HURRICANE CITY
UTAH

Mayor
Clark Fawcett

City Manager
Kaden DeMille

City Council
Drew Ellerman
Joseph Prete
Dave Imlay
Lynn Excell
Amy Werrett

Hurricane City Council Meeting
Agenda

July 2, 2026
5:00 PM
City Council Chambers 147 N 870 W, Hurricane

Notice is hereby given that the City Council will hold a Regular Meeting in the City Council Chambers 147 N 870 W, Hurricane, UT. Meeting Link on Webex Meeting number: 2630 456 5376 Meeting password: HCcouncil Join from a video or application Dial 26304565376@cityofhurricane.webex.com. You can also dial 173.243.2.68 and enter your meeting number. Join by phone +1-415-655-0001 US Toll Access code:26304565376.
A silent roll call will be taken, followed by the Pledge of Allegiance and prayer by invitation.
THOSE WISHING TO SPEAK DURING PUBLIC FORUM MUST SIGN IN WITH THE RECORDER BY 6:00 P.M.

5:00 p.m. Pre-meeting
6:00 p.m. - Call to Order
Prayer
Pledge of Allegiance

Declaration of any conflicts of interest

Bi-annual report from the Victims Advocate department

JustServe Heart of Service Award

Public Forum – Comments from Public
Please Note: In order to be considerate of everyone attending the meeting and to more closely follow the published agenda, public comments will be limited to 3 minutes per person per item. A spokesperson representing a group to summarize their concerns will be allowed 5 minutes to speak. Repetitious commentary will not be allowed. If you need additional time, please request agenda time with Cindy Beteag in writing before 12:00 p.m. the Tuesday one week before the Council meeting.

OLD BUSINESS

1. Consideration and possible approval of **Zone Change Ordinance No. ZC26-10 to rezone a property located at 1260 S 700 W** from Residential Agricultural (RA-1) to Residential Agricultural (RA-0.5); File No. ZC26-10; Parcel No. H-3-2-3-319; Kent Burdick Rowley Trust, applicant; Teri Humphries, agent
2. Consideration and possible approval of a **Memorandum of Understanding (MOU) with Ash Creek Sewer District** regarding MS4 – Weston Walker

NEW BUSINESS

1. Consideration and possible approval of an I**nterlocal Agreement between Utah Division State Parks and Hurricane City** for the Annual "Stars & Stripes" 4th of July Fireworks Celebration at Sand Hollow State Park – Dayton Hall
2. Consideration and possible approval of **Ordinance 2026-18 Amending 8-6-3** regarding the Hurricane City Storm Drain Master Plan – Arthur LeBaron
3. Consideration and possible approval of **Ordinance 2026-19 Amending 8-6-1** regarding the monthly storm drain fee – Arthur LeBaron
4. Mayor, Council, and staff reports
5. Closed Meeting held pursuant to Utah Code section 52-4-205, upon request

Adjournment

The undersigned City Recorder does hereby certify that the agenda was posted to the city website, posted to the state public notice website, and at the following locations: the City office, the post office, and the library on July 1, 2026. Cindy Beteag, City Recorder

REASONABLE ACCOMMODATION: Hurricane City will make efforts to provide reasonable accommodations to disabled members of the public in accessing City programs, please contact the City Recorder,435-635-2811 x 106, at least 24 hours in advance if you have special needs.

Agenda Summary for Hurricane City Council July 2, 2026

5:00 p.m. Pre-Meeting
6:00 p.m. Call to Order
Bi-annual report from the Victims Advocate department.

Old Business

1. This item was continued at the last meeting. However, the applicant has requested it to be continued again until the July 16th meeting.

2. This item was continued at the last meeting to allow staff time to review the comments submitted by the other party to the MOU. The purpose of this MOU is to establish a framework for cooperation and coordination between Hurricane City and Ash Creek Special Service District, to ensure compliance with the Utah Pollutant Discharge Elimination System ("UPDES") General Permit for Discharges from Small Municipal Separate Storm Sewer Systems. This MOU outlines the responsibilities for both parties in the event of illicit discharges to either the storm drain or sanitary sewer system, the reporting of unauthorized connections to both systems, and best practices for the cleaning and maintaining of both systems to protect water quality. – Weston Walker

New Business

1. Introduction and Background
   For many years, the Utah Division of State Parks ("State Parks") has allowed Hurricane City to use the Sand Hollow State Park venue to put on its 4th of July fireworks celebration event. To date, this arrangement has existed without a written contract. At the request of State Parks, the proposed Interlocal Agreement will confirm the existing arrangement and the parties' obligations related to the event.
   State Parks prepared an initial draft of the Interlocal Agreement, which was reviewed by Kaden Demille, Chief Yates, Arthur LeBaron, Darren Barney, and Dayton Hall ("City Staff"). City Staff requested several revisions and additions to the Interlocal Agreement, which were mostly incorporated. The only substantive revision requested by City Staff that State Parks declined to include was an extension of the term of the Agreement.
   Key Provisions of Agreement
   The key terms of the Interlocal Agreement are as follows:
   - The term of the agreement will end on December 31, 2028, unless extended by mutual agreement.
   - The public may enter the park free of charge beginning at 7 pm on the day of the event.
   - The City may designate certain areas for VIP access and may use the northeast gate for egress.

- The City is responsible for the organization, management, and permitting of the fireworks display.
- The City is responsible for all event logistics.
- The City is responsible for all on-land law enforcement, including traffic control, crowd management, and public safety.
- State Parks is responsible for water-based law enforcement.
- The City will reimburse State Parks for the proportion of costs attributable to the event, such as refuse hauling, restroom servicing, waste collection, temporary waste infrastructure.
- The parties will coordinate post-event cleanup.
- Each party will indemnify the other for its own actions, and the City will provide proof of general liability insurance covering the event.
- The parties will coordinate promotions and messaging for the event.
- Either party may terminate the agreement with 180 days' notice prior to the event date.

Recommendation

City Staff recommend approval. The City Attorney approves the form of the Interlocal Agreement.

Attachments

In addition to this Agenda Item Summary, the following documents are included within the Council's packet:

- Proposed Interlocal Cooperation Agreement Between Utah Division of State Parks and Hurricane City for the Annual "Stars & Stripes" 4th of July Fireworks Celebration at Sand Hollow State Park. - Dayton Hall

2. At the previous City Council meeting the storm drain impact fee facilities plan was approved, but specific language to adopt the master plan upon which the impact fee is based was not included. This item is being added to request approval of the actual Storm Drain Masterplan as it has been updated and presented. Since this master plan gives a framework for the City and developers to follow as our Hurricane continues to build out, it is important that it be formally adopted by the City Council. - Arthur LeBaron

3. During the June 18, 2026, City Council meeting, the Council approved an increase to the monthly storm drainage fee based on the Storm Water Rate Analysis provided by Zions Public Finance. The analysis identified that the current 18.1 million in critical capital projects and recommended a "revenue sufficiency" approach to maintain the utility fund.

Issue 1: Omission of Scheduled Increases: The original resolution only noted the initial jump to $11.00. The financial model actually requires an initial increase in FY 2027, followed by 3% annual increases over the next four years (FY 2028 through FY 2031) to ensure the City has sufficient cash to complete projects through 2038 without immediate bonding. The 3% annual increase was presented and discussed during the Council meeting, but the annual increase was not expressly called out in the adopted resolution.

Issue 2: Clarification of Variable Fee Structure (ERU) Staff also wishes to clarify that the base rate of $11.00 is not a flat fee applied equally to every account, but rather a rate based on Equivalent Residential Units (ERUs) to ensure fair and equitable charging. While single-family residential accounts typically represent one ERU, other categories are variable based on the following Zions Public Finance and JUB Engineering definitions:

- Multi-family Residential: These accounts are billed at 0.37 ERU per dwelling unit.
- Nonresidential: These accounts are calculated based on building size, where one ERU equals 5,000 square feet of impervious surface. nonresidential building space.

Proposed Solution: The attached Ordinance 2026-19 clarifies that the fee is based on the established ERU rate and adds the omitted 3% annual increase. These changes align the formal resolution with the rate analysis presented on June 18th and the Council's expressed intent to provide for long-term system maintenance and regulatory compliance.

Recommendation: Staff recommends that the City Council approve Ordinance 2026-19 to accurately reflect the necessary multi-year funding strategy and the variable rate structure for different property types. – Cindy Beteag

4. Mayor, Council, and staff reports.

5. Tentative Close Meeting upon request.

Human Resources Employment Report

This is a brief report on staff who have been recently hired and current open positions which need to be filled in the city.

New Hires

Kayla Bronson – Utility Clerk
Brenden Angus – Finance Manager

Current Open Positions

Lateral Police Officer
Parks Custodian
Street Operator I

Date 07/01/2026

147 North 870 West • Hurricane, UT • 84737
Phone: (435) 635-2811 • Fax (435) 635-4284
www.cityofhurricane.com

HURRICANE CITY
UTAH

STAFF COMMENTS

Item: Consideration and possible approval of **Zone Change Ordinance No. ZC26-10** to rezone a property located at 1260 S 700 W from Residential Agricultural (RA-1) to Residential Agricultural (RA-0.5); File No. ZC26-10; Parcel No. H-3-2-3-319; Kent Burdick Rowley Trust, applicant; Teri Humphries, agent.

Discussion: June 18, 2026

To: Hurricane City Council

From: Gary Cupp, Planning Director

Background/Request:

The applicant requests a zone change from Residential Agricultural RA-1 to Residential Agricultural RA-0.5 on 0.97 acres located on the west side of 700 W and north of 1300 S. The applicant has stated that their purpose is to facilitate a lot split.

Planning Commission Review:

A public hearing was held at the May 28, 2026, Planning Commission meeting and no public comments or objections to the proposed zone change were received. The Commission's discussion centered around how the 0.97-acre property is insufficient to be split into two resultant lots that would meet the 0.5-acre minimum lot standard once the property was rezoned to RA-0.5. When asked why the property is short of the 1-acre minimum for the current RA-1 zoning, staff reported that past property dedications to the city for future road frontage have occurred that have reduced the property to a substandard size. If the applicant were the original property owner at the time of the dedications to the city, an exception to allow smaller lots could be approved under Hurricane City Code section 10-14-4. But since they are not the original owners, the exceptions do not apply in this case. Commissioner Ballard strongly felt that this applicant was being unfairly restricted from moving forward with their plans for their property if they cannot be allowed to split the lot because the city had taken property in the past. It was therefore suggested that a development agreement be prepared by the City Attorney to allow the lot split with the resulting substandard lot sizes, so long as neither lot is smaller than 0.3 acres in size. The Planning Commission voted unanimously to recommend approval of the zone change and development agreement to allow the future lot split.

Property Information

Location – 1260 S 700 W

Property Size – approx. 0.97 acres

Current Zoning – RA-1

General Plan – Rural Residential

Existing Development – Singe-family residence

Parcel No. H-3-2-3-319

Findings: Review of the four code-required approval standards for consideration of zone changes (See Hurricane City Code, Section 10-7-7(E)):

1. Is the proposed amendment consistent with the goals, objectives, and policies City's General Plan? The General Plan Map shows this area as Rural Residential, which is defined as,

"A transition from agricultural to traditional neighborhoods or commercial uses. Appropriate densities for this land use include from one unit/40 acres to RA-0.5 and RA-1."

Thus, the proposed RA-0.5 zoning complies with the General Plan for the area.

2. Is the proposed amendment harmonious with the overall character of existing development in the subject property's vicinity? Development in the area is zoned and developed similarly. There is more RA-0.5 zoning in the vicinity of this property than RA-1. The amendment is considered harmonious with the development patterns in the area.

3. Will the proposed amendment adversely affect the adjacent property? The proposed amendment is within the area's anticipated densities approved by the General Plan and most of the immediately adjacent property is relatively undeveloped, or developed in a similar manner as proposed for the subject property, which will mitigate any potential adverse effects .

4. Are public facilities and services adequate to serve the subject property? The Joint Utility Committee identified no concerns with the adequacy of public facilities to serve this property.

Recommendation: Staff recommends approval of the zone change.

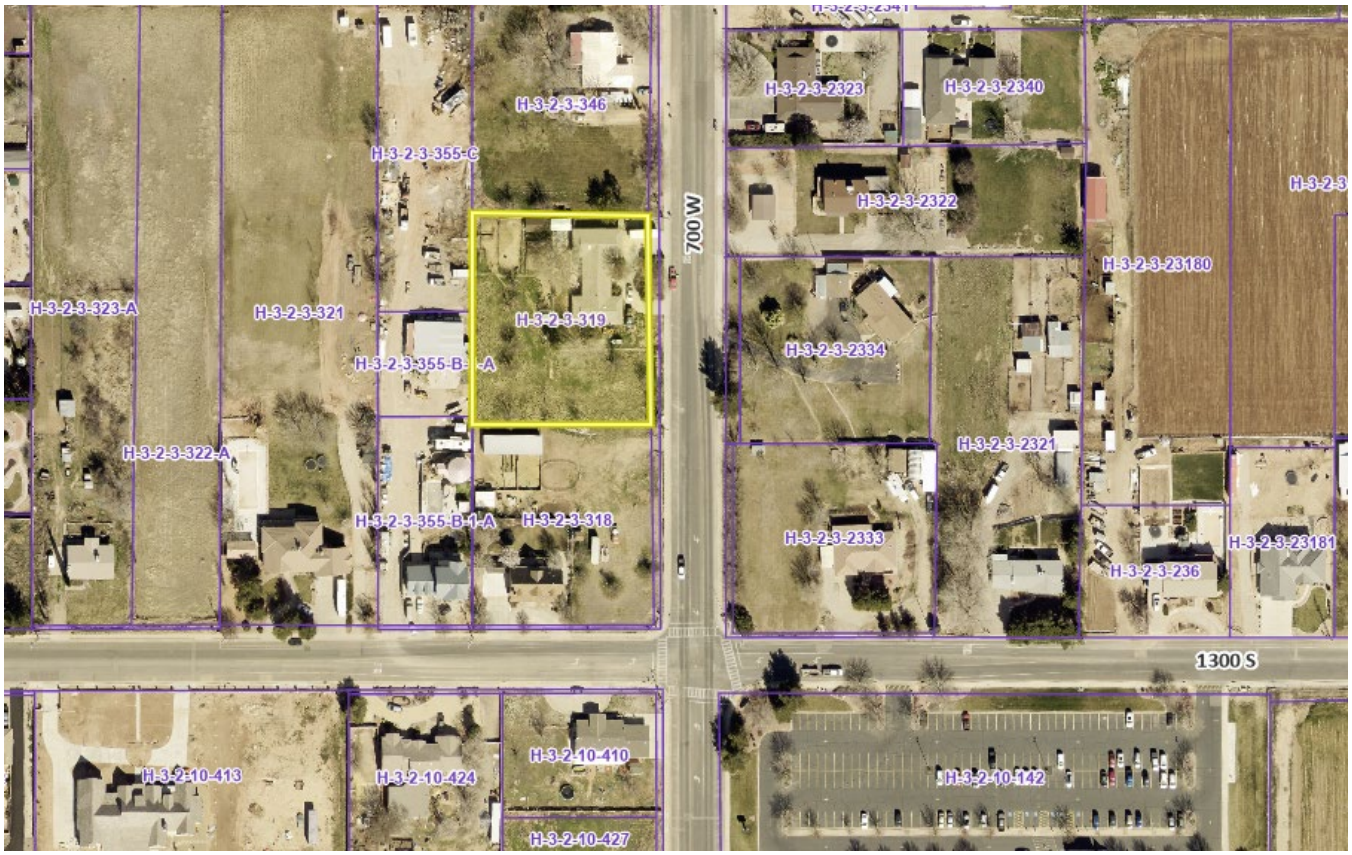
PLANNING & ZONING
HURRICANE CITY
UTAH

STAFF COMMENTS

Agenda Date:	**05/28/2026 - Planning Commission**
Application Number:	ZC26-10
Type of Application:	Zone Change
Action Type:	Legislative
Applicant:	Kent Burdick Rowley Trust
Agent:	Teri Humphries
Request:	Zone Change from RA-1 to RA-0.5
Location:	1260 S 700 W
Zoning:	RA-1
General Plan Map:	Rural Residential
Recommendation:	Recommend approval to the City Council.
Report Prepared by:	Fred Resch III

Discussion:
The applicant requests a zone change from Residential Agricultural RA-1 to Residential Agricultural RA-0.5 on 0.97 acres located on the west side of 700 W and north of 1300 S. The applicant has stated that their purpose is to facilitate a lot split.

	Zoning	Adjacent Land Use
North	RA-1	Single Family Homes, some agriculture
East	RA-0.5	Single Family Homes, some agriculture
South	RA-0.5, RA-1	Single Family Homes, some agriculture
West	RA-0.5, RA-1	Single Family Homes, some agriculture



Vicinity Map

Zone changes on any parcel of land within the City of Hurricane requires consideration of the following factors pursuant to Title 10 – Hurricane City Land Use Ordinance, Section 10-7-7 (cited below):

10-7-7: ZONING MAP AND TEXT AMENDMENTS:

E. Approval Standards: A decision to amend the text of this title or the zoning map is a matter within the legislative discretion of the City Council as described in subsection 10-7-5A of this chapter. In making an amendment, the following factors should be considered:

1. Whether the proposed amendment is consistent with goals, objectives and policies of the City's general plan;

2. Whether the proposed amendment is harmonious with the overall character of existing development in the vicinity of the subject property;

3. The extent to which the proposed amendment may adversely affect adjacent property; and

4. The adequacy of facilities and services intended to serve the subject property, including, but not limited to, roadways, parks and recreation facilities, police and fire protection, schools, stormwater drainage systems, water supplies, and wastewater and refuse collection.

Analysis:

1. Is the proposed amendment consistent with the goals, objectives, and policies of the City's General Plan?

Response: The General Plan Map shows this area as Rural Residential, which is defined as,

"A transition from agricultural to traditional neighborhoods or commercial uses. Appropriate densities for this land use include from one unit/40 acres to RA-0.5 and RA-1."

This is in the area where the General Plan was recently revised to change the designation to Rural Residential; therefore, the proposed zoning complies with the General Plan for the area.

2. Is the proposed amendment harmonious with the overall character of existing development in the subject property's vicinity?

Response: Development in the area is zoned and developed similarly. There is more RA-0.5 zoning in the vicinity of this property than RA-1. Overall, the amendment is harmonious with development in the area.

3. Will the proposed amendment adversely affect the adjacent property?

Response: The proposed amendment is within the area's densities approved by the General Plan and most of the immediately adjacent property is relatively undeveloped or developed in a similar manner as as proposed for the subject property which will mitigate any potential adverse effects on the property.

4. Are public facilities and services adequate to serve the subject property?

Response: See JUC comments below. There are no concerns with the adequacy of public facilities to serve this property.

JUC Comments:
The following comments will need to be addressed

1. **Public Works:** [No comments received]
2. **Power:** [No comments received]
3. **Sewer:** Approved.
4. **Streets:** Approved.
5. **Water:** Approved.
6. **Engineering**: 700 W is a master planned major collector (current typical cross section is 70' wide). Although the public right of way for 700 W is 73' and 80' wide along the front of the subject property, the existing cross section is about sixty-one feet wide (5' sidewalks, 2.5' curbs and gutters, and approx 46' pavement). The parent parcel must be 1 acre or larger to comply with average lot area (0.5 acre) development standards for an RA-0.5 lot split (HCC 10-14-4). The parcel is 0.97 acre (0.97/2 = 0.485). It appears minimum side yard setback (10') and minimum lot width (100') development standards for the RA-0.5 zone (HCC 10-14-4) won't allow another lot without adjusting the existing home or the existing southern property line. Hurricane City access standards for major collectors are adversarial toward residential developments fronting major

collectors (see HCS 3.2.4.2(G, H, & J), HCS 3.2.4.3(A), & 3.9.1.1 [see also table 11 of the transportation master plan]). It seems a circle driveway shared with the existing home and the property owner to the south would be least disadvantageous and nearest meeting the published city standards.

7. **Fire:** Approved.
8. **Cable:** Approved.
9. **Phone:** Approved.
10. **Fiber:** Approved.
11. **Gas:** Approved.
12. **WCWCD:** Washington County Water Conservancy District hereby acknowledges that based on the information provided, the plans adequately mitigate interference with district facilities and property interests. The District reserves the right to rescind this acknowledgement if additional information becomes available. The district has not determined whether water will be available for this development and does not hereby make any guarantee of water availability. In addition, the development must conform with applicable district requirements, including but not limited to payment of fees.

Staff Comments:

1. The subject property contains 0.97 acres and is requested to be zoned RA-0.5, which requires a minimum lot size of 0.4 acres and an average lot size of 0.5 acres for a subdivision. Because the parcel contains less than 1.0 acre, it cannot be divided into two lots while meeting the required 0.5-acre average lot size standard. As a result, the proposed two-lot subdivision does not comply with the dimensional requirements of the zone. An exception to this standard may apply where land has been dedicated for a master planned roadway, such as 700 West. However, that allowance applies only to the property owner who dedicated the right-of-way. Because the current applicant did not make that dedication, the exception does not apply in this case.

Findings:

Staff makes the following findings:

1. The application complies with the standards within the General Plan and General Plan Map.
2. Most of the surrounding development is large lot single family homes.
3. The proposed amendment will not adversely impact the area.
4. Services are anticipated to be adequate to serve the area and proposed project.

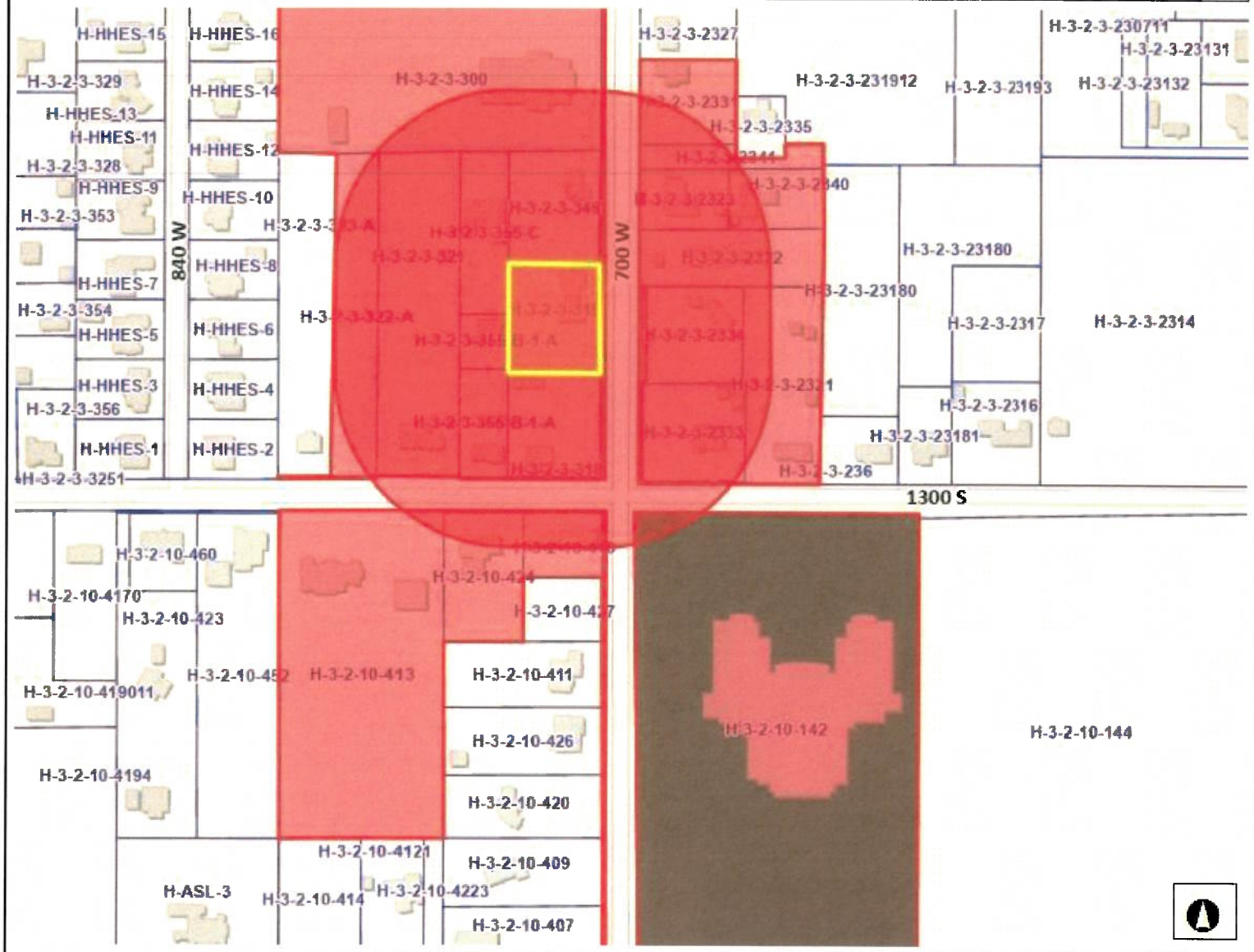
Recommendation: The Planning Commission should review this application based upon standards within the Hurricane City Code, and consider any comments received at the public hearing. Staff recommends that the Planning Commission send a recommendation of approval to the City Council subject to staff and JUC comments.

We are requesting a zone change from RA-1 to RA-0.5 in order to allow a lot split for a family residence. The purpose of this request is to create a separate lot so that I may build a home adjacent to my father's property.

This arrangement would allow me to live nearby and provide assistance and support to my father as he gets older, while also helping maintain the property and preserve our family's long-term connection to the area.

We appreciate the City's consideration of this request and believe the proposed zone change will provide a practical and positive benefit for our family while remaining compatible with the community.

Title



Legend

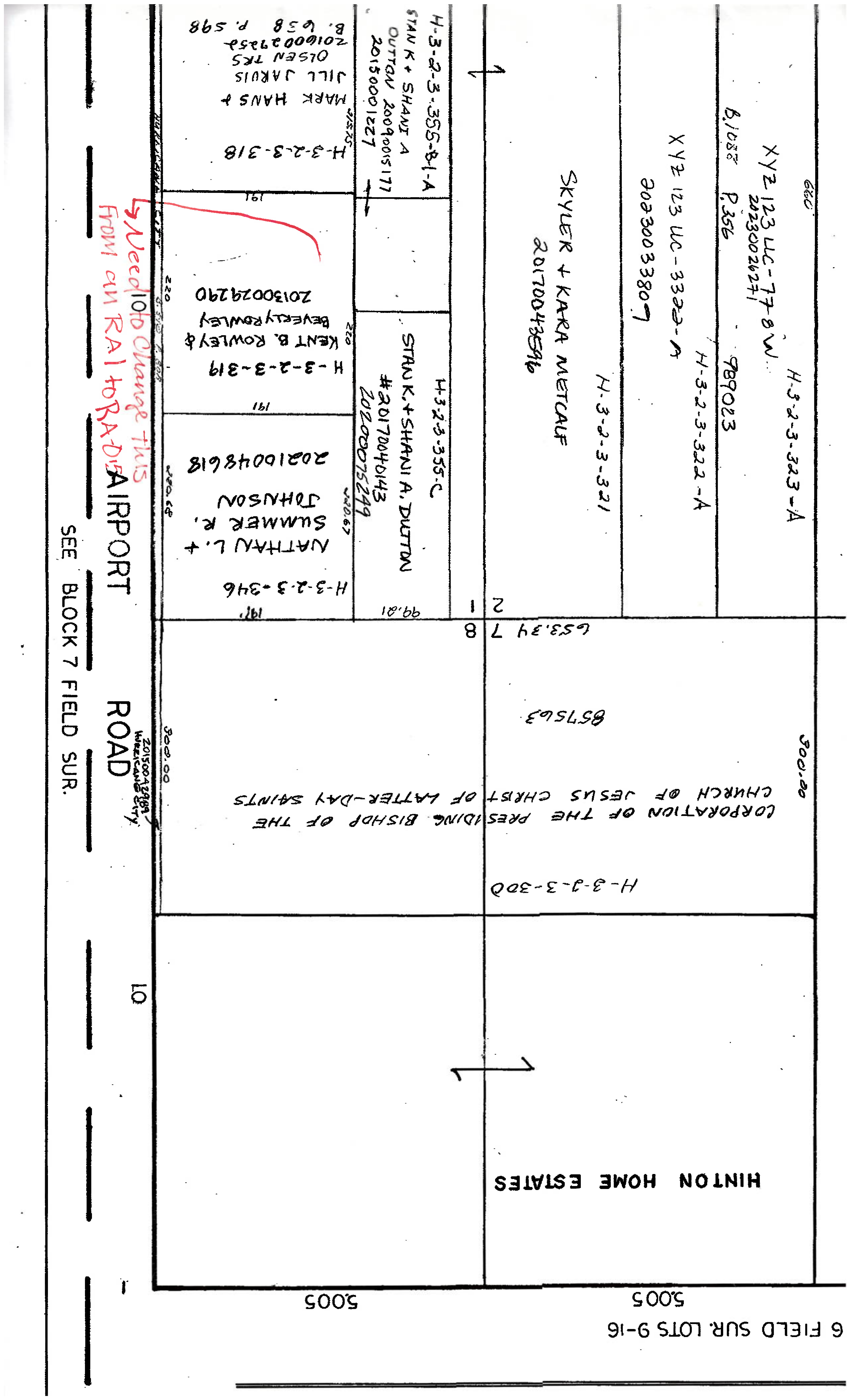
- Parcels
- Ownership
  - U.S. Forest Service
  - U.S. Forest Service Wilderness
  - Bureau of Land Management
  - Bureau of Land Management Wilde
  - National Park Service
  - Shivwits Reservation
  - Utah Division of Wildlife Resources
  - Utah Division of Transportation
  - State Park
  - State of Utah
  - Washington County
  - Municipally Owned
  - School District
  - Privately Owned
  - Water
  - Water Conservancy District
  - State Assessed Oil and Gas
  - Mining Claim

Notes

752.3 0 376.17 752.3 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

DISCLAIMER: The information shown on this map was compiled from different GIS sources. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Washington County, Utah will not be held responsible for any claims, losses or damages resulting from the use of this map.



H-3-2-3-318
MARK HANS &
JILL JARVIS
OLSEN TRS
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B. 658 P. 598
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STAN K + SHANI A
DUTTON 200900015177
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KENT B. ROWLEY &
BEVERLY ROWLEY
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NATHAN L. +
SUMMER R.
JOHNSON
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STAN K. + SHANI A. DUTTON
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SKYLER + KARA METCALF
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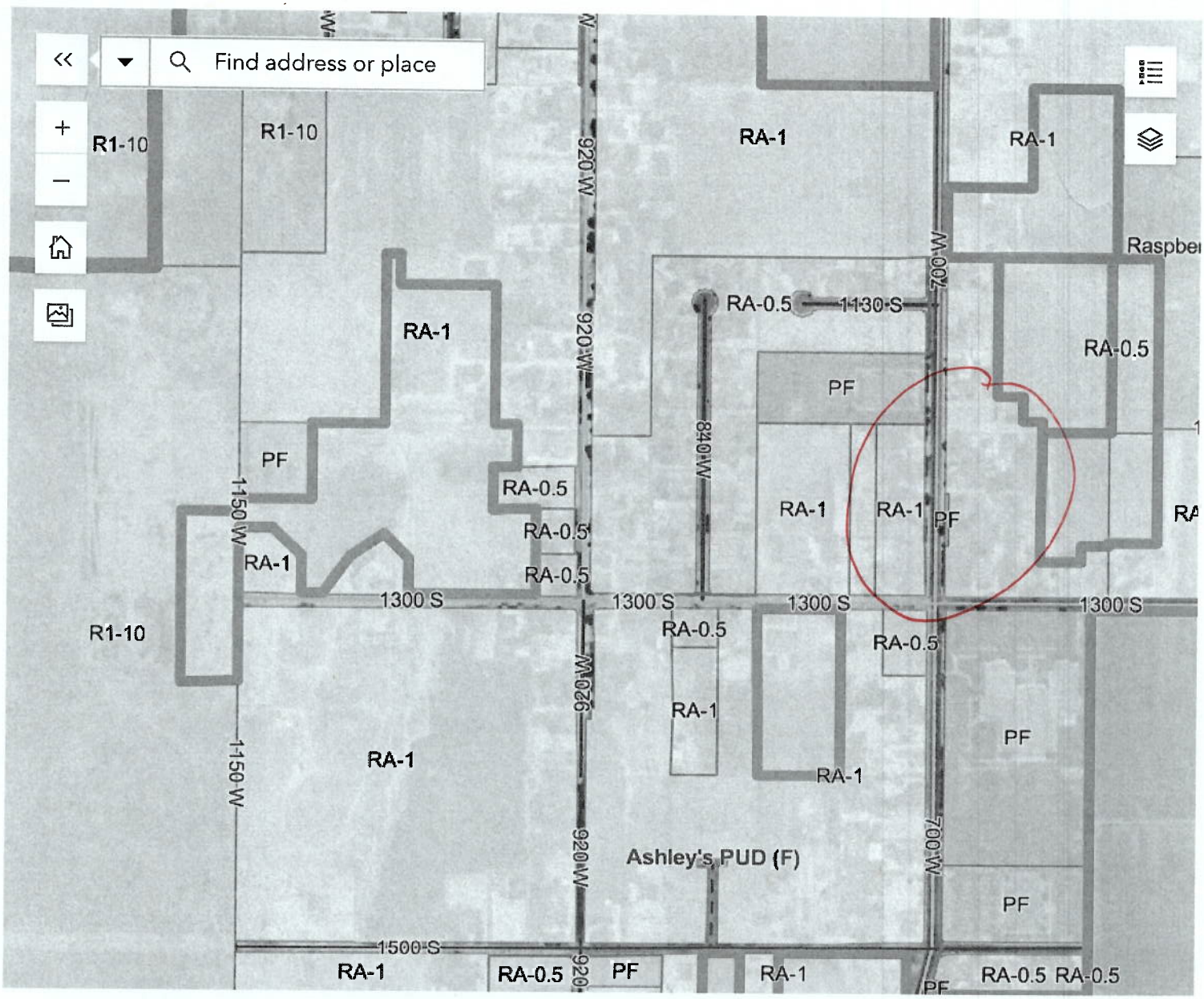
Need to change this
From an RA1 to RA-D5
AIRPORT ROAD
SEE BLOCK 7 FIELD SUR.
10
HINTON HOME ESTATES
5.005
5.005
6 FIELD SUR. LOTS 9-16

Planning - Zoning



500 ft

Vantor

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HURRICANE CITY
UTAH

STAFF COMMENTS

Item: Consideration and possible approval of Ordinance 2026-18 Adopting the Storm Drain Master Plan.

Discussion: At the previous City Council meeting the storm drain impact fee facilities plan was approved, but specific language to adopt the master plan upon which the impact fee is based was not included. This item is being added to request approval of the actual Storm Drain Masterplan as it has been updated and presented. Since this master plan gives a framework for the City and developers to follow as our Hurricane continues to build out, it is important that it be formally adopted by the City Council. – Arthur LeBaron

Findings: N/A

Recommendation:

Ordinance 2026-18

AN ORDINANCE OF THE HURRICANE CITY COUNCIL AMENDING 8-6-3 REGARDING THE HURRICANE CITY STORM DRAIN MASTER PLAN

WHEREAS, the City Council of Hurricane, Utah desires to amend Title 8, Chapter 6, Section 3 with regards to the Storm Drain Master Plan; and

WHEREAS, the City Council deems this amendment necessary and desirable for the preservation of the general health, safety, and welfare of the residents of Hurricane; and

WHEREAS, providing necessary infrastructure to properly collect and convey stormwater is vital in maintaining the quality of stormwater and preventing uncontrolled discharges that can lead to pollutants entering the system; and

WHEREAS, Hurricane City has experienced rapid population growth, estimated at approximately 30.9% between 2020 and 2025, necessitating an updated plan to accommodate future growth and connect undeveloped areas to the storm drain system; and

WHEREAS, the City is developing this plan to assist in complying with Municipal Separate Storm Sewer System (MS4) requirements set forth by the EPA and the Utah Department of Environmental Quality (DEQ) to obtain a Utah Pollutant Discharge Elimination System (UPDES) permit; and

WHEREAS, the Storm Drain Master Plan 2026 identifies twenty-nine essential capital improvement projects to mitigate localized flooding and pipe surcharging within the City; and

WHEREAS, the Public Works department and City staff have verified the validity of these projects to ensure a high level of service to the community,

NOW THEREFORE, BE IT ORDAINED BY THE HURRICANE CITY COUNCIL OF HURRICANE CITY, UTAH THAT:

1. Title 8, Chapter 6, Section 3 of the Hurricane City Code be amended to read as follows:
   The City hereby approves and adopts the "*Hurricane City Storm Drain Master Plan - April 2026*" prepared by J-U-B Engineers, Inc.

2. The *Hurricane City Storm Drain Master Plan – April 2026*, is incorporated herein by reference.

3. All ordinances, resolutions, and policies of the City, or parts thereof, inconsistent herewith, are hereby repealed, but only to the extent of such inconsistency. This

repealer shall not be construed as reviving any law, order, resolution, or ordinance, or part thereof.

4. Should any provision, clause, or paragraph of this ordinance or the application thereof to any person or circumstance be declared by a court of competent jurisdiction to be invalid, in whole or in part, such invalidity shall not affect the other provisions or applications of this ordinance or the Hurricane City Municipal Code to which these amendments apply. The valid part of any provision, clause, or paragraph of this ordinance shall be given independence from the invalid provisions or applications, and to this end the parts, sections, and subsections of this ordinance, together with the regulations contained therein, are hereby declared to be severable.

5. This Ordinance shall, after adoption and approval, take effect immediately upon publication or posting as required by law.

PASSED AND APPROVED this 2nd day of July 2026.

_____
Clark Fawcett, Mayor

Attest:

_____
Cindy Beteag, Recorder

The foregoing Ordinance was presented at a regular meeting of the Hurricane City Council held at the Hurricane City Office Building on the 2nd day of July 2026. Whereupon a motion to adopt and approve said Ordinance was made by _____ and seconded by _____. A roll call vote was then taken with the following results:

	Yea	Nay	Abstain	Absent
Drew Ellerman	___	___	___	___
Joseph Prete	___	___	___	___
Dave Imlay	___	___	___	___
Lynn Excell	___	___	___	___
Amy Werrett	___	___	___	___

_____
Cindy Beteag

The foregoing Ordinance was presented at a regular meeting of the Hurricane City Council held at the Hurricane City Office Building on the 18th day of June 2026. Whereupon a motion to adopt and approve said Ordinance was made by _____ and seconded by _____. A roll call vote was then taken with the following results:

	Yea	Nay	Abstain	Absent
Joseph Prete	___	___	___	___
Drew Ellerman	___	___	___	___
Dave Imlay	___	___	___	___
Lynn Excell	___	___	___	___
Amy Werrett	___	___	___	___

_____
Cindy Beteag, City Recorder

EXHIBIT A

ZONING MAP

HURRICANE CITY
UTAH

STAFF COMMENTS

Item: Consideration and possible approval of a Memorandum of Understanding (MOU) with Ash Creek Sewer District regarding MS4.

Discussion: The purpose of this MOU is to establish a framework for cooperation and coordination between Hurricane City and Ash Creek Special Service District, to ensure compliance with the Utah Pollutant Discharge Elimination System ("UPDES") General Permit for Discharges from Small Municipal Separate Storm Sewer Systems. This MOU outlines the responsibilities for both parties in the event of illicit discharges to either the storm drain or sanitary sewer system, the reporting of unauthorized connections to both systems, and best practices for the cleaning and maintaining of both systems to protect water quality. – Weston Walker

Findings: N/A

Recommendation:

MEMORANDUM OF UNDERSTANDING

BETWEEN HURRICANE CITY

AND

ASH CREEK SEWER DISTRICT

This Memorandum of Understanding ("MOU") is entered into on this ____ day of June, 2026 (the "Effective Date") by and between Hurricane City, a Utah municipal corporation and a municipal separate storm sewer system operator in the State of Utah (hereinafter "Hurricane City") and the Ash Creek Special Service District, a Utah Special Service District (hereinafter "Ash Creek").

1. Purpose and Scope

The purpose of this MOU is to establish a framework for cooperation and coordination between Hurricane City and Ash Creek to ensure compliance with the Utah Pollutant Discharge Elimination System ("UPDES") General Permit for Discharges from Small Municipal Separate Storm Sewer Systems.

2. Legal Authority

This MOU is established under the authority of the Utah Interlocal Cooperation Act (Utah Code §11-13-101 et seq.) and in accordance with federal Clean Water Act regulations (40 CFR § 122.26) and Utah Administrative Code R317-8.

3. Illicit Discharges and Connections

- Prohibition: Neither party shall knowingly allow the connection of sanitary sewer lines to the storm sewer system or stormwater to the sanitary sewer system, except as explicitly approved in writing.
- Notification: If Ash Creek Sewer District identifies illicit stormwater connections to its sanitary sewer system, it will promptly notify Hurricane City. Conversely, Hurricane City will promptly notify the District of any illicit sanitary discharges discovered in its storm drain system.

4. Maintenance and Operations

- Cross-Contamination: Both parties agree to use best management practices during maintenance operations (e.g., vactor truck waste, line flushing) to prevent waste or wash water from entering the other parties' system.

- Discharge Approval: Dewatering of storm sewer systems must not occur in sanitary sewer lines without prior review and approval from Ash Creek Sewer District.
- Responsibility for Remediation and Costs: In the event that a cross contamination, illicit discharge, unauthorized connection, spill, release, backup, or other condition originating from one party's system causes contamination, damage, regulatory violation, cleanup obligation, or other adverse impact to the other party's system resulting from an illicit discharge, the party whose facilities, operations, employees, contractors, or agents caused or contributed to the condition shall be responsible for promptly investigating and correcting the problem and shall bear all reasonable costs associated with remediation, cleanup, repair, restoration, regulatory compliance, sampling monitoring, reporting, and any related enforcement actions attributable to that party's acts or omissions. If responsibility for the condition is disputed, the parties shall cooperate in good faith to determine causation and allocate responsibility proportionately to each party's contribution to the condition.

5. Public Education and Illicit Discharge Detection

Both agencies will coordinate on public education and outreach regarding stormwater pollution prevention and the proper disposal of hazardous waste, fats, oils, and grease.

6. Effective Date and Term

This MOU becomes effective on the Effective Date and shall remain in effect for five (5) years. It may be amended or terminated by either party upon thirty (30) days written notice.

IN WITNESS WHEREOF, the parties hereto have executed this MOU in the manner and on the dates set forth below.

Hurricane City:
Signature: _____
Title: _____
Date: _____

Ash Creek Special Service District:
Signature: _____
Title: _____
Date: _____

Approved as to Form:

HURRICANE CITY ATTORNEY	ASH CREEK ATTORNEY
_____	_____
Dayton Hall	Fay Reber

AGENDA ITEM SUMMARY

TO: Hurricane City Council
FROM: Dayton Hall, City Attorney
DATE: June 17, 2026 – prepared for the July 2, 2026 Council Meeting
RE: Consideration and possible approval of an Interlocal Cooperation Agreement Between Utah Division of State Parks and Hurricane City for the Annual "Stars & Stripes" 4th of July Fireworks Celebration at Sand Hollow State Park

I. Introduction and Background

For many years, the Utah Division of State Parks ("State Parks") has allowed Hurricane City to use the Sand Hollow State Park venue to put on its 4th of July fireworks celebration event. To date, this arrangement has existed without a written contract. At the request of State Parks, the proposed Interlocal Agreement will confirm the existing arrangement and the parties' obligations related to the event.

State Parks prepared an initial draft of the Interlocal Agreement, which was reviewed by Kaden Demille, Chief Yates, Arthur LeBaron, Darren Barney, and Dayton Hall ("City Staff"). City Staff requested several revisions and additions to the Interlocal Agreement, which were mostly incorporated. The only substantive revision requested by City Staff that State Parks declined to include was an extension of the term of the Agreement.

II. Key Provisions of Agreement

The key terms of the Interlocal Agreement are as follows:

1. The term of the agreement will end on December 31, 2028, unless extended by mutual agreement.
2. The public may enter the park free of charge beginning at 7 pm on the day of the event.
3. The City may designate certain areas for VIP access and may use the northeast gate for egress.
4. The City is responsible for the organization, management, and permitting of the fireworks display.
5. The City is responsible for all event logistics.
6. The City is responsible for all on-land law enforcement, including traffic control, crowd management, and public safety.
7. State Parks is responsible for water-based law enforcement.
8. The City will reimburse State Parks for the proportion of costs attributable to the event, such as refuse hauling, restroom servicing, waste collection, temporary waste infrastructure.
9. The parties will coordinate post-event cleanup.

10. Each party will indemnify the other for its own actions, and the City will provide proof of general liability insurance covering the event.
11. The parties will coordinate promotions and messaging for the event.
12. Either party may terminate the agreement with 180 days' notice prior to the event date.

III. Recommendation

City Staff recommend approval. The City Attorney approves the form of the Interlocal Agreement.

IV. Attachments

In addition to this Agenda Item Summary, the following documents are included within the Council's packet:

1. Proposed Interlocal Cooperation Agreement Between Utah Division of State Parks and Hurricane City for the Annual "Stars & Stripes" 4th of July Fireworks Celebration at Sand Hollow State Park

INTERLOCAL COOPERATION AGREEMENT

BETWEEN

UTAH DIVISION OF STATE PARKS

AND

HURRICANE CITY

FOR

THE ANNUAL "STARS & STRIPES" 4TH OF JULY FIREWORKS CELEBRATION AT SAND HOLLOW STATE PARK

This Interlocal Cooperation Agreement ("**Agreement**") is entered into by and between the Utah Division of State Parks ("**State Parks**"), and Hurricane City, a municipal corporation of the State of Utah ("**City**") (collectively, the "**Parties**"), pursuant to Utah Code Ann. § 11-13-101 et seq. (Interlocal Cooperation Act), for the purpose of coordinating the annual 4th of July "Stars & Stripes" Fireworks Celebration at **Sand Hollow State Park**, located at Sand Hollow Reservoir in Hurricane, Utah.

1. PURPOSE

The purpose of this Agreement is to set forth the terms and conditions under which the Parties will coordinate and share responsibilities for the annual 4th of July "Stars & Stripes" Fireworks Celebration ("**Event**") at Sand Hollow State Park, located at 3351 South Sand Hollow Road, Hurricane, Utah 84737. The Parties intend through this Agreement to:

a. Ensure public safety and compliance with applicable park rules and state law;
b. Clarify cost-sharing, roles, and responsibilities for event operations;
c. Provide a consistent public experience that supports health, safety, and community celebration;
d. Formalize longstanding operational understandings related to park entry, event staging, public safety coordination, and promotional requirements associated with the Event.

The Event is anticipated to be held annually on or about July 4th each year, with gates opening in the early evening and fireworks beginning after sunset. The Parties acknowledge the Event is a large-scale public gathering requiring coordinated operational planning to protect public safety, park resources, and visitor experience.

2. DEFINITIONS

a. **Event Date & Time:** July 4th each year, with start/end times to be confirmed by both Parties.
b. **Facility:** Sand Hollow State Park, including associated parking, cliffs, reservoir areas, and ancillary public use spaces.
c. **Fireworks Launch Site:** Traditionally near the “cliff-jumping rocks” at the reservoir: **37°07’29.9”N 113°22’44.82” W**.

3. TERM

This Agreement shall begin on the date of the last signature below and shall remain in effect until **December 31, 2028**, unless earlier terminated or extended by written mutual agreement of the Parties.

4. EVENT OPERATIONS & RESPONSIBILITIES

4.1 Park Entry & Fees

a. Public entry to Sand Hollow State Park for the Event shall be **free of charge after 7:00 p.m.** on the Event date.

b. State Parks will cooperate with Hurricane City on signage and communication regarding entry rules.

c. City may designate certain areas of the Facility as restricted VIP areas during the Event.

d. City may allow and coordinate egress from the Facility out of the Northeast gate.

