings.

1613.8.1 Purpose. *The purpose of this section is to establish minimum regulations for the design and construction of new buildings and additions to existing buildings when constructing such buildings on or into slopes steeper than one unit vertical in three units horizontal (33.3%). These regulations establish minimum standards for seismic force resistance to reduce the risk of injury or loss of life in the event of earthquakes.*

1613.8.2 Scope. *The provisions of this section shall apply to the design of the lateral-force-resisting system for hillside buildings at and below the base level diaphragm. The design of the lateral-force-resisting system above the base level diaphragm shall be in accordance with the provisions for seismic and wind design as required elsewhere in this division.*

Exception: *Non-habitable accessory buildings and decks not supporting or supported from the main building are exempt from these regulations.*

1613.8.3 Definitions. *For the purposes of this section certain terms are defined as follows:*

BASE LEVEL DIAPHRAGM is the floor at, or closest to, the top of the highest level of the foundation.

DIAPHRAGM ANCHORS are assemblies that connect a diaphragm to the adjacent foundation at the uphill diaphragm edge.

DOWNHILL DIRECTION is the descending direction of the slope approximately perpendicular to the slope contours.

FOUNDATION is concrete or masonry which supports a building, including footings, stem walls, retaining walls, and grade beams.

FOUNDATION EXTENDING IN THE DOWNHILL DIRECTION is a foundation running downhill and approximately perpendicular to the uphill foundation.

HILLSIDE BUILDING is any building or portion thereof constructed on or into a slope steeper than one unit vertical in three units horizontal (33.3%). If only a portion of the building is supported on or into the slope, these regulations apply to the entire building.

DRAFT

PRIMARY ANCHORS are diaphragm anchors designed for and providing a direct connection as described in Sections 1613.8.5 and 1613.8.7.3 between the diaphragm and the uphill foundation.

SECONDARY ANCHORS are diaphragm anchors designed for and providing a redundant diaphragm to foundation connection, as described in Sections 1613.8.6 and 1613.8.7.4.

UPHILL DIAPHRAGM EDGE is the edge of the diaphragm adjacent and closest to the highest ground level at the perimeter of the diaphragm.

UPHILL FOUNDATION is the foundation parallel and closest to the uphill diaphragm edge.

1613.8.4 Analysis and design.

1613.8.4.1 General. *Every hillside building within the scope of this section shall be analyzed, designed, and constructed in accordance with the provisions of this division. When the code-prescribed wind design produces greater effects, the wind design shall govern, but detailing requirements and limitations prescribed in this and referenced sections shall be followed.*

1613.8.4.2 Base level diaphragm-downhill direction. *The following provisions shall apply to the seismic analysis and design of the connections for the base level diaphragm in the downhill direction.*

1613.8.4.2.1 Base for lateral force design defined. *For seismic forces acting in the downhill direction, the base of the building shall be the floor at or closest to the top of the highest level of the foundation.*

1613.8.4.2.2 Base shear. *In developing the base shear for seismic design, the response modification coefficient (R) shall not exceed 5 for bearing wall and building frame systems. The total base shear shall include the forces tributary to the base level diaphragm including forces from the base level diaphragm.*

1613.8.5 Base shear resistance-primary anchors.

1613.8.5.1 General. *The base shear in the downhill direction shall be resisted through primary anchors from diaphragm struts provided in the base level diaphragm to the foundation.*

1613.8.5.2 Location of primary anchors. *A primary anchor and diaphragm strut shall be provided in line with each foundation extending in the downhill direction. Primary anchors and diaphragm struts shall also be provided where interior vertical lateral-force-resisting elements occur above*

DRAFT

and in contact with the base level diaphragm. The spacing of primary anchors and diaphragm struts or collectors shall in no case exceed 30 feet (9144 mm).

1613.8.5.3 Design of primary anchors and diaphragm struts. *Primary anchors and diaphragm struts shall be designed in accordance with the requirements of Section 1613.8.8.*

1613.8.5.4 Limitations. *The following lateral-force-resisting elements shall not be designed to resist seismic forces below the base level diaphragm in the downhill direction:*

1. *Wood structural panel wall sheathing,*
2. *Cement plaster and lath,*
3. *Gypsum wallboard, and*
4. *Tension only braced frames.*

Braced frames designed in accordance with the requirements of Section 2205.2.1.2 may be used to transfer forces from the primary anchors and diaphragm struts *to the foundation provided lateral forces do not induce flexural stresses in any member of the frame or in the diaphragm struts. Deflections of frames shall account for the variation in slope of diagonal members when the frame is not rectangular.*

1613.8.6 Base shear resistance-secondary anchors.

1613.8.6.1 General. *In addition to the primary anchors required by Section 1613.8.5, the base shear in the downhill direction shall be resisted through secondary anchors in the uphill foundation connected to diaphragm struts in the base level diaphragm.*

Exception: *Secondary anchors are not required where foundations extending in the downhill direction spaced at not more than 30 feet (9144 mm) on center extend up to and are directly connected to the base level diaphragm for at least 70% of the diaphragm depth.*

1613.8.6.2 Secondary anchor capacity and spacing. *Secondary anchors at the base level diaphragm shall be designed for a minimum force equal to the base shear, including forces tributary to the base level diaphragm, but not less than 600 pounds per lineal foot (8.76 kN/m) based on Allowable Stress Design (ASD) levels. The secondary anchors shall be uniformly distributed along the uphill diaphragm edge and shall be spaced a maximum of 4 feet (1219 mm) on center.*

1613.8.6.3 Design. *Secondary anchors and diaphragm struts shall be designed in accordance with Section 1613.8.8.*

DRAFT

1613.8.7 Diaphragms below the base level-downhill direction. *The following provisions shall apply to the lateral analysis and design of the connections for all diaphragms below the base level diaphragm in the downhill direction.*

1613.8.7.1 Diaphragm defined. *Every floor level below the base level diaphragm shall be designed as a diaphragm.*

1613.8.7.2 Design force. *Each diaphragm below the base level diaphragm shall be designed for all tributary loads at that level using a minimum seismic force factor not less than the base shear coefficient.*

1613.8.7.3 Design force resistance-primary anchors. *The design force described in Section 1613.8.7.2 shall be resisted through primary anchors from diaphragm struts provided in each diaphragm to the foundation. Primary anchors shall be provided and designed in accordance with the requirements and limitations of Section 1613.8.5.*

1613.8.7.4 Design force resistance-secondary anchors.

1613.8.7.4.1 General. *In addition to the primary anchors required in Section 1613.8.7.3, the design force in the downhill direction shall be resisted through secondary anchors in the uphill foundation connected to diaphragm struts in each diaphragm below the base level.*

Exception: *Secondary anchors are not required where foundations extending in the downhill direction, spaced at not more than 30 feet (9144 mm) on center, extend up to and are directly connected to each diaphragm below the base level for at least 70% of the diaphragm depth.*

1613.8.7.4.2 Secondary anchor capacity. *Secondary anchors at each diaphragm below the base level diaphragm shall be designed for a minimum force equal to the design force but not less than 300 pounds per lineal foot (4.38 kN/m) based on Allowable Stress Design (ASD) levels. The secondary anchors shall be uniformly distributed along the uphill diaphragm edge and shall be spaced a maximum of 4 feet (1219 mm) on center.*

1613.8.7.4.3 Design. *Secondary anchors and diaphragm struts shall be designed in accordance with Section 1613.8.8.*

1613.8.8 Primary and secondary anchorage and diaphragm strut design. *Primary and secondary anchors and diaphragm struts shall be designed in accordance with the following provisions:*

DRAFT

1. *Fasteners. All bolted fasteners used to develop connections to wood members shall be provided with square plate washers at all bolt heads and nuts. Washers shall be minimum 0.229 inch by 3 inches by 3 inches (5.82 mm by 76 mm by 76 mm) in size. Nuts shall be tightened to finger tight plus one-half (1/2) wrench turn prior to covering the framing.*

2. *Fastening. The diaphragm to foundation anchorage shall not be accomplished by the use of toenailing, nails subject to withdrawal, or wood in cross-grain bending or cross-grain tension.*

3. *Size of Wood Members. Wood diaphragm struts, collectors, and other wood members connected to primary anchors shall not be less than 3 inch (76 mm) nominal width. The effects of eccentricity on wood members shall be evaluated as required per Item 9.*

4. *Design. Primary and secondary anchorage, including diaphragm struts, splices, and collectors, shall be designed for 125% of the tributary force.*

5. *Allowable Stress Increase. The one-third allowable stress increase permitted under Section 1605.3.2 shall not be taken when the working (allowable) stress design method is used.*

6. *Steel Element of Structural Wall Anchorage System. The strength design forces for steel elements of the structural wall anchorage system, with the exception of anchor bolts and reinforcing steel, shall be increased by 1.4 times the forces otherwise required.*

7. *Primary Anchors. The load path for primary anchors and diaphragm struts shall be fully developed into the diaphragm and into the foundation. The foundation must be shown to be adequate to resist the concentrated loads from the primary anchors.*

8. *Secondary Anchors. The load path for secondary anchors and diaphragm struts shall be fully developed in the diaphragm but need not be developed beyond the connection to the foundation.*

9. *Symmetry. All lateral force foundation anchorage and diaphragm strut connections shall be symmetrical. Eccentric connections may be permitted when demonstrated by calculation or tests that all components of force have been provided for in the structural analysis or tests.*

10. *Wood Ledgers. Wood ledgers shall not be used to resist cross-grain bending or cross-grain tension.*

1613.8.9 Lateral-force-resisting elements normal to the downhill direction.

DRAFT

1613.8.9.1 General. *In the direction normal to the downhill direction, lateral-force-resisting elements shall be designed in accordance with the requirements of this section.*

1613.8.9.2 Base shear. *In developing the base shear for seismic design, the response modification coefficient (R) shall not exceed 5 for bearing wall and building frame systems.*

1613.8.9.3 Vertical distribution of seismic forces. *For seismic forces acting normal to the downhill direction the distribution of seismic forces over the height of the building using Section 12.8.3 of ASCE 7 shall be determined using the height measured from the top of the lowest level of the building foundation.*

1613.8.9.4 Drift limitations. *The story drift below the base level diaphragm shall not exceed 0.007 times the story height at strength design force level. The total drift from the base level diaphragm to the top of the foundation shall not exceed 3/4 inch (19 mm). Where the story height or the height from the base level diaphragm to the top of the foundation varies because of a stepped footing or story offset, the height shall be measured from the average height of the top of the foundation. The story drift shall not be reduced by the effect of horizontal diaphragm stiffness.*

1613.8.9.5 Distribution of lateral forces.

1613.8.9.5.1 General. *The design lateral force shall be distributed to lateral-force-resisting elements of varying heights in accordance with the stiffness of each individual element.*

1613.8.9.5.2 Wood structural panel sheathed walls. *The stiffness of a stepped wood structural panel shear wall may be determined by dividing the wall into adjacent rectangular elements, subject to the same top of wall deflection. Deflections of shear walls may be estimated by AWC SDPWS Section 4.3.2. Sheathing and fastening requirements for the stiffest section shall be used for the entire wall. Each section of wall shall be anchored for shear and uplift at each step. The minimum horizontal length of a step shall be 8 feet (2438 mm) and the maximum vertical height of a step shall be 2 feet 8 inches (813 mm).*

1613.8.9.5.3 Reinforced concrete or masonry shear walls. *Reinforced concrete or masonry shear walls shall have forces distributed in proportion to the rigidity of each section of the wall.*

1613.8.9.6 Limitations. *The following lateral force-resisting-elements shall not be designed to resist lateral forces below the base level diaphragm in the direction normal to the downhill direction:*

DRAFT

1. *Cement plaster and lath,*
2. *Gypsum wallboard, and*
3. *Tension-only braced frames.*

Braced frames designed in accordance with the requirements of Section 2205.2.1.2 of this Code may be designed as lateral-force-resisting elements in the direction normal to the downhill direction, provided lateral forces do not induce flexural stresses in any member of the frame. Deflections of frames shall account for the variation in slope of diagonal members when the frame is not rectangular.

1613.8.10 Specific design provisions.

1613.8.10.1 Footings and grade beams. *All footings and grade beams shall comply with the following:*

1. *Grade beams shall extend at least 12 inches (305 mm) below the lowest adjacent grade and provide a minimum 24 inch (610 mm) distance horizontally from the bottom outside face of the grade beam to the face of the descending slope.*

2. *Continuous footings shall be reinforced with at least two No. 4 reinforcing bars at the top and two No. 4 reinforcing bars at the bottom.*

3. *All main footing and grade beam reinforcement steel shall be bent into the intersecting footing and fully developed around each corner and intersection.*

4. *All concrete stem walls shall extend from the foundation and reinforced as required for concrete or masonry walls.*

1613.8.10.2 Protection against decay and termites. *All wood to earth separation shall comply with the following:*

1. *Where a footing or grade beam extends across a descending slope, the stem wall, grade beam, or footing shall extend up to a minimum 18 inches (457 mm) above the highest adjacent grade.*

   Exception: *At paved garage and doorway entrances to the building, the stem wall needs only to extend to the finished concrete slab, provided the wood framing is protected with a moisture proof barrier.*

2. *Wood ledgers supporting a vertical load of more than 100 pounds per lineal foot (1.46 kN/m) based on Allowable Stress Design (ASD) levels and located within 48 inches (1219 mm) of adjacent grade are prohibited. Galvanized steel ledgers and anchor bolts, with or without wood nailers, or*

DRAFT

treated or decay resistant sill plates supported on a concrete or masonry seat, may be used.

1613.8.10.3 Sill plates. *All sill plates and anchorage shall comply with the following:*

1. *All wood-framed walls, including non-bearing walls, when resting on a footing, foundation, or grade beam stem wall, shall be supported on wood sill plates bearing on a level surface.*

2. *Power-driven fasteners shall not be used to anchor sill plates except at interior nonbearing walls not designed as shear walls.*

1613.8.10.4 Column base plate anchorage. *The base of isolated wood posts (not framed into a stud wall) supporting a vertical load of 4,000 pounds (17.8 kN) based on Allowable Stress Design (ASD) levels or more and the base plate for a steel column shall comply with the following:*

1. *When the post or column is supported on a pedestal extending above the top of a footing or grade beam, the pedestal shall be designed and reinforced as required for concrete or masonry columns. The pedestal shall be reinforced with a minimum of four No. 4 bars extending to the bottom of the footing or grade beam. The top of exterior pedestals shall be sloped for positive drainage.*

2. *The base plate anchor bolts or the embedded portion of the post base, and the vertical reinforcing bars for the pedestal, shall be confined with two No. 4 or three No. 3 ties within the top 5 inches (127 mm) of the concrete or masonry pedestal. The base plate anchor bolts shall be embedded a minimum of 20 bolt diameters into the concrete or masonry pedestal. The base plate anchor bolts and post bases shall be galvanized and each anchor bolt shall have at least 2 galvanized nuts above the base plate.*

1613.8.10.5 Steel beam to column supports. *All steel beam-to-column supports shall be positively braced in each direction. Steel beams shall have stiffener plates installed on each side of the beam web at the column. The stiffener plates shall be welded to each beam flange and the beam web. Each brace connection or structural member shall consist of at least two 5/8-inch (15.9 mm) diameter machine bolts.*

mm) Section 1807.1.4 is amended to read as follows:

1807.1.4 Permanent wood foundation systems. Permanent wood foundation systems shall be designed and installed in accordance with AWC PWF. Lumber and plywood shall be treated in accordance with AWPA U1 (Commodity Specification A, Special Requirement 4.2) and shall be identified in accordance with Section

2303.1.9.1. *Permanent wood foundation systems shall not be used for structures assigned to Seismic Design Category D, E or F.*

nn) Section 1807.2 is amended to read as follows:

1807.2 Retaining walls. Retaining walls shall be designed in accordance with Section 1807.2.1 through 1807.2.4. *Retaining walls assigned to Seismic Design Category D, E or F shall not be partially or wholly constructed of wood*.

oo) Section 1809.3 is amended to read as follows:

1809.3 Stepped footings. The top surface of footings shall be level. The bottom surface of footings shall be permitted to have a slope not exceeding one unit vertical in 10 units horizontal (10-percent slope). Footings shall be stepped where it is necessary to change the elevation of the top surface of the footing or where the surface of the ground slopes more than one unit vertical in 10 units horizontal (10-percent slope).

For structures assigned to Seismic Design Category D, E or F, the stepping requirement shall also apply to the top surface of continuous footings supporting walls. Footings shall be reinforced with four No. 4 deformed reinforcing bars. Two bars shall be placed at the top and bottom of the footings as shown in Figure 1809.3.

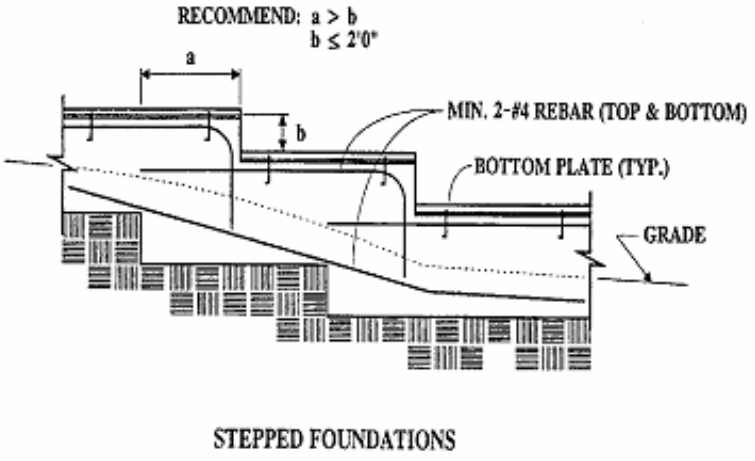


FIGURE 1809.3
STEPPED FOOTING

pp) Section 1809.7 and Table 1809.7 are amended to read as follows:

1809.7 Prescriptive footings for light-frame construction. Where a specific design is not provided, concrete or masonry-unit footings supporting walls of light-frame construction shall be permitted to be designed in accordance with Table 1809.7. *Light-frame construction using prescriptive footings in Table 1809.7 shall not exceed one*

story above grade plane for structures assigned to Seismic Design Category D, E or F.

TABLE 1809.7
PRESCRIPTIVE FOOTINGS SUPPORTING WALLS OF LIGHT-FRAME CONSTRUCTION [a, b, c, d, e]

NUMBER OF FLOORS SUPPORTED BY THE FOOTING [f]	WIDTH OF FOOTING (inches)	THICKNESS OF FOOTING (inches)
1	12	6
2	15	6
3	18	8

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm

a. Depth of footings shall be in accordance with Section 1809.4.
b. The ground under the floor shall be permitted to be excavated to the elevation of the top of the footing.
c. Not Adopted.
d. See Section 1905 for additional requirements for concrete footings of structures assigned to Seismic Design Category C, D, E or F.
e. For thickness of foundation walls, see Section 1807.1.6.
f. Footings shall be permitted to support a roof addition to the stipulated number of floors. Footings supporting roof only shall be as required for supporting one floor.

qq) Section 1809.12 is amended to read as follows*:*

1809.12 Timber footings. Timber footings shall be permitted for buildings of Type V construction and as otherwise approved by the Building Official. Such footings shall be treated in accordance with AWPA U1 (Commodity Specification A, Use Category 4B). Treated timbers are not required where placed entirely below permanent water level, or where used as capping for wood piles that project above the water level over submerged or marsh lands. The compressive stresses perpendicular to grain in untreated timber footings supported on treated piles shall not exceed 70 percent of the allowable stresses for the species and grade of timber as specified in the ANSI/AWC NDS. *Timber footings shall not be used in structures assigned to Seismic Design Category D, E or F.*

rr) Section 2304.10.2 is amended to read as follows:

2304.10.2 Fastener requirements. Connections for wood members shall be designed in accordance with the appropriate methodology in Section 2302.1. The number and size of fasteners connecting wood members shall not be less than that set forth in Table 2304.10.2*. Staple fasteners in Table 2304.10.2 shall not be used to resist or transfer seismic forces in structures assigned to Seismic Design Category D, E or F.*

Exception: *Staples may be used to resist or transfer seismic forces when the allowable shear values are substantiated by cyclic testing and approved by the Building Official.*

ss) Section 2304.12.2.8 is amended to read as follows:

2304.12.2.8 Wood used in retaining walls and cribs. Wood installed in retaining or crib walls shall be preservative treated in accordance with AWPA U1 for soil and freshwater use. *Wood shall not be used in retaining or crib walls for structures assigned to Seismic Design Category D, E or F.*

tt) Section 2306.2 is amended to read as follows:

2306.2 Wood-frame diaphragms. Wood-frame diaphragms shall be designed and constructed in accordance with AWC SDPWS. Where panels are fastened to framing members with staples, requirements and limitations of AWC SDPWS shall be met and the allowable shear values set forth in Table 2306.2(1) or 2306.2(2) shall *only* be permitted *for structures assigned to Seismic Design Category A, B, or C.*

Exception: *Allowable shear values where panels are fastened to framing members with staples may be used if such values are substantiated by cyclic testing and approved by the Building Official.*

The allowable shear values in Tables 2306.2(1) and 2306.2(2) are permitted to be increased 40 percent for wind design.

Wood structural panels used to resist seismic diaphragm forces in structures assigned to Seismic Design Category D, E or F shall be applied directly to the framing members.

Exception: *Wood structural panels are permitted to be fastened over solid lumber planking or laminated decking, provided the panel joints and lumber planking or laminated decking joints do not coincide.*

uu) Section 2306.3 is amended to read as follows:

2306.3 Wood-frame shear walls. Wood-frame shear walls shall be designed and constructed in accordance with ANSI/AWC SDPWS. *For structures assigned to Seismic Design Category D, E, or F, application of Table 4.3A of ANSI/AWC SDPWS shall include the following:*

i. Wood structural panel thickness for shear walls shall not be less than 3/8 inch thick and studs shall not be spaced at more than 16 inches on center.

ii. The maximum nominal unit shear capacities for 3/8 inch wood structural panels resisting seismic forces in structures assigned to Seismic Design Category D, E or F is 400 pounds per linear foot (plf).

Exception: *Other nominal unit shear capacities may be permitted if such values are substantiated by cyclic testing and approved by the Building Official.*

DRAFT

iii. Nails shall be placed not less than 1/2 inch in from the panel edges and not less than 3/8 inch from the edge of the connecting members for shear greater than 350 plf using ASD or 500 plf using LRFD. Nails shall be placed not less than 3/8 inch from panel edges and not less than 1/4 inch from the edge of the connecting members for shears of 350 plf or less using ASD or 500 plf or less using LRFD.

For structures assigned to Seismic Design Category D, E or F, application of Table 4.3B of ANSI/AWC SDPWS shall not be allowed.

For structures assigned to Seismic Design Category D, E or F, application of Table 4.3C of ANSI/AWC SDPWS shall not be used below the top level in a multi-level building.

Where panels are fastened to framing members with staples, requirements and limitations of AWC SDPWS shall be met and the allowable shear values set forth in Table 2306.3(1), 2306.3(2) or 2306.3(3) shall *only* be permitted *for structures assigned to Seismic Design Category A, B, or C*.

Exception: *Allowable shear values where panels are fastened to framing members with staples may be used if such values are substantiated by cyclic testing and approved by the Building Official.*

The allowable shear values in Tables 2306.3(1) and 2306.3(2) are permitted to be increased 40 percent for wind design. Panels complying with ANSI/APA PRP-210 shall be permitted to use design values for Plywood Siding in the ANSI/AWC SDPWS.

vv) Section 2308.10.8.1 is amended to read as follows:

2308.10.8.1 Foundation requirements. *Braced wall lines shall be supported by continuous foundations.*

Exception: For structures with a maximum plan dimension not more than 50 feet (15240 mm), continuous foundations are required at exterior walls only *for structures assigned to Seismic Design Category A, B, or C.*

For structures in Seismic Design Categories D and E, exterior braced wall panels shall be in the same plane vertically with the foundation or the portion of the structure containing the offset shall be designed in accordance with accepted engineering practice and Section 2308.3.

ww) Section 3109.2 is amended by adding a new definition for “Barrier” and amending the existing definitions for “Swimming Pool” to read as follows:

Barrier. *Barrier is a fence, wall, building wall or other enclosure that isolates a swimming pool from access to the home, other properties or the public.*

DRAFT

Swimming Pools/Spa. *Any body of water created by artificial means which is designed, intended for use, or used for swimming or immersion purposes, which has a water depth exceeding 18 inches. The term "pool" includes swimming pools, spas, hot tubs, above and below ground, and vinyl-lined pools; "Pool" does not include plumbing fixtures such as bathtubs nor does it apply to man-made lakes, reservoirs, farm ponds, or ponds used primarily for public park purposes, water conservation purposes, irrigation purposes or for the watering of livestock.*

xx) Section J101.3 is added to Appendix J to read as follows:

J101.3 Hazards.

1. Whenever the City Engineer determines that any land or any existing excavation or fill has, from any cause, become a menace to life or limb, or endangers public or private property, or adversely affects the safety, use or stability of public or private property, the owner of the property concerned shall, upon written notice thereof from the City Engineer (which shall be issued by first class mail), correct such condition in accordance with the provisions of this appendix and the requirements and conditions set forth in the notice (including deadlines for required actions) so as to eliminate such condition. The owner of the property shall immediately comply with the provisions set forth in the notice and shall complete all work to fully abate the condition within 180 days from the date of the notice unless a shorter period of time for completion has been specified in the notice in which case the owner shall comply with the shorter period of time. Upon written application and good cause shown, the City Engineer may, provided he/she concludes good cause exists, approve the request for an extension of time to complete the work required by the notice. A notice to the owner shall include a statement that a missed deadline, or untimely compliance with requested actions, may result in the City of Agoura Hills recording a certificate of substandard property with the Office of the Los Angeles County Recorder's Office. "Owner" is the person who appears as such in Los Angeles County Assessor records for a property, and other persons, if known to the City Engineer, who are in control of, or responsible, for a property. A notice shall be sent to an owner to his/her/its address as shown on the last equalized assessment roll for a property. Where the City Engineer knows of other persons who are in control of, or responsible for, a property, the City Engineer shall send a copy of a notice to the address set forth in records of the Public Works Department for such persons. Failure of an owner or other persons to receive a notice shall not relieve them from the obligation to comply with this appendix.

2. If the above condition is not fully eliminated within the specified time period, or if the owner has missed a deadline in the notice (including without limitation for obtaining a grading permit) the City Engineer may file with the Office of the Los Angeles County Recorder a certificate stating that the property is deemed substandard and that the owner thereof has been so notified. The certificate shall describe the condition that renders the property substandard. The City Engineer shall, by first class mail, send a copy of the certificate for recording to the owner.

DRAFT

3. When the above condition has been fully corrected to the satisfaction of the City Engineer, he/she shall file with the Office of the Los Angeles County Recorder, within a period of time not exceeding thirty (30) days, a certificate specifying that the condition has been fully corrected and that the property is no longer substandard. The City Engineer shall by first class mail, send a copy of the certificate for recording to the owner.

yy) Section J101.4 is added to Appendix J to read as follows:

J101.4 Safety Precautions

1. General

a) If at any stage of work on an excavation or fill, the City Engineer determines that the work has become or is likely to become dangerous to any person, or is likely to endanger any property, public or private, the City Engineer must be authorized to require safety precautions to be immediately taken by the property owner as a condition to continuing such permitted work or to require cessation thereof forthwith unless and until it is made safe and to amend the plans for such work.

b) Safety precautions may include, without limitation, specifying a flatter exposed slope or construction of additional drainage facilities, berms, terracing, compaction, cribbing, retaining walls or buttress fills, slough walls, desilting basins, check dams, benching, wire mesh, and guniting, rock fences, revetments or diversion walls.

c) Upon the determination of the City Engineer that such safety precautions during grading are necessary, the City Engineer shall provide a notice and order to the permittee to implement same. After receiving such notice, oral or written, it is unlawful for the permittee or any person to proceed with such work contrary to such order.

2. *Maintenance of Ground Cover*

a) Existing groundcover in any hillside area that is not affected by an issued grading permit shall be maintained in a healthful condition at all times and shall not be destroyed or removed. As used herein, "groundcover" means plants that cover ground and that provide protection of the topsoil from erosion and drought. As used herein, "destroyed" includes, without limitation, any actions or inaction that cause, or will likely cause or contribute to, such groundcover dying or existing in an unhealthful condition in the future. As used herein, "maintained in a healthful condition" includes, without limitation, proper watering and fertilization and cutting or trimming that does not cause or contribute to the death of groundcover or cause it to exist in an unhealthful condition in the future. Cutting or trimming actions that result in groundcover dying or that cause or contribute to groundcover

DRAFT

existing in an unhealthful condition in the future are unlawful and prohibited. This subpart does not apply to groundcover that the Los Angeles County Fire Department requires to be destroyed or removed in the enforcement of the Fire Code. In the event the City Engineer determines a violation of this subpart has occurred, the owner of the affected hillside area shall, upon written notice thereof by the City Engineer via first class mail, obtain written approval from the City Engineer within forty-five (45) days of the date of the notice for proposed replacement groundcover. The owner shall complete installation of the approved groundcover and obtain a final inspection approval in writing from the City Engineer within thirty (30) days thereafter. An owner's failure to obtain timely written approvals from the City Engineer are violations of this subpart and unlawful. As used herein, "owner" is the person who appears as such in Los Angeles County Assessor records for a property. A notice shall be sent to an owner to his/her/its address as shown on the last equalized assessment roll for a property.

b) Whenever groundcover on private real property is removed or damaged as a result of action or actions undertaken pursuant to an issued grading permit, the owner of that property and permittees under that permit shall restore the affected area with new groundcover as approved and required by the City Engineer and shall complete such other erosion control protection measures or installations as may be required by the City Engineer. The owner or his/her/its permittee under that permit shall obtain written approval of the City Engineer for newly installed groundcover and for any required erosion control protection measures or installations as a condition to obtaining a final inspection approval of a grading from the City Engineer. It is unlawful and a violation of this subpart for an owner to fail to install new groundcover and/or complete other required protection measures or installations in a period of time required by the City Engineer. It is also unlawful and a violation of this subpart for an owner to fail to maintain installed protection measures or installations in a good and effective condition and in good repair at all times in the future. Following the City Engineer's approval of new groundcover, an owner shall be subject to Subpart A. of this section. As used herein, "damaged" means groundcover that has, or will likely, die or become or remain unhealthful because of, or in part due to, an action or actions that were undertaken pursuant to an issued grading permit.

3. *Maintenance of Protective Structures/Devices/Installations*

   All structures/devices/installations used to protect hillside areas from erosion or landslide damage including, without limitation, retaining walls, cribbing, terracing, surface and subsurface drainage structures, interceptor drains, check dams, and riprap shall be maintained in good condition and repair at all times.

zz) Section J101.5 is added to Appendix J to read as follows:

***J101.5 Protection of Utilities**. The owner of any property for which a grading permit has been issued, and permittees, shall in the course of undertaking actions pursuant to that permit, prevent damage to public utilities or services.*

aaa) Section J101.6 is added to Appendix J to read as follows:

***J101.6 Protection of Adjacent Properties.** The owner of any property for which a grading permit has been issued, and permittees, shall in the course of undertaking actions pursuant to that permit, prevent damage to adjacent property. Furthermore, no owner or permittee shall excavate on land sufficiently close to the property line to endanger any adjoining public street, sidewalk, alley, or other public or private property without first obtaining written approval of the City Engineer for protections to said public or private properties against settling, cracking or other damage and completing the installation of those protections prior to undertaking the excavation.. Special precautions approved by the City Engineer shall also be made to prevent imported or exported materials from being deposited on the adjacent public way and/or drainage courses. A 30-day excavation notice shall be provided as required by California Civil Code Section 829-834 when the excavation is of sufficient depth and proximity to adjacent lot structures.*

bbb) Section J101.7 is added to Appendix J to read as follows:

***J101.7 Storm-water control measures.** The owner of any property for which a grading permit has been issued and permittees shall put into effect and maintain all measures and installations necessary to protect adjacent water courses and public and private property from damage by erosion, flooding, and deposition of mud, debris and construction-related pollutants originating from the site during, and after, grading and related construction activities. Furthermore, the owner and permittees shall implement, install and maintain measures and installations necessary to prevent any change in cross-lot surface drainage that may adversely affect any adjoining property as a result of grading and/or construction-related activities. Such measures and and installations to prevent any adverse cross-lot surface drainage effects on adjoining property shall be required whether shown on approved grading plans or not..*

ccc) Section J101.8 is added to Appendix J to read as follows:

***J101.8 Conditions of approval**. In granting any permit under this code, the City Engineer may impose such conditions on a permit as he/she believes reasonably necessary to protect public health, safety, or welfare and/or to prevent or protect against any hazard that could be posed to a person or to persons or to public or private property in the absence of a permit condition or conditions. It is unlawful and a violation of this subpart for an owner to not comply with a permit condition. Such conditions may include, but shall not be limited to:*

1. Improvement of any existing grading to comply with the current standards of this code.

DRAFT

2. Requirements for fencing of excavations or fills which would otherwise be hazardous.

ddd) Section J101.9 is added to Appendix J to read as follows:

J101.9 Other regulations.

J101.9.1 Waiver. *The permissive provisions of this chapter shall not be presumed to waive any regulations or statutes imposed by the State of California or other regulations of the City of Agoura Hills Municipal Code.*

J101.9.2 More restrictive regulations*. If two or more pertinent regulations are not identical, those regulations shall prevail which are more restrictive, or which afford greater safety to life, limb, health, property or welfare. For the purposes of these regulations, grading permits shall be considered as building permits and shall be subject to the same administrative provisions of this code, unless otherwise specifically provided for in this chapter.*

eee) Section J103.2 is amended to read as follows:

J103.2 Exemptions. A grading permit shall not be required for the following, unless deemed necessary by the City Engineer. *No exemptions shall relieve the requirements set forth by the City Engineer or Building Official to address drainage and water quality concerns.*

1. *When approved by the City Engineer,* grading in an isolated, self-contained area, provided there is no danger to the public, and that such grading will not adversely affect adjoining properties or *any public property*.

2. Excavation for construction of a structure permitted under this code *where the excavation is limited to within the footprint of the proposed structure and not exceeding 5 feet in depth.*

3. Cemetery graves.

4. Refuse disposal sites controlled by other regulations.

5. Excavations for wells, or trenches for utilities.

6. Mining, quarrying, excavating, processing or stockpiling rock, sand, aggregate or clay controlled by other regulations, provided such operations do not affect the lateral support of, or significantly increase stresses in, soil and adjoining properties.

7. Exploratory excavations performed under the direction of a registered soils engineer or engineering geologist. *This shall not exempt grading of access roads or pads created for exploratory excavations, which require a permit from the City*

DRAFT

Engineer. Exploratory excavations must not create a hazardous condition to adjacent properties or the public in accordance with Section J101.3. Exploratory excavations must be restored to pre-existing conditions, unless approved by the City Engineer in writing.

8. An excavation that does not exceed 50 cubic yards (15.29 m^3), not less than 100 feet away from any drainage course and complies with one of the following conditions:

(1) not proposed where the natural slope of the site exceeds twenty (20) percent;

(2) is less than 2 feet (0.6 m) in depth;

(3) does not create a cut slope greater than 5 feet (1.5 m) measured vertically upward from the cut surface to the surface of the natural grade and is not steeper than 2 units horizontal to 1 unit vertical (50 percent slope).

9. A fill not intended to support a structure, does not obstruct or redirect a drainage course, is not less than 100 feet away from any drainage course, and complies with one of the following conditions:

(a) is less than 1 foot (0.3 m) in depth and is placed on natural terrain with a slope flatter than 5 units horizontal to 1 unit vertical (20 percent slope).

(b) is less than 3 feet (0.9 m) in depth at its deepest point measured vertically upward from natural grade to the surface of the fill, does not exceed 50 cubic yards, and creates a fill slope no steeper than 2 units horizontal to 1 unit vertical (50 percent slope).

Exemption from the permit requirements of this appendix shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

fff) Section J103.3 is added to Appendix J to read as follows:

J103.3 Permit issuance.

1. The issuance of a grading permit shall constitute an authorization to do only that work which is described or illustrated on the application for the permit and on the grading plans and specifications approved by the City Engineer at the time of issuance.

2. Jurisdiction of other agencies. Permits issued under the requirements of this appendix shall not relieve the owner of responsibility for securing required permits for work to be accomplished that is regulated by any other code, department, or division of the City of Agoura Hills. Furthermore, permits issued pursuant to this

DRAFT

appendix shall not relieve an owner from securing approvals and/or permits as may be required by Los Angeles County and the State of California.

3. Conditions of permit. The City Engineer, upon recommendation of the city traffic and transportation administrator, may impose such conditions with respect to access routes to and from grading sites in hillside areas as the City Engineer shall determine are required in the interest of safety precautions involving pedestrian or vehicular traffic. This is in addition to conditions imposed pursuant to Section J101.8. It is unlawful to not comply with a permit condition.

4. Consent of adjacent property owner. Whenever any excavation or fill or other grading-related work requires entry onto adjacent property for any reason, the permit applicant shall obtain the written consent of the adjacent property owner or their authorized representative, and shall tender a signed and duly notarized copy of such consent with the City Engineer prior to the issuance of a permit. The consent form shall be approved by the City Attorney and the statements therein shall be acceptable to the City Engineer. If a permit applicant claims an easement authorizes entry onto adjacent property in connection with proposed grading-related work, the applicant shall tender a recorded copy of the easement to the City Engineer prior to the issuance of a permit. In addition to tendering a consent form and/or an easement, the owner of real property for which a grading permit is sought, shall execute an indemnification/hold harmless form in favor of the City of Agoura Hills as approved by the City Attorney and tender the completed/executed form to the City Engineer prior to the issuance of a grading permit.

5. Unpermitted Actions. If grading and/or other actions regulated by this appendix occur without a grading permit, a subsequently obtained permit shall automatically expire and become null and void ninety (90) calendar days after the date on which the permit was issued. The City Engineer may extend the validity of the permit for a period not exceeding ninety (90) calendar days beyond the initial ninety (90) day limit upon written request by the applicant filed with the City Engineer prior to the expiration date of the original permit. The applicant shall show justifiable cause in the extension request, which City Engineer must find to be satisfactory before granting an extension.

6. Time limitation of application and expiration of permit. Time limitation of application and expiration of permit shall be governed by the amended CBC Sections 105.3.2.1 and 105.5 and CRC Sections R105.3.2.1 and R105.5.

ggg) Section J103.4 is added to Appendix J to read as follows:

J103.4 Grading fees.

1. Fees for grading plan check and for grading permits shall be established or modified by resolution of the city council. The schedule of such fees shall remain on file and be available in the office of the City Engineer. The City Engineer shall, with the approval

of the city manager, recommend changes in fee amounts to the council when the costs to provide grading plan check and grading inspection services make it appropriate.

2. The applicant shall pay a plan check fee prior to acceptance of grading plans and specifications for checking by the city. Plans shall not be reviewed prior to the City Engineer's receipt of the entire fee.

3. Whenever the applicant submits a grading plan for plan check that is substantially different, as determined by the City Engineer, in design of the earthwork as compared to previously submitted grading plans, the submittal shall be considered an original and a new grading plan check fee shall be determined and paid to the city as provided in this section.

4. The applicant shall pay a grading permit fee prior to the issuance of a grading permit by the city. If, during grading operations, the plans and specifications for the grading project are revised increasing the scope of the project that was used to determine the grading permit fee, the applicant shall pay to the city the difference between the original grading permit fee and the recalculated fee before work may resume under the grading permit.

5. Whenever grading operations are commenced without an approved grading permit, an investigation fee shall be added to all unpaid fees for grading plan check and grading permits. The investigation fee shall be one hundred percent of all fees due the city.

hhh) Section J104.2.1 is added to Appendix J to read as follows:

J104.2.1 Grading Designation. *Grading in hilly terrain areas involving slope greater than 33% and all grading in excess of 250 cubic yards shall be performed in accordance with the approved grading plan prepared by a registered civil engineer, and shall be designated as "engineered grading." Grading involving less than 250 cubic yards and not located in an area of hilly terrain area involving slope greater than 33% shall be designated as "regular grading" unless the permittee chooses to have the grading performed as engineered grading, or the City Engineer determines that special conditions or unusual hazards exist, in which case grading shall conform to the requirements for engineered grading.*

iii) Section J104.2.2 is added to Appendix J to read as follows:

J104.2.2 Regular grading requirements. *In addition to the provisions of Section 106, and Section 104.2, Chapter 1, Division II, an application for a regular grading permit shall be accompanied by plans in sufficient clarity to indicate the nature and extent of the work. The plans shall give the location of the work, the name of the owner, and the name of the person who prepared the plan. If the slope of the grade exceeds 3 units horizontal to 1 unit vertical or as required by the City Engineer, the plans and specifications shall be prepared and signed by an individual licensed by*

DRAFT

the state to prepare such plans or specifications. The plan shall include the following information:

1. General vicinity of the proposed site.

2. Limits and depths of cut and fill.

3. Location of any buildings or structures where work is to be performed, and the location of any buildings or structures within 15 feet (4.6 m) of the proposed grading.

4. Contours, flow areas, elevations, or slopes that define existing and proposed drainage patterns.

5. Stormwater provisions in accordance with the requirements of Appendix J and Chapter 5 of Article V of the City of Agoura Hills Municipal Code.

6. Location of existing and proposed utilities, drainage facilities, and recorded public and private easements and use restricted use areas.

7. Recommendations in the geotechnical engineering report and the engineering geology report shall be incorporated into the grading plans or specifications. When approved by the City Engineer, specific recommendations contained in the geotechnical engineering report and the engineering geology report, that are applicable to grading, may be included by reference.

8. Location of all Special Flood Hazard Areas as designated and defined in Title 44, Code of Federal Regulations.

jjj) Section J104.2.3 is added to Appendix J to read as follows:

J104.2.3 Engineered grading requirements. *In addition to the provisions of Chapter 1 Division II, Section 107 and Appendix J Section J 104.2, an application for an engineered grading permit shall be accompanied by plans and specifications, and supporting data consisting of a soils engineering report and engineering geology report. The plans and specifications shall be prepared and signed by an individual licensed by the state to prepare such plans or specifications when required by the City Engineer. Specifications shall contain information covering structures and material requirements. Plans shall be drawn to scale and shall be of sufficient clarity to indicate the nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and all relevant laws, ordinances, rules, and regulations. The first sheet of each set of plans shall give location of the work, the name and address of the owner, and the person by whom they were prepared. The plans shall include, but shall not be limited to, the following information:*

1. General vicinity of the proposed site.

2. Property limits and accurate contours of existing ground and details of terrain and area drainage.

3. Limiting dimensions, elevations, or finish contours to be achieved by the grading, proposed drainage channels, and related structures.

4. Detailed plans of all surface and subsurface drainage devices, walls, cribbing, dams and other protective devices to be constructed with, or as a part of, the proposed work. A map showing the drainage area and the estimated runoff of the area served by any drains shall also be provided.

5. Location of any existing or proposed buildings or structures on the property where the work is to be performed and the location of any buildings or structures on land of adjacent owners that are within 15 feet (4.6 m) of the property or that may be affected by the proposed grading operations.

6. Recommendations in the geotechnical engineering report and the engineering geology report shall be incorporated into the grading plans or specifications. When approved by the City Engineer, specific recommendations contained in the geotechnical engineering report and the engineering geology report, that are applicable to grading, may be included by reference.

7. The dates of the geotechnical engineering and engineering geology reports together with the names, addresses, and telephone numbers of the firms or individuals who prepared the reports.

8. A statement of the earthwork quantities of materials to be excavated and/or filled. Earthwork quantities shall include quantities for geotechnical and geological remediation. In addition, a statement of material to be imported or exported from the site.

9. A statement of the estimated starting and completion dates for work covered by the permit.

10. A statement signed by the owner acknowledging that a field engineer, geotechnical engineer and engineering geologist, when necessary in the judgment of the City Engineer, shall be employed by the owner to perform the services required by this code, or whenever approval of the plans and issuance of the permit are to be based on the condition that such professional persons be so employed. These acknowledgments shall be on a form furnished by the City Engineer

11. Storm water provisions are required to be shown on the grading plan in accordance with Appendix J and Chapter 5 of Article V of the AHMC

12. A drainage plan for that portion of a lot or parcel to be utilized as a building site (building pad), including elevation of floors with respect to finish site grade and locations of existing and proposed stoops, slabs, fences or other features that may affect drainage.

DRAFT

13. Location and type of any existing or proposed private sewage disposal system.

14. Location of existing and proposed utilities, drainage facilities, and recorded public and private easements.

15. Location of all recorded floodways.

16. Location of all Special Flood Hazard Areas as designated and defined in Title 44, Code of Federal Regulations.

kkk) Section J105.3 is added to Appendix J to read as follows:

J105.3 Responsibility. *The permittee and owner shall be responsible for ensuring that the grading is performed in accordance with the approved plans and specifications and in conformance with the provisions of this Code. The permittee and owner shall engage project consultants, if required under the provisions of this Code, to provide professional inspections on a timely basis. The permittee shall act as a coordinator between the project consultants, the contractor and the City Engineer In the event of changed conditions, the permittee shall be responsible for informing the City Engineer of such change and shall provide revised plans for approval in a period of time established by the City Engineer.*

lll) Section J105.4 is added to Appendix J to read as follows:

J105.4 Required inspections*. The permittee shall call for an inspection by the City Engineer at the following various stages of work and shall obtain the written approval of the City Engineer prior to proceeding to the next stage of work:*

Pre-grade. Before any construction or grading activities occur at the site. Permittee shall schedule a pre-grade inspection with the City Engineer. The permittee shall ensure that all project consultants are present at the pre-grade inspection.

Initial grade. When the site has been cleared of vegetation and unapproved fill and has been scarified, benched, or otherwise prepared for fill. No fill shall have been placed prior to this inspection.

Rough grade. When approximate final elevations have been established, drainage terraces, swales, and other drainage devices necessary for the protection of the building sites from flooding have been installed, berms have been installed at the top of the slopes, and the statements of completion have been received.

Final grade. When grading has been completed, all drainage devices necessary to drain the building pad have been installed, slope planting has been established, irrigation systems have been installed, and the as-built plans and required statements and reports have been submitted.

mmm) Section J109.5 is added to Appendix J to read as follows:

DRAFT

J109.5 Disposal. *All drainage facilities shall be designed to carry waters to the nearest practicable street, storm drain, or natural watercourse drainage way approved by the City Engineer or other appropriate governmental agency jurisdiction provided it is a safe place to deposit such waters. Erosion of ground in the area of discharge shall be prevented by installation of non-erosive down drains or other devices. Desilting basins, filter barriers or other methods, as approved by the City Engineer, shall be utilized to remove sediments from surface waters before such waters are allowed to enter streets, storm drains, or natural watercourses. If the drainage device discharges onto natural ground, riprap or a similar energy dissipater may be required. Building pads shall have a minimum drainage gradient of 2 percent toward approved drainage facilities, a public street or drainage structure approved to receive storm waters unless waived by the City Engineer. A lesser slope may be approved by the City Engineer for sites graded in relatively flat terrain, or where special drainage provisions are made, when the City Engineer finds such modification will not result in unfavorable drainage conditions.*

nnn) Section J112 is added to Appendix J to read as follows:

J112 National Pollutant Discharge Elimination System (NPDES) Compliance. *All grading plans and permits shall comply with the provisions of this section for NPDES compliance including the owner of any property on which grading has been performed and which requires a grading permit under Appendix J Section J103. Sites which have been graded and which require a grading permit under Appendix J Section J103 are subject to penalties and fines. All best management practices shall be installed before grading begins or as instructed in writing by the City Engineer for unpermitted grading as defined by Section J 103.3. As grading progresses, all best management practices shall be updated as necessary to prevent erosion and control structures related pollutants from discharging from the site. All best management practices shall be maintained in good working order to the satisfaction of the City Engineer unless final grading approval has been granted by the City Engineer and all permanent drainage and erosion control systems, if required, are in place.*

ooo) Section Q103.1 of Appendix Q is amended to read as follows:

Q103.1 General. Emergency sleeping cabins, emergency transportable housing units, membrane structures and tents constructed and/or assembled in accordance with this appendix, shall be occupied only during the declaration of a state of emergency, local emergency, or shelter crisis, *and authorized by the City Council.*

Buildings and structures constructed in accordance with the California Building Standards Code, used as emergency housing, shall be permitted to be permanently occupied.

8202.5 California Residential Code Adopted with Local Amendments

A. Adoption of California Residential Code, 2025 Edition.

Pursuant to California Government Code § 50022.2, the California Residential Code, 2025 Edition, published as Title 24, Part 2.5, of the California Code of Regulations, including Appendix BB (Tiny Houses), Appendix BF (Patio Covers), Appendix BK (Cob Construction - Monolithic Adobe), Appendix BL (Hemp-Lime - Hempcrete Construction), Appendix BN (Extended Plate Wall Construction), Appendix BO (Existing Buildings and Structures), Appendix CI (Swimming Pool Safety Act), and Appendix CJ (Emergency Housing) ("CRC") is adopted by reference, subject to the amendments, additions and deletions set forth below.

One true copy of the CRC is on file in the office of the Building Official and is available for public inspection as required by law.

B. Amendments to the California Residential Code.

a) Second paragraph of Section 1.8.8.1 is amended to read as follows:

The City Council shall serve as the local appeals board or housing appeals board as specified in California Health and Safety Code Sections 17920.5 and 17920.6.

b) Section 1.8.8.4 is added to read as follows:

1.8.8.4 Limitation of Authority. The Local Appeals Board and the Housing Appeals Board shall not have jurisdiction to consider, decide or rule on whether persons are responsible or not responsible for violations and public nuisances of the Agoura Hills Municipal Code, as well as on actions that are required by the City of responsible persons to correct or otherwise abate violations and/or public nuisances.

This limitation of authority shall also apply to any board that is established by the 2025 Residential, Electrical, Mechanical, Plumbing, Energy, Fire, Existing Building and Green Building Standards Codes, as adopted by the city.

c) Section R101.1 is amended to read as follows:

R101.1 Title. These regulations shall be known as the *Residential Code of the City of Agoura Hills*, hereinafter referred to as "this code".

d) Section R103.3 is amended to read as follows:

R103.3 Deputies. In accordance with the prescribed procedures of this jurisdiction and with the concurrence of the appointing authority, the Building Official shall have the authority to appoint a Deputy Building Official, the related technical officers,

inspectors, plan examiners and other employees. Such employees shall have powers as delegated by the Building Official.

e) Section R105.1 is amended to read as follows:

R105.1 Required. *All persons who intend to construct, enlarge, alter, move, demolish or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical or plumbing system, component or device, the installation of which is regulated by the Technical Codes in Article VIII of the Agoura Hills Municipal Code, shall first make written application to the Building Official and obtain each required permit.*
No person shall undertake or cause grading to occur on land without the prior procurement of a grading permit unless such grading is exempt from a permit as provided for in Section J103.2 of Appendix J.

Whenever any work or installation or grading has been commenced without a permit in violation of this section, a Stop Work Order shall immediately be issued by the Building Official and a special investigation to identify the nature and extent of the unpermitted work or installation shall be made. Based on the findings of the investigation, conditions may be given to the violator to correct any unpermitted conditions to the satisfaction of the Building Official prior to the issuance of the permit and to continue work. An investigation fee shall be paid in addition to customary fees for each permit which the work had started prior to, or at the time of, the issuance of a permit or permits. Failure to pay a special investigation fee in full constitutes cause to deny the issuance of a permit or permits. The investigation fee shall be as specified by resolution of the City Council.

The payment of the investigation fee shall not exempt any person from compliance with all other provisions of the Agoura Hills Municipal Code, or from any penalty prescribed by law for failing to obtain each required permit.

f) Section R105.2 under **Building -** items 1 through 10 is amended, and items number 11 through 18 are added; under **Electrical** - item 6 is added; and a new category titled **Grading** is added to read as follows:

Building:

1. One-story detached accessory buildings *or structures* used as tool and storage sheds, shade structure, *playhouses or similar uses that are accessory to detached one- and two-family dwellings, and similar uses, provided the floor area does not exceed 120 square feet and are not more than 14 feet in height above adjacent grade. It is permissible that these structures still be regulated by Part 7 California Wildland Urban Interface Code, despite exemption from permits.*

DRAFT

2. Fences, *other than masonry or concrete, not over 6 feet high, measured from finished grade immediately adjacent to the fence, to top of the finished fence.*

3. Decks not exceeding 200 square feet (18.58 m2) in area, that are not more than 30 inches (762 mm) above grade at any point, are not attached to a dwelling or townhouse and do not serve the exit door required by Section R318.4.