4.2 Event Management & Organization

a. City shall organize and manage the fireworks display, including engaging any licensed pyrotechnic contractor, and shall provide contractor contact information to State Parks upon request.

b. City shall obtain all required special permits and approvals for the fireworks display, including those required by State Parks or other authorities.

c. City shall be responsible to staff for Event logistics.

4.3 Law Enforcement & Safety

a. The Parties acknowledge that a designated safety exclusion zone on the water is required during the fireworks display to keep vessels and swimmers a safe distance from the fireworks launch area.

b. The City shall be responsible for coordinating law enforcement services necessary for on-land traffic control, crowd management, and public safety associated with the Event.

c. State Parks shall be responsible for coordinating law enforcement services necessary to establish and maintain the required water-based safety exclusion zone during the fireworks display.

d. The Parties shall coordinate in advance of the Event regarding staffing, operational responsibilities, emergency response procedures, and communication protocols necessary to support safe Event operations.

e. The Parties shall designate a primary law enforcement point of contact for coordination of on-water and on-land enforcement, emergency response, and incident management during the Event.

4.4 Waste Management

a. The Parties acknowledge that the Event may require additional waste management and sanitation services beyond those normally scheduled for park operations, depending on attendance and operational conditions.

b. The City may utilize existing Sand Hollow State Park waste and sanitation facilities for Event-related operations; however, the City agrees to reimburse State Parks for a proportional share of costs attributable to the Event, including additional refuse hauling, restroom servicing, waste collection, overflow capacity, temporary waste infrastructure, or other sanitation services as needed.

c. Prior to the Event, the Parties shall evaluate anticipated attendance and the day of the week on which the Event occurs (weekday versus weekend) to determine whether supplemental dumpsters, temporary waste containers, increased refuse or restroom servicing, portable sanitation facilities, or other supplemental waste management measures are required.

d. The City shall be responsible for coordinating and funding any supplemental waste management and sanitation measures necessary to ensure that regular park visitors and campers maintain access to adequate waste disposal and restroom facilities during and immediately following the Event.

e. Post-event cleanup responsibilities and timelines shall be agreed upon in advance, including final trash removal, restroom servicing as needed, and site restoration.

4.5 Insurance & Indemnification

a. City shall provide proof of general liability insurance covering the Event, naming **Utah Division of State Parks** and the **Washington County Water Conservancy District** as additional insured.

b. Each Party shall indemnify and hold harmless the other for claims arising from its own negligent acts, omissions, or performance of obligations under this Agreement.

Nothing in this Agreement shall be construed as a waiver of any protections, limitations, or immunities applicable to either Party under the Utah Governmental Immunity Act.

5. PROMOTION & COMMUNICATION

5.1 Advertising Requirements

City shall coordinate with State Parks regarding Event-related public messaging. Promotional materials shall accurately communicate applicable park rules, public safety information, traffic and parking guidance, and any temporary operational restrictions established by State Parks for the Event.

5.2 Coordination of Messaging

City and State Parks will coordinate on web, social media, and press releases to ensure consistent and accurate public information.

The Parties shall coordinate public messaging related to traffic impacts, parking limitations, park capacity, water safety restrictions, and prohibited activities prior to the Event.

6. COSTS & REIMBURSEMENT

City and State Parks agree to share or allocate Event costs as follows:

a. City shall bear all direct costs associated with City-managed event operations, including fireworks display costs, on-land law enforcement services, waste management, and permit-related expenses.

b. State Parks may invoice City for any reasonable and documented incremental park costs incurred as a direct result of the Event, including but not limited to additional staffing, equipment usage, cleanup, traffic control support, or operational impacts.

c. Invoices shall be paid within 30 days of receipt by the responsible Party.

7. TERMINATION & AMENDMENT

a. This Agreement may be terminated by written notice from either Party at least 180 days prior to the Event date.

b. Amendments to this Agreement shall be in writing and signed by both Parties.

c. State Parks reserves the right to modify, postpone, suspend, or cancel the Event due to emergency conditions, wildfire risk, public safety concerns, severe weather, operational limitations, environmental conditions, or other circumstances beyond the reasonable control of the Parties.

8. GOVERNING LAW

This Agreement shall be governed by and construed in accordance with the laws of the State of Utah.

9. SIGNATURES

IN WITNESS WHEREOF, the Parties have executed this Interlocal Cooperation Agreement as of the dates below.

UTAH DIVISION OF STATE PARKS

By: Scott Strong (Jun 18, 2026 08:51:51 MDT)

Name/Title: Director

Date: 06/18/2026

Attorney Review/Approval:

By: _____

Name/Title: Carter R. Moore, AAG

Date: 06/18/2026

HURRICANE CITY

By: _____

Name/Title: _____

Date: _____

Attorney Review/Approval:

By: _____

Name/Title: _____

Date: _____

ORDINANCE NO ZC26-10

AN ORDINANCE OF THE CITY COUNCIL OF HURRICANE APPROVING THE ZONE CHANGE FOR PARCEL H-3-2-3-319 FROM RESIDENTIAL AGRICULTURAL 1 (RA-1) TO RESIDENTIAL AGRICULTURAL 0.5 (RA-0.5)

WHEREAS, Utah Code 10-9a allows Cities to regulate land use within their boundaries; and

WHEREAS, the proposed amendment is generally compatible with the current General Plan; and

WHEREAS, the proposed amendment is generally in harmony with the overall character of the proposed surrounding development; and

WHEREAS, the proposal will not have an adverse impact on the surrounding area; and

WHEREAS, there are adequate facilities to support the proposed zone change; and

WHEREAS, the Planning Commission gave a positive recommendation on the proposed zone change.

BE IT FURTHER ORDAINED BY THE CITY COUNCIL OF HURRICANE CITY THAT:

That parcel H-3-2-3-319 is rezoned from Residential Agricultural 1 (RA-1) to Residential Agricultural 0.5 (RA-0.5).

PASSED AND APPROVED on this 18th day of June 2026.

Hurricane City

_____
Clark Fawcett, Mayor

Attest:

_____
Cindy Beteag, City Recorder

HURRICANE CITY
UTAH

HURRICANE CITY
STORM DRAIN MASTER PLAN
April 2026

Prepared By:
J-U-B ENGINEERS, Inc.
20 North Main Street, Suite 202
St. George, Utah 84770
(435)900-1230

J·U·B ENGINEERS, INC.

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1. INTRODUCTION

Hurricane City is located in Washington County in southern Utah. This Storm Drain Master Plan documents the existing storm drain system within Hurricane City, outlines the hydrologic model assumptions and results for the system, and identifies the proposed projects needed to provide adequate drainage throughout the City.

Hurricane City contains both areas that are fully developed and areas with little to no development. The projects identified in this Storm Drain Master Plan are needed to improve the existing storm drain system, accommodate future growth and development, and to connect undeveloped areas to the storm drain system as future development takes place.

1.1. Study Area

The area of evaluation for this study includes both the area within the existing city limits of Hurricane City, as well as additional drainage areas outside of the city limits that contribute runoff to the City's storm drain system. Many of these additional drainage areas include large, open-space areas with hilly topography. The Hurricane City limits can be found on the Existing System Map in Appendix A.

1.2. Definitions

The following definitions are provided to clarify commonly used terms and to ensure consistency in nomenclature.

Catch Basin A basin combined with a storm drain inlet used to trap solids.

Channel A natural or artificial watercourse with a definite bed and banks that conducts flowing water continuously or periodically.

Culvert A covered channel or pipe that directs water flow below the ground surface.

Curve Number A numerical representation of the stormwater runoff potential for an area, with higher numbers representing higher amounts of runoff.

Detention Basin A depression designed with an inlet and outlet that regulates water flow and allows debris to settle out, and which is capable of detaining stormwater runoff until it can be released downstream.

Impervious Surface Any hard surface area which prevents or reduces the penetration, absorption, or entry of water into the ground, or any hard surface area which causes water to run off the surface in a greater quantity or at an increased rate of flow from that present under natural conditions, pre-existent to development. Common impervious surfaces include, but are not limited to, roofs, sidewalks, concrete or asphalt paving, walkways, patios, decks, driveways, parking lots, storage areas, trafficked or compacted gravel, road base, or other surfaces which similarly impede the natural infiltration of storm and surface water.

Infiltration The downward movement of water from the surface to the subsoil. The infiltration capacity is expressed in terms of inches per hour.

Municipal Separate Storm Sewer System (MS4) A municipally owned and operated stormwater collection system that may consist of any or all of the following: curb, gutter, drainage swales, piping, ditches, canals, detention basins, inlet boxes, or any other system used to convey stormwater that discharges into canals, ditches, streams, rivers, or lakes not owned and operated by that municipality.

Outfall The point, location, or structure where stormwater or drainage discharges from a storm drain pipe, ditch, or other conveyance to a receiving body of water.

Pipe Surcharge When storm runoff exceeds a pipe's capacity and causes pressurized pipe flow.

Retention Basin A depression designed with an inlet that retains water flow and allows debris to settle out, and which can retain stormwater runoff until it can evaporate or infiltrate into the ground. Runoff water is retained without release except by means of evaporation, infiltration, or emergency bypass.

Runoff Precipitation, snow melt, or irrigation water that runs off the land into streams or other surface water. It can carry pollutants from the air and land into the receiving waters.

Spread Calculations A calculation of water spread width or area on a road or storm conveyance system based on maximum flow, water depth, water velocity, and flow area.

Storm Drain A closed conduit for conveying stormwater that has been collected by inlets or other means.

Storm Drain System The City's storm drain system comprised of stormwater facilities, improvements, streets, gutters, drains, swales, detention basins, property, or other interests therein made, constructed, or acquired by the City for purposes of managing and controlling stormwater.

Stormwater Water produced by storms, surface drainage, snow and ice melt, and spring flows and drainage. Stormwater does not include infiltration.

Storm frequency A measure of the relative risk that the precipitation depth for a particular design storm will be equaled or exceeded in any given year. This risk is usually expressed in years. For example, a storm with a 100-year frequency will have a one percent chance of being equaled or exceeded in any given year.

Storm duration The length of time of a storm event, from the beginning of rainfall to the point where no further accumulation of precipitation is occurring.

Storm intensity The rate at which precipitation accumulates during a storm event.

Storm depth The total depth of precipitation produced by a storm event.

Subcatchment A defined area used to calculate stormwater runoff which drains to a designated location.

1.3. Projected Growth

According to the US Census Bureau, Hurricane has experienced a population increase of approximately 30.9% between 2020 and 2025 making it one of the fastest-growing cities in southern Utah. The City's population was 13,748 in 2010, 20,036 in 2020, and the current population is estimated to be around 26,500 residents. Hurricane's rising population is attributed to housing developments, recreational appeal, and increased industrialization. Based on the Hurricane City Parks, Trails, and Recreation Master Plan from 2024, the future population is projected to increase at a rate of 4.00% annually between 2024 and 2029 and 3.30% annually between 2030 and 2034. Assuming these rates and anticipated City development, the ten-year projected population for Hurricane City is 35,426. This population increase has been applied to the existing system with improvements to 10-year and 100-year modeling scenarios.

1.4. Stormwater Quality

In recent years, the Environmental Protection Agency (EPA), and subsequently the State of Utah, has emphasized the importance of monitoring the quality of the stormwater being discharged from storm drain systems. In conjunction with this Storm Drain Master Plan, Hurricane City is developing a Storm Water Management Plan (SWMP) to comply with the MS4 requirements set forth by the EPA and the Utah Department of Environmental Quality (DEQ). This will allow the City to obtain a Utah Pollutant Discharge Elimination System (UPDES) permit to discharge stormwater to Waters of the United States. The City is required to comply with stormwater quality regulations set forth by the permit. The UPDES permit requires that the City develop a program to regulate stormwater quality by setting and implementing goals in six minimum control measures:

1. Public education and outreach
2. Public involvement and participation
3. Illicit discharge detection and elimination
4. Construction site runoff management
5. Post-construction runoff management
6. Pollution prevention and good housekeeping practices

The management of stormwater quality is specifically addressed in the UPDES Storm Water Management Plan that is being developed by the City. Although this Strom Drain Master Plan does not address stormwater quality in detail, the implementation of the plan does have a significant potential impact on stormwater quality. Uncontrolled discharges due to insufficient capacity or unmaintained infrastructure can lead to the introduction of pollutants into stormwater. Providing the necessary infrastructure to properly collect and convey stormwater is vital in maintaining the quality of stormwater in the City.

2. EXISTING SYSTEM

Table 2—1: Existing Storm Drain System Inventory

Description	Length (ft)/Quantity
3-inch	33
4-inch	390
6-inch	1,640
8-inch	1,591
10-inch	6,151
12-inch	19,006
14-inch	344
15-inch	20,972
16-inch	429
18-inch	65,487
20-inch	165
24-inch	53,723
30-inch	14,755
36-inch	22,605
40-inch	251
42-inch	6,191
48-inch	10,700
60-inch	3,317
Open Drains	24,505
Culverts	4,398
Unknown	49,679
Total Length	**306,331**

Hurricane City's existing storm drain system consists of pipes, open channels, culverts, manholes, inlets, detention ponds, and rivers and natural channels. The existing system map can be found in Appendix A. The rivers and natural channels play a vital role in the system as many components of the storm drain system discharge directly to the Virgin River.

An inventory of the City's existing storm drain system is summarized in Table 2—1. The inventory is based on GIS data provided by the City. There is a total of 306,331 feet, or 58 miles, of storm drain pipes, open drains, and culverts within the storm drain system that convey stormwater runoff. The storm drain system is valuable to the City and its continued maintenance is essential.

Description	Length (ft)/Quantity
Manholes	454
Inlets	2,384
Detention Basins	116

3. COMPUTER MODEL DEVELOPMENT

To assess the performance of the storm drain system, a computer model was developed using Aquanuity's AquaTwin Sewer modeling software, which is a software integration to Esri's ArcGIS Pro software. AquaTwin Sewer utilizes the EPA's Storm Water Management Model (SWMM) 5 engine. An important aspect of this software is its ability to interface with Esri ArcGIS software for a seamless transition between Geographic Information System (GIS) data and network modeling.

3.1. Hydrologic Information

Based on the City's 2008 Drainage Manual, local storm drain collection facilities, such as catch basins and collector pipes, should be designed to provide flood protection for a 10-year, 3-hour storm event, while major storm drain detention and conveyance facilities, such as storm drain trunk lines, regional detention basins, bridges, creeks, and washes, should be designed to provide flood protection for a 100-year, 3-hour storm event (Bowen, Collins & Associates, 2008).

The model evaluated the storm events utilizing a modified Farmer-Fletcher storm distribution. The Farmer-Fletcher distribution was developed in 1971 using local Utah recording gauges from storm events across the Wasatch Front. A storm depth of 1.1 inches was used for the 10-year, 3-hour storm, and a storm depth of 1.91 inches was used for the 100-year, 3-hour storm. Storm depths were obtained from the National Oceanic and Atmospheric Administration (NOAA) Precipitation Frequency Data Server (NOAA, 2024). Figure 3—1 shows the storm distributions that were used in the model for the 1.1-inch and 1.91-inch storm depths.

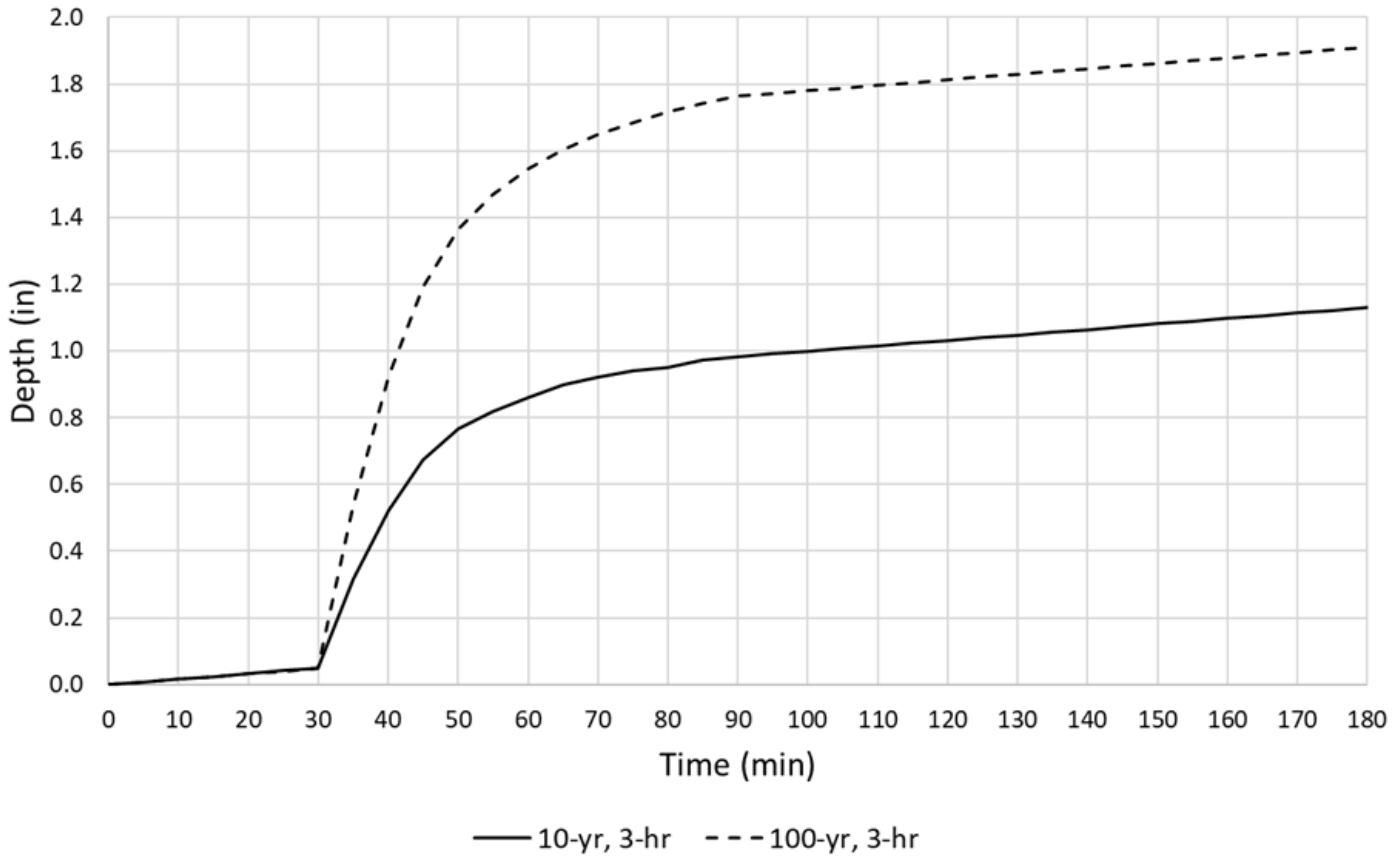

Figure 3—1: 10-year, 3-hour and 100-year, 3-hour Storm Distributions

3.2. Model Input Data

The storm drain model used the Natural Resources Conservation Service (NRCS) Unitless Hydrograph Method to calculate the peak runoff for the required design storms, which required collection system geometry, subcatchment areas, soil types, land use types, slopes, and other information to evaluate the effects of the storm on the storm drain system. A runoff hydrograph was generated within the model for each model subcatchment using the input data. GIS geometry data of the City's storm drain system was obtained from Hurricane City.

Land use types for the model were determined from the existing general plan and GIS data provided by the City.

Soil data were downloaded from Esri's ArcGIS SSURGO Downloader and used to determine hydrologic soils groups (HSG) Esri, 2024).

The land use type and HSGs were used to determine runoff curve numbers in accordance with the NRCS Technical Release 55: Urban Hydrology for Small Watersheds (TR-55) (NRCS, 1986). The NRCS curve numbers that were used to calculate a composite curve number for each subcatchment are shown in Table 3—1.

Table 3—1: NRCS Curve Numbers

	TR-55 CURVE NUMBERS FOR HYDROLIC SOIL GROUPS			
TR-55 Cover Description	**A**	**B**	**C**	**D**
Commercial & Business	89	92	94	95
Industrial	81	88	91	93
Residential, 1 acre	51	68	79	84
Residential, 1/4 acre	61	75	83	87
Residential, 1/8 acre or less (town houses)	77	85	90	92
Straight Row Crops, good	67	78	85	89
Open Space, good condition	39	61	74	80
Open Space, poor condition	68	79	86	89
Herbaceous, Fair	--	71	81	89

The study area was divided into 392 subcatchments. The subcatchments were delineated based on topography and the collection system layout such that modeled pour points aligned with actual inputs into the City's system. Each subcatchment was assigned data including area, land use, soil type, and slope, to calculate flows. The model then routed the flows through the system.

3.3. Assumptions

The storm system geometry provided by the City contained information such as pipe size, pipe material, and pipe length, all of which were used in building the model. While most of the pipes in the City's data contained the information described, some data was missing. For missing data, additional data was obtained through field verification. If data remained unknown, for example if pipe size or material data were missing, the immediate upstream and downstream pipe size or material were reviewed and used to fill in the missing data.

While the GIS data contained some manhole and inlet rim and invert elevations, many of the values were missing. Prior to developing the model, manhole and inlet depths were measured and verified in the field.

Many of the manhole and rim elevations were determined from LiDAR data that was obtained from the Utah Geospatial Resource Center (UGRC) Raster Data Discovery (UGRC, 2024).

The existing and general plan land use GIS data that was provided by the City contained land use data for the areas within the city limits. For the undeveloped drainage areas outside of the city limits but within the study area, the land use was assumed to be herbaceous, semiarid rangeland, based on the NRCS TR-55 manual.

Storm events in Hurricane City are typically confined to relatively small geographic areas, resulting in rainfall depths not being evenly distributed. Due to this fact, and that rainfall depths obtained from NOAA represent depths at particular points, an aerial reduction factor (ARF) was used to reduce the rainfall depths for the 16 subcatchments that have areas greater than one square mile, based on the City's 2008 Drainage Manual. The ARF equation for a 3-hour storm event is provided below, with the subcatchment area being measured in square miles.

$$ARF = 0.01 * (100 - 4.5 * Area^{0.46})$$

4. SYSTEM AND MODEL ANALYSIS

The developed storm drain model was used to analyze the performance of the existing system during the 10-year, 3-hour and 100-year, 3-hour storm events. Two different scenarios were modeled with each storm event: the existing system and the existing system with improvements. The existing system scenario was used to identify deficiencies in the existing storm drain system. The existing system with improvements scenario was used to identify the required system improvements to mitigate the deficiencies. The 10-yr, 3-hr storm was used to develop all existing system improvement projects listed within Table 5—1, Table 5—2, and Table 5—3. Proposed improvements along major storm drain trunklines were also analyzed using the 100-yr, 3-hr storm. 100-yr, 3-hr storm results were reviewed to ensure significant flooding is mitigated and that storm runoff is contained within roadway gutters.

Rapid development in the last few years has led to increased impervious area resulting in increased storm runoff to the storm drain system. Model results indicate that the increased runoff is contributing to several deficiencies within the existing storm drain system. Numerous capital improvement projects are recommended to address these deficiencies. The recommended improvements consist of upsizing existing pipes and installing new pipe systems with the goal of reducing risk of storm gutter spread and flooding. Tables containing model results can be found in Appendix C - Model Data . The recommended capital improvements can be found in tables 5—1 through 5—3.

5. CAPITAL IMPROVEMENT PLAN

5.1. Recommended Projects & Costs

Table 5—1, Table 5—2, and Table 5—3 list recommended capital improvement projects that were identified while reviewing model results, and during discussions with City staff. The tables provide a brief project description, location, deficiency, how the deficiency was identified, and a construction cost estimate. Table 5—1 lists the projects that require new infrastructure. Table 5—2 lists recommended pipe upsizing projects. Table 5—3 lists recommended projects to modify or add to the storm drain system to meet the needs of future development. Project descriptions and figures are provided following the tables.

Table 5—1: 10-Year Capital Improvement Plan Projects

Project No.	Project Description	Location	Project Deficiency	Deficiency Source	Construction Cost Estimate
1	Storm Drain Piping	W 100 N	Localized Flooding	Model Result	$1,029,000
2	Storm Drain Piping	N 1150 W	Localized Flooding	City Comment	$1,019,000
3	Storm Drain Piping	S 400 W	Localized Flooding	Model Result	$3,485,000
4	Storm Drain Piping/ Drainage Swale	W 3000 S	Localized Flooding	City Comment	$3,478,000
5	Drainage Swale	W 3000 S	Localized Flooding	City Comment	$807,000
6	Storm Drain Piping	W 400 S	Localized Flooding	Model Result	$2,443,000
7	Storm Drain Piping	S 4390 W	Localized Flooding	City Comment	$688,000
8	Storm Drain Piping	S Sand Hollow Rd	Localized Flooding	City Comment	$4,173,000
9	Detention Basin/ Drainage Swale	S 3400 W	Localized Flooding	City Comment	$376,000
10	Storm Drain Piping	W 1300 S	Localized Flooding	City Comment	$272,000
11	Storm Drain Piping	S 1760 W	Localized Flooding	City Comment	$347,000
				TOTAL	**$18,117,000**

Table 5—2: Recommended Stormwater System Upsizing Projects

Project No.	Project Description	Location	Project Deficiency	Deficiency Source	Construction Cost Estimate
12	Storm Drain Piping	S 300 W	Localized Flooding	Model Result	$1,970,000
13	Storm Drain Piping	S 700 W	Pipe Surcharging	Model Result	$6,816,000
14	Storm Drain Piping	S 920 W	Localized Flooding	Model Result	$3,056,000
15	Storm Drain Piping	S 1000 W	Localized Flooding	Model Result	$2,919,000
16	Storm Drain Piping	Foothills Canyon Dr.	Localized Flooding	Model Result	$465,000
17	Storm Drain Piping	W State St.	Pipe Surcharging	Model Result	$102,000
18	Storm Drain Piping	N 2170 W	Pipe Surcharging	Model Result	$365,000
19	Storm Drain Piping	S 300 W	Pipe Surcharging	Model Result	$199,000
20	Storm Drain Piping	E 300 N	Localized Flooding	Model Result	$1,312,000
21	Storm Drain Piping	E 1050 N	Localized Flooding	Model Result	$445,000
22	Storm Drain Piping	S 3400 W	Localized Flooding	Model Result	$3,263,000
23	Storm Drain Piping	N 3700 W	Pipe Surcharging	Model Result	$567,000
24	Storm Drain Piping	E 2700 S	Localized Flooding	Model Result	$3,460,000
				TOTAL	**$24,759,000**

Table 5—3: Future Capital Improvement Stormwater Projects

Project No.	Project Description	Location	Project Deficiency	Deficiency Source	Construction Cost Estimate
25	Storm Drain Piping	600 N	Lack of Infrastructure	Model Result	$9,569,000
26	Storm Drain Piping	2100 W	Lack of Infrastructure	Model Result	$26,726,000
27	Storm Drain Piping	1100 W	Lack of Infrastructure	Model Result	$3,921,000
28	Storm Drain Piping	Southern Parkway	Lack of Infrastructure	Model Result	$19,083,000
29	Storm Drain Piping	State St	Lack of Infrastructure	Model Result	$2,183,000
				TOTAL	**$61,482,000**

The project cost estimates shown in Table 5—1, Table 5—2, and Table 5—3 were prepared using the following assumptions and conditions:

- Roadway restoration includes six inches of asphalt pavement, a 2-ft. T-patch on each side of the trench and imported backfill material throughout the trench within the roadway.
- New installation and upsizing of existing pipes assumes new inlets and manholes will be required at a uniform spacing of 300 feet and 400 feet, respectively.
- A 30% contingency was included to account for inflation, unanticipated conditions, and engineering services.

Detailed cost estimates for each project can be found in Appendix B. Project descriptions and locations are described below and include concept level maps. Detailed project maps can be found in Appendix A.

5.1.1. 10-Year Capital Improvement Plan Projects

PROJECT 1

The purpose of this project is to replace 2,020 feet of undersized 24” pipe with new 36”- 42” high density polyethylene (HDPE) pipe to convey stormwater along W 100 N and spill into Gould Wash. The undersized pipe causes approximately 12.6 cubic feet per second (cfs) of manhole flooding within the existing model scenario near the intersection of N 1270 W and W 100 N, and the cul-de-sac at the end of W 100 N. Project sizing was based on the 10-yr, 3-hr storm and will provide supporting infrastructure for a connection project along N 1150 W and N 1270 W (Project 2). Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. Concept level project design, vicinity, flow direction, and maximum conduit flow rate are displayed in Figure 5–1.

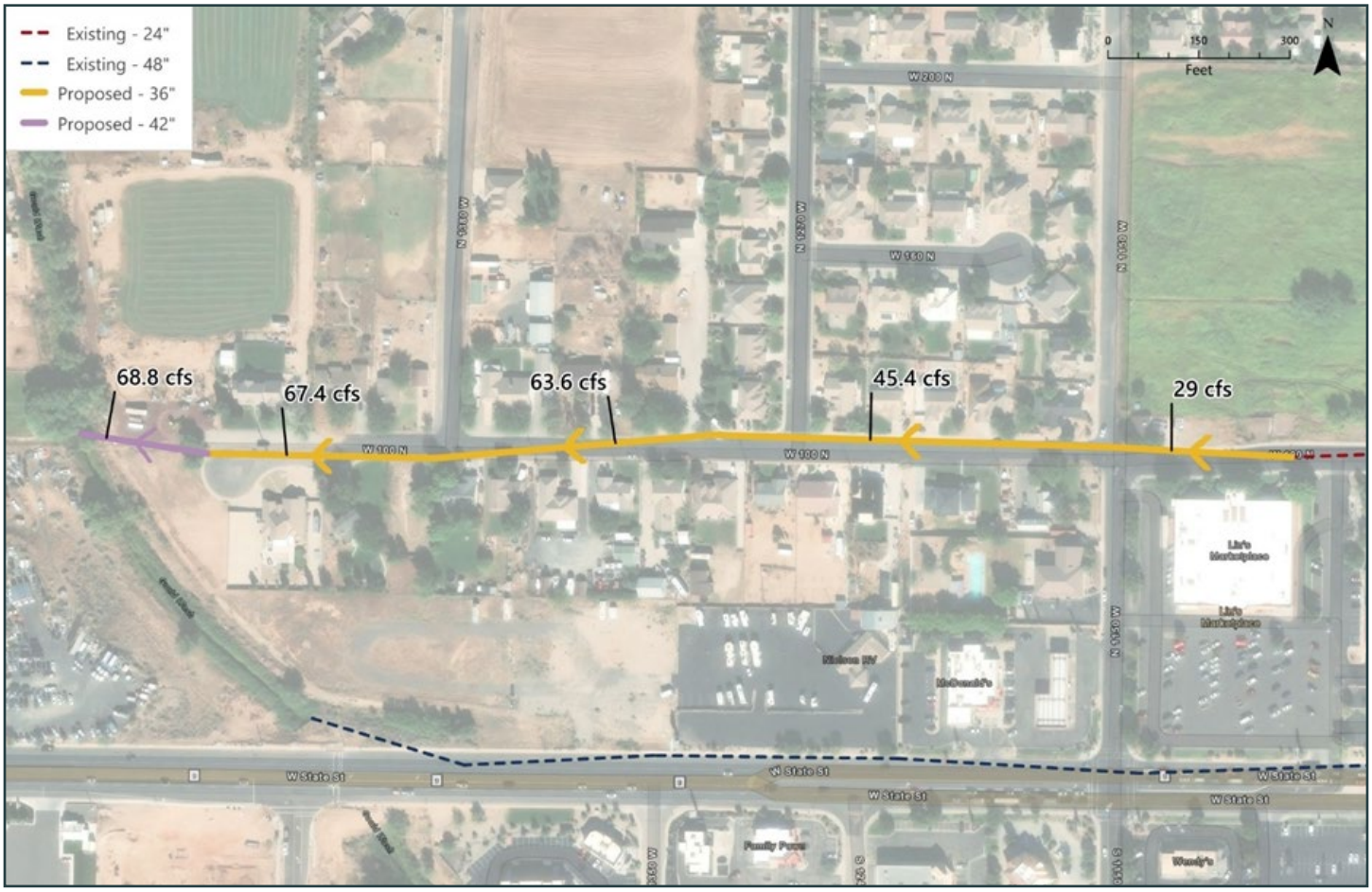

Figure 5—1: Project 1 Details

PROJECT 2

The purpose of this project is to reduce stormwater spread from 600 N into the Fox Hollow neighborhood that has historically caused curb-to-curb flooding along N 1270 W. This flooding will be mitigated by installing a project total of 3,300 feet of new 24" HDPE pipe along N 1150 W and N 1270 W to the intersection of W 100 N. The captured surface runoff from new inlets and manholes will be conveyed to the W 100 N pipe and eventually outfall to Gould Wash. Proposed project sizing was completed based on the 10-yr, 3-hr storm. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—2 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

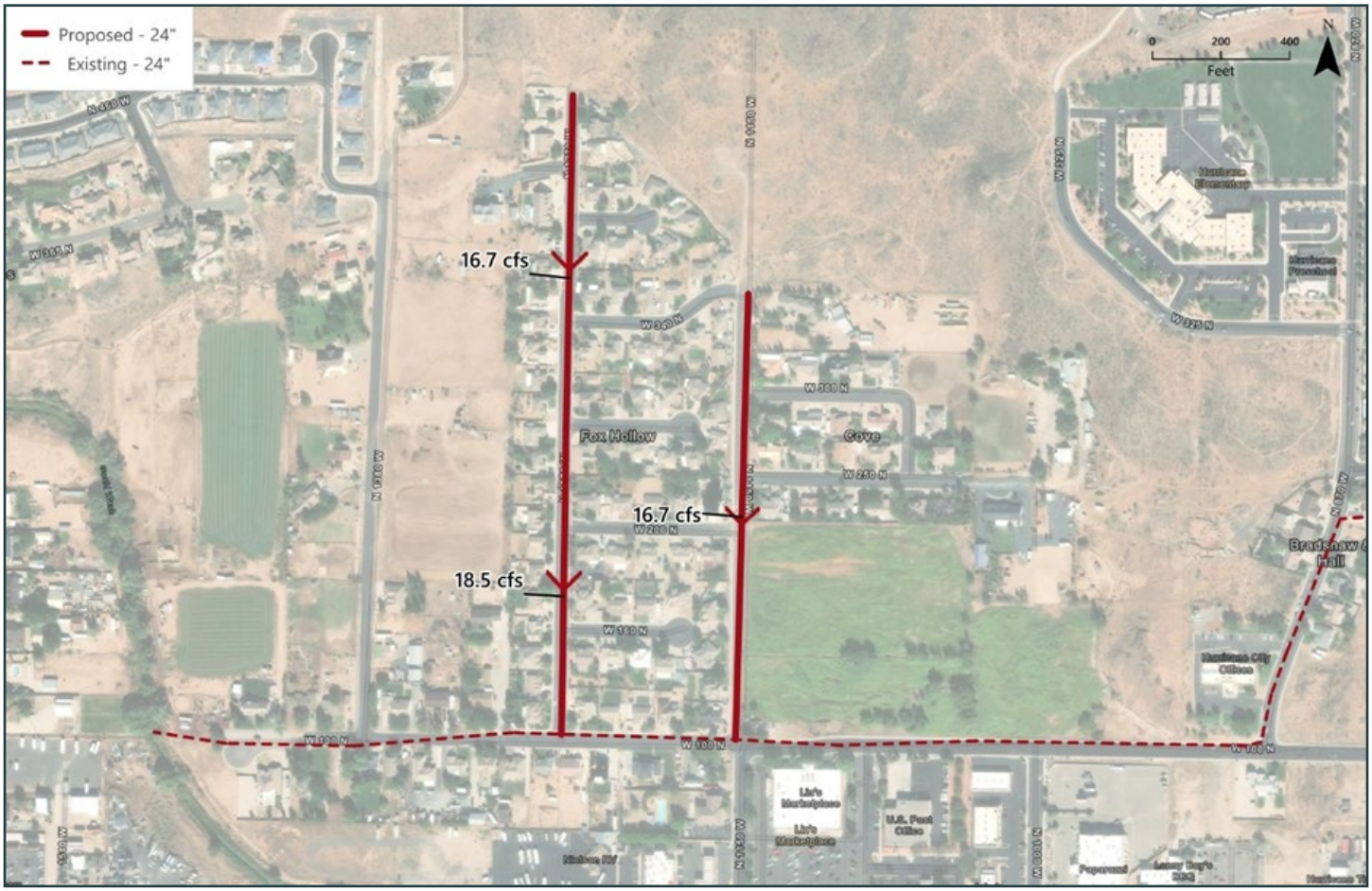

Figure 5—2: Project 2 Details

PROJECT 3

The existing 30” pipe along S 400 W exceeds its capacity during the 10-yr, 3-hr storm, resulting in approximately 10.1 cfs of overflow and roadway flooding. Project 3 aims to reduce flooding along S 400 W by replacing approximately 6,660 feet of undersized 30” pipe with new 24”- 42” HDPE from the Hurricane Canal to Gould Wash. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—3 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

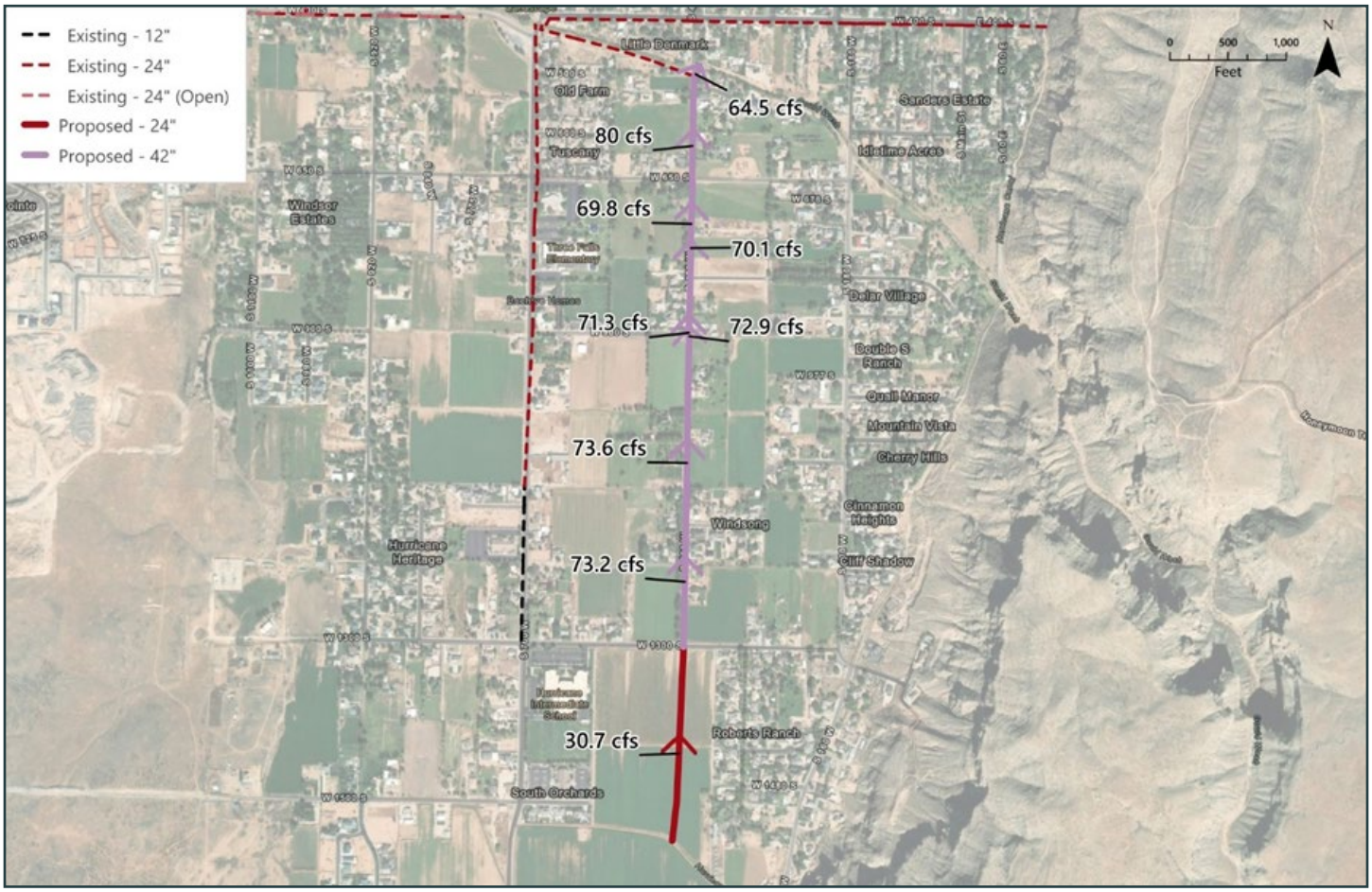

Figure 5—3: Project 3 Details

PROJECT 4

Project 4 captures stormwater from the 10-yr, 3-hr storm conveyed to the west from Frog Hollow Wash and S 1150 W, along the north side of W 3000 S and within an improved Frog Hollow wash. This will be accomplished by installing 5,335 feet of new 36" HDPE pipe along the north side of W 3000 S and by improving Frog Hollow Wash with 8,650 feet of 4' bottom width swale. Captured stormwater will be spilled into detention ponds located near the intersection of W 3000 S and 2100 W. A new 36" HDPE pipe across W 3000 S will convey stormwater captured by Project 5 to the detention ponds. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—4 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—4: Project 4 Details

PROJECT 5

Project 5 aims to capture runoff from southern subcatchments and convey the stormwater to the retention ponds located near the intersection of W 3000 S and 2100 W. To achieve this, 5,300 feet of 4' swale will be constructed along the south side of W 3000 S. Project 5 will tie into the 36" HDPE pipe proposed within Project 4 through a ditch inlet for final conveyance to the retention ponds. Swale sizing was completed based on the surface runoff generated from the 10-yr, 3-hr storm. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—5 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—5: Project 5 Details

PROJECT 6

Project 6 aims to reduce surcharging within existing 18” and 30” trunkline pipes along W 400 S. The purpose of this project is to reduce pressurized pipe flowing one foot below the road surface and to reduce overtopping of the open channel section through the Country Lane Estates neighborhood. This project was modeled with the 10-yr, 3-hr storm and includes upsizing pipes and removing open channel sections. Approximately 4,100 feet of existing pipe and open channel will be replaced with new 24”- 36” HDPE pipe along W 400 S, from S 1530 W to S 900 W. Approximately 3,050 feet total of new 24”- 36” HDPE pipe will be installed from W 400 S to Gould Wash along S 1400 W, S 1150 W, and S 900 W to drain stormwater as it travels east to the drainage. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—6 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

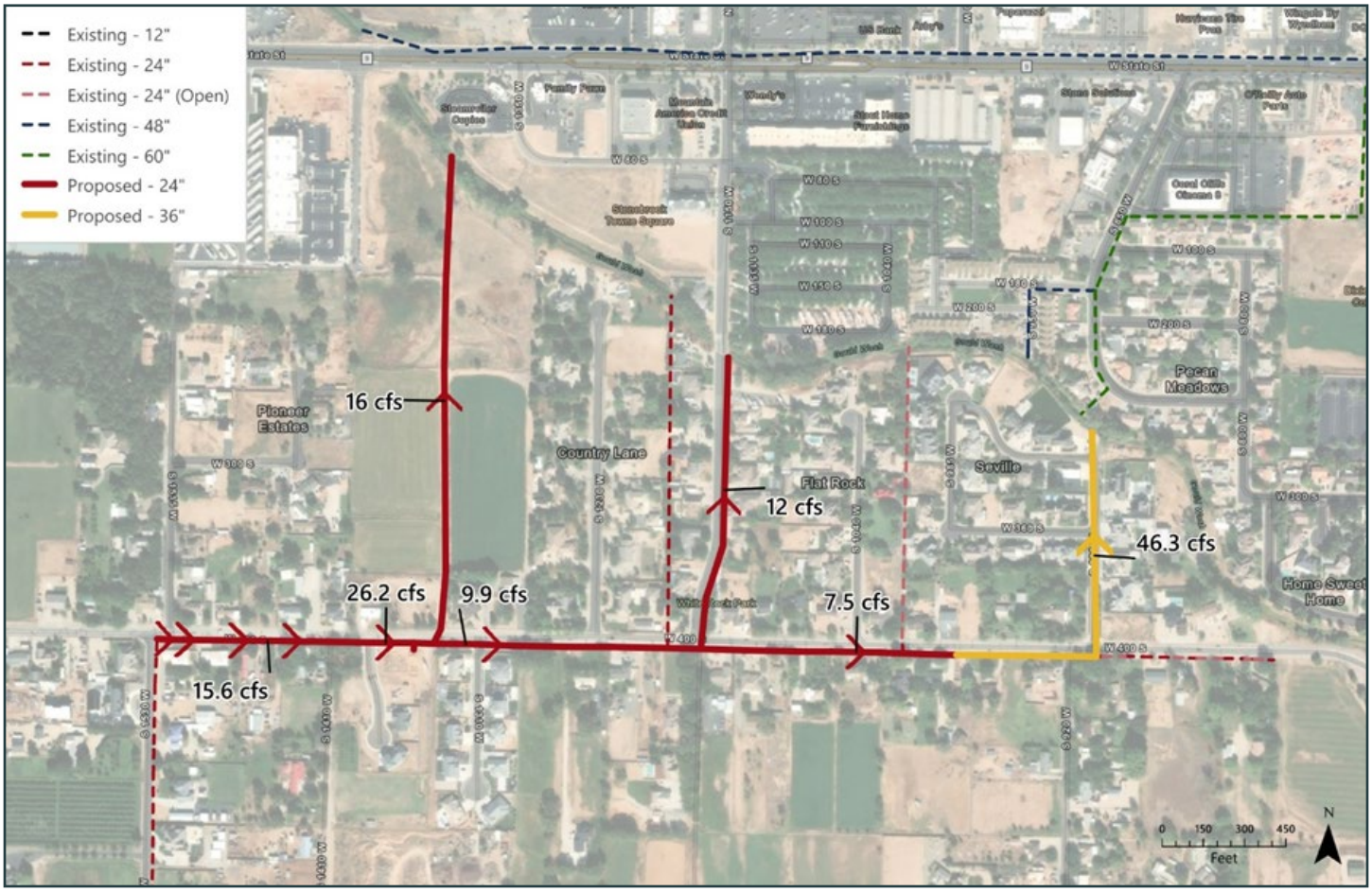

Figure 5—6: Project 6 Details

PROJECT 7

City employees have observed flooding from the existing detention ponds along S Sand Hollow Rd., which spills into the neighborhood along S 4390 W during significant storm events. To mitigate neighborhood flooding, a project total of 2,200 feet of new 24" HDPE pipe will be installed from the detention pond outlet toward the east to S 4390 W, and then toward the north along S 4390 W until it turns east again. According to model results, the existing detention pond does not flood during the 10-yr, 3-hr storm and the proposed pipe was sized based on the City's minimum 24" proposed pipe size. The proposed pipe from the detention pond's outlet will connect to the existing storm drain system at W 2440 S and Wilson Dr. to convey stormwater to the north for eventual drainage to the Virgin River. The existing downstream pipe is adequately sized to convey these additional flows. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—7 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—7: Project 7 Details

PROJECT 8

Project 8 aims to convey stormwater that is not captured by the detention pond at the intersection of Abbey Road and S Sand Hollow Rd. to the Virgin River. To achieve this, 4,760 feet of new 54" HDPE pipe will be installed from S Sand Hollow Rd. and Cambridge Parkway N to the Virgin River. Proposed project sizing is based on an assumed pipeline cover depth of 10-15 feet to avoid agricultural disturbances, and model results for the 10-yr, 3-hr storm. Alternatively, a 3' bottom width swale could be installed along the same alignment for stormwater conveyance to the Virgin River. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—8 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