4. *Retaining walls or masonry/concrete walls less than 2 feet in height measured from grade immediately adjacent to the wall* to the top of the wall, *and not* supporting a surcharge.

5. Water tanks supported directly on grade if the capacity is not greater than 5000 gallons and the ratio of height to diameter or width is not greater than 2:1.

6. Sidewalks, driveways, *platforms and walkways* associated with one- and two-family dwellings, not more than 30 inches above grade at any point and not located over any basement or story below, nor supporting any structure above, and are not part of an accessible route.

7. Painting, papering, tiling, carpeting, cabinets, counter tops and similar finish work.

8. *Temporary motion picture, television and theater stage sets and scenery structures that are erected and maintained for a specific period of time in connection with a filming permit that is issued pursuant to Article VI, Chapter 6 of the Agoura Hills Municipal Code. Electrical installations (including the use of generators) and gas installations for sets and structures require a permit before they occur.*

9. Prefabricated swimming pool accessory to a Group R-3 Occupancy that are less than *18* inches deep, do not exceed 5,000 gallons and are installed entirely above ground.

10. Shade cloth structures constructed for nursery or agricultural purposes, not including service systems.

11. Swings and other playground equipment accessory to detached one- and two-family dwellings.

12. Window awnings supported by an exterior wall in group R-3 and U occupancies*, that are less than 12 square feet of shade cover and do not project more than 48 inches from exterior wall* and do not require additional support.

DRAFT

13. Non-fixed and movable fixtures, cases, racks, counters and partitions not over 5 feet 9 inches in height.

14. Detached one-story shade covers for animals when the covers are not over 12 feet in height above adjacent grade, not more than 400 feet of roof area and open on 3 sides minimum.

15. Readily removable plastic covered hoop structures, with maximum 12' in height with no in-ground footings or foundation.

16. Replacement of residential exterior door when the doorframe is not removed.

17. Replacement of residential kitchen appliance with similar appliance in same location. This exception does not apply if the work includes opening the walls or replacing or altering the plumbing or electrical systems.

18. Flagpoles that are 20 feet or less in height above finish grade when fully extended.

Electrical:

1. Listed cord-and-plug connected temporary decorative lighting.

2. Reinstallation of attachment plug receptacles but not the outlets therefor.

3. Replacement of branch circuit overcurrent devices of the required capacity in the same location.

4. Electrical wiring, devices, appliances, apparatus or equipment operating at less than 25 volts and not capable of supplying more than 50 watts of energy.

5. Minor repair work, including the replacement of lamps or the connection of approved portable electrical equipment to approved permanently installed receptacles.

6. Removal of abandoned electrical wiring and conduits. "Abandoned" means such wiring and conduits that are not energized.

Gas:

1. Portable heating, cooking or clothes drying appliances.

2. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

3. Portable-fuel-cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

DRAFT

Mechanical:

1. Portable heating appliances.

2. Portable ventilation appliances.

3. Portable cooling units.

4. Steam, hot- or chilled-water piping within any heating or cooling equipment regulated by this code.

5. Replacement of any minor part that does not alter approval of equipment or make such equipment unsafe.

6. Portable evaporative coolers.

7. Self-contained refrigeration systems containing 10 pounds (4.54 kg) or less of refrigerant or that are actuated by motors of 1 horsepower (746 W) or less.

8. Portable-fuel-cell appliances that are not connected to a fixed piping system and are not interconnected to a power grid.

Plumbing:

1. The stopping of leaks in drains, water, soil, waste or vent pipe; provided, however, that if any concealed trap, drainpipe, water, soil, waste or vent pipe becomes defective and it becomes necessary to remove and replace the same with new material, such work shall be considered as new work and a permit shall be obtained and inspection made as provided in this code.

2. The clearing of stoppages or the repairing of leaks in pipes, valves or fixtures, and the removal and reinstallation of water closets, provided such repairs do not involve or require the replacement or rearrangement of valves, pipes or fixtures.

Grading:

1. *All grading that is exempt from a permit shall be pursuant to Section J103.2 of Appendix "J" of the California Building Code or other reference codes accepted by the Building Official.*

g) Section R105.3.2 is amended to read as follows:

R105.3.2 Time limitation of application. *Unless extended or reinstated as provided herein, an* application for permit is deemed abandoned if an applicant has not satisfied all requirements for a permit for proposed work or actions within twelve (12) months

DRAFT

of tender of an application to the Building and Safety Division. The Building Official is authorized to grant one or more extensions of time for additional periods not exceeding ninety (90) days each to complete all requirements for a permit. An applicant seeking an initial extension shall tender a request to the Building Official prior to the date the application is deemed abandoned. In order to be eligible for any further extensions, an applicant shall tender a subsequent request or requests to the Building Official before a prior extension period expires. Each extension request shall be requested in writing and justifiable cause demonstrated, as determined by the Building Official.

When an application has been deemed abandoned, a permit shall not be issued prior to the application being reinstated or a new application tendered with new fees paid. Requests to reinstate an application that has been deemed abandoned shall be submitted to the Building Official, in writing, demonstrating justifiable cause and are subject to the approval of the Building Official. If approved by the Building Official, the fee shall be one half (1/2) of the amount of the original plan review fee, provided that the period of time following the Building Official's date of determination of abandonment of the original application has not exceeded six (6) months, no changes have been made or will be made in the original submittal and the construction codes under which the original application was submitted are the same as the current construction codes in effect. To reinstate a application when the period of time following the Building Official's date of determination of abandonment of the original application has exceeded six (6) months; or changes have been made or will be made in the original submittal; or current construction codes are different from those construction codes under which the original application was submitted, the permittee shall be required to pay a new full permit fee and that person shall comply with all construction codes in effect on the date of the new permit application.

h) Section R105.3.2.1 is added to read as follows:

R105.3.2.1 Time limitation of application in connection with an unpermitted structure. *Unless extended or reinstated as provided herein, an* application for a permit is deemed abandoned if an applicant has not satisfied all requirements for a permit in connection with an unpermitted structure as defined in Section R110.1.1 of this code within ninety (90) calendar days of tender of an application therefor to the Building and Safety Division. T*he Building Official is authorized to grant one or more extensions of time for additional periods not exceeding thirty (30) days each to complete all requirements for a permit. An applicant seeking an initial extension shall tender a request to the Building Official prior to the date the application is deemed abandoned. In order to be eligible for any further extensions, an applicant shall tender a subsequent request or requests to the Building Official before a prior extension period expires. Each extension request shall be requested in writing and justifiable cause demonstrated, as determined by the Building Official.*

i) Section R105.5 is amended to read as follows:

R105.5 Expiration *of permit*. *Unless extended or reinstated as provided herein, every permit issued, except those under Subsection R105.5.2, shall be deemed suspended or abandoned and shall automatically expire and become null and void unless the permittee completes at least twenty percent (20%) of the total work or actions authorized by a permit (as determined by the Building Official) for Group R-3 Occupancies, and at least ten percent (10%) of the total work or actions authorized by a permit (as determined by the Building Official) for all other occupancies, and the permittee obtains a successful inspection from the Building Official within the first twelve (12) months from the permit's issuance date. An issued permit shall also be deemed suspended or abandoned and shall automatically expire and become null and void if the permittee does not complete at least an additional twenty percent (20%) of the total work or actions authorized by a permit (as determined by the Building Official) for Group R-3 Occupancies, and at least an additional ten percent (10%) of the total work or actions authorized by a permit (as determined by the Building Official) for all other occupancies, and the permittee obtains a subsequent successful inspection within twelve (12) months from a prior successful inspection. A successful inspection is defined as an inspection that is required by Section 110 of Chapter 1, Division II of the 2025 California Building Code (as adopted by Section 8100 of the Agoura Hills Municipal Code), during which the Building Official or a designee thereof determined that the inspected work or actions met all applicable minimum code requirements and he/she approved and documented that work as successful. Notwithstanding prior timely successful inspections, a permit shall automatically expire and become null and void if the permittee does not obtain a final inspection approval from a building inspector for completion of all work or actions authorized by a permit as follows: (i) within three (3) years from the date of issuance of a permit having a valuation of less than $250,000.00; (ii) within four (4) years from the date of issuance of a permit having a valuation of between $250,000.00 and $1,000,000.00; and, (iii) within five (5) years from the date of issuance of a permit having a valuation of more than $1,000,000.00.*

The Building Official may grant one (1) extension of a permit for a period not exceeding one hundred eighty (180) days, provided he/she receives a written request stating justifiable cause, prior to the expiration date of a permit. The Building Official may deny the request for a permit extension if her/she determines that justifiable cause was not shown in the request.

When a permit that was issued pursuant to Section R105.1 has expired, work shall not recommence prior to obtaining a new permit, which shall be subject to Section R105.5.2 of this code. Requests to reinstate an expired permit shall be submitted to the Building Official, in writing, demonstrating justifiable cause and are subject to the approval of the Building Official. If approved by the Building Official, the fee shall be one half (1/2) of the amount of the original permit fee, provided that the expiration period of the original permit has not exceeded six (6) months, no changes have been made or will be made in the original approved plans and specifications, and the construction codes under which the original permit was issued are the same as the current construction codes in effect. To reinstate a permit when the expiration period

DRAFT

of the original permit has exceeded six (6) months; or changes have been made or will be made in the original approved plans and specifications; or current construction codes are different from those construction codes under which the original permit was issued the permittee shall be required to pay a new full permit fee and that person shall comply with all construction codes in effect on the date of the new permit application.

j) Section R105.5.1 is amended to read as follows:

R105.5.1 Expiration*. Every permit issued before January 1, 2019 that did not automatically expire and become null and void by December 31, 2025 pursuant to the code then in effect shall be deemed abandoned and shall automatically expire and be null and void if the permittee does not thereafter obtain a subsequent successful inspection within 180 days from a prior successful inspection. A successful inspection is defined as an inspection that is required by Section 110 of Chapter 1, Division II of the 2025 California Building Code (as adopted by Section 8100 of the Agoura Hills Municipal Code), during which the Building Official or a designee thereof determined that the inspected work or actions met all applicable minimum code requirements and he/she approved and documented that work as successful. The Building Official may grant one extension of a permit subject to this subsection for a period not exceeding 180 days, provided he/she receives a written request stating justifiable case, prior to the expiration date of the permit. The Building Official may deny the request for a permit extension if her/she determines that justifiable cause was not shown in the request.*

When a permit subject to this subsection has expired, work shall not recommence prior to obtaining a new permit, which shall be subject to Section R105.5.2 of this code. Payment of a full permit fee is required.

k) Section R105.5.2 is added to read as follows:

R105.5.2 Expiration of permit in connection with an unpermitted structure. *Notwithstanding Section 105.5 or any other provision of this code to the contrary, if a permit is issued in order to bring an unpermitted structure (as defined in Section R110.1.1 of this code) or other unlawful condition into compliance with any applicable law, or ordinance, such permit shall automatically expire and become null and void ninety (90) calendar days after the date on which the permit was issued. The Building Official may extend the validity of the permit for a period not exceeding ninety (90) calendar days beyond the initial ninety (90) day limit upon written request by the applicant filed with the Building Official prior to the expiration date of the original permit.*

l) Section R105.6 is amended to read as follows:

R105.6 Suspension or revocation. *The Building Official is authorized to suspend or revoke a permit issued under the provisions of this code or other relevant laws,*

ordinances, rules, or regulations, wherever and whenever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of any ordinance or regulations or any of the provisions of this code.

The Building Official may also withhold inspections or approvals or suspend or revoke permit, where work is being performed in violation of approved plans, conditions of approval or permit, or applicable laws, and/or where work is being done not in accordance with the direction of the Building Official or this code.

The Building Official is authorized to suspend or revoke a permit if he/she, or a designee thereof, determines work is occurring in connection therewith between the hours of 7:00 p.m. and 7:00 a.m., Monday through Saturday and any time on Federal Holidays, which results in violations of the noise regulations located in Article 9, Chapter 6, Part 2, Division 6 of the Agoura Hills Municipal Code, and the permittee has not received prior written permission from the city manager to create such noise at that time.

The Building Official is authorized to suspend or revoke a permit issued under the provisions of this code if dust is generated in excess of local, state or federal standards or conditions of project approval.

m) Section R105.7 is amended to read as follows:

R105.7 Placement of permit. The building permit or copy shall be kept on the site of the work until completion of the project. *Required permits and approved plans shall be maintained in good condition and be posted or otherwise made available at job site such as to allow the Building Official to conveniently make the required review, inspection and entries related to the project.*

n) Section R105.8 is amended to read as follows:

R105.8 Responsibility of permittee. It shall be the duty of every person who performs work for the installation or repair of building, structure, electrical, gas, mechanical or plumbing systems, for which this code is applicable, to comply with this code. *Building permits shall be presumed by the City to incorporate all of the work that the applicant, the applicant's agent, employees and/or contractors shall carry out. Said proposed work shall be in accordance with the approved plans and with all requirements of this code and any other laws or regulations applicable thereto. No city approval shall relieve or exonerate any person from the responsibility of complying with the provisions of this code nor shall any vested rights be created for any work performed in violation of this code.*

o) Section R105.10 is added to read as follows:

R105.10 Transferability. *No permit issued pursuant to Article VIII of the Agoura Hills Municipal Code shall be transferable to any other person or apply to any location other*

than that stated in the permit, unless a justifiable cause is demonstrated to the satisfaction of the Building Official and approved in writing.

p) Section R108.4.1 is added to read as follows:

R108.4.1 Re-inspection Fee. *A re-inspection fee may be assessed for each inspection or re-inspection when such portion of work for which inspection is called is not complete or when corrections previously called for are not made. This section is not to be interpreted as requiring re-inspection 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 inspections before the job is ready for such inspection or re-inspection.*

Re-inspection fees may be assessed when the inspection record permit card is not posted or otherwise available on the work site, the approved plans are not readily available for the inspector, for failure to provide access on the date for which the inspection is requested, or for deviation from the plans requiring the approval of the Building Official. Where re-inspection fees have been assessed, no additional inspection of the work shall be performed until the required fees identified by the latest fees adopted by the City of Agoura Hills have been paid.

q) Section R108.5.1 is added to read as follows:

R108.5.1 Refund Policy. *The plan review fee for any project that has been reviewed will not be refunded since the review has been conducted already. When a project has been reviewed, approved and a permit has been issued, but no work or inspections has taken place and a refund is requested, the City will refund 80% of the original permit fee for which no work or inspection has been performed. There will be no refund given if the project has commenced and inspection taken place. The Building Official makes the final determination whether a refund is due for a specific project.*

r) Section R108.6 is amended to read as follows:

R108.6 Work commencing before permit issuance. Any person who commences any work for which a permit is required by this code before obtaining the necessary permits *shall be subject to a special investigation by the Building Official before a permit may be issued for such work. An investigation fee, in addition to the permit fee, shall be collected whether or not a permit is then or subsequently issued. The investigation fee shall be equal to the amount of the permit fee required for such work by this code, or as identified in the latest fees adopted by the City Council of the City of Agoura Hills.*

s) Section R108.7 is added to read as follows:

R108.7 Plan review fees. *When submittal documents are required by Section R107, a plan review fee shall be paid at the time of submitting the submittal documents for*

plan review. Said plan review fee shall be in accordance with the schedule as established by the applicable governing authority.

The plan review fees specified in this section are in addition to and separate fees from the permit fees specified in Section R108.2.

Where submittal documents are incomplete or changed so as to require additional plan review, or where the project involves deferred submittal items as defined in Section R106.3.3, an additional plan review fee may be charged at a rate established by the applicable governing authority.

When submittal documents are for a project involving production housing (track home), the plan review fee shall be based on full plan review for the first model home/unit and 20% of the fee for any reproduction of that model home/unit. If the model home/unit and the reproduction units are not the same size and configuration, which would require a plan review, a full plan review fee or additional fee may apply, as determined by the Building Official.

t) Section 109.1.4.3 is added to read as follows:

R109.1.4.3 Roof sheathing and shear inspection. *Prior to a complete framing inspection, a roof sheathing and shear inspection shall be made after roof sheathing and all structural shear panels or walls are in place and secured by nailing or other approved methods.*

u) Section 109.5 is added to read as follows:

R109.5 Setback and height certification. *When determined by the Building Official, a survey and certification may be required to confirm that the building or structure is placed on the site in accordance with the approved location and setback distances and to confirm that it does not exceed the approved building height shown on the approved plans.*

v) Section R110.1.1 is added to read as follows:

R110.1.1 Unpermitted Structures. *No person shall own, use, occupy, or maintain an unpermitted structure. For purposes of this subsection, "unpermitted structure" shall be defined as any building or structure, or portion thereof, that was erected, constructed, enlarged, altered, repaired, moved, improved, removed, connected, converted, demolished, or equipped with regulated devices, fixtures or installations, at any point in time by any person, without the required permit(s) having first been obtained from the Building Official, or with a valid permit as issued by the Building Official which subsequently expired and became null and void. An unpermitted structure also includes one for which a building permit has been suspended or revoked.*

DRAFT

w) Section R110.2 is amended to read as follows:

R110.2 Certificate issued. After the Building Official or his/her designee inspects the building or structure and finds no violation of the provisions of this code or other laws that are enforced by *the city*, the Building Official shall issue a certificate of occupancy that contains the following:

1. The *building* permit number.
2. The address of the structure.
3. The name and address of the owner or the owner's authorized agent.
4. A description of that portion of the structure for which the certificate is issued.
5. A statement that the described portion of the structure has been inspected for compliance with the requirements of this code *for the occupancy and division of occupancy and the use for which the proposed occupancy is classified.*
6. The name of the Building Official.
7. The edition of the code under which the permit was issued.
8. When an automatic sprinkler system is provided, whether the sprinkler system is required.
9. Any special stipulations and conditions of the building permit.
10. *Assessor's Parcel Number.*
11. *Zoning designation.*
12. *The date of certificate issuance.*

x) Section R110.3 is amended to read as follows:

R110.3 Temporary Certificate of Occupancy (TCO) *The Building Official may, in writing, authorize temporary occupancy of any building or structure, or portion thereof, that lacks a permanent certificate of occupancy for any reason, provided patent conditions in open and accessible portions of the building or structure do not reveal a substantial hazard to an occupant or occupants.*

Applications for a temporary certificate of occupancy shall be on a city-approved form. Such applications shall be accompanied by a fee to process the application and for the inspection of the building or structure to determine its suitability for a temporary certificate of occupancy. Such fees shall be established by the City Council by resolution.

A temporary certificate of occupancy is valid for a period of time to be specified by the Building Official in the certificate. The city attorney may require applicants for a temporary certificate of occupancy to execute an indemnification, as approved by the City Attorney, in favor of the city and its employees as a prerequisite to receiving a temporary certificate of occupancy.

DRAFT

The Building Official may extend the period of a temporary certificate of occupancy in writing, as well as impose conditions thereto. Property owners shall acknowledge and agree to said conditions in writing. The breach of any condition thereof shall render a temporary certificate of occupancy null and void without further action by the city. In such event, the owners shall cause all use and occupancy of the building or structure to be terminated by a date required by the Building Official. Use or occupancy of a building or structure, or allowing the use or occupancy of a building or structure, with an expired a temporary certificate of occupancy is a violation of this code and unlawful. Failing to cause the termination of all uses and occupancy in a structure after a termination date is a violation of this code and unlawful. The boards established by Section 1.8.8 do not have jurisdiction to consider, decide or rule decisions pertaining to the issuance, expiration, or nullification of a temporary certificate of occupancy, or with regard to any other matter relating thereto.

The Building Official is authorized to adopt regulations or procedures, such as requiring a security deposit or bond, for implementation of this section.

y) Section R110.4 is amended to read as follows:

R110.4 Revocation. *The Building Official may, in writing, suspend or revoke a certificate of occupancy whenever the Building Official determines that the certificate was issued in error, or on the basis of incorrect information supplied, or when it is determined that the building, structure or premises, or portion thereof, is in violation of any provision of this code, or other relevant laws, ordinances, rules and/or regulations. Use or occupancy of a building or structure, or allowing the use or occupancy of a building or structure, with a suspended or revoked certificate of occupancy is a violation of this code and unlawful. The boards established by Section 1.8.8 do not have jurisdiction to consider, decide or rule pertaining to the issuance, suspension or revocation of a certificate of occupancy, or with regard to any other matter relating thereto.*

z) Section R111.3 is amended, and subsections R111.3.1, R111.3.2, and R111.3.3 are added, to read as follows:

R111.3 Authority to Disconnect Service Utilities. *The powers granted the Building Official pursuant to this subsection extend to all buildings, structures or systems (including electrical, plumbing and mechanical) that are regulated by this code and its references. This subsection supersedes all similar provisions in other codes that are part of Article VIII of the Agoura Hills Municipal Code.*

R111.3.1 Authority to Disconnect Electric Utility. *The Building Official is hereby empowered to disconnect or to require in writing the discontinuance of electric utility service to buildings, structures or premises, or portions thereof, or to wiring, devices or materials where such buildings, structures or premises, or portions thereof, are determined to be a hazard to life, health*

and/or property, or where they lack permits and required inspection approvals.

The Building Official is hereby empowered to disconnect or to require in writing the discontinuance of electric utility service as a means of preventing, restraining, correcting or abating any violation of this code, or other relevant laws, ordinances, rules or regulations.

The electrical service shall remain disconnected or electrical utility service shall remain discontinued until the code violation has been abated to the satisfaction of the Building Official, or until the installation of such wiring, devices or materials have been made safe as directed by the Building Official; or until a permit has been issued and the work has been inspected and approved by the Building Official.

R111.3.2 Authority to Disconnect Gas Utility. *The Building Official is hereby empowered to disconnect or to require in writing the discontinuance of gas utility service to buildings, structures or premises, or portions thereof, or to appliances, devices or materials where such buildings, structures or premises, or portions thereof, are determined to be a hazard to life, health and/or property, or where they lack permits and required inspection approvals.*

The Building Official is hereby empowered to disconnect or to require in writing the discontinuance of gas utility service as a means of preventing, restraining, correcting or abating any violation of this code, or other relevant laws, ordinances, rules or regulations.

The gas service shall remain disconnected or gas utility service shall remain discontinued until the code violation has been abated to the satisfaction of the Building Official, or until the installation of such appliances, devices or materials have been made safe as directed by the Building Official; or until a permit has been issued and the work has been inspected and approved by the Building Official.

R111.3.3 Authority to Disconnect Water Utility. *The Building Official is hereby empowered to disconnect or to require the property owner to disconnect the water utility service to buildings, structures or premises, or portions thereof, or to fixtures, devices or materials where such buildings, structures or premises, or portions thereof, are determined to be a hazard to life, health, property or to the environment, or where they lack permits and required inspection approvals.*

The Building Official is hereby empowered to disconnect or to require the property owner to disconnect the water utility service as a means of

preventing, restraining, correcting or abating any violation of this code, or other relevant laws, ordinances, rules or regulations.

The water service shall remain disconnected or water utility service shall remain discontinued until the code violation has been abated to the satisfaction of the Building Official, or until the installation of such appliances, devices or materials have been made safe as directed by the Building Official; or until a permit has been issued and the work has been inspected and approved by the Building Official.

aa) Section R112 is deleted in its entirety.

bb) Section R113.1 is amended to read as follows:

R113.1 Unlawful Acts. *It is unlawful for any property owner and/or other responsible person to erect, construct, alter, extend, repair, move, remove, demolish, or occupy any building or structure, as well as any regulated equipment, system or installation, or cause same to be done, in conflict with this code. It is unlawful for any for any property owner and/or other responsible person to conduct or maintain, whether due to action or inaction, any building or structure, as well as any regulated equipment, system or installation in violation of this code. It is unlawful for any property owner and/or other responsible person to conduct or maintain grading on land that occurred without a permit.*

cc) Section R113.4 is amended to read as follows:

R113.4 Violation Penalties. *Any person who violates, or who maintains a violation of this Code or who fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the approved construction documents or who fails to comply with a directive or order of the Building Official, or of a permit or certificate issued under the provisions of this code, shall be subject to penalties as prescribed by law as follows:*

(a) Any person, firm, partnership, association, corporation or joint venture violating any of the provisions of the California Building Standards Code or other code(s) adopted in Article VIII of the Agoura Municipal Code shall be guilty of a misdemeanor. Any person violating a stop work order issued pursuant to Section R114 of this chapter shall be guilty of a misdemeanor. Any person who continues to occupy or any person who enters a structure which has been posted "unsafe" by the Building Official pursuant to Section R113.5 of this chapter shall be guilty of a misdemeanor.

(b) Each day that person, firm, association, corporation or joint venture violates any of the provisions of the California Building Standards Code or other code(s) adopted in Article VIII of the Agoura Municipal Code is a separate offense and shall be punishable thereof as provided in the Agoura Hills Municipal Code.

DRAFT

dd) Section R113.5 is added to read as follows:

R113.5 Unsafe Conditions. *Any building, structure or equipment that has any or all of the conditions hereinafter described shall constitute an unsafe or dangerous building or structure:*

(a) Structural inadequacies, damage, deficiencies, defects or deterioration, as well as nearby hazardous embankments or excavations, that could cause a building or structure to partially or completely collapse or fail.

(b) Electrical, plumbing or mechanical work or installations, which because of a defect in materials or installation, or due to some other faulty operating or other condition, pose a risk of explosion or fire.

(c) Unsanitary or unhealthful conditions that are present in a building or structure.

(d) All forms of construction, as well as electrical, plumbing or mechanical work, systems, fixtures, appliances or other installations for which all required permits and inspection approvals have not been obtained from the Building Official.

(e) Occupancy or use for which a building or structure was not designed or intended, or that results in a change in the occupancy classification thereof.

(f) Inadequate egress from a building or structure.

(g) A vacant building or structure that is not secured against unauthorized entry.

(h) Any condition that violates any regulation in Article VIII of the Agoura Hills Municipal Code.

Any or all of the foregoing conditions endanger the health, safety or welfare of occupants, persons who may enter the premises, or the public.

ee) Section R113.6 is added to read as follows:

R113.6 Orders to Vacate. *Notwithstanding any other provision of this code, if the Building Official or a designee thereof, determines a condition is present in a building or structure or on premises that constitutes an immediate danger or hazard to the health, safety or welfare of occupants or to the public, the Building Official may order persons to vacate buildings, structures, premises, or portions thereof. Such orders may include orders to not re-enter, as well authorize limited entry subject to written conditions. Conditions may include, but not be limited to, requiring buildings, structures and premises to be secured from entry or access by means that are acceptable to the Building Official. Orders shall advise persons of their appeal rights as discussed in this subsection.*

DRAFT

Orders may be personally served on an occupant, or served by first class mail and posted on the premises containing the immediate danger or hazard. If an owner does not occupy said premises, a copy of the order shall be also sent by first class mail to the owner as identified by Los Angeles County Assessor records. For owner-occupied properties, the issuance date of an order is the date of its personal service. For non-owner occupied properties, the issuance date of an order is the date an order to the owner and any occupant(s), or a copy thereof, are deposited in a U.S. Postal Service mail container and posted on the premises. Failure of any person to receive an order shall not affect its validity, or the appeal period. When identifying a mailing address for an owner, the Building Official shall consider such information as shown in Los Angeles County Assessor records.

Orders issued pursuant to this subsection, and any conditions thereof, are appealable by a property owner or occupant on a City-approved form that must be received by the City Clerk's Office within ten days of an order's issuance. Appellants shall state all grounds for their appeal in said form. Failure to tender an appeal in a timely manner constitutes a waiver of the right to appeal, in which case an order is final.

If a timely appeal is made, the Building & Safety Department shall provide ten days advance written notice to the appealing party or parties of the date, time and place of the hearing. A timely appeal does not stay an order, or any conditions thereof. Failure of any person to receive a notice of hearing shall not affect its validity.

Timely appeals shall be heard by the housing or local appeals board, as applicable. Appeal hearings are informal and rules of evidence do not apply. Failure of an appellant or appellants to appear at a hearing constitutes a waiver of the right to appeal, in which case the order is final. The housing or local appeals board, as applicable shall, within ten days following the hearing, issue a written decision upholding, modifying, or reversing the order or conditions thereof, notice of which shall be sent to the appellant(s) by first class mail. Such decisions are not appealable. The notice of decision shall contain the following statement: "The [Housing Appeals Board/Local Appeals Board] decision is final, and judicial review of this decision is subject to the provisions and time limits set forth in Cal. Code of Civil Procedure §§ 1094.5 and 1094.6."

Orders may be accompanied by, or combined with, Stop Work Order or Notices of Violations (which are not appealable). Orders shall be rescinded in writing when the Building Official determines that the immediate danger or hazard has been fully corrected or abated with all permits, approvals and inspections as required by the Agoura Hills Municipal Code.

ff) Section R113.7 is added to read as follows:

Section R113.7 Violations. *It is unlawful and a public nuisance for any person to maintain an unsafe or dangerous building or structure. Each and every day that a*

DRAFT

building or structure is maintained in an unsafe or dangerous condition is a new violation of this code. It is a violation of this code and unlawful for any person to fail to comply with an order to vacate, as well as all conditions thereof. Each such violation shall be a misdemeanor."

gg) Section R114.1 is amended to read as follows:

R114.1 Authority. Whenever the Building Official finds any work regulated by this code being performed in a manner either contrary to the provisions of this code *or without permit,* or dangerous, or unsafe, the Building Official is authorized to issue a stop work order.

hh) Section R300.3 is added to read as follows:

R300.3 Grading. *The grading associated with the design and construction of new buildings, additions, and alterations to existing buildings shall comply with Appendix J of the California Building Code as adopted and amended by the City of Agoura Hills.*

ii) Section R301.1.3.2 is amended to read as follows:

R301.1.3.2 Wood-frame structures. *The Building Official shall require construction documents to be approved and stamped by a California licensed architect or engineer for all dwellings of wood-frame construction more than two stories and basement in height located in Seismic Design Category A, B or C. Notwithstanding other sections of law; the law establishing these provisions is found in Business and Professions Code Sections 5537 and 6737.1.*

The Building Official shall require construction documents to be approved and stamped by a California licensed architect or engineer for all dwellings of woodframe construction more than one story in height or with a basement located in Seismic Design Category D_0, D_1, or D_2.

jj) Section R301.1.5 is added to read as follows:

R301.1.5 Seismic design provisions for buildings constructed on or into slopes steeper than one unit vertical in three units horizontal (33.3 percent slope)*. The design and construction of new buildings and additions to existing buildings when constructed on or into slopes steeper than one unit vertical in three units horizontal (33.3 percent slope) shall comply with Section 1613.8 of the California Building Code, as incorporated in the Agoura Hills Municipal Code.*

kk) Section R301.2.2.11 is added to read as follows:

R301.2.2.11 Anchorage of Mechanical, Electrical, or Plumbing Components and Equipment. *Mechanical, electrical, or plumbing components and equipment shall be anchored to the structure. Anchorage of the components and equipment shall be designed to resist loads in accordance with the California Residential Code and ASCE*

DRAFT

7, except where the component is positively attached to the structure and flexible connections are provided between the component and associated ductwork, piping, and conduit; and either

1. *The component weighs 400 lbs. (1,780 N) or less and has a center of mass located 4 ft. (1.22 m) or less above the supporting structure; or*

2. *The component weighs 20 lbs. (89N) or less or, in the case of a distributed system, 5 lb/ft. (73 N/m) or less.*

ll) Section R401.1 is amended to read as follows:

R401.1 Application. The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for buildings. In addition to the provisions of this chapter, the design and construction of foundations in flood hazard areas as established by Table R301.2 shall meet the provisions of Section R322. Wood foundations shall be designed and installed in accordance with AWC PWF.

Exception: The provisions of this chapter shall be permitted to be used for wood foundations only in the following situations:

1. In buildings that have no more than two floors and a roof.
2. When interior basement and foundation walls are constructed at intervals not exceeding 50 feet.

Wood foundations in Seismic Design Category D_0, D_1, or D_2 shall *not be permitted*.

Exception: *In non-occupied, single-story, detached storage sheds and similar uses other than carport or garage, provided the gross floor area does not exceed 200 square feet, the plate height does not exceed 12 feet in height above the grade plane at any point, and the maximum roof projection does not exceed 24 inches.*

mm) Section R403.1.2 is amended to read as follows:

R403.1.2 Continuous footing in Seismic Design Categories D_0, D_1 or D_2. Exterior walls of buildings located in Seismic Design Categories D_0, D_1, or D_2 shall be supported by continuous solid or fully grouted masonry or concrete footings. *Required interior braced wall panels in buildings located in Seismic Design Categories D_0, D_1, and D_2 shall be supported on continuous foundations.*

nn) Section R403.1.3.6 is amended to read as follows:

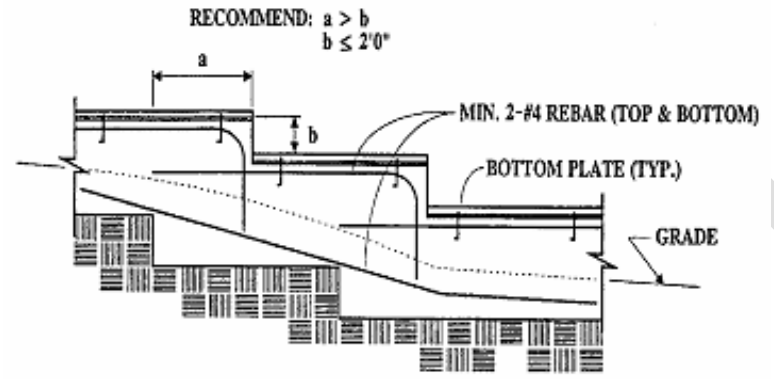
R403.1.3.6 Isolated concrete footings. In detached one- and two-family dwellings located in *Seismic Design Category A, B, or C*, that are three stories or less in height, and constructed with stud bearing walls, isolated plain concrete footings supporting columns or pedestals are permitted.

DRAFT

oo) Section R403.1.5 is amended to read as follows:

R403.1.5 Slope. The top surface of footings shall be level. The bottom surface of footings shall not have a slope exceeding one unit vertical in 10 units horizontal (10-percent slope). Footings shall be stepped where it is necessary to change the elevation of the top surface of the footings or where the slope of the bottom surface of the footings will exceed one unit vertical in 10 units horizontal (10-percent slope).

For structures assigned to Seismic Design Categories D_0, D_1, or D_2, stepped footings shall be reinforced with four No. 4 rebars. Two bars shall be placed at the top and bottom of the footings as shown in Figure R403.1.5.2.



STEPPED FOUNDATIONS

pp) Section R404.2 is amended to read as follows:

R404.2 Wood foundation walls. Wood foundation walls shall be constructed in accordance with the provisions of Sections R404.2.1 through R404.2.6 and with the details shown in Figures R403.1(2) and R403.1(3). *Wood foundation walls shall not be used for structures located in Seismic Design Category D_0, D_1 or D_2.*

qq) Section CJ103.1 of Appendix CJ is amended to read as follows:

CJ103.1 General. Emergency sleeping cabins, emergency transportable housing units, membrane structures and tents constructed and/or assembled in accordance with this appendix, shall be occupied only during declaration of state of emergency, local emergency, or shelter crisis, *and authorized by the City Council.*

Buildings and structures constructed in accordance with the California Building Standards Code, used as emergency housing, shall be permitted to be permanently occupied.

8203. California Electrical Code Adopted with Local Amendments

A. Adoption of California Electrical Code, 2025 Edition.

Pursuant to California Government Code §§ 50022.1 to 50022.8, the California Electrical Code, 2025 Edition, published as Title 24, Part 3, of the California Code of Regulations, is adopted by reference, subject to the amendments, additions and deletions set forth below.

One true copy of the California Electrical Code is on file in the office of the Building Official and is available for public inspection as required by law.

B. Amendments to the Code.

Section 89.100.0 is added to read as follows:

89.100.0 Administration. The 2025 California Building Code and the 2025 California Residential Code, as incorporated into the Agoura Hills Municipal Code, will govern the administration of the California Electrical Code.

8204. California Mechanical Code Adopted with Local Amendments

A. Adoption of California Mechanical Code, 2025 Edition.

Pursuant to California Government Code § 50022.1 to 50022.8, the California Mechanical Code ("CMC"), 2025 Edition, published as Title 24, Part 4, of the California Code of Regulations, is adopted by reference, subject to the amendments, additions and deletions set forth below.

One true copy of the CMC, is on file in the office of the Building Official and is available for public inspection as required by law."

B. Amendments to the Code.

a) Section 100.0 is added to read as follows:

100.0 Administration The 2025 California Building Code and the 2025 California Residential Code, as incorporated into the Agoura Hills Municipal Code, will govern the administration of the CMC.

8205. California Plumbing Code Adopted with Local Amendments.

A. Adoption of California Plumbing Code, 2025 Edition.

Pursuant to California Government Code § 50022.1 to 50022.8, the California Plumbing Code, 2025 Edition, published as Title 24, Part 5, of the California Code of Regulations, ("CPC") is adopted by reference, subject to the amendments, additions and deletions set forth below.

DRAFT

One true copy of the CPC is on file in the office of the Building Official and is available for public inspection as required by law.

B. Amendments to the Code.

a) Section 100.0 is added to read as follows:

100.0 Administration. The 2025 California Building Code and the 2025 California Residential Code, as incorporated into the Agoura Hills Municipal Code, will govern the administration of the CPC.

b) Section 1208.13.1 (Seismic Gas Shutoff Valves) is added to read as follows:

1208.13.1 Seismic Gas Shutoff Valves

1208.13.1.1 Scope. *A seismic gas shutoff valve shall be installed in compliance with the requirements of this section on each gas fuel line in the following:*

1208.13.1.1.1. *Any building or structure, with gas fuel line, for which a building permit was first issued on or after January 1, 2023.*

1208.13.1.1.2. *Any building or structure which is altered or expanded under a building permit first issued on or after January 1, 2023, when such alteration or addition is valued at more than $10,000.*

1208.13.1.1.3. *Any building or structure sold on or after January 1, 2023. However, when an individual condominium unit is sold in a building that has multiple gas lines, then the requirements of this section shall apply only to the line or lines serving the condominium unit that has been sold.*

1208.13.1.2. Maintenance. *Where the installation of a seismic gas shutoff valve is required by this section in any building or structure, that seismic gas shutoff valve shall be maintained for the life of that building or structure or shall be replaced with a valve complying with the requirements of this section.*

1208.13.1.3 General Requirements. *Where the installation of a seismic gas shutoff valve on a fuel line is required by this section, that valve must:*

1208.13.1.3.1 *Be mounted rigidly to the exterior of the building or structure containing the fuel line unless the Building Official determines that the seismic gas shutoff valve has been tested and listed for an alternate method of installation.*

1208.13.1.3.2 *Be installed downstream of the gas utility meter, except that a valve may be installed upstream of the gas utility meter at the discretion of the gas utility if the valve would otherwise meet the requirements of this section.*

1208.13.1.3.3 *Be listed by an approved testing laboratory and certified by the Office of the State Architect.*

DRAFT

1208.13.1.3.4 *Have a thirty-year warranty which warrants that the valve is free from defects and will continue to properly operate for thirty years from the date of operation.*

1208.13.1.4 Critical Facilities. *The requirements of this Section shall not apply to any building that is used by any public agency for the provision of emergency services, including fire, police, and similar public safety services.*

1208.13.1.5 Definitions. *For purposes of this section, certain terms shall be defined as follows:*

1208.13.1.5.1 *Downstream of the Gas utility meter shall refer to all customer owned gas piping.*

1208.13.1.5.2 *Seismic Gas Shutoff Valve shall mean a system consisting of a seismic sensing means and actuating means designed to automatically actuate a companion gas shutoff means installed in a gas piping system in order to shut off the gas downstream of the location of the gas shutoff means in the event of a severe seismic disturbance. The system may consist of separable components or may incorporate all functions in a single body. The terms "seismically activated gas shutoff valves" and "earthquake-sensitive gas shutoff valves," are synonymous.*

1208.13.1.5.3 *Upstream of the Gas Utility meter shall refer to all gas piping installed by the utility up to and including the meter and the utility's bypass toe at the connection to the customer-owned piping.*

8206. California Energy Code Adopted

Pursuant to California Government Code §§ 50022.1 to 50022.8, the California Energy Code, 2025 Edition, published as Title 24, Part 6, of the California Code of Regulations is adopted by reference.

One true copy of the California Energy Code is on file in the office of the Building Official and is available for public inspection as required by law.

8207. California Wildland-Urban Interface Code Adopted with Local Amendments.

A. Adoption of California Wildland-Urban Interface Code, 2025 Edition.

Pursuant to California Government Code §§ 50022.1 to 50022.8, the California Wildland-Urban Interface Code (“WUIC”), 2025 Edition, published as Title 24, Part 7, of the California Code of Regulations is adopted by reference, subject to the amendments, additions and deletions set forth below.

One true copy of the WUIC is on file in the office of the Building Official and is available for public inspection as required by law.”

B. Amendments to the Code.

DRAFT

a) Section 100.0 is added to read as follows:

100.0 Administration. The 2025 California Building Code and the 2025 California Residential Code, as incorporated into the Agoura Hills Municipal Code, will govern the administration of the WUIC.

b) Section 101.1 is amended to read as follows:

101.1 Title. These regulations shall be known as the Wildland-Urban Interface Code of *the City of Agoura Hills*, hereinafter referred to as "this code".

c) Section 103.1 is amended to read as follows:

103.1 Creation of agency. The *City of Agoura Hills Building and Safety Division and the County of Los Angeles Fire Department* are the agencies in charge of the enforcement of this code, by and through the official in charge thereof, who shall be known as the code official. The function of the agency shall be the implementation, administration, and enforcement of the provisions of this code.

d) Section 501.1 is amended to read as follows:

501.1. Scope. New **b**uildings and structures, *and any additions, alterations, or repairs made to existing buildings* located in *or moved within the City of Agoura Hills,* shall be constructed in accordance with the California Building Code or *California Residential Code*, and this code.

Exceptions:

1. Group U accessory structures not exceeding 120 square feet (11 m^2) in floor area where located not less than 50 feet (15 240 mm) from applicable buildings.

2. Group U agricultural buildings not less than 50 feet (15 240 mm) from applicable buildings.

e) Section 503.1 is amended to read as follows:

503.1 General. Buildings and structures hereafter constructed, modified or relocated into or within *the City of Agoura Hills* shall meet the construction requirements in accordance with Chapter 5. Materials required to be ignition-resistant building materials shall comply with the requirements of Section 503.2.

Exceptions:

1. New accessory buildings and miscellaneous structures complying with Section 504.11.
2. *Reserved*.

DRAFT

3. Group C occupancy special buildings conforming to the limitations specified in Section 450.4.1 of the California Building Code.

f) Section 503.3.4 is amended to read as follows:

503.3.4. Fire-retardant-treated wood shingles and shakes. *Wood shingles and wood shakes are prohibited in the City of Agoura Hills regardless of classification*.

g) Section 504.1.1 is added to read as follows:

504.1.1 Roof Coverings. *Roof covering shall be Class A as specified in CBC Section 1505.2 and CRC R902.1*

8208. California Historical Building Code Adopted with Local Amendments

A. Adoption of California Historical Building Code, 2025 Edition

Pursuant to California Government Code §§ 50022.1 to 50022.8, the California Historical Building Code ("CHBC"), 2025 Edition, published as Title 24, Part 8, of the California Code of Regulations is adopted by reference, subject to the amendments, additions and deletions set forth below.

One true copy of the CHBC is on file in the office of the Building Official and is available for public inspection as required by law.

B. Amendments to the Code

a) Section 8-100.0 is added to read as follows:

8-100.0 Administration. The 2025 California Building Code and the 2025 California Residential Code, as incorporated into the Agoura Hills Municipal Code, will govern the administration of the CHBC.

8209. Reserved.

8210. California Existing Building Code adopted with local Amendments

A. Adoption of California Existing Building Code, 2025 Edition.

Pursuant to California Government Code § 50022.1 to 50022.8, the California Existing Building Code ("CEBC"), 2025 Edition, published as Title 24, Part 10, of the California Code of Regulations, is adopted by reference, subject to the amendments, additions and deletions set forth below. Appendix A (Guidelines for Seismic Retrofit of Existing Buildings) with Chapters A1, A2, A3, A4 is also adopted as Voluntary Earthquake Hazard Reduction Measures in Existing Buildings (Voluntary Seismic Retrofit).

DRAFT

One true copy of the CEBC, is on file in the office of the Building Official and is available for public inspection as required by law."

B. Amendments to the Code.

a) Section 100.0 is added to read as follows:

100.0 Administration. The 2025 California Building Code and the 2025 California Residential Code, as incorporated into the Agoura Hills Municipal Code, will govern the administration of the CEBC.

8211. California Green Building Standards Code Adopted with Local Amendments.

B. Adoption of California Green Building Standards Code, 2025 Edition.

Pursuant to California Government Code §§ 50022.1 to 50022.8, the California Green Building Standards Code ("CGBSC"), 2025 Edition, published as Title 24, Part 11, of the California Code of Regulations is adopted by reference, subject to the amendments, additions and deletions set forth below.

One true copy of the CGBSC, is on file in the office of the Building Official and is available for public inspection as required by law."

B. Amendments to the Code.

a) Section 100.0 is added to read as follows:

100.0 Administration. The 2025 California Building Code and the 2025 California Residential Code, as incorporated into the Agoura Hills Municipal Code, will govern the administration of the CGBSC.

b) Section 202 is amended by adding a definition for Bicycle Lockers to read as follows:

202 Definitions. Bicycle Locker. A permanently anchored facility or equipment used for locking bicycles in place. This must be covered but does not have to be enclosed.

c) Section 4.106.4.1 and subsection 4.106.4.1.1 of CALGreen are amended to read as follows:

4.106.4.1 New One- And Two-Family Dwellings and Townhouses with Attached Private Garages. For each dwelling unit*, a dedicated 208/240-volt branch circuit shall be installed in a listed raceway*. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall originate at the main service or subpanel and shall terminate into a listed cabinet, box, or other enclosure in close proximity to the proposed location of an EV charger. Raceways are required to be

DRAFT

continuous at enclosed, inaccessible, or concealed areas and spaces. *The branch circuit and associated overcurrent protective device shall be rated at 40 amperes minimum. Other electrical components, including a receptacle or blank cover, related to this section shall be installed in accordance with the California Electrical Code*.

4.106.4.1.1 Identification. The service panel or subpanel circuit directory shall identify the overcurrent protective device designated for future EV charging purposes *as "EV READY" in accordance with the California Electrical Code. The receptacle or blank cover shall be identified as "EV READY."*

d) Table 5.106.5.3.1 in Section 5.106.5.3.1 is amended to read as follows:

TABLE A5.106.5.3.1— EV CAPABLE SPACES AND EVCS			
TOTAL NUMBER OF ACTUAL PARKING SPACES	**NUMBER OF REQUIRED EV CAPABLE SPACES**	**OTHER THAN OFFICE AND RETAIL NUMBER OF REQUIRED EVCS [2,3]**	**OFFICE AND RETAIL NUMBER OF REQUIRED EVCS [2,3]**
1-9	*2*	*1*	*2*
10-25	*5*	*3*	*4*
26—50	*11*	*6*	*8*
51-75	*19*	*10*	*14*
76—100	*26*	*13*	*20*
101-150	*38*	*19*	*29*
151-200	*53*	*27*	*40*
201 and over	*30* percent of actual parking spaces[1]	50 percent of EV-capable spaces[1]	75 percent of EV-capable spaces[1]
1. Calculation for spaces shall be rounded up to the nearest whole number. 2. Each EVCS shall reduce the number of required EV-capable spaces by the same number. 3. At least one Level 2 EVSE shall be provided.			

e) Table 5.106.5.3.6 in Section 5.106.5.3.6 is amended to read as follows:

TABLE 5.106.5.3.6 - EVCS—POWER ALLOCATION METHOD			
TOTAL NUMBER OF ACTUAL PARKING SPACES	**MINIMUM TOTAL kVA** @ 6.6 kVA	**OTHER THAN OFFICE AND RETAIL TOTAL kVA REQUIRED IN ANY COMBINATION OF EV CAPABLE[3,4], LOW POWER LEVEL 2 LEVEL 2[1,2], OR DCFC**	**OFFICE AND RETAIL TOTAL kVA REQUIRED IN ANY COMBINATION OF EV CAPABLE[3,4], LOW POWER LEVEL 2 LEVEL 2[1,2], OR DCFC**
1-9	*13.2*	*13.2*	*13.2*
10—25	*33*	*33*	*33*
26—50	*72.6*	*72.6*	*72.6*
51—75	*125.4*	*125.4*	*125.4*
76—100	*171.6*	*171.6*	*171.6*
I01—150	*250.8*	*250.8*	*250.8*
151-200	*349.8*	*349.8*	*349.8*
201 and over	30 percent of actual parking spaces x 6.6	Total required kVA — P x .30 x 6.6, Where P = Parking spaces in facility	Total required kVA= P x .30 xx 6.6, Where P =Parking spaces in facility

DRAFT

1. Level 2 EVSE@ 6.6 kVA minimum. 2. At least one Level 2 EVSE shall be provided. 3. Maximum allowed kVA to be utilized for EV-capable spaces is 67 percent. 4. If EV capable spaces are utilized, they shall meet the requirements of Section 5.106.5.3.1 EV capable spaces. 5. For office and retail buildings, the maximum allowed kVA to be utilized for EV-capable spaces is 25 percent.

8212. California Referenced Standards Code adopted

The 2025 Edition of the California Referenced Standards Code, published by the International Code Council, and all appendices, amendments, supplements and errata thereto, is hereby adopted by reference and shall be applicable to the City of Agoura Hills, and referred to as the "Referenced Standards Code of the City of Agoura Hills."

One copy of the California Referenced Standards Code of the City of Agoura Hills shall be kept on file in the Building Official's office for public inspection.

8213. Reserved.

8214. Reserved.

8215. City of Agoura Hills Reach Code (AH Green); Modifications to the 2022 California Green Building Standards Code (CALGreen)

City of Agoura Hills Reach Code (AH Green); Modifications to the 2022 California Green Building Standards Code (CALGreen) are hereby repealed.

8216. Expedited Review of Small Residential Rooftop Solar Energy System Permits.

A. DEFINITIONS

"Small residential rooftop solar energy system" shall have the same meaning as provided in the Solar Rights Act, Government Code § 65850.5(j)(3), as the same may be amended from time to time.

B. SMALL RESIDENTIAL ROOFTOP SOLAR ENERGY SYSTEM STANDARD PLAN AND PERMIT APPLICATION CHECKLIST

1. The City shall adopt standard plan(s) and checklist(s) of all requirements with which small residential rooftop solar energy systems shall comply to be eligible for expedited review. The small residential rooftop solar system standard plan(s) and checklist(s) shall substantially conform to recommendations for expedited permitting, including the checklists and standard plans contained in the most current version of the California Solar Permitting Guidebook adopted by the Governor's Office of Planning and Research.

DRAFT

2. All documents required for the submission of a small residential rooftop solar energy system permit application, the standard plan(s), and checklist(s) shall be made available on the publicly accessible City Website.

3. Electronic submittal of the required permit application and documents by e-mail shall be available to all small residential rooftop solar energy system permit applicants. An applicant's electronic signature shall be accepted on all forms, applications, and other documents in lieu of a wet signature.

C. PERMIT APPLICATION REVIEW

1. An application that satisfies the information requirements in the checklist(s) and standard plan(s) shall be deemed complete.

2. If an application is deemed incomplete, a written correction notice detailing all deficiencies in the application and any additional information or documentation required to be eligible for expedited permit issuance shall be sent to the applicant for resubmission.

3. The Building Official or his or her designee shall issue a building permit for any complete application that meets the requirements of the approved checklist(s) and standard plan(s) as follows: within three [3] business days for any application, or as soon thereafter as may be practicable. Review of the application shall be limited to the Building Official's or his or her designee's review of whether the application meets local, state, and federal health and safety requirements.

4. Any condition imposed on an application shall be designed to mitigate the specific, adverse impact upon health and safety at the lowest possible cost.

D. INSPECTION REQUIREMENTS

1. Inspection requests may be submitted by phone, e-mail, or in person.

2. Only one inspection shall be required and performed by the Building Official or his or her designee for small residential rooftop solar energy systems eligible for expedited review.

3. The inspection shall be done in a timely manner. The Building Official or his or her designee shall use their best efforts to schedule an inspection within one [1] business day of a request and provide a two [2] hour inspection window.

4. If a small residential rooftop solar energy system fails inspection, a subsequent inspection is authorized but need not conform to the requirements of this Section.

E. FEES.

DRAFT

Fees for permits and inspections associated with this Chapter may be established by resolution of the City Council."

F. VIOLATIONS. PENALTIES.

In addition to any other applicable provision of this article VIII, any person, firm, partnership, association, corporation or joint venture violating any of the provisions of this chapter shall be guilty of a misdemeanor.

8217. Expedited Review of Electric Vehicle Charging Station Permits.

A. APPLICABILITY

This section applies to applications for expedited building permits for electric vehicle charging stations consistent with California Government Code Section 65850.7.

B. DEFINITIONS

1. "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 Electrical Code, as it read on January 1, 2016, and delivers electricity from a source outside of an electric vehicle into a plug-in electric vehicle.

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

3. "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.

C. PROCESS

1. 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.

DRAFT

2. 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.

3. 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.

4. 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.

5. 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.

6. If the Building Official determines that an application for an expedited building permit is complete, the Building Official shall process 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.

7. 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.

8. 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 the 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.

9. A decision of the Building Official made pursuant to paragraphs 6-8 of this subsection may be appealed to the Planning Commission. The Planning Commission's review shall also be limited to health and safety issues.

DRAFT

10. 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.

D. FEES.

Fees for permits and inspections associated with this Chapter may be established by resolution of the City Council."

E. VIOLATIONS PENALTIES.

In addition to any other applicable provision of this article VIII, any person, firm, partnership, association, corporation or joint venture violating any of the provisions of this chapter shall be guilty of a misdemeanor.

8218. Reserved.

8219. Reserved."

SECTION 3: Section 8300 of Chapter 3 (Property Maintenance and Unsafe Structures) of Article VIII (Building Regulations) of the Agoura Hills Municipal Code is hereby amended as follows:

"8300. INTERNATIONAL PROPERTY MAINTENANCE CODE ADOPTED WITH LOCAL AMENDMENTS.

A. Adoption of International Property Maintenance Code, 2024 Edition.

Pursuant to California Government Code § 50022.1 to 50022.8, the International Property Maintenance Code ("IPMC"), 2024 Edition, promulgated and published by the International Code Council, is adopted by reference, subject to the amendments, additions and deletions set forth below.

One true copy of the IPMC is on file in the office of the Building Official and is available for public inspection as required by law.

B. Amendments to the Code.

a) Section 101.1 of the IPMC is amended to read as follows:

101.1 Title. These regulations shall be known as the Property Maintenance Code of the *City of Agoura Hills*, hereinafter referred to as "this code."

b) Section 103.1 of the IPMC is amended to read as follows:

DRAFT

103.1 Agency. *The City of Agoura Hills Community Development Department is the code compliance agency,* and the official in charge thereof shall be known as the code official. The function of the agency shall be the implementation, administration, and enforcement of the provisions of this code.

c) Section 104.1 of the IPMC is amended to read as follows:

104.1 Fees. The fees for activities and services performed by *the official code under this code shall be in accordance with the schedule as established by the applicable governing authority.*

d) Section 106 of the IPMC is deleted and replaced to read as follows:

106. Means of Appeals. *The Planning Commission of the City of Agoura Hills shall act as the Board of Appeals as it relates to this Chapter of the Municipal Code. Any person directly affected by a decision of the City's code officials or a notice or order issued under this Maintenance code shall have the right to appeal the decision by having a Planning Commission hearing. This hearing will be set by the Director of Community Development.*

e) Section 107 of the IPMC is deleted and replaced to read as follows:

107. Violations. The City is authorized to abate nuisances related to conditions of property and/or property maintenance pursuant to Chapter 6 of Article V *of the City of Agoura Hills Municipal Code.*

f) Section 109.4 of the IPMC is deleted and replaced to read as follows:

109.4. Notices. Notices related to nuisances arising from conditions of property and/or property maintenance shall be given as set forth in *Chapter 6 of Article V of the City of Agoura Hills Municipal Code.*

g) Section 112 is added to the IMPC to read as follows:

SECTION 112. COST RECOVERY

112.1 Cost of City service. *The cost to the City of any demolition or repair carried out under this code, including the entire cost of the services rendered by the City, shall be a special assessment against the property upon which the structure is located.*

112.2 Account of costs and receipts and notice of assessment. *The code official will notify in writing all parties concerned of the amount of such assessment resulting from such work. Within five days of the receipt of such notice, any concerned party may file a written request with the code official requesting a hearing on the correctness or reasonableness, or both, of such assessment. The*

DRAFT

board of appeals thereupon shall set the matter for hearing, give such concerned party notice thereof as provided in Section 107.3 of this code, and hold such hearing and determine the reasonableness or correctness of the assessment. The board of appeals shall notify in writing such party concerned of its decision. If the total assessment determined as provided for in this section is not paid in full within ten days after receipt of such notice from the board of appeals, the code official shall record in the office of the department or registrar-recorder a statement of the total balance still due and a legal description of the property. From the date of such recording, such balance due shall be a special assessment against the parcel.

112.3 Collection with ordinary taxes. *The special assessment set forth shall be collected at the same time and in the same manner as ordinary county taxes are collected, and shall be subject to the same penalties, interest, and procedures for foreclosure and sale in case of delinquency, as is provided for ordinary County taxes. All laws applicable to the levy, collection and enforcement of County taxes shall be applicable to such assessment.*

SECTION 4. CEQA. The City Council finds that it can be seen with certainty that there is no possibility the adoption of this Ordinance may have a significant effect on the environment because the Ordinance provides for greater environmental protection by adopting and amending building standards and administrative provisions designed to provide for greater energy efficiency, construction sustainability, and protection from seismic and climatic forces, including fire-related dangers. Therefore, it is exempt from California Environmental Quality Act review pursuant to Title 14, Section 15061(b)(3), of the California Code of Regulations (CEQA Guidelines).

SECTION 5. If any provision of this Ordinance is for any reason held to be invalid by a court of competent jurisdiction, the City Council hereby declares that it would have passed each and every remaining provision irrespective of such holding in order to accomplish the intent of this Ordinance.

SECTION 6. Upon adoption, the Building Official is hereby authorized and directed to transmit a copy of this ordinance together with the findings resolution to the California Building Standards Commission as required by California Health and Safety Code Section 17958.7.

SECTION 7. The City Clerk shall certify to the passage of this ordinance and shall cause a summary of same to be published at least once in the local newspaper of general circulation, circulated within the City of Agoura Hills. A copy of the full text of this ordinance shall be on file in the Office of the City Clerk on and after the date following introduction and passage and shall be available to any member of the public.

This ordinance shall become operative on the latter of the 31st day after its adoption or January 1, 2026.

DRAFT

PASSED, APPROVED, AND ADOPTED, this ____ day of _____, 2025.

AYES: ( )
NOES: ( )
ABSENT: ( )
ABSTAIN: ( )

_____
Penny Sylvester, Mayor

ATTEST:

_____
Kimberly M. Rodrigues, MMC, City Clerk

APPROVED AS TO FORM:

_____
Candice K. Lee, City Attorney

DRAFT

EXHIBIT A
SUMMARY OF 2025 BUILDING STANDARDS CODE AMENDMENTS

2025 CALIFORNIA BUILDING CODE AMENDMENTS

TITLE/DESCRIPTION	AMENDMENT STATUS	AB130 COMPLIANCE
Amend Section 1.8.8.1 - Appeal	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 1.8.8.4 - Limitation of authority	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 101.1 - Title.	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 101.4.5 - Fire prevention	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 103.3 - Deputies	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 105.1 - Required	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 105.2 - Permit exemptions	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 105.3.2 - Time limitation of application	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 105.3.2.1 - Time limitation of application in connection with an unpermitted structure	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 105.5 - Expiration of permit	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 105.5.1 - Expiration	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 105.5.2 - Expiration of permit in connection with an unpermitted structure	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 105.6 - Suspension or revocation	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 105.7 - Placement of permit	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25

Add CBC Section 105.8 Responsibility of permittee	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 105.9 - Transferability	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 109.4 - Work commencing before permit issuance	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 109.5.1 - Re-inspection Fee	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 109.6.1 - Refund Policy	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 109.7 - Plan review fees	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 110.1.1 - Setback and height certification	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 110.3.4.2 - Roof sheathing and shear inspection.	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Delete Exception for Section 110.3.6 - Lath, gypsum board, and gypsum panel product Inspection	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 111.1.1 - Unpermitted structures	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 111.2 - Certificate issued	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 111.3 - Temporary Certificate of Occupancy (TCO)	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 111.4 - Revocation	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 112.3 and add subsections 112.3.1, 112.3.2, and 112.3.3 - Authority to Disconnect Service Utilities	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Delete Section 113 - Means of appeals	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Sections 114.1 - Unlawful acts	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25

Amend Section 114.4 - Violation penalties	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 115.1 - Authority.	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 116.1 - Unsafe conditions	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 116.3.1 - Orders to vacate	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Delete Sections 116.4 and 116.5	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 116.6 - Violations	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add 903.2.11.7 – Where required	Re-adopting the 2022 code cycle amendment from the Los Angeles County Fire Code that the city adopted by reference under Ordinance 23-473	Existing Amendment In effect as of 9/30/25. In the County of Los Angeles County Fire Code that the City adopted by reference under Ordinance 23-473
Add CBC Section 1613.8 - Seismic design provisions for hillside buildings	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section 1807.1.4 - Permanent wood foundation system	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section 1807.2 - Retaining walls	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section 1809.3 - Stepped footings	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section 1809.7 and Table 1809.7 - Prescriptive footings for light-frame construction	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section 1809.12 - Timber footings	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section 2304.10.2 - Fastener requirement	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section 2304.12.2.8 - Wood used in retaining walls and cribs	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25

Amend CBC Section 2306.2 - Wood-frame diaphragms	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section 2306.3 - Wood-frame shearwalls	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section 2308.10.8.1 - Foundation requirements	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section 3109.2 - Definitions	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J101.3 - Hazards	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J101.4 - Safety precautions	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J101.5 - Protection of utilities	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J101.6 - Protection of adjacent properties	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J101.7 - Stormwater control measures	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J101.8 - Conditions of approval	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J101.9 - Rules and regulations	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CBC Section J103.2 - Exemptions.	The proposed new amendments to Appendix J of the CBC, establishing more defined thresholds for when work is exempt from permitting, by providing applicants with objective standards for when permit exemptions would apply - when earthwork is less than 50 cubic yards and meets certain prescribed conditions. This amendment aims to ensure uniformity in the review of plans and their enforcement. It also reduces ambiguity for applicants, thereby facilitating and streamlining the permitting process.	The amendment is related to administrative practices, resulting in any of the reductions in time for a local agency to issue a post-entitlement permit and reductions in the cost of internal operation for a local agency.
Add CBC Section J103.3 - Permit issuance	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25

Add CBC Section J103.4 - Grading fees	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J104.2.1 - Grading designation	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J104.2.2 - Regular grading requirements	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J104.2.3 - Engineered grading requirements	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J105.3 - Permittee.	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J105.4 - Required inspections.	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J109.5 - Disposal	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CBC Section J112 - National Pollutant Discharge Elimination System (NPDES) compliance	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Adopting CBC Appendix I – Patio Covers	Appendix already adopted by the State Agency	N/A
Adopting Appendix J - Grading	Appendix already adopted by the State Agency	N/A
Adopting CBC Appendix P – Sleeping Lofts	Appendix already adopted by the State Agency	N/A
Adopting CBC Appendix Q - Emergency Housing	Appendix already adopted by the State Agency	N/A
Amending CBC Appendix Q - Section Q103.1 – General	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25

2025 CALIFORNIA RESIDENTIAL CODE AMENDMENTS

TITLE/DESCRIPTION	AMENDMENT STATUS	AB130 COMPLIANCE
Amend Section 1.8.8.1 - Appeal	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 1.8.8.4 - Limitation of authority	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R101.1 - Title	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R103.3 - Deputies	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section 105.1 - Required	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R105.2 - Permit Exemptions	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R105.3.2 - Time limitation of application	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section R105.3.2.1 - Time limitation of application in connection with an unpermitted structure	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R105.5 - Expiration of permit	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R105.5.1 - Expiration	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section 105.5.2 Expiration of permit in connection with an unpermitted structure	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R105.6 - Suspension or revocation	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R105.7 - Placement of permit	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R105.8 - Responsibility	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section R105.10 - Transferability	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section R108.4.1 - Re-inspection Fee	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section R108.5.1 - Refund policy	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R108.6 - Work commencing before permit issuance	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section R108.7 - Plan review fees	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section R109.1.4.3 - Roof sheathing and shear inspection.	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25

Add Section R109.5 - Setback and height certification	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section R110.1.1 - Unpermitted structures	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R110.2 - Certificate issued	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R110.3 - Temporary Certificate of Occupancy (TCO)	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R110.4 - Revocation	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R111.3 and add subsections R111.3.1, R111.3.2, and R111.3.3 - Authority to disconnect service utilities	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Delete Section R112 - Means of appeals	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Sections R113.1 - Unlawful acts	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R113.4 - Violation penalties	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section R113.5 – Unsafe conditions	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section R113.6 - Orders to vacate	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add Section R113.7 - Violations	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend Section R114.1 - Authority.	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add R300.3 - Grading	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CRC Section R301.1.3.2 Wood-frame Structures	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add CRC Section R301.1.5 Seismic Design Provisions for Buildings on Slopes Steeper than 33%	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Add R301.2.2.11 - Anchorage of Mechanical, Electrical, or Plumbing Components and Equipment	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CRC Section R401.1 Application	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CRC Section R403.1.2 –Continuous footings	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25

Amend CRC Sections R403.1.3.6 – Isolated concrete footings	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CRC Sections R403.1.5 Slope	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend CRC Section R404.2 - Wood Foundation Walls	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Adopt Appendix BB – Tiny Houses	Appendix already adopted by the State Agency	N/A
Adopt Appendix BF – Patio Covers	Appendix already adopted by the State Agency	N/A
Adopt Appendix BK– Cob Construction (Monolithic Adobe)	Appendix already adopted by the State Agency	N/A
Adopt Appendix BL – Hemp-Lime (Hempcrete) Construction	Appendix already adopted by the State Agency	N/A
Adopt Appendix BN – Extended Plate Wall Construction	Appendix already adopted by the State Agency	N/A
Adopt Appendix BO – Existing Buildings and Structures	Appendix already adopted by the State Agency	N/A
Adopt Appendix CI - Swimming Pool Safety Act	Appendix already adopted by the State Agency	N/A
Adopt Appendix CJ Emergency Housing	Appendix already adopted by the State Agency	N/A
Amending Appendix CJ - CJ103.1 – General	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25

2025 CALIFORNIA PLUMBING CODE AMENDMENTS

TITLE/DESCRIPTION	AMENDMENT STATUS	AB130 COMPLIANCE
Add CPC Section 1208.13.1 - Seismic Gas Shutoff Valves	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25

2025 CALIFORNIA FIRE CODE AMENDMENTS

TITLE/DESCRIPTION	AMENDMENT STATUS	AB130 COMPLIANCE
Amend Section 101.1 - Title	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend 103.1 General	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend 903.2.8 - Group R	Relocate the 2023 code amendment from the Los Angeles County Fire Code to temporarily amend the California Fire Code until the new LA County Fire Code is adopted by reference	Existing code amendment in effect as of 9/30/25 in the County of Los Angeles County Fire Code that the City adopted by reference under Ordinance 23-473
Amend 903.2.11 - Specific building areas and hazards	Relocate the 2023 code amendment from the Los Angeles County Fire Code to temporarily amend the California Fire Code until the new LA County Fire Code is adopted by reference	Existing code amendment in effect as of 9/30/25 in the County of Los Angeles County Fire Code that the City adopted by reference under Ordinance 23-473
Add 903.2.11.7 – Where required	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Appendix P (Temporary Haunted Houses, Ghost Walks and Similar Amusement Uses)	Appendix already adopted by the State Agency	N/A

2025 CALIFORNIA GREEN BUILDING STANDARDS CODE AMENDMENTS

TITLE/DESCRIPTION	AMENDMENT STATUS	AB130 COMPLIANCE
Amend CALGreen Section 202	Re-adopting the 2022 code cycle amendment	Existing Amendment in effect as of 9/30/25
Amend CALGreen Section 4.106.4.1 and 4.106.4.1.1 – New One- And Two-Family Dwellings and Townhouses with Attached Private Garages	Re-adopting the 2022 code cycle amendment	Existing Amendment in effect as of 9/30/25 under Ordinance 23-466 (Reach Code)
Amend Table 5.106.5.3.1 and Table 5.106.3.6 – EV Capable spaces and EVCS	Increases the number of EV charging spaces and stations required for Non-Residential use that will help reduce local air and noise pollution, greenhouse gas emissions, and meet the objectives of the City CAAP.	Non-Residential requirements. AB130 moratorium does not apply.

2025 CALIFORNIA WILDLAND-URBAN INTERFACE CODE AMENDMENTS

TITLE/DESCRIPTION	AMENDMENT STATUS	AB130 COMPLIANCE
Amend Section 101.1 - Title	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend 103.1 – Creation of Agency	Re-adopting the 2022 code cycle amendment	Existing code amendment in effect as of 9/30/25
Amend 501.1 Scope (Special Building Construction Regulations)	Relocate the 2022 code amendment from the CBC and CRC to the new WUI. Apply WUI standards to all buildings located in the City to resist the intrusion of flames or burning embers and reduce the potential for structural ignition due to burning embers.	Existing code amendment in effect as of 9/30/25 under Ordinance 22-465 in chapter 7A of CBC and Section R337 of CRC, relocated to WUI
Amend 503.1 General (Ignition-Resistant Construction Material)	Relocate the 2022 code amendment from the CBC and CRC to the new WUI. Apply WUI standards to all buildings located in the City to resist the intrusion of flames or burning embers and reduce ignition due to burning embers.	Existing Amendment in effect as of 9/30/25 under Ordinance 22-465 in chapter 7A of CBC and Section R337 of CRC, relocated to WUI
Amend 503.3.4 Fire-retardant-treated wood shingles and shakes.	Relocate the 2022 code amendment from the CBC and CRC to the new WUI. Clarifies the limitation on roofing material for buildings constructed in Agoura Hills to reduce ignition due to burning embers.	Existing Amendment in effect as of 9/30/25, under Ordinance 22-465 in chapter 7A of CBC and Section R337 of CRC relocated to WUI
Add 504.1.1 Roof coverings.	Relocate the 2022 code amendment from the CBC and CRC to the new WUI. Clarifies the requirement that roofing assemblies in Agoura Hills have a Class-A fire resistance rating to reduce ignition due to burning embers.	Existing Amendment in effect as of 9/30/25, under Ordinance 22-465 in chapter 7A of CBC and Section R337 of CRC relocated to WUI

2025 CALIFORNIA EXISTING BUILDING CODE AMENDMENT

TITLE/DESCRIPTION	AMENDMENT STATUS	AB130 COMPLIANCE
Adopt Appendix A - Guidelines for the Seismic Retrofit of Existing Buildings	Appendix already adopted by a State Agency	N/A

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE:	**OCTOBER 22, 2025**
TO:	**HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**
FROM:	**NATHAN HAMBURGER, CITY MANAGER**
BY:	**AMY BRINK, DIRECTOR OF COMMUNITY SERVICES** **CHARMAINE YAMBAO, DIRECTOR OF PUBLIC WORKS DIRECTOR / CITY ENGINEER**
SUBJECT:	**DISCUSSION REGARDING E-BICYCLES RULES AND REGULATIONS**

During this year's budget process, the City Council identified amending Electric Bicycle (E-bikes) rules and regulations as one of the goals for Fiscal Year 2025-26. Over the past year, there has been a growing concern over the use of E-bikes, motorized bicycles (mopeds), and motorized scooters in the community, on streets, and in parks. Residents are witnessing and reporting unsafe use and reckless behavior from individuals utilizing different forms of electric and motorized bicycles throughout the community. The Los Angeles County Sheriff's Department has published an "E-Bicycle/Motorcycle Enforcement Guide" for an expansive definition to electric and motorized bicycles which is included as Attachment A for reference. The purpose of this discussion is to understand what is occurring, what the options are to ensure a safe environment for everyone in the community, and what the best approach is to implementing those options.

Staff has been reviewing and identifying how other local and Southern California cities have been dealing with the issues that surround e-bikes. In collaboration with the City's Traffic Engineer (Kimley-Horn and Associates), Lost Hills Sheriff Station, and the Las Virgenes Unified School District, in order to provide a comprehensive discussion on e-bikes regulations, enforcement, and education.

The discussion includes what currently exists in the Agoura Hills Municipal Code, State of California Vehicle Code Requirements, approaches from local agencies, feedback from the Community Services Subcommittee, and options for consideration. Staff will begin with an overview of existing rules and regulations, to better understand what potential amendments are needed, and the options the City has to further regulate E-bikes within its jurisdiction. To conclude the discussion are the components of education and enforcement, both critical to the success of any additional rules and regulations the City may impose. Ultimately; the overarching goal is to offer solutions and options that will enhance public safety for pedestrians, bicyclists, and drivers on both roadways and in parks.

Currently, there exists e-bike regulations that provide definitions of the different types of bicycles, e-bikes, motorized scooters and bicycles, where and how one can operate bicycles and scooters, who can operate e-bikes, and what is prohibited the use of e-bikes.

The City's Municipal Code (AHMC) defines motor vehicle to include motorized bicycles, mopeds, and motor-driven cycles (Section 4900.1) and provides regulations that prohibit any person from operating any bicycle on a sidewalk, walkway or parking area within shopping or business district or center (Section 3206).

The State of California Vehicle Code (CVC) provides regulations on the operation of bicycles, which includes e-bikes, but allows the local jurisdictions to regulate if bicycles are allowed on sidewalks, recreational trails, bicycle paths, and parks (CVC 21200-21214). The CVC also provides regulations on the operation of motorized scooters (CVC 21220 to 21235) and motorized bicycles (CVC 5030 to 5039).

The approach that our neighboring communities have taken in regards to e-bikes varies from soft to hard stances. The following is a summary of e-bike regulations from our neighboring jurisdictions:

1. **City of Calabasas:** No restrictions for riding on sidewalks or designated bike facilities. Within parks, E-bikes are permitted only on designated roads and parking areas and are not allowed on trails or turf.
2. **Community of Oak Park (Ventura County):** Ventura County does not allow riding on the sidewalk in business areas or where signs say “no riding.”
3. **City of Thousand Oaks:** Allows people to ride bicycles on sidewalks, as long as they yield to pedestrians and the sidewalk has not been posted with signs prohibiting it.
4. **City of Westlake Village:** Banned e-bikes and scooters from all sidewalks, parks, trails, fields, and drainage basins (Ordinance 309-25 enacted July 2025).

The regulation of e-bikes will have a community-wide effect. Staff met with Las Virgenes Unified School District (LVUSD) administration and school principals to understand the impact regulating e-bikes would have on their staff, programs, and students. LVUSD supports any educational and incentive programs proposed by the City. As long as additional resources from LVUSD are not needed, they are willing to support all efforts. LVUSD also recognizes that being able to ride a bike or e-bike to school is a critical mode of transportation for school children, but to ride in a safe manner should go hand in hand.

Additionally, staff has had multiple meetings with the team from the Lost Hills Sheriff Station to discuss e-bike regulations and enforcement. The Lost Hills Sheriff team has been focused with educating the community on the different classes of e-bikes and electric motorcycles, along with what is required to use them. The team also stressed the importance of educating the community on basic traffic laws that surround the use of e-bikes. They provided some feedback on how to further define “unsafe” use as referenced in the AHMC.

On October 6, 2025, staff presented to the Community Services Subcommittee (CSS) options for further regulating e-bikes on City sidewalks and parks. The CSS provided the following feedback and recommendations:

1. E-bikes are useful for both recreation and transportation/mobility. The City has been implementing policies and infrastructure to encourage alternative transportation, such as biking. Should consider new policies that regulate, but not discourage biking.
2. When considering potential banning of e-bike riding on sidewalks, the use of sidewalks to briefly access businesses or park from the street should be allowed.
3. Consider potential penalties and enforcement in coordination with the Lost Hills Sheriff Station.
4. Increase signs of new City regulations in the parks, with a robust outreach of new regulations to the community, particularly schools.

After conducting the research, collaborating with partners, considering neighboring jurisdictions, and the feedback from the CSS, staff presents the following options to the City Council for consideration, discussion, and recommendation:

<u>Regulation of E-Bikes on Sidewalks (Options 1-3)</u>:
Option 1: No changes to Municipal Code.
Option 2: Modify Municipal Code to reinforce language in the CVC requiring people riding bicycles on sidewalks to do so safely and to yield to pedestrians, and provide further definition of what constitutes "unsafe" driving behavior in any public area. This option could institute a speed limit for e-bikes on sidewalks.

Option 3: Modify Municipal Code to prohibit riding e-bikes on sidewalks.
The Community Services Subcommittee recommended Option 3.

Regulation of E-Bikes in Parks (Options 1-3):
Option 1: No changes to Municipal Code.
Option 2: Modify Municipal Code to add e-bikes to the types of vehicles which are required to be operated in a safe manner in parks, with further definition of what constitutes "unsafe" driving behavior in any public area.
Option 3: Modify Municipal Code to prohibit riding e-bikes in parks
The Community Services Subcommittee recommended Option 3.

Please note that exemptions to any of these proposed regulations would apply to:

1. Persons with mobility disabilities utilizing a wheelchair or other power-driven mobility device in accordance with the Americans with Disabilities Act; and
2. City and other public agency personnel who operate electric mobility devices at any place in the performance of their duties.

All three options, for both sidewalks and parks, include an effort on the part of the City to conduct public outreach to educate the community, focusing on school children. Additionally, the City would increase enforcement of existing CVC requirements.

Educating the community will involve continued outreach which includes social media posts, website information, presentations at school parent/faculty clubs, and incentive programs from the City and Sheriffs Department. While the communication can still include information on different classes of electric and motorized bikes, traffic laws, the vehicle code, and Agoura Hills Municipal Code will be at the forefront. Another option is to implement a permit program where children need to conduct a safety course in order to park their e-bikes at school. This program could include a citation system including rules and regulations, where accumulation of too many points for offenses would result in the loss of a permit to park at the school.

Education and engagement are critical to outreach efforts in ensuring that the community clearly understands how to navigate the rules and regulations. More importantly, enforcement is going to complete the process of compliance and overall public safety. It is an important part of the overall regulation of E-bikes in this community.

1. **Signage** – increase signage in public parks stating that riding electric bicycles is prohibited. CSS recommended adding updated signs at each park, which would include the statement that riding e-bikes on street sidewalks is prohibited. City staff and CSS agreed that adding signs to each sidewalk would be infeasible.
2. **Traffic/Public Sidewalks –** work with Lost Hills Sheriff Station to educate the community on traffic laws surrounding electric bicycle use.
3. **Parks - Code Enforcement Officers**
    1. Residents can file complaints about potential code violations, on which code enforcement officers can follow up;
    2. Code enforcement officers identify violations, investigate complaints, and implement corrective measures to bring individuals into compliance; or
    3. Contract Code Enforcement will be required to supplement existing resources.

Based on City Council direction, the next steps will include continuation of education, engagement, and enforcement, along with potential Municipal Code modifications by ordinance. The draft ordinance will go back to the Community Services Subcommittee with final review by the City Council in early 2026.

FISCAL IMPACT

The Fiscal Impact depends on how the City Council decides on enforcement options presented above. Staff will bring back costs associated with the options ultimately selected to both the Community Services Subcommittee for feedback and City Council for review. If necessary, a funding request could be made during the FY 2025-26 Mid-Year Budget process.

RECOMMENDATION

Staff respectfully recommend the City Council provide feedback and direction on the Electric Bicycle Options presented.

Attachments

E Bike Guide LA County 2025.pdf

Los Angeles County Sheriff's Department E-Bicycle/Motorcycle Enforcement Guide
Malibu/ Lost Hills Station

Class 1 / Class 2

Equipped with an electric motor and pedal assisted (Class 1) and/or throttle assisted (Class 2), reaches the **speed of 20 miles per hour.**

CVC 312.5(a)(1)/(2)

MOVING:

CVC 21200.5 DUI Alcohol/Drugs on Bicycle (M)
CVC 21202(a) Right half of Roadway
CVC 21203 Hitching rides on vehicles
CVC 21204(b) Passenger must be seat on permanent seat/Passenger under 4 yrs/40 lbs must be seated away from moving parts
CVC 21205 Carrying articles, not holding handlebars
CVC 21211(b) Impede/Block others on bicycle trail/path
CVC 21212(a) Under 18 must wear helmet
CVC 21456.2(a) Failure to obey traffic control signs
CVC 21650.1 Travel same direction of vehicles (on roadway)
CVC 22110(a)/(b)/(c) Failure to use hand and arm signals

EQUIPMENT:

CVC 21201(a) Wheel brake required
CVC 21201(b) Handlebar height no higher than shoulders
CVC 21201(c) Operator able to reach ground
CVC 21201(d)(1-4) Lights/reflectors during darkness
CVC 21204(a) Must have permanent seat attached
CVC 24016(d) Modify/Tamper to increase speed

*Property-CANNOT BE TOWED/IMPOUNDED

Class 3

Equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the **speed of 28 miles per hour** and equipped with a speedometer.

CVC 312.5(a)(3)

MOVING:

CVC 21200.5 DUI Alcohol/Drugs on Bicycle (M)
CVC 21201(c) Operator able to reach ground
CVC 21202(a) Right half of Roadway
CVC 21203 Hitching rides on vehicles
CVC 21204(b) Passenger must be seat on permanent seat/Passenger under 4 yrs/40 lbs must be seated away from moving parts
CVC 21205 Carrying articles, not holding handlebars
CVC 21207.5 Riding on bicycle trail/path/lane, hiking/equestrian/recreation trail
CVC 21211(b) Impede/Block others on bicycle trail/path
CVC 21213(a) Under 16 yrs. old operating
CVC 21213(b) No helmet (Any Age)
CVC 21456.2(a) Failure to obey traffic control signs
CVC 21650.1 Travel same direction of vehicles (on roadway)
CVC 22110(a)/(b)/(c) Failure to use hand and arm signals

EQUIPMENT:

CVC 21201(a) Wheel brake required
CVC 21201(b) Handlebar height no higher than shoulders
CVC 21201(d)(1-4) Lights/reflectors during darkness
CVC 21204(a) Must have permanent seat attached
CVC 24016(d) Modify/Tamper to increase speed

*Property-CANNOT BE TOWED/IMPOUNDED

Moped/Motorized Bicycle

Two-wheeled or three-wheeled device having fully operative pedals for propulsion by human power or having no pedals if powered solely by electrical energy, and an automatic transmission and a motor that produces less than 4 gross brake horsepower and can propel the device at a **maximum speed of not more than 30 miles per hour.**

CVC 406(a)

MOVING:

CVC 23152(a)-(g) DUI Alcohol/Drugs (M)
CVC 14601.1(a) Suspended Driver (M)
CVC 12500(a) Unlicensed Driver (M)
CVC 12500(b) M1 or M2 Endorsement Required (M)
CVC 23127 Unauthorized. Vehicle on trail/path (M)
CVC 27803(b) Driver DOT Helmet required
CVC 27803(c) Passenger DOT Helmet required

EQUIPMENT:

CVC 5030 Special License Plate required
CVC 5037(a) License Plate attached
CVC 5200(b) Rear Plate required
CVC 24600(a) Tail Lamp required
CVC 24603(a) Brake Light required
CVC 24607(a) Rear Red Reflector required
CVC 25650.5 Lighted Headlamp as engine runs
CVC 26311(a) Brakes required both wheels
CVC 26709(a) One rearview mirror required
CVC 27000(a) Horn required
CVC 27465(b)(1) Bald Tires
CVC 4000(a)(1) Registration required
CVC 16028(a) Proof of Insurance

*VEHICLE -May be TOWED OR IMPOUNDED

Motorized Scooter

Two-wheeled device that has handlebars, has either a floorboard that is designed to be stood upon when riding or a seat and footrests in place of the floorboard, and is powered by an electric motor. This device may also be designed to be powered by human propulsion.

CVC 407.5(a)

MOVING:

CVC 21221.5 DUI Alcohol/Drugs (M)
CVC 21228 Must ride on right side of roadway
CVC 21229(a) Must ride in bicycle lane
CVC 21229(b) Unsafe movement out of bicycle lane
CVC 21235(b) Shall NOT ride on HWY posted higher than 25 MPH unless in Bicycle Lane
CVC 21235(c) Helmet required (Under 18)
CVC 21235(d) Must have valid DL or Instruction permit
CVC 21235(e) No passengers
CVC 21235(f) Carrying load preventing at least one hand on handlebar
CVC 21235(g) Riding on sidewalk prohibited
CVC 21235(h) Handlebars above shoulders on HWY
CVC 21235(i) Leave on side blocking sidewalk/pathway
CVC 21235(j) Ride while attached to a vehicle
CVC 22411 Shall not exceed 15 MPH (Max Speed)

EQUIPMENT:

CVC 21235(a) Must have mechanical brake
CVC 21223(a)(1) Front light during darkness visible 300'
CVC 21223(a)(2) Rear red reflector visible 500'
CVC 21223(a)(3) Side reflector white or yellow visible 200'
CVC 21226(b) Adequate muffler / Excessive noise
CVC 21226(d) Modified exhaust system

*Property-CANNOT BE TOWED/IMPOUNDED

All Misdemeanors (Including CVC 12500(a)/(b)) cites for juveniles shall be assigned to Sylmar Juvenile Court

This is a guide only. Always refer to CVC, Department Policy, and LASD Manual of Policies and Procedures for further clarification.

Last Revised 12/2022

Los Angeles County Sheriff's Department E-Bicycle/Motorcycle Enforcement Guide
Malibu/ Lost Hills Station

Motorcycles

Motor Driven Cycles

Pocket Bikes

Motor vehicle having a seat or saddle for the use of the rider, designed to travel on not more than three wheels in contact with the ground.

A motor vehicle that has four wheels in contact with the ground, two of which are a functional part of a sidecar, is a motorcycle if the vehicle otherwise comes within the definition of subdivision (a).

CVC 400(a)/(b)

CVC 23152(a)-(g) DUI Alcohol/Drugs (M)
CVC 23127 Unauthorized Vehicle on trail/path (M)
CVC 12500(a) Unlicensed Driver (M)
CVC 12500(b) M1 or M2 Endorsement Required (M1 not required for 3 wheel)
CVC 14601.1(a) Suspended Driver (M)
CVC 27803(b) Driver DOT Helmet required (Unless fully enclosed)
CVC 27803(c) Passenger DOT Helmet required (Unless fully enclosed)

EQUIPMENT:

CVC 5200(b) Rear Plate required
CVC 5201(a) License Plate clearly visible/Secure/Horizontal/ 12" from ground/Rear mounted
CVC 24012 Turn signal 9" apart a rear/16" apart at front
CVC 24953(a) Turn signal forward/rear facing
CVC 24600(a) Tail Lamp required
CVC 24600(f) Tail Lamp min 15" from ground
CVC 24601 License plate light required, must be white
CVC 24603(a) Brake Light required
CVC 24603(c) Brake Light min 15" from ground
CVC 24607(a) Rear Red Reflector required
CVC 25650.5 Lighted Headlamp as engine runs
CVC 26311(a) Brakes required both wheels
CVC 26709(a) One rearview mirror required
CVC 27000(a) Horn required
CVC 27150(a) Muffler required
CVC 27155 Fuel Tank Cap required
CVC 27465(b)(1) Bald Tires
CVC 4000(a)(1) Registration required
CVC 16028(a) Proof of Insurance

*VEHICLE -May be TOWED OR IMPOUNDED

Any motorcycle with a motor that displaces less than 150 cubic centimeters.

CVC 405

MOVING:

CVC 23152(a)-(g) DUI Alcohol/Drugs (M)
CVC 23127 Unauthorized. Vehicle on trail/path (M)
CVC 12500(a) Unlicensed Driver (M)
CVC 12500(b) M1 Endorsement Required (M)
CVC 14601.1(a) Suspended Driver (M)
CVC 27803(b) Driver DOT Helmet required
CVC 27803(c) Passenger DOT Helmet required

EQUIPMENT:

CVC 24600(a) Tail Lamp required
CVC 24600(f) Tail Lamp min 15" from ground
CVC 24601 License plate light required, must be white
CVC 24603(a) Brake Light required
CVC 24603(c) Brake Light min 15" from ground
CVC 24607(a) Rear Red Reflector required
CVC 25650.5 Lighted Headlamp as engine runs
CVC 26311(a) Brakes required both wheels
CVC 26709(a) One rearview mirror required
CVC 27000(a) Horn required
CVC 27150(a) Muffler required
CVC 27155 Fuel Tank Cap required
CVC 27465(b)(1) Bald Tires
CVC 4000(a)(1) Registration required
CVC 16028(a) Proof of Insurance

*VEHICLE -May be TOWED OR IMPOUNDED

Two-wheeled motorized device that has a seat or saddle for the use of the rider, and that is not designed or manufactured for highway use. "Pocket bike" does not include an off highway motorcycle, as defined in Section 436.

CVC 473(a)

MOVING:

CVC 21720 May NOT operate on sidewalk, roadway, bicycle/equestrian/hiking/recreational path/trails or public lands

IMPOUND:

CVC 21721(a) Pocket Bike (Held for Min. 48 hrs)

*VEHICLE -May be TOWED OR IMPOUNDED

All Misdemeanors (Including CVC 12500(a)/(b)) cites for juveniles shall be assigned to Sylmar Juvenile Court

This is a guide only. Always refer to CVC, Department Policy, and LASD Manual of Policies and Procedures for further clarification.

Last Revised 12/2022

Los Angeles County Sheriff's Department E-Bicycle/Motorcycle Enforcement Guide
Malibu/ Lost Hills Station

	Pedal Operated	Max Speed (MPH)	Minimum Age (YRS)	Driver License Required	Registration/ License Plate Required	Helmet Required	Allowed on Bike Paths/Trails	Allowed on Sidewalk	Allowed on the Roadway
Bicycle	**YES**	**N/A**	**N/A**	**NO**	**NO**	**UNDER 18** VC 21212(a)	**YES**	**YES**	**YES**
Class 1 E-Bike	**YES**	**20**	**N/A**	**NO**	**NO**	**UNDER 18** VC 21212(a)	**YES**	**YES**	**YES**
Class 2 E-Bike	**YES**	**20**	**N/A**	**NO**	**NO**	**UNDER 18** VC 21212(a)	**YES**	**YES**	**YES**
Class 3 E-Bike	**YES**	**28**	**16** VC 21213(a)	**NO**	**NO**	**YES** VC 21213(b)	**NO**[1] VC 21207.5	**YES**	**YES**
Motorized Scooter	**NO**	**15**	**15 ½**	**YES** VC 21235(d)	**NO**	**UNDER 18** VC 21235(c)	**YES**	**NO** VC 21235(g)	**=/>25 MPH ST** **UNLESS IN BIKE LN** VC 21235(b)
Moped/Motorized Bike	**YES/NO**	**N/A**	**15 ½**	**YES** VC 12500(b)	**YES** VC 4000(a)(1)	**YES** VC 27803(b)	**NO**[1] VC 23127	**NO** VC 21663	**YES**
Motorcycle	**NO**	**N/A**	**15 ½**	**YES** VC 12500(b)	**YES** VC 4000(a)(1)	**YES** VC 27803(b)	**NO** VC 23127	**NO** VC 21663	**YES**
Motor Driven Cycles	**NO**	**N/A**	**15 ½**	**YES** VC 12500(b)	**YES** VC 4000(a)(1)	**YES** VC 27803(b)	**NO** VC 23127	**NO** VC 21663	**YES**
Pocket Bikes	**NO**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**NO** VC 21720	**NO** VC 21720	**NO** VC 21720
Off Highway Motorcycle	**NO**	**N/A**	**N/A**	**N/A**	**YES** VC 38170(b)	**YES** VC 27803(b)	**NO** VC 23127	**NO** VC 21663	**NO** VC 38025
Low Speed Vehicle VC 385.5	**NO**	**25**	**15 ½**	**YES** VC 12500(a)	**YES** VC 4000(a)(1)	**NO**	**NO** VC 23127	**NO** VC 21663	**=/>35 MPH ST** VC 21260
Golf Cart VC 345	**NO**	**15**	**N/A**	**NO**	**NO**	**NO**	**ONLY IF DESIGNATED**	**NO** VC 21663	**=/> 25 MPH ST** VC 21716

[1] Unless local ordinance is adopted authorizing use on trails/paths

TOW AUTHORITIES FOR DL OR REGISTRATION REQUIRED

CVC 22651(o)(1) Unregistered/Expired Registration
CVC 22651(p) No Licensed Driver Present (Not legally parked)
CVC 14602.6(a) Suspended Driver or Never been issued a DL (30 Day Impound)
CVC 23109.2(a)(1) Reckless Driving (30 Day Impound)
CVC 21721(a) Pocket Bike (Held for Min. 48 hrs)

OTHER MOTOR VEHICLE VIOLATIONS:

CVC 23103 Reckless Driving - (a) on HWY, (b) Off Street Parking Facility (M)
CVC 23109(c) Exhibition of Speed (M)

All Misdemeanors (Including CVC 12500(a)/(b)) cites for juveniles shall be assigned to Sylmar Juvenile Court

This is a guide only. Always refer to CVC, Department Policy, and LASD Manual of Policies and Procedures for further clarification.

Last Revised 12/2022

CITY OF AGOURA HILLS

REPORT TO CITY COUNCIL

DATE:	**OCTOBER 22, 2025**
TO:	**HONORABLE MAYOR AND MEMBERS OF THE CITY COUNCIL**
FROM:	**NATHAN HAMBURGER, CITY MANAGER**
BY:	**LOUIS CELAYA, DEPUTY CITY MANAGER**
SUBJECT:	**DISCUSSION TO CONSIDER THE APPROVAL OF THE CITY OF AGOURA HILLS 2025 WILDFIRE RISK ASSESSMENT REPORT**

In the summer of 2024, the City received grant funding to complete the Community Wildfire Risk Assessment (CWRA) as part of its ongoing efforts to improve wildfire resiliency in the community. On July 10, 2024, the City Council approved a contract with Jensen Hughes, Inc. (JH) as consultants to perform the analysis and work to complete this document. The estimated timeframe to complete the task was approximately 12 months from the initial kick-off meeting with City staff (mid-August 2024), barring any unforeseen events or issues. The CWRA is a science-based assessment that was developed in partnership with the Los Angeles County Fire Department, regional land management agencies (Santa Monica Mountain Conservancy - SMMC, Mountains Recreation Conservation Authority - MRCA), utilities, community stakeholders (Agoura Hills Fire Safety Council, homeowner associations), and the general public.

The CWRA is the initial step necessary to assist the City in preparing a comprehensive evaluation of wildfire hazards, risks, and vulnerabilities specific to Agoura Hills. The CWRA also lays the groundwork for local policies, partnerships, and potential capital investments that will strengthen wildfire resiliency, increase public safety, and position the City for future state and federal funding opportunities. This will lead to the development and completion of a future Community Wildfire Protection Plan (CWPP). The development of a CWPP will require additional separate funding to complete this next phase.

The development process began in September 2024, with the JH team spending several months gathering preliminary hazard and risk assessment data (i.e., fire history, fire hazard threat and behavior, climate change analysis, etc.), conducting fuel modeling, followed by the review of detailed hazard, risk, and vulnerability assessments for the community. During this period, the JH team also engaged with the core project team, which included City staff, the Los Angeles County Fire Department, and an agency stakeholder working group. The core team reviewed the technical data and provided input to assist the JH team in developing technical memorandums for the CWRA. A community site visit was also conducted in November 2024 by JH and the agency stakeholder working group.

Additionally, during the development process, community outreach was conducted, including a community-wide online survey to gather public input on wildfire readiness, resiliency, and other concerns. Two public workshops were held on May 20, 2025, and July 29, 2025, to present the initial CWRA draft, solicit comments from the general public, and then present the final draft report and gather any final comments. These efforts during the development process reinforced regional partnerships and transparency, allowing the general public to participate in the development of the CWRA.

As identified in the CWRA report, Agoura Hills is a community with many designated geographic areas within the Very High Fire Hazard Severity Zone (VHFHSZ). Also, it identifies it as part of a Wildland-Urban Interface (WUI), an area where structures and other man-made developments meet undeveloped wildland or vegetative fuels. The CWRA identifies three WUI zones in the City:

- Wildland-Urban Interface: dense housing development adjacent to vegetation that can burn in a wildland fire.
- Wildland-Urban Intermix: housing development interspersed within an area dominated by wildland vegetation subject to wildfire.
- Wildland-Urban Influence Zone: wildfire susceptible vegetation up to 1.5 miles from Wildland-Urban Interface and/or Intermix areas.

Although being identified as a VHFHSZ or community within the WUI designations do not predict when or where wildfires will occur, they do provide information on areas where fires can be more severe or of greater concern. Within the community overview, the CWRA identified risk values and risk factors associated with the community. A summary of those is identified below:

- Values at Risk:
  Life safety, private property, critical infrastructure, natural resources, local economy, etc.
- Key Risk Factors:
  Overgrown vegetation, narrow and limited evacuation routes (in specific neighborhoods), older construction codes, variable compliance with defensible space, and challenges in communication dead zones

As noted in the CWRA report, these risk values and risk factors cannot be completely protected through mitigation, but some actions can be taken indirectly to protect those values through the development of strategies that reduce the wildfire threats. Finally, the CWRA also identified climate change factors that contribute to potential risks, including the increase in overall climate temperature over the years, a decline in autumn precipitation, weakening marine layers, and the historic Santa Ana wind conditions.

The CWRA also identifies risk assessment assumptions based on the data gathered in the initial development process. The CWRA identified that the primary risk originates from potential fires from outside the City limits and surrounding landscapes that threaten community values and assets. Risks emanating from inside the city limits were not demonstrated. Additionally, fire frequency and fire intensity are identified as contributing factors to fire hazards, with the CWRA indicating that the most concerning fires are those that occur less frequently but with greater intensity (e.g., Woolsey Fire). This is especially true if they occur near or in vulnerable areas (i.e., grasslands, combustible landscaping, etc.)

Based on the risk assumptions reviewed and presented in the report, the CWRA identifies several wildfire hazard assessment results for the community. The assessment findings will help identify areas within the community prone to problematic fire conditions and assist in prioritizing treatment solutions and mitigation strategies. These assessments support the CWRA and future development of a CWPP. The hazards and risk results identified were:

- There is an extensive fire history for the region, and while large fires have occurred and directly impacted the City, other fires have burned near the City as well. Most of the fires have come from the southeast, with the high-risk corridors being the Liberty Canyon, Chesebro, Palo Comado, and Lindero Canyon. History has also demonstrated that large fires have not spread in the community from the south.
- The CWRA also noted that, based on evaluated fire behavior characteristics, flame lengths less than eight feet can generally be successfully managed by fire safety resources. The concern for crown-type fires is not significant for the Agoura Hills community, as the fuel structure in and around the City will not allow for the

development of this type of fire. The CWRA did, however, note that there are locations in the community where individual trees are used as landscape near structures and along road systems.

Based on the analysis performed during the development of the CWRA, the JH team has provided several preliminary recommendations that are intended to provide the City with a variety of mitigation actions to help inform potential future policies, programs, and other projects for consideration. It should be noted that the recommendations are not in any particular order and can be expanded as part of the CWPP process. A summary of the recommendations are below:

1. Codes and Enforcement – Keep local codes, standards, and guidance documents up to date with the latest developments in wildfire resiliency best practice and research. An example of this would be to expand defensible space outreach to align with current LA County Fire Codes, including the ember resistant zone.

2. Fuels Mitigation – Manage landscape vegetation to promote the return of fire resilient species and lower vegetation densities. This includes undertaking a study to identify and provide recommendations for mitigating common ignition points and coordination with agencies such as fire departments, land management agencies and recreation departments to develop fuel mitigation programs.

3. Property Protection (Defensible Space) - Improve fuel treatment strategies for defensible space around structures. An example of this would be to seek grant funding to support homeowners with removing hazardous tree species.

4. Property Protection (Home Hardening) – Improve Hardening of Existing Building Stock. This can include providing ongoing outreach to the community to explore opportunities to develop retrofit programs for vents, roofs, siding, etc., including potential funding sources for seniors and other vulnerable communities, and coordination with the State's Insurance Commissioner to recognize risk reduction efforts in insurance coverages.

5. Critical Infrastructure (Wildfire Resiliency) – Work with agencies, homeowner associations, and other private groups to establish fuel treatments along major routes and highways and consider a wildfire resiliency study of critical infrastructure and facilities across the City of Agoura Hills.

6. Public Notification/Communication – Work with other government agencies to align and develop consistent regional messaging around emergency communication systems and response.

7. Evacuation Planning and Preparedness – Utilize the City website and advertise at local events the LA County Fire Department identified evacuation zones, consider posting evacuation zone identification signage along primary routes, and identify specific areas/neighborhoods where secondary means of egress are needed.

8. Public Education and Awareness – Educate the public on how to mitigate wildfire hazards and risks and preparing/responding to wildfires. Establish improved communications with Homeowner Associations regarding wildfire mitigation actions, ensure public education materials on wildfire preparedness are generally accessible, including multi-language outreach.

9. Community, Collaboration and Partnerships – Encourage, promote, and assist grassroots efforts focused on wildfire mitigation preparedness (i.e., local fire safe councils, non-profits, etc.).

10. Emergency Response – Consider development of a parking restriction ordinance for Red Flag days, consider development of signage that identifies residences with static water sources.

The completion and approval of the CWRA is an essential initial step for the City and the community as it moves forward in its ongoing efforts to address Wildfire Resiliency. The completion of a CWRA demonstrates: 1) proactive leadership showing Agoura Hills' commitment to safety and resilience, 2) the City Council's commitment to act before the next major event, 3) strengthens cooperation with other agencies like LA County Fire, MRCA, National Park Service in this area, 4) provides a data driven foundation for land use, code enforcement and policy decisions related to this subject matter, 5) addresses constituency concerns and response to insurance challenges, defensible space, and evacuation safety, and 6) unlocks future funding for the development of a CWPP and other state and federal funding related to wildfire mitigation grants. Finally, the existence of the CWRA also offers a science-based framework to support the City Council's future land use, zoning, and mitigation decisions.

FISCAL IMPACT

Funding for the Community Wildfire Risk Assessment was allocated as part of the 2025-26 Fiscal Year Budget under Fund 260 Misc Grants (260-4215-5520) $22,069, Fund 260 Misc Grants (260-4215-5510) $50,000 and Fund 4215 Emergency Services (010-4215-5520) $35,000 for the development and completion of the CWRA.

RECOMMENDATION

Staff respectfully recommends the City Council approve the 2025 Agoura Hills Community Wildfire Risk Assessment.Report.

Attachments

20250905_Agoura_Hills_CWRA_FINAL compressed.pdf

REPORT

COMMUNITY WILDFIRE RISK ASSESSMENT

City of Agoura Hills

PREPARED FOR

Louis Celaya
Deputy City Manager
30001 Ladyface Court
Agoura Hills, CA 91301

Report Revision #: 0
Date: September 5, 2025

PREPARED BY

D.Rini, P.E., D. Kerr, T. Metzger, J.Cuendet, K. Fauss, C.Kolden, A Pludow

1000 Wilshire Blvd., Suite 250
Los Angeles, CA 90017

darlene.rini@jensenhughes.com

JENSEN HUGHES

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

This page has been intentionally left blank.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Executive Summary

The Community Wildfire Risk Assessment (CWRA) for the City of Agoura Hills provides a science-based and data-driven approach to better understand potential wildfire hazards, risks and vulnerabilities across the city and neighboring communities. This assessment is the first step in the development of a Community Wildfire Protection Plan (CWPP) to help increase the city's resiliency across a range of perspectives (e.g., technical, social, environmental, economic) to future wildfire threats. The development process for the CWPP is anticipated to begin upon completion of the CWRA, in Sept 2025.

The CWRA was developed through a collaborative process involving the City of Agoura Hills, Los Angeles County Fire Department (LACoFD), Los Angeles County Office of Emergency Services (LACo-OES), CA State Parks, National Park Service (NPS), other county-, state-, and federal-land management agencies, HOAs, community groups and the general public.

Wildfires have historically been a major part of the Agoura Hills' natural ecosystem. The climate, surrounding topography, suburban-rural landscapes and fire-adapted vegetation creates an environment for periodic burns. This is made more dangerous by the abundant risks associated with a resident population of 19,474, being identified as a Community-at-Risk (CAR) by CAL FIRE, areas of over-grown vegetation, limited access/egress, increasing effects of changing climate (e.g., increasing frequency and severity of droughts, extreme storms, flooding, increased number of fire danger days, etc.).