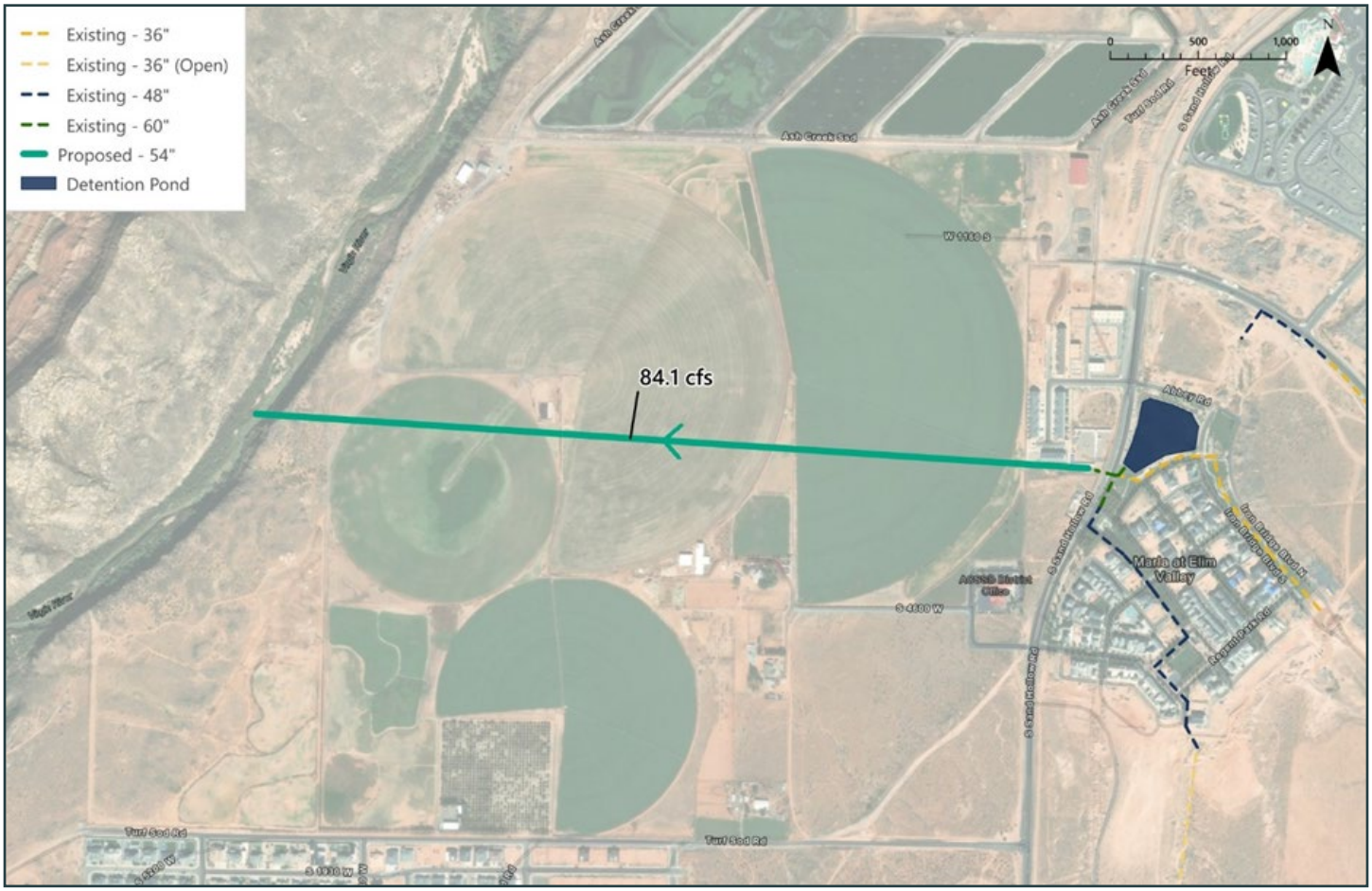

Figure 5—8: Project 8 Details

PROJECT 9

The purpose of this project is to reduce manhole flooding and stormwater spread near the Dixie Springs Park and through the Dixie Springs neighborhood by adding a new detention basin, drainage swale, and a culvert under 3400 W near Dixie Springs Park. To accomplish this, a 1.5-acre detention basin, a 24” culvert, and a 2’ bottom width swale approximately 600 feet long will be installed to capture stormwater that naturally drains to the proposed detention basin location and convey it to the existing drainage system along S 3520 W. The existing downstream pipe is adequately sized to convey these additional flows. Proposed project sizes are based on the 10-yr, 3-hr storm model results. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—9 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—9: Project 9 Details

PROJECT 10

Runoff from the steep hillside to the east and recent development leads to overland flooding during the 10-yr, 3-hr storm before it is captured within the existing stormwater system along W 1300 S. Project 10 proposes capturing runoff at the base of the hill and conveying it to the existing system within approximately 800 feet of new 24" HDPE. Captured runoff will be further conveyed north to spill into Gould Wash by recommended Project 12 along 300 W. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—10 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—10: Project 10 Details

PROJECT 11

The City has observed flooding at the intersection of S 1760 W and W 200 S when the existing detention pond overtops. Project 11 aims to capture and convey the stormwater that exceeds the detention pond's capacity and convey it to an outfall along State St. The proposed outlet structure and 1,033 feet of new 24" HDPE pipe conveys approximately 13 cfs during the 10-yr, 3-hr storm along S 1760 W. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—11 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—11: Project 11 Details

5.1.2. Recommended Stormwater System Upsizing Projects

PROJECT 12

To convey stormwater captured by Project 10 to Gould Wash, Project 12 proposes the installation of approximately 3,000 and 2,150 feet of new 24” and 36” HDPE pipe, respectively. Approximately 54 cfs is conveyed north to Gould Wash during the 10-yr, 3-hr storm. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—12 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

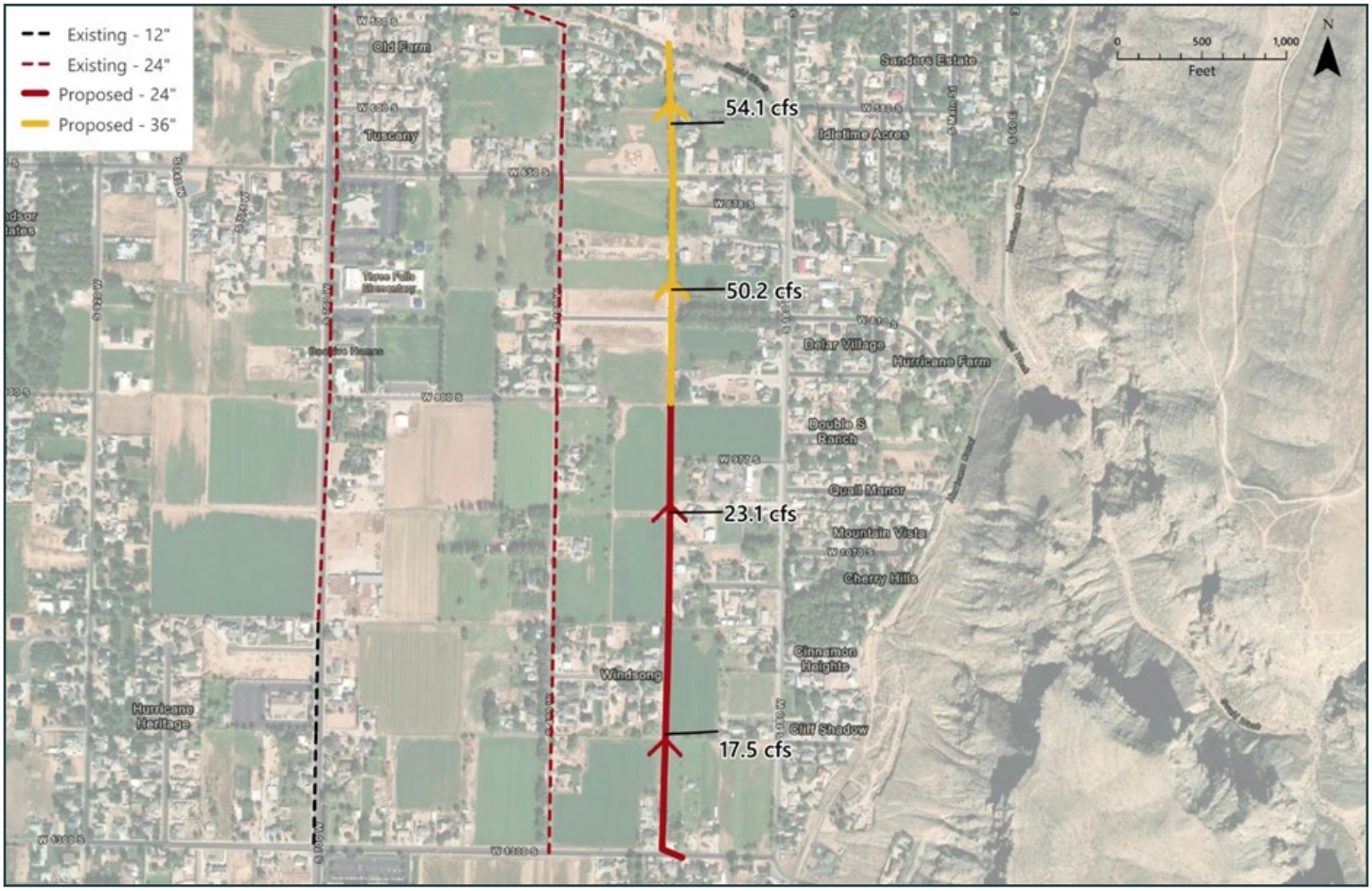

Figure 5—12: Project 12 Details

PROJECT 13

The existing 16”- 18” pipe along S 700 W is undersized to handle the 10-yr, 3-hr storm, leading to pressurized pipes and approximately 6.6 cfs of flooding at W 650 S and W 900 S. Project 13 aims to mitigate surcharging and flooding by adding new storm drain pipe and inlets to S 700 W. To accomplish this, 8,280 feet of undersized pipe will be replaced with 36”-60” HDPE pipe along S 700 W, from W 1300 S to an existing open channel drainage to Gould Wash. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—13 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

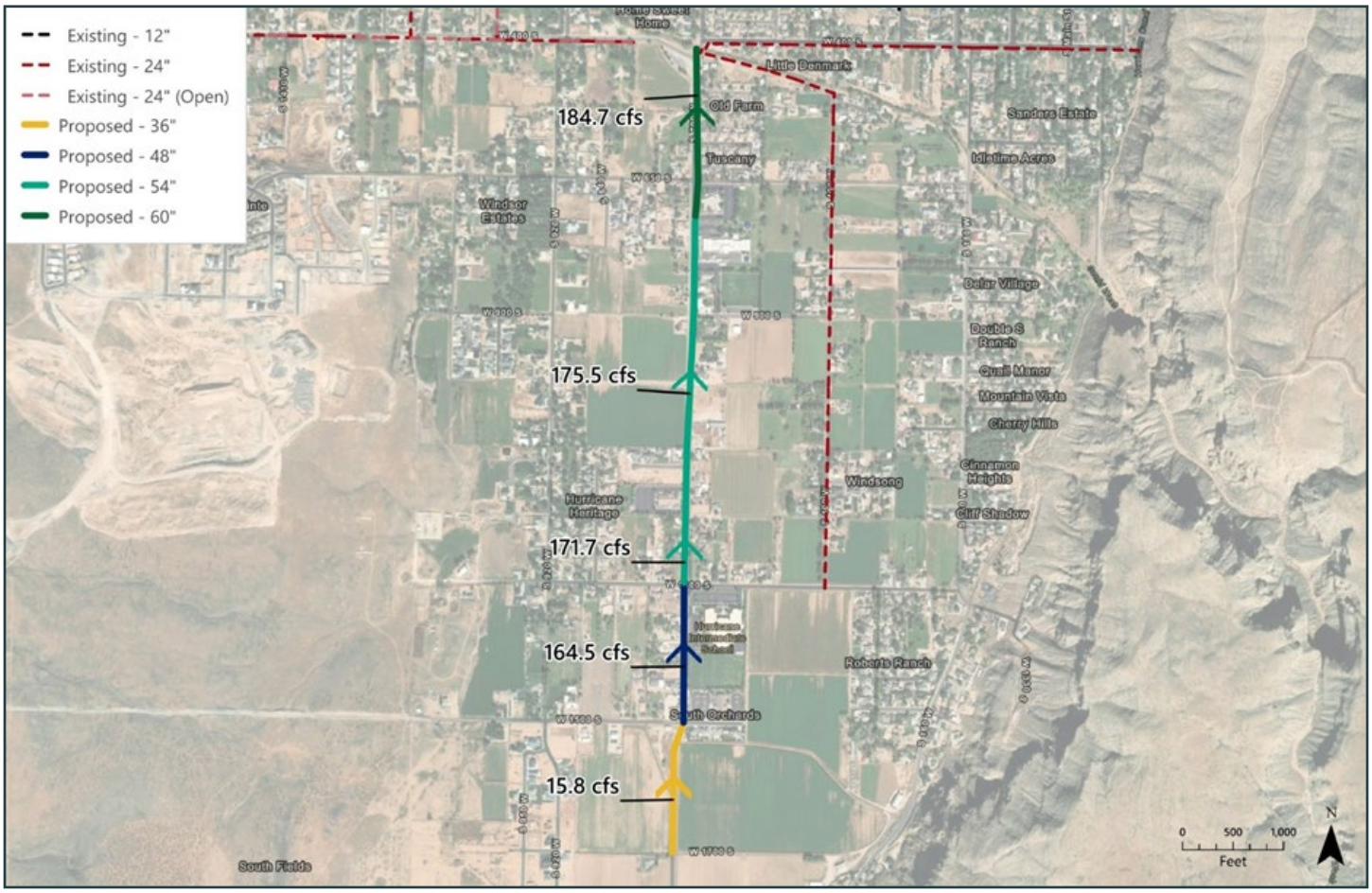

Figure 5—13: Project 13 Details

PROJECT 14

Project 14 proposes the capture of stormwater traveling north along S 920 W within the installation of approximately 2,700 and 4,050 feet of new 30” and 36” HDPE pipe, respectively. Approximately 40 cfs is conveyed north during the 10-yr, 3-hr storm to Project 6 before eventually discharging to Gould Wash. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—14 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

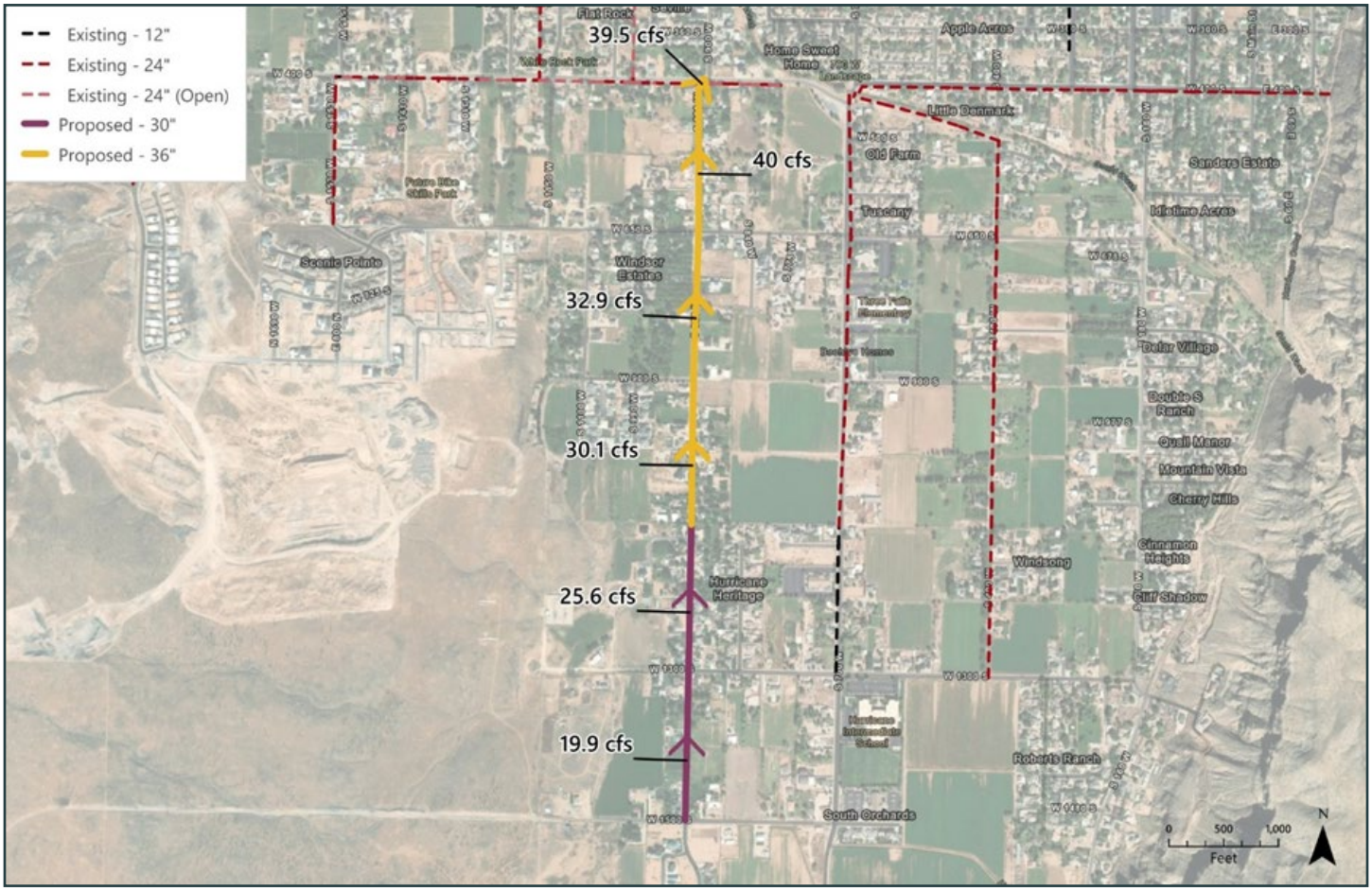

Figure 5—14: Project 14 Details

PROJECT 15

Due to the absence of stormwater infrastructure along S 1000 W, runoff flows overland before entering the existing curb-and-gutter system and continuing north. Project 15 proposes the installation of 6,742 feet of new 24”- 36” HDPE pipe. Approximately 66 cfs is conveyed north along S 1000 W during the 10-yr, 3-hr storm before eventually connecting to the existing stormwater system along W 400 S. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—15 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

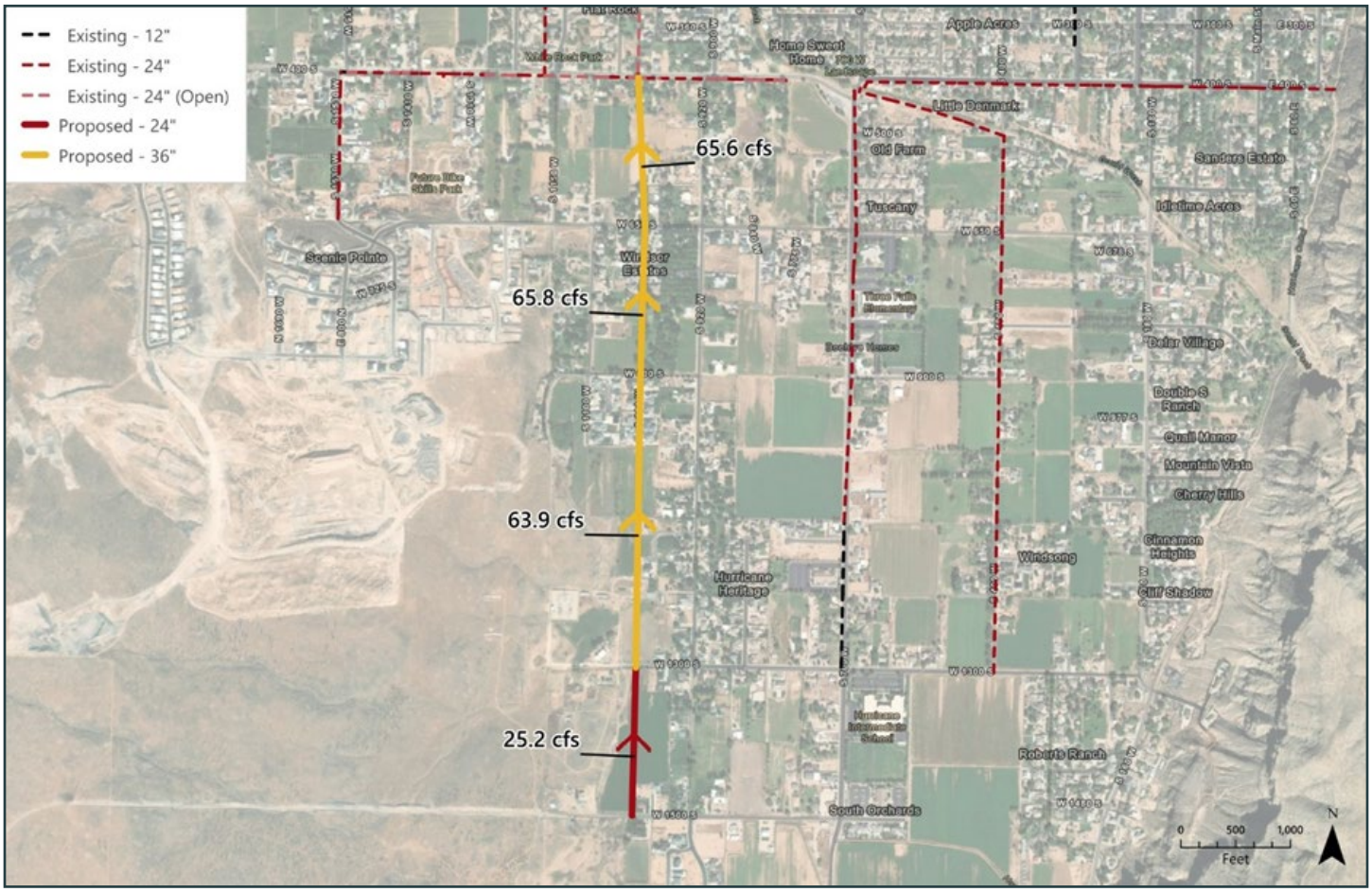

Figure 5—15: Project 15 Details

PROJECT 16

The existing 24” HDPE pipe along Foothills Canyon Dr. overflows during the 10-yr, 3-yr storm and causes approximately 9.1 cfs of manhole flooding before the pipe outlets to a detention pond. Roadway flooding along Foothills Canyon Dr. will be mitigated by replacing 1,100 feet of the existing 24” pipe with new 30” HDPE pipe that will adequately convey stormwater to the detention pond for temporary storage. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—16 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

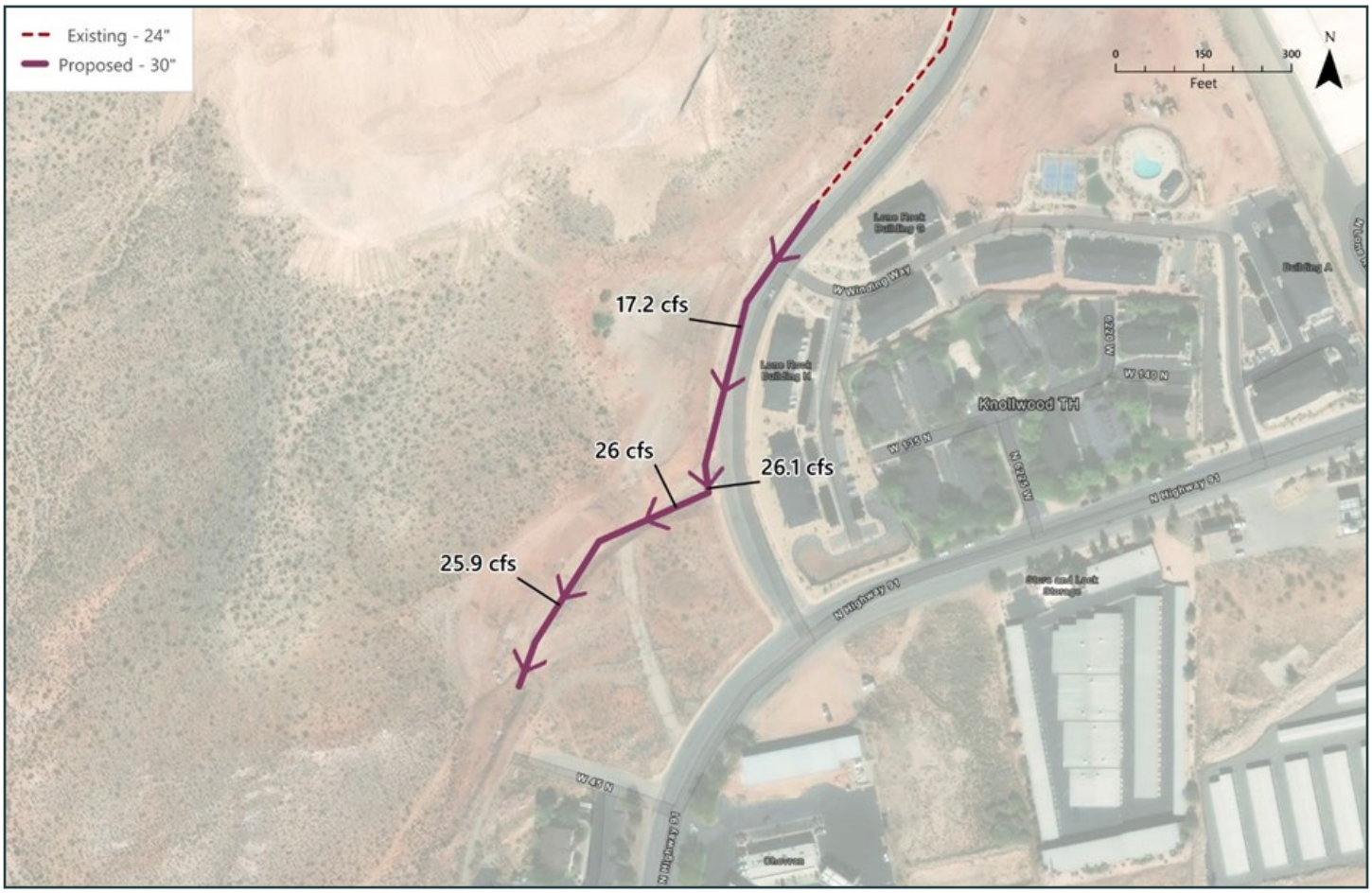

Figure 5—16: Project 16 Details

PROJECT 17

An existing 18” pipe at the intersection of W State St. and N 700 W is purposefully undersized to force stormwater conveyance to the south to Gould Wash. Based on model results with the 10-yr, 3-hr storm, this pipe surcharges to approximately seven feet below the roadway surface. This project aims to replace the undersized pipe with 105 feet of new 48” HDPE pipe. The downstream portion of W State St. consists of 48” pipe that is adequately sized to convey additional flow west to Gould Wash. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—17 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—17: Project 17 Details

PROJECT 18

The purpose of this project is to reduce storm pipe surcharging to 2.5 feet below the roadway surface by adding new storm drain pipe and inlets to N 2170 W. To accomplish this, 780 feet of undersized pipe will be replaced with new 30”- 36” HDPE pipe along N 2170 W to an existing open channel drainage along 600 N. Proposed pipe sizing is based on the 10-yr, 3-hr storm. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—18 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—18: Project 18 Details

PROJECT 19

The purpose of this project is to reduce pressurized pipe flowing to 4.5 feet below the roadway surface caused by the 10-yr, 3-hr storm. Project 19 proposes the replacement of 600 feet of undersized 12” storm drain pipe with new 24” HDPE pipe along S 300 W, from W 100 S to W State St. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—19 for concept level project design, approximate vicinity, flow direction, and maximum conduit flow rate.

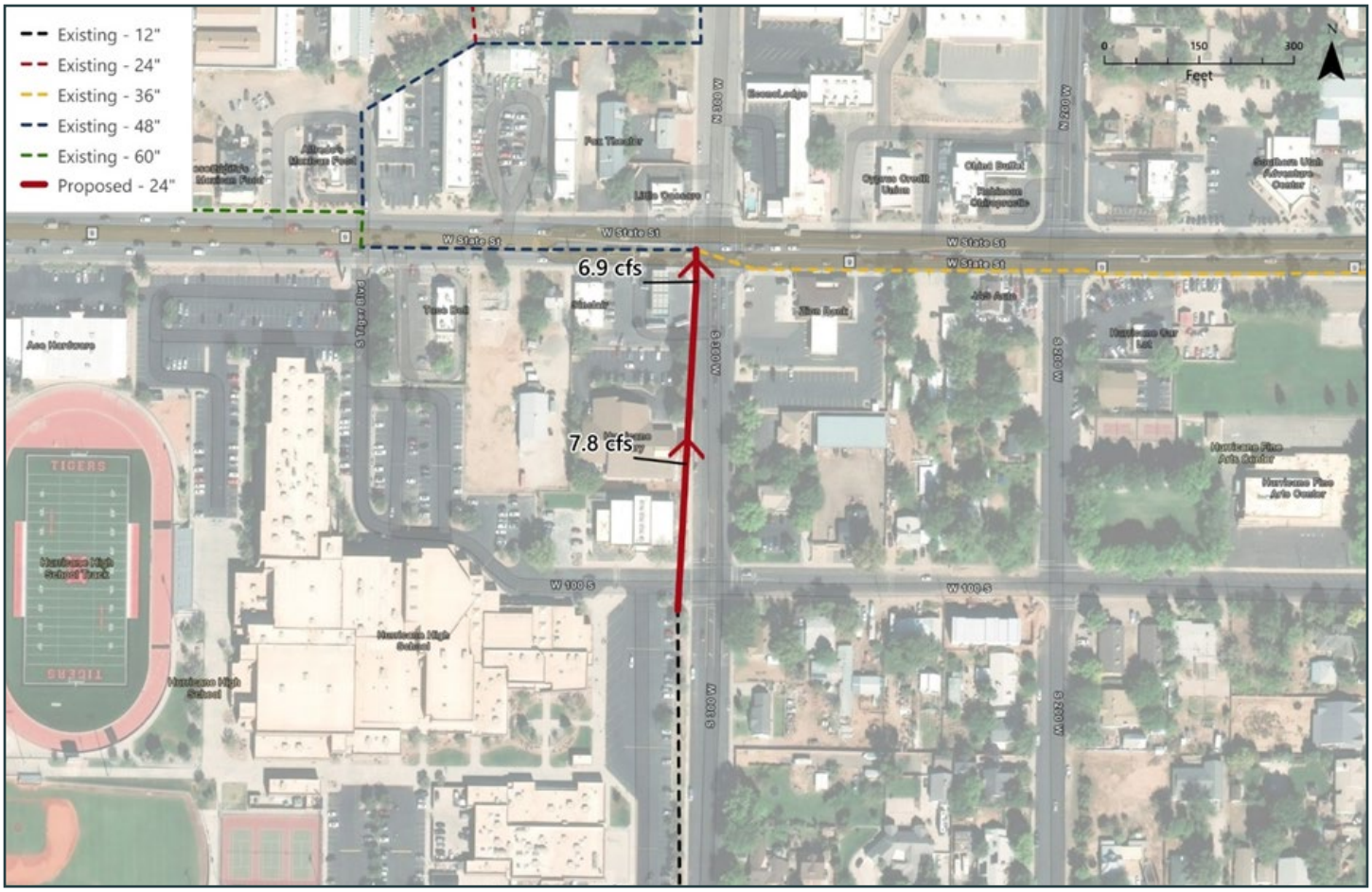

Figure 5—19: Project 19 Details

PROJECT 20

Undersized 18”- 36” pipe along E 300 N, W 200 N, and Main Street causes approximately 27 cfs of flooding during the 10-yr, 3-hr storm event before connecting to the existing storm drain system along W 100 N. This project aims to reduce flooding by replacing approximately 2,250 feet of existing pipe with 36”- 48” HDPE pipe. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—20 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

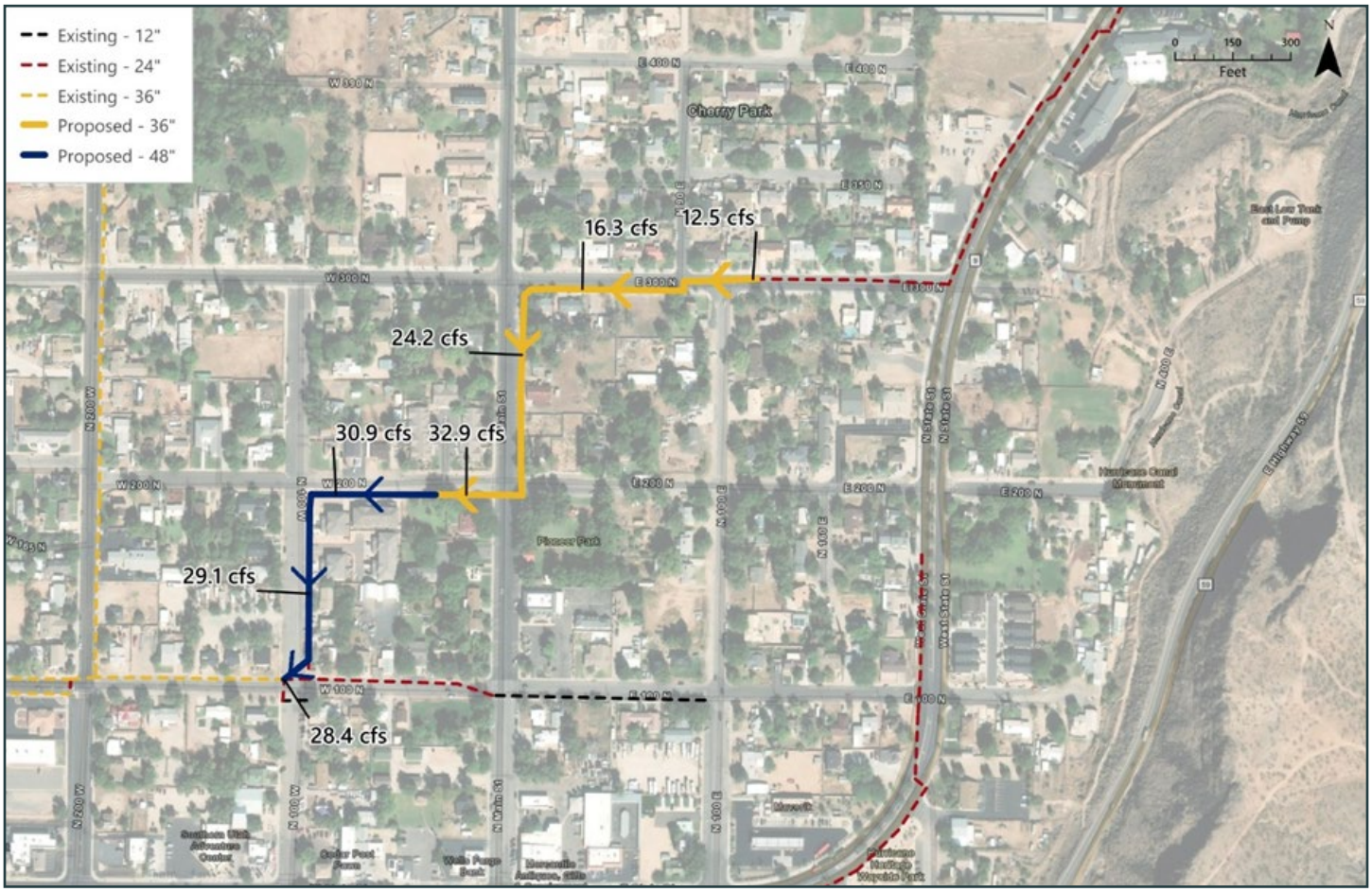

Figure 5—20: Project 20 Details

PROJECT 21

To address approximately 14 cfs of flooding within Onyx Hills and River View Estates, based on the 10-yr, 3-hr storm, a project total of 1,400 feet of existing 16”-18” pipe will be replaced with new 24” HDPE pipe along W 975 N, E 1050 N, and N 170 E to the Virgin River. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—21 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—21: Project 21 Details

PROJECT 22

Existing 18”- 48” pipe along Dixie Springs Dr., 3400 W, and W 2370 S surcharges and causes approximately 90 cfs of flooding near Dixie Springs Dr. during the 10-yr, 3-hr storm due to significant runoff from the east hillside. Project 22 aims to mitigate roadway flooding by replacing approximately 4,700 feet of undersized pipe with new 36”- 60” HDPE pipe to adequately convey stormwater to the Dixie Springs Drainage Basin at the end of W 2370 S. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—22 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—22: Project 22 Details

PROJECT 23

Project 23 aims to reduce pressurized pipe flow and approximately 34 cfs of flooding during the 10-yr, 3-hr storm due to undersized 18”- 24” pipe along N 3700 W and W 280 N. To accomplish this, 1,320 feet of existing pipe will be replaced with new 30” HDPE pipe along N 3700 W and W 280 N to the Virgin River. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—23 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—23: Project 23 Details

PROJECT 24

Overland flow caused by a lack of infrastructure north of the retention ponds located near the intersection of W 3000 S and 2100 W will be mitigated through the installation of approximately 8,230 feet of new 24”- 36” HDPE pipe. Captured stormwater will directly spill into the retention ponds. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—24 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

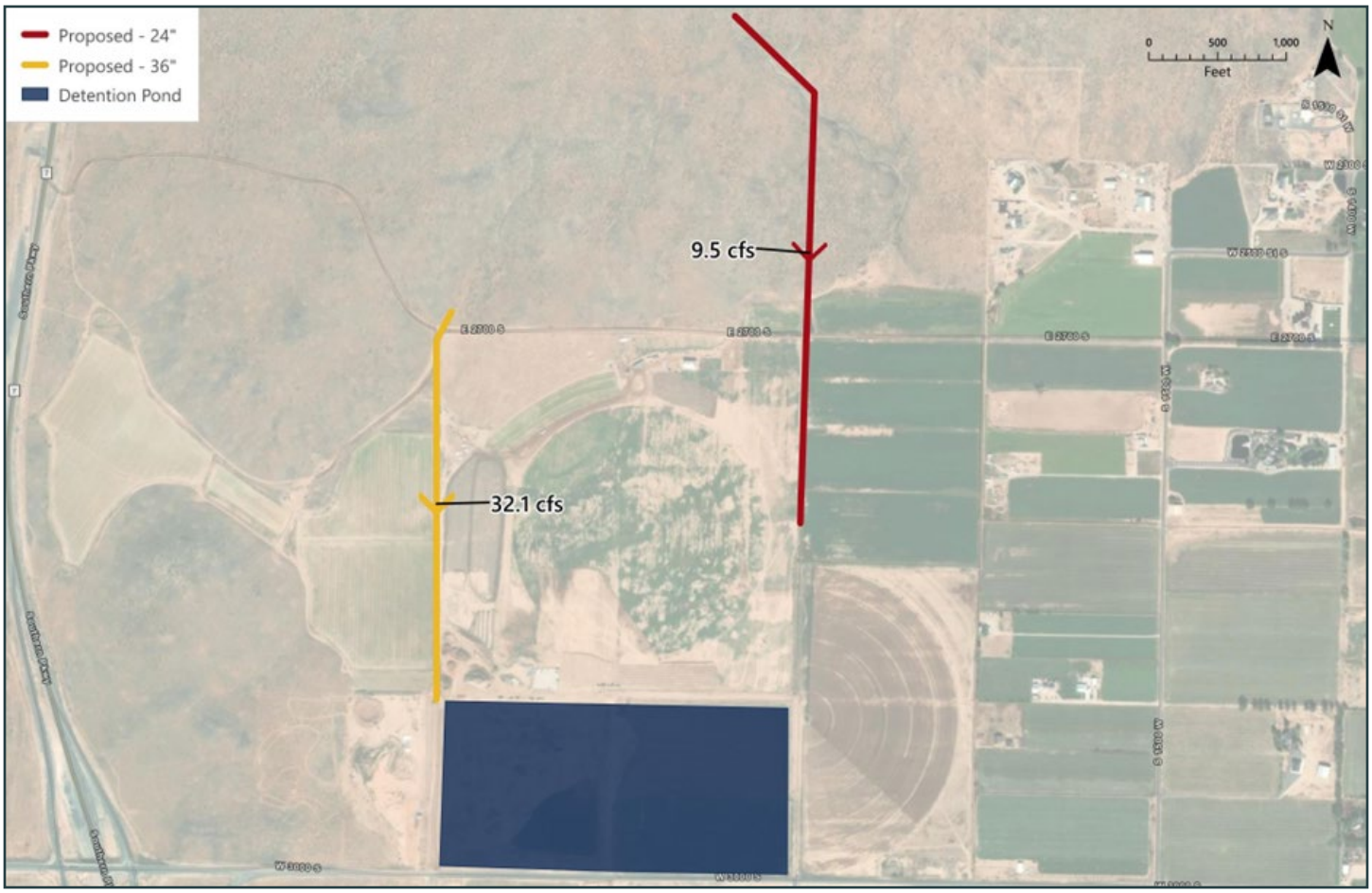

Figure 5—24: Project 24 Details

5.1.3. Future Capital Improvement Stormwater Projects

PROJECT 25

Project 25 aims to capture stormwater runoff from subcatchments between 600 N and W 290 N from Southern Parkway to N 3700 W. The lack of existing stormwater pipes along 600 N leads to stormwater surface flow during the 10-yr, 3-hr storm for a significant distance before spilling to the Virgin River. To capture this stormwater and convey it to the Virgin River, Project 25 proposes installing 20,080 feet of new 24”- 36” HDPE pipe. The proposed pipe will extend along W 600 N from Southern Parkway to N 3700 W, N 3400 W to W 290 N, and N 3700 W where the new pipe will connect to the existing stormwater system and outfall to the Virgin River. The existing stormwater pipe at the north end of N 3700 W is adequately sized to convey the additional flow. Stormwater conveyance west from Southern Parkway and Lava Rd within the proposed 36” HDPE will connect to the proposed 36” HDPE pipe along N 3400 W before traveling north to the Virgin River. The new stormwater pipe will also allow for conveyance of stormwater created by land development in this area. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—25 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—25: Project 25 Details

PROJECT 26

Project 26 aims to capture runoff from subcatchments between S 1100 W and W 3000 S for conveyance to the retention ponds located near the intersection of W 3000 S and 2100 W. To accomplish this, 9,550 feet of new 72” HDPE pipe will convey stormwater north along 2100 W to the retention ponds. Stormwater captured within approximately 20,000 feet of new 24”- 72” HDPE and 4,500 feet of 4’- 5’ swale near the Sky Ranch Airport will travel northwest and join the proposed 72” pipe along 2100 W. The new stormwater pipe will also allow for conveyance of stormwater created by land development in this area. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—26 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

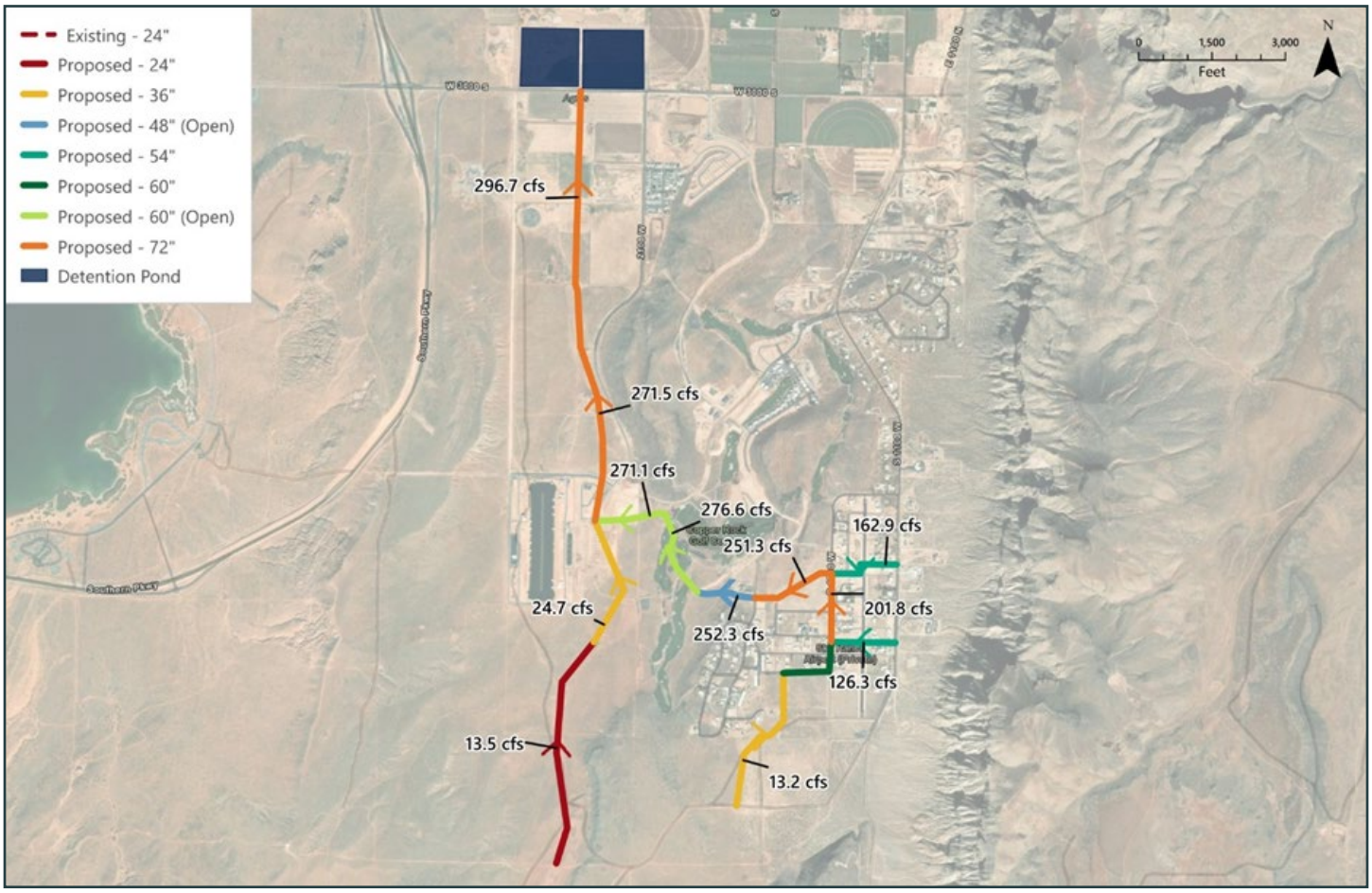

Figure 5—26: Project 26 Details

PROJECT 27

Stormwater runoff from the steep hillside adjacent to S 1100 W created by the 10-yr, 3-hr storm currently causes overland flow due to the lack of existing stormwater infrastructure. Project 27 aims to capture runoff along S 1100 W for conveyance to Project 5's proposed 4' swale for eventual storage within the retention ponds located near the intersection of W 3000 S and 2100 W. To accomplish this, 4,680 feet of new 36"- 42" HDPE pipe will be installed along S 1100 W and 5,300 feet of new 24" HDPE pipe will be installed along an existing drainage to connect to W 3000 S. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—27 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

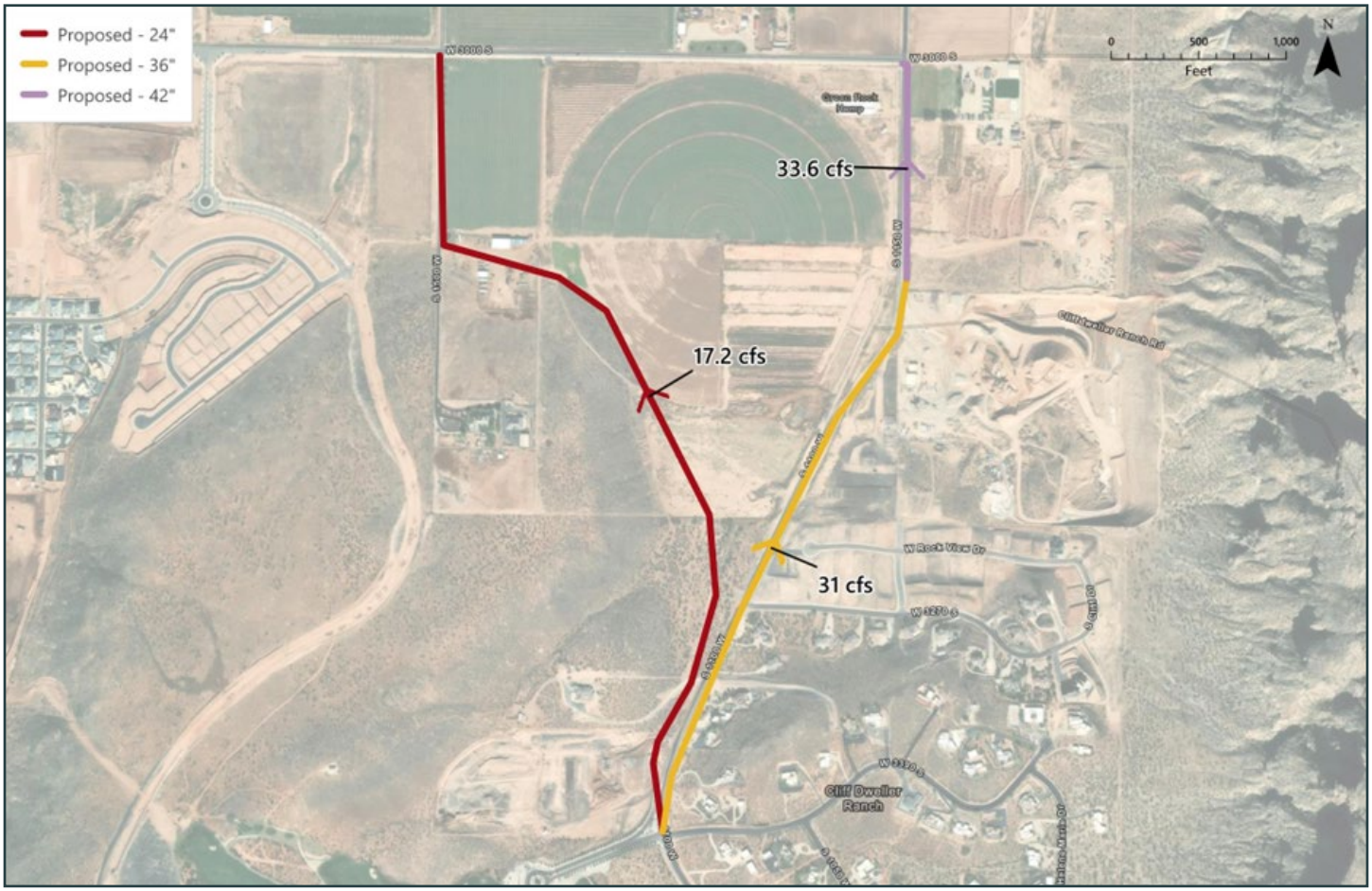

Figure 5—27: Project 27 Details

PROJECT 28

Stormwater runoff from subcatchments between S Sand Hollow Road and Southern Parkway from the 10-yr, 3-hr storm currently causes overland flow due to the lack of existing stormwater infrastructure. Project 28 aims to capture runoff currently conveyed by natural drainages within approximately 33,000 feet of new 24”-60” HDPE pipe for eventual outfall to the Virgin River. The new stormwater pipe will also allow for conveyance of stormwater created by land development in this area. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—28 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

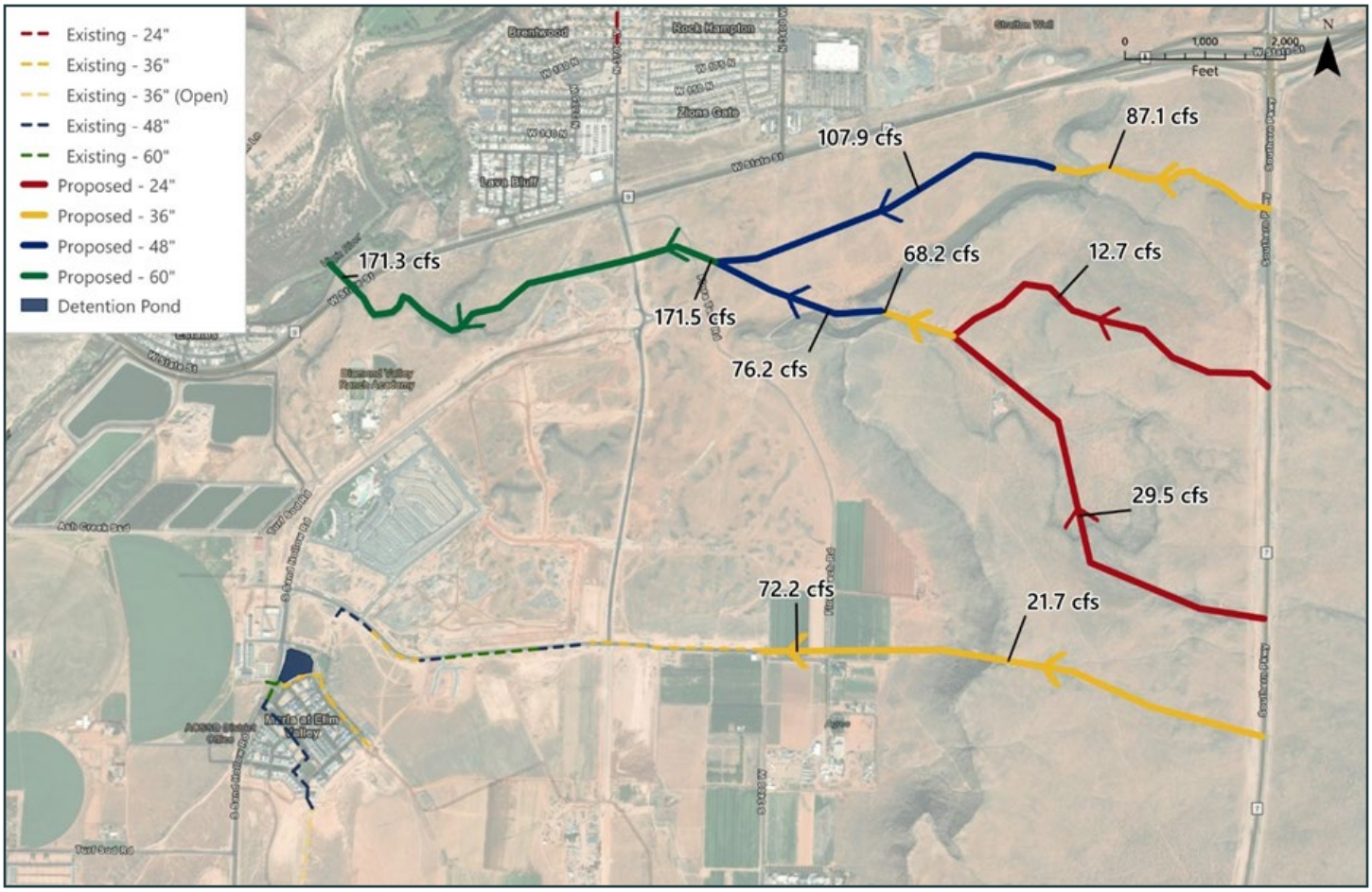

Figure 5—28: Project 28 Details

PROJECT 29

Project 29 proposes the installation of 5,280 feet of new 30” HDPE pipe along W State St. to the Virgin River. Stormwater runoff from subcatchments to the north of W State St. during the 10-yr, 3-hr storm currently causes overland flow due to the lack of existing stormwater infrastructure. Project 29 will reduce this overland flow by capturing this runoff and spilling to the Virgin River. The new stormwater pipe will also allow for conveyance of stormwater created by land development in this area. Project locations and proposed conduit sizing can be found on the CIP Project List map and the Future System map in Appendix A. See Figure 5—29 for concept level project design, vicinity, flow direction, and maximum conduit flow rate.

Figure 5—29: Project 29 Details

5.2. Maintenance

It is vital for the City to perform effective maintenance of the storm drain system to preserve the current level of service it provides to the City. Lack of proper maintenance will lead to the deterioration of the storm drain system components and the accumulation of sediment, debris, and weeds. Failure of the stormwater system would not only influence the health and safety of the residents, but would also undermine the aesthetic value created from a properly maintained system.

It is recommended that the storm drain system continue to be well maintained by having the City's public works staff perform required maintenance activities and prioritize major improvements. The construction of additional facilities in the future increases the maintenance burden. Existing and future operating costs need to be addressed as part of an overall financial analysis of the storm drain system. It is imperative that sufficient maintenance manpower and equipment are made available to ensure proper function and a high level of service to the community.

5.3. Funding Source Options

Funding for the identified improvement projects, as well as the continual maintenance of the storm drain system, can come from a variety of sources. These funding options could include user fees, grants, loans, bonds, impact fees, and dedications. The City will likely use a combination of multiple funding options. The following list provides a brief description of each funding option.

1. User Fees: Regular assessment of monthly fees to existing residents is currently the primary source of funding used by the City. These fees generally pay for the regular operation and maintenance expenses.

2. Grants and Loans: Grants and low interest loans can be used to fund storm drain improvement projects. Projects would need to be evaluated individually to determine the loans or grants for which they qualify. It is recommended that the City discuss the specific projects with a funding team to identify all potential funding options.

3. Bonds: The City may issue a bond to pay for larger improvement projects that require a significant one-time payment.

4. Impact Fees: Impact fees are a common method of funding new system improvements as they impose the cost of providing capacity for new growth upon future development. An Impact Fee Facilities Plan (IFFP) and an Impact Fee Analysis (IFA) are being completed in conjunction with this Storm Drain Master Plan.

5. Dedications of System Improvements: Any item that a developer funds must be included in an IFFP if a credit against impact fees is to be issued and must be agreed upon with the City before construction of the improvements. This type of arrangement is typically accomplished with a development agreement between the City and the developer, with the private funds being spent for initial improvements and the public funds being used to reimburse developers in accordance with planned expenditures.

6. CONCLUSION

In conclusion, it is recommended that Hurricane City complete the following actions to improve and maintain their stormwater system:

1. Implement the recommended projects outlined in this Storm Drain Master Plan. Each project was identified in coordination with Hurricane City staff to verify the project's validity. It is anticipated that with the completion of the recommended projects, there will be no remaining deficiencies identified by the storm drain model.
2. Implement the recommended impact fees established through the IFFP and IFA.
3. Regularly evaluate and replace depreciating portions of the storm drain system to keep the infrastructure current. This may include, but is not limited to, deteriorating concrete infrastructure, rusted metal infrastructure, and infrastructure that has exceeded its expected useful life.
4. Continue with current maintenance efforts on storm drain system infrastructure. Consistently checking and maintaining storm drain system infrastructure is essential to the success of the storm drain system as whole.
5. Regularly update the Storm Drain Master Plan to assist in identifying necessary efforts to adequately operate, maintain, and manage the storm drain system.

7. REFERENCES

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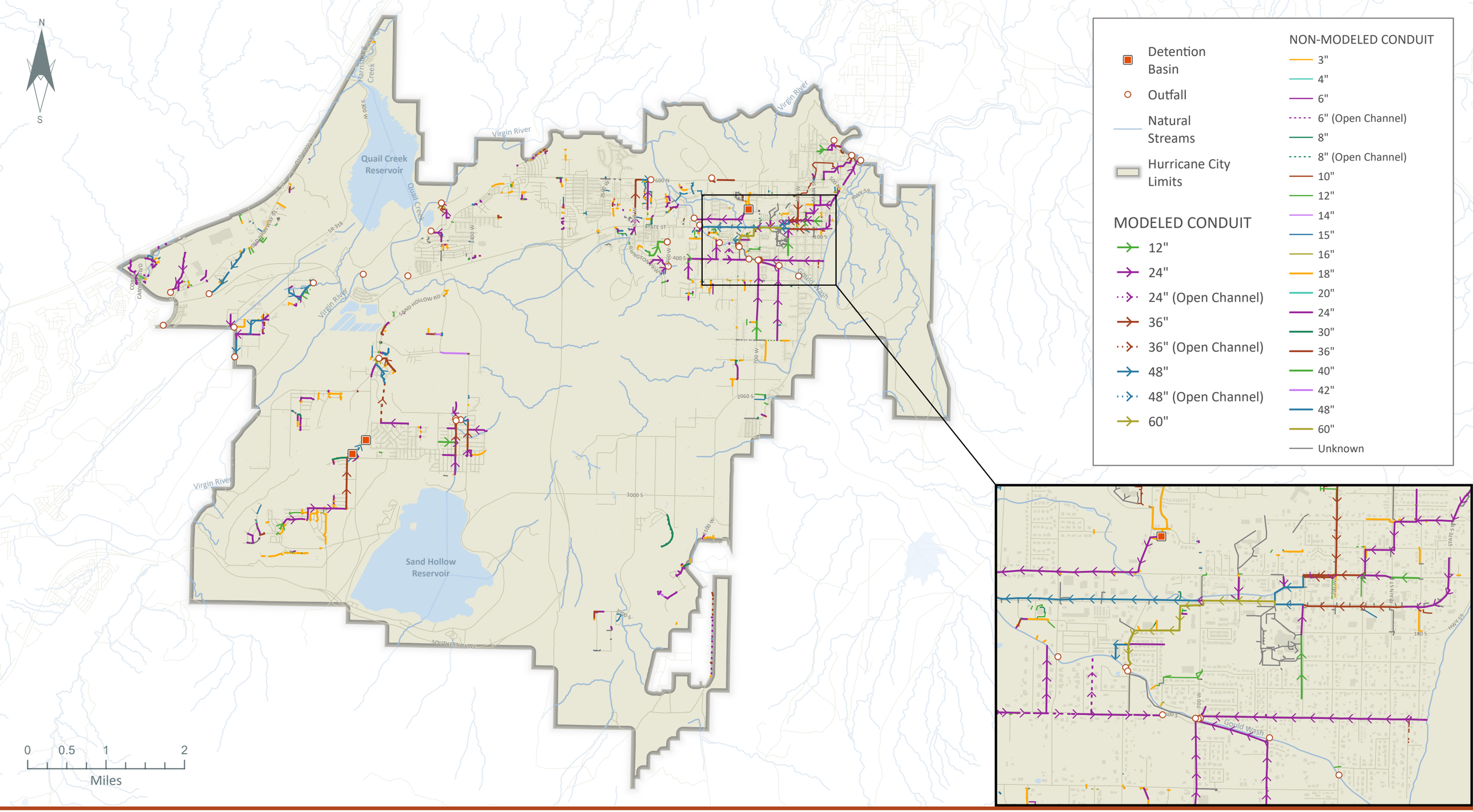
HURRICANE CITY
UTAH

APPENDIX A

FIGURES

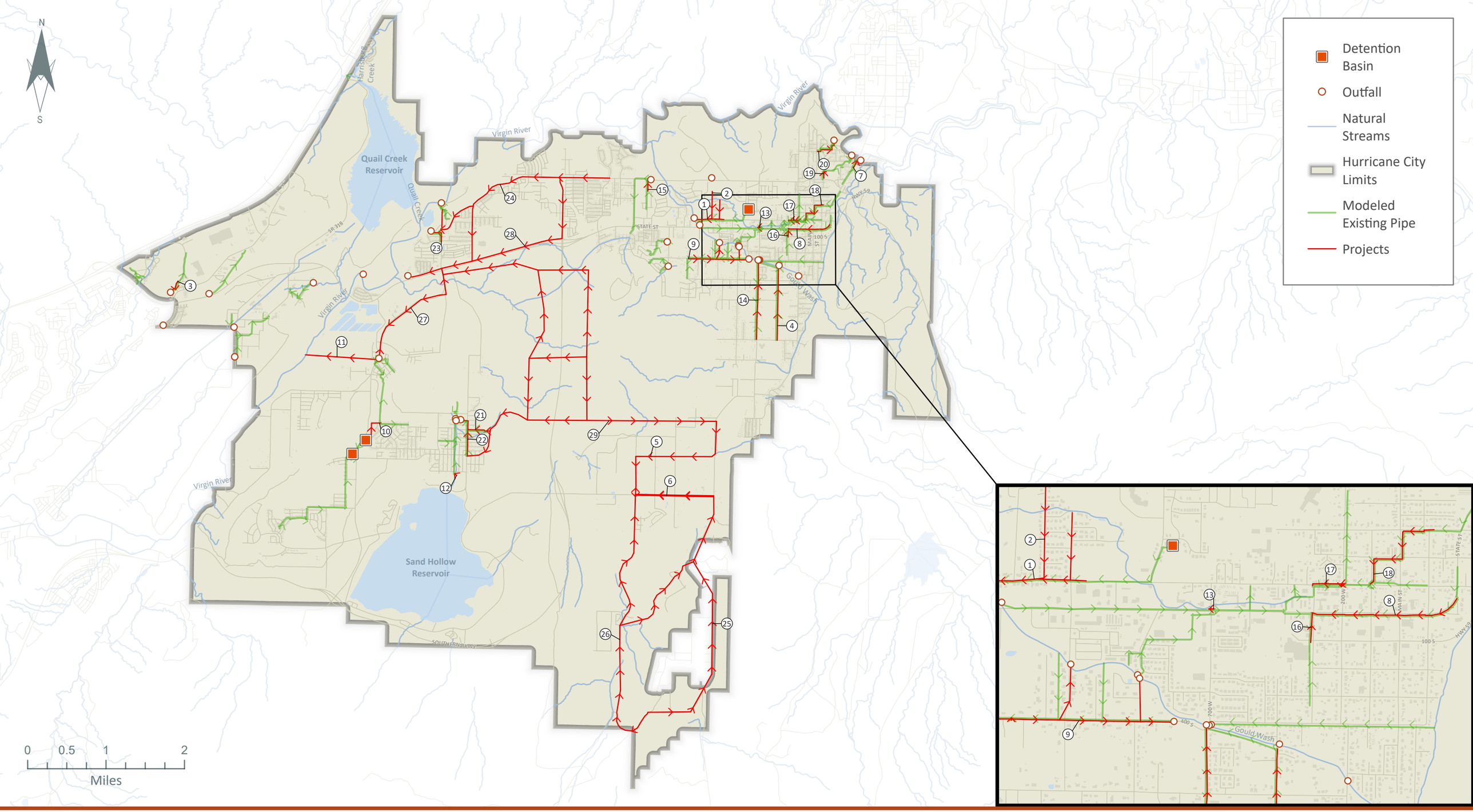


EXISTING SYSTEM

HURRICANE CITY UTAH

GATEWAY MAPPING INC.

JUB



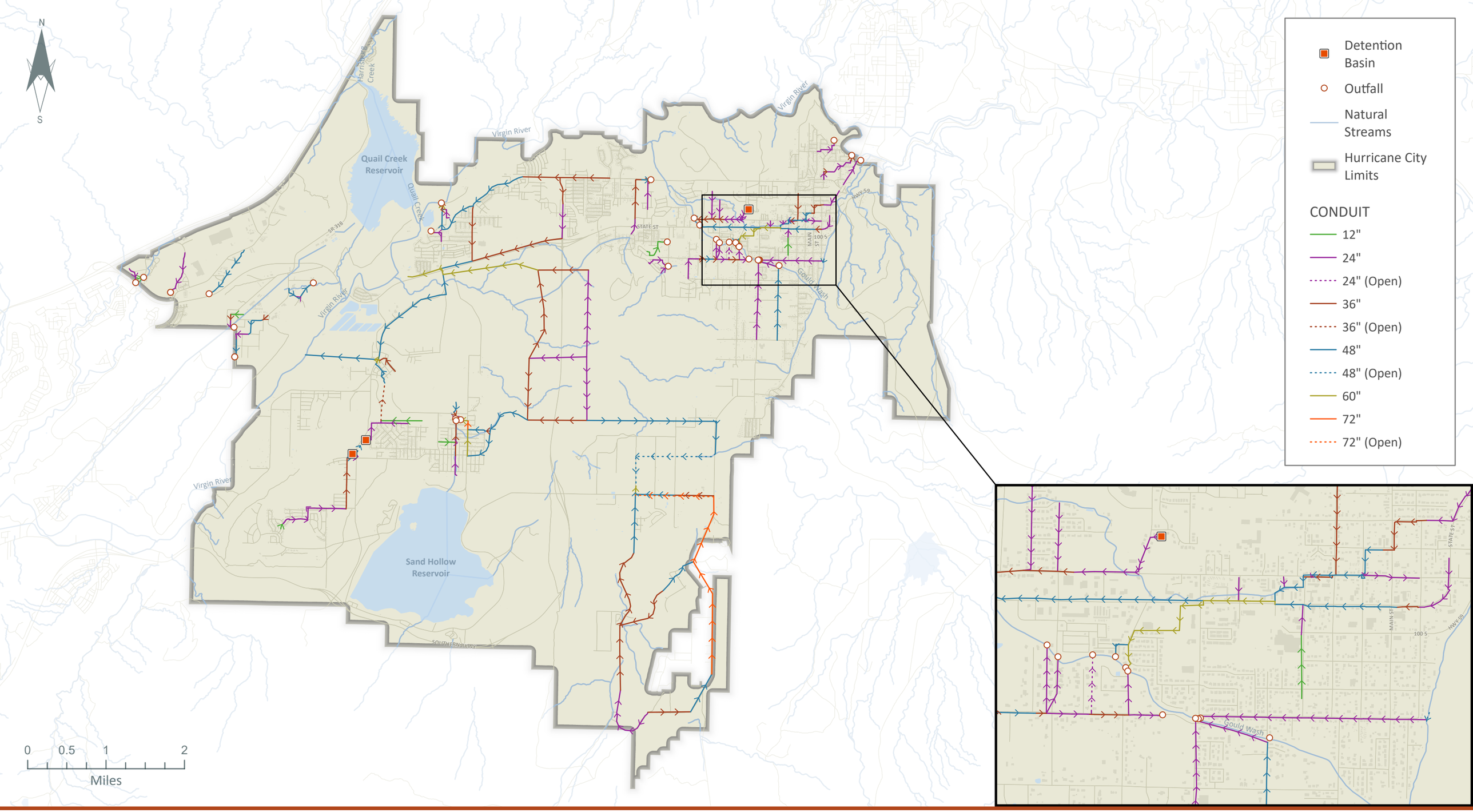
CIP PROJECT LIST

Hurricane Storm Drain Master Plan | September 2025

HURRICANE CITY UTAH

GATEWAY MAPPING INC.

JUB



FUTURE SYSTEM

Hurricane Storm Drain Master Plan | September 2025

HURRICANE CITY UTAH

GATEWAY MAPPING INC.

JUB

N

S

Detention Basin

Outfall

Natural Streams

Hurricane City Limits

FLOW CAPACITY

(Event Peak Flow / Conduit Flow Capacity)

0-50%

50-75%

>75%

Quail Creek Reservoir

Sand Hollow Reservoir

Virgin River

Quail Creek

Harrisburg Creek

SR-318

STATE ST

MAIN ST

100 S

HWY-59

SOUTHERN PKWY

0 0.5 1 2

Miles

10-YEAR EVENT PEAK FLOW CAPACITY

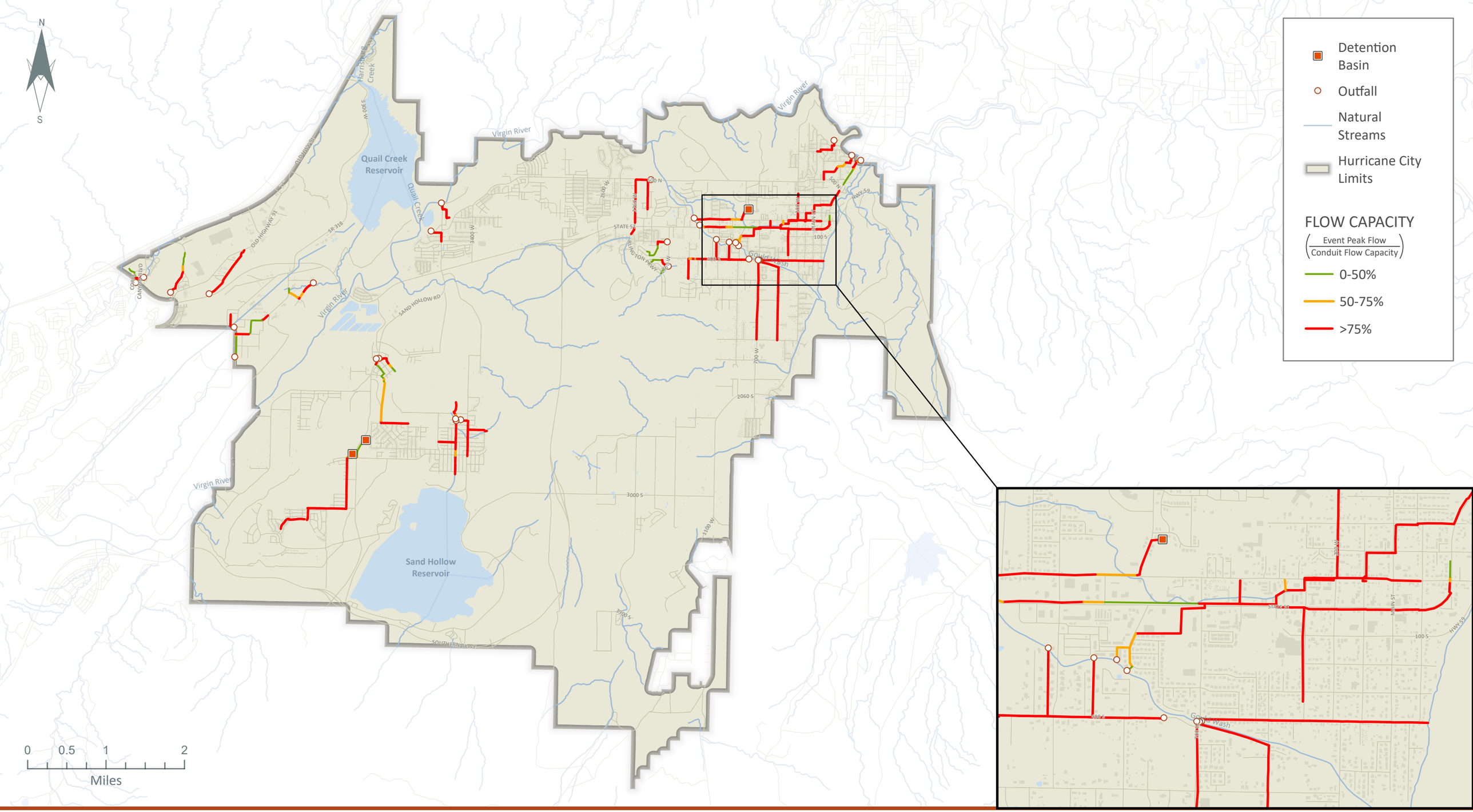
Modeled System Results

Hurricane Storm Drain Master Plan | September 2025

HURRICANE CITY UTAH

GATEWAY MAPPING INC.

JUB



100-YR EVENT PEAK FLOW CAPACITY

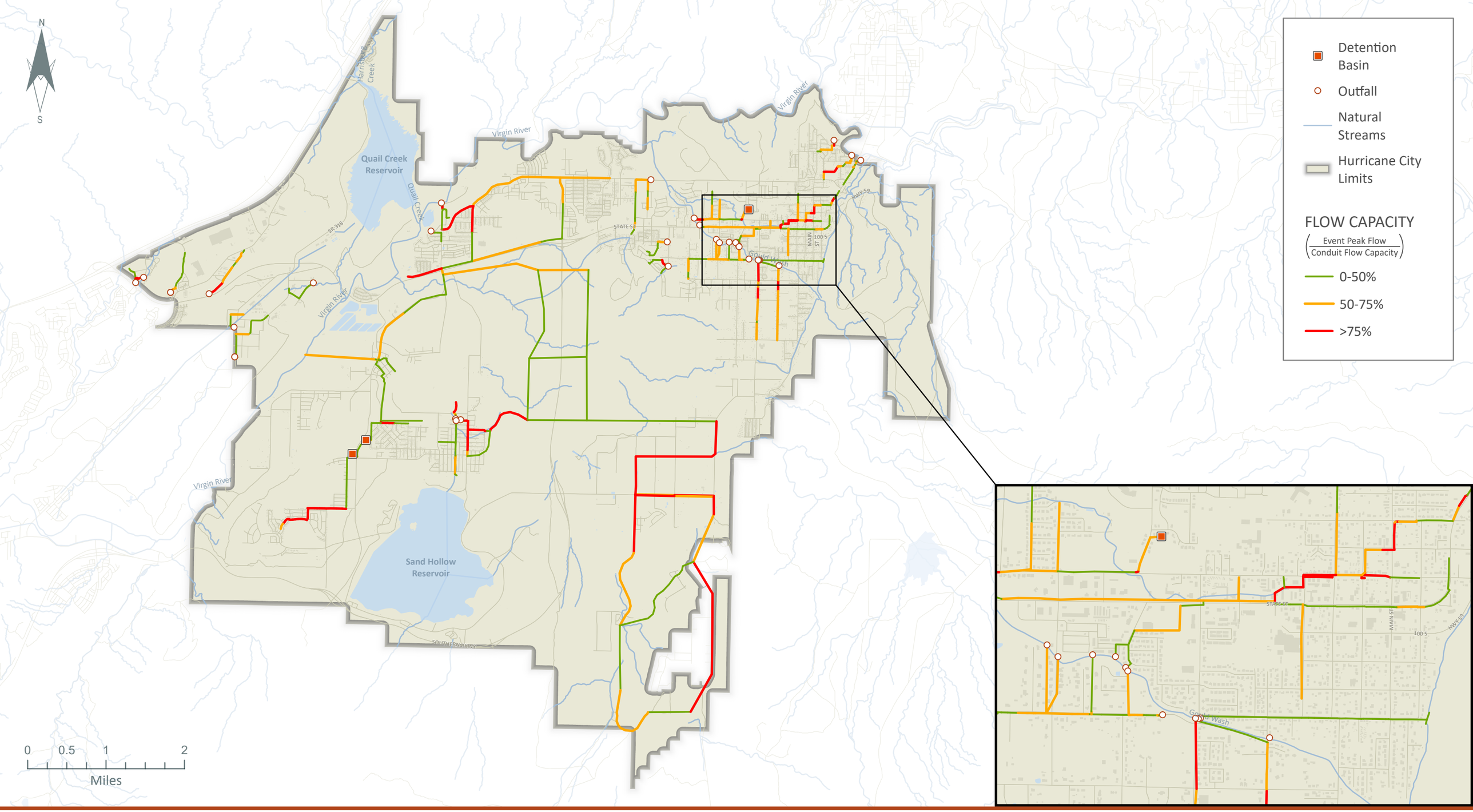
Modeled System Results

Hurricane Storm Drain Master Plan | September 2025

HURRICANE CITY UTAH

GATEWAY MAPPING INC.

JUB



FUTURE SYSTEM 10-YR EVENT PEAK FLOW CAPACITY

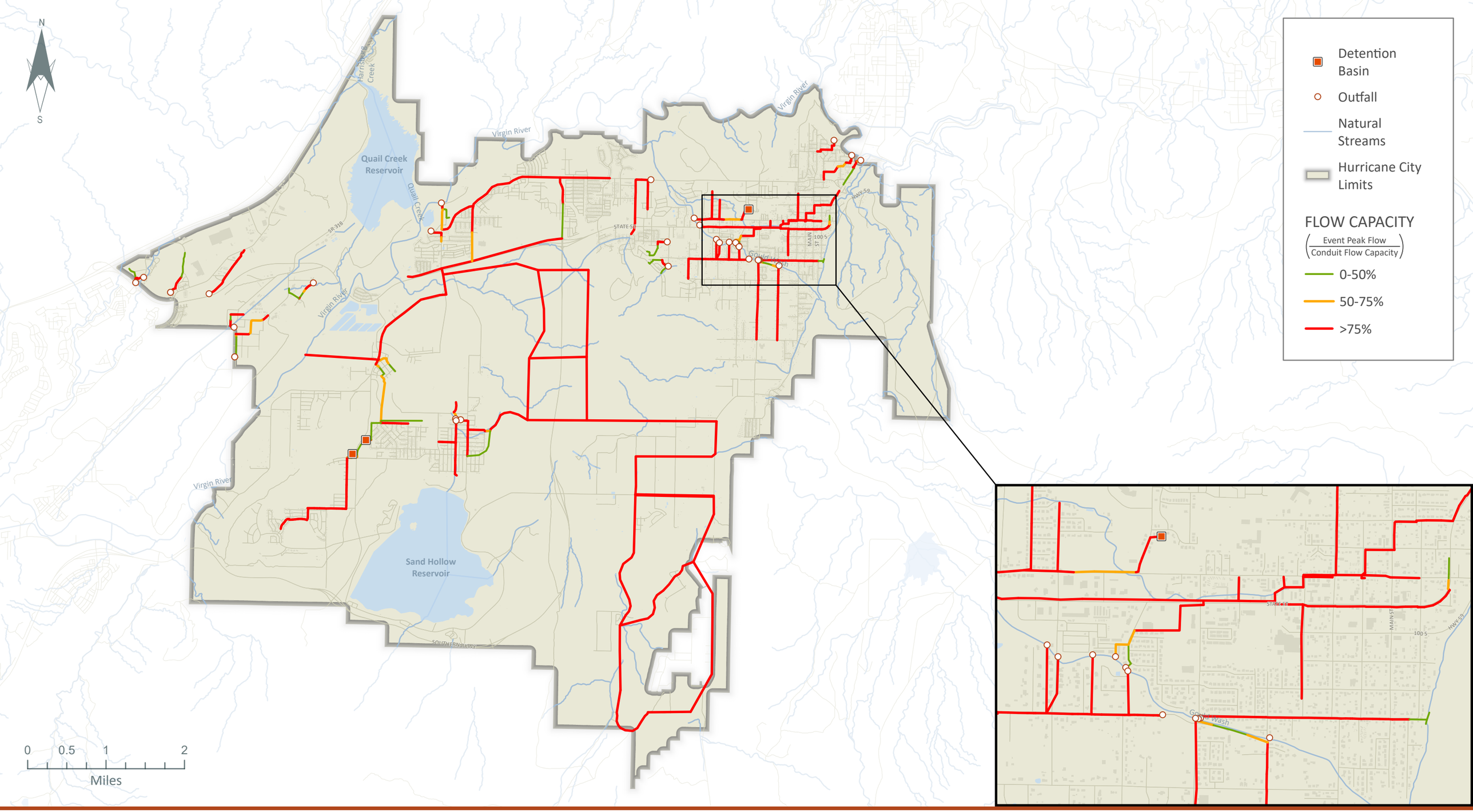
Modeled System Results

Hurricane Storm Drain Master Plan | September 2025

HURRICANE CITY UTAH

GATEWAY MAPPING INC.

JUB



FUTURE SYSTEM 100-YR EVENT PEAK FLOW CAPACITY

Modeled System Results

Hurricane Storm Drain Master Plan | September 2025

HURRICANE CITY UTAH

GATEWAY MAPPING INC.

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HURRICANE CITY
UTAH

APPENDIX B

COST ESTIMATES

HURRICANE CITY STORM DRAIN MASTER PLAN **J-U-B Project No. 53-24-001**

CAPITAL IMPROVEMENT PLAN PROJECTS **12/12/2025**

Project Number	Project Location	Project Description	Estimated Total Cost (Rounded)
1	W 100 N	Storm Drain Piping	$1,029,000
2	N 1150 W	Storm Drain Piping	$1,019,000
3	S 400 W	Storm Drain Piping	$3,485,000
4	W 3000 S	Storm Drain Piping/Drainage Swale	$3,478,000
5	W 3000 S	Drainage Swale	$807,000
6	W 400 S	Storm Drain Piping	$2,443,000
7	S 4390 W	Storm Drain Piping	$688,000
8	S Sand Hollow Rd	Storm Drain Piping	$4,173,000
9	S 3400 W	Detention Basin/Drainage Swale	$376,000
10	W 1300 S	Storm Drain Piping	$272,000
11	S 1760 W	Storm Drain Piping	$347,000
12	S 300 W	Storm Drain Piping	$1,970,000
13	S 700 W	Storm Drain Piping	$6,816,000
14	S 920 W	Storm Drain Piping	$3,056,000
15	S 1000 W	Storm Drain Piping	$2,919,000
16	Foothills Canyon Dr.	Storm Drain Piping	$465,000
17	W State St.	Storm Drain Piping	$102,000
18	N 2170 W	Storm Drain Piping	$365,000
19	S 300 W	Storm Drain Piping	$199,000
20	E 300 N	Storm Drain Piping	$1,312,000
21	E 1050 N	Storm Drain Piping	$445,000
22	S 3400 W	Storm Drain Piping	$3,263,000
23	N 3700 W	Storm Drain Piping	$567,000
24	E 2700 S	Storm Drain Piping	$3,460,000
25	600 N	Storm Drain Piping	$9,569,000
26	2100 W	Storm Drain Piping	$26,726,000
27	1100 W	Storm Drain Piping	$3,921,000
28	Southern Parkway	Storm Drain Piping	$19,083,000
29	State St	Storm Drain Piping	$2,183,000

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
1: W 100 N

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$38,000	$38,000
2	Traffic Control	1	LS	$8,000	$8,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	1,913	CY	$30	$57,394
5	Furnish and Install Concrete Manhole	6	EA	$12,900	$77,400
6	Furnish and Install Inlet Boxes	7	EA	$7,500	$52,500
7	Furnish and Install 36 inch HDPE	1,800	LF	$203	$365,393
8	Furnish and Install 42 inch HDPE	220	LF	$269	$59,162
9	Imported Pipe Foundation Material	357	TON	$40	$14,294
10	Imported Bedding Material	1,372	TON	$40	$54,888
11	Granular Borrow	638	TON	$40	$25,525
12	Asphalt T-Patch Coverage (6")	1,134	SY	$30	$34,020
				Construction Subtotal	$791,600
				30% Contingency	$237,480
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$1,029,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
12/12/2025

Engineer's Opinion of Probable Construction Cost
2: N 1150 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$37,000	$37,000
2	Traffic Control	1	LS	$8,000	$8,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	1,956	CY	$30	$58,667
5	Furnish and Install Concrete Manhole	9	EA	$12,900	$116,100
6	Furnish and Install Inlet Boxes	11	EA	$7,500	$82,500
7	Furnish and Install 24 inch HDPE	3,300	LF	$95	$313,104
8	Imported Pipe Foundation Material	462	TON	$40	$18,480
9	Imported Bedding Material	1,698	TON	$40	$67,921
10	Granular Borrow	825	TON	$40	$33,000
11	Asphalt T-Patch Coverage (6")	1,467	SY	$30	$44,010
				Construction Subtotal	$783,800
				30% Contingency	$235,140
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$1,019,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
3: S 400 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$127,000	$127,000
2	Traffic Control	1	LS	$26,000	$26,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	6,578	CY	$30	$197,325
5	Furnish and Install Concrete Manhole	18	EA	$12,900	$232,200
6	Furnish and Install Inlet Boxes	23	EA	$7,500	$172,500
7	Furnish and Install 24 inch HDPE	1,671	LF	$95	$158,544
8	Furnish and Install 42 inch HDPE	4,987	LF	$269	$1,341,084
9	Imported Pipe Foundation Material	960	TON	$40	$38,400
10	Imported Bedding Material	4,595	TON	$40	$183,789
11	Granular Borrow	2,132	TON	$40	$85,281
12	Asphalt T-Patch Coverage (6")	3,791	SY	$30	$113,730
				Construction Subtotal	$2,680,900
				30% Contingency	$804,270
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$3,485,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
4: W 3000 S

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$127,000	$127,000
2	Traffic Control	1	LS	$26,000	$26,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	4,940	CY	$30	$148,194
5	Furnish and Install Concrete Manhole	14	EA	$12,900	$180,600
6	Furnish and Install Inlet Boxes	18	EA	$7,500	$135,000
7	4' Swale Excavation	21,144	CY	$30	$634,333
8	Furnish and Install 36 inch HDPE	5,335	LF	$203	$1,082,984
9	Imported Pipe Foundation Material	934	TON	$40	$37,345
10	Imported Bedding Material	3,579	TON	$40	$143,149
11	Granular Borrow	1,667	TON	$40	$66,688
12	Asphalt T-Patch Coverage (6")	2,964	SY	$30	$88,920
				Construction Subtotal	$2,675,300
				30% Contingency	$802,590
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$3,478,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
5: W 3000 S

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$29,000	$29,000
2	Traffic Control	1	LS	$6,000	$6,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000
4	4' Swale Excavation	18,844	CY	$30	$565,333
5	Ditch Inlet	1	LS	$15,000	$15,000
				Construction Subtotal	$620,400
				30% Contingency	$186,120
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$807,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.
2 - Costs for Hurricane City permitting are not included.
3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
6: W 400 S

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$89,000	$89,000
2	Traffic Control	1	LS	$18,000	$18,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	4,681	CY	$30	$140,429
5	Furnish and Install Concrete Manhole	19	EA	$12,900	$245,100
6	Furnish and Install Inlet Boxes	25	EA	$7,500	$187,500
7	Furnish and Install 24 inch HDPE	5,821	LF	$95	$552,296
8	Furnish and Install 36 inch HDPE	1,330	LF	$203	$269,985
9	Imported Pipe Foundation Material	1,048	TON	$40	$41,908
10	Imported Bedding Material	3,887	TON	$40	$155,495
11	Granular Borrow	1,871	TON	$40	$74,835
12	Asphalt T-Patch Coverage (6")	3,326	SY	$30	$99,780
				Construction Subtotal	$1,879,400
				30% Contingency	$563,820
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$2,443,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
7: S 4390 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$25,000	$25,000
2	Traffic Control	1	LS	$5,000	$5,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	1,304	CY	$30	$39,111
5	Furnish and Install Concrete Manhole	6	EA	$12,900	$77,400
6	Furnish and Install Inlet Boxes	8	EA	$7,500	$60,000
7	Furnish and Install 24 inch HDPE	2,200	LF	$95	$208,736
8	Imported Pipe Foundation Material	308	TON	$40	$12,320
9	Imported Bedding Material	1,132	TON	$40	$45,281
10	Granular Borrow	550	TON	$40	$22,000
11	Asphalt T-Patch Coverage (6")	978	SY	$30	$29,340
				Construction Subtotal	$529,200
				30% Contingency	$158,760
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$688,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
8: S Sand Hollow Rd

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$152,000	$152,000
2	Traffic Control	1	LS	$31,000	$31,000
3	Prepare and Implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	8,639	CY	$30	$259,156
5	Furnish and Install Concrete Manhole	12	EA	$12,900	$154,800
6	Furnish and Install Inlet Boxes	16	EA	$7,500	$120,000
7	Furnish and Install 54 inch HDPE	4,760	LF	$433	$2,059,747
8	Imported Pipe Foundation Material	1,166	TON	$40	$46,648
9	Imported Bedding Material	4,681	TON	$40	$187,221
10	Granular Borrow	2,083	TON	$40	$83,300
11	Asphalt T-Patch Coverage (6")	3,702	SY	$30	$111,060
				Construction Subtotal	$3,210,000
				30% Contingency	$963,000
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$4,173,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
9: S 3400 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$14,000	$14,000
2	Traffic Control	1	LS	$3,000	$3,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Furnish and Install Concrete Manhole	1	EA	$12,900	$12,900
5	Furnish and Install Inlet Boxes	1	EA	$7,500	$7,500
6	Excavate 2' Swale	620	CY	$30	$18,600
7	Furnish and Install 24 inch HDPE	80	LF	$95	$7,590
8	Detention Basin Excavation	7,260	CY	$30	$217,800
9	Imported Pipe Foundation Material	11	TON	$40	$448
10	Imported Bedding Material	41	TON	$40	$1,647
11	Granular Borrow	20	TON	$40	$800
				Construction Subtotal	$289,300
				30% Contingency	$86,790
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$376,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.
2 - Costs for Hurricane City permitting are not included.
3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
12/12/2025

Engineer's Opinion of Probable Construction Cost
10: W 1300 S

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$10,000	$10,000
2	Traffic Control	1	LS	$2,000	$2,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	478	CY	$30	$14,329
5	Furnish and Install Concrete Manhole	3	EA	$12,900	$38,700
6	Furnish and Install Inlet Boxes	3	EA	$7,500	$22,500
7	Furnish and Install 24 inch HDPE	806	LF	$95	$76,473
8	Imported Pipe Foundation Material	113	TON	$40	$4,514
9	Imported Bedding Material	415	TON	$40	$16,589
10	Granular Borrow	202	TON	$40	$8,060
11	Asphalt T-Patch Coverage (6")	358	SY	$30	$10,740
				Construction Subtotal	$209,000
				30% Contingency	$62,700
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$272,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City

Project: Storm Drain Master Plan Update

Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
11: S 1760 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$13,000	$13,000
2	Traffic Control	1	LS	$3,000	$3,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000
4	Roadway Excavation	612	CY	$30	$18,364
5	Furnish and Install Concrete Manhole	3	EA	$12,900	$38,700
6	Furnish and Install Inlet Boxes	4	EA	$7,500	$30,000
7	Furnish and Install 24 inch HDPE	1,033	LF	$95	$98,011
8	Detention Pond Outlet Structure	1	LS	$10,000	$10,000
9	Imported Pipe Foundation Material	145	TON	$40	$5,785
10	Imported Bedding Material	532	TON	$40	$21,261
11	Granular Borrow	258	TON	$40	$10,330
12	Asphalt T-Patch Coverage (6")	459	SY	$30	$13,770
				Construction Subtotal	$267,300
				30% Contingency	$80,190
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$347,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City

Project: Storm Drain Master Plan Update

Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
12: S 300 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$72,000	$72,000
2	Traffic Control	1	LS	$15,000	$15,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	3,732	CY	$30	$111,967
5	Furnish and Install Concrete Manhole	14	EA	$12,900	$180,600
6	Furnish and Install Inlet Boxes	18	EA	$7,500	$135,000
7	Furnish and Install 24 inch HDPE	2,970	LF	$95	$281,794
8	Furnish and Install 36 inch HDPE	2,130	LF	$203	$432,381
9	Imported Pipe Foundation Material	789	TON	$40	$31,542
10	Imported Bedding Material	2,957	TON	$40	$118,281
11	Granular Borrow	1,408	TON	$40	$56,325
12	Asphalt T-Patch Coverage (6")	2,503	SY	$30	$75,090
				Construction Subtotal	$1,515,000
				30% Contingency	$454,500
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$1,970,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
13: S 700 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$248,000	$248,000
2	Traffic Control	1	LS	$50,000	$50,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	12,935	CY	$30	$388,044
5	Furnish and Install Concrete Manhole	23	EA	$12,900	$296,700
6	Furnish and Install Inlet Boxes	30	EA	$7,500	$225,000
7	Furnish and Install 36 inch HDPE	1,600	LF	$203	$324,794
8	Furnish and Install 48 inch HDPE	1,387	LF	$342	$474,104
9	Furnish and Install 54 inch HDPE	3,635	LF	$433	$1,572,937
10	Furnish and Install 60 inch HDPE	1,657	LF	$589	$975,489
11	Imported Pipe Foundation Material	1,868	TON	$40	$74,712
12	Imported Bedding Material	7,424	TON	$40	$296,962
13	Granular Borrow	3,335	TON	$40	$133,415
14	Asphalt T-Patch Coverage (6")	5,930	SY	$30	$177,900
				Construction Subtotal	$5,243,100
				30% Contingency	$1,572,930
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$6,816,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.
2 - Costs for Hurricane City permitting are not included.
3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City

Project: Storm Drain Master Plan Update

Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
14: S 920 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$111,000	$111,000
2	Traffic Control	1	LS	$23,000	$23,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	5,764	CY	$30	$172,934
5	Furnish and Install Concrete Manhole	18	EA	$12,900	$232,200
6	Furnish and Install Inlet Boxes	24	EA	$7,500	$180,000
7	Furnish and Install 30 inch HDPE	2,702	LF	$148	$400,869
8	Furnish and Install 36 inch HDPE	4,037	LF	$203	$819,495
9	Imported Pipe Foundation Material	1,132	TON	$40	$45,282
10	Imported Bedding Material	4,309	TON	$40	$172,378
11	Granular Borrow	2,022	TON	$40	$80,860
12	Asphalt T-Patch Coverage (6")	3,594	SY	$30	$107,820
				Construction Subtotal	$2,350,900
				30% Contingency	$705,270
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$3,056,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.
20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
15: S 1000 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$106,000	$106,000
2	Traffic Control	1	LS	$22,000	$22,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	4,447	CY	$30	$133,398
5	Furnish and Install Concrete Manhole	18	EA	$12,900	$232,200
6	Furnish and Install Inlet Boxes	23	EA	$7,500	$172,500
7	Furnish and Install 24 inch HDPE	1,354	LF	$95	$128,468
8	Furnish and Install 36 inch HDPE	5,388	LF	$203	$1,093,742
9	Imported Pipe Foundation Material	991	TON	$40	$39,651
10	Imported Bedding Material	3,681	TON	$40	$147,227
11	Granular Borrow	1,770	TON	$40	$70,805
12	Asphalt T-Patch Coverage (6")	3,147	SY	$30	$94,410
				Construction Subtotal	$2,245,500
				30% Contingency	$673,650
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$2,919,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.
2 - Costs for Hurricane City permitting are not included.
3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
16: Foothills Canyon Dr.