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

To better understand, assess and develop recommended actions for the unique set of hazards, assets-at-risk and vulnerabilities across the city, the CWRA was developed using the latest tools, resources, best practices, and guidance on wildfire planning and preparedness, particularly at the wildland-urban-interface (WUI). This includes science and engineering-based hazard, risk and vulnerability assessments using high resolution data (e.g., topography, fuels, weather, and values), as well as an understanding of firefighting operations, urban fire safety and land-use planning. The assessment was focused on identifying areas of concern throughout the city and identifying priority areas where wildfire threat potentials create the greatest risk to communities. As part of the future development of the CWPP, hazard and risk mitigation efforts and other action items will be specifically tailored to address the unique issues in the areas of greatest concern using a range of strategies, including:

+ Pre-fire planning.
+ Wildfire preparedness using holistic urban fire safety and wildland fire safety principles and strategies for protecting life, property, natural resources, and other communities' assets.
+ Public education and outreach to promote and increase wildfire awareness, action and mitigation activities.
+ Vegetation management and fuel reduction at the community level, including the enforcement of defensible space standards on private lands.
+ Reducing structure ignitability by promoting and enforcing building codes & standards, ordinances, and statutes.

As such, this document provides a framework that can be used to identify, prioritize, implement, and monitor hazard and risk reduction activities throughout the Planning Area as part of the CWPP development process. This document is also intended to support the California Fire Plan and the 2021 LA County Fire Department Strategic Plan.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Revision Record Summary

Revision	Revision Summary
0A	Draft issued to Client
0B	Draft issued for Public Comment
0C	Draft issued to Client incorporating Public Comments
Final Rev. 0	Final

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Table of Contents

EXECUTIVE SUMMARY 3
ACRONYMS 8
1.0 INTRODUCTION 10
1.1 Purpose of the Risk Assessment 10
1.2 Development Team 10
1.3 Next Steps – CWPP Development 11
1.4 Glossary of Terms 12
3.0 CWRA DEVELOPMENT PROCESS 13
3.1 Overview 13
3.2 Collaborative approach 13
3.2.1 Core Project Team 13
3.2.2 Agency Stakeholder Working Group 14
3.2.3 Stakeholder Engagement and Coordination 15
3.2.4 Broader Stakeholder Outreach 15
3.2.5 Public Outreach 16
4.0 COMMUNITY OVERVIEW 18
4.1 Overview 18
4.2 Fire Hazard Severity Zones 19
4.3 The Wildland-Urban-Interface (WUI) 21
4.4 Values at Risk 23
4.5 Land Use 25
4.6 Climate and Climate Change 25
5.0 METHODOLOGY 35
5.1 Introduction 35
5.2 Risk-Informed Framework 35
5.3 Wildfire Hazard Assessment Assumptions 36
5.3.1 Analytical Boundary 37
5.3.2 Software 38
5.3.3 Key Input Data Sources 38
5.3.4 Weather Data and Analysis 38
5.3.5 Fuel Types and Fuel Models 43
5.3.6 Topography 45
5.4 Wildfire Risk Assessment Assumptions 46
5.4.1 Overview 46
5.4.2 Risk Scenario 47
5.4.3 Risk Analytical Boundary 47
5.4.4 Risk Formulation 47

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

6.0 WILDFIRE HAZARD AND RISK ASSESSMENT RESULTS 51
6.1 Wildfire Hazard Assessment Results 51
6.1.1 Fire History 51
6.1.2 Ignition Density 55
6.1.3 Fire Severity (“Hazard”) 56
6.1.4 Simulated Fire Frequency 57
6.1.5 Fire Flow Paths 58
6.1.6 Flame Length 61
6.1.7 Crown Fire 62
6.2 Community Wildfire Risk Assessment 64
6.2.1 Quantitative Risk Assessment Results 65
6.2.2 Vulnerabilities 68
6.2.3 Community Input on Hazards and Risks 74
7.0 RECOMMENDATIONS 78
8.0 REFERENCES 83
APPENDIX A GLOSSARY OF TERMS A-1
APPENDIX B RISK ASSESSMENT METHODOLOGY TECHNICAL MEMO B-1
APPENDIX C PUBLIC SURVEY RESULTS C-1
APPENDIX D BROADER STAKEHOLDER SURVEY RESULTS D-1
APPENDIX E PUBLIC WORKSHOPS E-1

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Acronyms

AHFSC	Agoura Hills Fire Safe Council
AHJ	Authority Having Jurisdiction
CAL FIRE	California Department of Forestry and Fire Protection
CAR	Community at Risk
CEQA	California Environmental Quality Act
CCR	California Code of Regulations
CWPP	Community Wildfire Protection Plan
ESHA	Environmentally Sensitive Habitat Areas
FEMA	Federal Emergency Management Agency
FHSZ	Fire Hazard Severity Zone
FRA	Federal Responsibility Area
FRAP	Fire and Resource Assessment Program
GIS	Geographic Information System
HFRA	Healthy Forest Restoration Act
HVRA	High Valued Resources and Assets
HIZ	Home Ignition Zone
HOA	Homeowners' Association
IBHS	Insurance Institute for Business and Home Safety
LACoFD	Los Angeles County Fire Department
LACo-OES	Los Angeles County Office of Emergency Services
LANDFIRE	Landscape Fire and Resource Management Planning Project
LRA	Local Responsibility Area
MRCA	Mountains Recreation & Conservation Authority
MTT	Minimum Travel Time
NFP	National Fire Plan
NFPA	National Fire Protection Association
NIMS	National Incident Management System

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

NPS	National Park Service
OES	Office of Emergency Services
PRC	Public Resources Code
RAWS	Remoted Automated Weather Station
SMMC	Santa Monica Mountains Conservancy
SMMFSC	Santa Monica Mountains Fire Safe Council
SRA	State Responsibility Area
WFDSS	Wildland Fire Decision Support System
WIMS	Weather Information Management Systems
WUI	Wildland Urban Interface

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

1.0 Introduction

Agoura Hills and surrounding areas have an extensive history of large wildfires that have caused substantial impacts to human health and life safety, the built environment, local economies, the natural environment, and cultural/historical resources. Impacts from wildfire have also included numerous other short and long-term costs to social capital, human psychology, vulnerable groups, and recovery capacities. While government agencies can play an important role in developing and implementing a range of wildfire hazard and risk mitigation activities, programs, and policies, wildfires are not fully preventable. Wildfires are considered to be part of a natural process in ecosystems that provide benefit to the land and help maintain ecosystem health. This includes soil fertility and nutrient cycling, wildlife habitat improvement, pest and disease control, and promoting biodiversity. With these benefits in mind, it is critical that the whole community works collectively to build individual and societal capacities to prevent, prepare for, respond to, and recover from major wildfire incidents. As wildfires are an inevitable part of life in Agoura Hills and surrounding cities (e.g., Calabasas, Westlake Village), it is not a question of if a wildfire will occur, but when it will burn and how prepared and resilient the community will be to minimize potential impacts.

The 2025 Community Wildfire Risk Assessment (CWRA) for the City of Agoura Hills considers all areas within city limits. The planning area is bounded by Oak Park to the north, Westlake Village to the west, the Santa Monica Mountains to the south and Calabasas to the east.

The results of this CWRA are intended to inform the City's understanding of wildfire hazards, risks and vulnerabilities to potential wildfires originating in and around the Planning Area. The results will help identify the most at-risk geographic area(s) across the City, as well as help inform the future development of the Agoura Hills Community Wildfire Protection Plan (CWPP), associated technical and programmatic needs, as well as prioritization of an action plan.

1.1 PURPOSE OF THE RISK ASSESSMENT

This CWRA provides the technical analysis used to understand potential wildfire hazards, risks and vulnerabilities across Agoura Hills. It is not a Community Wildfire Protection Plan (CWPP), which is a strategic planning document that is based on the outcomes of the CWRA. The CWRA serves as the basis for government agencies, community organizations, residents and other stakeholders to develop targeted mitigation activities, programs and policies to help increase resiliency to wildfire threats in future. The CWRA is typically the first step in developing a Community Wildfire Protection Plan (CWPP).

1.2 DEVELOPMENT TEAM

This section identifies the agencies, parties and other organizations who were involved and/or provided input into the development of this CWRA. The roles and responsibilities are indicated in

Table 1 below.

Table 1. CWRA Project Roles and Responsibilities.

CWRA Development Entities	Roles/Responsibilities
Lead Organization:	+ Manage day-to-day CWRA project and consultants + Coordinate Agency Stakeholder Working Group

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

CWRA Development Entities	Roles/Responsibilities
City of Agoura Hills	+ Coordinate Core Project Team and public outreach + Provide guidance and support for CWRA + Distribute media releases about CWRA + Conduct direct outreach + Coordinate with neighboring jurisdictions + Identify and obtain grant funding for CWRA and future CWPP
Stakeholder Working Group: 7 members See Section 3.2.2 for full list of members	+ Represent a range of relevant agencies, organizations, and entities in and around the city + Approve CWRA goals and objectives + Provide general feedback, expertise, and local context for CWRA development and associated products + Identify gaps in CWRA development process + Support public outreach activities + Support site visits + Develop and implement CWRA recommendations
General Public and Other Interested Parties	+ Attend public workshops + Provide responses to online survey + Provide input on values to protect, areas of concerns, community projects and ongoing grass-roots initiatives
CWRA Consultant: Jensen Hughes	+ Support the development of the CWRA + Provide fire science, engineering and subject matter expertise, data analysis and guidance on current wildfire research, best practices and firefighting operations + Facilitate and support stakeholder outreach and engagement + Provide supporting materials and content for public outreach activities (e.g., CWRA development page, public survey)

1.3 NEXT STEPS – CWPP DEVELOPMENT

The next step following this CWRA is the development of a Community Wildfire Protection Plan (CWPP). A CWPP is a collaborative process where community stakeholders assess the wildfire threat, identify community values at risk, and ultimately develop prioritized mitigation measures and actions to increase community resilience to wildfire threats. The language in the 2003 Healthy Forest Restoration Action (HFRA) provides maximum flexibility for communities to determine the substance and detail of their CWPP action plan and the procedures they use to develop it. The CWPP planning process provides communities with the opportunity to develop locally relevant plans that influence where and how federal agencies implement fuel treatment activities on federal land and the distribution of federal funds for projects on non-federal lands. In addition, the

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

development of a CWPP positions communities to access other funding sources from State and Local resources for wildfire mitigation projects.

The CWPP planning process brings together broad and diverse local interests to holistically identify common concerns and values related to public safety, sustainability of environmental and natural resources, and long-term resiliency and sustainability of the whole community. The process should provide a positive, solution-oriented environment in which to address the challenges of living in a community at risk to wildfire. Because not all community members will attend workshops or meetings, it is important to provide multiple opportunities for the whole community to provide input, voice issues and concerns, and participate in the process of developing a CWPP.

1.4 GLOSSARY OF TERMS

A glossary of terms can be found in Appendix A.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

3.0 CWRA Development Process

3.1 OVERVIEW

The CWRA was developed over a 12-month period in collaboration with a broad set of government and non-government stakeholders to better understand and identify the potential hazards, risks and vulnerabilities to wildfires in and around the City of Agoura Hills. Figure 1 shows the timeline for the CWRA development process and various key milestones for the analysis, stakeholder engagement activities, interim checkpoints and final deliverables.

Figure 1. CWRA Development Process and Timeline

3.2 COLLABORATIVE APPROACH

The CWRA was developed collaboratively with the City of Agoura Hills, the Agency Stakeholder Working Group (i.e., Los Angeles County Fire Department, County Sheriff's Department, the Agoura Hills Fire Safe Council, other county-, state-, and federal-agencies), community organizations and the general public. The various CWRA coordination and development groups, as well as public outreach plan were designed to reinforce existing relationships, as well as integrate ongoing mechanisms to obtain community input, promote widespread community education and enable the ongoing monitoring and evaluation of the ever-evolving wildfire risk landscape (e.g., impacts of changing climate, changes in development, impacts of mitigation activities etc.).

3.2.1 Core Project Team

The CWRA core project team was formed at the start of the project (August 2024), and was composed of a smaller group of key representatives from:

+ City of Agoura Hills
+ Fire Consultant: Jensen Hughes
+ County of Los Angeles Fire Department

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

This group was responsible for the day-to-day development of the CWRA, organizing the engagement and participation of a broad range of stakeholders, agencies, organizations, and individuals (i.e., federal/state/local government agencies, fire authorities, landowners and stewards, community groups, residential/commercial owners, infrastructure, general public), forming the Agency Stakeholder Working Group, monitoring project progress, facilitating public outreach, and reviewing key documents and project deliverables.

The group considered input from all relevant plans, community groups, agencies, and local organizations. The objective was to facilitate city, county, state, and federal participation to work cooperatively to help protect life, property, and natural resources from wildfires.

3.2.2 Agency Stakeholder Working Group

The Agency Stakeholder Working Group (SWG) was identified and formed at the start of the project in August/September 2024. The group included representatives of relevant local-, state- and federal-government agencies, community groups, non-profit organizations and other entities (see below). The SWG served as an advisory group to provide local context and subject matter expertise, identify gaps, support public outreach activities (as needed), support site visits, and provide general feedback on the CWRA development process and CWRA products (as requested).

Members:

- County of Los Angeles Fire Department (LACoFD) – Division 7
- County of Los Angeles Fire Department (LACoFD) – Forestry Division
- County of Los Angeles Sheriff's Department
- Mountain Recreation & Conservation Authority (MCRA)
- Santa Monica Mountain Conservancy (SMMC)
- State Parks Services (Angeles District of Parks)
- National Park Service
- Agoura Hills Fire Safe Council (AHFSC)
- Southern California Edison (SCE)

The SWG met four times over the course of the project. Key meetings included a kickoff meeting (held November 14, 2024), a 1-day site visit (held March 7, 2025), prior to the draft CWRA (June 24, 2025) and when the final CWRA is produced (Aug/Sept 2025).

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

3.2.3 Stakeholder Engagement and Coordination

In addition to the SWG, participation and engagement of a broad range of community stakeholder groups was a critical component throughout the development of the CWRA. As such, multiple efforts were planned to engage project partners and other stakeholders throughout the CWRA development process. This was intended to encourage a sense of ownership and a vested interest in the future safety and well-being of individuals, families, businesses, agencies, community groups, and other interested parties across the city to wildfires.

The primary goals and objectives of the outreach process were as follows:

(1) Provide various opportunities for community stakeholders and the general public to participate, collaborate and engage throughout the CWRA development process.

(2) Gather feedback on a broad range of concerns regarding wildfire hazards, risks, and vulnerabilities at various scales (e.g., city, neighborhood, parcel, individual).

(3) Identify appropriate levels and methods of stakeholder engagement.

Framing the stakeholder outreach efforts were a set of guiding principles, based upon discussions amongst the Core Project Team and literature.

+ **Accessible** – Stakeholders must be aware and be provided with a variety of engagement opportunities and formats to participate in the process.
+ **Participatory** – Creating an environment to facilitate the expression and the participation of different and diverse actors, such as oral communication, written communication, and schematic or visual representations. Promote a culture of participation with programs and activities that support ongoing engagement and ownership.
+ **Informative** – Help all involved to listen to each other, explore new ideas, learn, and apply information in ways that generate new solutions, methods, or opportunities.
+ **Collaborative** – Support and encourage participants, government and civil society groups, and other interested parties to work together to advance the common good.
+ **Representative** – Equitably incorporate diverse people, voices, ideas, and information to lay the groundwork for quality outcomes and democratic legitimacy.

To effectively engage various Stakeholder groups and the general public, various engagement tactics were identified to solicit the desired input or feedback specific to the targeted audience. See the following sections for an overview of engagement for different groups.

3.2.4 Broader Stakeholder Outreach

An online stakeholder survey was administered over a two-month period to gather information on major wildfire-related concerns, active and proposed activities/projects (including fuels reduction projects, emergency planning, and outreach), and any geospatial data and/or relevant plans/reports from a broad set of community stakeholders. This included stakeholders from infrastructure, governmental agencies, residential/commercial property-owners, and community groups. A total of 13 agencies and organizations provided responses to the stakeholder survey, either through an online survey or paper form.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

A summary of broader stakeholder comments is provided in Appendix D.

3.2.5 Public Outreach

A priority for the City was to get broad community participation and engagement in the development of the CWRA. This was accomplished through public workshops and a public survey.

3.2.5.1 Public Survey

A community survey was administered from February 20, 2025 to May 12, 2025. The survey was intended to gather feedback from the general public regarding broad and more nuanced information to better tailor community-based activities, educational programs, services, policies, and other action items that not only help mitigate wildland fire risks, but also are locally relevant, inclusive, and sustainable. Refer to Section 6.2.3 for a high-level summary of the results and Appendix C for greater detail.

3.2.5.2 Public Workshops

Over the course of the CWRA development process, two public workshops were held at Agoura Hills Recreation and Event Center.

+ **Workshop #1** – The first workshop was in-person and held on May 20, 2025 (See Figure 2). Members of the public were invited and attended the workshop via public announcements on the City's website, social media accounts, email blasts, and calendar, as well as direct communications with key stakeholders and community groups. Attendees included local residents, homeowner association representatives, City officials, Fire Safe Council representatives, and other interested parties. In addition to learning about and providing feedback on the CWRA process, participants also had the opportunity to examine the results of initial wildfire hazard assessments and identify areas of specific concern. Throughout the presentation, stakeholders were given the opportunity to provide targeted comments and questions on specific topics of interest or concern via notecards that were collected at the end of the workshop.

Figure 2. First public workshop held on May 20th, 2025 at the Agoura Hills Recreation and Event Center.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

- **Workshop #2** – Upon completion of the CWRA development process, a final workshop was held on July 29th, 2025 to review the results of the overall risk assessment and recommendations.

A summary of all workshops, meeting notes and stakeholder comments are available in Appendix E.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

4.0 Community Overview

4.1 OVERVIEW

The City of Agoura Hills, with an estimated population of 19,429 residents, is located west of Los Angeles and north of the Santa Monica Mountains (Figure 3). The City is bordered by Westlake Village to the west, Hidden Hills and Calabasas to the east, Oak Park to the north, and unincorporated Los Angeles County land to the south. It is approximately 8 square miles in area and is considered a Community-at-Risk (CAR) by CAL FIRE.

Historically, wildfires have been a major part of the area's natural ecosystem. The climate, surrounding topography, suburban-rural landscapes and fire-adapted vegetation creates an environment for periodic burns. Increasing effects of changing climate (e.g., increasing frequency and severity of droughts, extreme storms, flooding, increased number of fire danger days, etc.), as well as areas of over-grown vegetation have left Agoura Hills with increased risk to wildfire.

Several communities across the City, particularly the more established communities, have narrow roads with significantly overgrown, dense vegetation along the roadways. These conditions can expose both residents and first responders to unsafe and/or dangerous conditions such as increasing the likelihood of fire encroachment, high temperatures, poor visibility, untenable conditions, congestion, blocked roadways, etc. In addition, the City has of a variety of other characteristics including intermixed overgrown vegetation, pre-WUI code construction, variable compliance with defensible space, communication dead-zones, need for large animal evacuation, and other characteristics that can increase susceptibility to loss from potential wildfire threats.

Figure 3. Planning Area for the CWRA.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

4.2 FIRE HAZARD SEVERITY ZONES

FHSZs are based on wildfire hazards over a 30- to 50-year period and therefore do not consider how recent wildfire activity or fuel modifications may influence potential fire severity.

Fire Hazard Severity Zone (FHSZ) maps identify geographic areas of significant fire hazard in both State and Local Responsibility Areas as defined by CAL FIRE. The zones are based on factors that influence wildfire behavior such as vegetation, topography, weather, etc. The fire hazard severity model for wildland fire has two key elements: probability of an area burning and expected fire behavior under extreme fuel and weather conditions. The zones reflect areas that have similar burn probabilities and fire behavior characteristics. The factors considered in determining fire hazard within wildland areas are fire history, flame length, terrain, local weather, and potential fuel over a 50-year period. Outside of wildlands, the model considers factors that might lead to buildings being threatened, including terrain, weather, urban vegetation cover, blowing embers, proximity to wildland, fire history, and fire hazard in nearby wildlands.

All State Responsibility Areas (SRA) and Local Responsibility Areas (LRA) are classified into one of the three categories – moderate, high, and very high. As FHSZs are based on wildfire hazards over a 30- to 50-year period, they do not consider how recent wildfire activity or fuel modifications may influence potential fire severity. CAL FIRE is required to produce FHSZ maps under the California Public Resources Code 4201-4204, California Code of Regulations Title 14 Section 1280, and California Government Code 51175-89.

While FHSZs do not predict when or where a wildfire may occur, they do identify areas where wildfire hazards are likely more severe and of greater concern. As such, FHSZs identify areas where increased wildfire safety provisions for various building and site components (e.g., maintained defensible space, fire, or ignition resistant materials, including vents, decks, and windows) are required for all new construction per California Building Code Chapter 7A. The FHSZ designation of a property is used by local governments to support wildfire risk analysis and hazard mitigation planning[1].

Based on the most current FHSZ maps (LRA effective 3/24/25 and SRA effective 4/1/24), the majority of the City (77.7%) is in an LRA-designated Very High Fire Hazard Severity Zone (VH FHSZ). There are no SRA or Federal Responsibility Area (FRA) lands located within the City limits (Figure 4).

Table 2. Percentage Breakdown of Fire Hazard Severity Zones in the Planning Area

[1] https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones/

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Responsibility Area	Fire Hazard Severity Zone (% of total Planning Area)				Direct Protection Area in acres (% of total area)
	Very High	High	Moderate	Non-Burnable[2]	
FRA[3]	N/A	N/A	N/A	N/A	N/A
SRA	N/A	N/A	N/A	N/A	N/A
LRA	77.7%	8.3%	7.7%	53.7%	5,003 (100%)
Total	***77.7%***	***8.3%***	***7.7%***	***53.7%***	***5,003 (100%)***

[2] Five landscape features are classified as non-burnable; Urban/Suburban, Snow/Ice, Agricultural Fields, Open Water, Bare Ground. The current fire behavior models can only simulate fire spread in wildland fuel, therefore these areas are classified as non-burnable.

[3] The federal government has a different fire hazard scoring system to CAL FIRE's FHSZ classification system and is not applicable to the Percentage Breakdown of Fire Hazard Severity Zones in the Planning Area table.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

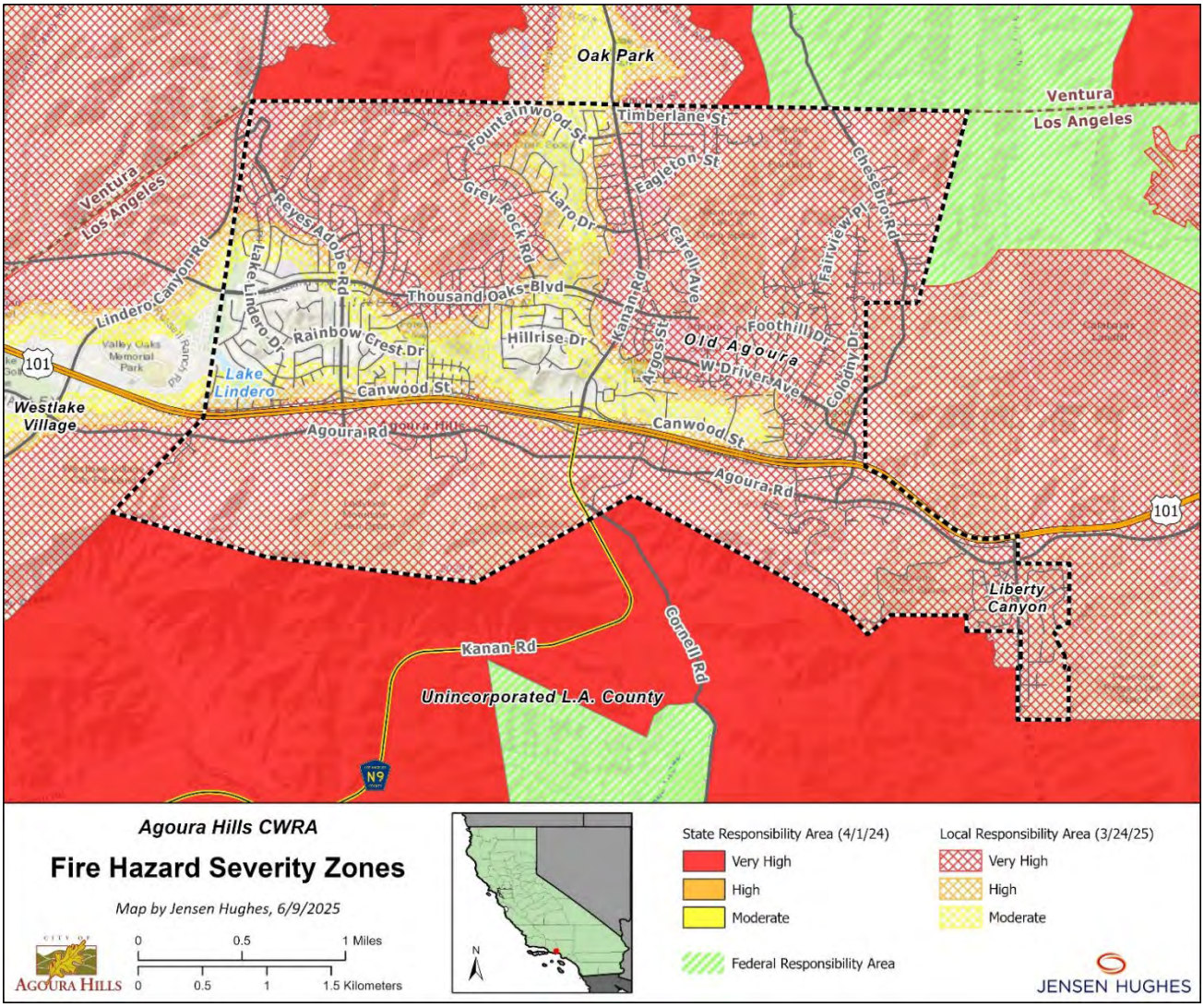


Figure 4: Fire Hazard Severity Zones

4.3 THE WILDLAND-URBAN-INTERFACE (WUI)

The wildland-urban interface, commonly called the WUI, is defined as the line, area, or zone where structures and other man-made development meet or intermingle with undeveloped wildland or vegetative fuels (NWCG, 2018). Oftentimes, the WUI is perceived as rural areas where uninhabited wildlands (primarily timbered forests) meet individual structures or homes. This perception has led many who live in more suburban and urban areas "near the WUI" to believe they are not at risk from wildfire, because they are not exactly at the interface of wildlands or they live adjacent to large open spaces of primarily grass and shrub-lands (instead of forestlands) [FEMA, 2022].

> The National Wildfire Coordinating Group (NWCG, 2009) defines the WUI as "the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels."

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

To help protect people and property from potential catastrophic wildfire, the 2000 National Fire Plan (NFP) required the identification of communities in the wildland-urban interface (WUI). WUI zones across Agoura Hills are shown in Figure 5.

All three WUI designations are considered at risk and susceptible to wildland fires. Below is a brief description of each of the WUI zones:

1. **Wildland-Urban Interface**: dense housing development adjacent to vegetation that can burn in a wildland fire.
2. **Wildland-Urban Intermix:** housing development interspersed within an area dominated by wildland vegetation subject to wildfire.
3. **Wildland-Urban Influence Zone:** wildfire susceptible vegetation up to 1.5 miles from Wildland-Urban Interface and/or Intermix areas.

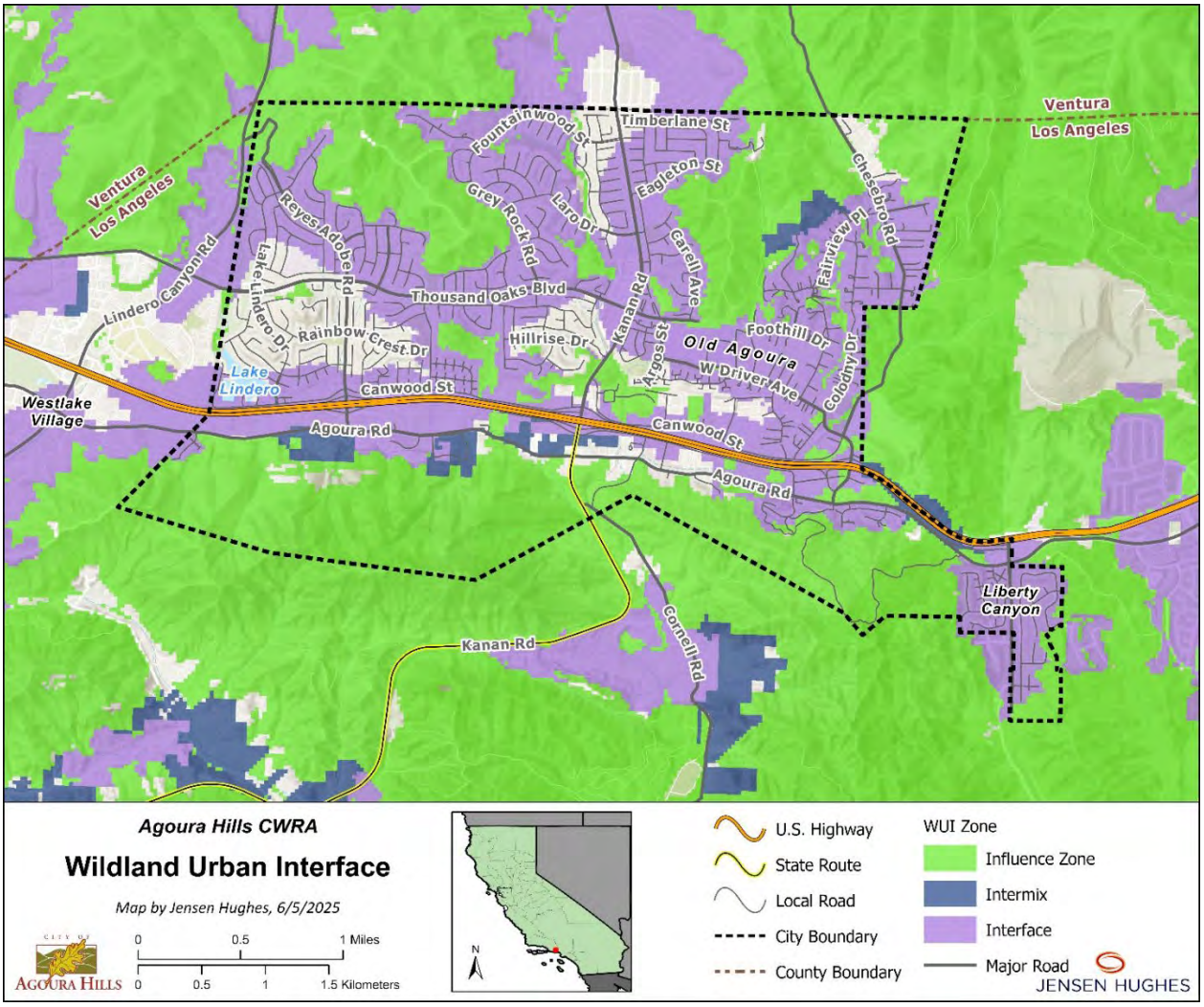


Figure 5. Wildland Urban Interface Zones for Agoura Hills.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

4.4 VALUES AT RISK

The City of Agoura Hills is an important location for both locals and visitors with its trailheads, shopping and dining opportunities, agriculture and livestock operations, historic and cultural resources, government facilities and services, and educational facilities. Attempts to capture all the City's measurable and intrinsic values are difficult. As such, the CWRA only considers those values that can be most readily impacted by wildfire.

Community values at risk to wildfires are often considered to be life safety, private property and critical infrastructure. However, values can also include human health, natural resources, sensitive species and habitats, cultural and historical resources, viewscapes and other intangibles (e.g., social capital, community culture, livelihood). Although not all values can be protected directly through wildfire mitigation measures, actions can be taken to indirectly protect those values by developing strategies that reduce the wildfire threat overall. An ongoing challenge is to balance the level of hazard mitigation work required to protect one set of values without compromising others.

The following values or assets have been identified by the Agency Stakeholder Working Group, Agoura Hills residents and other community stakeholders for the purposes of this CWRA:

Figure 6 illustrates the spatial arrangement of community assets across the City. These assets were included as part of the quantified risk assessment, described in more detail in Section 5.0 and Section 6.0. Note: A more detailed description of community asset categories and types will be provided as part of the CWPP development process.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

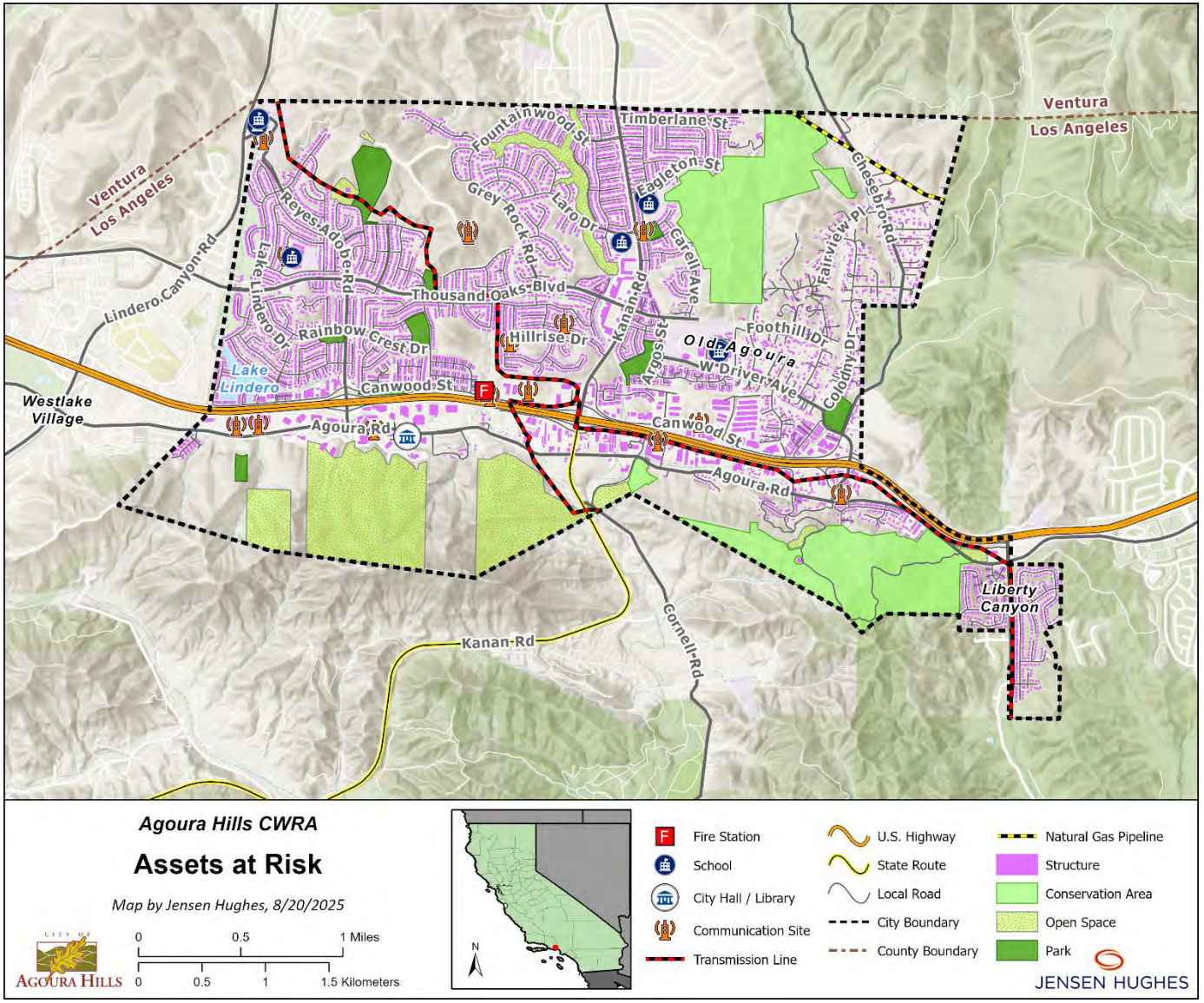


Figure 6. Assets-at-Risk for Agoura Hills.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

4.5 LAND USE

The Community Conservation and Development chapter of the Agoura Hills General Plan 2035 is intended to guide development of Agoura Hills' built environment to the year 2035. Agoura Hills' land use policies have adapted over time, as the City is now almost fully developed. Therefore, policies focus on how population and employment growth can be managed to preserve the qualities of the City's neighborhoods, business districts, and open spaces.

The City of Agoura Hills is primarily residential land use (approx. 42%), as demonstrated in Figure ***7***. Parks and open space make up the second most common land use (approx. 28%), and planned development the third most common (approx. 16%). Business and manufacturing and commercial use make up the least amount of acreage, at roughly 6% and 5%, respectively.

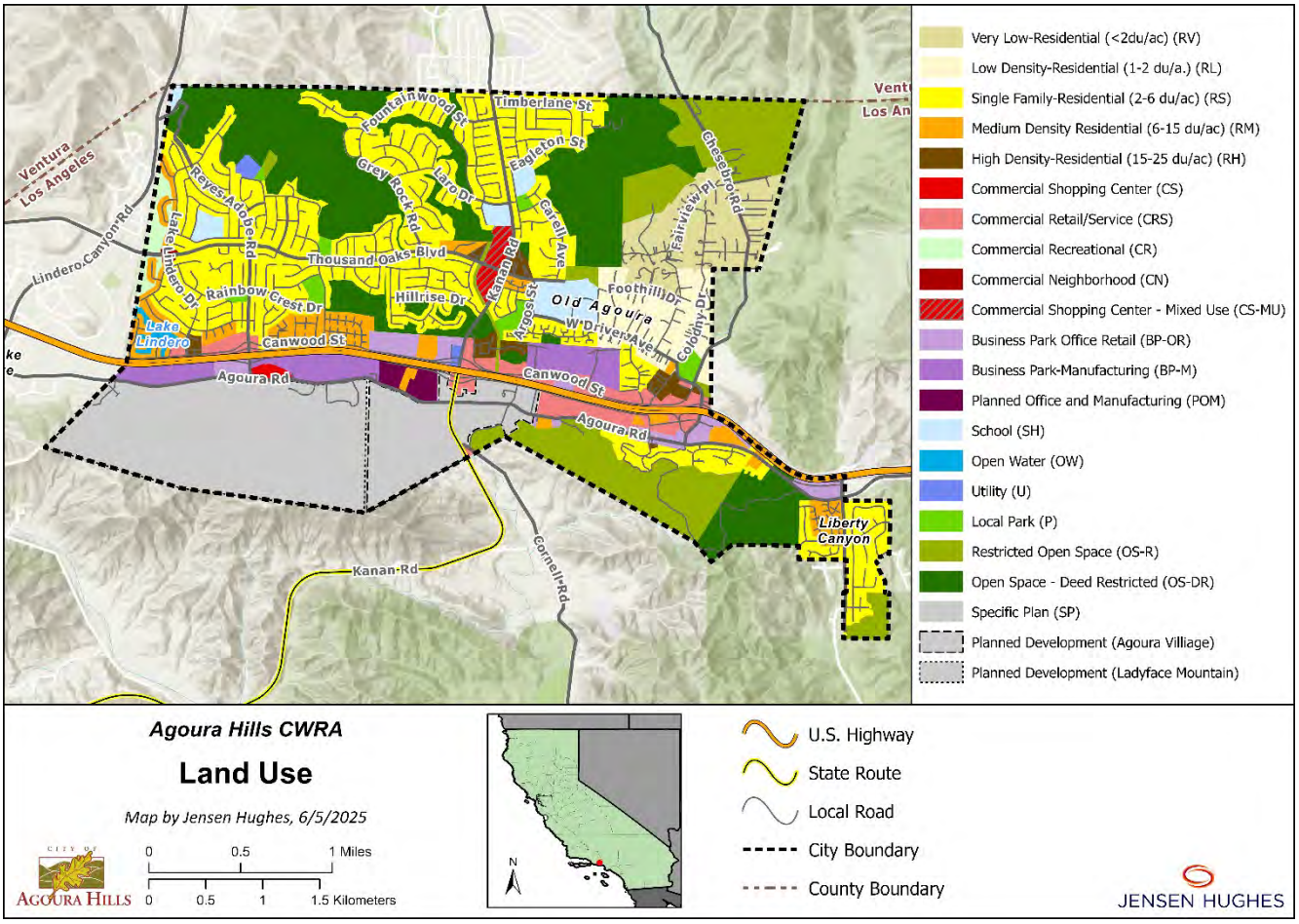


Figure 7. Agoura Hills Land Use Diagram.

4.6 CLIMATE AND CLIMATE CHANGE

The City of Agoura Hills has a Mediterranean climate, with 16.6" annual precipitation falling primarily in the winter months. Agoura Hills is impacted by the marine layer, a mass of cooler air and cloud cover that moves inland from the ocean, with the greatest impacts during the spring and early summer. When the marine layer

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

forms, temperatures are moderated and relative humidity increases, diminishing fire danger. The marine layer contributes to average temperatures peaking in later summer in the 100s F, with a relatively moderate range between the summer mean high (92 F) and the winter mean low (47 F) (Figure 8). This supports a moderate maritime climate that occasionally sees extreme temperature and extreme rainfall events. While the hottest month on average is August, the record hottest day (108 F) is in early September.

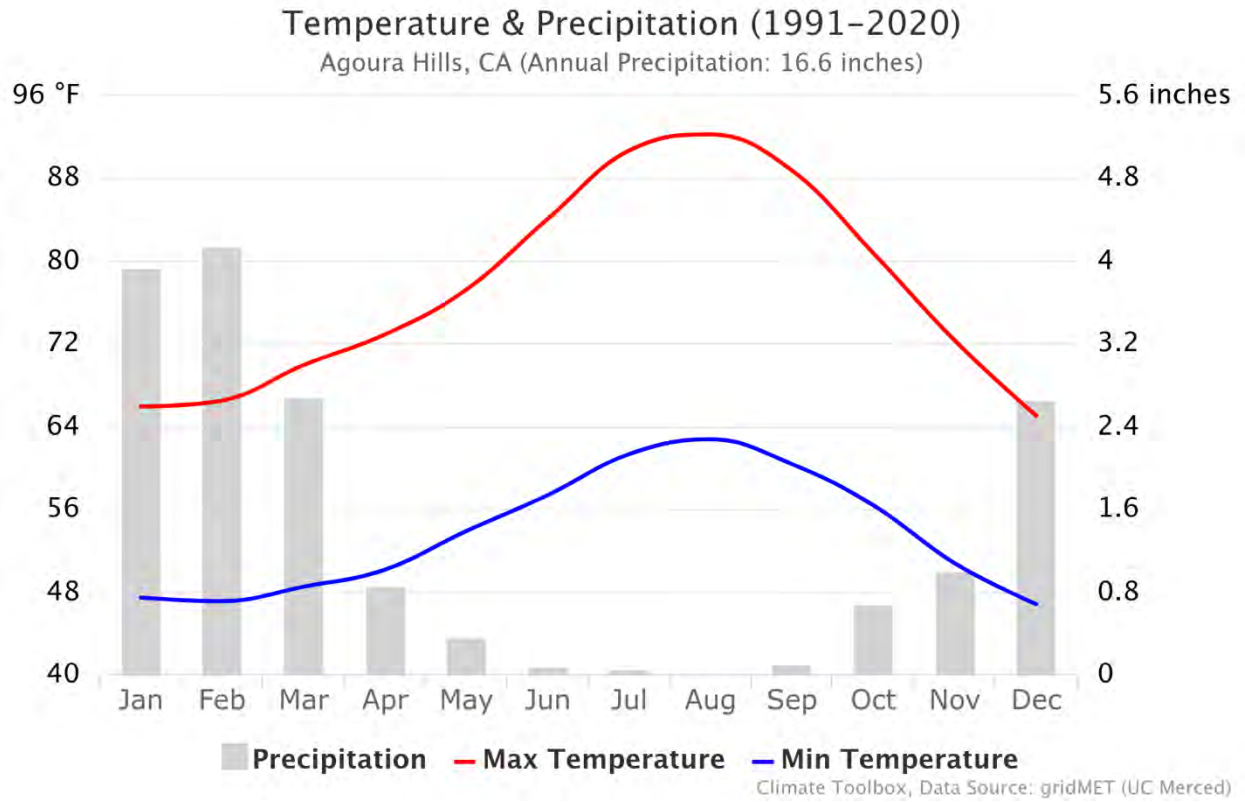


Figure 8 . Annual mean climatology over the 1991 – 2020 reporting period for the Planning Area.

While global climate change is often reported as an average rise in temperature (i.e., warming) for the entire planet, the observed changes are highly variable across the globe and even within states, such as California. Changes in temperature, precipitation, and other meteorological phenomena are also variable both across the seasons of the year, and in terms of the intensity of extreme events. As wildfire tends to occur under extreme conditions in the Planning Area, it is critical to understand how climate change specifically impacts both the frequency and intensity of these extreme weather events, as well as how it affects the vegetation fueling the fire. Both fuels and extreme heat events are affected by climate change. Abnormally wet winter-spring periods yield higher than normal fine fuel loads, which are the primary carriers of fire.

In the Planning Area, conditions conducive to producing the most extreme fire behavior, including rapid rates of spread and uncontrollable flames, occur in the autumn and winter months when easterly Santa Ana winds coincide with drought conditions (Figure 9). Winter droughts are expected to increase in frequency and intensity under climate change.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

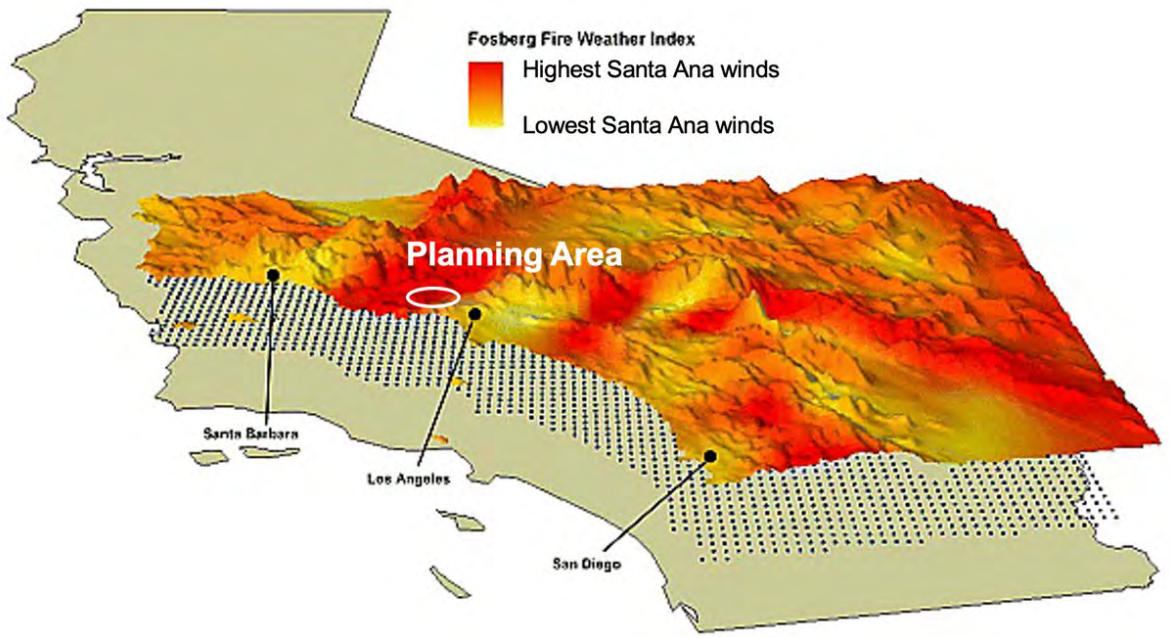


Figure 9. Map adapted from Moritz et al. (2010) showing where the highest Santa Ana winds concentrate and facilitate uncontrollable and extreme wildfires. The Planning Area (white oval) is in an area heavily impacted by strong Santa Ana winds.

Agoura Hills has warmed 2.1° F overall in the last 100 years (Figure 10). However, temperatures are highly variable from year-to-year, with 2014 registering the hottest year for the Planning Area since 1895. Warming has occurred across all four seasons and for both daytime highs and nighttime lows, but the greatest warming trends are the nighttime lows, particularly in autumn.

These trends are consistent with reduced nighttime relative humidity recovery, where it remains dry at night rather than becoming more humid, and support anecdotal observations from fire suppression personnel that fires are more active at night now than they have been in the past. Reduced nighttime humidity recovery across spring, summer, and fall seasons is a contributing factor to an observed trend towards increased fire danger, specifically because fuel aridity is higher and fuels are less resistant to fire spread (Abatzoglou and Williams 2016, Goss et al. 2020)[4][5]. When a Santa Ana or Sundowner wind event develops in conjunction with low fuel moisture (i.e., high fuel aridity) there is a greater probability of rapid fire spread and the development of large, longer duration wildfires (Rolinski et al. 2016)[6].

[4] Abatzoglou, J.T. and Williams, A.P., 2016. Impact of anthropogenic climate change on wildfire across western US forests. Proceedings of the National Academy of Sciences, 113(42), pp.11770-11775.

[5] Goss, M., Swain, D.L., Abatzoglou, J.T., Sarhadi, A., Kolden, C.A., Williams, A.P. and Diffenbaugh, N.S., 2020. Climate change is increasing the likelihood of extreme autumn wildfire conditions across California. *Environmental Research Letters*, *15*(9), p.094016.

[6] Rolinski, T., Capps, S.B., Fovell, R.G., Cao, Y., D'Agostino, B.J. and Vanderburg, S., 2016. The Santa Ana wildfire threat index: Methodology and operational implementation. *Weather and Forecasting*, *31*(6), pp.1881-1897.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

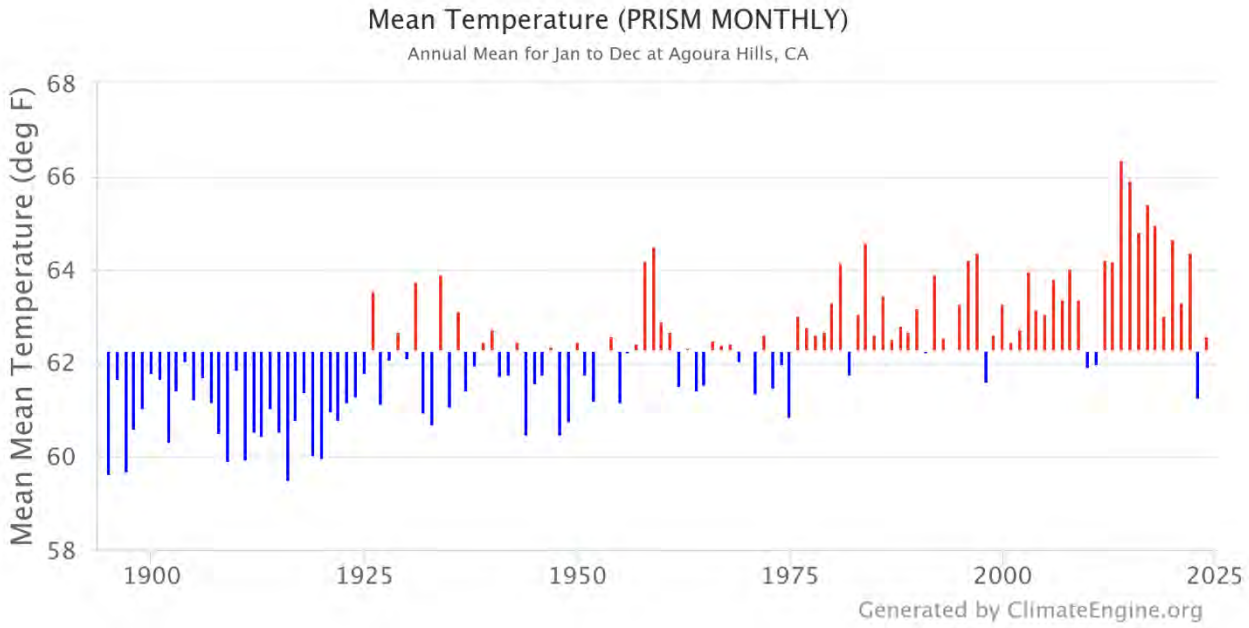


Figure *10. Mean annual mean daily temperature for Agoura Hills from 1895-2024, showing departure from the long-term average of 62.3 F.*

In contrast to a clear warming trend, annual precipitation in the planning area has not changed significantly over the past century (Figure 11). Notably, however, precipitation has declined substantially in the last four decades in Autumn, the season when Santa Ana winds pick up and the fastest spreading wildfires occur (Figure 12). Moisture availability has also declined due to changes in the coastal influence. The marine layer is a type of coastal fog that develops during the spring and summer, and due to the strong temperature gradient between the cool ocean waters and the superheated land mass. This layer is difficult to measure, but observations from Burbank and Santa Monica airports over the last 50 years show that it appears to be getting weaker and providing less shade (Figure 13), which increases vegetation aridity on the ground (Williams et al. 2018)[7]. Continued ocean warming in the future may further decrease the marine layer, potential making the western portion of the Planning Area more susceptible to fire.