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$17,000	$17,000
2	Traffic Control	1	LS	$4,000	$4,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	1,019	CY	$30	$30,556
5	Furnish and Install Concrete Manhole	3	EA	$12,900	$38,700
6	Furnish and Install Inlet Boxes	4	EA	$7,500	$30,000
7	Furnish and Install 30 inch HDPE	1,100	LF	$148	$163,196
8	Imported Pipe Foundation Material	193	TON	$40	$7,700
9	Imported Bedding Material	738	TON	$40	$29,515
10	Granular Borrow	344	TON	$40	$13,750
11	Asphalt T-Patch Coverage (6")	611	SY	$30	$18,330
				Construction Subtotal	$357,800
				30% Contingency	$107,340
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$465,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.
2 - Costs for Hurricane City permitting are not included.
3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
17: W State St.

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$4,000	$4,000
2	Traffic Control	1	LS	$1,000	$1,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000
4	Roadway Excavation	140	CY	$30	$4,200
5	Furnish and Install Concrete Manhole	1	EA	$12,900	$12,900
6	Furnish and Install Inlet Boxes	1	EA	$7,500	$7,500
7	Furnish and Install 48 inch HDPE	105	LF	$342	$35,891
8	Imported Pipe Foundation Material	22	TON	$40	$882
9	Imported Bedding Material	87	TON	$40	$3,474
10	Granular Borrow	39	TON	$40	$1,575
11	Asphalt T-Patch Coverage (6")	70	SY	$30	$2,100
				Construction Subtotal	$78,600
				30% Contingency	$23,580
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$102,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
18: N 2170 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$14,000	$14,000
2	Traffic Control	1	LS	$3,000	$3,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	722	CY	$30	$21,667
5	Furnish and Install Concrete Manhole	3	EA	$12,900	$38,700
6	Furnish and Install Inlet Boxes	4	EA	$7,500	$30,000
7	Furnish and Install 30 inch HDPE	720	LF	$148	$106,819
8	Furnish and Install 36 inch HDPE	60	LF	$203	$12,180
9	Imported Pipe Foundation Material	137	TON	$40	$5,460
10	Imported Bedding Material	523	TON	$40	$20,929
11	Granular Borrow	244	TON	$40	$9,750
12	Asphalt T-Patch Coverage (6")	433	SY	$30	$12,990
				Construction Subtotal	$280,500
				30% Contingency	$84,150
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$365,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
12/12/2025

Engineer's Opinion of Probable Construction Cost
19: S 300 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$8,000	$8,000
2	Traffic Control	1	LS	$2,000	$2,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	356	CY	$30	$10,667
5	Furnish and Install Concrete Manhole	2	EA	$12,900	$25,800
6	Furnish and Install Inlet Boxes	2	EA	$7,500	$15,000
7	Furnish and Install 24 inch HDPE	600	LF	$95	$56,928
8	Imported Pipe Foundation Material	84	TON	$40	$3,360
9	Imported Bedding Material	309	TON	$40	$12,349
10	Granular Borrow	150	TON	$40	$6,000
11	Asphalt T-Patch Coverage (6")	267	SY	$30	$8,010
				Construction Subtotal	$153,200
				30% Contingency	$45,960
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$199,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.
2 - Costs for Hurricane City permitting are not included.
3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
12/12/2025

Engineer's Opinion of Probable Construction Cost
20: E 300 N

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$48,000	$48,000
2	Traffic Control	1	LS	$10,000	$10,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	2,416	CY	$30	$72,489
5	Furnish and Install Concrete Manhole	7	EA	$12,900	$90,300
6	Furnish and Install Inlet Boxes	8	EA	$7,500	$60,000
7	Furnish and Install 36 inch HDPE	1,400	LF	$203	$284,194
8	Furnish and Install 48 inch HDPE	840	LF	$342	$287,129
9	Imported Pipe Foundation Material	421	TON	$40	$16,856
10	Imported Bedding Material	1,634	TON	$40	$65,354
11	Granular Borrow	753	TON	$40	$30,100
12	Asphalt T-Patch Coverage (6")	1,338	SY	$30	$40,140
				Construction Subtotal	$1,009,600
				30% Contingency	$302,880
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$1,312,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
21: E 1050 N

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$17,000	$17,000
2	Traffic Control	1	LS	$4,000	$4,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	830	CY	$30	$24,889
5	Furnish and Install Concrete Manhole	4	EA	$12,900	$51,600
6	Furnish and Install Inlet Boxes	5	EA	$7,500	$37,500
7	Furnish and Install 24 inch HDPE	1,400	LF	$95	$132,832
8	Imported Pipe Foundation Material	196	TON	$40	$7,840
9	Imported Bedding Material	720	TON	$40	$28,815
10	Granular Borrow	350	TON	$40	$14,000
11	Asphalt T-Patch Coverage (6")	622	SY	$30	$18,660
				Construction Subtotal	$342,200
				30% Contingency	$102,660
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$445,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.
2 - Costs for Hurricane City permitting are not included.
3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
22: S 3400 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$119,000	$119,000
2	Traffic Control	1	LS	$24,000	$24,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	5,990	CY	$30	$179,711
5	Furnish and Install Concrete Manhole	10	EA	$12,900	$129,000
6	Furnish and Install Inlet Boxes	14	EA	$7,500	$105,000
7	Furnish and Install 36 inch HDPE	1,820	LF	$203	$369,453
8	Furnish and Install 48 inch HDPE	1,830	LF	$342	$625,531
9	Furnish and Install 60 inch HDPE	1,030	LF	$589	$606,369
10	Imported Pipe Foundation Material	955	TON	$40	$38,192
11	Imported Bedding Material	3,746	TON	$40	$149,824
12	Granular Borrow	1,705	TON	$40	$68,200
13	Asphalt T-Patch Coverage (6")	3,031	SY	$30	$90,930
				Construction Subtotal	$2,510,300
				30% Contingency	$753,090
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$3,263,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
23: N 3700 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$21,000	$21,000
2	Traffic Control	1	LS	$5,000	$5,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	1,222	CY	$30	$36,667
5	Furnish and Install Concrete Manhole	4	EA	$12,900	$51,600
6	Furnish and Install Inlet Boxes	5	EA	$7,500	$37,500
7	Furnish and Install 30 inch HDPE	1,320	LF	$148	$195,835
8	Imported Pipe Foundation Material	231	TON	$40	$9,240
9	Imported Bedding Material	885	TON	$40	$35,418
10	Granular Borrow	413	TON	$40	$16,500
11	Asphalt T-Patch Coverage (6")	733	SY	$30	$21,990
				Construction Subtotal	$435,800
				30% Contingency	$130,740
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$567,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.
2 - Costs for Hurricane City permitting are not included.
3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
12/12/2025

Engineer's Opinion of Probable Construction Cost
24: E 2700 S

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$126,000	$126,000
2	Traffic Control	1	LS	$26,000	$26,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	6,604	CY	$30	$198,113
5	Furnish and Install Concrete Manhole	21	EA	$12,900	$270,900
6	Furnish and Install Inlet Boxes	29	EA	$7,500	$217,500
7	Furnish and Install 24 inch HDPE	3,047	LF	$95	$289,099
8	Furnish and Install 36 inch HDPE	5,182	LF	$203	$1,051,925
9	Imported Pipe Foundation Material	1,333	TON	$40	$53,337
10	Imported Bedding Material	5,044	TON	$40	$201,758
11	Granular Borrow	2,381	TON	$40	$95,245
12	Asphalt T-Patch Coverage (6")	4,233	SY	$30	$126,990
				Construction Subtotal	$2,661,900
				30% Contingency	$798,570
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$3,460,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
12/12/2025

Engineer's Opinion of Probable Construction Cost
25: 600 N

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$348,000	$348,000
2	Traffic Control	1	LS	$70,000	$70,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	18,266	CY	$30	$547,978
5	Furnish and Install Concrete Manhole	51	EA	$12,900	$657,900
6	Furnish and Install Inlet Boxes	68	EA	$7,500	$510,000
7	Furnish and Install 24 inch HDPE	980	LF	$95	$92,982
8	Furnish and Install 36 inch HDPE	19,100	LF	$203	$3,877,224
9	Imported Pipe Foundation Material	3,480	TON	$40	$139,188
10	Imported Bedding Material	13,317	TON	$40	$532,664
11	Granular Borrow	6,214	TON	$40	$248,550
12	Asphalt T-Patch Coverage (6")	11,047	SY	$30	$331,410
				Construction Subtotal	$7,360,900
				30% Contingency	$2,208,270
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$9,569,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
26: 2100 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$970,000	$970,000
2	Traffic Control	1	LS	$194,000	$194,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	47,034	CY	$30	$1,411,008
5	Furnish and Install Concrete Manhole	76	EA	$12,900	$980,400
6	Furnish and Install Inlet Boxes	102	EA	$7,500	$765,000
7	Excavate 4' Swale	4,284	CY	$30	$128,533
8	Excavate 5' Swale	12,429	CY	$30	$372,867
9	Furnish and Install 24 inch HDPE	4,815	LF	$95	$456,847
10	Furnish and Install 36 inch HDPE	7,510	LF	$203	$1,524,500
11	Furnish and Install 54 inch HDPE	2,830	LF	$433	$1,224,598
12	Furnish and Install 60 inch HDPE	1,550	LF	$589	$912,497
13	Furnish and Install 72 inch HDPE	12,650	LF	$769	$9,729,338
14	Imported Pipe Foundation Material	6,554	TON	$40	$262,157
15	Imported Bedding Material	13,226	TON	$40	$529,041
16	Granular Borrow	11,703	TON	$40	$468,138
17	Asphalt T-Patch Coverage (6")	20,806	SY	$30	$624,180
				Construction Subtotal	$20,558,200
				30% Contingency	$6,167,460
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$26,726,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 12/12/2025

Engineer's Opinion of Probable Construction Cost
27: 1100 W

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$143,000	$143,000
2	Traffic Control	1	LS	$29,000	$29,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	7,681	CY	$30	$230,422
5	Furnish and Install Concrete Manhole	26	EA	$12,900	$335,400
6	Furnish and Install Inlet Boxes	34	EA	$7,500	$255,000
7	Furnish and Install 24 inch HDPE	5,300	LF	$95	$502,864
8	Furnish and Install 36 inch HDPE	4,680	LF	$203	$950,021
9	Imported Pipe Foundation Material	1,583	TON	$40	$63,308
10	Imported Bedding Material	5,963	TON	$40	$238,535
11	Granular Borrow	2,826	TON	$40	$113,050
12	Asphalt T-Patch Coverage (6")	5,024	SY	$30	$150,720
				Construction Subtotal	$3,016,400
				30% Contingency	$904,920
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$3,921,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
Date: 11/25/2025

Engineer's Opinion of Probable Construction Cost
28: Southern Parkway

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$693,000	$693,000
2	Traffic Control	1	LS	$139,000	$139,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	34,856	CY	$30	$1,045,678
5	Furnish and Install Concrete Manhole	84	EA	$12,900	$1,083,600
6	Furnish and Install Inlet Boxes	112	EA	$7,500	$840,000
7	Furnish and Install 24 inch HDPE	10,320	LF	$95	$979,162
8	Furnish and Install 36 inch HDPE	10,260	LF	$203	$2,082,739
9	Furnish and Install 48 inch HDPE	6,740	LF	$342	$2,303,867
10	Furnish and Install 60 inch HDPE	5,650	LF	$589	$3,326,200
11	Imported Pipe Foundation Material	6,040	TON	$40	$241,598
12	Imported Bedding Material	23,323	TON	$40	$932,906
13	Granular Borrow	10,786	TON	$40	$431,425
14	Asphalt T-Patch Coverage (6")	19,174	SY	$30	$575,220
				Construction Subtotal	$14,679,400
				30% Contingency	$4,403,820
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$19,083,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

J·U·B ENGINEERS, INC.

20 N Main St, Suite 202 St George, Utah 84770 - (435) 900-1230

Owner: Hurricane City
Project: Storm Drain Master Plan Update
12/12/2025

Engineer's Opinion of Probable Construction Cost
29: State St

Pay Item Reference	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
1	Mobilization and Demobilization (5%)	1	LS	$80,000	$80,000
2	Traffic Control	1	LS	$16,000	$16,000
3	Prepare and implement SWPPP	1	LS	$5,000	$5,000.00
4	Roadway Excavation	4,889	CY	$30	$146,667
5	Furnish and Install Concrete Manhole	14	EA	$12,900	$180,600
6	Furnish and Install Inlet Boxes	18	EA	$7,500	$135,000
7	Furnish and Install 30 inch HDPE	5,280	LF	$148	$783,341
8	Imported Pipe Foundation Material	924	TON	$40	$36,960
9	Imported Bedding Material	3,542	TON	$40	$141,674
10	Granular Borrow	1,650	TON	$40	$66,000
11	Asphalt T-Patch Coverage (6")	2,933	SY	$30	$87,990
				Construction Subtotal	$1,679,300
				30% Contingency	$503,790
*Unit price estimate to replace corresponding bid item in Base Bid				**TOTAL COST (Rounded)**	$2,183,000

1 - Soft costs for construction assistance, administration, inspection, project closeout, or public involvement are not included.

2 - Costs for Hurricane City permitting are not included.

3 - Costs are estimated in 2025 dollars and should be inflated appropriately to the mid-point of the anticipated construction year for budgeting purposes.

HURRICANE CITY
UTAH

APPENDIX C

MODEL DATA

Existing Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub001	20.64	Open Space	Type D	79.8	2.60	5.43	0.51
Sub002	685.00	Open Space	Type D	97.6	669.74	33.11	0.05
Sub003	20.66	Open Space	Type C	85.8	7.92	9.10	0.33
Sub004	47.80	Commercial	Type C	87.1	26.81	10.70	0.22
Sub005	20.12	Open Space	Type C	84.5	7.70	11.72	0.28
Sub006	20.58	Open Space	Type D	89.0	11.24	3.76	0.25
Sub007	32.34	Commercial	Type C	85.9	12.73	18.07	0.25
Sub008	31.13	Commercial	Type D	88.8	19.28	6.90	0.19
Sub009	40.52	Commercial	Type C	88.0	22.06	8.12	0.27
Sub010	39.85	Commercial	Type C	88.5	17.55	26.06	0.19
Sub011	38.49	Commercial	Type D	89.0	21.81	18.00	0.19
Sub012	34.61	Commercial	Type D	91.0	27.01	3.44	0.15
Sub013	19.17	Commercial	Type D	92.3	18.72	8.05	0.13
Sub014	42.36	Commercial	Type D	93.0	42.99	11.45	0.11
Sub015	37.47	Commercial	Type D	88.8	25.03	10.09	0.19
Sub016	57.15	Commercial	Type D	92.7	51.37	7.03	0.16
Sub017	102.39	Open Space	Type D	87.7	47.77	11.27	0.28
Sub018	43.89	Residential	Type B	84.1	14.75	16.47	0.28
Sub019	39.33	Commercial	Type D	91.9	31.50	16.35	0.13
Sub020	23.84	Residential	Type D	90.1	18.27	10.01	0.16
Sub021	47.73	Commercial	Type B	88.3	30.46	9.36	0.20
Sub022	39.52	Commercial	Type C	91.9	36.37	9.61	0.13
Sub023	139.00	Residential	Type D	81.7	4.14	14.05	0.45
Sub024	37.34	Commercial	Type D	92.0	32.34	8.52	0.17
Sub025	47.73	Commercial	Type C	82.8	13.35	17.03	0.31
Sub026	18.96	Commercial	Type A	81.5	4.17	6.42	0.34
Sub027	32.58	Open Space	Type B	54.3	0.00	51.96	1.68
Sub028	200.77	Open Space	Type D	87.9	94.93	11.85	0.28
Sub029	370.77	Open Space	Type D	88.6	222.45	7.69	0.26
Sub030	223.83	Commercial	Type B	88.3	69.80	36.74	0.27
Sub031	152.64	Commercial	Type A	86.1	51.20	27.37	0.24
Sub032	202.16	Open Space	Type D	86.9	83.72	6.95	0.30
Sub033	161.73	Open Space	Type D	87.6	79.12	9.89	0.28
Sub034	342.05	Open Space	Type D	86.0	101.54	21.27	0.33
Sub035	49.50	Open Space	Type D	88.4	27.04	3.30	0.26
Sub036	73.52	Open Space	Type D	88.6	38.23	5.05	0.26
Sub037	79.25	Open Space	Type D	86.0	30.12	10.06	0.33
Sub038	144.96	Open Space	Type D	84.7	31.50	28.71	0.36
Sub039	55.59	Open Space	Type A	86.1	20.24	14.25	0.32
Sub040	60.85	Open Space	Type D	89.8	39.58	15.39	0.17
Sub041	65.28	Open Space	Type D	89.0	38.12	10.47	0.25
Sub042	104.36	Open Space	Type D	88.9	56.32	4.83	0.25
Sub043	124.18	Open Space	Type C	83.1	28.13	14.08	0.41
Sub044	218.06	Open Space	Type D	89.0	119.13	4.80	0.25

Existing Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub045	67.44	Open Space	Type D	89.0	39.17	7.18	0.25
Sub046	86.38	Open Space	Type D	89.0	51.22	5.71	0.25
Sub047	217.77	Open Space	Type D	88.1	106.30	5.00	0.27
Sub048	81.67	Commercial	Type B	83.4	21.14	24.66	0.30
Sub049	120.95	Residential	Type D	88.4	61.33	13.50	0.26
Sub050	76.05	Open Space	Type D	89.0	49.06	6.21	0.25
Sub051	63.68	Open Space	Type D	88.9	40.91	6.19	0.25
Sub052	75.20	Open Space	Type A	80.6	11.87	10.36	0.48
Sub053	52.61	Open Space	Type C	87.9	29.82	10.81	0.28
Sub054	42.44	Open Space	Type A	59.6	0.00	23.60	1.36
Sub055	73.43	Open Space	Type C	69.0	0.64	15.70	0.90
Sub056	26.72	Open Space	Type D	82.4	10.67	6.63	0.43
Sub057	68.69	Open Space	Type A	73.6	2.39	10.05	0.72
Sub058	194.40	Open Space	Type A	77.1	13.75	17.74	0.59
Sub059	122.04	Open Space	Type D	85.6	42.48	13.31	0.34
Sub060	19.25	Open Space	Type D	89.0	10.52	1.81	0.25
Sub061	148.23	Open Space	Type D	87.8	73.30	10.40	0.28
Sub062	175.82	Open Space	Type D	89.0	103.37	10.34	0.25
Sub063	36.56	Open Space	Type D	89.0	20.96	7.11	0.25
Sub064	106.78	Open Space	Type D	89.0	54.86	6.44	0.25
Sub065	6.49	Open Space	Type D	88.9	3.50	0.92	0.25
Sub066	12.71	Open Space	Type D	89.0	10.32	2.79	0.25
Sub067	14.11	Open Space	Type D	89.0	7.71	2.52	0.25
Sub068	1,017.30	Open Space	Type D	87.5	266.38	31.59	0.29
Sub069	54.23	Commercial	Type C	92.7	47.48	4.49	0.16
Sub070	264.68	Open Space	Type D	88.5	113.90	20.25	0.26
Sub071	3,648.97	Open Space	Type A	71.0	13.52	153.48	0.82
Sub072	1,935.93	Open Space	Type A	71.6	26.42	112.41	0.79
Sub073	1,043.60	Open Space	Type D	88.9	154.40	40.09	0.25
Sub074	5,402.84	Open Space	Type A	71.0	77.27	87.66	0.82
Sub075	365.65	Open Space	Type B	75.5	9.81	75.90	0.65
Sub076	1,255.31	Open Space	Type D	72.1	11.71	72.54	0.77
Sub077	136.35	Open Space	Type B	80.5	20.89	9.88	0.48
Sub078	400.94	Open Space	Type B	88.7	345.05	6.65	0.25
Sub079	212.70	Open Space	Type C	82.9	44.56	14.79	0.41
Sub080	116.69	Open Space	Type B	71.0	41.62	5.62	0.82
Sub081	253.59	Open Space	Type B	72.7	99.40	9.29	0.75
Sub082	2,691.22	Open Space	Type C	71.0	184.23	47.77	0.82
Sub083	211.84	Open Space	Type D	79.0	73.10	9.25	0.53
Sub084	212.08	Open Space	Type C	81.0	48.06	31.38	0.47
Sub085	262.72	Open Space	Type C	81.0	105.14	26.30	0.47
Sub086	80.52	Agricultural	Type A	83.9	8.07	25.84	0.38
Sub087	239.43	Open Space	Type C	81.0	86.30	23.79	0.47
Sub088	36.63	Open Space	Type B	85.9	16.04	13.72	0.25

Existing Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub089	43.20	Open Space	Type D	79.3	12.67	21.86	0.39
Sub090	40.10	Open Space	Type A	71.1	1.65	30.08	0.61
Sub091	38.73	Open Space	Type B	71.0	0.48	21.95	0.82
Sub092	30.74	Open Space	Type B	71.0	1.85	24.59	0.61
Sub093	33.61	Open Space	Type A	71.0	1.48	23.86	0.61
Sub094	36.99	Open Space	Type A	71.0	1.58	25.24	0.61
Sub095	16.49	Open Space	Type B	71.0	0.21	21.70	0.82
Sub096	33.70	Open Space	Type B	74.8	3.34	11.40	0.51
Sub097	44.73	Open Space	Type B	78.3	1.20	30.46	0.55
Sub098	33.53	Open Space	Type A	71.3	1.57	23.86	0.60
Sub099	40.10	Open Space	Type B	82.6	7.87	14.75	0.32
Sub100	33.37	Open Space	Type B	83.4	7.32	10.08	0.30
Sub101	74.46	Open Space	Type C	78.9	7.08	19.22	0.53
Sub102	88.61	Agricultural	Type C	85.0	11.16	26.83	0.35
Sub103	79.80	Agricultural	Type C	79.1	1.91	27.66	0.53
Sub104	75.83	Agricultural	Type A	75.4	0.63	29.91	0.65
Sub105	79.52	Agricultural	Type D	69.7	0.00	35.88	0.87
Sub106	82.95	Agricultural	Type C	85.0	8.15	46.17	0.35
Sub107	119.41	Agricultural	Type D	83.9	12.82	20.70	0.38
Sub108	81.19	Agricultural	Type C	85.3	11.24	25.03	0.34
Sub109	82.87	Agricultural	Type C	85.0	10.11	29.75	0.35
Sub110	84.90	Agricultural	Type D	86.0	11.75	31.17	0.33
Sub111	191.77	Open Space	Type A	71.0	2.16	52.00	0.82
Sub112	150.62	Agricultural	Type C	83.6	15.76	29.89	0.39
Sub113	43.52	Open Space	Type B	79.4	4.56	19.67	0.52
Sub114	158.03	Open Space	Type C	81.6	16.78	19.94	0.45
Sub115	139.78	Agricultural	Type C	85.1	14.00	45.83	0.35
Sub116	100.38	Open Space	Type C	74.6	2.55	52.56	0.68
Sub117	43.79	Residential	Type B	76.7	2.85	17.65	0.61
Sub118	73.88	Open Space	Type D	80.5	8.31	29.64	0.48
Sub119	164.62	Open Space	Type B	72.1	2.23	54.21	0.77
Sub120	203.03	Open Space	Type C	82.7	37.31	19.18	0.42
Sub121	41.01	Open Space	Type B	71.0	0.50	29.50	0.82
Sub122	51.19	Open Space	Type D	83.1	9.66	22.76	0.41
Sub123	40.00	Open Space	Type B	71.0	0.48	33.47	0.82
Sub124	33.76	Open Space	Type B	71.0	0.42	24.71	0.82
Sub125	17.47	Residential	Type B	83.5	7.28	5.28	0.40
Sub126	40.66	Residential	Type B	76.1	0.74	26.00	0.63
Sub127	110.31	Open Space	Type B	77.7	7.14	8.09	0.57
Sub128	96.34	Open Space	Type A	77.7	6.26	21.24	0.57
Sub129	68.58	Open Space	Type B	71.0	0.87	18.44	0.82
Sub130	106.76	Open Space	Type B	71.4	3.83	11.77	0.80
Sub131	210.42	Open Space	Type B	71.1	2.85	14.41	0.81
Sub132	255.19	Open Space	Type D	80.3	31.19	20.06	0.49

Existing Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub133	30.73	Residential	Type D	87.0	13.27	10.65	0.30
Sub134	18.10	Commercial	Type C	91.0	14.14	6.90	0.15
Sub135	39.87	Residential	Type C	69.8	1.31	27.19	0.65
Sub136	50.47	Open Space	Type D	88.6	26.24	4.18	0.26
Sub137	52.91	Open Space	Type D	89.0	28.90	4.89	0.25
Sub138	34.05	Residential	Type C	81.3	8.72	14.19	0.35
Sub139	38.14	Residential	Type D	87.0	18.15	7.85	0.30
Sub140	53.05	Open Space	Type D	88.8	28.27	5.00	0.25
Sub141	33.73	Residential	Type C	82.6	11.46	8.61	0.32
Sub142	57.93	Open Space	Type D	83.4	14.76	9.23	0.40
Sub143	34.39	Open Space	Type D	78.9	3.94	8.73	0.53
Sub144	24.10	Residential	Type D	90.9	20.13	9.17	0.15
Sub145	37.07	Residential	Type D	71.2	1.48	33.08	0.61
Sub146	18.91	Residential	Type D	70.4	0.88	14.14	0.63
Sub147	42.92	Open Space	Type D	75.7	4.01	25.51	0.48
Sub148	18.52	Residential	Type C	90.0	12.86	5.18	0.17
Sub149	29.74	Commercial	Type C	88.7	19.52	7.40	0.19
Sub150	39.26	Residential	Type C	82.5	10.76	16.36	0.32
Sub151	44.70	Residential	Type C	79.6	9.63	9.30	0.38
Sub152	15.25	Residential	Type C	84.3	6.41	8.46	0.28
Sub153	47.79	Commercial	Type D	86.3	25.19	8.37	0.24
Sub154	12.79	Residential	Type C	87.9	7.07	5.33	0.21
Sub155	38.90	Residential	Type C	83.0	12.13	14.66	0.31
Sub156	42.71	Residential	Type C	82.4	12.09	15.18	0.32
Sub157	28.09	Residential	Type C	74.1	2.17	21.75	0.52
Sub158	14.81	Residential	Type C	83.5	5.72	8.11	0.30
Sub159	27.21	Residential	Type C	83.8	8.85	16.34	0.29
Sub160	28.20	Residential	Type C	83.6	9.13	15.74	0.29
Sub161	19.57	Residential	Type C	83.2	6.47	11.30	0.30
Sub162	21.00	Residential	Type A	64.1	0.18	27.09	0.84
Sub163	8.11	Residential	Type A	70.4	0.36	15.54	0.63
Sub164	29.23	Residential	Type B	84.9	11.78	5.29	0.27
Sub165	25.11	Residential	Type B	85.8	11.14	11.97	0.25
Sub166	33.54	Commercial	Type A	80.8	8.17	13.72	0.36
Sub167	18.62	Residential	Type A	61.1	0.08	25.60	0.95
Sub168	29.16	Residential	Type A	62.3	0.17	28.77	0.91
Sub169	13.08	Commercial	Type A	76.0	1.46	16.88	0.47
Sub170	22.97	Commercial	Type A	77.0	2.81	19.73	0.45
Sub171	33.17	Residential	Type A	67.2	0.62	22.12	0.73
Sub172	35.12	Residential	Type A	83.5	11.78	14.39	0.30
Sub173	18.42	Residential	Type D	87.0	8.45	9.18	0.30
Sub174	34.93	Residential	Type D	89.0	24.32	8.44	0.19
Sub175	33.82	Commercial	Type A	93.6	38.91	7.42	0.10
Sub176	21.95	Residential	Type D	87.0	11.09	13.27	0.22

Existing Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub177	40.17	Residential	Type C	83.1	12.68	14.69	0.31
Sub178	17.83	Commercial	Type C	89.0	11.00	5.58	0.19
Sub179	11.83	Residential	Type C	83.3	4.37	8.73	0.30
Sub180	27.25	Residential	Type C	76.2	2.68	26.90	0.47
Sub181	22.71	Residential	Type D	74.6	1.91	21.23	0.51
Sub182	13.75	Residential	Type A	76.2	0.87	5.21	0.62
Sub183	59.67	Residential	Type D	89.2	41.69	9.74	0.18
Sub184	9.89	Residential	Type D	87.0	4.18	4.64	0.30
Sub185	27.89	Residential	Type D	89.2	15.62	5.13	0.24
Sub186	38.78	Residential	Type A	63.2	0.27	30.61	0.87
Sub187	118.88	Agricultural	Type C	73.1	0.40	20.64	0.74
Sub188	293.44	Open Space	Type D	87.2	150.14	15.21	0.29
Sub189	131.06	Open Space	Type D	86.8	53.79	6.26	0.30
Sub190	108.08	Open Space	Type C	84.4	41.48	9.79	0.37
Sub191	208.89	Open Space	Type B	81.4	25.23	34.72	0.46
Sub192	223.54	Residential	Type D	80.2	26.67	20.36	0.49
Sub193	69.47	Open Space	Type C	81.0	40.98	10.27	0.47
Sub194	41.63	Commercial	Type C	92.1	35.27	11.71	0.17
Sub195	29.87	Residential	Type C	85.6	10.43	11.57	0.34
Sub196	40.83	Residential	Type C	91.8	37.39	8.74	0.13
Sub197	42.31	Residential	Type C	84.6	17.78	9.52	0.27
Sub198	51.52	Residential	Type C	88.6	24.39	6.37	0.26
Sub199	22.18	Residential	Type C	86.4	11.87	8.04	0.24
Sub200	49.62	Residential	Type D	83.8	17.99	10.68	0.29
Sub201	28.64	Residential	Type A	76.8	4.02	12.47	0.45
Sub202	32.25	Residential	Type D	84.0	10.75	16.34	0.29
Sub203	16.49	Residential	Type B	75.7	2.14	12.61	0.48
Sub204	32.88	Residential	Type D	85.7	14.46	4.48	0.25
Sub205	26.70	Residential	Type D	86.6	14.50	8.49	0.23
Sub206	37.60	Residential	Type C	81.7	5.89	19.72	0.45
Sub207	35.93	Residential	Type A	77.0	4.15	24.09	0.45
Sub208	27.86	Residential	Type A	71.9	1.57	18.55	0.59
Sub209	32.12	Residential	Type A	76.2	3.76	16.15	0.47
Sub210	25.07	Residential	Type C	82.7	5.54	12.91	0.42
Sub211	22.99	Residential	Type C	80.9	5.02	18.41	0.35
Sub212	29.17	Residential	Type B	79.1	3.03	15.98	0.53
Sub213	43.70	Residential	Type A	81.5	9.77	20.30	0.34
Sub214	42.81	Residential	Type A	75.3	4.84	10.52	0.49
Sub215	31.90	Residential	Type A	75.6	3.06	23.18	0.48
Sub216	32.05	Residential	Type A	82.8	5.97	19.72	0.42
Sub217	35.22	Residential	Type C	80.0	6.66	19.25	0.38
Sub218	22.20	Residential	Type A	77.1	1.47	21.52	0.59
Sub219	29.31	Residential	Type C	78.4	4.33	19.77	0.41
Sub220	41.86	Commercial	Type C	84.6	9.60	20.05	0.36

Existing Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub221	41.80	Residential	Type C	83.6	6.68	26.22	0.39
Sub222	41.68	Agricultural	Type C	84.1	6.60	21.42	0.38
Sub223	41.26	Agricultural	Type C	84.4	6.00	23.81	0.37
Sub224	41.15	Agricultural	Type C	84.1	8.00	12.33	0.38
Sub225	42.55	Agricultural	Type C	84.2	6.58	21.84	0.38
Sub226	39.77	Residential	Type C	83.0	11.20	18.45	0.31
Sub227	40.71	Residential	Type B	75.0	0.62	17.31	0.67
Sub228	42.20	Residential	Type C	83.8	7.03	21.23	0.39
Sub229	30.91	Residential	Type A	80.1	2.29	21.50	0.50
Sub230	16.48	Residential	Type A	69.1	0.59	10.89	0.67
Sub231	41.72	Agricultural	Type C	84.6	5.90	23.56	0.36
Sub232	199.39	Open Space	Type C	81.0	99.36	11.93	0.47
Sub233	41.16	Agricultural	Type B	79.6	2.35	19.73	0.51
Sub234	42.47	Residential	Type C	83.4	10.44	21.89	0.30
Sub235	41.03	Agricultural	Type B	80.2	1.96	19.98	0.49
Sub236	43.43	Residential	Type C	83.3	6.49	20.78	0.40
Sub237	24.40	Residential	Type C	76.2	2.99	5.70	0.47
Sub238	22.02	Commercial	Type C	82.1	4.59	21.29	0.33
Sub239	40.15	Agricultural	Type C	85.0	4.97	28.18	0.35
Sub240	43.57	Residential	Type C	82.5	13.84	9.50	0.32
Sub241	31.63	Residential	Type B	76.2	4.03	11.95	0.47
Sub242	27.37	Agricultural	Type A	69.1	0.00	28.53	0.89
Sub243	29.30	Agricultural	Type A	68.0	0.00	33.73	0.94
Sub244	25.28	Agricultural	Type A	76.0	0.24	23.12	0.63
Sub245	44.41	Agricultural	Type C	74.5	0.25	30.02	0.68
Sub246	26.14	Residential	Type A	62.8	0.00	21.50	1.18
Sub247	36.80	Residential	Type A	70.2	1.65	9.88	0.64
Sub248	30.74	Open Space	Type D	88.2	15.98	5.60	0.27
Sub249	77.87	Agricultural	Type C	80.5	5.55	25.14	0.48
Sub250	46.18	Residential	Type B	85.3	16.60	8.78	0.34
Sub251	43.97	Residential	Type B	74.2	1.74	13.00	0.70
Sub252	140.09	Open Space	Type B	71.0	0.58	33.81	0.82
Sub253	47.68	Open Space	Type A	75.1	1.87	26.50	0.66
Sub254	75.30	Residential	Type B	71.9	0.88	20.93	0.78
Sub255	253.46	Open Space	Type C	81.0	89.46	25.14	0.47
Sub256	809.64	Open Space	Type A	71.0	7.36	38.14	0.82
Sub257	416.47	Open Space	Type C	81.0	84.71	41.11	0.47
Sub258	5,426.64	Open Space	Type A	71.0	19.46	111.97	0.82
Sub259	453.52	Open Space	Type A	69.8	4.43	27.96	0.87
Sub260	240.98	Agricultural	Type C	75.5	1.79	55.53	0.65
Sub261	157.46	Open Space	Type A	71.0	1.84	40.14	0.82
Sub262	318.53	Open Space	Type C	81.0	185.33	10.28	0.47
Sub263	292.95	Open Space	Type B	78.5	16.45	37.06	0.55
Sub264	490.58	Open Space	Type C	81.0	212.67	22.64	0.47

Existing Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub265	213.36	Open Space	Type D	75.5	6.94	51.63	0.65
Sub266	32.81	Open Space	Type C	81.0	19.64	8.58	0.47
Sub267	62.83	Residential	Type A	75.0	5.65	20.11	0.50
Sub268	312.97	Open Space	Type C	81.0	114.36	18.96	0.35
Sub269	42.30	Agricultural	Type B	75.9	0.41	14.27	0.64
Sub270	23.86	Residential	Type B	72.9	1.33	31.45	0.56
Sub271	30.33	Residential	Type B	71.5	1.24	31.44	0.60
Sub272	41.53	Residential	Type B	72.7	2.36	27.59	0.56
Sub273	31.40	Residential	Type B	74.8	2.49	28.23	0.51
Sub274	35.87	Residential	Type B	75.1	3.01	24.55	0.50
Sub275	28.43	Residential	Type B	74.8	2.33	25.02	0.51
Sub276	82.54	Agricultural	Type B	77.7	1.45	14.70	0.57
Sub277	22.83	Residential	Type B	71.2	1.17	16.68	0.61
Sub278	24.61	Residential	Type B	73.9	1.96	16.18	0.53
Sub279	34.52	Residential	Type A	70.2	1.34	21.60	0.64
Sub280	44.12	Agricultural	Type B	75.5	0.97	13.95	0.65
Sub281	22.41	Residential	Type B	72.5	1.40	18.74	0.57
Sub282	22.90	Residential	Type A	72.2	1.43	11.82	0.58
Sub283	29.83	Residential	Type A	69.9	1.12	19.59	0.65
Sub284	15.53	Residential	Type A	65.8	0.19	19.04	0.78
Sub285	64.18	Open Space	Type A	72.1	0.96	33.09	0.77
Sub286	36.23	Residential	Type D	68.9	1.09	19.76	0.68
Sub287	40.93	Residential	Type A	63.9	0.34	26.89	0.85
Sub288	44.46	Residential	Type B	70.7	2.06	17.16	0.62
Sub289	43.57	Residential	Type B	81.3	10.47	10.83	0.35
Sub290	74.19	Open Space	Type B	78.7	5.75	18.15	0.54
Sub291	24.78	Residential	Type A	75.8	2.93	12.09	0.48
Sub292	90.75	Open Space	Type A	70.9	1.07	32.69	0.82
Sub293	29.50	Residential	Type A	61.1	3.34	25.44	0.95
Sub294	20.45	Residential	Type A	61.0	2.49	19.98	0.96
Sub295	39.01	Residential	Type A	61.0	0.16	31.69	0.96
Sub296	23.36	Residential	Type A	61.0	2.78	21.69	0.96
Sub297	19.40	Residential	Type A	61.0	2.26	22.99	0.96
Sub298	24.71	Residential	Type A	65.2	3.31	15.33	0.80
Sub299	175.53	Open Space	Type C	81.0	71.18	19.85	0.47
Sub300	294.32	Open Space	Type C	81.0	145.44	17.52	0.47
Sub301	277.42	Open Space	Type D	89.0	110.04	27.68	0.25
Sub302	42.83	Open Space	Type B	71.0	0.52	31.82	0.82
Sub303	256.74	Open Space	Type B	71.0	3.18	24.45	0.82
Sub304	124.37	Open Space	Type A	71.0	1.55	22.53	0.82
Sub305	89.46	Residential	Type A	61.0	0.00	20.67	1.28
Sub306	101.88	Open Space	Type A	70.5	1.11	35.19	0.84
Sub307	245.52	Open Space	Type A	72.1	3.40	46.21	0.77
Sub308	483.23	Residential	Type A	61.6	0.00	38.41	1.25

Existing Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub309	141.50	Open Space	Type A	71.0	1.77	20.19	0.82
Sub310	101.70	Open Space	Type A	71.0	1.27	23.84	0.82
Sub311	48.49	Open Space	Type A	71.0	0.60	27.24	0.82
Sub312	122.65	Open Space	Type D	85.6	44.92	7.80	0.34
Sub313	103.44	Agricultural	Type B	79.0	2.71	29.91	0.53
Sub314	174.89	Agricultural	Type B	78.0	2.25	61.51	0.56
Sub315	80.83	Agricultural	Type B	78.0	1.26	28.85	0.56
Sub316	140.65	Agricultural	Type B	77.7	1.91	26.55	0.57
Sub317	147.52	Agricultural	Type B	78.0	1.98	51.39	0.56
Sub318	178.77	Open Space	Type B	83.5	33.04	27.88	0.40
Sub319	178.23	Agricultural	Type A	70.2	0.00	61.45	0.85
Sub320	120.02	Open Space	Type A	78.9	13.12	10.06	0.53
Sub321	155.42	Agricultural	Type B	74.7	0.86	46.05	0.68
Sub322	124.60	Open Space	Type B	73.5	1.55	21.23	0.72
Sub323	302.08	Open Space	Type C	81.0	122.18	26.45	0.47
Sub324	69.61	Open Space	Type C	79.0	6.61	22.13	0.53
Sub325	126.36	Open Space	Type A	71.9	1.75	35.50	0.78
Sub326	162.91	Agricultural	Type A	70.8	0.47	49.98	0.82
Sub327	212.44	Agricultural	Type C	72.7	0.23	44.71	0.75
Sub328	2,524.63	Open Space	Type A	78.6	423.66	62.92	0.54
Sub329	52.11	Agricultural	Type A	74.1	0.25	30.91	0.70
Sub330	127.11	Agricultural	Type B	80.4	6.51	33.86	0.49
Sub331	125.72	Open Space	Type B	71.0	1.51	33.22	0.82
Sub332	27.10	Residential	Type C	87.2	14.85	10.71	0.22
Sub333	26.86	Residential	Type B	76.6	3.89	7.93	0.46
Sub334	45.24	Residential	Type B	85.1	15.47	20.82	0.26
Sub335	30.60	Residential	Type C	86.0	11.24	5.78	0.33
Sub336	39.21	Residential	Type D	87.3	20.46	12.85	0.22
Sub337	39.44	Open Space	Type C	68.4	1.24	10.65	0.69
Sub338	37.44	Open Space	Type D	88.1	18.23	11.70	0.27
Sub339	28.30	Residential	Type D	87.6	16.90	9.08	0.21
Sub340	27.23	Residential	Type D	84.1	10.76	9.56	0.28
Sub341	20.18	Residential	Type D	87.1	10.28	4.47	0.22
Sub342	13.89	Residential	Type B	88.2	8.08	6.91	0.20
Sub343	30.85	Residential	Type A	82.2	8.27	15.95	0.32
Sub344	38.26	Commercial	Type C	88.8	22.33	15.80	0.19
Sub345	28.65	Residential	Type C	83.0	8.08	18.40	0.31
Sub346	31.11	Residential	Type A	74.1	2.54	17.45	0.52
Sub347	33.04	Commercial	Type C	87.5	14.95	13.39	0.29
Sub348	70.28	Residential	Type C	85.2	20.40	16.59	0.35
Sub349	128.28	Open Space	Type C	81.4	18.20	22.96	0.46
Sub350	36.78	Residential	Type C	84.4	14.79	10.25	0.28
Sub351	6.36	Commercial	Type A	91.7	5.38	4.37	0.14
Sub352	41.01	Commercial	Type C	91.0	29.48	17.42	0.15

Existing Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub353	26.95	Residential	Type C	90.1	19.74	12.52	0.16
Sub354	42.20	Commercial	Type C	91.1	32.68	10.27	0.20
Sub355	26.23	Residential	Type C	84.0	9.56	6.20	0.29
Sub356	45.52	Residential	Type C	83.0	16.05	8.94	0.31
Sub357	30.98	Residential	Type C	87.4	13.01	23.42	0.22
Sub358	46.18	Residential	Type C	83.0	11.19	25.71	0.31
Sub359	37.61	Residential	Type C	83.0	12.10	13.77	0.31
Sub360	38.01	Open Space	Type C	86.0	18.43	10.35	0.24
Sub361	45.86	Commercial	Type C	89.7	30.61	8.79	0.23
Sub362	31.28	Residential	Type C	83.0	7.86	23.74	0.31
Sub363	43.44	Residential	Type C	83.4	12.62	19.21	0.30
Sub364	36.46	Residential	Type C	83.0	12.26	10.17	0.31
Sub365	28.29	Residential	Type C	83.7	9.97	13.45	0.29
Sub366	28.23	Residential	Type C	83.1	8.13	17.66	0.31
Sub367	29.51	Residential	Type C	82.9	7.92	20.02	0.31
Sub368	23.25	Residential	Type C	83.0	4.43	20.31	0.41
Sub369	43.76	Residential	Type C	83.0	12.52	17.01	0.31
Sub370	41.83	Commercial	Type C	94.0	47.41	10.47	0.10
Sub371	27.70	Residential	Type C	82.3	7.03	19.36	0.32
Sub372	16.10	Residential	Type C	86.3	8.15	10.15	0.24
Sub373	20.25	Residential	Type C	82.9	6.13	15.10	0.31
Sub374	26.30	Residential	Type C	82.7	6.03	9.40	0.42
Sub375	25.45	Residential	Type C	83.3	7.51	17.55	0.30
Sub376	37.09	Commercial	Type C	86.9	20.39	9.33	0.23
Sub377	21.40	Open Space	Type C	81.1	3.75	10.09	0.47
Sub378	37.78	Open Space	Type C	84.1	10.64	12.68	0.38
Sub379	61.39	Open Space	Type C	81.5	9.24	20.21	0.45
Sub380	92.00	Open Space	Type C	86.2	34.58	10.79	0.32
Sub381	85.90	Open Space	Type C	80.0	10.84	15.07	0.50
Sub382	91.30	Open Space	Type C	82.0	16.32	16.21	0.44
Sub383	51.78	Open Space	Type C	88.4	26.28	12.17	0.26
Sub384	60.63	Open Space	Type C	85.6	21.12	11.32	0.34
Sub385	55.59	Residential	Type C	82.8	11.19	17.38	0.42
Sub386	55.66	Commercial	Type C	89.3	35.08	7.45	0.24
Sub387	28.24	Residential	Type C	83.0	6.78	9.31	0.41
Sub388	26,701.15	Commercial	Type C	86.0	1,331.16	114.60	0.33
Sub389	18,372.16	Open Space	Type C	85.3	949.39	115.63	0.34
Sub390	1,261.68	Open Space	Type D	88.5	163.03	114.94	0.26
Sub391	941.06	Residential	Type C	78.9	20.40	248.90	0.53
Sub392	677.51	Open Space	Type C	85.7	49.34	163.64	0.33

Future Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub001	20.64	Open Space	Type D	79.8	3.73	5.43	0.51
Sub002	685.00	Open Space	Type D	97.6	669.74	33.11	0.05
Sub003	20.66	Residential	Type C	83.1	7.33	9.10	0.31
Sub004	47.80	Commercial	Type C	85.9	22.52	10.70	0.25
Sub005	20.12	Open Space	Type C	84.5	7.70	11.72	0.28
Sub006	20.58	Open Space	Type D	89.0	14.27	3.76	0.25
Sub007	32.34	Commercial	Type C	85.4	11.97	18.07	0.26
Sub008	31.13	Commercial	Type D	88.8	19.28	6.90	0.19
Sub009	40.52	Commercial	Type C	88.0	22.06	8.12	0.27
Sub010	39.85	Commercial	Type C	88.5	17.55	26.06	0.19
Sub011	38.49	Commercial	Type D	89.0	21.81	18.00	0.19
Sub012	34.61	Commercial	Type D	89.4	26.02	3.44	0.18
Sub013	19.17	Commercial	Type D	92.3	18.72	8.05	0.13
Sub014	42.36	Commercial	Type D	92.3	39.91	11.45	0.13
Sub015	37.47	Commercial	Type D	88.8	25.03	10.09	0.19
Sub016	57.15	Commercial	Type D	92.7	51.37	7.03	0.16
Sub017	102.39	Open Space	Type D	87.7	47.77	11.27	0.28
Sub018	43.89	Residential	Type B	84.1	14.75	16.47	0.28
Sub019	39.33	Commercial	Type D	91.9	31.50	16.35	0.13
Sub020	23.84	Residential	Type D	90.1	18.27	10.01	0.16
Sub021	47.73	Commercial	Type B	88.3	30.46	9.36	0.20
Sub022	39.52	Commercial	Type C	89.4	28.23	9.61	0.18
Sub023	139.00	Residential	Type D	84.3	38.65	14.05	0.37
Sub024	37.34	Commercial	Type D	88.8	25.47	8.52	0.19
Sub025	47.73	Commercial	Type C	82.8	13.35	17.03	0.31
Sub026	18.96	Commercial	Type A	81.5	4.17	6.42	0.34
Sub027	32.58	Open Space	Type B	54.3	0.00	51.96	1.68
Sub028	200.77	Open Space	Type D	87.4	108.69	11.85	0.22
Sub029	370.77	Open Space	Type D	88.6	222.45	7.69	0.26
Sub030	223.83	Commercial	Type B	88.3	69.80	36.74	0.27
Sub031	152.64	Commercial	Type A	78.9	21.77	27.37	0.40
Sub032	202.16	Open Space	Type D	86.9	83.72	6.95	0.30
Sub033	161.73	Open Space	Type D	87.6	79.12	9.89	0.28
Sub034	342.05	Open Space	Type D	86.1	103.08	21.27	0.32
Sub035	49.50	Open Space	Type D	88.4	38.28	3.30	0.26
Sub036	73.52	Open Space	Type D	88.6	38.68	5.05	0.26
Sub037	79.25	Open Space	Type D	86.0	30.12	10.06	0.33
Sub038	144.96	Open Space	Type D	84.7	31.50	28.71	0.36
Sub039	55.59	Open Space	Type A	86.1	20.24	14.25	0.32
Sub040	60.85	Open Space	Type D	89.8	39.58	15.39	0.17
Sub041	65.28	Open Space	Type D	89.0	38.12	10.47	0.25
Sub042	104.36	Open Space	Type D	88.9	73.45	4.83	0.25
Sub043	124.18	Open Space	Type C	83.1	28.13	14.08	0.41
Sub044	218.06	Open Space	Type D	89.0	186.47	4.80	0.25
Sub045	67.44	Open Space	Type D	89.0	39.17	7.18	0.25

Future Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub046	86.38	Open Space	Type D	89.0	51.22	5.71	0.25
Sub047	217.77	Open Space	Type D	88.1	144.16	5.00	0.27
Sub048	81.67	Commercial	Type B	82.4	18.81	24.66	0.32
Sub049	120.95	Residential	Type D	87.8	56.80	13.50	0.28
Sub050	76.05	Open Space	Type D	89.0	49.06	6.21	0.25
Sub051	63.68	Open Space	Type D	88.9	40.91	6.19	0.25
Sub052	75.20	Open Space	Type A	80.6	11.87	10.36	0.48
Sub053	52.61	Open Space	Type C	87.9	29.82	10.81	0.28
Sub054	42.44	Open Space	Type A	59.6	0.00	23.60	1.36
Sub055	73.43	Open Space	Type C	69.0	0.64	15.70	0.90
Sub056	26.72	Open Space	Type D	82.4	10.67	6.63	0.43
Sub057	68.69	Open Space	Type A	73.6	2.39	10.05	0.72
Sub058	194.40	Open Space	Type A	77.1	13.75	17.74	0.59
Sub059	122.04	Open Space	Type D	85.6	42.48	13.31	0.34
Sub060	19.25	Open Space	Type D	89.0	13.89	1.81	0.25
Sub061	148.23	Open Space	Type D	87.8	73.30	10.40	0.28
Sub062	175.82	Open Space	Type D	89.0	103.37	10.34	0.25
Sub063	36.56	Open Space	Type D	89.0	20.96	7.11	0.25
Sub064	106.78	Open Space	Type D	89.0	54.86	6.44	0.25
Sub065	6.49	Open Space	Type D	88.9	5.00	0.92	0.25
Sub066	12.71	Open Space	Type D	89.0	10.32	2.79	0.25
Sub067	14.11	Open Space	Type D	89.0	10.34	2.52	0.25
Sub068	1,017.30	Open Space	Type D	87.5	266.38	31.59	0.29
Sub069	54.23	Commercial	Type C	92.7	66.75	4.49	0.16
Sub070	264.68	Open Space	Type D	88.5	113.90	20.25	0.26
Sub071	3,648.97	Open Space	Type A	71.0	13.52	153.48	0.82
Sub072	1,935.93	Open Space	Type A	71.6	26.42	112.41	0.79
Sub073	1,043.60	Open Space	Type D	88.9	154.40	40.09	0.25
Sub074	5,402.84	Open Space	Type A	71.0	77.27	87.66	0.82
Sub075	365.65	Open Space	Type B	75.5	9.81	75.90	0.65
Sub076	1,255.31	Open Space	Type D	73.4	15.51	72.54	0.72
Sub077	136.35	Open Space	Type B	79.9	18.85	9.88	0.50
Sub078	400.94	Open Space	Type B	88.7	345.05	6.65	0.25
Sub079	212.70	Open Space	Type C	82.9	44.56	14.79	0.41
Sub080	116.69	Open Space	Type B	71.0	43.80	5.62	0.82
Sub081	253.59	Open Space	Type B	72.7	99.40	9.29	0.75
Sub082	2,691.22	Open Space	Type C	71.0	169.41	52.86	0.82
Sub083	211.84	Open Space	Type D	79.0	73.10	9.25	0.53
Sub084	212.08	Open Space	Type C	86.2	48.06	31.38	0.47
Sub085	262.72	Open Space	Type C	89.0	105.14	26.30	0.47
Sub086	80.52	Agricultural	Type A	83.9	8.07	25.84	0.38
Sub087	239.43	Open Space	Type C	88.2	86.30	23.79	0.47
Sub088	36.63	Open Space	Type B	85.9	16.04	13.72	0.25
Sub089	43.20	Open Space	Type D	79.3	12.67	21.86	0.39
Sub090	40.10	Open Space	Type A	71.1	1.65	30.08	0.61

Future Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub091	38.73	Open Space	Type B	71.0	0.48	21.95	0.82
Sub092	30.74	Open Space	Type B	71.0	1.85	24.59	0.61
Sub093	33.61	Open Space	Type A	71.0	1.48	23.86	0.61
Sub094	36.99	Open Space	Type A	71.0	1.58	25.24	0.61
Sub095	16.49	Open Space	Type B	71.0	0.21	21.70	0.82
Sub096	33.70	Open Space	Type B	74.8	3.34	11.40	0.51
Sub097	44.73	Open Space	Type B	78.3	1.20	30.46	0.55
Sub098	33.53	Open Space	Type A	71.3	1.57	23.86	0.60
Sub099	40.10	Open Space	Type B	82.6	7.87	14.75	0.32
Sub100	33.37	Open Space	Type B	83.4	7.32	10.08	0.30
Sub101	74.46	Open Space	Type C	78.9	7.08	19.22	0.53
Sub102	88.61	Agricultural	Type C	85.0	11.16	26.83	0.35
Sub103	79.80	Agricultural	Type C	79.1	1.91	27.66	0.53
Sub104	75.83	Agricultural	Type A	75.4	0.63	29.91	0.65
Sub105	79.52	Agricultural	Type D	69.7	0.00	35.88	0.87
Sub106	82.95	Agricultural	Type C	85.0	8.15	46.17	0.35
Sub107	119.41	Agricultural	Type D	83.9	12.82	20.70	0.38
Sub108	81.19	Agricultural	Type C	85.3	11.24	25.03	0.34
Sub109	82.87	Agricultural	Type C	85.0	10.11	29.75	0.35
Sub110	84.90	Agricultural	Type D	86.0	11.75	31.17	0.33
Sub111	191.77	Open Space	Type A	71.0	2.16	52.00	0.82
Sub112	150.62	Agricultural	Type C	83.5	26.92	29.89	0.40
Sub113	43.52	Open Space	Type B	83.7	9.47	19.67	0.39
Sub114	158.03	Open Space	Type C	82.1	26.28	19.94	0.44
Sub115	139.78	Agricultural	Type C	85.1	14.00	45.83	0.35
Sub116	100.38	Open Space	Type C	74.6	2.55	52.56	0.68
Sub117	43.79	Residential	Type B	76.7	2.85	17.65	0.61
Sub118	73.88	Open Space	Type D	80.5	8.31	29.64	0.48
Sub119	164.62	Open Space	Type B	72.1	2.23	54.21	0.77
Sub120	203.03	Open Space	Type C	82.7	37.98	19.18	0.42
Sub121	41.01	Open Space	Type B	71.0	0.50	29.50	0.82
Sub122	51.19	Open Space	Type D	83.1	9.66	22.76	0.41
Sub123	40.00	Open Space	Type B	71.0	0.48	33.47	0.82
Sub124	33.76	Open Space	Type B	71.0	0.42	24.71	0.82
Sub125	17.47	Residential	Type B	83.5	7.28	5.28	0.40
Sub126	40.66	Residential	Type B	76.1	0.74	26.00	0.63
Sub127	110.31	Open Space	Type B	77.7	7.14	8.09	0.57
Sub128	96.34	Open Space	Type A	77.7	6.26	21.24	0.57
Sub129	68.58	Open Space	Type B	71.0	0.87	18.44	0.82
Sub130	106.76	Open Space	Type B	72.0	1.94	11.77	0.78
Sub131	210.42	Open Space	Type B	71.9	3.58	14.41	0.78
Sub132	255.19	Open Space	Type D	80.3	31.19	20.06	0.49
Sub133	30.73	Residential	Type D	87.0	13.27	10.65	0.30
Sub134	18.10	Commercial	Type C	90.7	13.63	6.90	0.15
Sub135	39.87	Residential	Type C	69.8	1.31	27.19	0.65

Future Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub136	50.47	Open Space	Type D	88.6	34.94	4.18	0.26
Sub137	52.91	Open Space	Type D	89.0	38.15	4.89	0.25
Sub138	34.05	Residential	Type C	81.3	8.72	14.19	0.35
Sub139	38.14	Residential	Type D	87.0	18.15	7.85	0.30
Sub140	53.05	Open Space	Type D	88.8	38.25	5.00	0.25
Sub141	33.73	Residential	Type C	82.6	11.46	8.61	0.32
Sub142	57.93	Open Space	Type D	83.4	14.76	9.23	0.40
Sub143	34.39	Open Space	Type D	78.9	3.94	8.73	0.53
Sub144	24.10	Residential	Type D	90.9	20.13	9.17	0.15
Sub145	37.07	Residential	Type D	71.2	1.48	33.08	0.61
Sub146	18.91	Residential	Type D	70.4	0.88	14.14	0.63
Sub147	42.92	Open Space	Type D	75.7	4.01	25.51	0.48
Sub148	18.52	Residential	Type C	90.0	14.98	5.18	0.17
Sub149	29.74	Commercial	Type C	88.7	19.52	7.40	0.19
Sub150	39.26	Residential	Type C	82.5	10.76	16.36	0.32
Sub151	44.70	Residential	Type C	79.6	9.63	9.30	0.38
Sub152	15.25	Residential	Type C	84.3	6.41	8.46	0.28
Sub153	47.79	Commercial	Type D	86.3	25.19	8.37	0.24
Sub154	12.79	Residential	Type C	87.9	10.07	5.33	0.21
Sub155	38.90	Residential	Type C	83.0	12.13	14.66	0.31
Sub156	42.71	Residential	Type C	82.9	12.90	15.18	0.31
Sub157	28.09	Residential	Type C	74.1	2.17	21.75	0.52
Sub158	14.81	Residential	Type C	83.5	5.72	8.11	0.30
Sub159	27.21	Residential	Type C	83.8	8.85	16.34	0.29
Sub160	28.20	Residential	Type C	83.6	9.13	15.74	0.29
Sub161	19.57	Residential	Type C	83.2	6.47	11.30	0.30
Sub162	21.00	Residential	Type A	64.1	0.18	27.09	0.84
Sub163	8.11	Residential	Type A	70.4	0.36	15.54	0.63
Sub164	29.23	Residential	Type B	84.9	17.03	5.29	0.27
Sub165	25.11	Residential	Type B	85.8	11.14	11.97	0.25
Sub166	33.54	Commercial	Type A	80.8	8.17	13.72	0.36
Sub167	18.62	Residential	Type A	61.1	0.08	25.60	0.95
Sub168	29.16	Residential	Type A	62.3	0.17	28.77	0.91
Sub169	13.08	Commercial	Type A	76.0	1.46	16.88	0.47
Sub170	22.97	Commercial	Type A	77.0	2.81	19.73	0.45
Sub171	33.17	Residential	Type A	67.2	0.62	22.12	0.73
Sub172	35.12	Residential	Type A	83.5	11.78	14.39	0.30
Sub173	18.42	Residential	Type D	87.2	8.70	9.18	0.29
Sub174	34.93	Residential	Type D	89.0	24.32	8.44	0.19
Sub175	33.82	Commercial	Type A	93.6	38.91	7.42	0.10
Sub176	21.95	Residential	Type D	87.0	11.09	13.27	0.22
Sub177	40.17	Residential	Type C	83.1	12.68	14.69	0.31
Sub178	17.83	Commercial	Type C	89.0	13.72	5.58	0.19
Sub179	11.83	Residential	Type C	83.3	4.37	8.73	0.30
Sub180	27.25	Residential	Type C	76.2	2.68	26.90	0.47

Future Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub181	22.71	Residential	Type D	74.6	1.91	21.23	0.51
Sub182	13.75	Residential	Type A	76.2	0.60	5.21	0.62
Sub183	59.67	Residential	Type D	88.7	39.55	9.74	0.19
Sub184	9.89	Residential	Type D	87.0	4.90	4.64	0.30
Sub185	27.89	Residential	Type D	88.5	14.81	5.13	0.26
Sub186	38.78	Residential	Type A	63.2	0.27	30.61	0.87
Sub187	118.88	Agricultural	Type C	81.1	16.62	20.64	0.47
Sub188	293.44	Open Space	Type D	87.2	150.14	15.21	0.29
Sub189	131.06	Open Space	Type D	86.8	53.79	6.26	0.30
Sub190	108.08	Open Space	Type C	84.4	41.48	9.79	0.37
Sub191	208.89	Open Space	Type B	81.4	25.23	34.72	0.46
Sub192	223.54	Residential	Type D	80.9	30.31	20.36	0.47
Sub193	69.47	Open Space	Type C	89.0	40.98	10.27	0.47
Sub194	41.63	Commercial	Type C	91.5	32.64	11.71	0.19
Sub195	29.87	Residential	Type C	85.6	10.43	11.57	0.34
Sub196	40.83	Residential	Type C	91.8	37.39	8.74	0.13
Sub197	42.31	Residential	Type C	84.6	17.78	9.52	0.27
Sub198	51.52	Residential	Type C	84.6	11.96	6.37	0.36
Sub199	22.18	Residential	Type C	86.4	11.87	8.04	0.24
Sub200	49.62	Residential	Type D	83.8	17.99	10.68	0.29
Sub201	28.64	Residential	Type A	76.8	4.02	12.47	0.45
Sub202	32.25	Residential	Type D	84.0	10.75	16.34	0.29
Sub203	16.49	Residential	Type B	75.7	2.14	12.61	0.48
Sub204	32.88	Residential	Type D	86.1	21.77	4.48	0.24
Sub205	26.70	Residential	Type D	86.6	14.50	8.49	0.23
Sub206	37.60	Residential	Type C	81.7	5.89	19.72	0.45
Sub207	35.93	Residential	Type A	75.4	3.30	24.09	0.49
Sub208	27.86	Residential	Type A	71.9	1.57	18.55	0.59
Sub209	32.12	Residential	Type A	76.2	3.76	16.15	0.47
Sub210	25.07	Residential	Type C	82.7	5.54	12.91	0.42
Sub211	22.99	Residential	Type C	80.9	5.02	18.41	0.35
Sub212	29.17	Residential	Type B	79.1	3.03	15.98	0.53
Sub213	43.70	Residential	Type A	81.5	9.77	20.30	0.34
Sub214	42.81	Residential	Type A	75.3	4.84	10.52	0.49
Sub215	31.90	Residential	Type A	75.6	3.06	23.18	0.48
Sub216	32.05	Residential	Type A	82.8	5.97	19.72	0.42
Sub217	35.22	Residential	Type C	80.0	6.66	19.25	0.38
Sub218	22.20	Residential	Type A	77.1	1.47	21.52	0.59
Sub219	29.31	Residential	Type C	78.4	4.33	19.77	0.41
Sub220	41.86	Commercial	Type C	84.6	9.60	20.05	0.36
Sub221	41.80	Residential	Type C	83.6	6.68	26.22	0.39
Sub222	41.68	Agricultural	Type C	84.1	6.60	21.42	0.38
Sub223	41.26	Agricultural	Type C	84.4	6.00	23.81	0.37
Sub224	41.15	Agricultural	Type C	84.1	8.00	12.33	0.38
Sub225	42.55	Agricultural	Type C	84.2	6.58	21.84	0.38

Future Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub226	39.77	Residential	Type C	83.0	11.20	18.45	0.31
Sub227	40.71	Residential	Type B	75.0	0.62	17.31	0.67
Sub228	42.20	Residential	Type C	83.8	7.03	21.23	0.39
Sub229	30.91	Residential	Type A	70.3	0.34	21.50	0.84
Sub230	16.48	Residential	Type A	69.1	0.59	10.92	0.67
Sub231	41.72	Agricultural	Type C	84.6	5.90	23.56	0.36
Sub232	199.39	Open Space	Type C	88.3	99.36	11.93	0.47
Sub233	41.16	Agricultural	Type B	79.6	2.35	19.73	0.51
Sub234	42.47	Residential	Type C	83.4	10.44	21.89	0.30
Sub235	41.03	Agricultural	Type B	80.2	1.96	19.98	0.49
Sub236	43.43	Residential	Type C	83.3	8.62	20.78	0.40
Sub237	24.40	Residential	Type C	76.2	2.81	5.70	0.47
Sub238	22.02	Commercial	Type C	82.1	4.59	21.29	0.33
Sub239	40.15	Agricultural	Type C	85.0	4.97	28.18	0.35
Sub240	43.57	Residential	Type C	82.5	13.84	9.50	0.32
Sub241	31.63	Residential	Type B	75.9	3.81	11.95	0.48
Sub242	27.37	Agricultural	Type A	69.1	0.00	28.53	0.89
Sub243	29.30	Agricultural	Type A	68.0	0.00	33.73	0.94
Sub244	25.28	Agricultural	Type A	76.0	0.24	23.12	0.63
Sub245	44.41	Agricultural	Type C	74.5	0.25	30.02	0.68
Sub246	26.14	Residential	Type A	61.5	0.00	21.50	1.25
Sub247	36.80	Residential	Type A	70.2	1.65	9.88	0.64
Sub248	30.74	Open Space	Type D	88.2	18.88	5.60	0.27
Sub249	77.87	Agricultural	Type C	80.5	5.55	25.14	0.48
Sub250	46.18	Residential	Type B	85.1	16.06	8.78	0.35
Sub251	43.97	Residential	Type B	74.6	1.94	13.00	0.68
Sub252	140.09	Open Space	Type B	71.0	0.58	33.81	0.82
Sub253	47.68	Open Space	Type A	75.1	1.87	26.50	0.66
Sub254	75.30	Residential	Type B	71.9	0.88	20.93	0.78
Sub255	253.46	Open Space	Type C	87.8	89.46	25.14	0.47
Sub256	809.64	Open Space	Type A	71.0	7.36	38.14	0.82
Sub257	416.47	Open Space	Type C	85.5	84.71	41.11	0.47
Sub258	5,426.64	Open Space	Type A	71.0	19.46	111.97	0.82
Sub259	453.52	Open Space	Type A	69.8	4.43	27.96	0.87
Sub260	240.98	Agricultural	Type C	75.5	1.79	55.53	0.65
Sub261	157.46	Open Space	Type A	71.0	1.84	40.14	0.82
Sub262	318.53	Open Space	Type C	88.9	185.33	10.28	0.47
Sub263	292.95	Open Space	Type B	77.7	17.84	37.06	0.57
Sub264	490.58	Open Space	Type C	88.9	212.67	22.64	0.47
Sub265	213.36	Open Space	Type D	75.5	6.94	51.63	0.65
Sub266	32.81	Open Space	Type C	88.8	19.64	8.58	0.47
Sub267	62.83	Residential	Type A	75.0	5.65	20.11	0.50
Sub268	312.97	Open Space	Type C	85.4	114.36	18.96	0.35
Sub269	42.30	Agricultural	Type B	75.3	2.16	14.27	0.66
Sub270	23.86	Residential	Type B	72.9	1.33	31.45	0.56

Future Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub271	30.33	Residential	Type B	71.5	1.24	31.44	0.60
Sub272	41.53	Residential	Type B	72.7	2.36	27.59	0.56
Sub273	31.40	Residential	Type B	74.8	2.49	28.23	0.51
Sub274	35.87	Residential	Type B	75.1	3.01	24.55	0.50
Sub275	28.43	Residential	Type B	74.8	2.33	25.02	0.51
Sub276	82.54	Agricultural	Type B	77.5	6.54	14.70	0.58
Sub277	22.83	Residential	Type B	71.2	1.17	16.68	0.61
Sub278	24.61	Residential	Type B	73.9	1.96	16.18	0.53
Sub279	34.52	Residential	Type A	70.2	1.34	21.60	0.64
Sub280	44.12	Agricultural	Type B	75.5	0.97	13.95	0.65
Sub281	22.41	Residential	Type B	72.5	1.40	18.74	0.57
Sub282	22.90	Residential	Type A	72.2	1.43	11.82	0.58
Sub283	29.83	Residential	Type A	69.9	1.12	19.59	0.65
Sub284	15.53	Residential	Type A	65.8	0.19	19.04	0.78
Sub285	64.18	Open Space	Type A	72.1	0.96	33.09	0.77
Sub286	36.23	Residential	Type D	68.9	1.09	19.76	0.68
Sub287	40.93	Residential	Type A	63.9	0.34	26.89	0.85
Sub288	44.46	Residential	Type B	70.7	2.06	17.16	0.62
Sub289	43.57	Residential	Type B	81.3	10.47	10.83	0.35
Sub290	74.19	Open Space	Type B	78.7	5.75	18.15	0.54
Sub291	24.78	Residential	Type A	75.8	2.93	12.09	0.48
Sub292	90.75	Open Space	Type A	70.9	1.07	32.69	0.82
Sub293	29.50	Residential	Type A	61.1	3.34	25.44	0.95
Sub294	20.45	Residential	Type A	61.0	2.49	19.98	0.96
Sub295	39.01	Residential	Type A	61.0	0.16	31.69	0.96
Sub296	23.36	Residential	Type A	61.0	2.78	21.69	0.96
Sub297	19.40	Residential	Type A	61.0	2.26	22.99	0.96
Sub298	24.71	Residential	Type A	65.2	3.31	15.33	0.80
Sub299	175.53	Open Space	Type C	88.0	71.18	19.85	0.47
Sub300	294.32	Open Space	Type C	89.0	145.44	17.52	0.47
Sub301	277.42	Open Space	Type D	89.0	110.04	27.68	0.25
Sub302	42.83	Open Space	Type B	72.0	0.63	31.82	0.78
Sub303	256.74	Open Space	Type B	71.6	3.51	24.45	0.79
Sub304	124.37	Open Space	Type A	71.0	1.55	22.53	0.82
Sub305	89.46	Residential	Type A	61.0	0.00	20.67	1.28
Sub306	101.88	Open Space	Type A	70.5	1.11	35.19	0.84
Sub307	245.52	Open Space	Type A	72.1	3.40	46.21	0.77
Sub308	483.23	Residential	Type A	61.4	0.00	38.41	1.26
Sub309	141.50	Open Space	Type A	66.5	0.53	20.19	1.01
Sub310	101.70	Open Space	Type A	69.6	0.97	23.84	0.87
Sub311	48.49	Open Space	Type A	71.0	0.60	27.24	0.82
Sub312	122.65	Open Space	Type D	85.6	44.92	7.91	0.34
Sub313	103.44	Agricultural	Type B	79.0	2.71	29.91	0.53
Sub314	174.89	Agricultural	Type B	78.0	2.25	61.51	0.56
Sub315	80.83	Agricultural	Type B	77.7	5.44	28.85	0.57

Future Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub316	140.65	Agricultural	Type B	75.4	5.93	26.55	0.65
Sub317	147.52	Agricultural	Type B	78.0	1.98	51.39	0.56
Sub318	178.77	Open Space	Type B	83.5	33.04	27.88	0.40
Sub319	178.23	Agricultural	Type A	70.2	0.00	61.45	0.85
Sub320	120.02	Open Space	Type A	78.9	13.12	10.06	0.53
Sub321	155.42	Agricultural	Type B	74.7	4.40	46.05	0.68
Sub322	124.60	Open Space	Type B	74.3	4.23	21.23	0.69
Sub323	302.08	Open Space	Type C	89.0	122.18	26.45	0.47
Sub324	69.61	Open Space	Type C	84.3	15.85	22.13	0.37
Sub325	126.36	Open Space	Type A	66.5	0.41	35.50	1.01
Sub326	162.91	Agricultural	Type A	70.8	0.47	49.98	0.82
Sub327	212.44	Agricultural	Type C	72.7	0.23	44.71	0.75
Sub328	2,524.63	Open Space	Type A	78.6	423.66	62.92	0.54
Sub329	52.11	Agricultural	Type A	74.1	0.25	30.91	0.70
Sub330	127.11	Agricultural	Type B	80.4	6.51	33.86	0.49
Sub331	125.72	Open Space	Type B	71.0	1.51	33.22	0.82
Sub332	27.10	Residential	Type C	87.2	14.85	10.71	0.22
Sub333	26.86	Residential	Type B	76.6	3.89	7.93	0.46
Sub334	45.24	Residential	Type B	85.1	15.47	20.82	0.26
Sub335	30.60	Residential	Type C	85.8	8.41	5.78	0.33
Sub336	39.21	Residential	Type D	87.3	20.46	12.85	0.22
Sub337	39.44	Open Space	Type C	68.4	1.24	10.65	0.69
Sub338	37.44	Open Space	Type D	87.9	17.67	11.70	0.28
Sub339	28.30	Residential	Type D	87.4	16.54	9.08	0.22
Sub340	27.23	Residential	Type D	84.1	10.76	9.56	0.28
Sub341	20.18	Residential	Type D	87.1	14.81	4.47	0.22
Sub342	13.89	Residential	Type B	88.2	8.08	6.91	0.20
Sub343	30.85	Residential	Type A	82.2	8.27	15.95	0.32
Sub344	38.26	Commercial	Type C	88.8	22.33	15.80	0.19
Sub345	28.65	Residential	Type C	83.0	8.08	18.40	0.31
Sub346	31.11	Residential	Type A	71.0	1.52	17.45	0.61
Sub347	33.04	Commercial	Type C	87.5	14.95	13.39	0.29
Sub348	70.28	Residential	Type C	84.6	18.76	16.59	0.36
Sub349	128.28	Open Space	Type C	81.9	19.80	22.96	0.44
Sub350	36.78	Residential	Type C	84.4	14.79	10.25	0.28
Sub351	6.36	Commercial	Type A	91.7	5.84	4.37	0.14
Sub352	41.01	Commercial	Type C	91.0	29.48	17.42	0.15
Sub353	26.95	Residential	Type C	90.1	19.74	12.52	0.16
Sub354	42.20	Commercial	Type C	90.8	31.48	10.27	0.20
Sub355	26.23	Residential	Type C	84.0	11.43	6.20	0.29
Sub356	45.52	Residential	Type C	83.0	16.05	8.94	0.31
Sub357	30.98	Residential	Type C	87.4	13.01	23.42	0.22
Sub358	46.18	Residential	Type C	83.0	11.19	25.71	0.31
Sub359	37.61	Residential	Type C	83.0	12.10	13.77	0.31
Sub360	38.01	Open Space	Type C	85.3	16.96	10.35	0.26

Future Subcatchment Model Data

ID	Area (ac)	Predominant Land Use Type	Predominant Soil Type	Composite CN	Peak Runoff (cfs)	Time of Concentration (min)	Depression Storage (in)
Sub361	45.86	Commercial	Type C	89.7	30.61	8.79	0.23
Sub362	31.28	Residential	Type C	83.0	7.86	23.74	0.31
Sub363	43.44	Residential	Type C	83.4	12.62	19.21	0.30
Sub364	36.46	Residential	Type C	83.0	12.26	10.17	0.31
Sub365	28.29	Residential	Type C	83.6	9.85	13.45	0.29
Sub366	28.23	Residential	Type C	83.1	8.13	17.66	0.31
Sub367	29.51	Residential	Type C	82.9	7.92	20.02	0.31
Sub368	23.25	Residential	Type C	83.9	5.12	20.31	0.38
Sub369	43.76	Residential	Type C	84.3	14.83	17.01	0.28
Sub370	41.83	Commercial	Type C	88.8	27.63	10.47	0.19
Sub371	27.70	Residential	Type C	82.3	7.03	19.36	0.32
Sub372	16.10	Residential	Type C	86.3	8.15	10.15	0.24
Sub373	20.25	Residential	Type C	82.9	6.13	15.10	0.31
Sub374	26.30	Residential	Type C	82.9	6.22	9.40	0.41
Sub375	25.45	Residential	Type C	83.3	7.51	17.55	0.30
Sub376	37.09	Commercial	Type C	76.8	16.44	9.33	0.45
Sub377	21.40	Open Space	Type C	81.1	3.75	10.09	0.47
Sub378	37.78	Open Space	Type C	83.5	9.66	12.68	0.40
Sub379	61.39	Open Space	Type C	84.4	14.70	20.21	0.37
Sub380	92.00	Open Space	Type C	86.2	34.58	10.79	0.32
Sub381	85.90	Open Space	Type C	80.0	10.84	15.07	0.50
Sub382	91.30	Open Space	Type C	82.0	16.32	16.21	0.44
Sub383	51.78	Open Space	Type C	88.4	26.28	12.17	0.26
Sub384	60.63	Open Space	Type C	85.6	21.12	11.32	0.34
Sub385	55.59	Residential	Type C	82.8	11.19	17.38	0.42
Sub386	55.66	Commercial	Type C	89.3	35.08	7.45	0.24
Sub387	28.24	Residential	Type C	83.0	6.78	9.31	0.41
Sub388	26,701.15	Commercial	Type C	86.0	1,331.16	114.60	0.33
Sub389	18,372.16	Open Space	Type C	85.3	949.39	115.63	0.34
Sub390	1,261.68	Open Space	Type D	88.5	163.03	114.94	0.26
Sub391	941.06	Residential	Type C	78.9	20.40	248.90	0.53
Sub392	677.51	Open Space	Type C	85.7	49.34	163.64	0.33

Existing Pipe Model Data

ID	Length (ft)	Diameter (in)	Slope (%)	Manning's N	Capacity @100% Manning's (cfs)	Peak Flow (10-year, 3-hour)	Peak Flow (100-year, 3-hour)	Maximum Velocity (ft/s) (10-year, 3-hour)	Maximum Velocity (ft/s) (100-year, 3-hour)
C100	217.94	18	4.7674	0.012	24.85	17.39	20.08	14.63	14.84
C102	66.36	36	0.0105	0.012	7.42	56.85	112.07	8.04	15.86
C104	135.01	48	1.1058	0.012	163.64	14.85	90.11	8.26	14.33
C106	1067.87	12	0.8046	0.012	3.46	2.42	5.59	10.20	11.76
C108	515.46	18	1.0701	0.012	11.77	6.72	15.98	9.15	9.04
C110	56.36	18	1.0699	0.012	11.77	6.52	13.57	7.11	7.68
C112	438.58	60	0.5356	0.013	190.60	74.69	190.29	10.89	11.56
C114	1323.08	60	0.2281	0.013	124.39	73.88	189.65	8.21	10.43
C116	292.9	60	0.5224	0.013	188.23	74.97	200.83	12.29	15.52
C118	369.47	60	0.8691	0.013	242.80	46.85	127.18	10.39	13.75
C120	131.08	60	1.3801	0.013	305.96	47.35	134.87	11.31	15.09
C122	460.92	24	1.4855	0.012	29.87	28.99	38.61	11.13	12.29
C124	375.07	24	1.5008	0.012	30.02	34.31	39.57	11.13	12.59
C126	210.53	24	0.2973	0.012	13.36	28.55	30.13	9.09	9.59
C128	30.61	30	3.329	0.012	81.07	44.54	71.60	16.77	18.03
C162	29.95	15	8.02	0.012	19.82	0.00	0.00	0.00	0.00
C164	54.34	15	3.1487	0.012	12.42	0.00	0.00	0.00	0.00
C166	18.21	15	3.1521	0.012	12.42	0.00	2.01	0.00	3.97
C168	1384.6	36	1.2444	0.013	74.40	25.67	65.52	8.32	9.27
C170	28.2	36	1.0567	0.012	74.28	37.41	82.66	8.27	12.68
C172	766.16	24	1.3692	0.012	28.68	17.67	30.67	18.47	9.76
C174	43.28	24	0.3489	0.012	14.48	44.97	100.44	15.13	31.97
C176	424.27	36	2.6945	0.012	118.61	1.89	50.72	12.22	14.32
C178	284.76	36	2.8786	0.012	122.59	0.37	50.71	8.68	8.94
C180	364.41	36	1.4064	0.012	85.69	3.49	50.75	12.67	7.18
C182	597.01	36	0.9501	0.012	70.43	3.09	262.74	6.60	37.17
C184	229.5	24	-0.4492	0.012	0.00	0.39	3.00	0.21	1.21
C186	271.18	24	-0.1575	0.012	0.00	0.36	2.13	0.83	2.20
C188	43.1	24	2.2691	0.012	36.92	0.36	2.13	3.74	6.40
C190	717.24	24	-0.3059	0.012	0.00	0.45	3.93	0.14	1.25
C192	387.45	12	0.981	0.012	3.82	2.76	14.69	9.63	18.70
C194	81.39	42	0.72	0.012	92.48	15.68	25.97	7.16	8.25
C196	270.9	48	2.9007	0.012	265.03	112.43	302.25	15.05	24.05
C198	213.71	48	0.5189	0.012	112.10	113.34	226.21	9.54	18.00
C202	212.35	24	4.736	0.012	53.33	33.36	41.67	14.38	13.27
C204	47.83	24	0.414	0.012	15.77	37.75	115.99	12.02	36.92
C206	133.49	48	1.7522	0.012	205.99	163.90	244.37	17.56	19.45
C208	443.81	18	4.752	0.013	22.90	12.51	28.56	17.24	16.16
C210	88.05	48	0.8223	0.013	130.25	49.34	166.70	9.64	13.40
C214	356.66	48	1.0495	0.012	159.42	53.03	107.23	7.61	8.94
C216	211.75	48	0.0708	0.012	41.42	54.24	128.97	6.56	10.79
C218	157.6	48	0.3185	0.012	87.83	52.45	127.08	6.75	10.11
C220	38.44	18	0.0078	0.012	1.01	19.37	38.82	10.96	21.97
C222	202.91	36	0.0103	0.012	7.35	18.23	36.19	4.65	8.87
C224	191.37	36	0.0105	0.012	7.39	17.03	33.38	3.52	4.72
C226	48.2	18	0.0124	0.012	1.27	8.83	16.22	5.00	9.18
C228	161.32	36	0.0105	0.012	7.42	24.20	47.21	3.94	6.68

Existing Pipe Model Data									
ID	Length (ft)	Diameter (in)	Slope (%)	Manning's N	Capacity @100% Manning's (cfs)	Peak Flow (10-year, 3-hour)	Peak Flow (100-year, 3-hour)	Maximum Velocity (ft/s) (10-year, 3-hour)	Maximum Velocity (ft/s) (100-year, 3-hour)
C230	463.84	48	0.2641	0.012	79.97	28.07	73.31	9.09	11.80
C232	23.46	48	2.9199	0.012	265.91	28.28	73.51	13.77	18.08
C234	82.62	60	0.5362	0.013	190.71	96.74	183.55	14.45	11.73
C238	57.57	24	0.2084	0.012	11.19	17.28	68.46	6.44	21.79
C242	1280.45	24	1.5824	0.012	30.83	20.58	32.01	10.16	10.43
C244	114.43	60	0.6694	0.012	230.84	9.84	156.40	5.85	12.45
C246	103.7	18	0.7936	0.012	10.14	16.70	30.31	9.45	17.15
C248	198.05	24	4.1944	0.012	50.19	6.19	23.48	9.92	8.55
C250	63.16	24	-0.0285	0.012	0.00	6.69	7.61	3.10	2.42
C252	49.58	18	0.0988	0.022	1.95	2.22	4.51	1.26	2.55
C254	80.99	36	-0.0827	0.012	0.00	8.10	13.39	2.92	2.22
C256	482.33	24	-1.9383	0.012	0.00	7.78	9.80	3.45	3.12
C258	551.62	12	-0.3281	0.012	0.00	7.79	9.81	4.96	6.25
C262	518.31	24	0.5001	0.012	17.33	19.13	42.75	7.66	13.61
C264	1693.92	48	0.5001	0.012	110.05	43.02	52.17	9.57	7.50
C266	873.5	24	0.5001	0.012	17.33	17.37	26.15	7.87	8.32
C270	92.91	12	-0.0883	0.012	0.00	0.47	2.45	0.66	3.13
C276	94.3	12	-0.088	0.012	0.00	0.32	2.07	0.51	2.64
C278	270.27	12	-0.0884	0.012	0.00	0.18	1.31	0.37	1.67
C280	141.52	12	-0.089	0.012	0.00	0.00	0.00	0.00	0.00
C282	136.87	18	0	0.013	0.00	5.27	27.44	1.73	5.18
C286	5	42	60	0.013	779.32	13.83	69.28	44.66	43.62
C288	5	42	0	0.013	0.00	5.23	27.43	8.36	20.80
C290	412.83	30	1.3894	0.013	48.35	0.00	0.00	0.00	0.00
C292	5	42	0	0.012	0.00	5.62	61.42	14.95	31.45
C294	210.23	18	5.7366	0.012	27.26	20.47	40.09	13.17	22.68
C852	2135.06	36	0.4684	0.012	49.45	95.81	0.00	13.55	0.00
C854	524.29	48	0.1907	0.012	67.96	96.82	132.45	11.35	26.98
C858	1221.51	60	1.801	0.012	378.65	113.64	69.70	14.68	9.86
C860	244.45	48	0.4091	0.012	99.53	97.89	19.85	11.12	11.23
C862	761.7	36	0.919	0.012	69.27	72.92	0.97	10.32	8.14
C864	447.52	48	-0.6704	0.012	0.00	51.95	11.02	4.81	8.98
C866	190.32	48	3.1526	0.012	276.30	65.60	115.02	5.59	10.04
C870	242.96	18	5.3507	0.012	26.32	61.23	15.41	34.65	8.72
C872	1055.05	18	2.2748	0.012	17.16	20.47	103.84	12.28	21.03
C874	502.45	24	2.982	0.012	42.32	20.48	144.20	10.95	16.72
CDT001	182.05	18	4.195	0.012	23.31	0.00	0.00	0.00	0.00
CDT002	42.56	30	0.6508	0.012	35.85	49.48	18.22	10.18	10.31
CDT003	23.67	18	1.0308	0.012	11.55	15.30	15.83	10.11	8.96
CDT004	84.24	36	0.6078	0.012	56.33	24.16	17.98	7.37	10.17
CDT005	101.86	18	1.3548	0.012	13.25	13.65	77.04	9.93	12.15
CDT006	215.94	24	4.2178	0.012	50.33	0.20	7.74	3.85	8.01
CDT007	661.72	15	1.1472	0.012	7.50	8.16	22.37	19.05	11.17
CDT008	196.35	48	0.0107	0.012	16.09	53.45	67.78	8.36	9.59
CDT009	95.04	18	0.5082	0.012	8.11	7.37	10.29	5.09	5.82
CDT010	256.49	48	3.8138	0.012	303.90	17.25	79.00	16.68	11.18
CDT011	504.93	48	3.0933	0.012	273.69	37.60	3.73	12.64	3.04

Existing Pipe Model Data									
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CDT012	171.3	15	-0.1413	0.012	0.00	0.00	163.19	0.00	13.04
CDT013	51.31	18	2.711	0.012	18.74	12.60	53.24	8.35	10.85
CDT014	218.25	18	1.1056	0.012	11.97	9.81	9.00	6.79	7.21
CDT015	132.31	18	1.0286	0.012	11.54	6.59	14.42	6.64	11.75
CDT016	308.39	36	0.9092	0.012	68.90	38.56	11.66	12.21	6.60
CDT017	122.47	15	0.5569	0.012	5.22	6.46	0.00	6.34	0.00
CDT018	395.25	24	2.2715	0.013	34.10	20.13	11.69	11.00	6.62
CDT019	340.1	36	0.6739	0.012	59.32	37.00	57.18	7.30	18.20
CDT020	319.09	18	0.3999	0.012	7.20	8.45	140.60	4.78	11.19
CDT021	460.23	36	0.9091	0.012	68.89	47.24	26.63	12.19	16.35
CDT022	145.73	15	3.1483	0.012	12.42	0.00	21.51	0.00	8.38
CDT023	404.04	48	0.9153	0.012	148.87	92.39	131.56	12.23	0.00
CDT024	64.23	30	0.5153	0.012	31.90	45.97	69.38	9.36	9.82
CDT025	53.65	24	1.0065	0.012	24.59	0.14	112.43	2.10	0.00
CDT026	254.66	15	1.8491	0.012	9.52	5.06	34.69	11.48	19.63
CDT027	496.12	18	0.9574	0.012	11.13	11.27	20.53	6.38	11.62
CDT028	32.68	15	-0.1408	0.012	0.00	0.00	115.13	0.00	16.29
CDT029	39.65	18	1.0845	0.012	11.85	4.30	36.80	3.78	20.83
CDT030	63.95	24	2.5145	0.012	38.86	16.56	47.83	5.52	9.74
CDT031	132.74	48	0.7556	0.012	135.27	109.27	26.18	8.98	15.18
CDT032	34.76	18	2.6956	0.012	18.68	24.22	171.01	17.70	14.31
CDT033	614.92	24	0.7051	0.013	19.00	16.29	90.01	7.81	17.29
CDT034	453.4	30	5.6061	0.012	105.21	47.13	89.99	20.88	15.61
CDT035	186.19	36	0.4726	0.012	49.68	13.86	98.50	6.03	13.94
CDT036	26.19	18	4.4139	0.012	23.91	51.77	43.87	29.29	13.30
CDT037	52.48	18	3.5385	0.012	21.41	10.09	11.23	11.86	6.35
CDT038	243.39	18	2.7421	0.012	18.84	17.55	145.33	10.97	29.61
CDT039	350.75	36	2.1232	0.013	97.19	48.66	13.91	13.78	8.59
CDT040	122.61	18	1.172	0.012	12.32	9.07	93.13	6.53	8.82
CDT041	271.51	30	0.3422	0.012	25.99	40.91	20.09	8.33	11.37
CDT042	205.48	24	2.4888	0.012	38.66	17.28	8.78	14.16	2.85
CDT043	457.6	48	1.8499	0.013	195.37	111.94	56.90	13.72	11.59
CDT044	250	48	2.2044	0.012	231.04	14.79	45.47	10.33	8.86
CDT045	274.51	48	1.2218	0.012	172.01	14.81	46.21	9.32	9.80
CDT046	54.42	36	0.9096	0.012	68.91	38.25	66.06	9.44	10.01
CDT047	7.77	30	2.7027	0.012	73.05	42.83	28.52	14.48	9.08
CDT048	327.43	18	0.8341	0.012	10.39	8.26	8.16	5.31	5.38
CDT049	50.15	30	3.0927	0.012	78.14	37.89	76.00	20.08	10.84
CDT050	311.56	18	1.0662	0.012	11.75	13.78	19.38	8.57	10.97
CDT051	295.72	48	0.6026	0.012	120.80	34.87	65.12	8.02	11.59
CDT052	131.73	18	2.4193	0.012	17.70	17.47	6.74	10.46	5.22
CDT053	179.33	24	0.0217	0.022	1.97	4.85	59.02	2.05	8.35
CDT054	1397.08	30	0.4733	0.012	30.57	42.44	15.32	8.65	8.67
CDT055	436.74	36	0.7313	0.012	61.79	17.47	11.03	7.45	8.99
CDT056	299.2	30	0.9936	0.012	44.29	40.47	96.19	9.55	11.05
CDT057	61.13	36	0.4728	0.012	49.68	13.85	27.07	6.35	12.36
CDT058	53.93	24	0.2336	0.012	11.85	15.55	69.72	5.08	9.86

Existing Pipe Model Data									
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CDT059	156.56	18	0.4976	0.012	8.03	6.55	195.16	4.97	39.76
CDT061	121.59	36	0.653	0.012	58.39	75.91	14.42	13.36	4.59
CDT062	80.96	18	0.8337	0.012	10.39	8.73	67.56	5.98	9.56
CDT063	91.24	48	0.9864	0.012	154.55	21.63	76.44	8.62	8.78
CDT064	114.96	18	2.2503	0.012	17.07	1.40	0.00	5.86	0.00
CDT065	398.9	36	0.367	0.012	43.77	12.20	10.00	5.14	5.66
CDT066	314.23	18	1.0664	0.012	11.75	14.33	18.24	8.11	10.81
CDT067	34.22	15	1.8498	0.012	9.52	4.56	177.98	6.29	14.16
CDT068	97.18	40	0.4373	0.012	63.12	30.51	26.17	7.87	12.95
CDT069	41.15	24	1.356	0.012	28.54	13.22	89.99	7.92	18.30
CDT070	320.58	36	0.607	0.012	56.30	24.19	9.25	7.56	9.52
CDT071	403.66	30	0.7573	0.012	38.67	6.95	12.56	2.04	7.11
CDT072	20.59	24	-0.0194	0.013	0.00	5.63	69.83	3.05	9.88
CDT073	206.49	36	0.4	0.012	45.70	12.21	31.78	5.37	6.07
CDT074	280.03	40	0.3982	0.012	60.22	26.34	46.28	6.67	12.16
CDT075	151.4	24	2.1222	0.012	35.70	0.00	110.65	0.00	10.23
CDT076	160.33	18	0.4983	0.012	8.03	6.64	0.00	4.99	0.00
CDT077	154.4	18	1.9443	0.012	15.87	12.89	35.05	10.25	19.83
CDT078	389.07	48	0.5189	0.013	103.48	112.57	32.23	10.46	10.26
CDT079	22.36	24	2.4821	0.012	38.61	25.30	53.89	12.88	11.26
CDT080	343.04	48	2.2041	0.012	231.03	14.77	26.03	10.84	7.65
CDT081	492.89	15	1.2216	0.012	7.73	7.98	21.43	6.50	6.82
CDT082	81.24	18	0.5084	0.012	8.11	7.04	22.15	4.92	12.54
CDT083	166.16	36	0.0102	0.013	6.75	36.40	244.38	5.64	19.45
CDT084	101.92	36	0.3954	0.012	45.44	14.35	103.29	4.71	14.61
CDT085	302.59	30	1.0344	0.012	45.19	40.40	66.31	12.12	21.11
CDT086	127.08	48	0.986	0.012	154.52	21.75	0.70	7.81	16.23
CDT087	108.24	18	0.7095	0.012	9.59	0.00	85.85	0.00	48.58
CDT088	105.17	18	1.0288	0.012	11.54	6.39	13.17	6.52	7.45
CDT089	229.56	24	0.3951	0.012	15.40	14.59	97.42	5.84	10.13
CDT090	609.17	30	0.5777	0.012	33.77	42.01	70.65	9.35	8.11
CDT091	352.3	42	0.5404	0.012	80.13	15.91	6.61	6.65	1.80
CDT092	90.57	24	0.3655	0.013	13.68	17.63	26.57	5.81	8.46
CDT093	283.38	18	1.8484	0.013	14.28	19.52	50.06	11.16	28.33
CDT094	228.14	48	1.7524	0.012	206.00	193.80	59.42	19.01	8.41
CDT095	217.88	36	2.109	0.013	96.86	30.10	9.09	10.25	8.39
CDT096	198.71	24	2.5293	0.012	38.98	36.41	28.34	15.02	9.02
CDT097	298.68	18	3.5282	0.012	21.38	0.81	20.77	17.42	6.61
CDT098	50.05	18	1.5405	0.012	14.12	10.10	33.26	10.20	19.24
CDT099	333.15	18	0.9575	0.012	11.14	11.71	29.70	6.63	9.45
CDT100	264.52	42	0.6873	0.012	90.36	45.17	18.74	7.65	5.96
CDT101	32.97	40	0.4368	0.012	63.08	26.26	19.74	6.54	11.17
CDT102	23.52	30	1.216	0.012	49.00	1.34	68.44	1.17	29.04
CDT103	113.9	24	0.3433	0.013	13.25	24.40	10.55	7.77	5.97
CDT104	52.71	18	1.0302	0.012	11.55	6.29	13.45	6.29	7.61
CDT105	400.92	36	0.3163	0.012	40.64	12.19	46.93	5.00	9.56
CDT106	123.61	24	2.5443	0.012	39.09	0.14	20.32	3.49	6.47