[7] Williams, A.P., Gentine, P., Moritz, M.A., Roberts, D.A. and Abatzoglou, J.T., 2018. Effect of reduced summer cloud shading on evaporative demand and wildfire in coastal southern California. *Geophysical Research Letters*, *45*(11), pp.5653-5662.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

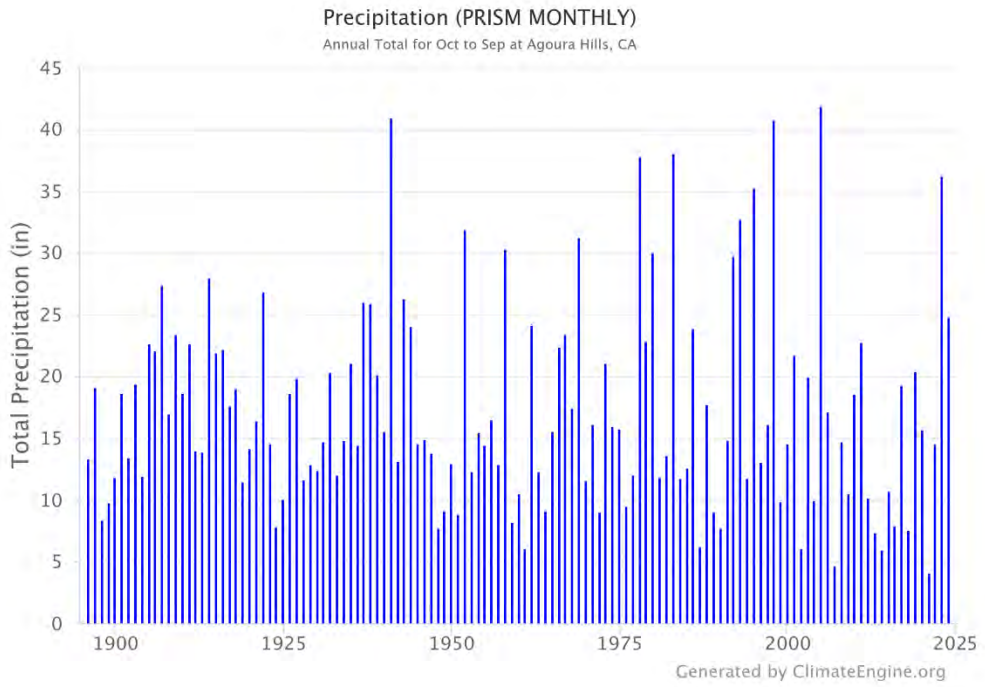


Figure 11. Mean annual water year (Oct. – Sept.) total precipitation for the Planning Area (1895-present).

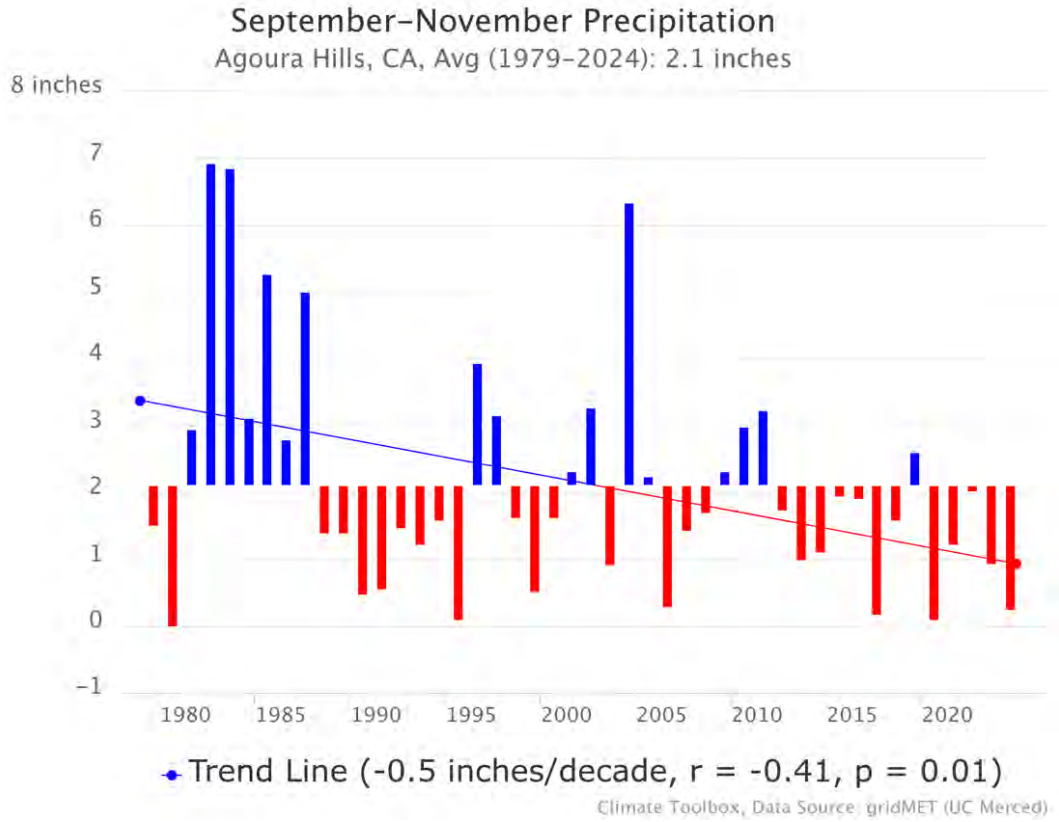


Figure 12. Decline in Autumn precipitation from 1979-2025.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

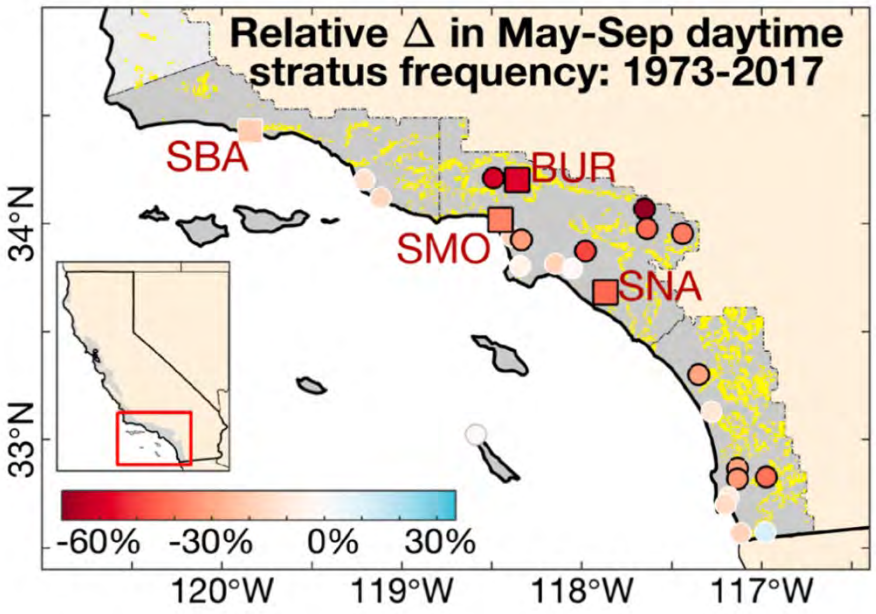


Figure 13. Summer decline in daytime cloud cover (frequency of stratus clouds observed at airfields including Burbank (BUR), Santa Monica (SMO), and Santa Barbara (SBA)) from 1973-2017 from Williams et al. (2018).

Overall, the rising temperatures and the declining autumn precipitation have increased fire potential in the City, as indicated in trends of Fire Danger indices, most notably the autumn Burning Index (BI; Figure 14).

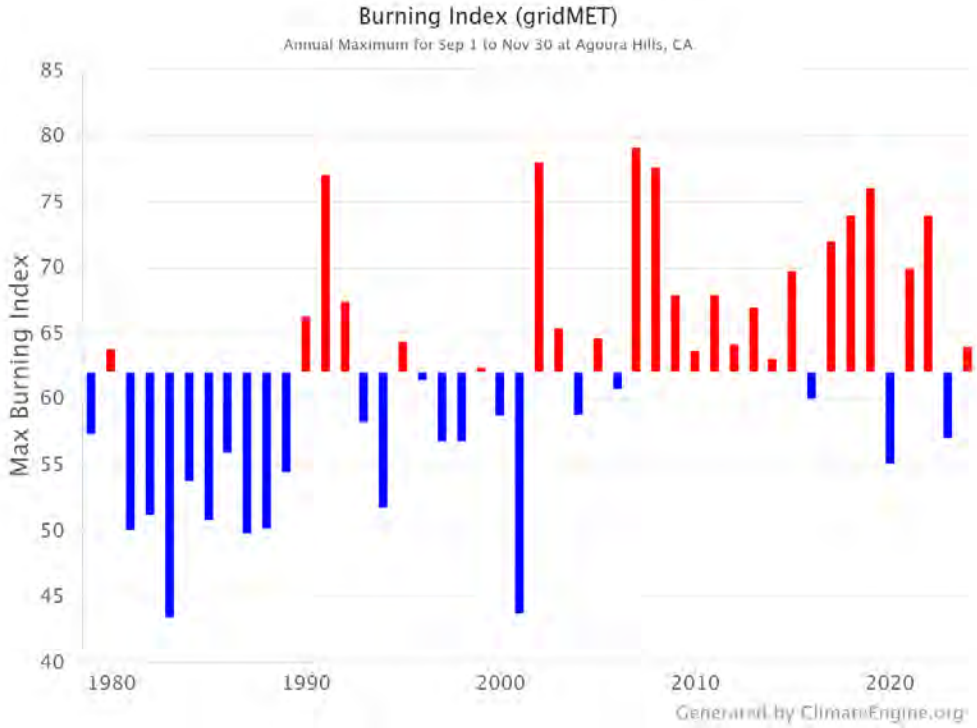


Figure 14. Autumn (October - December) maximum BI for the Planning Area shows the increase in dry, hot, windy events that are conducive to large fire growth.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Projections of future climate change are modeled based on anthropogenic (i.e., human) emissions of greenhouse gases, but also account for natural climate variability. Increases in fire activity across the western United States have been definitively partially attributed to anthropogenic climate change (Abatzoglou and Williams 2016)[8], so there is high confidence that projections of future climate will have implications for fire. These trends aren't just part of Earth's natural climate variability.

In the Planning Area, **there is a projected temperature increase of an additional 5 to 8° F by 2100**, with increases seen across all seasons, and for both maximum and minimum daily temperatures (Figure 15, Figure 16). In contrast to high relative certainty that temperatures will continue to increase, precipitation trends are relatively difficult to predict into the future. What is certain about future precipitation is that extreme precipitation events with high rates of rainfall will become more frequent, even if precipitation ultimately declines. The projected temperature increases, especially the increasing nighttime lows, reduced relative humidity, and the increasing frequency of extreme events, such as heatwaves and dry periods coinciding with autumn and winter Santa Ana winds, drive a substantial increase in the number of days per year where there is Extreme Fire Danger (Figure 17, Figure 18, Figure 19). Although global climate models vary widely, they generally agree on an increase in the number of days of Extreme Fire Danger compared to the historic period, with the most extreme models projecting a doubling of Extreme Fire Danger days. It is worth noting that historically most climate model projections have been fairly conservative and underestimated what has actually happened.

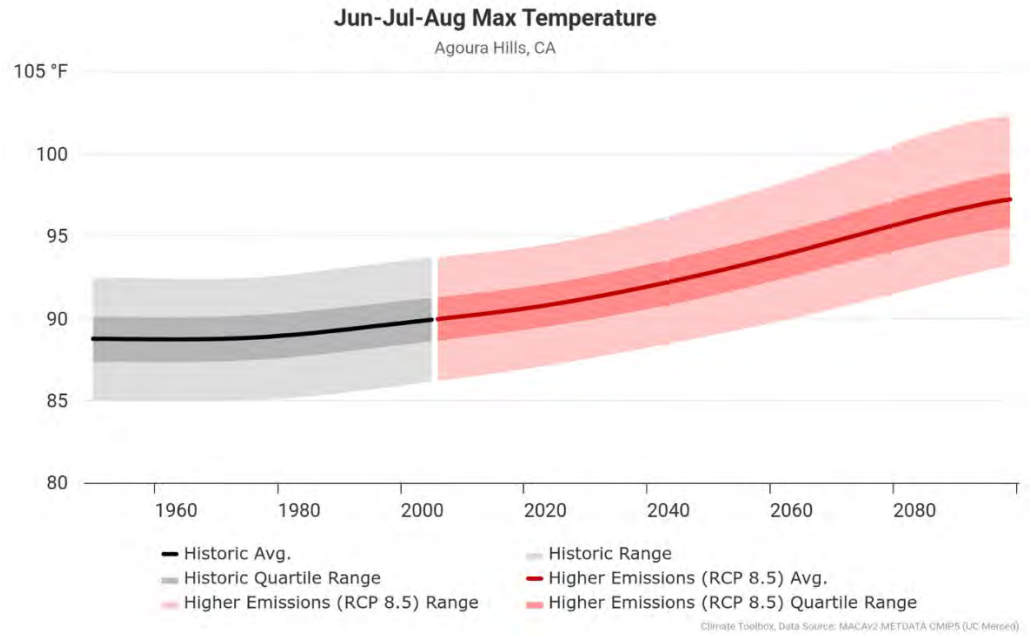


Figure 15. Increasing trends in average daily high summer (Jun-Jul-Aug) temperature for the Planning Area from 1979-present (in gray) and projected into the future to 2100 (pink). The projected increase in maximum temperature is approximately 8 degrees F hotter than today, but the highest temperatures, during heat waves will likely register temperatures substantially greater than 8 degrees difference from today's hottest temperatures because extremes always exceed averages.

[8] Abatzoglou, J.T. and Williams, A.P., 2016. Impact of anthropogenic climate change on wildfire across western US forests. Proceedings of the National Academy of Sciences, 113(42), pp.11770-11775.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

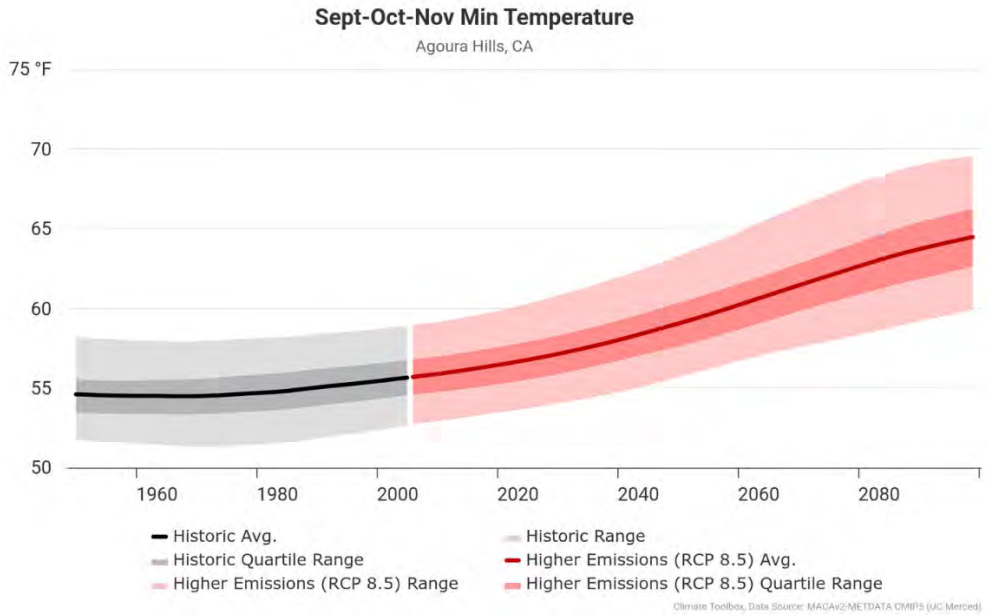


Figure 16. Increasing trends in average daily nighttime low temperature for autumn (Sept-Oct-Nov) for the Planning Area from 1979-present (in gray) and projected into the future to 2100 (pink). The projected increase in nighttime low temperature is 8.8 degrees F hotter than today. This is particularly critical for increasing fire danger during autumn Santa Ana wind events.

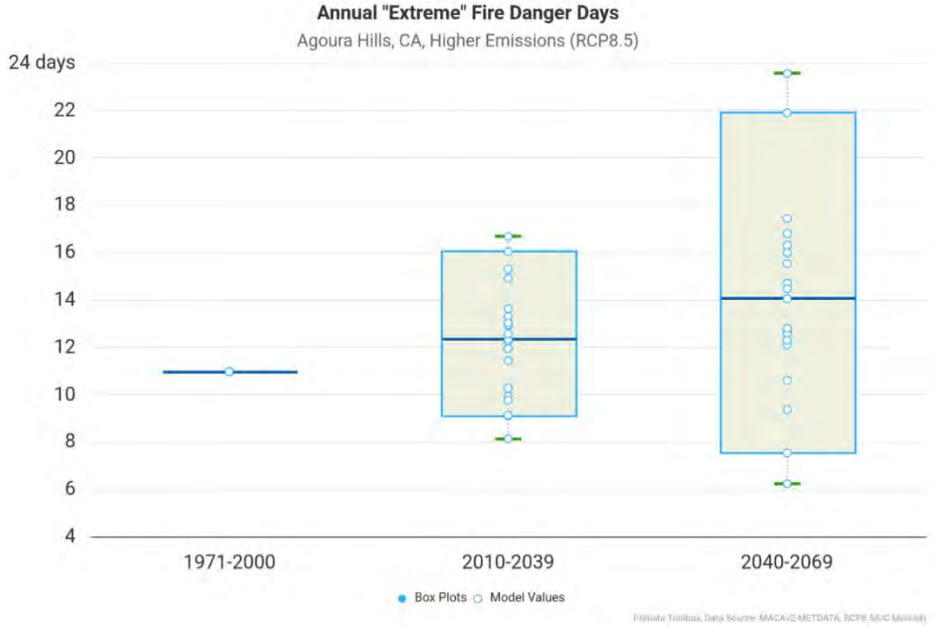


Figure 17. Projected change in number of days of extreme fire danger annually for Agoura Hills, based on global climate model outputs, for both the early 21st century (the current period) and the mid-21st century (future period 2040-2069) as compared to the historical period of 1971-2000. Each future boxplot represents a range of projections from different climate models, with the white dots representing the projection of a specific model, and the dark blue line in the middle representing the median projection. For the future period (2040-2069), the highest projections are for up to 22 days per year of Extreme (97th percentile) fire danger, nearly double the 11 days per year observed in the historic period.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

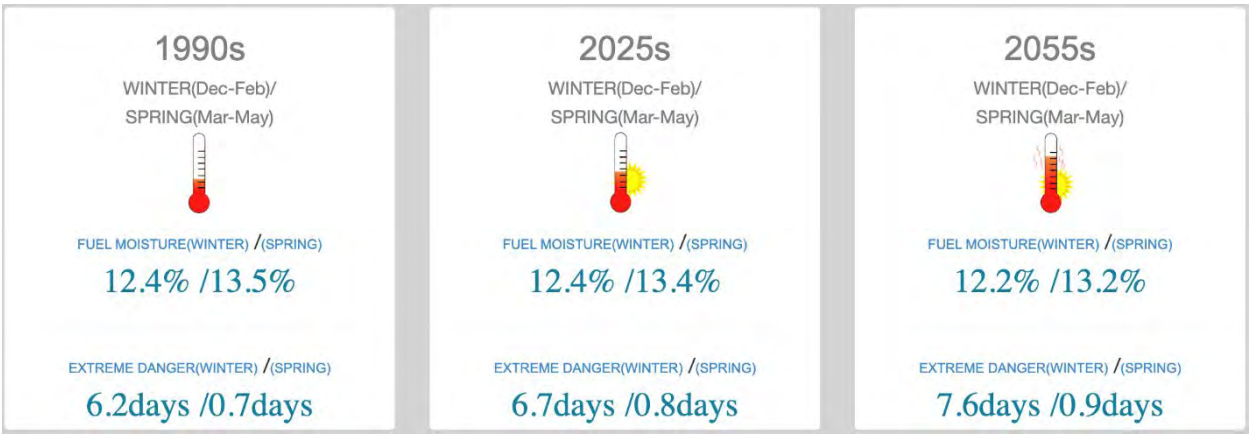


Figure 18. Projected change in average fuel moisture and the average number of days of extreme fire danger for the winter and spring months for Agoura Hills from global climate model outputs.

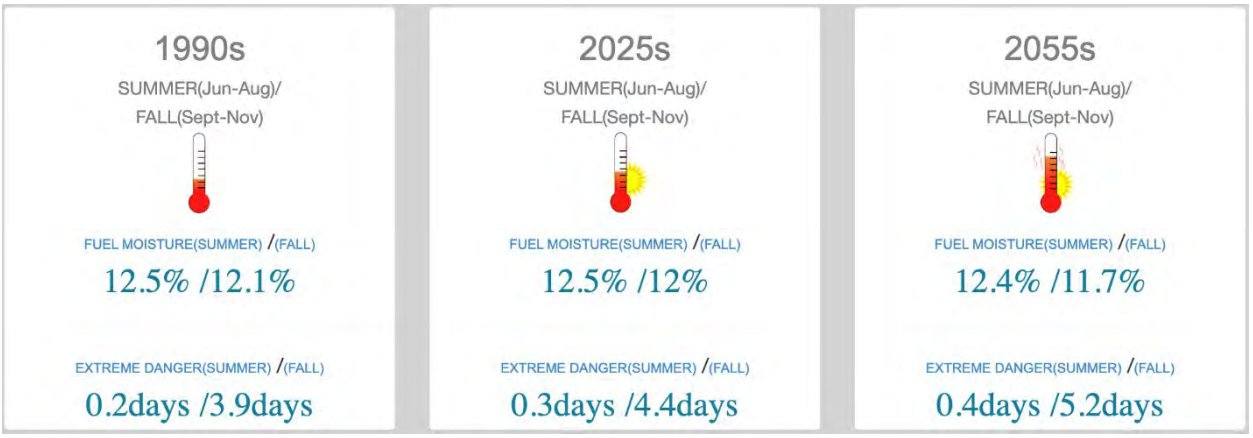
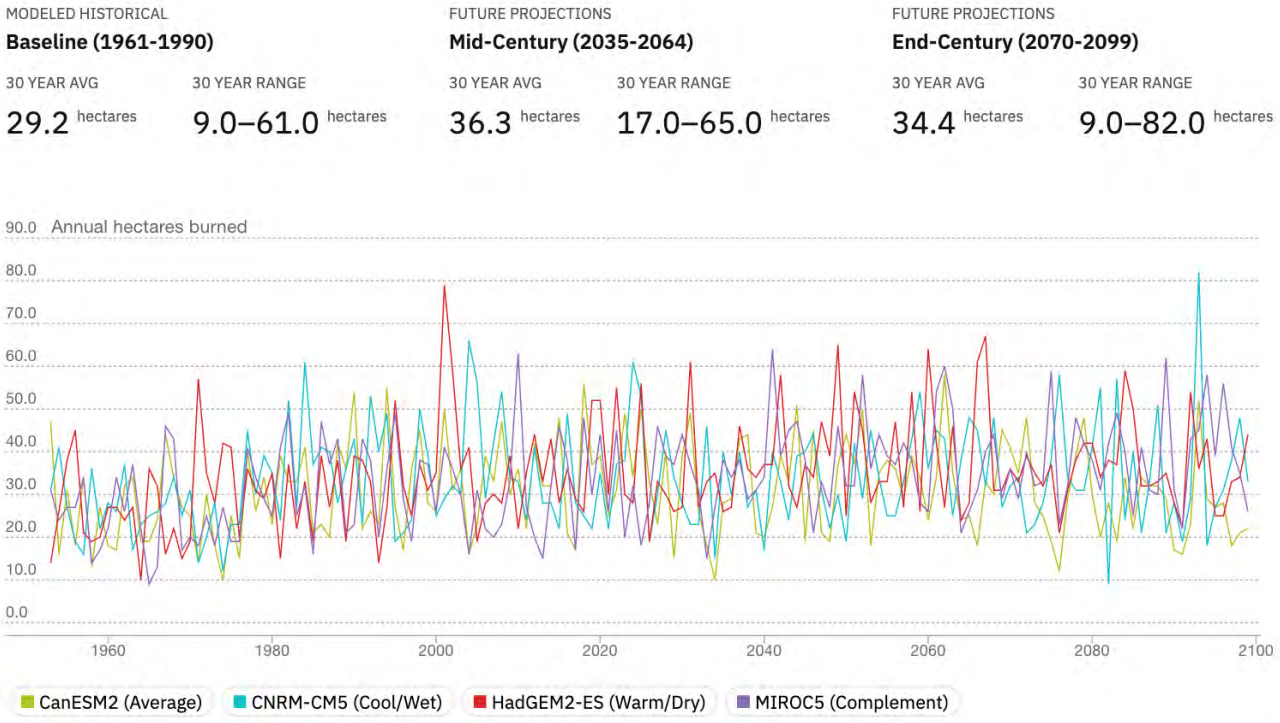


Figure 19. Projected change in average fuel moisture and the average number of days of extreme fire danger for the summer and autumn months for Agoura Hills from global climate model outputs.

These projections of future conditions indicate a substantial increase in the potential for more severe wildfire behavior on an increasing number of days. If no fuel management occurs, and no changes in how fires are managed as compared to the 20th century, fire models from the state CalAdapt project suggest a nearly 30% increase in annual area burned by the end of the 21st century for the Planning Area (Figure 20). Importantly, these models don't predict the actual area burned each year, rather, they project the change in a long-term average and show how variable the historic record is from year-to-year. From a planning and management perspective, this means that big fire years will be bigger with more area burned. As no fuel management is assumed in the models, however, these projections also demonstrate the critical need for fuels management to reduce fuel loads in order to mitigate undesirable negative outcomes.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123



Source: Cal-Adapt. Data: Wildfire Simulations for California's Fourth Climate Change Assessment (University of California Merced), Wildfire Simulations Derived Products (Geospatial Innovation Facility).

Figure 20. Projected change in area burned from four different global climate model scenarios (Average, Cool/Wet, Warm/Dry, and Complementary) based on 20th century fire history from CALFIRE and assumptions of no change in fire and fuels management shows a nearly 30% increase in average annual area burned from the baseline historic period (1970-2000) to the end of the 21st century (2070-2100). Active fuels management would substantially alter the projected outcomes.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

5.0 Methodology

5.1 INTRODUCTION

Given the high fire prone nature of the City of Agoura Hills and surrounding areas, a community wildfire risk assessment (CWRA) composed of hazard, exposure and vulnerability analyses has been undertaken to help identify and prioritize the most at-risk communities, as well as inform strategic planning and preparedness efforts. See Figure 21. The assessment used a combination of methods – field visits, wildfire behavior modeling, geospatial analytics, current research and best practices – in collaboration with the City of Agoura Hills, the Agency Stakeholder Working Group, local fire safe council members, LA County Fire, subject matter experts and other interested parties in the community. The assessment provides a foundation for prioritizing a range of wildfire mitigation strategies across the City.

Figure 21. Key components of wildfire hazard and risk assessment for this CWRA.

The following sections provide the key approach and assumptions of each major component of the CWRA and are organized as follows:

+ Risk-Informed Framework
+ Wildfire Hazard Assessment Approach
+ Wildfire Risk Assessment Approach

The results of these assessments are provided in Section 6.0.

5.2 RISK-INFORMED FRAMEWORK

To undertake a CWRA for the City of Agoura Hills, a generalized risk framework was adopted to help guide how the CWRA fits into an overall risk management decision-making process and ultimately the development of a CWPP. The wildfire risk framework, as shown in Figure 22, is based on well-established risk-informed approaches from other relevant fire-safety and disaster risk management sectors, guidance documents, industry best practices and latest research in wildfire risks. Note: This exemplar was used to help frame the CWRA work.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

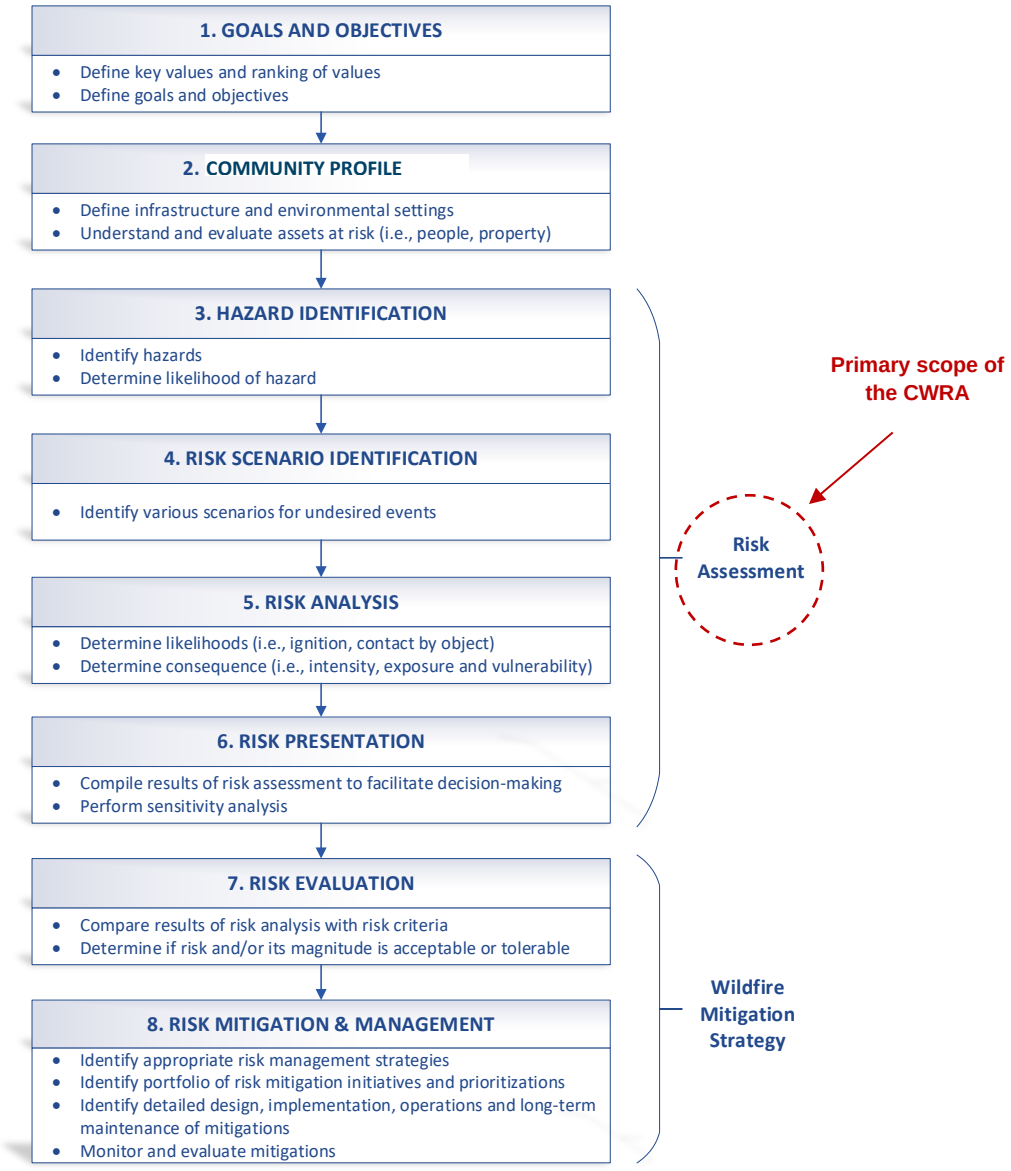


Figure 22. Generalized Risk-Informed Framework of which CWRA is a component.

As with any risk-informed approach, the process begins with identifying the key goals and objectives, selecting and ranking values and/or assets at risk, followed by a multi-step risk assessment – composed of a hazard analysis, risk scenario development, quantified risk analysis and presentation of the risk – and finally several steps for evaluating the risk assessment outcomes to inform decision-making and management strategy.

The following section describes the key methodology and assumptions of the wildfire hazard assessment.

5.3 WILDFIRE HAZARD ASSESSMENT ASSUMPTIONS

The objective of the wildfire hazard assessment is to identify areas within the Planning Area that are prone to severe fire conditions. Fire behavior characteristics such as rate of spread, flame length, fireline intensity, crowning and spotting are driven by the natural environment where topography, weather and fuels are primary

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

forces. Fire behavior modeling is performed to estimate these characteristics and is based on key assumptions related to the primary driving forces – weather, fuels, and topography.

The key wildfire behavior modelling assumptions for the CWRA were reviewed and accepted by LACoFD in the "Fire Modelling Assumptions" technical memo issued on 2/28/2025. The following sections summarize those assumptions and any key updates since the issuance of the technical memo. The modeling assumptions and input data fall into six categories, as follows:

1. Analytical Boundary
2. Software
3. Key Input Data Sources
4. Weather
5. Fuels
6. Topography

5.3.1 Analytical Boundary

The analytical boundary adopted for the wildfire behavior modelling includes the administrative boundary of the City and an approximately 3-mile buffer extending out from the City's boundary. See Figure 23.

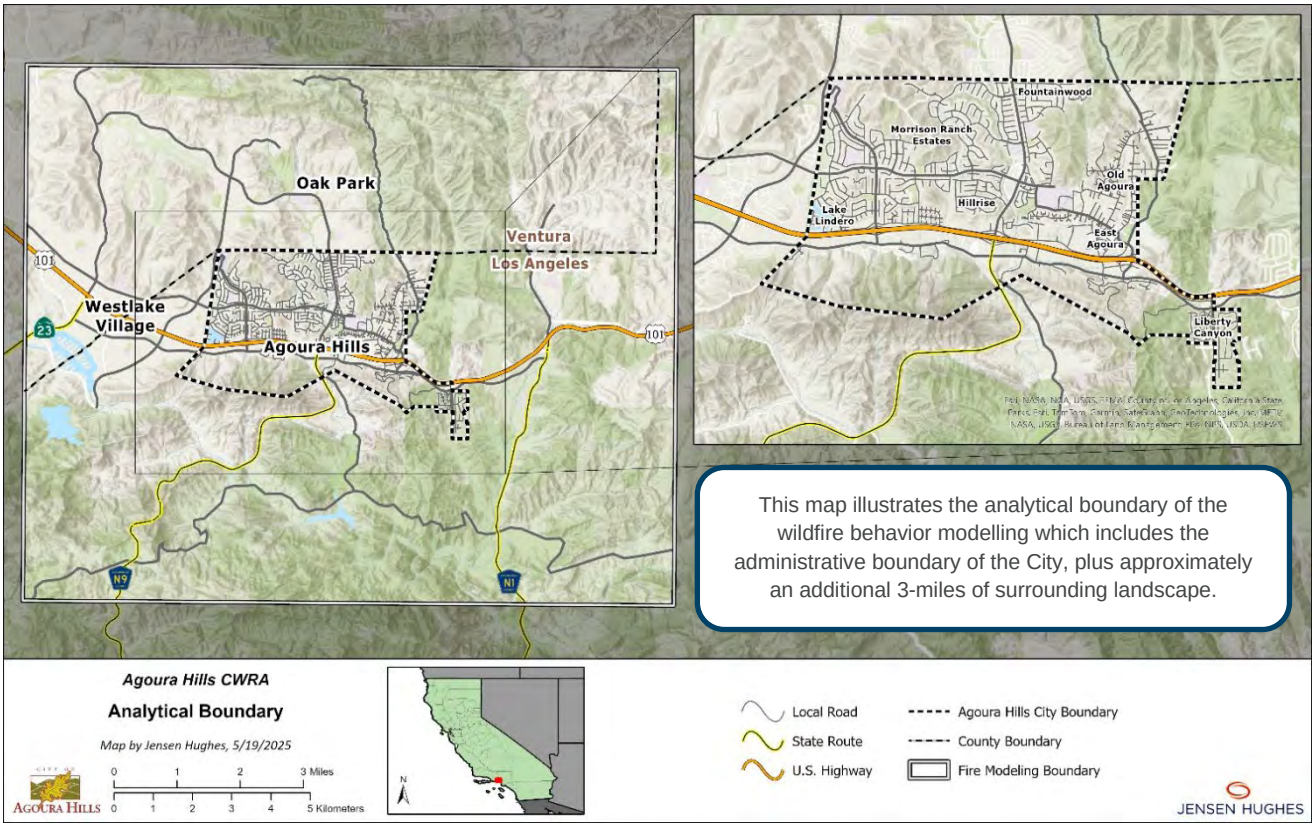


Figure 23. Analytical boundary of wildfire hazard assessment for Agoura.

While the CWRA is focused on the impacts of a potential wildfire to the City, by including additional landscape outside the city for the fire behavior modeling, the hazard analysis can identify influential topographic and fuel

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

loads in the surrounding landscape that may impact the City. Since the primary threat of wildfire to Agoura Hills comes from ignitions located outside of the administrative boundary, it is important that this buffer be included in the overall analysis so that ignition sources, primary fire flow paths and distribution of the flow paths that threaten the community can be identified. Understanding threats outside the City can provide a better understanding of where future fire mitigation actions could prove to be most effective in protecting vulnerable locations within the City.

5.3.2 Software

Established wildland fire behavior modelling software provides the basis for evaluating the wildfire hazard, threat, and exposure analyses for the CWRA. The primary modelling software includes FLAMMAP (Version 6.0), FOFEM, and FireFamily Plus (Version 5.0). Wildfire Analyst Enterprise and NEXUS 2.0 were also used to capture some dynamic fire behavior features. The wildfire models used in the analysis are publicly available with the exception of Wildfire Analyst, which is a proprietary software application.

5.3.3 Key Input Data Sources

Spatial fire modeling utilizes eight spatial files as required inputs into the fire behavior model(s) and is commonly referred to as a landscape file or LCP file in the fire modeling community. The LCP is made up of layers representing Fuel Models, Canopy Cover, Canopy Height, Crown Bulk Density, Canopy Base Height, Elevation, Aspect, and finally slope. Figure 24 is a graphic of a representative LCP file data.

LCP files are commonly obtained from the LANDFIRE[9] program and are representative of conditions as of 2023. The LCP files contain all the spatial data used in the fire behavior models except for weather. The weather data used in the models is described in Section 4.6.

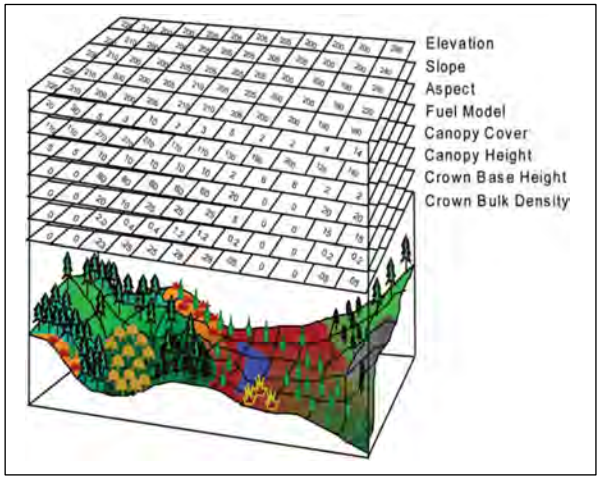


Figure 24. Landscape spatial files (LCP) used in wildfire hazard assessment. Data obtained primarily from LANDFIRE.

5.3.4 Weather Data and Analysis

Weather is one of the most important and variable elements of the wildland fire environment. Important components of fire weather that influence fire behavior are temperature, relative humidity, precipitation, wind, and atmospheric stability. These elements have the potential to enhance or retard wildfire spread and intensity.

As input into the fire spread model, fuel moisture and weather values are analyzed and evaluated based on weather percentiles. For the wildfire behavior modelling, weather values at the 97th and 90th percentiles (hottest, driest 3% and 10% of the days) were utilized as inputs into the fire spread model to generate the results that were then used in the risk assessment. For the base analysis, a 17-mph wind has been used to represent Santa Ana conditions. Based on feedback from LACoFD, a 31-mph wind based on conditions during the 2025 Palisades Fire was also performed. A northeast wind event at 23 mph similar to winds observed during the Woolsey fire was also explored as part of a sensitivity analysis. Refer to Appendix B for sample output from

[9] LANDFIRE (Landscape Fire and Resource Management Planning Tools) is a comprehensive program in the United States that provides data and tools for land management, particularly concerning wildfires, vegetation, and ecosystems. **https://landfire.gov/**

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

these sensitivity studies. *Note: As both the 2018 Woolsey Fire and 2025 Palisades Fire scenarios were extreme events, they did not provide significant variability in fire behavior conditions. That is, they would not be useful in identifying high priority areas in the landscape, as the entire landscape showed problematic fire conditions for both events.*

Historical weather data was obtained from **https://famauth.wildfire.gov/index.html/** or the Cheeseboro Remote Automated Weather Station (RAWS) from 2006 through 2024 (Figure 25). Fire Family Plus Version 5.0 (USDA Forest Service, 2020) was used to compare historical and current fire weather parameters associated with temperature, wind, and precipitation, and to generate a suite of inputs to the fire behavior models. The Cheeseboro RAWS is located northeast of the City of Agoura Hills at an elevation of 1,707 feet.

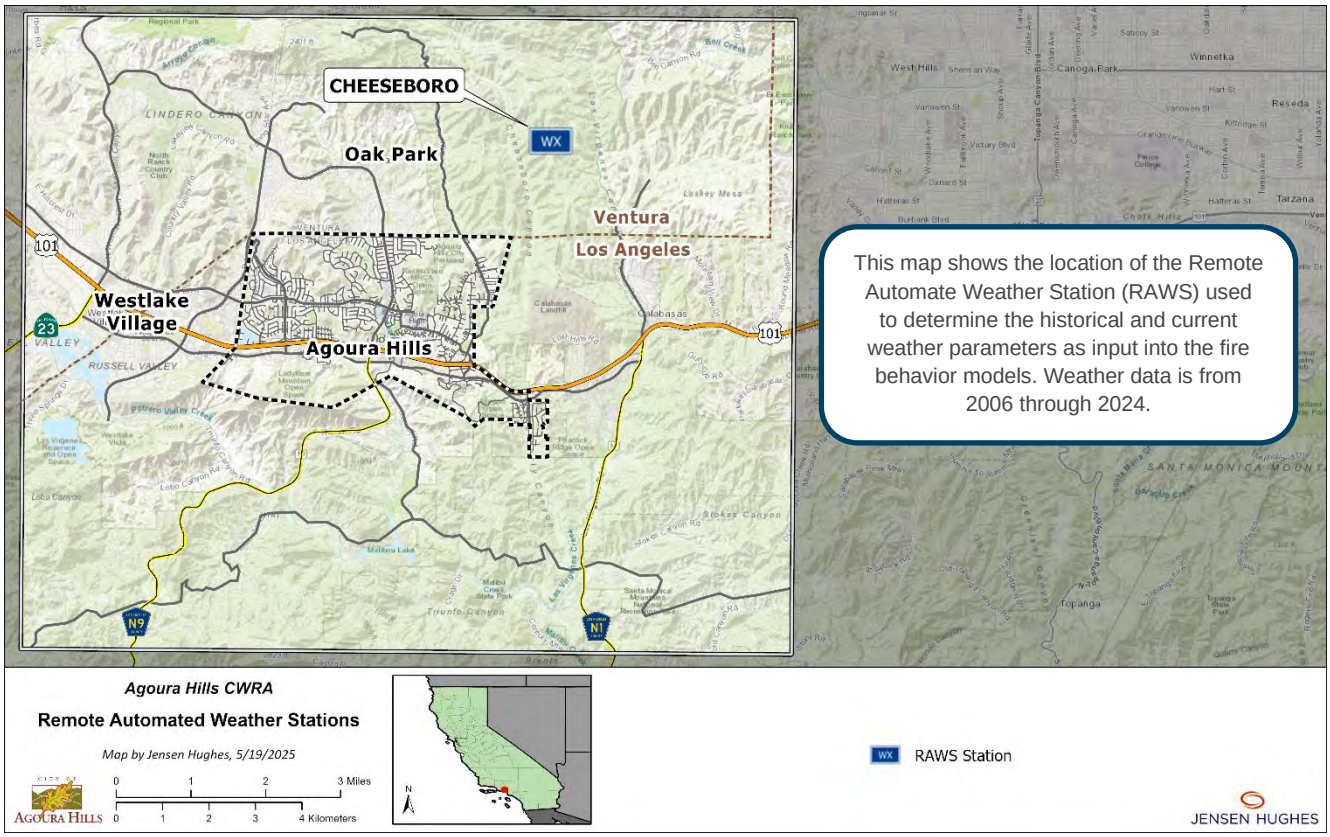


Figure 25. Weather station used for the wildfire behavior analysis.

Fire Danger – Energy Release Component (ERC) and Burning Index (BI)

One key fire danger rating index related to weather and regional climate that is used to understand the potential for severe fire is the Energy Release Component (ERC) index. ERC is a number related to the available energy (BTU) per unit area (square foot) within the flaming front at the head of a fire. This index provides an approximation for fuel moisture conditions associated with climatological changes throughout a fire season. Thus, the larger the ERC value, the potentially more severe the fire. Values typically range from 0 to 100, though they can be higher depending on weather extremes and fuel model. Specifically, ERC is used to describe fire danger trends because it is less sensitive to daily weather variations than other fire danger indices. The ERC calculation is also affected by fuel loadings in different size classes. NFDRS Fuel model Y, the default analysis fuel model assigned the Cheeseboro RAWS includes both live and dead fuels and has a significant portion of the fuel load driven by large dead fuels.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Large fuels are not a primary component in and adjacent to the City of Agoura Hills and therefore another NFDRS index, Burning Index (BI), is tracked by Los Angeles County Fire Department to monitor fire danger. The BI is an index that rates fire danger related to potential flame length over a fire danger rating area. The BI is expressed as a numeric value related to potential flame length in feet multiplied by 10. The scale is open-ended, which allows the range of numbers to adequately define fire problems, even during low to moderate fire danger. Information on current BI indices is located at https://fire.lacounty.gov/fire-weather-danger/.

Figure 26 provides the variation in historical maximum, minimum and average values of the ERC and BI fire danger indices for the Cheeseboro RAWS from 2012 – 2025. The 90th and 97th percentile conditions are shown with grey lines and are indicative of when extreme fire behavior may occur.

Based on the results of weather, ERC and BI analyses, high fire conditions can occur almost any time throughout the year. As ERC values are tracked by Predictive Services (**https://gacc.nifc.gov/oscc/fuelsFireDanger.php**) and BI values are monitored by LACoFD (**https://fire.lacounty.gov/fire-weather-danger/**), both indices can be monitored to provide an indication of potential fire danger on a daily basis based on the thresholds identified in Figure 26. Finally, the weather conditions at the 97th percentile annually were used as inputs into the fire behavior models used to inform the hazard component of the CWRA.

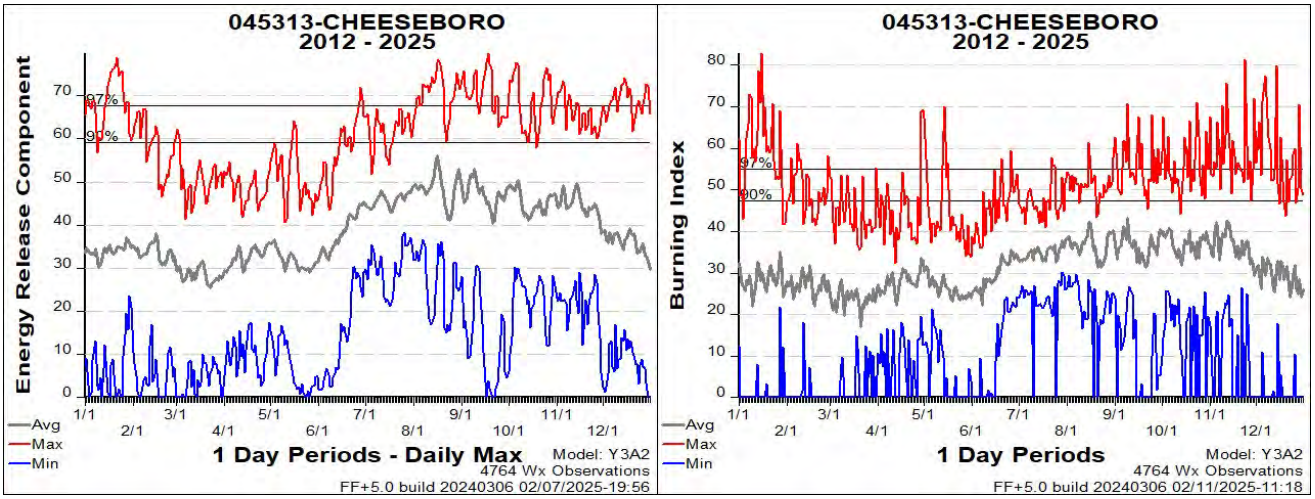


Figure 26. ERC (left) and BI (right) for Cheeseboro RAWS, National Weather Service station ID 045313.

Fuel Moisture

Fuel moisture is a dynamic variable controlled by seasonal and daily changes in the weather and is an important influence on wildland fire behavior. Simply stated, vegetation is most flammable when fuel moisture levels are low and less flammable when they are high. Fuel moisture levels will largely determine if a fire will ignite and spread. Fuel moisture is typically categorized as dead and live fuel moisture.

+ **Dead fuels.** Dead fuels act like a sponge absorbing or giving up moisture to the air and ground which surrounds them. The moisture exchange rate between dead fuels and their surrounding environment varies by the size of the dead fuel particle, with fuels less than ¼ in diameter reaching equilibrium with their surroundings within one-hour. Because of this rapid exchange rate, these smaller size class fuels exert significant control over wildfire burning characteristics, especially in the grass and shrub dominated fuels associated with the Planning Area.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

+ **Live fuels.** Live fuel moisture is the moisture in living, growing vegetation and is controlled by the internal physiological mechanisms of the vegetation and external influences such as rainfall, drought, aspect, elevation, and seasonal drying patterns. Typically, live fuel moistures are highest in the spring through early summer and at their lowest in late summer through early winter when seasonal rains typically begin.

Live fuel moisture of 60% or below is a "critical" threshold where live fuels display similar burning characteristics as dead fuels.

Live fuel moisture status can be tracked at **https://fire.lacounty.gov/fire-weather-danger/**, with the Santa Monica Mountains data most applicable to the Agoura Hills Planning Area. Figure 27 shows both current and historical live fuel moisture data for the Santa Monica Mountains live fuel moisture sampling stations.

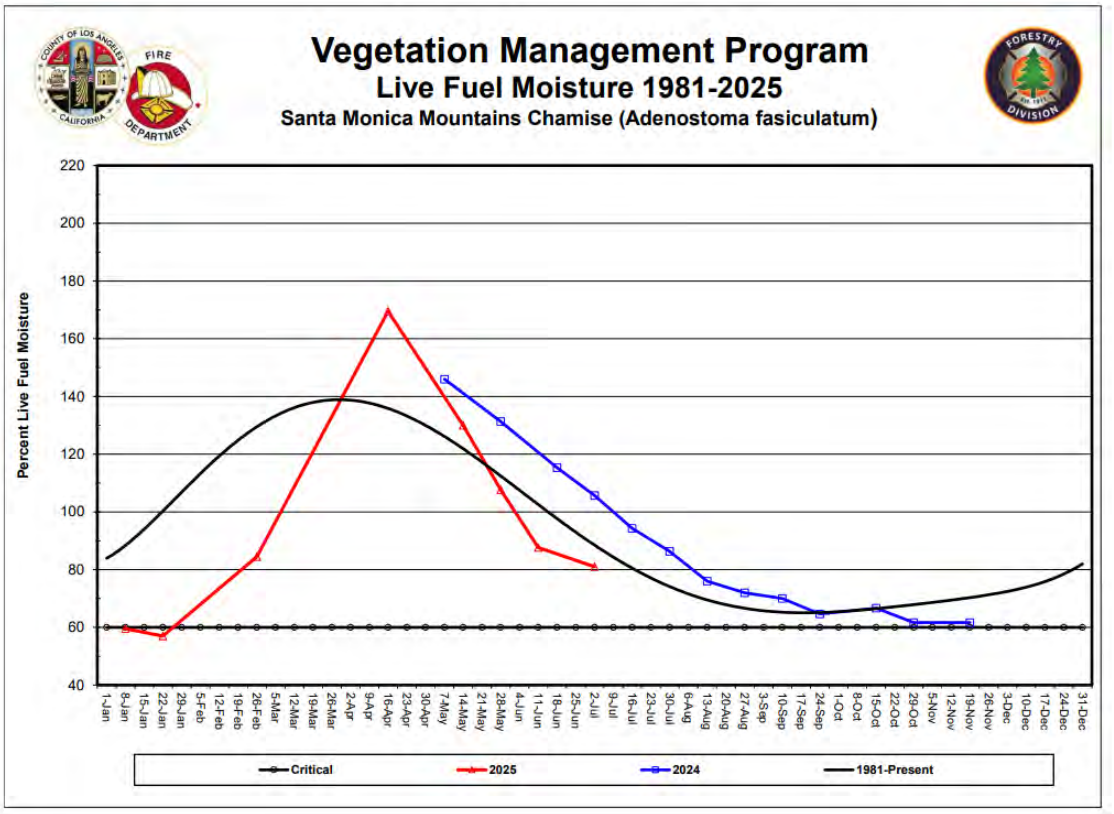


Figure 27. Current and historical live fuel moisture data for the Santa Monica Mountains station

Based on the 18-year historical weather data for the Remote Automated Weather Stations (RAWS), as described above, Fire Family Plus 5.0 was used to generate a suite of inputs to the fire behavior models for each ERC level (Table 3). Additionally, wind roses (Figure 28) were evaluated to determine the dominate wind direction. The bars of the wind rose represent the direction and speed from which the wind is blowing.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Table 3. Fuel Moisture and Weather Outputs – Base Fire Scenario

Weather Percentile	*90%*	*97%*
Energy Release Component	59%	68%
Burning Index	48%	55%
20-ft Windspeed Direction	WSW	WSW
20-ft Windspeed	15 mph	17 mph
Herbaceous Fuel Moisture	30%	30%
Woody Fuel Moisture	60%	60%
1 HR Fuel Moisture	3%	2%
10 HR Fuel Moisture	4%	3%
100 HR Fuel Moisture	8%	7%
1000 HR Fuel Moisture	30%	30%

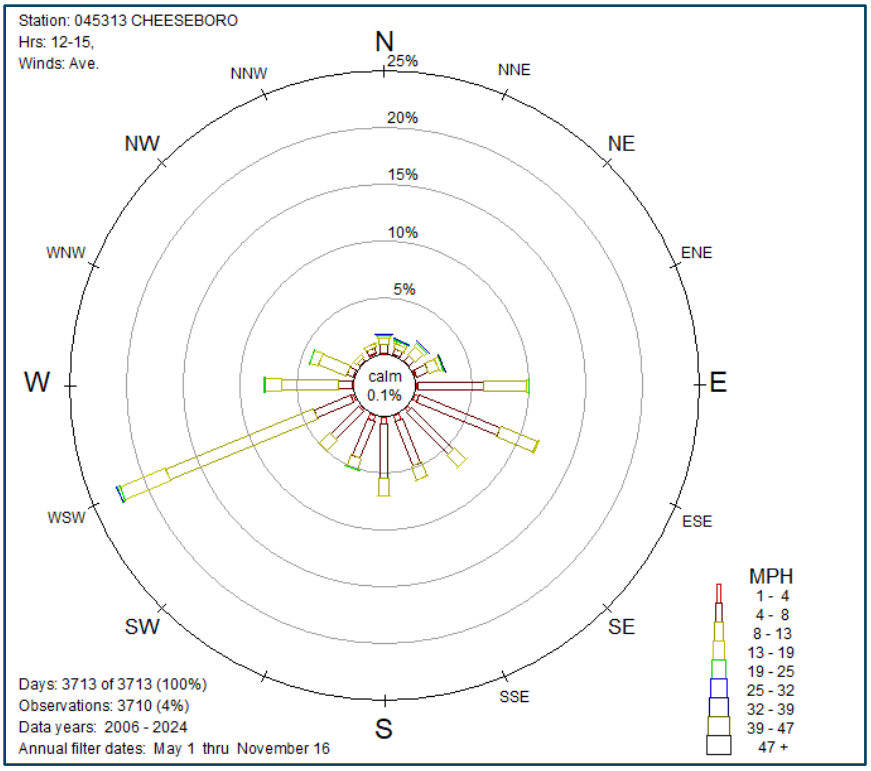


Figure 28. Wind Rose for the City of Agoura Hills

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

5.3.5 Fuel Types and Fuel Models

Fuels are categorized into specific fuel models (e.g., non-burnable, grass, grass-shrub, shrub, timber-understory, timber-litter, and slash- blowdown), which describe the physical properties of the vegetation that support fire. Fuel models are grouped by fire-carrying fuel type and the number of fuel models within each fuel type varies. Each fuel type has been assigned a mnemonic two-letter code.

> **IMPORTANT NOTE**: *Traditional wildfire behavior models do not capture fire spread into urban fuels and thus will show as "unburnable". However, we know that fire can readily burn into the built environment, particularly under conditions of high wind and low relative humidity.*

- **Non-burnable fuel models (NB).** Land areas that are considered non-burnable portions of the landscape are displayed on a fuel model map as NB. Urban development, barren land and water are all considered unburnable in fire behavior models.
- **Grass (GR).** The primary carrier of fire in the GR fuel models is grass. Grass fuels can vary from heavily grazed grass stubble or sparse natural grass to dense grass more than 6 feet tall. Fire behavior varies from moderate spread rate and low flame length in the sparse grass to extreme spread rate and flame length in the tall grass models.
- **Grass-Shrub (GS).** The primary carrier of fire in the GS fuel models is grass and shrubs combined; both components are important in determining fire behavior. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model.
- **Shrub (SH).** The primary carrier of fire in the SH fuel models is live and dead shrub twigs and foliage in combination with dead and down shrub litter. A small amount of herbaceous fuel may be present, especially in SH1.
- **Timber-Understory (TU).** The primary carrier of fire in the TU fuel models is forest litter in combination with herbaceous or shrub fuels. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model.
- **Timber-Litter (TL).** The primary carrier of fire in the TL fuel models is dead and down woody fuel. Live fuel, if present, has little effect on fire behavior.
- **Slash-Blowdown (SB).** The primary carrier of fire in the SB fuel models is activity fuel or blow down. Forested areas with heavy mortality may be modeled with SB fuel models.

Table 4 describes the fuel models found in the Planning Area and the amount of area designated as each fuel type. Note: For this analysis, the 2023 40 Scott and Burgan Fire Behavior Fuel Model from LANDFIRE has been used. See Figure 29 for a spatial distribution of the fuel models across the landscape.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Table 4. Breakdown of Generalized Fuel Types/Fuel Models within the Planning Area.

Fuel Model Type	*Vegetation Group*	*Fuel Type Acres*	*% Coverage*
Non-burnable – Fuel models (NB1-NB9)	*Non-burnable*	14,182	25.3%
Grass - Nearly pure grass and/or forb types are represented by grass fuel models (GR1- GR9)	*Grassland/Forb*	5,213	9.3%
Grass-Shrub – Up to about 50 percent shrub coverage are represented by grass shrub fuel models (GS1-GS4)	*Grassland/Forb* *Broadleaf Forest and Woodland*	19,884	35.5%
Shrubs – Cover at least 50 percent of the site; grass sparse to non-existent are represented by shrub fuel models (SH1-SH9)	*Chaparral*	14,110	25.2%
Timber-Understory – Grass or shrubs mixed with litter from forest canopy are represented by timber understory fuel models (TU1-TU5)	*Conifer Forest and Woodland*	762	1.4%
Timber-Litter – Dead and down woody fuel (litter) beneath a forest canopy is represented by timber litter fuel models (TL1-TL9)	*Broadleaf Forest and Woodland* *Conifer Forest and Woodland*	1,807	3.2%
Total		55,958	100.0%

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

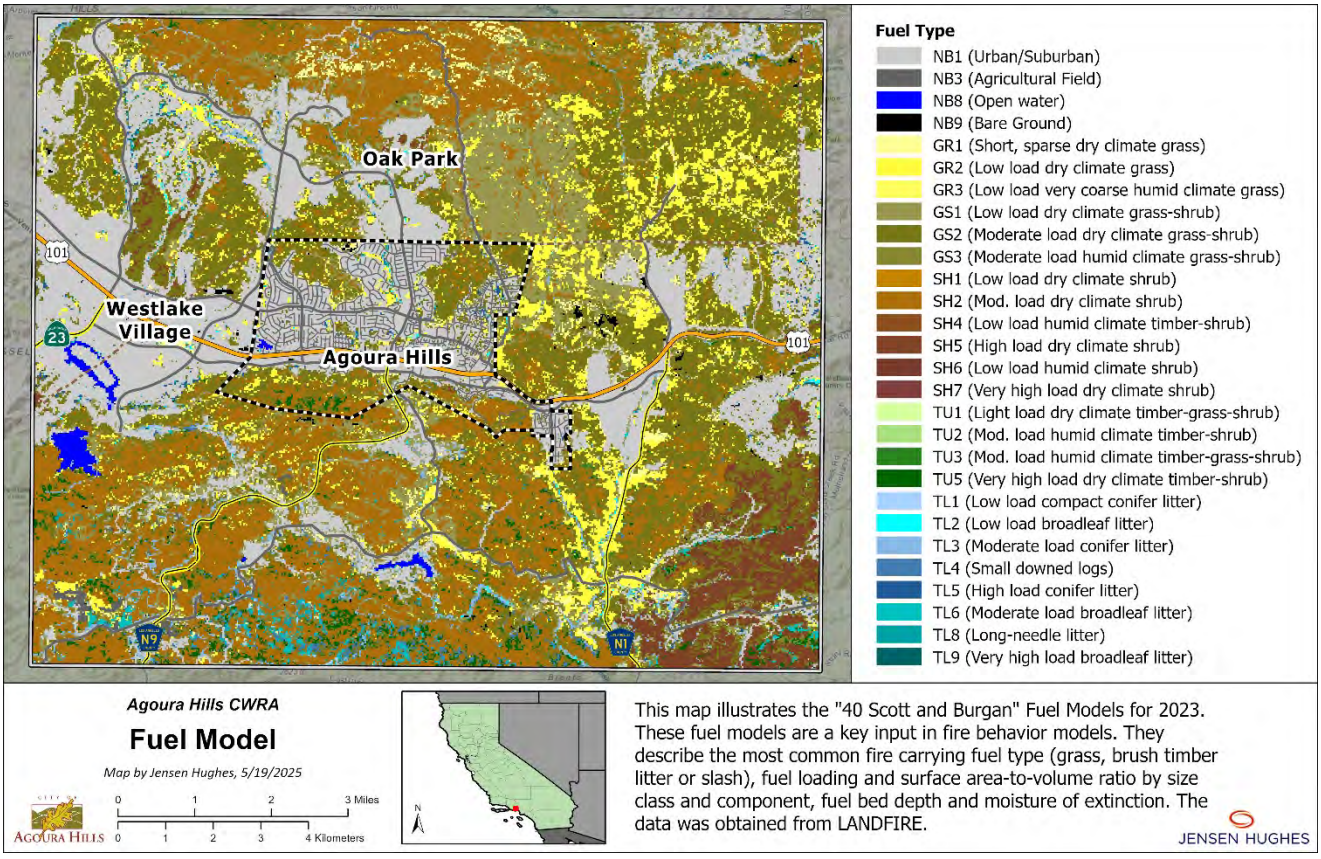


Figure 29. Fuel types/models within the Planning Area

5.3.6 Topography

Topography is the configuration of Earth's surface and is the most stable of the elements in the fire environment. Topography plays a significant role in wildland fire behavior by sheltering areas from the prevailing wind or by channeling wind through prominent canyons and drainages. Specific elements of topography that affect fire behavior include slope, aspect and elevation with the steepness of slope being the most influential. For the wildfire behavior modelling, topographic data was obtained from the LANDFIRE program

As seen in Figure 30, three principal drainages bisect the City. From east to west, these drainages are Chesebro/Palo Comado, Medea Creek Canyon and Lindero Canyon. These drainages flow from the Simi Hills north of the City and have a general north to south orientation. It is this north/south orientation that serves to channel and intensify winds during Santa Ana weather events.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

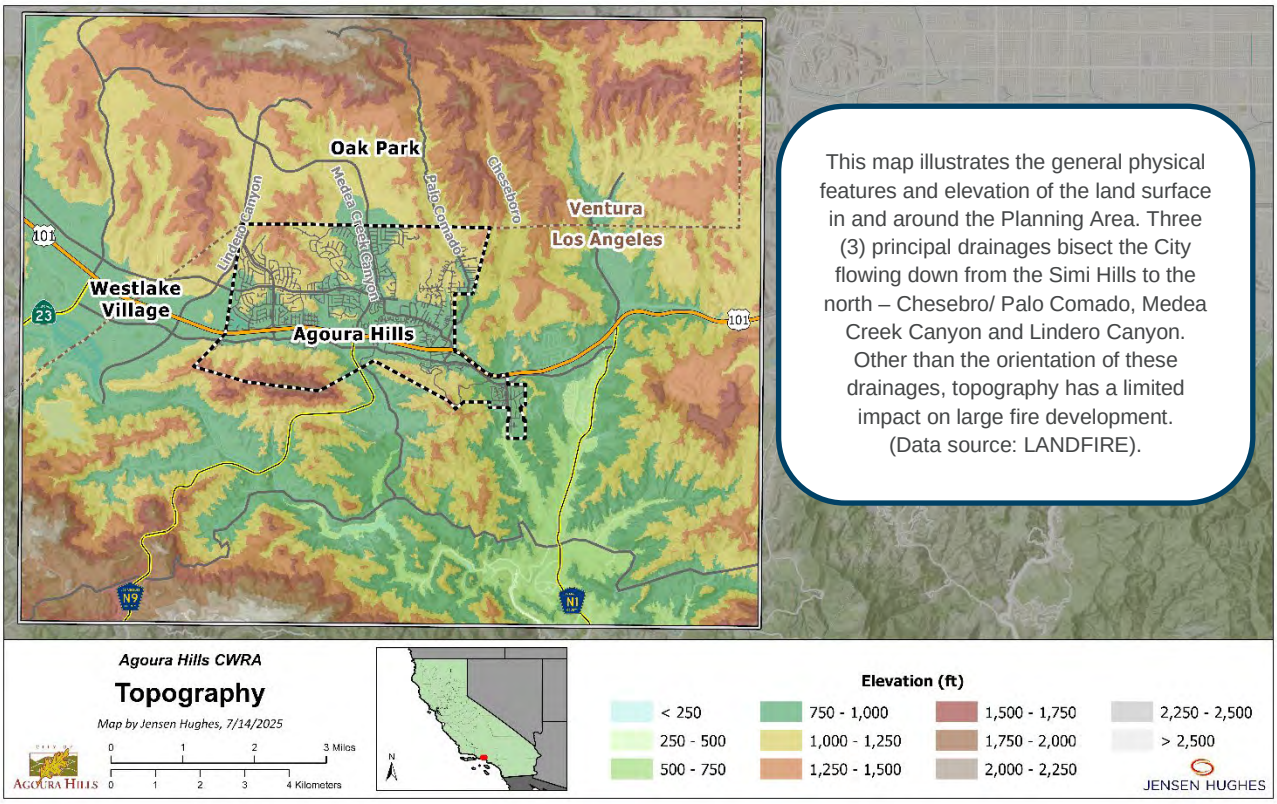


Figure 30. Elevations across the analytical boundary for City of Agoura.

Other than the orientation of these drainages, topography has a limited impact on large fire development in the Planning Area as drainage bottom-to-ridgetop distances are relatively short, preventing slope driven fires from developing sustained uphill fire runs. Generally, slopes are mild enough to allow for the use of mechanized equipment during fire suppression operations. Most slopes are less than 30%, with the exception of locations south of Highway 101 where slopes can exceed 80%.

Aspects within the Planning Area are divided along Highway 101, with areas to the north of the 101 having a south aspect, and slopes south of the 101, a north aspect. These aspects influence vegetation type, with south aspects supporting grass, grass-shrub dominate fuel types and north facing slopes displaying more chaparral and oak-woodland dominated fuel types.

5.4 WILDFIRE RISK ASSESSMENT ASSUMPTIONS

5.4.1 Overview

The key assumptions for the risk analysis of the WRA have been documented in the “Risk Assessment Methodology” technical memo issued on 11/15/2024. Refer to Appendix B for details.

The following sections provide an executive summary of those assumptions and any key updates since issuance of the technical memo. The risk analysis assumptions and input data fall into three (3) main categories:

1. Risk Scenario(s)

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

2. Risk Analytical Boundary
3. Risk Formulation

5.4.2 Risk Scenario

The primary risk scenario developed for this CWRA is due to wildfires originating in surrounding landscapes, posing a threat to the City and its values/assets. The risk scenario was developed for the purpose of informing medium-to-long term wildfire risk mitigation decision making, planning and preparedness programs, policies and procedures (e.g., large-scale, multi-phase vegetation management programs, capital improvements, education and outreach). Note: The potential impact of changing climate is also considered a risk but has been addressed using a separate analysis presented in Section 4.6.

Key Assumption: The risk scenario developed for this CWRA is intended to address medium-to-long term wildfire risk mitigation decision-making, planning and preparedness programs, policies and procedures (e.g., large-scale, multi-phase vegetation management programs, capital improvements, education and outreach).

5.4.3 Risk Analytical Boundary

Unlike the analytical boundary for the fire hazard analysis, which assumes a 3-mile buffer around the City for the purpose of understanding the broader wildfire settings within which the City is situated, the CWRA analytical boundary only includes natural-, built- and human-environment assets and values within City boundaries.

5.4.4 Risk Formulation

To quantify the potential wildfire risks to the City, the CWRA is based on a combination of the following risk components (as schematically shown in Figure 31):

+ **Hazard analysis** – The potential characteristics of wildfire hazards in and around the City including location, severity and frequency of wildfires. Fire hazard is a function of both “fire severity” and “fire frequency”.
    - The **“fire severity”** component of the hazard analysis represents a combination of various fire behavior characteristics including flame length, max spotting distance, fuel loading, and PM_{10} emissions. As fire characteristics are a function of the environmental settings (i.e., fuel, topography and weather), they are independent of the ignition source.
    - The **“fire frequency”** component of the hazard analysis represents a combination of simulated fire frequency and burn probability. Simulated fire frequency is the relative frequency that fire burns one areal unit of land compared to another areal unit based on historical fire starts from 1992 to 2022. Burn probability is the result of fire simulations of random ignitions across the landscape.
+ **Exposure analysis** – Identification, quantification and evaluation of a variety of values or assets that are at risk of being negatively impacted by potential wildfire hazards including people, property, critical infrastructure and facilities, natural resources, economic resources, health, etc. This is an overlay analysis, whereby the results of the hazard analysis are overlaid on top of the assets-at-risk.
+ **Vulnerability analysis** – Evaluation of the inherent susceptibility of people, properties and economic assets to suffer loss and/or damage. This may include socio-economic determinants, physical construction of buildings, spatial arrangements of neighborhoods, firefighting responses capacities and water supplies, etc.

For Scenario 1, these risk components are combined using the following general equation (See also Figure 31):

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

$$(0.6 \cdot Fire\ Severity + 0.4 \cdot Fire\ Frequency) \times (Asset\ Count + Vulnerability)$$

Where,

- **Fire Severity** – is a combination of various fire characteristics, as described above [Scale: 0-5]
- **Fire Frequency** – is the simulated fire frequency plus burn probability, as described above. [Scale: 0-5]
- **Asset Count** – is the density of values or assets at risk from fire exposure. [# of assets].
- **Vulnerability** – is an additional term(s) to account for the potential increase in damage or loss due to social or physical susceptibilities to wildfire impacts. [Scale: 1 – 2.5]

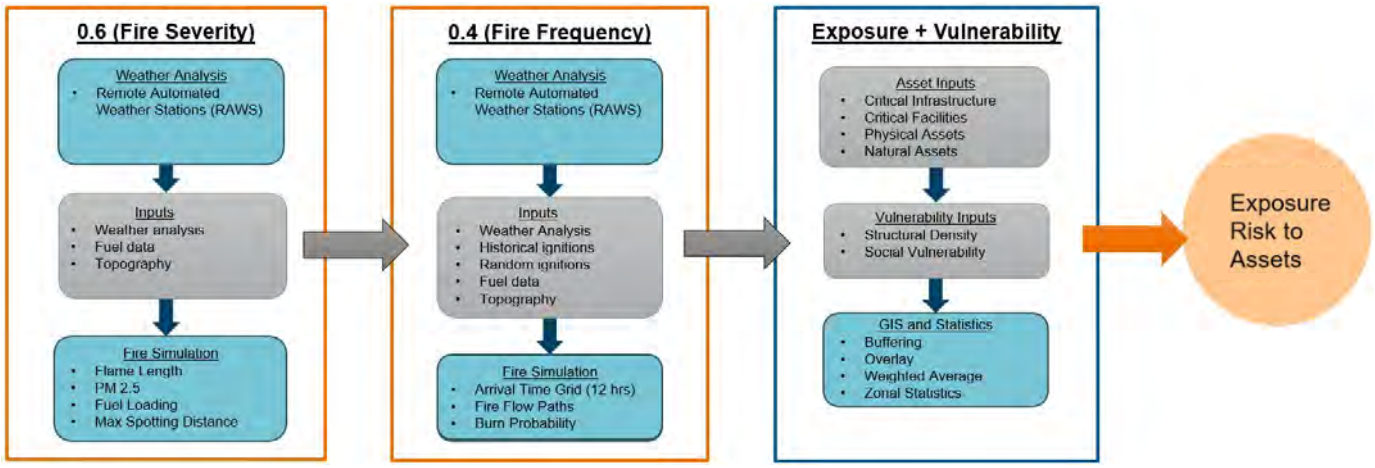


Figure 31. Quantified Risk Assessment Formulation.

Hazard Components ("Fire Severity" and "Fire Frequency")

As seen in the generalized risk equation, there are two components describing the fire hazard: (1) fire severity and (2) fire frequency. The reason for combing these two components is to acknowledge that wildfire risk is not only a function of how severe a fire is, but also how frequently it occurs. In other words, some of the most concerning fires can be those that occur less often but are more severe (low frequency-high intensity), particularly if they occur near high value assets or in vulnerable areas. High frequency-low intensity fires (such as those that occur in grasslands), may occur more often but may tend to be low intensity and therefore more manageable from a firefighting perspective. Thus, the use of a 0.6 factor for the fire severity is to provide greater importance to how severe a fire is compared to how often it occurs.

Exposure Analysis – Assets at Risk

Assets at risk from wildfires are often defined in terms of human life, buildings, and critical infrastructure. However, values can also include health, natural resources, sensitive habitats, cultural and historical resources, and other intangibles (e.g., social capital, community culture, livelihood).

For Scenario 1, the risk analysis considers multiple asset- or value-types such as critical infrastructure, critical facilities and buildings, and various assets/values within each category type (such as shown in Figure 32). Note: The inclusion of these asset-types and assets also serves as a proxy for spatial location of people and communities at risk. Thus, people and community boundaries are not explicitly included.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Critical Infrastructure

C: Communications

T: Transmission Lines

G: Gas Lines

R: Major Roads

Critical Facilities

F: Fire Stations

S: Schools

CF: City Facilities

Other Physical Assets

S: Structures / Buildings

Natural Assets

CP: California Protected Areas

PS: Parks and Open Spaces

Vulnerabilities:

SS: Structure Density

SF: Senior Facilities

Representative assets and available spatial data.

Figure 32. At Risk Asset Types and Assets/Values by Type for Scenario 1.

Exposure Analysis – Asset or Value Buffers

For Scenario 1, each asset is given a ¼ mile buffer to account for the physical dimension of the asset, and a "zone of influence" within which fire may have an impact on the asset. See Figure 33 for an example output.

Sensitivity analyses were also performed to evaluate smaller buffer sizes (i.e., 1/8 mi and 200 feet), as well as how assets were weighted (e.g., as a group of assets within an asset class or as individual assets).

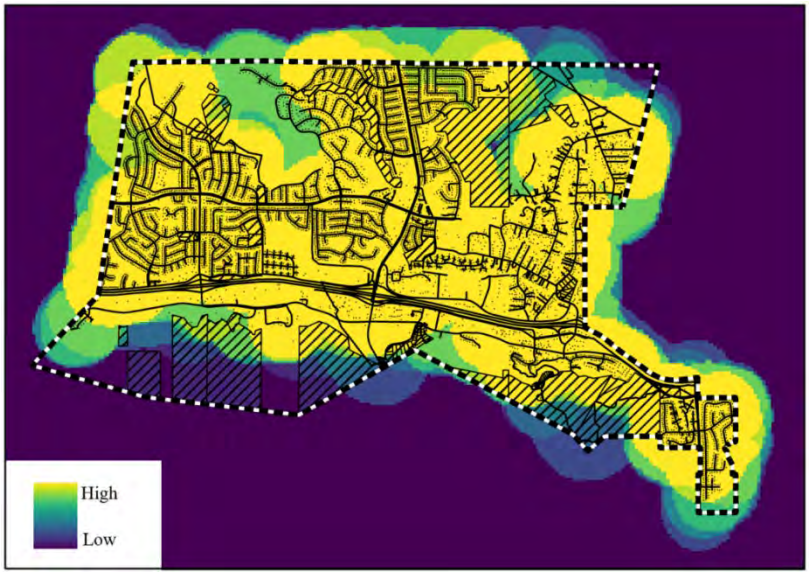


Figure 33. Results of asset density analysis given baseline assumptions (i.e., assets are buffered based on their respective asset type; and a buffer of ¼ mile). Asset density in the City has limited variability.

Exposure Analysis – Asset or Value Ranking ("Weights")

As Scenario 1 considers multiple asset- or value-types, a relative ranking of the importance of each value/asset type has been included based on input and agreement from the Stakeholder Working Group to acknowledge that some values/assets are considered to have more value than others. The weighting for each asset type is illustrated in Figure 34.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Figure 34. Asset significance weighting

Vulnerability Analysis

In addition to exposure, some assets may be more susceptible to damage or loss to wildfires due to a variety of inherent physical, social or technical characteristics. Some examples of physical vulnerabilities include construction material, age of asset, structure spacing, etc. Catastrophic fires and research in recent decades have illustrated that more closely spaced homes/buildings can potentially be more vulnerable to structure-to-structure fire spread.[10] Thus, the closer a structure is to other structures, the higher the weighing factor. The structure density weights ultimately range from 1.5 to 2.5 as shown above and in Figure 34.

Other forms of vulnerability that were evaluated included social determinants (e.g., age, income levels, access to transit) and coping capacities (e.g., response time coverage). These vulnerabilities, however, were considered qualitatively. See Section 6.2

10 FEMA (2023) Marshall Fire Mitigation Assessment Team: Decreasing Risk of Structure-to-Structure Fire Spread in a Wildfire

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

6.0 Wildfire Hazard and Risk Assessment Results

Based on the methodology and key assumptions described in Section 5.0, this section presents the results of wildfire hazard and risk assessment results.

6.1 WILDFIRE HAZARD ASSESSMENT RESULTS

The objective of the wildfire hazard assessment is to identify areas within the Planning Area that are prone to problematic fire conditions, and to use this as the basis for designing and prioritizing fuel treatments and other mitigation strategies as part of the CWPP process.

The Wildfire Hazard Assessment performed to support the CWRA and future development of the CWPP include:

(1) Fire History

(2) Ignition Density

(3) Fire Severity

(4) Simulated Fire Frequency

(5) Fire Flow Paths

(6) Flame Length

(7) Potential Crown Fire

For the purpose of this CWRA and future CWPP, three Fire Planning Units (FPUs) (A-C) were identified to allow interested parties at a more localized level to focus efforts on their specific subregion and community.

6.1.1 Fire History

Fire history provides a useful tool for fire prevention and preparedness as it can provide an understanding of fire frequency, fire season, fire behavior and characteristics, major sources of ignition and portions of the landscape that are the most vulnerable.

There is a significant recent history of large wildfires burning in and around the City. The most impactful of these was the 2018 Woolsey Fire, which damaged or destroyed approximately 2,007 structures, approximately 31 within the City limits (See Figure 36). While the Woolsey Fire directly impacted the city, multiple larger fires have burned in the general vicinity of the community including:

+ **Kenneth Fire** – January 2025, burned 1,052 acres northeast of the City in Calabasas.
+ **Palisades Fire** – January 2025, burned 23,707 acres southeast of the City in Pacific Palisades and Malibu.
+ **Franklin Fire** – December 2024, burned 4,087 acres south of the City in Malibu.
+ **Hill Fire** – November 2018, burned 4,310 acres east of Camarillo (burned concurrently with the 96,949-acre Woolsey Fire).
+ **Springs Fire** – May 2013, burned 23,676 acres east of Point Magu in Ventura County.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

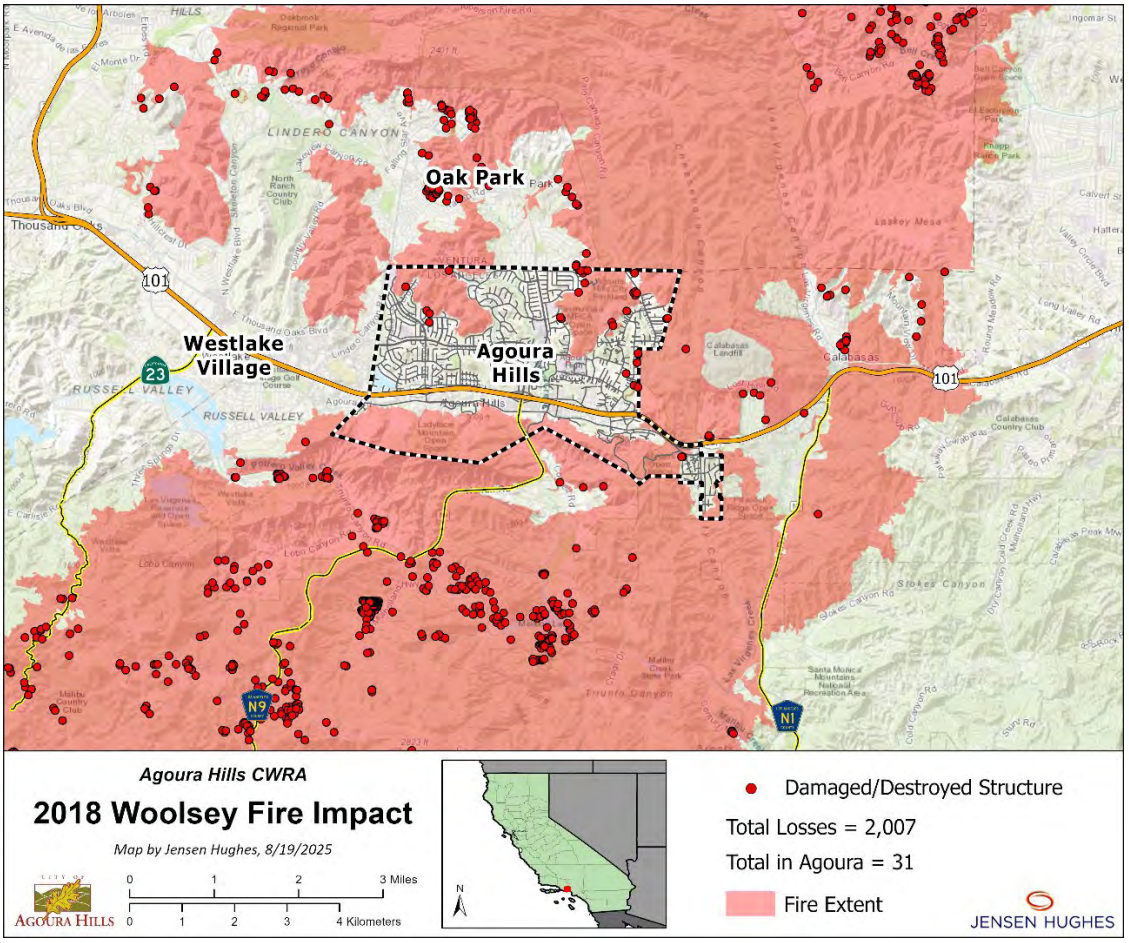


Figure 35. Damaged/Destroyed structures during the 2018 Woolsey Fire.

Additional major wildfires that have occurred in and around the City include the 2005 Topanga Fire and the 1982 Dayton Canyon Fire. The majority of the largest and most recent wildfires have occurred around the city, encroaching from the northeast and northwest (See Figure 36).

Wildland fire ignitions do not generally start within Agoura Hills itself but rather spread towards the City from surrounding areas during time of elevated fire danger. All of the large wildfires cited above have burned under Santa Ana/offshore wind conditions, including the Springs Fire, which burned in May, a month not typically associated with Santa Ana weather events.

The majority of ignitions occur to the southeast, near Malibu Creek State Park. This can be seen in the “hot spot” or fire cluster map in Figure 37.

These large fires in and adjacent to the city have modified the vegetative structure surrounding Agoura Hills by burning much of the older, denser chaparral. While these plant communities are in the process of recovery from these wildfires, they mainly support less dense grass and grass-shrub fuel types. These fuels will burn rapidly under summer and fall fire weather conditions, however not at high intensities. This allows for both aerial- and ground-based firefighting operations to be more effective than in areas with more dense fuels.

Throughout Agoura Hills, there are many instances where non-native ornamental vegetation is used as landscaping. Often it is this ornamental vegetation that allows fire to impact a structure, either by providing a receptive fuel for embers or by providing a flammable connection from wildland fuels to a structure

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

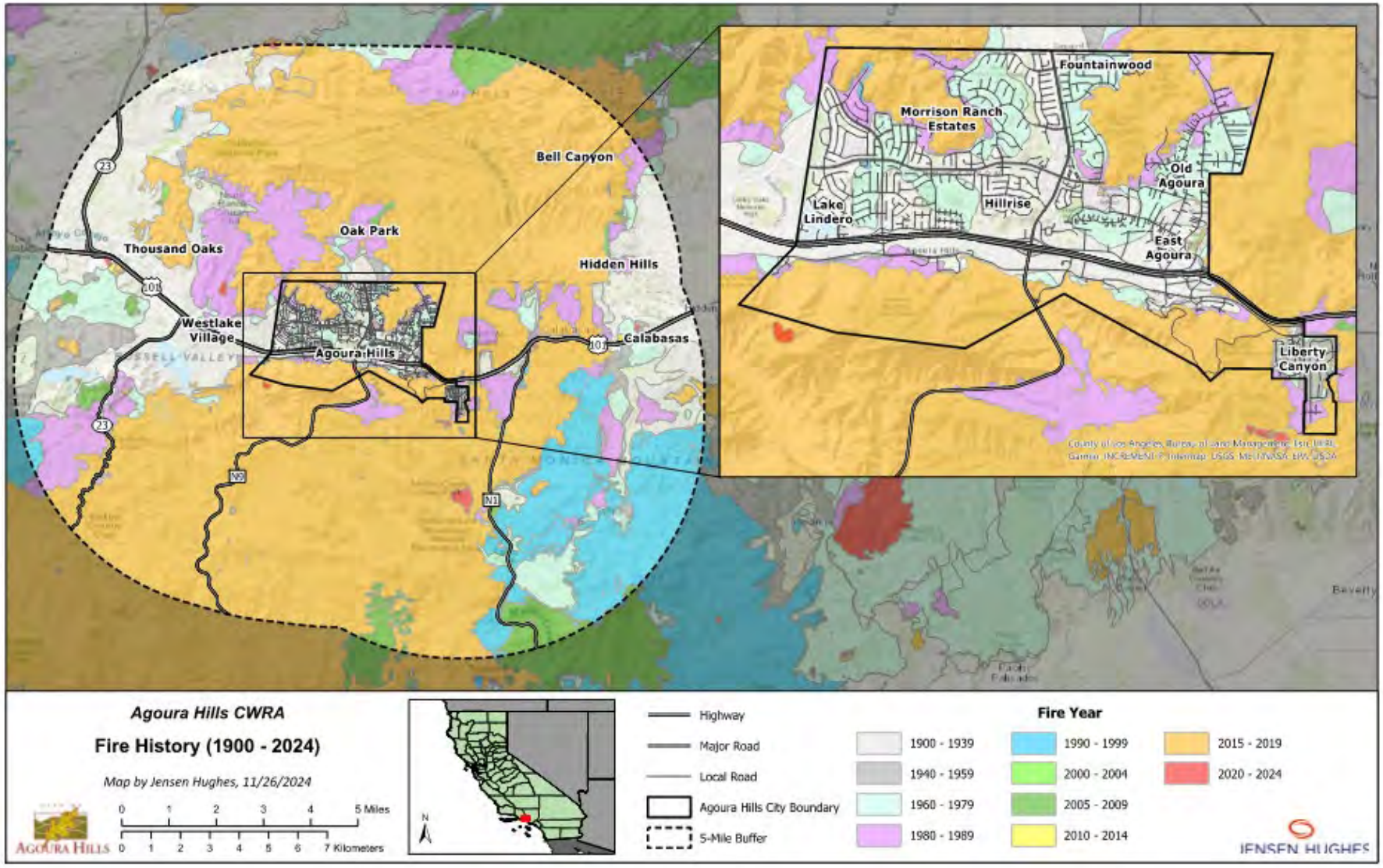


Figure 36. Historical Fire Perimeters in and around Agoura Hills.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

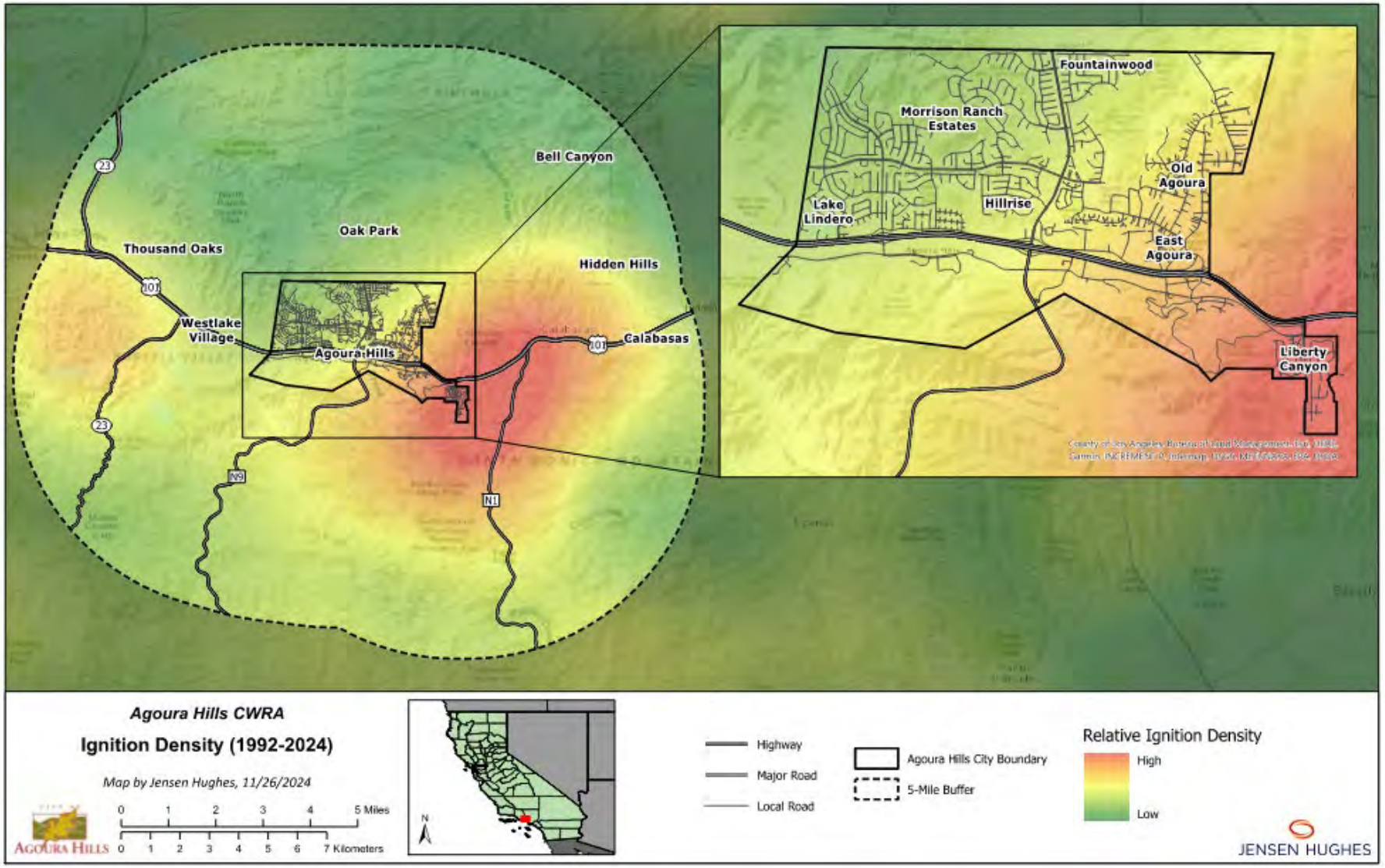


Figure 37. Historical Ignition Densities in and around Agoura Hills.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

6.1.2 Ignition Density

Ignition density has been evaluated for two functions within the Wildfire Risk Assessment:

+ **Firstly**, it is used as points from which fire spread simulations are run to determine fire severity and fire frequency for the Planning Area.
+ **Secondly**, ignition density provides insight into specific locations where fire prevention actions are needed to reduce the wildland fire threat to the community.

Historic ignition density was based on ignitions that occurred between 1992-2020 and is from the United States Forest Service's Fire Program Analysis dataset[11]. See Figure 38.

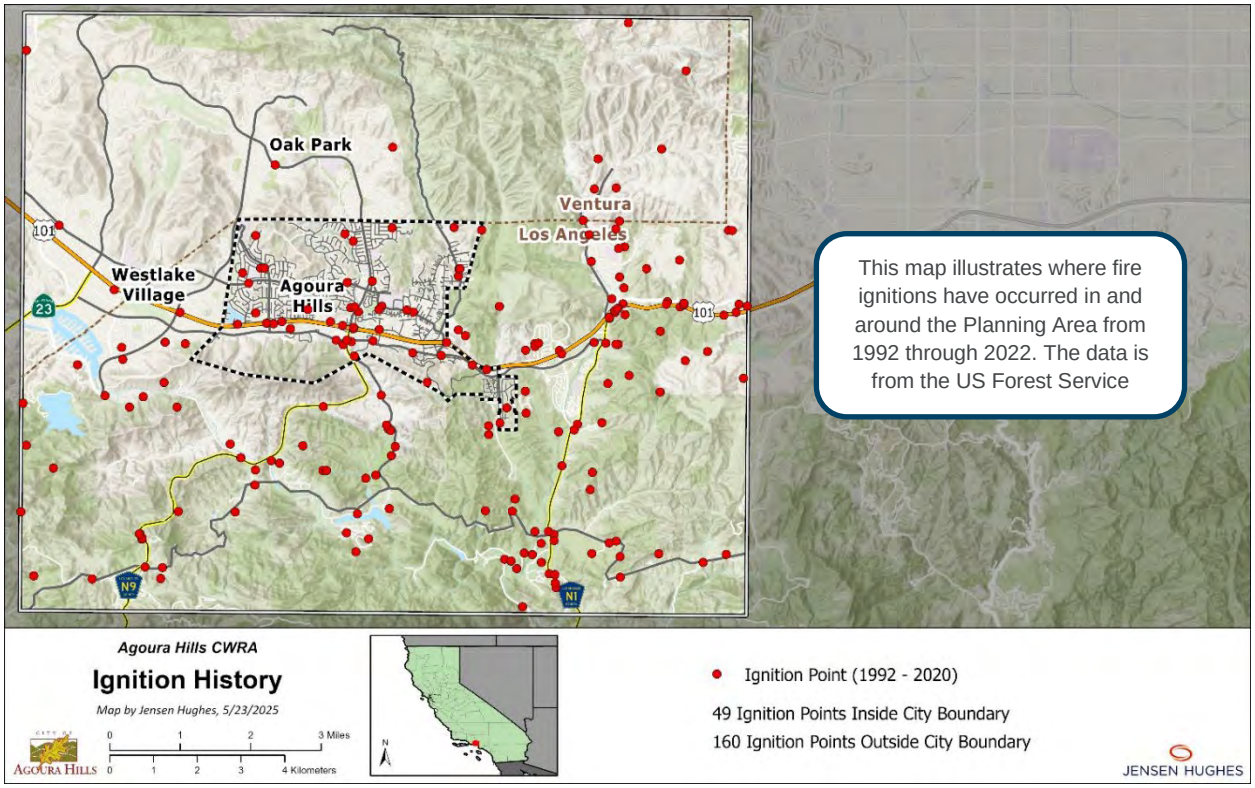


Figure 38. Ignition history in and around the Planning Area from 1992 - 2020. Source: USFS.

As seen in the figure, the distribution of ignitions across the Planning Area shows that ignitions tend to cluster along travel routes, with US-101, Kanan Road and Las Virgenes Road having the greatest density of ignitions. The most potentially impactful ignition clusters to the city are those located along Chesebro Road, below the Calabasas landfill and along Las Virgenes Road. In these locations, if an ignition were to occur during a Santa Ana weather event, fire would be rapidly pushed into residential areas to the west and south.

Of less concern to the city are the ignition clusters south of the administrative boundary. Under normal southwest winds, burning conditions are typically within the ability of the local fire agencies to successfully suppress. Fire history indicates that no large fire has spread into Agoura Hills from the south.

[11] Short, Karen C. 2022. Spatial wildfire occurrence data for the United States, 1992-2020 [FPA_FOD_20221014]. 6th Edition. Fort Collins, CO: Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2013-0009.6

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

6.1.3 Fire Severity ("Hazard")

Fire severity ("hazard") is used to classify how intense a fire will burn under a variety of environmental conditions. Fire behavior is the product of the natural environment or the unique combination of topography, weather and fuels. Topography and weather are factors on which humans have little effect but, fuels can be altered through human intervention or natural processes such as fire (rapid) or decomposition (very slow). Therefore, when assessing fire severity ("hazard"), the focus can be on fuels and the associated fire behavior and how severe those conditions may be. This can be determined by fire behavior characteristics such as rate of spread, flame length, fireline intensity, torching, crowning, spotting, fire persistence and resistance to control.

The fire hazard analysis conducted for the Planning Area represents a combination of four fire behavior and fire effects outputs merged into one representation to display the alignment of potential problematic areas on the landscape that would exhibit high severity fire. The four modeling outputs used to develop this analysis are:

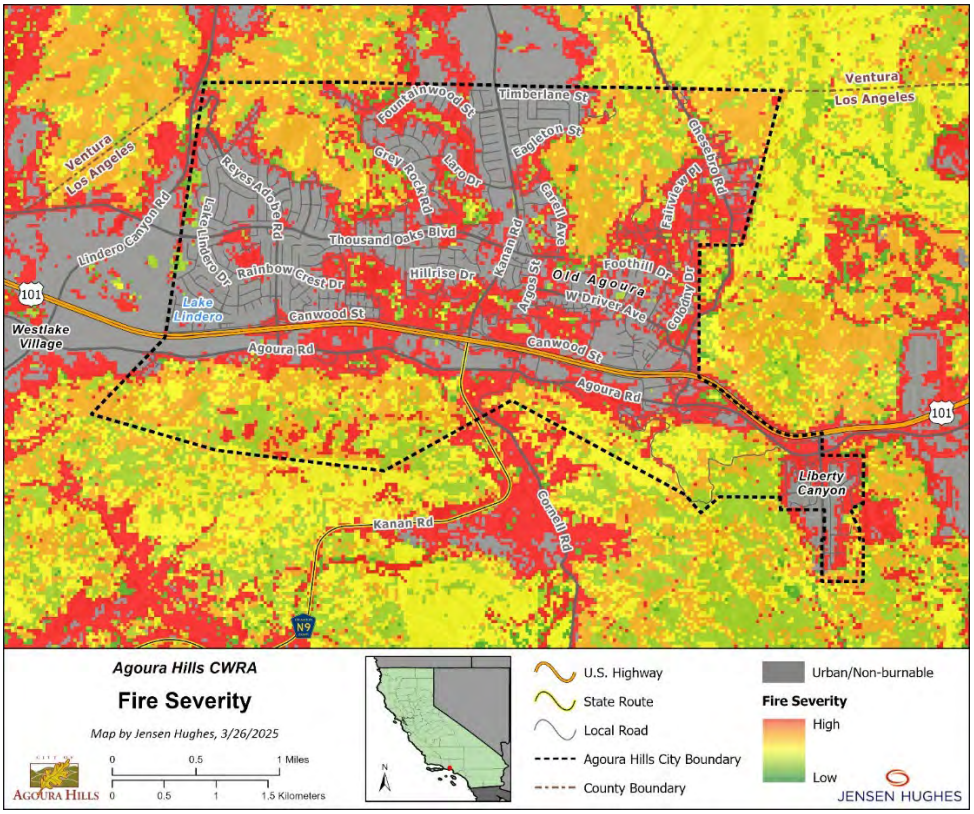
- Flame length
- $PM_{2.5}$ emissions
- Spotting distance
- Fuel loading

Each of the above layers are stratified into five rating classes (Low to Very High) then merged into a single display to identify areas on the landscape where the highest potential for hazardous fire conditions exists. This analysis is designed to: (1) Allow land managers to identify locations in the landscape where the greatest fire hazard exists, and (2) Prioritize locations where management action may reduce these hazards.

The hazard analysis does not consider the nexus of hazard to values at risk but only evaluates the landscape features and fire behavior modeling outputs that influence fire hazard.

Figure 39 displays the outcome of the fire hazard analysis, while Table 5 summarizes the hazard ratings for the 97th percentile weather conditions for the City and for the surrounding landscapes. Locations shown in red have the highest potential for high severity/hazard and indicate areas where fuel treatments would provide beneficial effects to reduce the potential impacts to high value resources and assets, while improving firefighter and public safety and enhance fire suppression efficiencies.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123



This map illustrates the anticipated severity or intensity of a fire, in the event fire were to occur in and around the Planning Area. For the CWRA, fire severity consists of a combination of fire behavior characteristics – flame length, max spotting distance, fuel loading, and PM 2.5 emissions. This data layer has been based on fire behavior modelling given current fuel loads, topography and 97th percentile weather conditions, and is independent of any specific ignition source.