Existing Pipe Model Data									
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CDT107	189.11	24	1.9084	0.012	33.86	11.09	49.33	4.07	10.88
CDT108	70.67	24	0.4146	0.013	14.57	17.16	39.90	5.80	12.70
CDT109	28.61	24	10.958	0.012	81.13	29.69	29.48	19.44	16.68
CDT111	227.59	24	0.2338	0.012	11.85	27.31	22.43	8.69	12.70
CDT112	108	24	0.4148	0.013	14.57	16.58	0.00	5.63	0.00
CDT113	118.9	18	1.3549	0.012	13.25	13.38	74.73	9.04	10.57
CDT114	26.88	42	2.7381	0.013	166.48	13.84	152.36	17.53	31.04
CDT115	37.34	18	2.2469	0.012	17.06	1.43	21.75	2.40	15.54
CDT116	88.66	18	0.5076	0.012	8.11	7.20	7.38	5.03	4.18
CDT117	201.92	30	0.3422	0.012	25.99	40.73	0.43	8.30	0.41
CDT118	239.79	24	0.234	0.012	11.85	21.08	24.78	6.71	9.31
CDT119	194.19	36	0.1159	0.012	24.60	43.18	0.00	10.43	0.00
CDT120	41.84	24	1.7519	0.012	32.44	45.69	26.13	14.54	7.66
CDT121	304.07	18	1.0662	0.012	11.75	29.06	83.90	16.44	12.70
CDT122	44.4	18	2.2725	0.013	15.84	20.17	26.01	11.69	8.02
CDT123	144.1	15	3.1485	0.012	12.42	0.00	74.06	0.00	15.09
CDT124	215.34	36	0.6525	0.012	58.37	50.95	178.02	11.79	17.14
CDT125	78.67	30	7.0217	0.012	117.75	47.64	0.00	24.85	0.00
CDT126	352.22	24	4.7371	0.012	53.34	12.12	12.13	11.51	6.87
CDT127	403.55	18	0.3053	0.012	6.29	4.21	24.25	2.38	19.76
CDT128	69.76	15	3.1479	0.012	12.42	0.00	62.14	0.00	8.79
CDT129	54.66	24	1.3849	0.013	26.62	16.23	33.39	8.75	15.46
CDT130	98.4	24	7.8953	0.012	68.86	0.00	56.53	0.00	8.00
CDT131	68.47	42	0.5345	0.012	79.69	16.68	29.04	6.95	9.24
CDT132	263.91	40	0.4376	0.012	63.14	28.43	44.26	7.06	14.09
CDT133	69.66	42	0.5398	0.012	80.08	15.76	60.02	6.95	8.49
CDT134	31.46	30	0.5944	0.012	34.26	52.55	43.10	10.71	8.78
CDT135	249.66	48	1.7524	0.012	206.00	92.96	49.77	13.57	28.16
CDT136	285.35	24	7.8952	0.012	68.86	0.00	24.52	0.00	7.80
CDT137	41.13	18	0.338	0.012	6.62	6.87	44.99	4.95	5.76
CDT138	167.26	15	5.2487	0.012	16.03	10.96	33.22	17.26	13.60
CDT139	282.3	36	0.5278	0.012	52.49	22.82	11.83	7.21	6.69
CDT140	310.12	24	4.961	0.013	50.39	35.36	25.61	14.69	9.15
CDT141	400.92	36	0.316	0.012	40.62	12.19	14.48	5.02	9.00
CDT142	280.11	24	1.9078	0.012	33.85	10.73	80.09	8.98	12.35
CDT143	368.66	24	2.1071	0.012	35.57	15.43	16.26	12.56	9.20
CDT144	278.81	36	0.528	0.012	52.50	22.79	262.56	7.35	20.89
CDT145	125.64	30	0.5158	0.012	31.91	40.55	92.79	8.26	14.33
CDT146	93.65	18	2.6973	0.012	18.69	25.01	40.84	14.15	13.00
CDT147	131.97	24	0.344	0.013	13.27	22.29	23.04	7.09	13.04
CDT148	31.75	40	0.4	0.012	60.36	20.99	6.03	5.46	8.18
CDT149	295.82	24	1.9069	0.013	31.24	38.87	106.79	12.37	15.11
CDT150	350.34	18	0.3851	0.012	7.06	8.85	57.41	5.01	18.27
CDT151	971.4	24	0.9847	0.013	22.45	23.65	8.23	8.80	2.62
CDT152	261.19	18	1.9143	0.012	15.74	5.68	16.27	11.17	9.20
CDT153	238.7	36	0.6129	0.012	56.57	47.25	0.00	12.10	0.00
CDT154	16.41	18	1.9805	0.022	8.74	10.38	29.20	6.31	16.52

Existing Pipe Model Data									
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CDT155	76.29	48	1.7512	0.012	205.93	126.94	95.37	16.33	9.91
CDT156	21.2	60	0.2689	0.012	146.30	7.43	80.37	4.62	11.37
CDT158	203.09	24	0.6125	0.012	19.18	35.83	22.47	11.41	12.72
CDT159	422.97	18	3.5393	0.012	21.41	10.09	109.95	22.01	10.85
CDT160	302.43	18	2.6409	0.012	18.49	1.44	22.88	7.89	7.84
CDT162	33.25	36	2.6286	0.013	108.14	59.09	15.64	10.90	7.05
CDT163	324.71	24	0.4265	0.013	14.77	45.11	111.92	14.36	0.00
CDT164	322.96	24	0.3787	0.013	13.92	9.68	24.28	3.08	13.74
CDT165	14.2	18	0.0211	0.022	0.90	10.41	146.13	5.89	11.97
CDT166	88.39	24	2.1213	0.012	35.69	0.00	37.77	0.00	12.02
CDT167	217.02	18	4.4134	0.012	23.91	28.14	60.93	16.60	34.48
CDT168	96.03	42	0.4665	0.012	74.45	51.60	11.78	8.28	6.67
CDT169	358.89	36	0.5002	0.012	51.10	57.75	27.43	8.79	15.52
CDT170	140.19	18	3.0958	0.012	20.02	20.19	22.83	11.43	7.27
CDT171	427.76	48	0.9861	0.012	154.53	21.37	17.32	8.32	9.80
CDT172	799.08	24	1.015	0.013	22.79	16.24	44.87	12.22	9.14
CDT173	313.15	24	0.4854	0.012	17.07	7.55	132.90	6.21	13.81
CDT175	123.59	18	2.6976	0.012	18.69	42.82	22.42	24.23	7.14
CDT176	21.21	18	2.744	0.012	18.85	17.68	0.00	10.78	0.00
CDT177	397.98	48	0.9154	0.012	148.88	100.73	18.16	14.52	11.66
CDT178	303.07	24	1.7511	0.012	32.43	39.18	22.31	12.47	10.67
CDT179	33.94	18	2.2599	0.012	17.11	3.68	14.18	5.67	8.92
CDT180	278.4	18	0.4501	0.012	7.63	8.43	9.16	4.83	5.64
CDT181	218.58	18	4.4139	0.012	23.91	25.29	20.79	14.31	16.94
CDT182	27.35	24	0.0219	0.013	3.35	11.90	42.07	3.89	13.39
CDT184	44.3	18	1.2325	0.012	12.63	6.69	10.94	6.57	8.92
CDT185	462.97	30	0.2391	0.012	21.73	42.89	0.00	8.74	0.00
CDT186	171.14	42	0.4558	0.012	73.58	68.41	34.86	8.68	28.41
CDT187	35.38	24	0.3646	0.013	13.66	18.26	13.70	6.03	7.75
CDT188	25.79	15	-0.1396	0.012	0.00	0.00	109.18	0.00	15.45
CDT189	300.4	18	1.9927	0.012	16.06	12.50	48.27	10.43	9.83
CDT190	392.94	24	2.2716	0.013	34.10	20.03	51.05	10.68	10.40
CDT191	363.12	18	0.9575	0.012	11.14	13.47	6.01	7.62	2.93
CDT192	268.16	18	0.3998	0.012	7.20	8.43	67.51	5.35	13.11
CDT194	125.46	15	5.2487	0.012	16.03	10.61	33.40	12.02	18.92
CDT195	414.21	24	1.7513	0.012	32.43	36.32	139.48	11.56	11.86
CDT196	255.41	15	1.8492	0.012	9.52	4.53	17.22	7.10	21.92
CDT197	290.33	18	7.8342	0.012	31.85	0.00	26.71	0.00	15.11
CDT198	15.03	15	5.2495	0.012	16.03	10.68	8.59	13.14	4.86
CDT199	88.21	18	2.6992	0.012	18.70	6.62	141.01	8.94	11.22
CDT200	177.36	36	2.1087	0.013	96.86	30.22	49.94	14.00	28.26
CDT201	259.5	30	0.5156	0.012	31.91	43.06	0.00	8.77	0.00
CDT202	147.05	30	0.5944	0.012	34.26	46.21	27.54	9.41	8.77
CDT203	20.4	24	0.0245	0.012	3.84	3.58	20.00	2.59	6.37
CDT204	181.61	48	2.3308	0.012	237.58	21.66	0.00	10.34	0.00
CDT205	116.86	24	-4.9606	0.013	0.00	30.01	48.57	16.43	7.95
CDT206	417.22	48	0.8535	0.012	143.76	135.43	71.18	14.88	10.07

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CDT207	237.06	12	1.0504	0.012	3.96	8.48	21.27	10.80	6.77
CDT208	149.34	18	0.5002	0.012	8.05	11.82	184.36	12.07	16.14
CDT209	101.06	18	0.3849	0.012	7.06	8.42	14.57	4.76	8.25
CDT210	129.69	48	0.7556	0.012	135.27	110.78	1.37	10.17	27.19
CDT211	278.92	18	1.8482	0.013	14.28	36.20	103.81	20.48	13.80
CDT212	303.58	18	7.8342	0.012	31.85	0.00	5.19	0.00	5.63
CDT213	66.44	24	0.0226	0.013	3.40	13.74	22.51	4.37	12.74
CDT214	161.83	24	0.414	0.013	14.56	16.97	1.88	5.58	3.43
CDT215	245.96	24	3.8197	0.012	47.90	0.00	11.48	0.00	8.95
CDT216	897.73	48	0.7936	0.012	138.62	37.11	30.74	7.07	25.05
CDT217	202.64	36	0.0104	0.013	6.79	36.91	14.11	5.22	7.99
CDT218	209.18	24	0.022	0.012	3.63	16.76	13.98	6.08	7.91
CDT219	313.95	48	0.9154	0.012	148.89	94.49	0.00	14.57	0.00
CDT220	35.01	18	0.834	0.012	10.39	9.07	8.70	5.13	4.93
CDT221	300.09	18	2.5862	0.012	18.30	1.38	26.12	25.11	9.12
CDT222	250.24	48	3.8135	0.012	303.89	17.22	26.52	8.17	10.42
CDT223	140.45	18	2.0491	0.012	16.29	0.36	12.49	5.08	7.07
CDT224	131.34	18	3.0958	0.012	20.02	20.30	46.97	11.49	6.65
CDT225	151.45	18	2.0495	0.012	16.29	0.35	29.19	8.54	9.29
CDT227	202.06	24	4.2181	0.012	50.33	4.84	79.86	9.71	11.30
CDT228	58.08	15	0.9866	0.012	6.95	12.29	85.86	10.01	12.15
CDT229	315.31	18	1.0666	0.012	11.75	13.88	23.53	7.85	13.32
CDT230	475.24	18	0.5183	0.012	8.19	7.50	20.09	7.02	12.14
CDT231	63.89	15	8.02	0.012	19.82	0.00	8.12	0.00	4.59
CDT232	165.47	18	2.2506	0.012	17.07	1.38	22.68	8.16	7.22
CDT233	371.65	42	0.5352	0.012	79.74	16.48	48.70	6.57	6.89
CDT234	65.32	24	0.3781	0.012	15.07	16.24	73.75	5.75	10.43
CDT235	93.35	18	0.3846	0.012	7.06	8.96	0.00	5.07	0.00
CDT236	151.88	36	0.3114	0.012	40.32	20.77	82.89	5.79	9.52
CDT237	24.2	24	-0.8306	0.012	0.00	11.44	63.52	3.64	12.67
CDT238	319.85	36	0.6128	0.012	56.56	45.99	6.20	9.32	5.05
CDT239	335	36	0.5003	0.012	51.11	45.85	112.09	7.08	10.64
CDT240	341.69	18	2.6975	0.012	18.69	20.40	23.17	12.57	13.11
CDT241	78.74	18	2.4194	0.012	17.70	17.43	12.46	12.89	7.05
CDT242	204.02	18	0.498	0.012	8.03	6.46	0.78	4.96	0.64
CDT243	170.97	24	0.3661	0.013	13.69	18.83	19.43	5.99	6.19
CDT244	183.17	36	0.0109	0.013	6.97	26.88	28.85	4.21	5.69
CDT245	394.67	36	0.4725	0.012	49.67	13.86	12.84	6.02	7.27
CDT246	75.4	18	4.195	0.012	23.31	0.00	33.07	0.00	18.71
CDT247	258.05	40	0.4379	0.012	63.16	28.40	31.05	7.08	9.88
CDT248	121.43	48	0.3978	0.012	98.14	21.81	67.48	12.36	18.36
CDT249	473.35	15	0.45	0.012	4.69	6.35	11.39	5.17	6.45
CDT250	369.51	48	0.8533	0.012	143.75	93.54	104.04	10.91	33.12
CDT251	333.75	18	2.6975	0.012	18.69	19.82	102.98	11.22	14.57
CDT252	146.03	18	0.5492	0.012	8.43	8.09	73.05	4.62	10.33
CDT253	61.37	15	0.0098	0.022	0.38	1.29	28.43	1.56	9.05
CDT254	272	24	0.4143	0.013	14.56	16.83	9.01	5.45	5.10

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CDT255	134.15	36	0.3116	0.012	40.33	14.40	0.13	4.29	8.02
CDT256	434.86	18	0.5183	0.012	8.19	7.34	84.46	4.25	26.89
CDT257	167.41	18	1.0286	0.012	11.54	6.24	41.90	5.66	23.71
CDT258	195.15	24	0.475	0.013	15.59	17.56	48.54	5.59	15.45
CDT259	24.76	36	0.4725	0.012	49.67	13.84	40.70	10.40	8.29
CDT260	89.06	18	0.4974	0.012	8.03	6.74	28.38	5.03	16.06
CDT261	331.11	24	15.767	0.013	89.83	41.31	61.43	21.98	19.55
CDT262	373.6	36	2.1231	0.013	97.19	82.98	48.78	15.28	8.18
CDT263	86.36	36	0.6531	0.012	58.39	43.48	173.05	10.25	14.10
CDT264	219.09	24	2.2767	0.012	36.98	10.90	12.42	10.81	7.03
CDT265	401.57	18	0.3999	0.012	7.20	8.44	19.66	4.77	6.39
CDT266	267.95	18	4.1638	0.012	23.22	0.10	66.33	11.08	10.78
CDT267	160.41	24	8.3692	0.012	70.90	44.94	6.58	23.24	7.57
CDT268	99.95	18	1.0285	0.012	11.54	6.42	51.88	3.99	10.57
CDT269	56.6	24	2.583	0.012	39.39	58.29	20.07	18.56	11.36
CDT270	203.09	30	0.2393	0.012	21.74	39.06	109.14	7.96	9.71
CDT271	17	18	0.1059	0.012	3.70	17.84	60.08	10.10	8.50
CDT272	71.63	24	0.9884	0.012	24.37	18.41	85.29	7.09	12.07
CDT273	293.63	36	0.312	0.012	40.36	20.74	0.00	5.71	0.00
CDT274	239.73	48	0.7563	0.012	135.33	116.82	37.57	11.01	11.96
CDT275	302.82	18	0.2506	0.012	5.70	8.05	18.12	4.63	10.26
CDT276	109.15	24	2.8814	0.013	38.40	12.30	140.03	6.23	11.14
CDT277	296.49	42	0.4729	0.013	69.18	13.84	0.00	6.76	0.00
CDT278	469.46	18	0.543	0.012	8.39	1.28	70.66	7.24	10.00
CDT279	47.89	30	0.4218	0.012	28.86	17.21	26.35	4.25	14.91
CDT280	95.75	18	0.5076	0.012	8.11	4.96	22.24	3.35	8.48
CDT281	190.95	60	0.2687	0.012	146.24	17.13	15.79	7.53	8.93
CDT282	280.86	36	0.6074	0.012	56.31	22.77	97.91	7.34	14.95
CDT283	394.37	36	1.2445	0.012	80.61	39.72	40.53	10.60	8.29
CDT284	228	15	8.0202	0.012	19.82	0.00	43.01	0.00	13.69
CDT285	117.15	24	0.9876	0.013	22.48	17.73	7.90	5.68	4.47
CDT286	85.21	18	0.9576	0.012	11.14	13.49	185.63	7.64	37.82
CDT287	1114.6	48	0.3551	0.012	92.73	109.03	16.53	8.84	5.26
CDT288	232.32	15	8.0204	0.012	19.82	0.00	14.77	0.00	8.92
CDT289	193.24	36	0.6531	0.012	58.39	40.30	18.15	7.94	14.21
CDT290	419.21	18	3.0956	0.012	20.02	20.54	248.03	20.74	19.74
CDT291	393.87	24	2.2716	0.013	34.10	19.87	108.03	11.76	15.28
CDT292	217.84	18	0.482	0.012	7.90	7.58	165.18	6.48	13.14
CDT293	215.9	36	2.629	0.013	108.15	72.22	49.52	17.61	15.76
CDT294	661.3	30	0.6737	0.012	36.47	39.16	56.95	7.98	18.13
CDT295	205.76	24	0.9876	0.012	24.35	20.84	28.91	8.38	14.84
CDT296	451.38	18	0.543	0.012	8.39	0.09	0.00	4.00	0.00
CDT297	35.35	30	5.6803	0.012	105.90	47.15	15.14	20.96	8.57
CDT298	66.34	24	-0.1492	0.012	0.00	13.80	46.17	4.39	9.69
CDT299	162.52	18	1.1057	0.012	11.97	9.76	25.98	5.56	18.19
CDT300	161.78	24	3.82	0.012	47.90	12.62	33.37	15.29	12.04
CDT301	177.72	48	1.7522	0.012	205.99	166.74	8.09	16.82	4.58

Existing Pipe Model Data									
ID	Length (ft)	Diameter (in)	Slope (%)	Manning's N	Capacity @100% Manning's (cfs)	Peak Flow (10-year, 3-hour)	Peak Flow (100-year, 3-hour)	Maximum Velocity (ft/s) (10-year, 3-hour)	Maximum Velocity (ft/s) (100-year, 3-hour)
CDT302	207.29	36	2.1086	0.013	96.85	30.42	61.76	12.10	19.66
CDT303	185.32	48	0.7555	0.012	135.25	114.41	33.72	10.74	15.97
CDT304	68.66	24	0.3437	0.013	13.26	30.33	46.44	9.65	9.83
CDT305	286.43	24	1.8385	0.012	33.23	32.03	69.79	10.20	17.18
CDT306	381.93	24	4.7373	0.012	53.34	15.43	15.45	13.08	5.79
CDT307	99.65	15	8.0211	0.012	19.82	0.00	65.04	0.00	9.20
CDT308	199.14	18	1.0696	0.012	11.77	4.29	113.91	7.11	11.92
CDT309	370.97	30	1.0343	0.012	45.19	40.41	22.02	9.76	7.01
CDT310	226.71	18	4.4136	0.012	23.91	25.31	23.10	17.98	7.35
CDT311	92.99	24	1.9067	0.012	33.84	53.13	21.38	16.91	7.67
CDT312	267.88	18	0.498	0.012	8.03	6.32	146.81	4.86	29.91
CDT313	37.53	24	2.1076	0.012	35.58	15.60	8.10	10.41	4.58
CDT314	48.69	24	3.2142	0.012	43.94	61.66	24.32	19.63	7.74
CDT315	411.17	30	0.9935	0.012	44.29	40.58	26.08	9.53	7.58
CDT316	35.42	36	0.0085	0.013	6.14	29.97	9.15	5.06	5.18
CDT317	159.86	24	0.3785	0.013	13.92	12.27	51.51	5.01	16.40
CDT318	402.19	36	0.316	0.012	40.62	12.19	90.05	5.01	14.05
CDT319	117.09	48	0.9856	0.012	154.49	21.64	118.91	8.69	0.00
CDT320	90.6	24	0.3664	0.013	13.69	17.98	31.61	5.78	10.06
CDT321	122.05	24	0.0221	0.013	3.36	9.18	0.00	2.99	0.00
CDT322	55.6	24	1.0144	0.013	22.78	16.17	47.49	7.46	9.67
CDT323	36.32	30	7.0237	0.012	117.76	47.57	41.93	23.82	7.88
CDT324	168.41	18	0.4976	0.012	8.03	6.38	30.27	4.92	8.78
CDT325	19.92	24	0.0251	0.012	3.88	16.79	0.00	5.35	0.00
CDT326	360.92	42	0.5403	0.012	80.12	16.08	15.92	6.90	9.01
CDT327	337.21	18	0.3849	0.012	7.06	8.50	18.24	4.81	5.80
CDT328	344.56	24	3.1585	0.012	43.56	18.98	26.07	13.66	14.76
CDT329	139.05	48	1.2219	0.012	172.01	14.84	97.60	8.44	10.14
CDT330	12.66	18	4.4155	0.012	23.91	28.55	79.35	16.15	11.23
CDT331	53.78	24	0.344	0.013	13.27	26.42	95.40	8.41	9.92
CDT332	102.87	18	4.1956	0.012	23.31	0.00	8.23	0.00	4.66
CDT333	469.61	30	0.5941	0.012	34.25	40.19	38.91	8.19	12.39
CDT334	434.35	36	0.7314	0.012	61.80	17.42	184.86	6.99	9.41
CDT335	921.02	48	0.7936	0.012	138.63	16.69	96.30	7.43	13.62
CDT336	195.94	24	2.1221	0.012	35.70	0.00	174.83	0.00	14.78
CDT337	249.97	18	0.8341	0.012	10.39	9.34	63.04	5.68	8.92
CDT338	137.36	24	0.4142	0.013	14.56	16.35	21.60	5.99	6.88
CDT339	100.56	18	0.5082	0.012	8.11	7.71	10.67	5.15	6.04
CDT340	91.56	42	0.687	0.012	90.34	45.91	9.35	8.85	4.82
CDT341	49.37	36	1.0553	0.012	74.23	37.91	141.42	8.96	20.01
CDT342	352.13	42	0.4666	0.012	74.45	44.07	50.13	7.72	23.02
CDT343	430.7	18	0.1472	0.022	2.38	8.07	148.18	4.57	20.96
CDT344	80.58	24	1.5351	0.012	30.36	35.84	66.37	11.41	9.39
CDT345	221.67	60	0.383	0.013	161.18	85.34	15.47	8.77	8.75
CDT346	211.61	36	2.6289	0.013	108.14	63.02	18.46	15.15	10.73
CDT347	73.15	60	0.9692	0.012	277.77	10.46	10.06	6.77	5.69
CDT348	203.85	36	0.3669	0.012	43.77	12.20	6.74	5.28	3.82

Existing Pipe Model Data									
ID	Length (ft)	Diameter (in)	Slope (%)	Manning's N	Capacity @100% Manning's (cfs)	Peak Flow (10-year, 3-hour)	Peak Flow (100-year, 3-hour)	Maximum Velocity (ft/s) (10-year, 3-hour)	Maximum Velocity (ft/s) (100-year, 3-hour)
CDT349	179.42	24	0.3433	0.013	13.26	20.37	8.98	6.48	5.08
CDT350	30.71	18	0.3061	0.012	6.30	3.98	18.22	3.20	10.31
CDT351	68.72	24	-1.1307	0.012	0.00	0.28	181.87	0.46	14.68
CDT352	127.72	36	3.7386	0.012	139.71	50.06	133.01	13.44	27.10
CDT353	46.58	36	1.7969	0.012	96.86	53.14	72.02	25.15	22.92
CDT354	147.12	36	8.7038	0.012	213.17	47.71	102.27	19.34	9.61
CDT355	83.41	36	0.6522	0.012	58.35	44.63	16.41	8.69	5.22
CDT356	37.09	18	0.2723	0.012	5.94	10.57	21.25	6.28	6.77
CDT357	26.41	18	2.8815	0.012	19.32	12.30	90.88	11.44	6.42
CDT358	169.35	18	0.385	0.012	7.06	8.61	30.90	4.87	9.84
CDT359	55.72	18	0.0108	0.022	0.64	2.91	10.13	2.62	8.25
CDT360	362.47	18	0.3998	0.012	7.19	8.44	13.57	4.78	7.68
CDT361	50.66	18	0.9692	0.012	11.20	12.49	174.14	7.29	15.62
CDT362	236.59	48	0.7553	0.012	135.24	118.36	18.06	11.10	14.75
CDT363	82.49	30	5.6055	0.012	105.21	47.04	193.63	21.84	9.86
CDT364	204.74	24	0.613	0.012	19.19	36.26	97.39	11.54	8.89
CDT365	235.53	48	0.6025	0.012	120.79	35.19	29.35	8.29	9.34
CDT366	75.26	24	0.0213	0.022	1.95	10.65	28.89	3.52	16.35
CDT367	32.21	24	0.0217	0.012	3.61	16.75	20.19	5.33	16.45
CDT368	55.79	60	2.0792	0.012	406.84	35.32	11.03	5.84	6.24
CDT369	453.19	24	1.7514	0.012	32.43	32.77	0.00	10.43	0.00
CDT370	171.87	15	1.3347	0.012	8.08	8.23	18.50	7.04	10.47
CDT371	40.06	18	0.5142	0.012	8.16	8.95	12.65	5.34	7.16
CDT372	104.67	48	0.5188	0.013	103.46	112.25	105.79	13.22	10.88
CDT373	176.2	24	3.8195	0.012	47.90	13.54	27.37	13.60	8.71
CDT374	668.24	60	0.4615	0.013	176.93	87.97	29.77	9.76	9.80
CDT375	142.85	48	0.0749	0.012	42.59	44.84	0.00	6.61	0.00
CDT376	435.15	24	0.0218	0.013	3.34	9.21	18.82	2.93	10.65
CDT377	148.29	18	1.0291	0.012	11.54	6.49	14.22	6.61	8.58
CDT378	338.11	15	3.7579	0.012	13.57	10.56	36.81	8.74	11.72
CDT379	191.81	18	0.3848	0.012	7.06	8.73	167.14	4.94	34.05
CDT380	157.24	24	7.8949	0.012	68.86	0.00	0.31	0.00	3.88
CDT381	320.19	18	1.1056	0.012	11.97	10.03	25.46	7.07	12.91
CDT382	249.59	18	0.5148	0.012	8.17	8.55	49.67	5.08	15.81
CDT383	137.1	48	0.2684	0.012	80.62	17.13	55.03	6.15	17.52
CDT384	112.52	24	0.0213	0.013	3.30	13.35	9.25	4.25	10.13
CDT385	366.84	24	2.1072	0.012	35.58	8.11	18.50	10.41	5.89
CDT386	164.67	15	-0.1409	0.012	0.00	0.00	35.84	0.00	11.41
CDT387	113.84	18	1.1051	0.012	11.96	9.94	66.20	7.03	9.37
CDT388	76.51	18	1.9082	0.012	15.72	4.36	11.16	8.88	6.31
CDT389	125.16	24	4.7371	0.012	53.34	28.59	9.52	15.96	8.43
CDT390	163.17	30	5.6794	0.012	105.90	47.19	92.99	20.85	13.16
CDT391	162.14	18	2.5867	0.012	18.30	0.34	0.00	4.34	0.00
CDT392	228.57	24	2.2365	0.013	33.83	23.55	65.97	12.95	9.33
CDT393	128.3	24	1.7124	0.012	32.07	15.49	73.30	10.23	8.46
CDT394	21.71	24	0.023	0.013	3.43	15.38	69.69	4.90	9.86
CDT395	139.96	24	2.545	0.012	39.10	0.16	20.05	6.28	6.48

Existing Pipe Model Data									
ID	Length (ft)	Diameter (in)	Slope (%)	Manning's N	Capacity @100% Manning's (cfs)	Peak Flow (10-year, 3-hour)	Peak Flow (100-year, 3-hour)	Maximum Velocity (ft/s) (10-year, 3-hour)	Maximum Velocity (ft/s) (100-year, 3-hour)
CDT396	23.53	24	0.8585	0.013	20.96	8.69	59.95	2.77	40.82
CDT397	64.14	24	0.396	0.012	15.42	14.44	26.17	6.47	14.30
CDT398	250.29	36	0.4727	0.012	49.68	13.85	0.00	6.06	0.00
CDT399	42.3	18	1.8487	0.012	15.47	4.61	9.41	3.67	9.75
CDT400	279.43	15	1.8491	0.012	9.52	1.15	61.73	10.31	19.65
CDT401	404.06	36	0.316	0.012	40.62	13.87	55.50	5.67	17.67
CDT402	172.02	15	8.02	0.012	19.82	0.00	83.55	0.00	26.60
CDT403	139.24	36	0.4726	0.012	49.67	13.85	21.35	6.16	7.20
CDT404	242.28	39.96	0.3987	0.012	60.27	26.18	17.04	6.56	9.65
CDT405	187.28	36	0.5243	0.012	52.32	24.11	19.00	7.25	6.05
CDT406	38.37	24	0.344	0.013	13.27	19.17	135.03	6.15	6.88
CDT407	91.03	36	30.201	0.012	397.09	53.00	15.60	39.52	8.83
CDT408	174.2	24	6.6561	0.012	63.23	17.05	20.91	12.91	11.83
CDT409	82.99	24	7.8949	0.012	68.86	0.00	51.59	0.00	16.42
CDT410	299.61	15	1.8494	0.012	9.52	0.17	38.39	9.06	7.82
CDT411	35.6	24	3.1376	0.012	43.41	15.42	35.80	8.84	20.26
CDT412	137.73	24	3.1584	0.012	43.55	19.91	6.41	16.80	8.16
CDT413	10.81	24	0.3978	0.012	15.46	14.90	191.51	5.91	9.75
CDT414	417.15	24	1.015	0.013	22.79	16.08	174.45	7.39	17.96
CDT415	82.53	18	0.5077	0.012	8.11	7.53	26.84	5.13	4.41
CDT416	329.73	24	0.3242	0.013	12.88	11.74	34.02	6.30	10.83
CDT417	68.95	60	0.3466	0.013	153.34	46.34	11.22	6.03	8.68
CDT418	31.62	18	5.155	0.012	25.84	5.40	10.97	9.30	6.21
CDT419	379.67	18	2.6973	0.012	18.69	23.35	44.75	13.21	25.32
CDT420	353.33	24	2.5291	0.012	38.97	40.16	53.46	13.01	10.89
CDT421	157.5	30	0.0654	0.012	11.36	25.04	53.53	5.91	17.04
CDT422	62.66	18	2.3987	0.012	17.62	17.96	9.66	10.46	5.46
CDT423	145.84	12	0.7968	0.012	3.45	2.16	4.59	4.59	4.59
CDT424	471.31	60	0.3405	0.012	164.65	85.71	8.56	8.56	8.56
CDT425	270.79	48	1.8461	0.012	211.43	93.21	16.31	16.31	16.31
CDT426	487.68	36	0.0105	0.012	7.39	17.01	4.52	4.52	4.52
CDT427	955.97	24	1.3012	0.012	27.96	31.65	10.08	10.08	10.08
CDT428	1363.68	18	0.9136	0.013	10.04	11.55	10.77	10.77	10.77
CDT429	1323.32	18	0.6206	0.013	8.28	10.63	6.01	6.01	6.01
CDT431	181.14	18	1.3553	0.012	13.25	14.14	8.05	8.05	8.05
CDT432	285.38	30	1.5334	0.013	50.79	21.15	9.33	9.33	9.33
CDT433	335.5	24	1.5335	0.013	28.01	21.26	10.20	10.20	10.20
CDT434	165.05	18	0.498	0.012	8.03	6.23	4.70	4.70	4.70

Future Pipe Model Data

ID	Length (ft)	Diameter (in)	Slope (%)	Manning's N	Capacity @100% Manning's (cfs)	Peak Flow (10-year, 3-hour)	Peak Flow (100-year, 3-hour)	Maximum Velocity (ft/s) (10-year, 3-hour)	Maximum Velocity (ft/s) (100-year, 3-hour)
C100	217.94	24	4.767	0.012	53.51	18.24	42.60	15.41	17.97
C102	66.36	36	0.223	0.012	34.12	73.48	155.53	10.39	22.00
C104	135.01	48	1.106	0.012	163.64	21.55	111.71	9.21	13.68
C106	1067.87	12	0.805	0.012	3.46	2.14	4.17	4.26	5.31
C108	515.46	24	1.070	0.012	25.35	7.77	26.47	6.50	8.43
C110	56.36	24	1.070	0.012	25.35	6.94	25.01	5.01	7.96
C112	438.58	60	0.536	0.013	190.60	67.78	185.68	7.60	9.46
C114	1323.08	60	0.228	0.013	124.39	67.55	181.39	8.01	9.24
C116	292.90	60	0.522	0.013	188.23	69.92	195.28	12.03	15.46
C118	369.47	60	0.869	0.013	242.80	43.71	123.83	10.18	13.38
C120	131.08	60	1.380	0.013	305.96	44.29	131.34	11.09	14.99
C122	460.92	36	1.302	0.012	82.44	63.43	92.75	10.54	13.12
C124	375.07	36	1.125	0.012	76.63	67.12	107.43	9.80	15.20
C126	210.53	42	0.297	0.012	59.43	68.61	94.53	8.35	9.93
C128	30.61	30	3.329	0.012	81.07	22.83	52.38	14.19	17.21
C130	90.15	24	3.949	0.012	48.70	15.58	44.28	12.02	14.09
C132	87.54	24	2.882	0.012	41.61	15.58	42.17	12.25	13.42
C134	56.97	24	2.882	0.012	41.61	15.58	33.35	11.38	11.93
C136	170.33	24	0.022	0.012	3.61	9.92	16.40	3.34	5.22
C138	108.14	24	0.021	0.012	3.57	9.83	14.41	3.68	4.59
C140	481.29	24	0.022	0.012	3.62	6.76	13.82	3.12	4.40
C142	95.13	24	0.022	0.012	3.64	6.77	13.79	2.36	4.39
C144	26.24	24	0.023	0.012	3.71	6.96	14.61	2.61	4.65
C146	33.38	24	0.012	0.012	2.68	8.10	21.48	3.43	6.84
C148	8.51	24	0.024	0.012	3.76	4.34	20.31	1.54	6.46
C150	75.05	36	0.021	0.012	10.55	43.46	76.55	8.49	10.83
C152	82.02	24	7.925	0.012	68.99	4.86	19.88	13.44	14.97
C154	55.86	24	0.716	0.012	20.74	4.87	19.89	6.52	9.15
C156	98.67	24	1.014	0.012	24.67	4.87	19.92	6.83	9.06
C158	19.22	24	2.602	0.012	39.53	4.88	19.97	8.49	11.90
C160	54.61	24	0.733	0.012	20.97	4.87	20.02	6.16	9.23
C162	29.95	15	8.020	0.012	19.82	0.00	0.00	0.00	0.00
C164	54.34	15	3.149	0.012	12.42	0.00	0.00	0.00	0.00
C166	18.21	15	3.152	0.012	12.42	0.00	0.00	0.00	0.00
C168	1384.60	36	1.244	0.013	74.40	25.84	66.29	8.33	9.38
C170	28.20	36	1.057	0.012	74.28	38.36	75.95	10.08	10.74
C172	766.16	24	1.369	0.012	28.68	14.49	31.49	11.54	14.12
C174	43.28	36	0.349	0.012	42.68	8.83	40.67	9.60	16.19
C176	424.27	36	2.695	0.012	118.61	0.00	0.00	0.00	0.00
C178	284.76	36	2.879	0.012	122.59	0.00	0.00	0.00	0.00
C180	364.41	36	1.406	0.012	85.69	0.00	0.00	0.00	0.00
C182	597.01	36	0.950	0.012	70.43	0.00	13.15	0.00	1.86
C184	229.50	36	-0.449	0.012	0.00	0.06	3.00	0.04	0.78
C186	271.18	24	-0.158	0.012	0.00	0.06	2.53	0.22	2.39
C188	43.10	24	2.269	0.012	36.92	0.06	2.52	2.15	6.72
C190	717.24	48	-0.306	0.012	0.00	0.31	5.03	0.04	0.47
C192	387.45	12	0.981	0.012	3.82	2.77	5.95	3.62	7.58

Future Pipe Model Data									
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C196	270.90	48	2.901	0.012	265.03	82.07	245.15	11.60	19.51
C198	213.71	48	0.519	0.012	112.10	85.02	183.05	9.08	14.57
C202	212.35	24	4.736	0.012	53.33	4.69	5.09	15.10	13.63
C204	47.83	30	0.414	0.012	28.59	26.08	76.00	7.30	15.48
C206	133.49	48	1.752	0.012	205.99	67.32	177.47	14.66	17.74
C208	443.81	18	4.752	0.013	22.90	11.80	31.08	12.48	17.59
C210	88.05	48	0.822	0.013	130.25	49.34	166.72	9.64	13.40
C214	356.66	48	0.223	0.012	73.42	77.01	113.88	6.54	9.06
C216	211.75	48	0.223	0.012	73.47	80.89	128.71	7.27	10.24
C218	157.60	48	0.414	0.012	100.09	81.01	126.38	7.62	10.06
C220	38.44	18	0.221	0.012	5.35	23.99	42.35	13.57	23.96
C222	202.91	36	0.220	0.012	33.88	23.95	42.90	4.54	6.07
C224	191.37	36	0.221	0.012	33.93	23.92	39.02	3.61	5.52
C226	48.20	18	0.274	0.012	5.96	10.39	16.95	5.88	9.59
C228	161.32	36	0.220	0.012	33.90	34.26	55.02	4.85	7.78
C230	463.84	48	0.264	0.012	79.97	26.20	71.40	8.93	11.74
C232	23.46	48	2.920	0.012	265.91	26.23	71.55	13.48	17.95
C234	82.62	60	0.536	0.013	190.71	66.60	188.91	8.36	11.98
C236	63.81	24	0.027	0.012	4.00	4.03	19.54	1.61	6.22
C238	57.57	42	0.208	0.012	49.76	63.20	153.17	11.61	15.92
C242	1280.45	24	1.582	0.012	30.83	12.61	33.65	9.32	10.71
C246	103.70	48	0.794	0.012	138.63	73.96	126.68	11.10	16.37
C248	198.05	24	3.956	0.012	48.75	5.99	23.13	12.12	9.79
C250	63.16	30	-0.220	0.012	0.00	8.93	32.45	4.75	6.61
C252	49.58	18	0.222	0.012	5.36	2.94	51.18	2.43	28.96
C254	80.99	48	-0.307	0.012	0.00	28.40	44.59	2.66	3.55
C256	482.33	30	-1.839	0.012	0.00	7.93	26.74	6.44	12.43
C258	551.62	24	-0.328	0.012	0.00	8.01	26.76	6.52	8.52
C262	518.31	36	0.500	0.012	51.10	18.82	58.64	7.56	14.64
C264	1693.92	48	0.500	0.012	110.05	18.56	54.04	6.96	7.95
C266	873.50	24	0.500	0.012	17.33	15.80	28.31	7.80	9.01
C270	92.91	12	-0.088	0.012	0.00	0.51	1.86	0.72	2.50
C276	94.30	12	-0.088	0.012	0.00	0.35	1.43	0.55	2.17
C278	270.27	12	-0.088	0.012	0.00	0.18	0.85	0.39	1.39
C280	141.52	12	-0.089	0.012	0.00	0.00	0.00	0.00	0.00
C282	136.87	18	0.073	0.013	2.84	5.62	26.18	1.83	5.29
C290	412.83	30	1.389	0.013	48.35	0.00	0.00	0.00	0.00
C452	81.81	42	8.610	0.012	319.82	64.46	91.63	26.02	28.71
C456	2631.73	36	0.608	0.012	56.35	31.52	70.71	8.69	10.17
C458	2642.86	36	0.511	0.012	51.63	27.42	62.79	8.61	18.90
C466	1297.69	24	1.233	0.012	27.21	16.74	33.82	7.60	15.00
C468	305.55	36	1.537	0.012	89.59	28.82	81.78	9.59	15.77
C474	1118.63	24	0.447	0.012	16.38	0.00	0.00	0.00	0.00
C476	641.17	24	2.821	0.012	41.16	0.00	0.00	0.00	0.00
C482	60.48	36	14.881	0.012	278.74	124.05	376.90	32.38	0.00
C488	159.22	60	2.993	0.012	488.15	84.24	261.02	14.72	16.47
C492	818.01	36	1.035	0.012	73.50	47.36	84.21	10.74	11.91

Future Pipe Model Data									
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C496	1108.82	24	1.813	0.012	33.00	13.49	35.96	9.98	11.45
C518	967.96	24	1.653	0.012	31.51	16.65	36.11	9.75	16.06
C520	1014.92	24	1.577	0.012	30.77	18.49	31.22	7.74	17.60
C588	3495.52	36	1.202	0.012	79.20	49.14	89.28	10.71	15.02
C590	1178.41	42	0.255	0.012	54.99	51.89	115.29	9.95	11.98
C596	3961.20	72	0.480	0.012	317.75	295.35	401.05	18.07	17.93
C598	5587.68	72	0.626	0.012	363.11	270.26	366.23	13.43	12.95
C600	4358.20	36	0.344	0.012	42.39	24.72	48.07	6.17	7.45
C614	1204.04	48	0.767	0.012	136.28	60.15	144.00	12.67	13.85
C616	2673.73	42	1.122	0.012	115.45	51.04	125.80	10.99	14.62
C618	3157.51	42	1.140	0.012	116.38	19.32	119.72	7.60	22.55
C648	1495.37	36	0.803	0.012	64.73	47.32	75.33	13.54	15.10
C650	1848.51	36	2.975	0.012	124.64	69.65	129.63	22.06	18.34
C658	2539.60	36	3.347	0.012	132.19	91.31	140.62	16.86	19.89
C660	4020.63	36	2.736	0.012	119.52	119.10	125.99	19.96	28.44
C662	1782.05	36	2.245	0.012	108.26	102.81	114.61	16.09	17.17
C672	1336.78	36	4.709	0.012	156.80	8.01	30.62	10.79	17.14
C674	73.15	60	-9.967	0.012	0.00	0.00	0.00	0.00	0.00
C684	1336.98	30	1.346	0.012	51.56	25.57	55.13	10.37	11.48
C686	1349.77	36	1.260	0.012	81.09	30.07	74.45	10.68	12.32
C688	1336.25	36	1.572	0.012	90.58	32.89	85.58	10.31	12.11
C690	1293.09	36	0.928	0.012	69.61	39.96	92.82	12.97	13.13
C692	57.79	36	6.093	0.012	178.35	39.51	92.08	9.98	13.03
C694	5181.85	36	1.235	0.012	80.30	32.13	86.92	16.89	18.36
C696	2017.85	48	6.938	0.012	409.89	256.43	406.76	33.51	34.60
C702	1779.77	24	1.517	0.012	30.19	16.03	31.66	9.68	10.21
C708	1301.88	36	0.461	0.012	49.05	23.12	48.80	5.06	6.90
C710	1340.31	36	0.522	0.01	62.66	50.20	73.85	9.58	12.03
C714	788.19	36	1.015	0.012	72.80	54.14	76.79	10.82	11.04
C716	1670.79	24	2.334	0.012	37.44	30.70	39.15	11.67	12.46
C720	2303.43	36	1.737	0.012	95.22	15.64	60.97	7.48	8.73
C722	1386.16	48	1.533	0.012	192.68	163.87	248.83	16.34	21.37
C726	1364.37	30	1.099	0.012	46.59	19.87	51.67	8.60	10.53
C736	981.05	24	3.772	0.012	47.59	8.06	30.74	12.81	18.15
C738	79.96	24	2.501	0.012	38.76	8.20	69.32	9.60	22.07
C746	4569.10	60	3.436	0.012	523.01	171.25	404.40	23.84	27.95
C756	4813.42	24	0.976	0.012	24.22	13.47	27.75	6.05	8.83
C764	1316.09	54	2.659	0.012	347.41	126.27	566.06	35.57	41.65
C768	1513.93	54	0.925	0.012	204.86	161.29	312.66	10.71	19.66
C770	1711.93	72	0.351	0.012	271.62	248.67	364.19	11.88	13.72
C784	1353.31	24	1.404	0.012	29.04	25.19	37.01	9.08	11.78
C786	2675.03	48	1.159	0.012	167.52	64.13	181.63	12.21	16.30
C788	1357.98	42	1.399	0.012	128.92	66.11	139.72	13.47	14.67
C790	1354.60	42	1.431	0.012	130.37	66.01	137.33	12.09	14.27
C794	1940.47	36	1.804	0.012	97.04	69.48	114.36	15.84	17.16
C796	4134.84	36	3.386	0.012	132.96	82.30	136.58	32.75	20.37
C800	4529.32	48	2.252	0.012	233.52	107.93	245.84	17.78	28.68