Figure 39. Fire hazard ("severity") across the Planning Area. Fire severity includes flame length, spotting distance, PM2.5 emissions, fuel loading

Table 5. Fire hazard severity by % acres in the City and surrounding area for 97th% weather conditions

Planning area	*Non-burnable*	*Very Low*	*Low*	*Moderate*	*High*	*Very High*
Entire Analytical Area	25%	2%	20%	20%	18%	14%
City of Agoura Hills	54%	1.6%	10%	9%	16%	10%

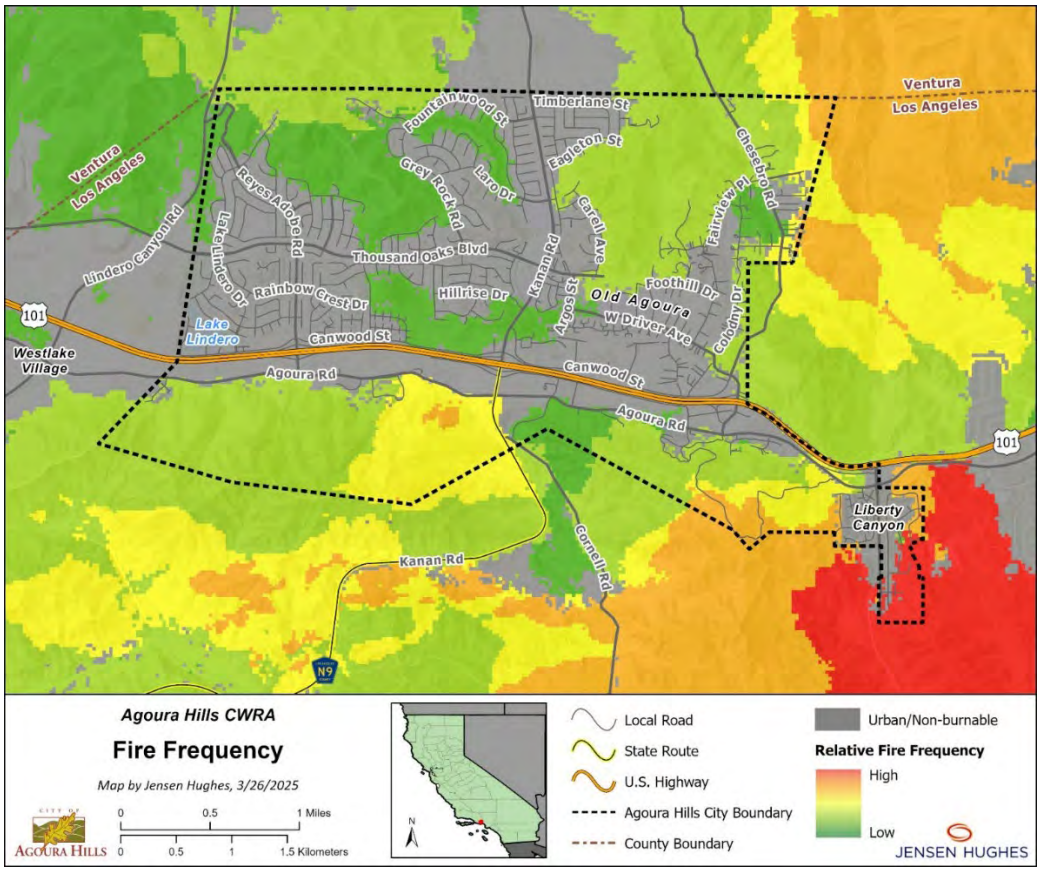
6.1.4 Simulated Fire Frequency

Simulated Fire Frequency (SFF) or "Fire Frequency" outputs were created using the Minimum Travel Time (MTT) module in FlamMap to understand where on the landscape wildfire has the greatest probability of spreading based on historic ignition locations within the Planning Area. SFF can also be used to identify where the pathways of fire spread are most rapid under a defined set of weather parameters, as well as help identify potential fuel reduction activities, that will assist in interrupting or altering the spread, direction, and/or intensity of fire entering the community.

To develop the SFF data layer, historic ignitions from 1992-2020 were used to simulate fire spread over a 12-hour active burn period assuming all ignitions in a single year are burning simultaneously. The resulting

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

fire perimeters and flow paths are then over-laid to determine where fires occurred more frequently. Note: These simulations assume no suppression activities. See Figure 40.



This map illustrates the relative frequency wildfires have occurred in and around the Planning Area based on simulations of historical incidents over a 12-hour burn period. Fire history data (1992-2020) was obtained from the USFS.

Figure 40. Simulated Fire Frequency (SFF) across the City and surrounding areas.

As seen in Figure 40, wildfire frequently flows through Las Virgenes/Chesebro/Palo Camado Canyons, Liberty Canyon, Kanan and Cornell Road south of Highway 101 and to a lesser degree Lindero Canyon. This corresponds with historic wildfire corridors observed by LA County Fire Department. These locations all feature north/south oriented canyons which funnel and accelerate winds during Santa Ana weather events.

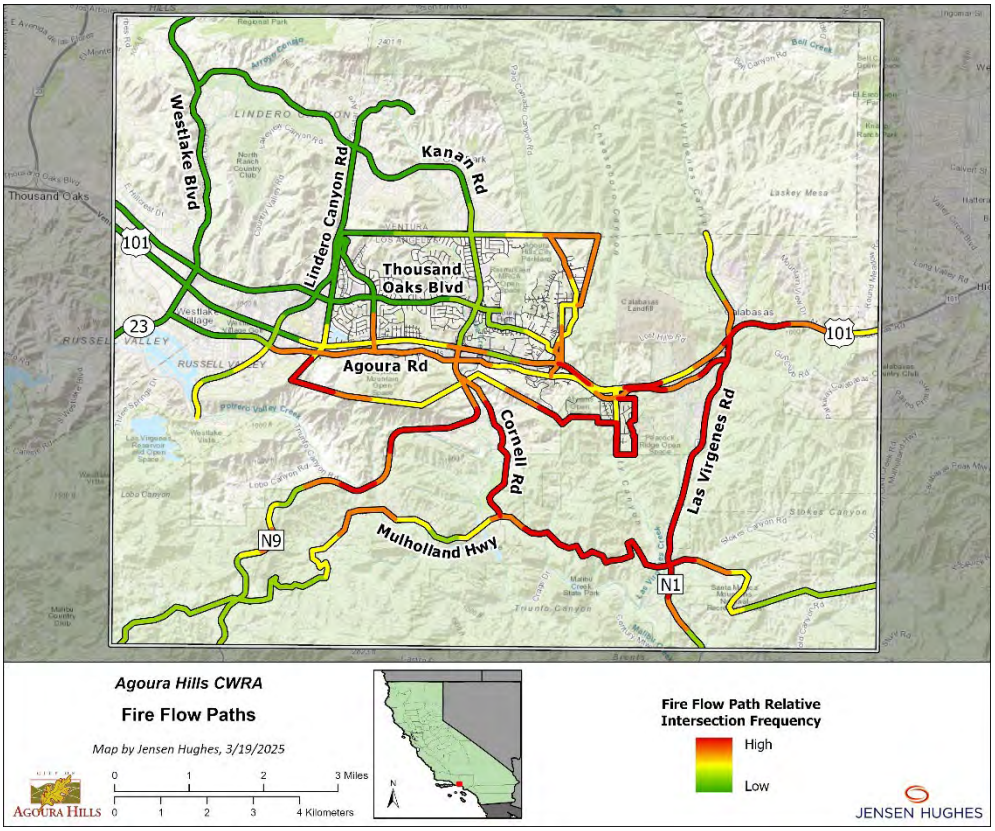
6.1.5 Fire Flow Paths

Fire Flow Paths are an output derived from the Simulated Fire Frequency analysis. These fire behavior outputs examine the intersection and concentration of where fires originating from different parts of the landscape would converge or intersect on the landscape. As part of the overarching risk assessment, documented fire locations for the time 1992 through 2020 were simulated and allowed to burn unsuppressed for a 24-hour period under 97th percentile fuel moisture conditions and a 17mph wind from the northeast. Flow paths from these simulations were compiled in GIS to determine locations along the corporate boundary of Agoura Hills where fires are most likely to impact the community.

The analysis indicates that the east side of the community, particularly in Chesebro and Liberty Canyons are highly prone to wildfire, while the locations west of Kanan Road and the west side of the city show fewer intersects with the modeled fires. This same analysis was used to show the potential impacts on major travel routes in the city, with results indicating that locations along Chesebro Road, Agoura Road and Liberty Canyon

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Road showing the greatest number of fire intersections. These major travel routes will be the principal evacuation routes for members of the community in the event of a significant wildfire. Figure 41 shows the flow path intersection with the road systems and the administrative boundary of the city.



This map illustrates major wildfire flow paths for simulated ignitions in Chesebro Canyon. A wildfire flow path is a major route in which a fire spreads due to wind, terrain, or other factors. Outputs were captured for each ignition location based on a Minimum Travel Time (MTT) analysis. This map demonstrates where wildfire flow paths are most likely to cross Major Roads.

Figure 41. Fire Flow Paths intersections of major roadways and Agoura Hills city boundary.

The fire flow path analysis focused on historic ignition locations and how fire spread impacts linear features like roads and boundary lines but additionally flow paths can also be used to see how a fire might spread into a community. To look at how a fire may impact certain locations within the City, three ignition points were selected north of Agoura Hills and allowed to burn unsuppressed for six hours under weather conditions like those that occurred in the 2025 Palisades Fire. The locations selected for these ignitions were, Chesebro Canyon, Palo Comado Canyon and Red Oak Elementary School near Lindero Canyon (Figure 42).

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

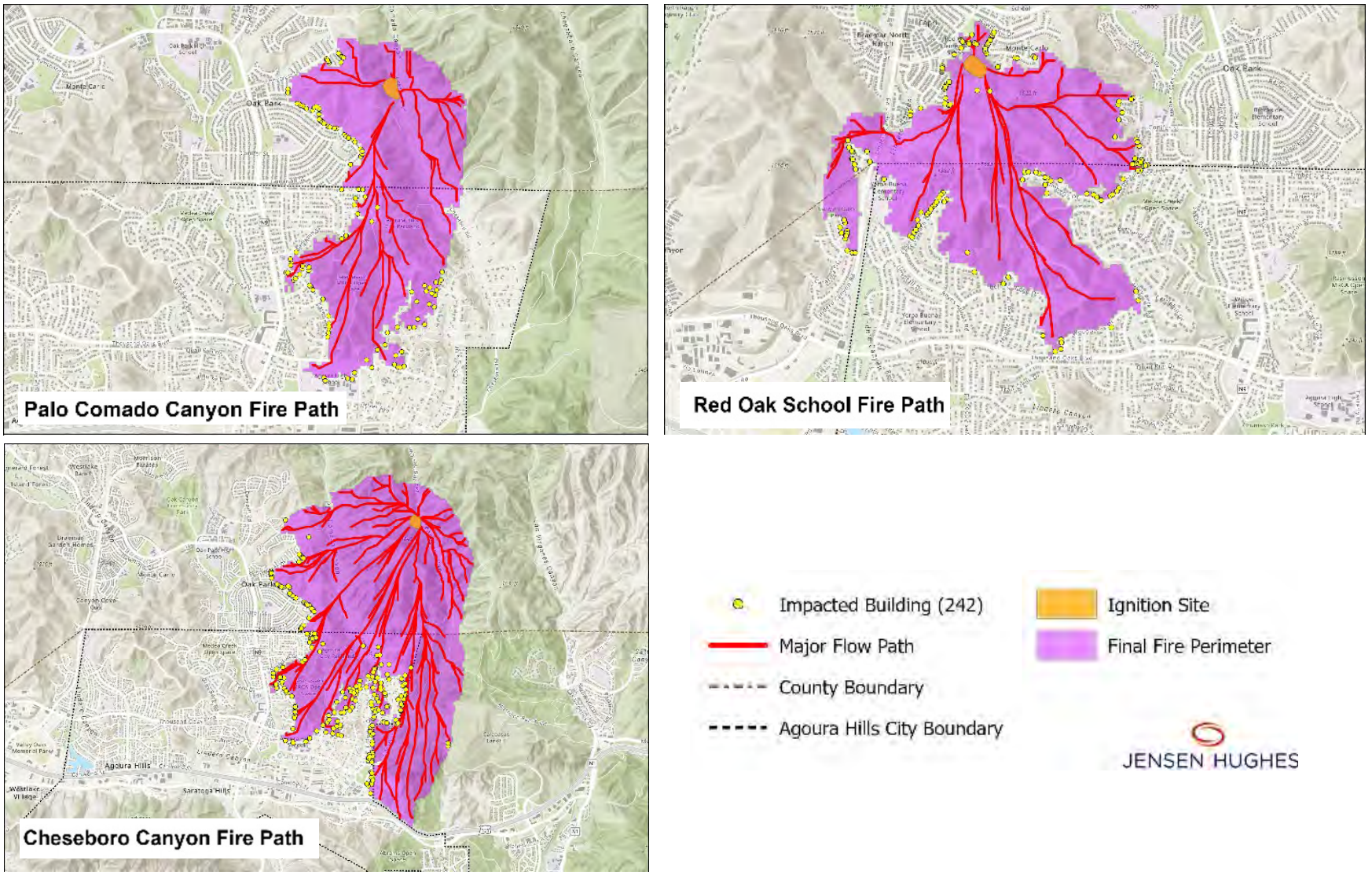


Figure 42. Simulated fire flow paths with ignition points in Palo Comado Canyon (top left), near Red Oak School (top right), and Chesebro Canyon (bottom).

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Each simulation demonstrates how a fire burning during a Santa Ana weather event can spread into the core of the city and impact the built environment.

Note: These simulations likely underestimate fire spread within the community as flammable landscape vegetation and structure-to-structure fire spread is beyond the capabilities of current fire models. The flow paths indicate where community impacts are most anticipated under these burning conditions given these defined ignition points and weather conditions.

6.1.6 Flame Length

Flame length is the observable feature of wildland fire that is directly related to a fire's intensity. Flame length can also be used as a proxy for fire hazard and is an easily relatable fire behavior characteristic to communicate fire hazard to the public. Flame length has also been correlated by fire scientists to the potential success of fire suppression operations. Generally, flame lengths less than 8 feet can be successfully attacked by ground-based firefighting resources (Table 6). The correlation between flame length and suppression success is also useful when designing fuel treatments to mitigate fire hazard, with fuel treatment prescriptions often targeting post-treatment conditions that produce flame lengths of 4-feet or less.

Table 6. Fire Behavior Characteristics and Suppression Capability

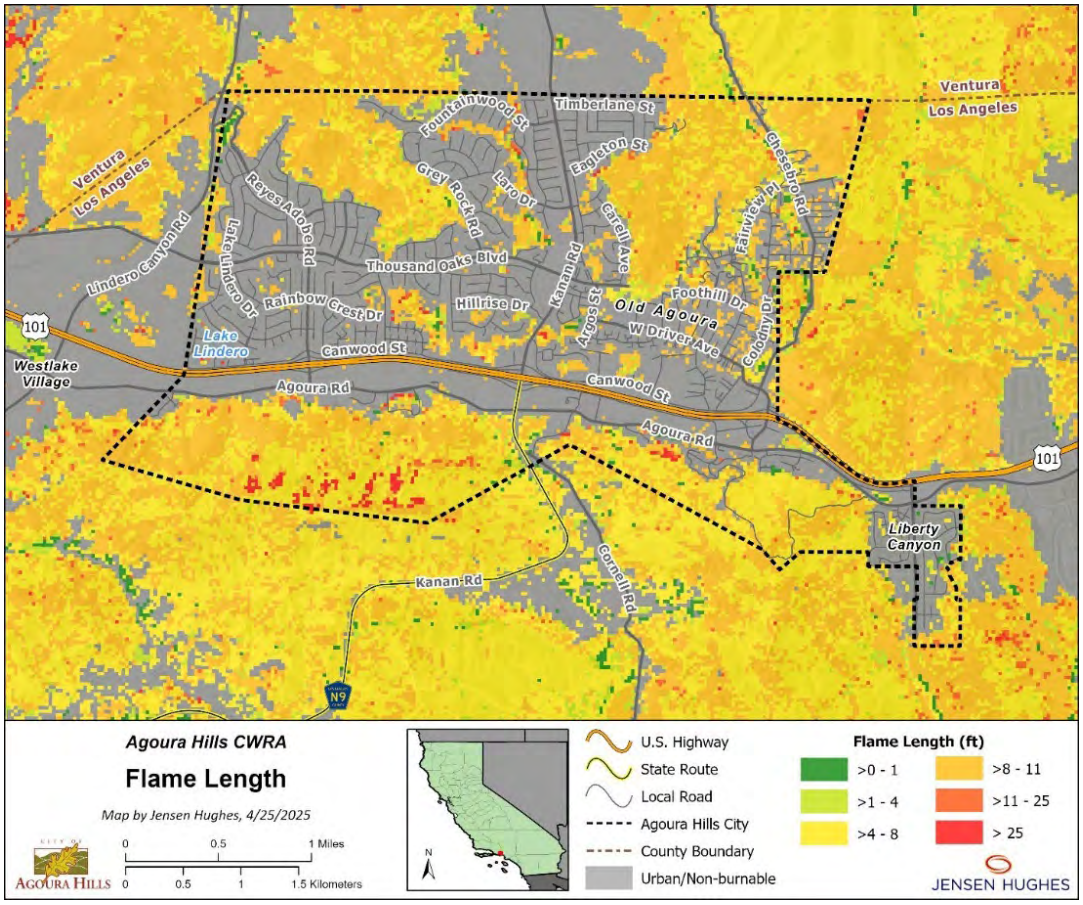
Flame Lengths (feet)	*Fireline Intensity (BTU/foot/Second)*	*Interpretation*
0-4	0-100	Fires can be generally attacked at the head or flanks by persons using hand tools. Handlines should hold the fire
4-8	100-500	Fires are too intense for direct attack at the head of the fire by persons with hand tools. Handlines cannot be relied upon to hold the fire. Equipment such as dozers, engines and retardant aircraft can be effective.
8-11	500-1,000	Fires may present serious control problems – torching out, crowning and spotting. Control efforts at the head of the fire will probably be ineffective.
11+	1,000+	Crowning, spotting and major fire runs are common. Control efforts at the head of the fire are ineffective.

Highly influenced by windspeed, flame length can vary greatly within the same fuel types under different wind conditions. For this risk assessment, winds associated with 97th percentile weather conditions (17 mph) were evaluated. A tabular summary of the distribution of flame lengths across the Planning Area is shown in Table 7, while Figure 43 displays the spatial distribution of the modeled flame lengths across the landscape.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Table 7. Modelled flame lengths in the City and surrounding landscape.

Flame Length	97th percentile weather	
	Agoura Hills	Surrounding Landscape
Non-burnable	54%	25%
0 – 4 feet	3%	5%
4 – 8 feet	16%	35%
8 – 11 feet	26%	29%
11+ feet	1.6%	5%



Flame Length is an estimate of the mean flame length (in feet) for all potential fires that may occur given vegetative conditions, fuel moistures, and peak winds. This metric is often used as a proxy for fire intensity. Model inputs are based on 97th and 90th percentile conditions obtained from 20 years of weather records from remote automated weather stations (RAWS) during the core fire season.

Figure 43. Modeled flame lengths across Agoura Hills.

6.1.7 Crown Fire

In addition to flame length, the type of predicted fire can provide a strong correlation to the potential for extreme fire behavior characteristics such as how fires spread (surface or crown). The type of predicted fire also governs the potential strategic and tactical operations alternatives by fire agencies during a wildfire. Examples could

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

include the use of aircraft or the potential for indirect attack methods based on crown fire potential or fast-moving brush fires.

The following are fire types and how they can influence potential fire behavior:

+ **Surface Fire** – A surface fire burns in the surface fuel layer, which lies immediately above the ground fuels, but below the canopy. Surface fuels consist of needles, leaves, grass, dead and down branch wood, logs, shrubs, low brush, and short trees (<3 feet). Surface fire behavior varies widely depending on the nature of the surface fuel complex (vertical and horizontal arrangement). Surface fires are generally easier to contain than any type of crown fire.

+ **Crown Fire** – A crown fire burns in the elevated canopy fuels. Canopy fuels normally consumed in crown fires consist of the live and dead foliage, lichen, and very fine live and dead branch wood found in the forest canopy. Reducing the potential for crown fire is very important in reducing the risk of lofted fire brands that may threaten structures and the WUI. In addition, crown fires are defined as either "passive" or "active."

  - **A passive crown fire ("torching")** is defined as the ignition of a single or small group of trees, but does not spread continuously through the canopy of the trees.
  - **An active crown fire** is where the entire fuel complex is involved in flame, but the initiation and spread of the crown fire is dependent on the heat released from surface fuel.

For the City of Agoura Hills, crown fire initiation and propagation are not considered an issue of great concern. Crown fires under the limits of the current fire models are associated with timber understory and timber litter fuel types only, with these fuel types representing only 4.6 percent of the overall Planning Area. Where timber dominated fuel models exist on the landscape, the fuels are comprised of an oak dominated overstory, which is more resistant to crown fire initiation than conifer species.

The fuel structure in and around Agoura Hills will not allow for the development of an active crown fire.

Fire behavior modeling does indicate that passive crown fires have the potential to occur on 0.9% of the Planning Area and is mostly confined to extreme southeast portion of the analysis area within the Santa Monica Mountains.

While crown fire is not a landscape level issue for Agoura Hills, there are locations within the City where torching of individual trees used as landscaping near structures and along road systems can occur. This is particularly true where groups of pines, eucalyptus, cypress, or pepper trees occur.

A simple tool that property owners may use to evaluate if trees within their home ignitions zones have the potential to be ignited from a surface fire is the *"Crown Fire Initiation*" model, that uses the surface fire intensity, foliar moisture of the tree canopy, and the separation distance between the surface fuels and the lowest level of canopy of a tree to determine if torching is probable.

Fire behavior outputs from fire hazard assessment indicate that in urban environments adjacent to wildland fuels, flame lengths are generally 4-foot or less. By using a standard foliar moisture of 90-percent the simple crown fire initiation model indicates that there needs to be a canopy separation distance of 11 feet (red lines) to mitigate potential ignition of the tree canopy (Figure 44).

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

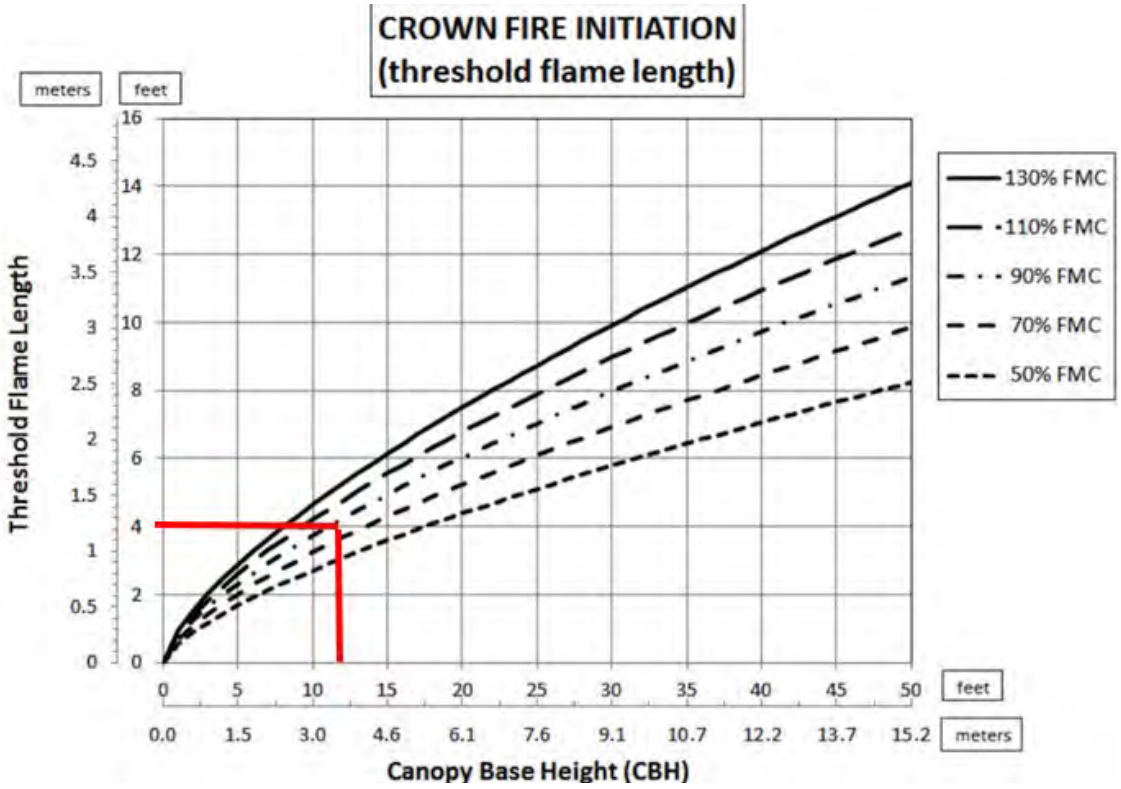


Figure 44. Crown Fire Initiation.

6.2 COMMUNITY WILDFIRE RISK ASSESSMENT

In its simplest form, community wildfire risk is the likelihood of a fire and its potential consequences on the community. It includes:

(1) The identification of potential fire hazards and associated characteristics such as location, intensity, frequency and probability of fire.

(2) The analysis of exposure and vulnerability of physical, social, health, environmental and economic assets or values in the community; and

(3) The evaluation of the effectiveness of coping capacities in response to and recovery from potential wildfire impacts.

This provides a basic framework to not only identify potential risks but, more importantly, determine various strategic actions for individuals, communities, agencies and other stakeholders to better prepare for, mitigate, respond to and recover from future wildfire threats.

For the purposes of this CWRA, the community risk assessment is based on a combination of approaches – both quantitative and qualitative – to determine the nature and extent of wildfire risks across the Planning Area. In addition to the quantified risk assessment in Section 6.2.1, various physical and social vulnerability analyses –neighborhood- and parcel-level vulnerabilities, community-level vulnerabilities, vulnerable populations – were conducted to help further inform overall risk and targeted mitigation actions.

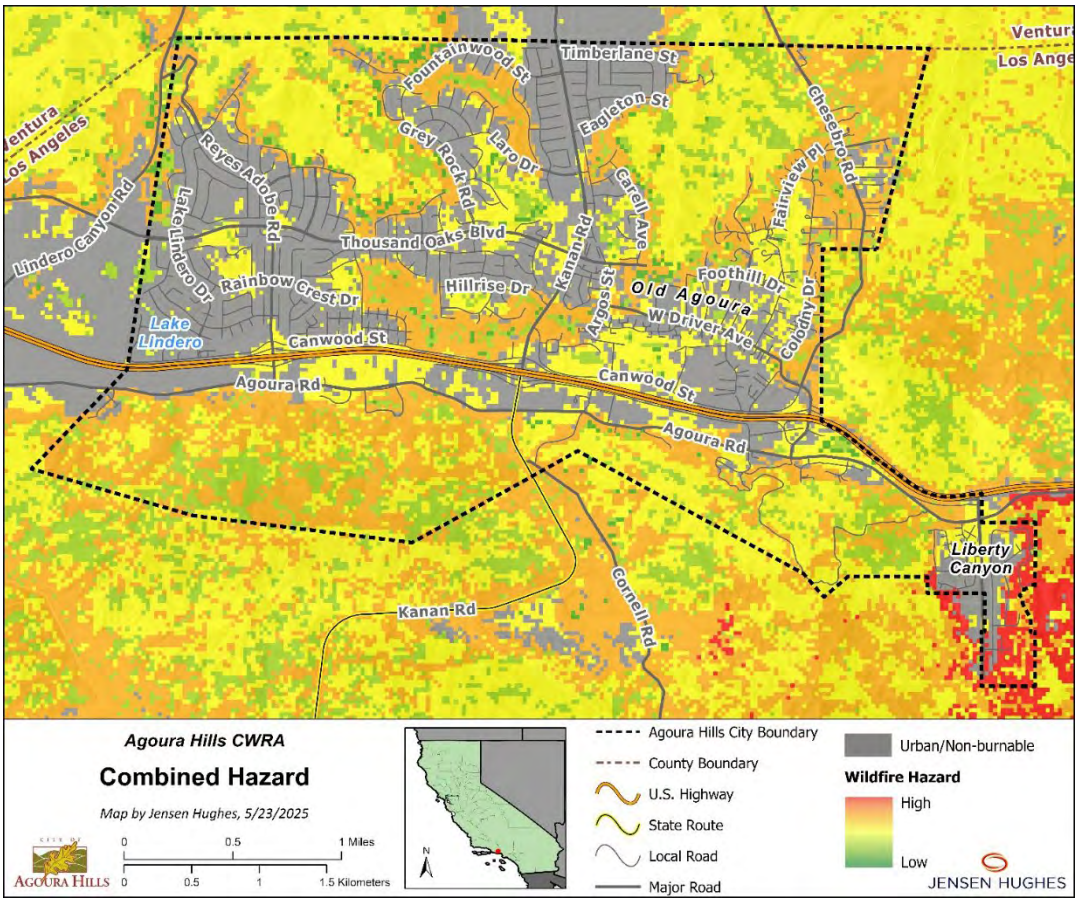
Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

6.2.1 Quantitative Risk Assessment Results

To understand the potential wildfire risks across the Planning Area, a quantified risk assessment was performed as described in Section 5.4.4, where the governing risk equation is as follows:

$$(0.6\ Fire\ Severity) + (0.4\ Fire\ Frquency) \times (Exposure + Vulnerability)$$

As previously discussed, the hazard component of the risk equation is comprised of two parts: (1) Fire severity and (2) Fire Frequency. See Sections 6.1.3 and 6.1.4 for detailed discussions regarding these two individual components. Figure 45 shows the combined Fire Severity and Fire Frequency components of the risk equation and provides an indication of where higher intensity-higher frequency fires are more likely across the Planning Area. As seen in the figure, Liberty Canyon has the highest relative likelihood of problematic fires.



Combined fire hazard is the combination of fire frequency and fire severity, which provides a relative indication of where higher intensity fires are more likely to occur. The data in this layer is based on 97th percentile wind and weather conditions, and vegetative coverage.

Figure 45. Combined hazard (0.6 fire severity + 0.4 frequency) across the City.

As wildfire risk is not just a function of the fire itself, but also whether there are community values at risk, the general risk equation also includes a component for "assets" and "vulnerability." For this CWRA, three (3) different measures of risk were evaluated to better understand different aspects of risk. These are as follows:

(1) Risk to All Assets ("Comprehensive Risk")

(2) Risk to Natural Resources

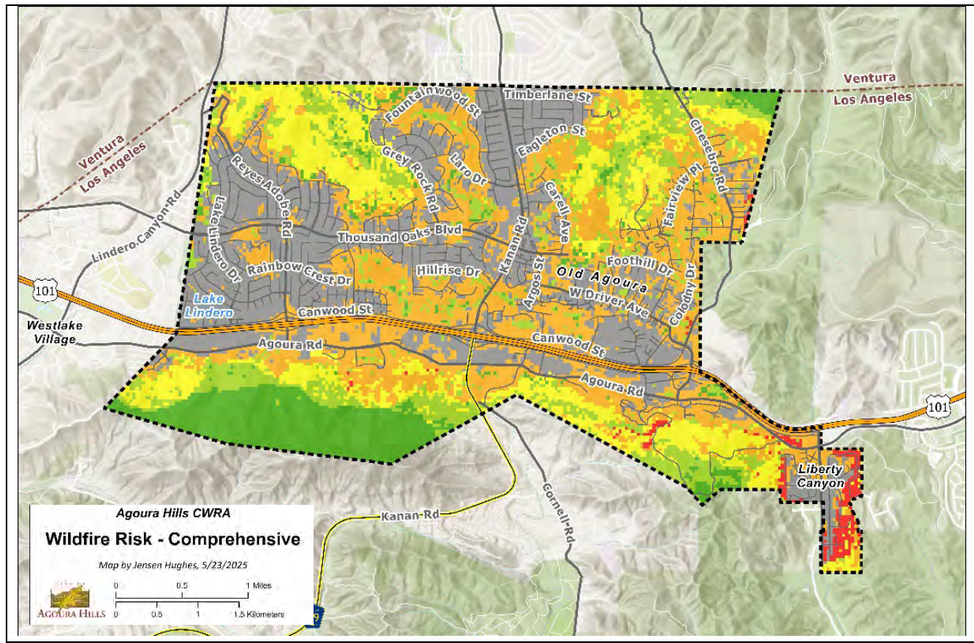
(3) Risk to Economic Resources

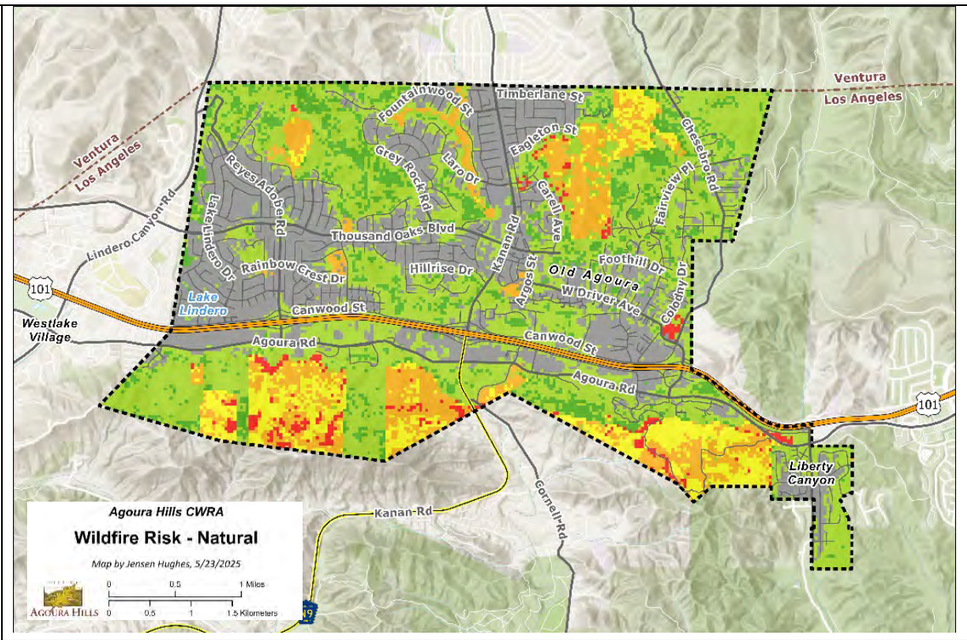
Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

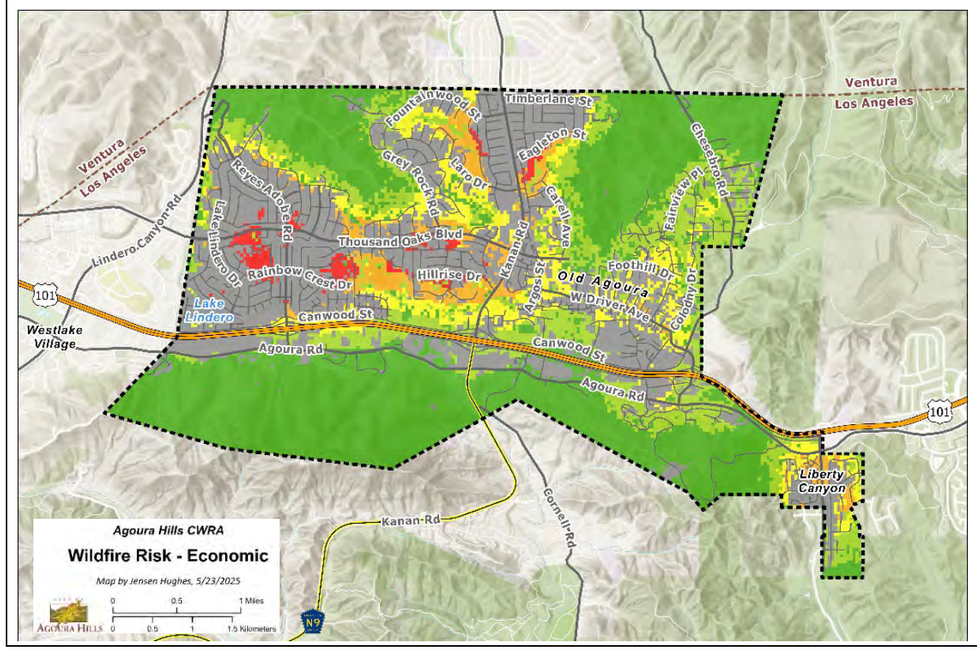
As each of the three (3) measures evaluates risk from a different perspective, the types of assets or values, and the vulnerabilities included in each analysis are specific to that perspective. For example, risk to economic resources includes buildings and structures, as equally weighted assets, that provide the City with economic value. Note: The economic risk map assumes that all structures have equivalent financial value. Therefore, higher economic risk areas will skew the results to where there is a higher density of structures in combination with higher fire intensity. Comprehensive risk captures all assets, but is generally more weighted to reflect risk to people, property and infrastructure, particularly as these assets are also where populations are likely to reside.

Refer to Figure 46, for all three risk maps for the Planning Area. Risk is displayed from green to dark red, with dark red indicating areas of higher risk. “Non-burnable” regions (i.e., urban areas and water) are also indicated on the risk maps. Note: Current wildfire models do not have an urban fuel model. This does not mean urban areas cannot burn; it just means that fire science has yet to credibly define urban fuel burn characteristics.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123







Agoura Hills City Boundary
County Boundary
U.S. Highway
State Route
Local Road
Major Road
Urban/Non-burnable
Wildfire Risk
High
Low
JENSEN HUGHES

These maps illustrate relative wildfire risk across the Planning Area from three different perspectives: (1) Comprehensive Risk including structures, vulnerabilities, critical infrastructure and natural resources, (2) Risk to natural resources, (3) Risk to individual economic resources. **Comprehensive risk** captures the relative risk of wildfire to all community assets, which tends to skew risk to property and infrastructure, particularly as these assets are also where populations are likely to reside. **Natural resources risk** reflects the relative risk of fire impacting natural assets across the City. **Economic risk** reflects the relative risk of fire impacting economic resources, where each structure is assumed to provide equivalent economic value. Given this assumption, the results skew economic risk to areas with a higher concentration of structures (e.g., denser neighborhoods).

Figure 46. Community Risk from three different perspectives across the City.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

As seen in the comprehensive risk map in Figure 46, very high risk zones are concentrated in the region of Liberty Canyon. Additionally, much of the City is also considered to be at a moderate to high risk due to the density of assets and high potential fire severity across the city. Peacock Ridge ranges around moderate to high fire risk, as does Morrison Ranch and Fountainwood. Morrison Ranch, however, has more area under the high hazard classification and Fountainwood has more area under the urban or non-burnable classification. Chateau Creek, Hillrise, Annandale and Old Agoura all contain larger areas of both high fire hazard and urban or non-burnable zones. Lake Lindero is primarily of the non-burnable and urban classification.

IMPORTANT NOTE: *"Non-burnable" regions (i.e., urban areas, agriculture, water and barren lands) in the following risk maps are not truly "non-burnable" with exception of the water features. The "non-burnable" areas are only a limitation of the wildfire behavior models, which currently do not have fuel models for these land-type uses. This does not mean they cannot burn. It just means that fire science has yet to develop credible burn models to describe the fire characteristics (e.g., flame length, rate of spread) through these spaces. That said, these areas can be considered to have a lower likelihood of burning as a wildland fire. In some cases, for the urban areas, these are no longer wildland fuels, but urban fuels.*

6.2.2 Vulnerabilities

6.2.2.1 Observations of Neighborhood-Level Vulnerabilities

While earlier research focused on the home ignition zone as providing the primary sources of structure vulnerability (e.g., construction materials, home hardening and defensible space features immediately around the home), current research and technical guidance also highlights the significance of landscape level features and neighborhood designs on influencing structure vulnerability to wildfires. That is, a structure's vulnerability is determined by a complex interaction of vulnerabilities at different scales – building, parcel, neighborhood, and community.

During the site and based on some of the wildfire modelling, many neighborhoods across the City are vulnerable to one or combination of neighborhood- or community-level vulnerabilities, including:

(1) Limited access/egress routes

(2) Proximity to large, uninterrupted wildland vegetation or poorly maintained open spaces

(3) Proximity to north-south trending drainage pathways (e.g., Chesebro, Palo Comado, Lindero Canyons)

(4) Proximity to integrated greenbelts into the built environment (e.g., Medea Creek)

(5) Proximity to older, non-WUI code compliant neighborhoods

See Figure 47 for examples of neighborhood- and community-level vulnerabilities observed across the City.

In addition to some of these high hazard neighborhoods, even communities that are more remote from large areas of continuous vegetation are still vulnerable to wildfires due to embers that can be carried large distances from the fire front, landing and igniting receptive fuel beds on and immediately surrounding a structure, as seen during the 2018 Woosley. Fire receptive fuel beds can include ornamental landscaping, dead vegetation, litter, debris built up in rain gutters, and mulch beds. Enclaves, islands, and riparian corridors of wildland vegetation and ornamental vegetation are also found within neighborhoods and interspersed with structures throughout communities. These create significant opportunities for wildfires to ignite and destroy structures.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

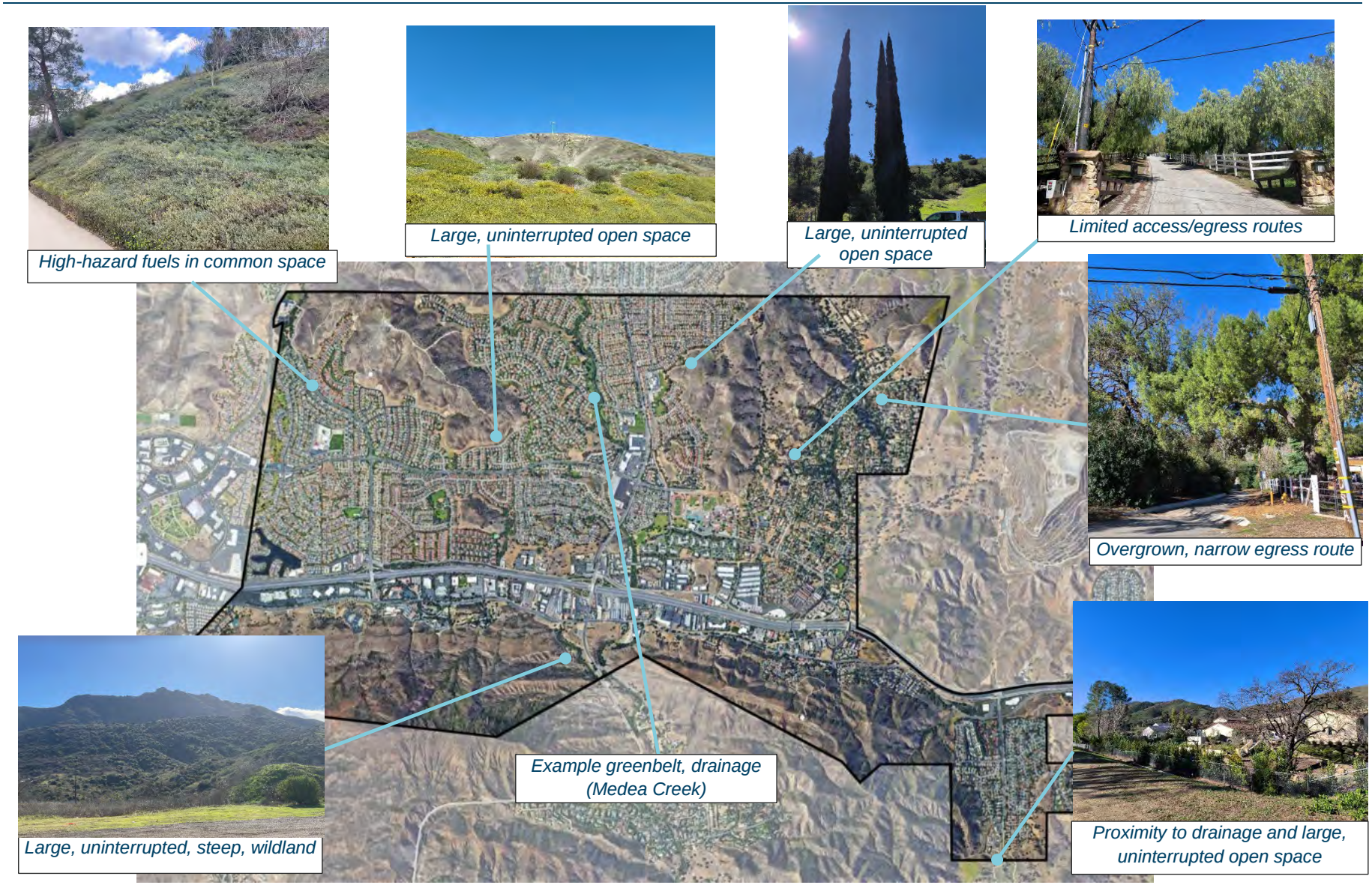


Figure 47. Observed neighborhood- and community-level vulnerabilities

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

6.2.2.2 Observations of Parcel-Level Vulnerabilities

In addition to community-scale vulnerabilities, several neighborhoods were observed to have parcel-level vulnerabilities throughout Agoura Hills. Homes and other structure types had varying degrees of vulnerability to wildfire, including:

- **Defensible space** is the space around a structure that, under normal conditions, creates a sufficient buffer to modify or arrest the spread of a wildfire to a structure. Flammable landscaping and other combustible items, such as firewood or debris piled near a structure, pose an ignition threat. Structures are more susceptible to ignition when exposed to significant radiant and convective heat from burning material. Several neighborhoods, particularly older communities (e.g. Old Agoura), across the City have significant overgrown vegetation, high hazard plants/trees or combustible man-made fuels (e.g., trash bins, storage sheds) proximate to the home. See Figure 48.

Figure 48: Overgrown vegetation in Zone 0 and 1 proximate to the exterior of the home. This introduces several paths for fire to spread and encroach the home.

- **Vents** – Vents in eaves, attics or crawl spaces are an easy entry point for embers to penetrate the interior of a structure, particularly vents located in the underside of soffits. Where embers enter attic spaces, fires in can go easily undetected from the outside, as attics typically do not have smoke detection or sprinkler protection. In past fires, structures have been lost when fire personnel have left the scene unaware that a fire has ignited in the attic. The majority of homes across the City have limited vent protection (e.g.,1/8" or 1/16" non-corrosive metal mesh or a listed ember resistant vent system) against embers during a wildfire.

Figure 49: Wooden fences and vegetation near and between homes can act as a "wick" that contributes to fire spread.

- **Wood Fences** – Wood fences act as a fuel source and also as a fire pathway carrying fire to a structure. Wooden fences connecting adjacent homes present a major threat. If ignited, these fences can act as "wicks" that contribute to fire spread from home to home (Figure 49). Wood and other combustible fences surrounding and connecting homes was observed in multiple neighborhoods across the City.

- **Siding** – Combustible siding can provide a pathway for flames to reach vulnerable portions of a structure, such as eaves or windows. Siding is especially vulnerable when combustible materials (e.g., vegetation, wooden decks and fences, stacked firewood) are near a structure's siding and can provide a heat source to

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

ignite siding. Most homes in Agoura Hills appeared to have stucco siding or other ignition-resistant material. However, in some older neighborhoods (e.g., Lake Lindero area) combustible siding is still present.

+ **Roofing** – Roof construction and maintenance is a key factor influencing structure loss in wildfire. Vulnerability is not just related to roofing material, but also design, construction details, condition, and whether the roof is clear of combustible material (e.g., pine needles and other debris). The majority of the homes in Agoura have Class A roof systems. However, some homes have complex roof designs (e.g. Figure 50) that create multiple ledges, valleys and other features where vegetative debris and embers have a higher likelihood of collecting, leading to ignition along gaps at the various roof joints.

Figure 50: Example of a complex roof, which introduces several locations where flammable debris and embers can gather.

+ **Garages** – Gaps at the top, bottom and edges of garage doors allow embers to enter a home. Garages often contain combustible materials or flammable liquids that a highly susceptible to ignition and challenging fires. Garages typically also have vents along the façade to provide venting for a variety of purposes (e.g., gas furnace or hot water heaters, natural ventilation, clothing dryer). These vents can provide easy entry points for embers, as most garage vents are unscreened or have large openings (e.g., greater than 1/8” openings). Similar to other vents, protection is garage vents is likely deficient across the City.

+ **Nooks and Crannies** – Grooves, inside corners, and roof valleys are areas where flammable debris (e.g., leaf litter, bird nests) collect over time. Embers can land on this debris, leading to ignition. These areas can also accumulate a large number of embers, which increases the likelihood of ignition of combustible concealed spaces just behind the exterior façade, roof covering or similar outer building material. Many homes in Agoura Hills have tiled roofs. Tiled roofs tend to have gaps at the roof edge underneath the tiles, which if left unprotected, can allow flammable debris to collect.

+ **Windows** – Single pane windows can be a major vulnerability during a major fire. Single pane windows can oftentimes break due to impact by airborne materials or crack and fallout due to thermal exposure to intense heat. This can create large entry points into the structure allowing flames, hot gases and embers to penetrate the home, igniting interior combustible materials. The majority of homes in Agoura have double-paned windows.

Wildfire will continue to threaten Agoura Hills. However, residents and homeowners can and should take proactive measures to mitigate this threat. Current land use planning, zoning regulations, and codes adopted by the State of California and local fire departments provide the regulatory basis for preparedness, but these alone will not protect life safety and other community values.

6.2.2.3 Community-Level Vulnerabilities

Community-level vulnerability refers to the resilience of various built environment characteristics to wildfire threats over both the short and long-term. While there are numerous values in the natural, built and human

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

environments that may be exposed to the same wildfire, how much loss or damage is experienced by those values can vary dramatically depending on the inherent physical resiliency of those assets to wildfire – individually or as a collective. Some examples of physical vulnerability include age of construction, code compliant structural hardening and defensible space, limited access/egress routes, and structure separation distances. Community-level vulnerabilities may also include coping capacities of the community (e.g., the availability of resources to effectively respond to or recover from a wildfire threat). Some coping capacity proxies may include fire service response times, firefighting water supplies, emergency power supplies, communication dead zones, etc. Note: As vulnerability assessments are often limited by the availability, quality and scale of the datasets, the corresponding analyses has been governed by these limitations.

For the CWRA, fire service response time coverage has been evaluated as a proxy for wildfire coping capacities across the City. See Figure 51.

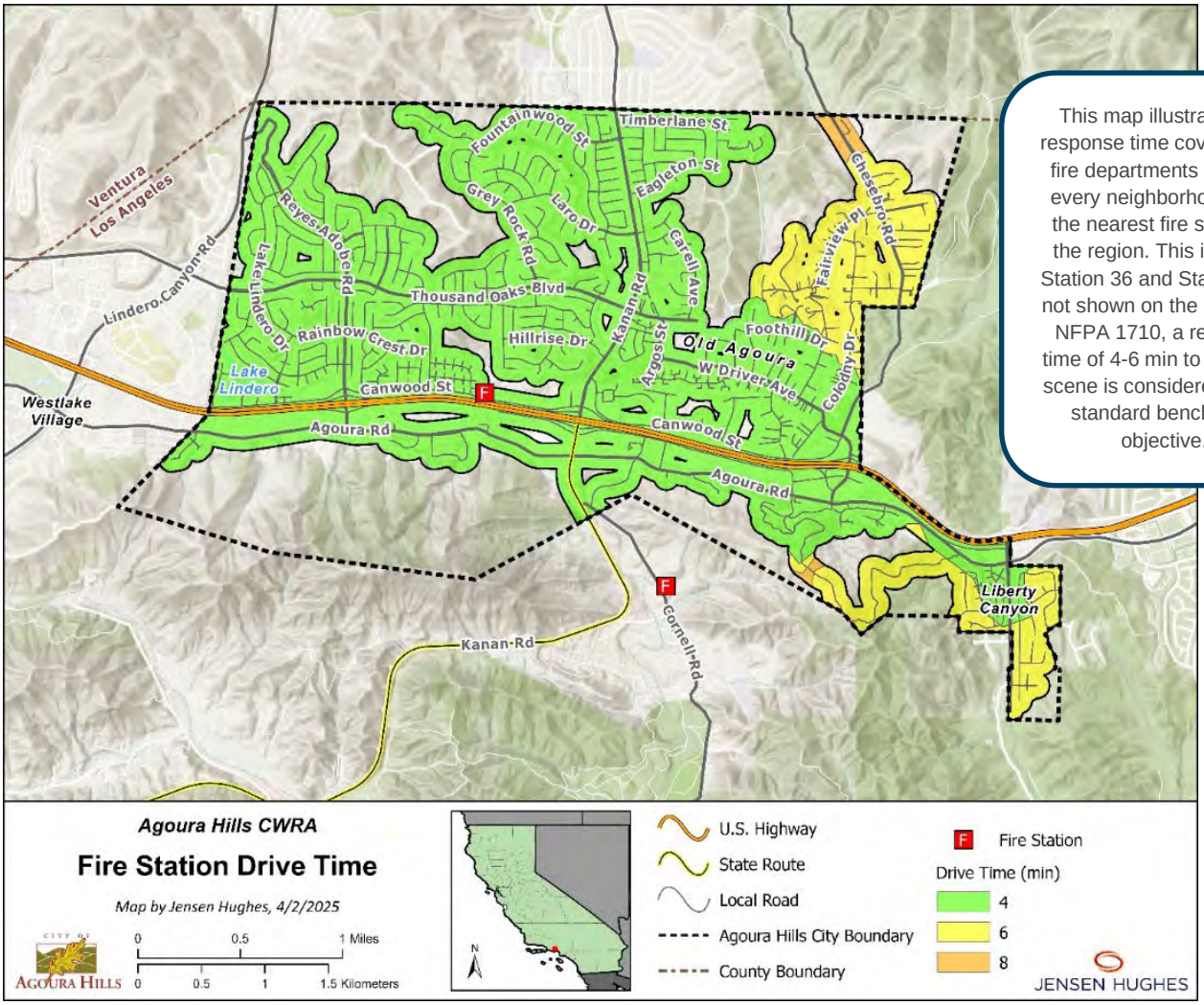


Figure 51: Fire Department response time coverage across the City.

As seen in Figure 51, the majority of the city has a very good fire department response time with expected arrival times of less than 4 min to the nearest fire station. The northern portion of Old Agoura and the southern portion of Liberty canyon have slightly higher response times, primarily between 4 and 6 min, reaching between 6 and 8 minutes in few places.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

6.2.2.4 Social Vulnerabilities

While many people might be exposed to the same wildfire, differences in demographic and socioeconomic characteristics can result in very different short and long-term impacts. Vulnerable or functional needs populations may have limited capacities to prepare for, respond to, and recover from a wildfire incident. These individuals are also less likely to be involved in wildfire mitigation activities (Ojerio, 2008). As a proxy for individual-level vulnerability data, key demographic and population statistics for Agoura Hills from the 2020 U.S. Census and 2023 American Community Survey (U.S. Census Bureau, http://data.census.gov) were assessed to identify potential vulnerable populations:

- **Population**: 19,429
- **Housing Units:** 7,585
- **Average population density**: ~2,500 people/square mile
- **Racial makeup:** 68.7% White (non-Hispanic), 15.3% Hispanic or Latino, 0.8% Black or African American, 7.9% Asian, 0.1% American Indian or Alaska Native, 0.1% Native Hawaiian/Pacific Islander, 10.2% Other/Two or More Races
- **Language other than English spoken at home:** 20.1% of the population
- **Disabilities:** 4.9% of the population
- **Vulnerable age groups:** 3.4% of the population under 5 years, 16.0% 65 years and older
- **Poverty**: 5.7% of the population live below the federal poverty level

Vulnerable or functional needs populations include those who are physically and/or mentally disabled (e.g., blind, cognitive disorders, limited mobility), limited or non-English speaking, culturally isolated, medically or chemically dependent, homeless, Deaf or hard-of-hearing, of vulnerable ages (e.g., elderly or young), or lack digital services.

These characteristics may influence people's ability to plan and prepare in advance of a wildfire, respond quickly and independently during a wildfire, and recover following a wildfire. For example, older individuals are likely to have difficulty undertaking defensible space maintenance around their properties and may also need assistance evacuating. Those with limited English proficiency may need emergency communications, as well as information about wildfire preparedness, shared in a language other than English. Limited access to financial resources may hinder the ability of lower-income populations to invest in emergency preparedness and mitigation measures, as well as to recover from losses. Other characteristics, and combinations of different characteristics, impact social vulnerability in different ways. Planning for vulnerable or functional needs populations is critical to providing a holistic wildfire mitigation preparedness plan that works for the entire community.

Understanding where vulnerable populations are geographically is important for targeting outreach and interventions to reduce impacts. A small sample of the many attributes that contribute to social vulnerability was explored as part of the CWRA. The number of households with at least one member aged 65 or over was found to have the greatest spatial variation (Figure 52). These individuals are more likely to have greater challenges with all aspects of wildfire preparedness and areas with a greater proportion of these vulnerable populations may need additional resources. This is simply a starting point for understanding how social vulnerability varies across Agoura Hills and should be combined with other, more locally specific, information.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

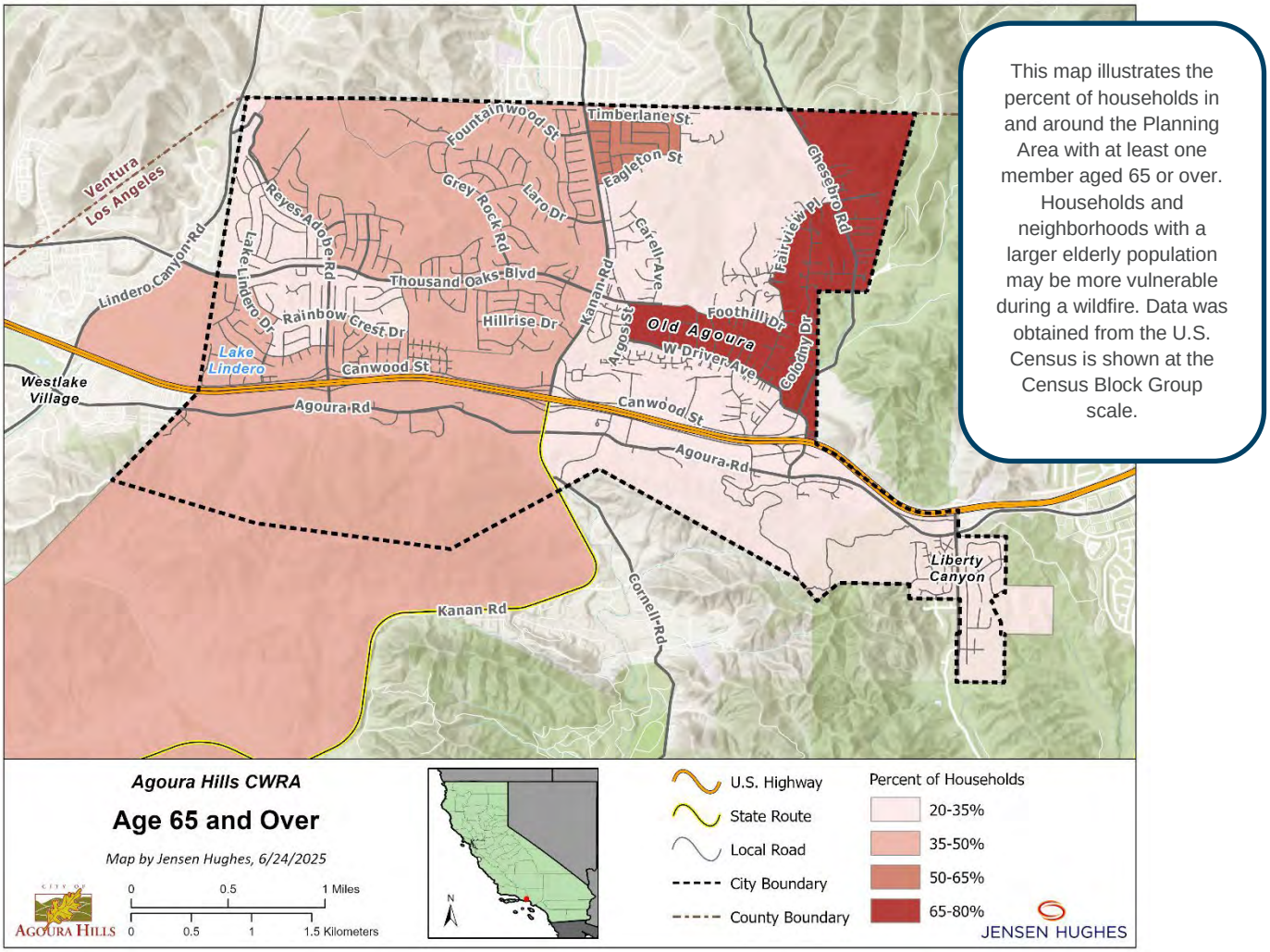


Figure 52: Percent of households in each census block group with at least one member aged 65 or over

As shown in Figure 52, Old Agoura and the northeastern parts of Agoura Hills have the highest proportion of older residents, with up to 80% of households having at least one member aged 65 or over. Some households east of Fountainwood adjacent to Kanan Rd also have, on average, over 50% of households with at least one older member.

6.2.3 Community Input on Hazards and Risks

As part of the CWRA process, three forms of community outreach were used to understand the experiences, perceptions and concerns of local residents, agencies, organizations, and other interested parties to past and future wildland fire threats in and around Agoura Hills. The forms of community outreach included:

+ Public survey
+ Public workshops
+ Digital polling

A summary of the feedback is provided in the following sections. See Appendix C and Appendix E for additional details.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

6.2.3.1 Feedback from the General Public

As described in Section 3.2.5.1, a public survey was administered to gather feedback on wildfire-related concerns, past experiences and recommendations for mitigations to future wildfire threats. Approximately 371 households responded to the survey.

The following are common themes that arose from the survey:

- **Major wildfire concerns:**
  - Insurance availability and cost
  - Home hardening – cost and enforcement
  - Vegetation management, including HOAs – cost and enforcement
  - Evacuation, including power outages and signal traffic outages
- **Suggested opportunities and strategies to increase public education and awareness:**
  - Community workshops with greater advertising and webinar formats
  - Providing information on proper materials and contractors for home hardening
  - Door-to-door campaigns and tabling at public events

6.2.3.2 Public workshops

As described in Section 3.2.5.2, two (2) public workshops were held during the CWRA development process (May and July 2025). Attendees represented various agencies, organizations, interested parties and general public across the City.

NOTE: This section will be updated after the second workshop in July.

The following are common themes that arose from workshops:

- **Major wildfire concerns:**
  - Evacuation routes & emergency communication
  - Community education on mitigation efforts & egress routes
  - Costs of home hardening
- **Most important assets within the City:**
  - Human life & community cooperation
  - Property
  - City parks & natural environment and animals

6.2.3.3 Digital Polling – Broader Community Stakeholders

As described Section 3.2.4, a broader stakeholder digital poll was administered from March 3 – 31, 2025. Approximately 13 representatives of fire agencies, fire safe councils, land managers, utilities and other community groups responded to the digital poll.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

The following are common themes that arose from the digital polling:

+ **Major wildfire concerns:**
    - Availability of funding to pursue WUI-related projects
    - Inter-agency coordination during a wildfire
    - Feasibility and enforcement of defensible space measures
    - Egress and evacuation challenges (e.g., notifications, evacuation planning, vulnerable populations)
+ **Suggested opportunities and strategies to increase wildfire resiliency:**
    - Provide more guidance information for evacuations
    - Increase community education initiatives

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

7.0 Recommendations

This chapter provides a set of preliminary recommendations for the City of Agoura Hills as a result of the CWRA. These recommendations are intended to provide the City and associated partners a variety of mitigation actions to help inform potential future policies, programs, analysis and/or projects. The mitigations are organized into 10 thematic categories (in no particular priority order):

- **A.** Codes and Enforcement
- **B.** Fuels Mitigation
- **C.** Property Protection (Defensible Space)
- **D.** Property Protection (Home Hardening)
- **E.** Wildfire Resiliency of Critical Infrastructure
- **F.** Public Notification and Communication
- **G.** Evacuation Planning and Preparedness
- **H.** Public Education and Awareness
- **I.** Community and Regional Partnerships, Collaboration and Coordination
- **J.** Emergency Response

This set of recommendations will be expanded as part of the CWPP development process.

Table 8. Recommended Actions.

Objective	*Number*	*Action*
A. Codes and Enforcement Keep local codes, standards, and guidance documents up to date with the latest developments in wildfire resiliency best practice and research	**CW-1**	**Develop a public education outreach plan to increase awareness on maintaining defensible space** in accordance with Los Angeles County Fire Code Section 325.2.1, California Public Resources Code 4291, and local ordinances. Education should include information on Zone 0 or "ember-resistant zone" (0-5 feet from a structure) in accordance with AB-3074 for both new and existing conditions. This includes providing updates on upcoming and/or new code changes.
B. Fuels Mitigation Manage landscape vegetation to promote the return of fire resilient species and lower vegetation densities.	**CW-2**	**Undertake a study to identify and provide recommendations for mitigating common ignition sources across the City.** This will include common sources of ignition in both the public and private sectors and developing strategies for reducing the number and frequency of ignitions.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Objective	***Number***	***Action***
		Recommendations and collaboration efforts should be tailored for the appropriate audience (e.g., electrical utilities, homeowners, private industry).
	CW-3	**Coordinate with MRCA and NPS on mechanical fuel treatments adjacent to the city**, particularly in Palo Comado, Chesebro Canyon, and the 101 Freeway Corridor.
	CW-4	**Seek funding to develop a community chipper program** that focuses on neighborhoods east of Kanan Road and south of Hwy-101.
	CW-5	**Work with LACo Fire, NPS and MRCA to identify opportunities to implement grazing of herbaceous fuels**, particularly in Palo Comodo/Chesebro and Liberty Canyons. Grazing was a historic land use practice in the Agoura Hills vicinity.
	CW-6	**Work with LACo Fire and NPS to identify and maintain strategic fuel breaks** that were developed during the Woolsey Fire. Consider using the fire suppression repair map to identify these locations.
	CW-7	**Work with LACo Fire, NPS, MCRA and State Parks to identify opportunities to use prescribed fire to treat non-native invasive species**. This provides a resource benefit while also breaking up fuel continuity adjacent to the city.
	CW-8	**Evaluate city-managed open spaces and parks to ensure that vegetation is maintained** in a state of low fire flammability. Focus on the elimination of down woody surface fuels. Priority location – Medea Creek Park
C. Property Protection (Defensible Space)	**CW-9**	**Seek grant funding to support homeowners wishing to remove hazardous trees species** (cypress, pines, eucalyptus) within their defensible space zones.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Objective	***Number***	***Action***
Improve fuel treatment strategies for defensible space around structures	**CW-10**	Work with LACo Fire to **ensure that weed abatement and defensible space inspections are conducted and enforced**.
	CW-11	**Leverage the work of local FSCs to inspect and educate properties owners on defensible space requirements**. Focus on the development of the ember-resistant zone at structures.
	CW-12	**Develop and post signage along primary travel routes to higher risk neighborhoods identifying compliance dates for fire hazard reduction work**. Provide contact information for residents who wish to request support to better understand defensible space requirements and maintenance.
	CW-13	**Develop a list of city-vetted vendors who can provide services for properties owners requiring assistance** with developing and maintaining their defensible space.
	CW-14	Leverage existing databases (e.g., Agoura Hills Fire Safe Council database) to **create a new spatial database of HOAs/ Firewise USA neighborhoods** that have responsibility **for the maintenance of defensible space**. **Map treated areas**.
	CW-15	Provide community workshops, informational videos, demonstration landscapes and other educational methods to increase the general public's understanding of **best practices around fire-resistant and drought-resistant plant species, and best practices for landscaping and maintenance.**
	CW-16	**Investigate opportunities where HOAs can expand ongoing defensible space actions** beyond 200' onto lands managed by the City or Los Angeles County. Evaluate using LACo Fire hand crews for labor to control costs.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Objective	*Number*	*Action*
D. Property Protection (Home Hardening) Improve Hardening of Existing Building Stock	**CW-17**	**Provide ongoing education and outreach for residents**. Information should include defensible space and home hardening standards to assist homeowners with implementing firesafe practices as well as meeting or exceeding requirements of State, County and Local codes and ordinances. A mix of web-based and in-person formats should be utilized in order to reach all critical audiences.
	CW-18	**Explore funding opportunities to aid property owners in retrofitting existing structures** to current WUI building construction standards. Prioritize providing financial resources, physical assistance, and other support to vulnerable populations (e.g., elderly, fixed-income, low-income). Develop clear program guidelines, criteria, and management strategies. There should be a focus on clarifying to residents what level of work/upgrades triggers certain requirements.
	CW-19	Consider creating a **website that directs homeowners to various home hardening resources**: • Home hardening products (e.g., CALFIRE WUI products) • Suppliers and hardware stores • Design professionals and contractors • Shared resource programs, such as a tool lending library. • Existing incentives • Insurance carrier discounts
	CW-20	**Work with the insurance industry** and California Insurance Commissioner's office to recognize **risk reduction efforts at landscape, parcel and neighborhood-scales** in insurance coverage, premiums, and deductibles. Coordinate and collaborate with county, regional, and local stakeholders, subject matter experts, and academics to systematically

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Objective	***Number***	***Action***
		identify and quantify the risk reduction measures at various scales to help support insurance needs.
	CW-21	Consider developing (and updating over time) a **parcel- and neighborhood-level WUI risk assessments.**
E. Wildfire Resiliency of Critical Infrastructure	**CW-22**	Work to develop agreements with agencies, HOAs, and private landowners to establish and maintain **fuel treatments** along **major routes** and **roadways**, with a primary focus on access/egress-constrained communities and communities with vulnerable populations.
	CW-23	**Conduct a study to evaluate the wildfire resiliency of critical infrastructure and facilities** across the City (e.g., water infrastructure, communications systems). Prioritize and implement resiliency improvements. Coordinate and collaborate with relevant fire, law enforcement, government, private sector, and other subject matter experts to ensure programs, policies and systems are evaluated, designed, and maintained for quality, fire resistance, durability, functionality, efficiency, and sustainability.
F. Public Notification and Communication	**CW-24**	**Work with providers to coordinate efforts on analyzing, monitoring, and maintaining enhancements and redundancies to current emergency communication systems** such as generator backups, increased cellular coverage via traditional cell towers, repeaters, and other technologies to improve communications.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Objective	*Number*	*Action*
	CW-25	Work with emergency responders and other government agencies in and around the City to **conduct a review and alignment of current public emergency communication systems and messaging policies**, protocols, and procedures. This would include evaluation of the range of target audiences (e.g., residents, visitors, limited English proficiency, elderly, secondary homeowners), with the intent of providing more reliable, timely, informative, and consistent information during/after a major wildfire incident. This may also include the need for training/drills and evaluation/adoption of newly available technologies.
G. Evacuation Planning and Preparedness	**CW-26**	**Post on the city website and advertise at local events the LACo Fire-identified evacuation zones** in order to increase public awareness. Consider posting evacuation zone identification signage along primary travel routes.
	CW-27	Develop a strategy for assessing **wildfire evacuation vulnerability** which may include quantifying evacuation capacities, surveying residents and stakeholders, and identifying and prioritizing improvements to ensure life safety of the public and emergency responders in the event of a major wildfire in or around the City.
	CW-28	**Identify specific areas and neighborhoods where secondary means of egress** are needed to increase evacuation capacity and access for first responders in a wildfire. Where possible, work towards developing and maintaining secondary egress routes for constrained neighborhoods. Identify other strategies as appropriate (e.g., policies to open locked gates).
H. Public Education and Awareness	**CW-29**	Establish **improved communications with Homeowners Associations** concerning wildfire mitigation actions – home

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Objective	*Number*	*Action*
Educate the public on how to mitigate wildfire hazards and risks, as well as appropriately preparing and responding to wildfires. A challenge for all communities is how to generate interest and maximize awareness of the wildfire threat and encourage participation in preparing for a wildfire at an individual and community level. Public education is critical to community preparedness and citizens need to know where to obtain accurate information before, during and after an event occurs.		hardening, defensible space, and maintenance of any common areas within their jurisdiction.
	CW-30	**Ensure public education and communication materials on wildfire preparedness, planning and response are generally accessible.** This may include translation into different languages, common-language descriptions, ADA compliance, and conversion into different formats.
I. Community and Regional Partnerships, Collaboration and Coordination	**CW-31**	Encourage, promote, and assist **grassroots, community wildfire mitigation and preparedness organizations** such as Fire Safe Councils, Firewise Communities, radio groups, non-profits, etc. Support may include marketing, outreach, recruitment efforts, GIS support, and others. Help various organizations provide consistent communications, tools, and outreach.
J. Emergency Response	**CW-32**	**Consider the development and implementation of a parking restriction ordinance for Red-Flag warning days** to ensure that emergency equipment can access smaller road systems. Focus on neighborhoods south of I-101 as a priority location.
	CW-33	**Develop standardized signage that identifies residences with static water sources** that can be used during suppression operations should the pressurized system fail. Provide signage free to residents willing to install the identification.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

8.0 References

Abatzoglou, J.T. and Williams, A.P., 2016. Impact of anthropogenic climate change on wildfire across western US forests. Proceedings of the National Academy of Sciences, 113(42), pp.11770-11775.

Goss, M., Swain, D.L., Abatzoglou, J.T., Sarhadi, A., Kolden, C.A., Williams, A.P. and Diffenbaugh, N.S., 2020. Climate change is increasing the likelihood of extreme autumn wildfire conditions across California. *Environmental Research Letters*, *15*(9), p.094016.

Ojerio, R.S., 2008. *Equity in Wildfire Risk Management: Does Socioeconomic Status Predict Involvement in Federal Programs to Mitigate Wildfire Risk?* (Doctoral dissertation, Department of Planning, Public Policy & Management, University of Oregon).

Rolinski, T., Capps, S.B., Fovell, R.G., Cao, Y., D'Agostino, B.J. and Vanderburg, S., 2016. The Santa Ana wildfire threat index: Methodology and operational implementation. *Weather and Forecasting*, *31*(6), pp.1881-1897.

Short, Karen C. 2022. Spatial wildfire occurrence data for the United States, 1992-2020 [FPA_FOD_20221014]. 6th Edition. Fort Collins, CO: Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2013-0009.6

Williams, A.P., Gentine, P., Moritz, M.A., Roberts, D.A. and Abatzoglou, J.T., 2018. Effect of reduced summer cloud shading on evaporative demand and wildfire in coastal southern California. *Geophysical Research Letters*, *45*(11), pp.5653-5662.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Appendices Table of Contents

APPENDIX A GLOSSARY OF TERMS A-1
APPENDIX B RISK ASSESSMENT METHODOLOGY TECHNICAL MEMO B-1
APPENDIX C PUBLIC SURVEY RESULTS C-1
APPENDIX D BROADER STAKEHOLDER SURVEY RESULTS D-1
APPENDIX E PUBLIC WORKSHOPS E-1

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Appendix A Glossary of Terms

The following provides terms or words found in or relating to this plan (additional terms are available at http://www.nwcg.gov/glossary):

- ***1-Hour Timelag Fuels (a.k.a., one-hour fuels):*** Fuels consisting of dead herbaceous plants and roundwood less than about ¼ inch (6.4 mm) in diameter. Also included is the uppermost layer of needles or leaves on the forest floor.
- ***10-Hour Timelag Fuels (a.k.a. ten-hour fuels):*** Dead fuels consisting of roundwood ¼ to l inch (0.6 to 2.5 cm) in diameter and, very roughly, the layer of litter extending from immediately below the surface to ¾ inch (1.9 cm) below the surface.
- ***100-Hour Timelag Fuels (a.k.a., hundred-hour fuels):*** Dead fuels consisting of roundwood in the size range of 1 to 3 inches (2.5 to 7.6 cm) in diameter and very roughly the layer of litter extending from approximately ¾ of an inch (1.9 cm) to 4 inches (10 cm) below the surface.
- ***1,000-Hour Timelag Fuels (a.k.a., thousand-hour fuels):*** Dead fuels consisting of roundwood 3 to 8 inches in diameter and the layer of the forest floor more than 4 inches below the surface.
- ***Active Crown Fire:*** A fire in which a solid flame develops in the crowns of trees, but the surface and crown phases advance as a linked unit dependent on each other.
- ***Aspect:*** Direction a slope faces.
- ***Canopy Spacing:*** The distance from the edge of one tree canopy to another. Crown spacing varies from open (with 10 feet or more of space between tree canopies) to closed (where trees may be growing in very close proximity with little space between them).
- ***Crown Fire:*** A fire that advances from top to top of trees or shrubs more or less independent of a surface fire. Crown fires are sometimes classed as running or dependent to distinguish the degree of independence from the surface fire.
- ***Dead Fuels***: Fuels with no living tissue in which moisture content is governed almost entirely by atmospheric moisture (relative humidity and precipitation), dry-bulb temperature, and solar radiation.
- ***Direct Attack:*** A method of fire suppression where actions are taken directly along the fire's edge. In a direct attack, burning fuel is treated directly, by wetting, smothering, or chemically quenching the fire or by physically separating burning from unburned fuel.
- ***Fire Apparatus Access Roads -*** The means for emergency apparatus to access a facility or structure for emergency purposes. Roadways must extend to within 150 feet of all portions of the exterior of the first floor of any structure and must meet specified criteria for width, pavement characteristics, roadway gradient, turning radius, etc. Fire apparatus access roads are also referred to as fire lanes.
- ***Fire Behavior:*** The manner in which a fire reacts to the influences of fuel, weather, and topography.
- ***Fire Frequency:*** Temporal fire occurrence described as a number of fires occurring within a defined area within a given time period.
- ***Fire Intensity:*** A general term relating to the heat energy released by a fire.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

- ***Fire Lane Identification -*** Signs or curb markings that allow fire apparatus access roads to be readily recognized so that they will remain unobstructed and available for emergency use at all times.
- ***Fire Potential:*** The likelihood of a wildland fire event measured in terms of anticipated occurrence of fire(s) and management's capability to respond. Fire potential is influenced by a sum of factors that includes fuel conditions (fuel dryness and/or other inputs), ignition triggers, significant weather triggers, and resource capability.
- ***Fire Regime:*** The characterization of fire's role in a particular ecosystem, usually characteristic of particular vegetation and climatic regime, and typically a combination of fire return interval and fire intensity (i.e., high frequency, low intensity/low frequency, high intensity).
- ***Fire Return Interval:*** The length of time between fires on a particular area of land
- ***Fire Weather:*** Weather conditions that influence fire ignition, behavior, and suppression.
- ***Flame Length:*** The distance from the base to the tip of the flaming front. Flame length is directly correlated with fire intensity.
- ***Flaming Front:*** The zone of a moving fire where combustion is primarily flaming. Behind this flaming zone combustion is primarily glowing. Light fuels typically have a shallow flaming front, whereas heavy fuels have a deeper front.
- ***Fuel:*** Any combustible material, which includes but is not limited to living or dead vegetation, human-built structures, and chemicals that will ignite and burn.
- ***Fuelbed:*** An array of fuels usually constructed with specific loading, depth, and particle size to meet experimental requirements; also, commonly used to describe the fuel composition.
- ***Fuel Loading:*** The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area.
- ***Fuel Model:*** Mathematical descriptions of fuel properties (e.g., fuel load and fuel depth) that are used as inputs to calculations of fire danger indices and fire behavior potential***.***
- ***Fuel Moisture Content:*** The quantity of moisture in fuels expressed as a percentage of the weight when thoroughly dried at 212 degrees Fahrenheit.
- ***Fuel Type:*** An identifiable association of fuel elements of a distinctive plant species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.
- ***Gates and Barriers*** - Devices that restrict pedestrian and vehicle ingress and egress to and from a facility.
- ***Gate and Barrier Locks*** - Devices that are installed on gates and barriers to secure a property or facility.
- ***Goals:*** A goal is a broad statement of what you wish to accomplish, an indication of program intentions.
- ***Ground Fire:*** Fire that consumes the organic material beneath the surface litter ground, such as a peat fire.
- ***Hose Pull*** - The effective distance (150 feet is standard) that firefighters can drag a hose from fire apparatus to attack a fire. Hose pull is measured along a simulated path of travel accounting for obstructions and not "as the crow flies."
- ***Intensity:*** The level of heat radiated from the active flaming front of a fire, measured in British thermal units (BTUs) per foot.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

- ***Ladder Fuels:*** Fuels that provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. Ladder fuels help initiate and ensure the continuation of crowning.
- ***Local Responsibility Area (LRA)*** – Land where a city/county has primary financial responsibility for the prevention and suppression of wildland fires. LRA land is generally located within city boundaries.
- ***Live Fuels:*** Living plants, such as trees, grasses, and shrubs, in which the seasonal moisture content cycle is controlled largely by internal physiological mechanisms, rather than by external weather influences.
- ***Mid-flame Windspeed:*** The speed of the wind measured at the midpoint of the flames, considered to be most representative of the speed of the wind that is affecting fire behavior.
- ***Objectives:*** They contribute to the fulfillment of specified goals and are measurable, defined, and specific.
- ***Passive Crown Fire:*** Also called torching or candling. A fire in the crowns of trees in which single trees or groups of trees torch, ignited by the passing front of the fire.
- ***Safety Zone:*** A preplanned area of sufficient size and suitable location in the wildland expected to prevent injury to fire personnel without using fire shelters.
- ***Red Flag Warning:*** Term used by fire weather forecasters to alert forecast users to an ongoing or imminent critical fire weather pattern.
- ***Riparian:*** Situated or taking place along or near the bank of a watercourse.
- ***Spotting:*** Refers to the behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire***.***
- ***State Responsibility Area (SRA) –*** Land where the State of California (i.e. CAL FIRE) has primary financial responsibility for the prevention and suppression of wildland fires. All SRA land is located within County unincorporated areas; SRA does not include lands within city boundaries or in federal ownership
- ***Strategy:*** The general plan or direction selected to accomplish incident objectives.
- ***Surface Fire:*** Fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation.
- ***Surface Fuels:*** Fuels lying on or near the surface of the ground, consisting of leaf and needle litter, dead branch material, downed logs, bark, tree cones, and low stature living plants.
- ***Topography:*** Referred to as “terrain.” The term also refers to parameters of the “lay of the land” that influence fire behavior and spread. Key elements are slope (in percent), aspect (the direction a slope faces), elevation, and specific terrain features such as canyons, saddles, “chimneys,” and chutes.
- ***Understory:*** Term for the area of a forest which grows at the lowest height level below the forest canopy. Plants in the understory consist of a mixture of seedlings and saplings of canopy trees together with understory shrubs and herbs.
- ***Values at Risk:*** People, property, ecological elements, and other human and other intrinsic values within the City. Values at Risk are identified by stakeholders as important to the way of life in the City and are particularly susceptible to damage from undesirable fire outcomes.
- ***Very High Fire Hazard Severity Zone (VHFHSZ)*** – A designated area in which the type and condition of vegetation, topography, fire history, and other relevant factors increase the possibility of uncontrollable

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

wildland fire. Structures within a VHFHSZ require special construction features to protect against wildfire hazards; please consult with the local building department and refer to CBC Chapter 7A for specific requirements

+ ***Wildland Fire Environment:*** The surrounding conditions, influences, and modifying forces of fuels, topography, and weather that determine wildfire behavior.
+ ***Wildfire Risk Area*** – Land that is covered with vegetation, which is so situated or is of such an inaccessible location that a fire originating upon it would present an abnormally difficult job of suppression or would result in great or unusual damage through fire, or such areas designated by the fire code official. For purposes of this document, Wildfire Risk Area includes Very High Fire Hazard Severity Zones (see above), Wildland-Urban Interfaces (WUI), and similarly hazardous areas

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Appendix B Risk Assessment Methodology Technical Memo

For the full Risk Assessment Methodology Technical Memo, contact the City of Agoura Hills.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Appendix C Public Survey Results

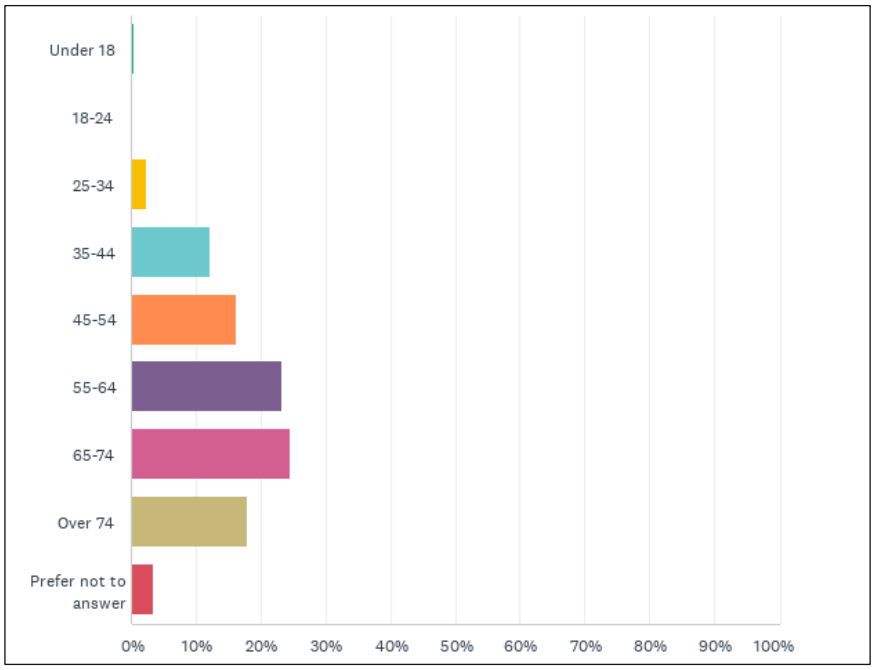
This appendix is intended to only be a summary of results. For full results, contact the City of Agoura Hills.

The public survey received 371 online responses and 10 in-person responses.

C.1 OVERVIEW OF QUANTITATIVE RESPONSES

Below are some key descriptive statistics from the survey responses:

- Most residents have lived in Agoura Hills – 21+ years
- A broad range of neighborhoods represented.
- Most represented ages – 55 to over 74 years old:

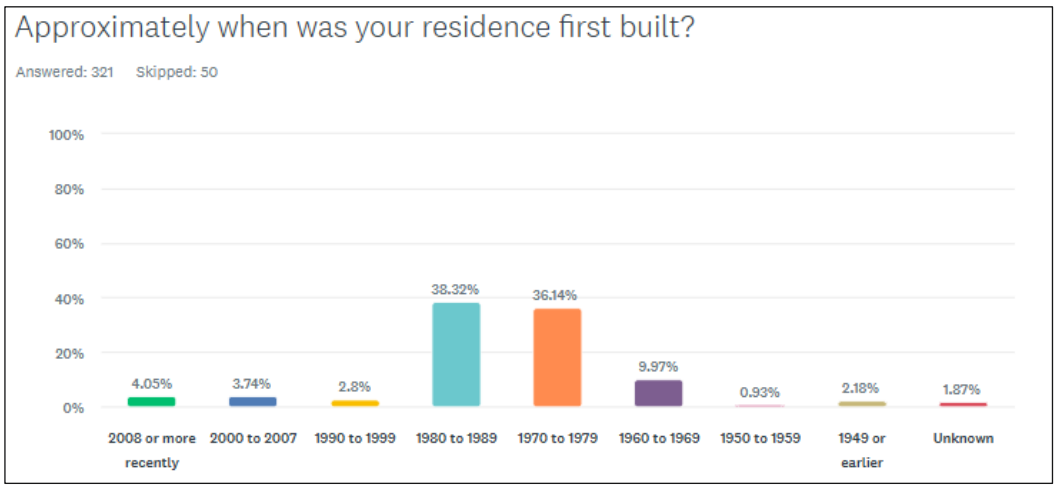


Responses from written surveys:
(2) – 65-74
(6) – Over 74
Skipped: 2

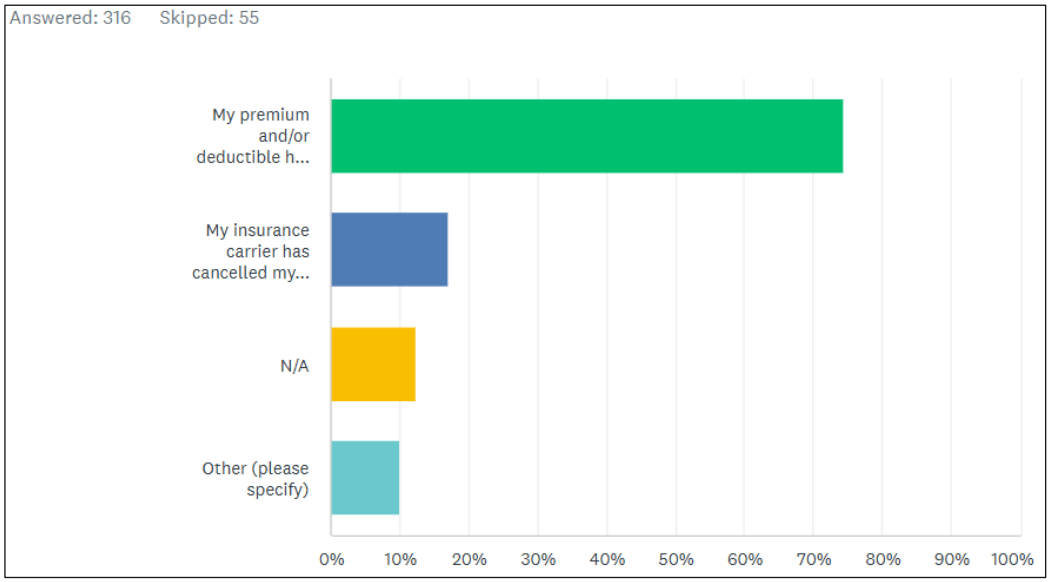
Figure 53. Age of survey respondents by percentage.

- Respondents largely reside in detached single-family homes
- Approximately 96% of all residences in Agoura are built before WUI fire safety codes existed in California. (i.e., Before 2008)

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123



- Most homes are owned by the residents.
- Most residence are privately insured for wildfires.
- Over 70% of respondents indicated insurance premium and/or deductible has gone up:



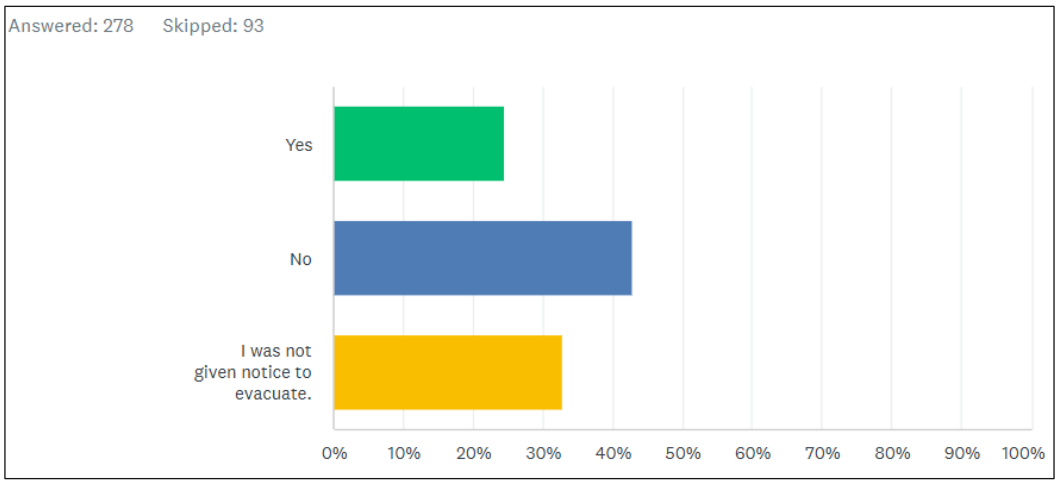
Responses from written surveys:
(6) – My premium and/or deductible has gone up
(3) – My insurance carrier has cancelled my coverage
Skipped: 1

Figure 54. Impacts on insurance (by percentage of responses)

- Many respondents indicated they have done some level of home hardening (primarily vegetation management and window improvements)
- About half of the respondents indicated that they have created defensible space
- Nearly 90 percent of respondents indicated that they have been impacted by a wildfire in Agoura Hills
- For respondents that have been evacuated in the past, over 50 percent indicated they were given sufficient notice

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

+ Over 40 percent of respondents also indicated they were not given sufficient information on how, when, and where to go:



Responses from written surveys:
(1) – Yes
(5) – No
(3) – I was not given notice to evacuate
Skipped: 1

Figure 55. Percentage of respondents that were given sufficient information on evacuation

C.2 OVERVIEW OF OPEN RESPONSES

This section provides a high-level summary of the common themes received in the open response portion of the public survey.

C.2.1 Feedback on Critical Facilities and Services

Regarding reliability of critical facilities and services, residents identified three main categories of concern – communication, electricity and access/egress – where wildfires negatively impacted reliability or availability.

+ Public Communication and Information:
  - Lack of consolidated information (including that the city website was insufficient) and having to visit multiple sources to access critical information.
+ Electricity or Power:
  - Poor communication around power outages from utilities
  - A cascade of issues associated with power outages (e.g., communication and evacuation during the extended power outages).
+ Evacuation:
  - Unable to recognize street names used to reference evacuation zones.
  - Unable to determine whether they were under an evacuation order or the direction of evacuation.
  - Unable to find evacuation shelters.
  - Many residents reported extreme congestion, with multiple references to Kanan and Thousand Oaks (TO) streets as “gridlocked”, with down traffic signals and no one directing traffic.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

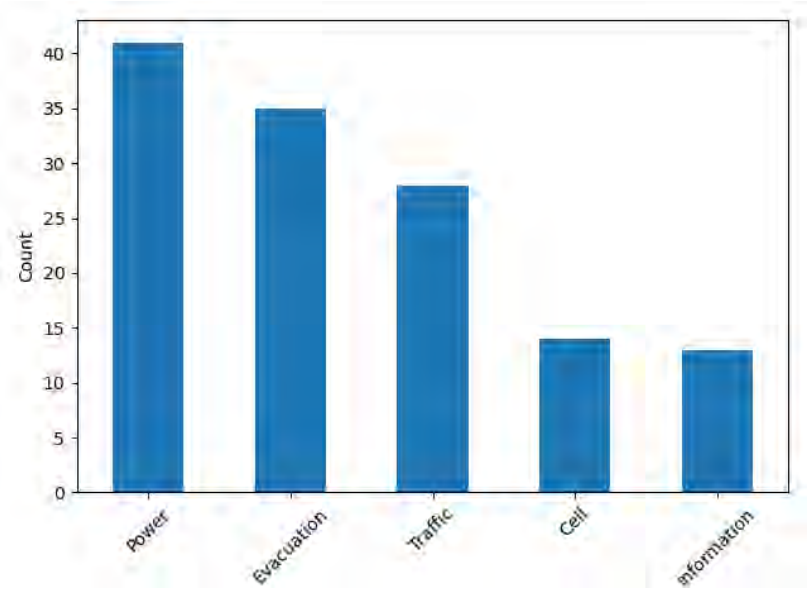


Figure 56. Critical Facilities and Services Identified by Residents as Negatively Impacted by Wildfires in the City. Y-axis identifies the number of times a particular service was identified by respondents.

C.2.2 Feedback on Primary Fire Risk Concerns

Residents' primary concerns for fire risk to their home and community included **insurance, damage/loss to their home, evacuation, home hardening and vegetation management.** The top three concerns related to the following:

+ Insurance:
  - Cost of and availability of insurance, with multiple residents reporting that they were leaving the area because they could no longer afford insurance or could not afford the risk of having insufficient coverage.
+ Home hardening and vegetation management:
  - The hazard posed by neighboring properties.
  - Lack of enforcement or enaction of vegetation management by HOA's.
  - Difficulty affording the cost of home hardening and vegetation management.
  - Lack of resources on best practices.
  - Some residents report concern about the management of public parks and undeveloped lots which contain dry, dead, and nonnative plants.
+ Evacuation:
  - Multiple communities report concerns about having only one access/egress route.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

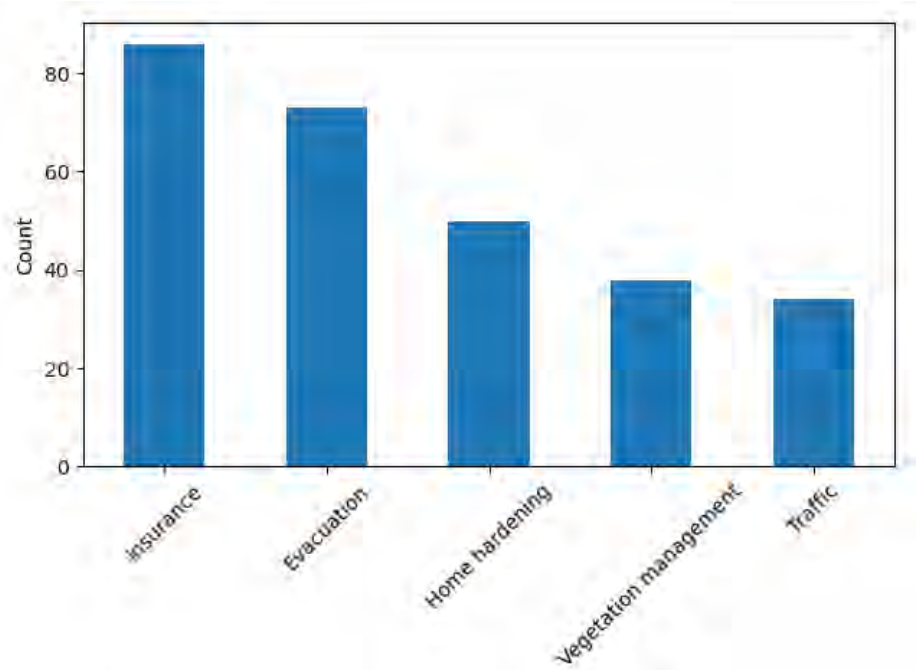


Figure 57. Primary wildfire risk concerns for residents. Y-axis identifies the number of times a resident identified a particular risk concern category.

C.2.3 Mitigation Activities Performed by Residents

Residents described mitigations activities they currently perform to reduce wildfire risk. Common activities included **home hardening** and **vegetation removal**, **evacuation planning**, assembling **go bags and kits**, **self-education** and grass roots **organizing**. See below.

- Implementing various home hardening activities. Note: Several residents commented on the value of the voluntary hardening evaluation program available in the City.
- Conducting vegetation and whole-tree removal.
- Making evacuation plans.
- Assembling kits for power outages, assembling go bags, and organizing possessions for evacuation.
- Organizing to become a Firewise community and other grassroots community coordination activities.
- Taking CERT classes and attending public workshops or emergency fairs.
- Documenting home contents for insurance and reevaluating insurance coverage to check if there's enough coverage for their home value.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

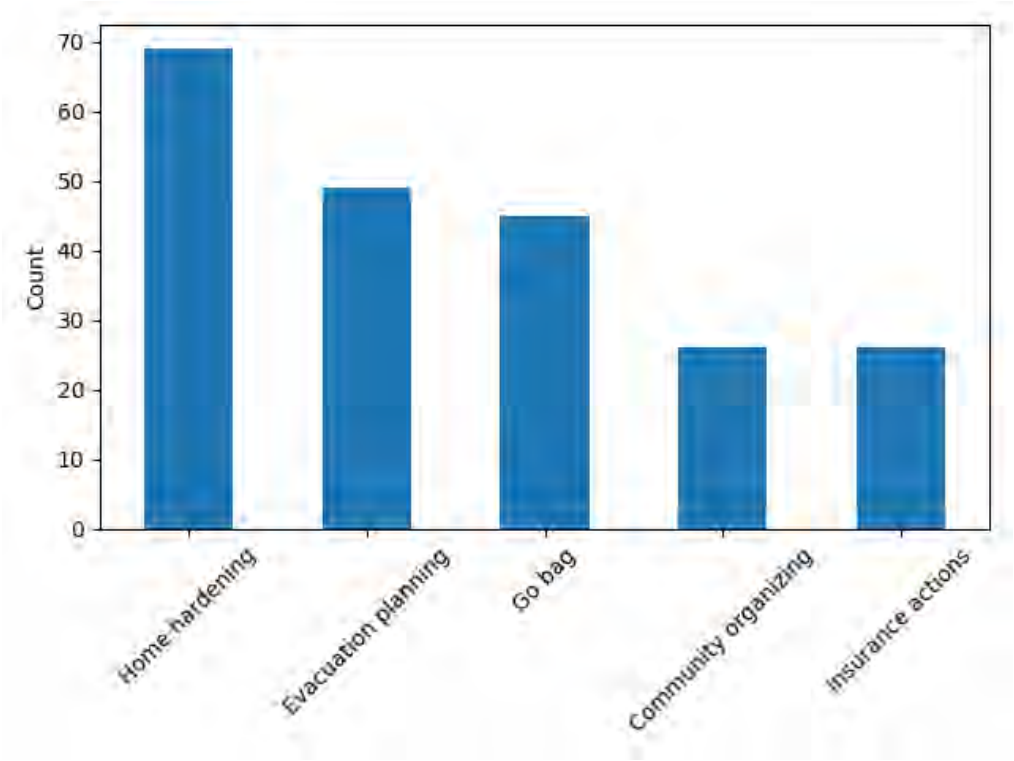


Figure 58. Common wildfire mitigation and preparedness activities undertaken by residents. Y-axis identifies the number of times a resident identified a particular mitigation activity category.

C.2.4 Feedback on Areas of Improvement for Community Wildfire Resiliency and Awareness

Residents provided recommendations for improving community wildfire resiliency. Common suggestions included:

- Many residents requested both in-person and online **workshops and webinars**. Some requested door-to-door campaigns or tabling at public events.
- The timing of current webinars was not doable for many residents, and they requested **additional weekend or evening webinar**s.
- How or where to find **proper materials and contractors** for home hardening.
- Development of "**The Great Shakeout**" drill but for wildfire.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

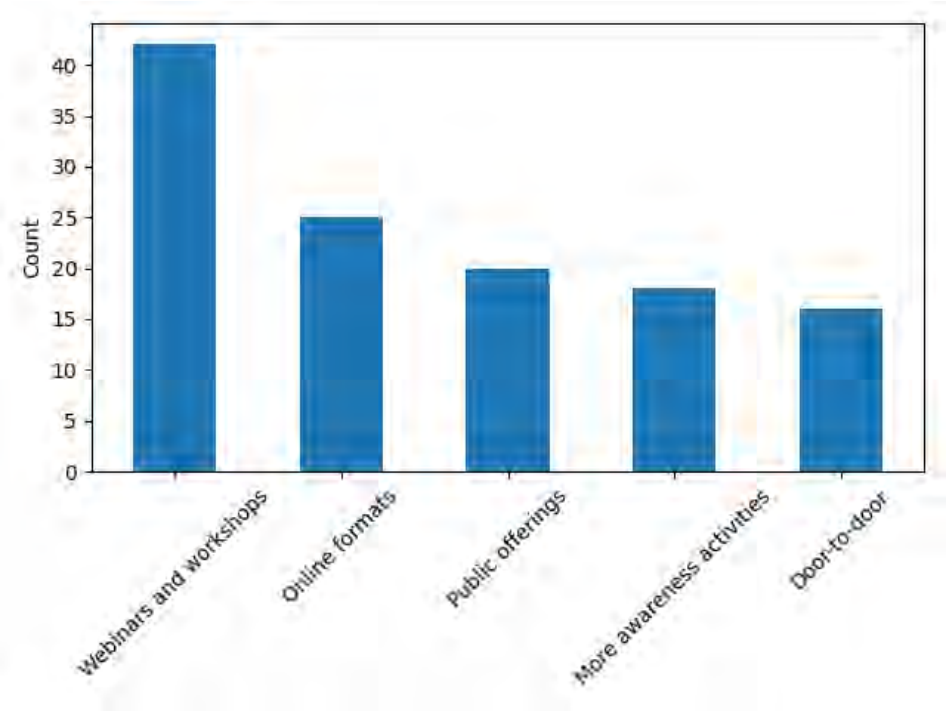


Figure 59. Recommendations for increasing wildfire resiliency and awareness. Y-axis identifies the number of times a resident identified a particular area of improvement category.

C.2.5 Additional General Feedback

Residents also provided additional general comments. These are summarized as follows:

- Residents found **communication** around evacuation and outages to be deficient.
- Residents had additional concerns about **evacuation**, repeating how roads clogged during evacuations, and some noted the prevalence of single lane roads.
- Residents also had additional concerns regarding **utilities**, including power outages, loss of communication due to power outages, and the threat of ignition from overhead lines.
- Residents were concerned about **fuels management** in public spaces including along roads and power lines and called for cohesive and extensive improvements to make Agoura hills more fire safe. Similarly, residents had concerns about non-native plants/tress (e.g., tropical vegetation and palms) on public and private property. and called for clear and consistent communication on vegetation management best practices.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Appendix D Broader Stakeholder Survey Results

For full broader Stakeholder Survey results, contact the City of Agoura Hills.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

Appendix E Public Workshops

The following is a sample agenda provided as part of the public workshops held at the Agoura Hills Event Center.

JENSEN HUGHES
Advancing the Science of Safety

Workshop Agenda

Meeting Title:	Agoura Hills Community Wildfire Risk Assessment (CWRA) 1st Public Workshop
Date | Time:	Tuesday, May 20th, 2025 | 6:00 p.m. – 8:00 p.m. (PDT)
Location:	Agoura Hills Recreation and Event Center 29900 Ladyface Court Agoura Hills, CA 91301

Time	*Description*
6:00 p.m. – 6:05 p.m.	**Welcome & Introduction**
6:05 p.m. – 6:10 p.m.	**Fire Agency Introduction**
6:10 p.m. – 6:25 p.m.	**CWRA Process Overview** • What is a CWRA? • Who have we worked with? • CWRA Sections
6:25 p.m. – 6:35 p.m.	**Breakout Session #1** • What are your biggest wildfire-related concerns?
6:35 p.m. – 6:50 p.m.	**Hazard vs. Risk**
6:50 p.m. – 7:00 p.m.	**Breakout Session #2** • What assets or values are important to you and the community to protect?
7:00 p.m. – 7:05 p.m.	**Observed Risks in Agoura Hills** • Fire-prone environment • Land & people management • Defensible space & housing density
7:05 p.m. – 7:10 p.m.	**Break**
7:10 p.m. – 7:20 p.m.	**Reporting Out**
7:20 p.m. – 7:55 p.m.	**Q&A Session**
7:55 p.m. – 8:00 p.m.	**Next Steps & Closing Remarks**

CITY OF AGOURA HILLS

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123

A copy of the full presentation is available through the City of Agoura Hills.

Copyright ©2025 Jensen Hughes, Inc.
All Rights Reserved.T0123