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C802	2905.22	36	6.368	0.01	218.80	87.08	241.04	26.92	35.51
C806	5785.60	24	4.580	0.012	52.45	29.45	58.41	16.98	20.48
C808	4530.12	24	4.967	0.012	54.62	12.70	58.02	10.00	28.92
C810	951.81	36	5.253	0.012	165.61	68.22	180.87	20.85	29.91
C812	2205.92	48	2.811	0.012	260.89	76.15	244.43	12.67	19.45
C814	5534.13	36	7.680	0.012	200.24	21.70	68.91	35.51	9.75
C816	868.10	36	1.728	0.012	94.98	72.19	153.56	13.70	21.72
C822	518.83	48	0.771	0.012	136.64	32.19	143.22	16.21	22.35
C830	2108.14	30	2.372	0.012	68.43	24.77	69.50	11.85	14.38
C832	1583.77	30	1.894	0.012	61.16	52.83	75.15	15.79	16.65
C834	1580.53	30	7.592	0.012	122.44	60.11	93.10	24.84	26.14
C836	3046.11	24	4.892	0.012	54.20	9.45	56.41	14.39	31.88
C844	973.14	18	1.310	0.012	13.02	0.00	0.00	0.00	0.00
C846	1039.48	36	1.924	0.012	100.23	95.16	123.27	15.97	17.44
C848	526.24	36	3.227	0.012	129.81	95.02	123.18	14.16	17.43
C850	837.51	42	-1.602	0.012	0.00	0.00	0.00	0.00	0.00
C876	245.60	36	6.108	0.012	178.57	95.68	359.43	18.37	0.00
C878	1080.20	60	1.481	0.012	343.39	171.54	404.45	20.36	22.05
C880	3150.99	36	0.952	0.012	70.50	13.22	74.11	5.93	10.48
C882	1544.34	60	0.324	0.012	160.54	155.34	203.49	8.36	10.36
C884	1381.88	72	0.290	0.012	246.84	201.74	336.06	8.73	11.89
C886	2137.84	60	0.468	0.012	192.97	73.69	177.00	15.84	17.39
C892	585.00	48	0.171	0.012	64.34	18.04	86.09	7.05	10.50
C894	1224.80	60	1.796	0.012	378.14	18.91	99.15	6.52	9.09
C896	238.17	48	0.420	0.012	100.83	19.85	113.49	5.05	9.03
C900	194.71	48	2.568	0.01	299.24	32.39	143.51	9.66	22.50
C902	460.76	48	0.651	0.012	125.57	32.41	143.40	13.64	19.59
C904	763.01	36	0.262	0.012	36.99	20.84	65.29	7.08	9.24
C908	399.74	24	2.502	0.012	38.76	0.00	0.00	0.00	0.00
C912	632.73	24	1.581	0.01	36.97	13.08	44.13	10.75	14.05
C918	210.96	24	12.325	0.01	103.25	17.79	73.30	29.35	23.33
C920	595.14	24	0.840	0.012	22.46	16.89	30.79	7.47	14.23
C922	713.37	24	0.140	0.012	9.18	0.00	1.50	0.00	0.88
C924	11.32	36	17.668	0.012	303.72	15.97	93.10	16.50	41.69
C928	1668.11	24	0.719	0.012	20.79	17.54	23.25	8.92	9.64
CDT001	182.05	18	4.195	0.012	23.31	0.00	0.00	0.00	0.00
CDT002	42.56	30	0.651	0.012	35.85	32.32	109.71	8.13	22.35
CDT003	23.67	36	1.031	0.012	73.36	19.01	71.12	6.53	15.08
CDT004	84.24	36	0.608	0.012	56.33	10.68	72.29	5.92	10.23
CDT005	101.86	18	1.355	0.012	13.25	12.81	19.28	7.90	10.91
CDT006	215.94	24	4.218	0.012	50.33	0.20	0.97	3.83	8.06
CDT007	661.72	54	1.147	0.012	228.17	171.22	251.79	14.72	16.60
CDT008	196.35	48	0.223	0.012	73.50	77.07	118.83	6.39	9.46
CDT009	95.04	18	0.508	0.012	8.11	7.85	13.42	4.85	7.59
CDT010	256.49	48	3.814	0.012	303.90	25.59	131.89	14.50	20.57
CDT011	504.93	48	3.093	0.012	273.69	34.30	93.79	14.58	15.22
CDT012	171.30	15	-0.141	0.012	0.00	0.00	0.00	0.00	0.00

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CDT013	51.31	18	2.711	0.012	18.74	12.67	18.67	8.00	10.57
CDT014	218.25	18	1.106	0.012	11.97	9.58	14.72	6.84	8.33
CDT015	132.31	24	1.029	0.012	24.86	7.04	25.97	6.81	12.68
CDT016	308.39	36	0.909	0.012	68.90	38.91	74.49	9.63	10.54
CDT017	122.47	24	0.557	0.012	18.29	8.10	24.91	5.34	7.93
CDT018	395.25	24	2.272	0.013	34.10	15.89	22.02	11.77	12.39
CDT019	340.10	36	0.674	0.012	59.32	38.41	67.17	6.82	9.50
CDT020	319.09	18	0.400	0.012	7.20	20.16	23.58	11.41	13.34
CDT021	460.23	36	0.909	0.012	68.89	39.06	74.24	9.79	10.50
CDT022	145.73	15	3.148	0.012	12.42	0.00	0.00	0.00	0.00
CDT023	404.04	48	0.915	0.012	148.87	92.80	184.07	12.06	14.65
CDT024	64.23	42	0.515	0.012	78.24	80.26	105.96	8.60	11.01
CDT025	53.65	24	1.007	0.012	24.59	0.20	9.46	2.37	7.31
CDT026	254.66	15	1.849	0.012	9.52	4.32	15.86	8.34	12.92
CDT027	496.12	54	0.957	0.012	208.45	178.62	218.41	13.52	13.86
CDT028	32.68	15	-0.141	0.012	0.00	0.00	0.00	0.00	0.00
CDT029	39.65	18	1.085	0.012	11.85	4.36	11.74	3.11	6.64
CDT030	63.95	24	2.515	0.012	38.86	7.95	28.15	3.82	8.96
CDT031	132.74	48	0.756	0.012	135.27	92.46	140.07	8.69	11.15
CDT032	34.76	36	2.696	0.012	118.63	2.76	14.15	1.06	2.49
CDT033	614.92	24	0.705	0.012	20.58	6.26	23.19	6.15	7.53
CDT034	453.40	30	5.606	0.012	105.21	0.07	1.08	20.60	20.68
CDT035	186.19	36	0.473	0.012	49.68	17.01	64.98	6.38	9.19
CDT036	26.19	30	4.414	0.012	93.36	10.44	42.07	12.55	18.53
CDT037	52.48	18	3.539	0.012	21.41	9.61	79.82	11.72	45.17
CDT038	243.39	24	2.742	0.012	40.58	18.25	44.42	12.28	14.14
CDT039	350.75	36	2.123	0.013	97.19	52.15	114.51	13.81	17.90
CDT040	122.61	18	1.172	0.012	12.32	8.94	35.79	6.48	20.26
CDT041	271.51	42	0.342	0.012	63.76	81.23	114.51	9.86	11.90
CDT042	205.48	24	2.489	0.012	38.66	15.79	26.25	13.82	15.18
CDT043	457.60	48	1.850	0.013	195.37	84.92	168.02	12.56	14.23
CDT044	250.00	48	2.204	0.012	231.04	21.54	111.67	11.53	18.28
CDT045	274.51	48	1.222	0.012	172.01	21.54	111.67	10.40	16.13
CDT046	54.42	36	0.910	0.012	68.91	38.67	89.50	9.39	12.66
CDT047	7.77	36	2.703	0.012	118.79	7.21	27.09	2.17	4.58
CDT048	327.43	18	0.834	0.012	10.39	8.93	10.94	5.31	6.19
CDT049	50.15	30	3.093	0.012	78.14	34.30	93.83	17.66	24.32
CDT050	311.56	18	1.066	0.012	11.75	1.61	13.33	4.91	8.39
CDT051	295.72	48	0.603	0.012	120.80	48.22	124.25	8.48	9.89
CDT052	131.73	24	2.419	0.012	38.12	18.24	42.69	12.17	13.59
CDT053	179.33	24	0.022	0.012	3.61	6.80	14.04	2.44	4.47
CDT054	1397.08	42	0.473	0.012	74.99	73.20	103.53	8.87	14.04
CDT055	436.74	36	0.731	0.012	61.79	3.96	44.13	4.83	8.48
CDT056	299.20	30	0.994	0.012	44.29	16.75	22.88	8.47	9.12
CDT057	61.13	36	0.473	0.012	49.68	16.93	65.03	6.76	9.96
CDT058	53.93	36	0.234	0.012	34.93	31.20	69.71	5.20	9.86
CDT059	156.56	18	0.498	0.012	8.03	7.60	9.92	4.74	5.61

Future Pipe Model Data									
ID	Length (ft)	Diameter (in)	Slope (%)	Manning's N	Capacity @100% Manning's (cfs)	Peak Flow (10-year, 3-hour)	Peak Flow (100-year, 3-hour)	Maximum Velocity (ft/s) (10-year, 3-hour)	Maximum Velocity (ft/s) (100-year, 3-hour)
CDT061	121.59	60	0.653	0.012	228.00	137.39	219.97	10.70	13.85
CDT062	80.96	18	0.834	0.012	10.39	8.93	19.01	5.94	10.76
CDT063	91.24	48	0.986	0.012	154.55	21.68	63.61	8.67	11.64
CDT064	114.96	18	2.250	0.012	17.07	1.41	5.42	5.83	8.47
CDT065	398.90	36	0.367	0.012	43.77	13.52	55.06	5.31	7.79
CDT066	314.23	18	1.066	0.012	11.75	1.61	13.31	4.66	7.53
CDT067	34.22	15	1.850	0.012	9.52	3.82	11.10	7.15	9.04
CDT068	97.18	48	0.437	0.012	102.91	42.19	114.55	7.82	9.12
CDT069	41.15	24	1.356	0.012	28.54	12.74	18.69	7.76	7.98
CDT070	320.58	36	0.607	0.012	56.30	10.69	72.32	6.07	10.23
CDT071	403.66	48	0.757	0.012	135.42	45.65	278.26	5.99	22.14
CDT072	20.59	24	-0.019	0.012	0.00	7.42	15.00	3.05	4.78
CDT073	206.49	36	0.400	0.012	45.70	13.73	57.42	5.57	8.12
CDT074	280.03	48	0.398	0.012	98.19	34.72	109.07	7.09	8.68
CDT075	151.40	24	2.122	0.012	35.70	0.00	0.00	0.00	0.00
CDT076	160.33	18	0.498	0.012	8.03	7.66	10.33	4.75	5.85
CDT077	154.40	18	1.944	0.012	15.87	12.70	18.68	9.39	10.57
CDT078	389.07	48	0.519	0.013	103.48	84.92	169.83	10.01	13.51
CDT079	22.36	30	2.482	0.012	70.01	10.41	42.20	10.23	14.75
CDT080	343.04	48	2.204	0.012	231.03	21.54	111.68	12.03	19.11
CDT081	492.89	54	1.222	0.012	235.46	170.47	242.35	14.62	15.24
CDT082	81.24	18	0.508	0.012	8.11	7.77	11.97	4.71	6.78
CDT083	166.16	36	0.223	0.012	34.10	49.41	78.20	6.99	11.06
CDT084	101.92	36	0.395	0.012	45.44	18.62	64.51	5.68	9.13
CDT085	302.59	30	1.034	0.012	45.19	16.74	22.91	9.48	9.80
CDT086	127.08	48	0.986	0.012	154.52	21.63	63.55	7.98	9.37
CDT087	108.24	18	0.710	0.012	9.59	0.00	0.00	0.00	0.00
CDT088	105.17	24	1.029	0.012	24.86	7.02	25.25	6.78	8.15
CDT089	229.56	36	0.395	0.012	45.42	18.78	66.56	6.04	9.42
CDT090	609.17	42	0.578	0.012	82.84	73.58	97.68	9.34	10.15
CDT091	352.30	42	0.540	0.012	80.13	15.71	26.00	6.47	7.04
CDT092	90.57	24	0.366	0.012	14.82	6.36	20.64	4.72	6.57
CDT093	283.38	30	1.848	0.013	55.77	10.44	41.92	10.41	14.44
CDT094	228.14	48	1.752	0.012	206.00	67.36	177.57	14.66	16.86
CDT095	217.88	36	2.109	0.013	96.86	30.33	99.61	9.59	14.09
CDT096	198.71	30	2.529	0.012	70.67	17.20	53.85	10.80	15.50
CDT097	298.68	18	3.528	0.012	21.38	1.45	1.28	15.44	15.83
CDT098	50.05	18	1.541	0.012	14.12	9.61	46.13	10.11	26.10
CDT099	333.15	60	0.958	0.012	276.09	182.03	238.69	12.03	12.25
CDT100	264.52	48	0.687	0.012	129.01	136.82	177.77	15.87	16.07
CDT101	32.97	48	0.437	0.012	102.84	34.74	128.28	6.86	10.21
CDT102	23.52	24	1.216	0.012	27.03	0.60	2.14	0.83	0.96
CDT103	113.90	24	0.343	0.012	14.36	6.30	21.15	4.47	6.73
CDT104	52.71	24	1.030	0.012	24.87	7.01	25.25	6.71	8.04
CDT105	400.92	36	0.316	0.012	40.64	13.40	54.06	5.18	7.65
CDT106	123.61	24	2.544	0.012	39.09	0.20	9.50	2.99	8.49
CDT107	189.11	36	1.908	0.012	99.82	12.51	31.56	4.45	5.97

Future Pipe Model Data									
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CDT108	70.67	24	0.415	0.012	15.78	6.33	20.36	4.77	6.48
CDT109	28.61	30	10.958	0.012	147.09	10.41	42.21	12.85	18.25
CDT111	227.59	36	0.234	0.012	34.93	32.00	72.87	5.42	10.31
CDT112	108.00	24	0.415	0.012	15.78	6.28	20.00	4.92	6.36
CDT113	118.90	18	1.355	0.012	13.25	12.78	19.07	8.95	10.79
CDT114	26.88	42	2.738	0.013	166.48	16.96	65.54	18.73	29.37
CDT115	37.34	18	2.247	0.012	17.06	1.41	5.76	2.58	3.26
CDT116	88.66	18	0.508	0.012	8.11	7.81	12.53	4.80	7.09
CDT117	201.92	42	0.342	0.012	63.76	81.22	114.51	16.94	18.00
CDT118	239.79	36	0.234	0.012	34.95	24.16	42.31	4.03	5.99
CDT119	194.19	36	0.116	0.012	24.60	29.86	49.87	9.46	10.90
CDT120	41.84	36	1.752	0.012	95.64	29.77	64.07	6.48	9.06
CDT121	304.07	18	1.066	0.012	11.75	1.61	14.32	4.66	8.10
CDT122	44.40	18	2.273	0.013	15.84	15.89	22.02	11.42	12.46
CDT123	144.10	15	3.149	0.012	12.42	0.00	0.00	0.00	0.00
CDT124	215.34	60	0.653	0.012	227.90	135.79	213.03	9.63	12.31
CDT125	78.67	30	7.022	0.012	117.75	0.06	1.08	3.48	8.01
CDT126	352.22	24	4.737	0.012	53.34	1.59	5.11	11.08	10.77
CDT127	403.55	18	0.305	0.012	6.29	4.49	7.26	2.54	4.11
CDT128	69.76	15	3.148	0.012	12.42	0.00	0.00	0.00	0.00
CDT129	54.66	24	1.385	0.012	28.84	6.57	27.54	7.43	10.11
CDT130	98.40	24	7.895	0.012	68.86	0.00	0.00	0.00	0.00
CDT131	68.47	42	0.535	0.012	79.69	15.76	26.25	6.47	7.45
CDT132	263.91	48	0.438	0.012	102.95	38.58	128.21	7.51	10.20
CDT133	69.66	42	0.540	0.012	80.08	15.60	25.36	6.47	6.67
CDT134	31.46	42	0.594	0.012	84.03	72.85	98.08	9.00	10.19
CDT135	249.66	48	1.752	0.012	206.00	48.92	129.14	11.78	18.02
CDT136	285.35	24	7.895	0.012	68.86	0.00	0.00	0.00	0.00
CDT137	41.13	18	0.338	0.012	6.62	7.73	11.46	4.72	6.49
CDT138	167.26	15	5.249	0.012	16.03	0.00	0.00	0.00	0.00
CDT139	282.30	36	0.528	0.012	52.49	9.04	63.16	5.57	8.94
CDT140	310.12	24	4.961	0.013	50.39	24.83	33.33	20.14	13.86
CDT141	400.92	36	0.316	0.012	40.62	13.44	54.23	5.18	7.67
CDT142	280.11	24	1.908	0.012	33.85	12.56	30.14	10.53	12.21
CDT143	368.66	24	2.107	0.012	35.57	7.97	28.56	9.07	12.35
CDT144	278.81	36	0.528	0.012	52.50	9.03	60.25	5.67	8.52
CDT145	125.64	42	0.516	0.012	78.28	80.00	103.59	8.67	10.77
CDT146	93.65	18	2.697	0.012	18.69	0.00	0.00	0.00	0.00
CDT147	131.97	24	0.344	0.012	14.37	6.25	20.58	4.47	6.55
CDT148	31.75	48	0.400	0.012	98.42	27.09	77.91	5.66	6.42
CDT149	295.82	24	1.907	0.013	31.24	24.82	33.29	12.05	12.31
CDT150	350.34	18	0.385	0.012	7.06	9.58	10.89	5.42	6.16
CDT151	971.40	24	0.985	0.013	22.45	24.67	25.58	8.83	8.86
CDT152	261.19	18	1.914	0.012	15.74	4.38	14.78	7.76	10.28
CDT153	238.70	48	0.613	0.012	121.83	134.93	166.62	10.74	13.26
CDT154	16.41	24	-6.094	0.012	0.00	4.89	20.09	7.51	10.34
CDT155	76.29	48	1.751	0.012	205.93	67.34	177.82	14.66	16.46

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CDT156	21.20	60	0.269	0.012	146.30	1.28	18.51	1.73	2.75
CDT158	203.09	30	0.613	0.012	34.78	25.90	63.57	9.29	12.95
CDT159	422.97	18	3.539	0.012	21.41	9.61	28.74	16.94	16.26
CDT160	302.43	18	2.641	0.012	18.49	1.41	5.46	10.28	9.36
CDT162	33.25	36	4.650	0.013	143.82	49.70	105.08	10.33	14.87
CDT163	324.71	24	0.427	0.012	16.01	0.00	2.50	0.00	0.80
CDT164	322.96	48	0.221	0.013	67.59	30.84	52.58	4.30	4.24
CDT165	14.20	24	0.704	0.012	20.57	4.88	20.00	7.52	11.14
CDT166	88.39	24	2.121	0.012	35.69	0.00	0.00	0.00	0.00
CDT167	217.02	30	4.413	0.012	93.35	10.42	42.19	13.24	18.54
CDT168	96.03	42	0.467	0.012	74.45	51.66	87.85	6.05	9.13
CDT169	358.89	60	0.500	0.012	199.54	139.22	245.43	10.76	12.50
CDT170	140.19	18	3.096	0.012	20.02	15.89	22.02	10.62	12.46
CDT171	427.76	48	0.986	0.012	154.53	21.60	63.43	8.52	10.77
CDT172	799.08	24	1.015	0.012	24.69	6.58	25.59	7.04	8.66
CDT173	313.15	24	0.485	0.012	17.07	8.43	15.91	6.32	6.87
CDT175	123.59	18	2.698	0.012	18.69	0.00	0.00	0.00	0.00
CDT176	21.21	24	2.744	0.012	40.60	18.27	49.15	12.57	15.65
CDT177	397.98	48	0.915	0.012	148.88	92.83	184.51	11.90	14.68
CDT178	303.07	30	1.751	0.012	58.80	31.27	64.38	10.25	13.12
CDT179	33.94	18	2.260	0.012	17.11	0.78	3.64	2.67	2.06
CDT180	278.40	24	0.450	0.012	16.44	9.58	19.32	5.22	6.15
CDT181	218.58	30	4.414	0.012	93.36	10.42	42.16	13.01	18.61
CDT182	27.35	24	2.194	0.012	36.30	4.87	19.91	6.58	8.95
CDT184	44.30	18	1.233	0.012	12.63	0.63	8.42	0.76	4.76
CDT185	462.97	42	0.239	0.012	53.30	69.84	86.22	7.26	8.96
CDT186	171.14	42	0.456	0.012	73.58	79.15	150.97	9.24	15.69
CDT187	35.38	24	0.365	0.012	14.80	6.41	21.63	4.63	6.89
CDT188	25.79	15	-0.140	0.012	0.00	0.00	0.00	0.00	0.00
CDT189	300.40	24	1.993	0.012	34.60	15.58	37.22	11.49	12.03
CDT190	392.94	24	2.272	0.013	34.10	15.89	22.02	14.53	11.98
CDT191	363.12	54	0.958	0.012	208.46	179.00	218.48	13.31	13.78
CDT192	268.16	18	0.400	0.012	7.20	9.84	9.85	5.65	5.57
CDT194	125.46	15	5.249	0.012	16.03	0.00	0.00	0.00	0.00
CDT195	414.21	30	1.751	0.012	58.80	31.48	65.47	11.86	13.56
CDT196	255.41	15	1.849	0.012	9.52	3.76	11.03	7.17	8.99
CDT197	290.33	18	7.834	0.012	31.85	0.00	0.00	0.00	0.00
CDT198	15.03	15	5.250	0.012	16.03	0.00	0.00	0.00	0.00
CDT199	88.21	18	2.699	0.012	18.70	4.61	13.66	5.01	13.42
CDT200	177.36	36	2.109	0.013	96.86	30.40	103.31	11.91	17.28
CDT201	259.50	42	0.516	0.012	78.26	80.12	103.69	8.54	10.78
CDT202	147.05	42	0.594	0.012	84.03	71.31	93.87	8.75	9.76
CDT203	20.40	24	0.025	0.012	3.84	6.76	13.81	2.32	4.39
CDT204	181.61	48	2.331	0.012	237.58	21.73	63.73	9.94	13.32
CDT205	116.86	24	-4.961	0.013	0.00	24.84	33.34	15.88	15.92
CDT206	417.22	48	0.854	0.012	143.76	92.88	200.49	11.74	15.95
CDT207	237.06	24	1.050	0.012	25.12	8.15	26.77	6.20	10.55

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CDT208	149.34	18	0.500	0.012	8.05	11.43	31.22	7.72	17.67
CDT209	101.06	18	0.385	0.012	7.06	9.98	48.93	5.65	27.69
CDT210	129.69	48	0.756	0.012	135.27	92.72	141.07	9.84	11.23
CDT211	278.92	30	1.848	0.013	55.76	4.02	16.13	6.63	6.99
CDT212	303.58	18	7.834	0.012	31.85	0.00	0.00	0.00	0.00
CDT213	66.44	24	0.753	0.012	21.26	4.87	19.88	8.53	12.42
CDT214	161.83	24	0.414	0.012	15.77	6.32	20.27	4.77	6.45
CDT215	245.96	24	3.820	0.012	47.90	0.00	0.00	0.00	0.00
CDT216	897.73	48	0.794	0.012	138.62	73.76	129.70	10.50	10.85
CDT217	202.64	36	0.223	0.012	34.09	49.45	83.66	7.00	11.84
CDT218	209.18	24	0.022	0.012	3.63	9.80	13.92	5.21	4.88
CDT219	313.95	48	0.915	0.012	148.89	97.01	204.93	14.34	16.31
CDT220	35.01	18	0.834	0.012	10.39	10.87	12.88	6.15	7.29
CDT221	300.09	18	2.586	0.012	18.30	2.24	1.98	15.96	21.12
CDT222	250.24	48	3.814	0.012	303.89	25.59	131.90	8.61	11.54
CDT223	140.45	18	2.049	0.012	16.29	0.89	0.56	5.23	2.58
CDT224	131.34	18	3.096	0.012	20.02	15.89	22.02	11.30	12.46
CDT225	151.45	18	2.050	0.012	16.29	0.99	0.71	5.55	5.25
CDT227	202.06	24	4.218	0.012	50.33	4.51	11.50	9.75	9.69
CDT228	58.08	24	0.987	0.012	24.34	15.59	45.56	11.09	14.50
CDT229	315.31	18	1.067	0.012	11.75	1.61	13.31	4.65	7.53
CDT230	475.24	18	0.518	0.012	8.19	6.88	15.88	4.76	8.99
CDT231	63.89	15	8.020	0.012	19.82	0.00	0.00	0.00	0.00
CDT232	165.47	18	2.251	0.012	17.07	1.41	5.37	6.65	7.76
CDT233	371.65	42	0.535	0.012	79.74	15.78	32.54	6.46	11.22
CDT234	65.32	36	0.222	0.012	34.04	33.80	107.58	5.76	15.22
CDT235	93.35	18	0.385	0.012	7.06	10.47	11.76	5.93	6.66
CDT236	151.88	48	0.311	0.012	86.84	27.02	81.21	5.80	7.07
CDT237	24.20	36	-0.831	0.012	0.00	11.66	31.82	2.99	4.50
CDT238	319.85	48	0.613	0.012	121.82	134.90	164.67	11.27	13.10
CDT239	335.00	60	0.500	0.012	199.57	140.10	259.75	10.51	15.57
CDT240	341.69	18	2.698	0.012	18.69	0.00	0.00	0.00	0.00
CDT241	78.74	24	2.419	0.012	38.12	18.25	42.63	13.73	14.87
CDT242	204.02	18	0.498	0.012	8.03	7.51	8.88	4.73	5.26
CDT243	170.97	24	0.366	0.012	14.83	6.45	22.14	4.63	7.05
CDT244	183.17	36	0.223	0.013	31.48	39.01	57.90	5.52	8.19
CDT245	394.67	36	0.473	0.012	49.67	17.08	64.98	6.39	9.19
CDT246	75.40	18	4.195	0.012	23.31	0.00	0.00	0.00	0.00
CDT247	258.05	48	0.438	0.012	102.98	38.52	108.68	7.28	8.65
CDT248	121.43	48	0.398	0.012	98.14	21.78	63.82	9.14	12.71
CDT249	473.35	24	0.450	0.012	16.44	8.05	15.57	4.76	4.95
CDT250	369.51	48	0.853	0.012	143.75	86.10	166.92	11.11	15.64
CDT251	333.75	18	2.698	0.012	18.69	0.00	0.00	0.00	0.00
CDT252	146.03	18	0.549	0.012	8.43	10.35	21.04	8.13	11.91
CDT253	61.37	42	0.010	0.012	10.78	3.11	12.58	1.83	2.34
CDT254	272.00	24	0.414	0.012	15.78	6.30	20.15	4.81	6.41
CDT255	134.15	42	0.312	0.012	60.84	18.59	62.95	4.75	6.87

Future Pipe Model Data									
ID	Length (ft)	Diameter (in)	Slope (%)	Manning's N	Capacity @100% Manning's (cfs)	Peak Flow (10-year, 3-hour)	Peak Flow (100-year, 3-hour)	Maximum Velocity (ft/s) (10-year, 3-hour)	Maximum Velocity (ft/s) (100-year, 3-hour)
CDT256	434.86	18	0.518	0.012	8.19	6.83	13.95	4.00	7.90
CDT257	167.41	24	1.029	0.012	24.86	7.01	25.25	6.19	8.04
CDT258	195.15	24	0.475	0.012	16.89	9.97	16.68	3.83	5.31
CDT259	24.76	36	0.473	0.012	49.67	16.95	65.28	11.16	18.26
CDT260	89.06	18	0.497	0.012	8.03	7.69	10.95	4.78	6.20
CDT261	324.97	24	17.871	0.013	95.63	0.00	0.00	0.00	0.00
CDT262	373.60	36	2.123	0.013	97.19	52.08	108.08	14.46	15.29
CDT263	86.36	48	0.653	0.012	125.76	135.23	190.85	10.76	15.19
CDT264	219.09	24	2.277	0.012	36.98	12.57	30.14	10.31	13.60
CDT265	401.57	18	0.400	0.012	7.20	10.06	10.20	5.69	5.77
CDT266	267.95	18	4.164	0.012	23.22	0.05	0.12	14.56	13.56
CDT267	160.41	36	8.369	0.012	209.04	8.82	40.67	14.69	22.92
CDT268	99.95	24	1.029	0.012	24.85	7.04	25.27	4.38	8.05
CDT269	56.60	24	2.583	0.012	39.39	29.85	49.85	10.91	15.87
CDT270	203.09	42	0.239	0.012	53.32	70.08	95.30	7.28	9.91
CDT271	17.00	24	0.106	0.012	7.97	18.18	58.06	10.81	18.48
CDT272	71.63	24	0.988	0.012	24.37	26.22	49.05	12.32	15.61
CDT273	293.63	48	0.312	0.012	86.92	27.03	85.55	5.96	7.52
CDT274	239.73	48	0.756	0.012	135.33	93.32	153.93	10.71	12.25
CDT275	302.82	18	3.883	0.012	22.42	10.34	21.04	12.44	13.50
CDT276	109.15	24	2.881	0.012	41.60	15.60	31.70	6.91	10.09
CDT277	296.49	42	0.473	0.013	69.18	16.89	65.07	7.20	10.75
CDT278	469.46	18	0.543	0.012	8.39	1.33	7.71	8.24	8.57
CDT279	47.89	30	0.422	0.012	28.86	8.16	28.17	2.15	5.74
CDT280	95.75	18	0.508	0.012	8.11	5.01	10.48	3.36	5.93
CDT281	190.95	60	0.269	0.012	146.24	25.70	127.11	5.70	7.19
CDT282	280.86	36	0.607	0.012	56.31	9.03	60.29	5.46	8.53
CDT283	394.37	36	1.245	0.012	80.61	39.16	83.76	10.46	14.39
CDT284	228.00	15	8.020	0.012	19.82	0.00	0.00	0.00	0.00
CDT285	117.15	24	0.988	0.012	24.36	10.08	16.90	5.48	6.35
CDT286	85.21	54	0.958	0.012	208.48	177.97	218.47	13.80	14.10
CDT287	1114.60	48	0.355	0.012	92.73	92.31	140.04	8.55	11.14
CDT288	232.32	15	8.020	0.012	19.82	0.00	0.00	0.00	0.00
CDT289	193.24	48	0.653	0.012	125.76	135.14	183.10	10.75	14.57
CDT290	419.21	18	3.096	0.012	20.02	15.90	22.44	15.77	12.70
CDT291	393.87	24	2.272	0.013	34.10	15.89	22.07	10.00	11.57
CDT292	217.84	18	0.482	0.012	7.90	8.44	15.98	5.87	9.04
CDT293	215.90	36	2.629	0.013	108.15	52.03	106.91	15.03	15.50
CDT294	661.30	42	0.674	0.012	89.46	72.60	95.01	9.23	11.11
CDT295	205.76	24	0.988	0.012	24.35	26.28	50.91	9.12	16.20
CDT296	451.38	18	0.543	0.012	8.39	0.04	9.60	2.52	5.43
CDT297	35.35	30	5.680	0.012	105.90	0.07	1.08	2.97	6.94
CDT298	66.34	36	-0.149	0.012	0.00	15.42	34.39	3.87	5.06
CDT299	162.52	18	1.106	0.012	11.97	9.58	14.75	7.16	8.35
CDT300	161.78	24	3.820	0.012	47.90	1.59	5.15	7.09	10.03
CDT301	177.72	48	1.752	0.012	205.99	67.35	177.67	14.66	16.54
CDT302	207.29	36	2.109	0.013	96.85	30.49	126.76	12.11	22.95

Future Pipe Model Data									
ID	Length (ft)	Diameter (in)	Slope (%)	Manning's N	Capacity @100% Manning's (cfs)	Peak Flow (10-year, 3-hour)	Peak Flow (100-year, 3-hour)	Maximum Velocity (ft/s) (10-year, 3-hour)	Maximum Velocity (ft/s) (100-year, 3-hour)
CDT303	185.32	48	0.756	0.012	135.25	93.04	144.62	10.43	11.51
CDT304	68.66	24	0.344	0.012	14.37	6.43	36.08	4.51	11.48
CDT305	286.43	30	1.839	0.012	60.25	17.19	53.83	6.41	10.97
CDT306	381.93	24	4.737	0.012	53.34	4.15	5.11	21.76	10.73
CDT307	99.65	15	8.021	0.012	19.82	0.00	0.00	0.00	0.00
CDT308	199.14	18	1.070	0.012	11.77	4.34	12.40	4.60	7.02
CDT309	370.97	30	1.034	0.012	45.19	16.75	22.88	8.59	9.21
CDT310	226.71	30	4.414	0.012	93.35	10.42	42.17	15.42	21.15
CDT311	92.99	24	1.907	0.012	33.84	24.82	33.34	11.92	11.97
CDT312	267.88	18	0.498	0.012	8.03	7.11	8.06	4.72	4.56
CDT313	37.53	24	2.108	0.012	35.58	7.95	28.05	8.78	10.50
CDT314	48.69	24	3.214	0.012	43.94	24.84	33.49	11.08	11.36
CDT315	411.17	30	0.994	0.012	44.29	16.76	22.88	8.40	9.04
CDT316	35.42	36	0.223	0.013	31.50	42.99	72.40	6.08	10.24
CDT317	159.86	36	0.221	0.013	31.39	32.85	102.98	5.77	14.57
CDT318	402.19	36	0.316	0.012	40.62	13.46	54.10	5.23	7.65
CDT319	117.09	48	0.986	0.012	154.49	21.66	63.53	8.67	11.56
CDT320	90.60	24	0.366	0.012	14.84	6.38	21.13	4.65	6.73
CDT321	122.05	24	0.022	0.012	3.65	4.18	17.81	1.47	5.67
CDT322	55.60	24	1.014	0.012	24.68	6.25	23.20	6.56	8.11
CDT323	36.32	30	7.024	0.012	117.76	0.06	1.08	3.20	8.87
CDT324	168.41	18	0.498	0.012	8.03	7.35	8.07	4.71	5.14
CDT325	19.92	24	0.025	0.012	3.88	9.86	14.93	3.49	4.75
CDT326	360.92	42	0.540	0.012	80.12	15.74	26.20	6.48	7.40
CDT327	337.21	18	0.385	0.012	7.06	8.97	9.15	5.07	5.18
CDT328	344.56	24	3.159	0.012	43.56	17.75	51.32	12.91	16.34
CDT329	139.05	48	1.222	0.012	172.01	21.55	111.69	9.41	14.22
CDT330	12.66	30	4.416	0.012	93.37	10.43	42.20	12.56	18.54
CDT331	53.78	24	0.344	0.012	14.37	6.36	23.22	4.49	7.39
CDT332	102.87	18	4.196	0.012	23.31	0.00	0.00	0.00	0.00
CDT333	469.61	42	0.594	0.012	84.01	70.37	92.67	7.63	9.63
CDT334	434.35	36	0.731	0.012	61.80	3.94	44.11	3.28	6.62
CDT335	921.02	48	0.794	0.012	138.63	73.85	127.81	11.01	12.82
CDT336	195.94	24	2.122	0.012	35.70	0.00	0.00	0.00	0.00
CDT337	249.97	18	0.834	0.012	10.39	11.30	19.83	6.40	11.22
CDT338	137.36	24	0.414	0.012	15.77	6.27	19.84	5.38	6.42
CDT339	100.56	18	0.508	0.012	8.11	7.95	20.32	4.90	11.50
CDT340	91.56	48	0.687	0.012	128.98	136.86	177.81	12.49	14.15
CDT341	49.37	36	1.055	0.012	74.23	38.45	79.04	8.82	11.18
CDT342	352.13	42	0.467	0.012	74.45	51.24	87.86	6.50	11.51
CDT343	430.70	48	0.222	0.022	39.97	29.09	51.64	3.61	4.11
CDT344	80.58	30	1.535	0.012	55.06	25.90	63.57	11.04	12.95
CDT345	221.67	60	0.383	0.012	174.61	125.48	233.81	10.13	11.91
CDT346	211.61	36	2.629	0.013	108.14	51.92	106.17	14.33	15.05
CDT348	203.85	36	0.367	0.012	43.77	13.62	56.25	5.46	7.96
CDT349	179.42	24	0.343	0.012	14.36	6.19	19.84	4.47	6.32
CDT350	30.71	18	0.306	0.012	6.30	4.41	10.77	3.10	6.10

Future Pipe Model Data									
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CDT351	68.72	24	-1.131	0.012	0.00	0.26	9.56	0.45	4.90
CDT352	127.72	36	3.739	0.012	139.71	8.82	40.41	7.92	13.18
CDT353	46.58	36	1.797	0.012	96.86	29.89	50.04	19.81	22.66
CDT354	147.12	36	8.704	0.012	213.17	2.47	1.08	12.17	12.24
CDT355	83.41	48	0.652	0.012	125.67	135.05	179.83	10.99	14.31
CDT356	37.09	18	-7.816	0.012	0.00	1.37	16.59	3.77	9.39
CDT357	26.41	24	2.882	0.012	41.60	15.58	32.56	12.15	12.74
CDT358	169.35	18	0.385	0.012	7.06	9.16	9.70	5.18	5.49
CDT359	55.72	42	-0.632	0.012	0.00	9.30	28.44	3.97	5.14
CDT360	362.47	18	0.400	0.012	7.19	11.60	11.63	6.56	6.58
CDT361	50.66	18	0.969	0.012	11.20	12.66	18.67	7.35	10.57
CDT362	236.59	48	0.755	0.012	135.24	93.50	181.93	10.82	14.48
CDT363	82.49	30	5.606	0.012	105.21	0.06	1.08	3.07	7.20
CDT364	204.74	30	0.613	0.012	34.79	25.97	63.57	7.72	12.95
CDT365	235.53	48	0.603	0.012	120.79	48.65	125.76	8.94	10.01
CDT366	75.26	24	2.658	0.012	39.95	4.88	19.95	7.21	9.87
CDT367	32.21	24	0.022	0.012	3.61	9.80	13.82	3.99	4.40
CDT368	55.79	60	2.079	0.012	406.84	47.59	130.73	5.20	6.66
CDT369	453.19	24	1.751	0.012	32.43	14.46	31.34	7.95	9.98
CDT370	171.87	54	1.335	0.012	246.12	171.67	239.73	13.48	15.16
CDT371	40.06	24	0.514	0.012	17.57	10.44	22.00	5.62	7.00
CDT372	104.67	48	0.519	0.013	103.46	84.93	169.32	12.68	13.79
CDT373	176.20	24	3.820	0.012	47.90	1.59	5.12	7.31	10.36
CDT374	668.24	60	0.462	0.012	191.68	131.59	253.92	13.30	16.96
CDT375	142.85	48	2.875	0.012	263.86	136.81	177.76	21.11	21.89
CDT376	435.15	36	0.022	0.012	10.68	4.66	22.09	1.22	3.13
CDT377	148.29	24	1.029	0.012	24.86	7.03	25.41	6.80	8.31
CDT378	338.11	15	3.758	0.012	13.57	0.00	0.00	0.00	0.00
CDT379	191.81	18	0.385	0.012	7.06	9.36	10.29	5.30	5.82
CDT380	157.24	24	7.895	0.012	68.86	0.00	0.00	0.00	0.00
CDT381	320.19	18	1.106	0.012	11.97	9.59	16.81	6.92	9.51
CDT382	249.59	24	0.515	0.012	17.58	10.38	21.11	5.19	6.72
CDT383	137.10	48	0.268	0.012	80.62	25.62	127.12	6.19	10.12
CDT384	112.52	24	1.778	0.012	32.67	4.87	19.88	6.79	9.85
CDT385	366.84	36	2.107	0.012	104.89	0.28	3.13	8.64	8.52
CDT386	164.67	15	-0.141	0.012	0.00	0.00	0.00	0.00	0.00
CDT387	113.84	18	1.105	0.012	11.96	9.58	16.39	6.88	9.27
CDT388	76.51	18	1.908	0.012	15.72	4.36	14.75	8.89	10.20
CDT389	125.16	24	4.737	0.012	53.34	5.56	5.10	16.10	10.50
CDT390	163.17	30	5.679	0.012	105.90	0.00	0.00	0.00	0.00
CDT391	162.14	18	2.587	0.012	18.30	1.14	0.82	5.91	5.39
CDT392	228.57	24	2.237	0.013	33.83	24.61	25.29	13.03	13.47
CDT393	128.30	24	1.712	0.012	32.07	7.94	28.09	9.17	10.02
CDT394	21.71	24	16.292	0.012	98.92	4.85	19.95	4.49	6.35
CDT395	139.96	24	2.545	0.012	39.10	0.20	9.57	4.72	10.22
CDT396	23.53	36	0.859	0.013	61.80	14.82	27.72	3.39	4.24
CDT397	64.14	36	0.396	0.012	45.47	18.68	65.18	5.89	9.22

Future Pipe Model Data									
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CDT398	250.29	36	0.473	0.012	49.68	16.97	64.98	6.42	9.19
CDT399	42.30	18	1.849	0.012	15.47	3.82	11.22	4.69	6.35
CDT400	279.43	15	1.849	0.012	9.52	1.19	9.93	10.09	9.72
CDT401	404.06	36	0.316	0.012	40.62	17.66	64.99	6.10	9.19
CDT402	172.02	15	8.020	0.012	19.82	0.00	0.00	0.00	0.00
CDT403	139.24	36	0.473	0.012	49.67	16.94	64.99	6.53	9.23
CDT404	242.28	48	0.399	0.012	98.26	34.69	107.90	6.97	8.59
CDT405	187.28	36	0.524	0.012	52.32	10.67	72.26	5.81	10.22
CDT406	38.37	24	0.344	0.012	14.37	6.12	19.08	4.43	6.07
CDT407	91.03	36	30.201	0.012	397.09	32.12	60.46	34.06	40.92
CDT408	174.20	24	6.656	0.012	63.23	15.79	26.25	12.02	14.10
CDT409	82.99	24	7.895	0.012	68.86	0.00	0.00	0.00	0.00
CDT410	299.61	15	1.849	0.012	9.52	0.19	9.39	8.18	7.65
CDT411	35.60	24	3.138	0.012	43.41	7.93	28.13	8.22	8.96
CDT412	137.73	24	3.158	0.012	43.55	17.58	50.86	9.71	16.58
CDT413	10.81	36	0.398	0.012	45.57	18.87	67.32	6.12	9.52
CDT414	417.15	24	1.015	0.012	24.69	6.24	23.23	6.47	7.65
CDT415	82.53	18	0.508	0.012	8.11	7.90	14.13	4.88	8.00
CDT416	329.73	36	0.324	0.013	37.98	16.34	36.97	4.25	5.47
CDT417	68.95	60	0.347	0.013	153.34	8.82	40.57	4.88	8.30
CDT418	31.62	18	5.155	0.012	25.84	4.37	14.77	7.57	8.80
CDT419	379.67	18	2.697	0.012	18.69	0.00	0.00	0.00	0.00
CDT420	353.33	24	2.529	0.012	38.97	10.72	35.29	14.18	11.53
CDT421	157.50	24	0.065	0.012	6.27	17.26	22.34	5.49	7.11
CDT422	62.66	24	2.399	0.012	37.96	18.04	69.63	10.35	22.16
CDT423	145.84	12	0.797	0.012	3.45	2.16	8.47	10.16	10.79
CDT424	471.31	60	0.341	0.012	164.65	125.51	236.05	9.36	12.02
CDT425	270.79	48	1.846	0.012	211.43	97.00	204.67	16.46	18.20
CDT426	487.68	48	0.222	0.012	73.26	37.00	60.09	3.41	5.46
CDT427	650.47	36	1.537	0.012	89.59	45.15	91.24	11.88	12.91
CDT428	1363.68	54	0.914	0.013	187.96	175.18	215.63	12.73	13.56
CDT429	1323.32	60	0.621	0.013	205.18	184.45	228.56	11.21	11.68
CDT431	181.14	18	1.355	0.012	13.25	12.89	31.19	7.73	17.65
CDT432	285.38	30	1.533	0.013	50.79	21.24	53.38	9.32	10.87
CDT433	335.50	24	1.534	0.013	28.01	21.28	53.33	10.19	16.98
CDT434	165.05	18	0.498	0.012	8.03	6.67	13.25	4.71	7.50

HURRICANE CITY
UTAH

STAFF COMMENTS

Item: Consideration and possible approval of Ordinance 2026-19 Amending 8-6-1 regarding the monthly storm drain fee.

Discussion: During the June 18, 2026, City Council meeting, the Council approved an increase to the monthly storm drainage fee based on the Storm Water Rate Analysis provided by Zions Public Finance. The analysis identified that the current 18.1 million in critical capital projects and recommended a "revenue sufficiency" approach to maintain the utility fund.

Issue 1: Omission of Scheduled Increases: The original resolution only noted the initial jump to $11.00. The financial model actually requires an initial increase in FY 2027, followed by 3% annual increases over the next four years (FY 2028 through FY 2031) to ensure the City has sufficient cash to complete projects through 2038 without immediate bonding. The 3% annual increase was presented and discussed during the Council meeting, but the annual increase was not expressly called out in the adopted resolution.

Issue 2: Clarification of Variable Fee Structure (ERU) Staff also wishes to clarify that the base rate of $11.00 is not a flat fee applied equally to every account, but rather a rate based on Equivalent Residential Units (ERUs) to ensure fair and equitable charging. While single-family residential accounts typically represent one ERU, other categories are variable based on the following Zions Public Finance and JUB Engineering definitions:

- Multi-family Residential: These accounts are billed at 0.37 ERU per dwelling unit.
- Nonresidential: These accounts are calculated based on building size, where one ERU equals 5,000 square feet of impervious surface. nonresidential building space.

Proposed Solution: The attached Ordinance 2026-19 clarifies that the fee is based on the established ERU rate and adds the omitted 3% annual increase. These changes align the formal resolution with the rate analysis presented on June 18th and the Council's expressed intent to provide for long-term system maintenance and regulatory compliance.

Findings: N/A

Recommendation: Staff recommends that the City Council approve Ordinance 2026-19 to accurately reflect the necessary multi-year funding strategy and the variable rate structure for different property types. – Cindy Beteag

Ordinance 2026-19

AN ORDINANCE OF THE CITY COUNCIL OF HURRICANE, UTAH, AMENDING 8-6-1 REGARDING THE MONTHLY STORM DRAINAGE FEE AND ESTABLISHING AN ANNUAL ADJUSTMENT SCHEDULE

WHEREAS, the City Council of Hurricane, Utah desires to amend Title 8, Chapter 6, Section 1 with regards to the utility fee for drainage; and

WHEREAS, the Hurricane City Council is authorized by Section 10-3-717 of the Utah Code and Section 1-5-6(G)(1) of the Hurricane City Code to establish and amend fees for municipal services; and

WHEREAS, the City Council has previously established a storm drainage utility fee to fund the operation, maintenance, repair, replacement, and improvement of the City's storm drainage system; and

WHEREAS, Hurricane City is required to comply with Municipal Separate Storm Sewer System (MS4) regulations and other state and federal stormwater management requirements, which impose additional responsibilities and costs upon the City, and

WHEREAS, the City Council has determined that additional revenue is necessary to adequately fund storm drainage infrastructure, regulatory compliance, maintenance activities, and future capital improvements; and

WHEREAS, the City Council finds that increasing the storm drainage fee is necessary and in the best interests of the public health, safety, and welfare of the residents of Hurricane City;

NOW THEREFORE, BE IT ORDAINED BY THE HURRICANE CITY COUNCIL OF HURRICANE CITY, UTAH THAT:

1. Title 8, Chapter 6, Section 1 of the Hurricane City Code be amended to read as follows:
   A. The monthly storm drainage utility fee is hereby increased from Four Dollars ($4.00) per month to Eleven Dollars ($11.00) per ERU per month for each utility account as set forth in Table 1 of the Storm Water Rates analysis provided by Zions Public Finance.

Rates:	
Residential per ERU[1]	$11.00
Nonresidential per ERU[2]	$11.00
[1] Multi-family is the equivalent of 0.37 ERU per dwelling unit	

[2]A nonresidential ERU equals 5,000 sf of nonresidential building space, which includes all impervious surfaces as defined in the City's Storm Drain Master Plan.

B. City staff is authorized and directed to implement the revised fee and make any administrative changes necessary to carry out the provisions of this Ordinance, including creating tiers of rates based on the areas of impervious surfaces of nonresidential developments.

C. This Ordinance shall, after adoption and approval, take effect immediately upon publication or posting as required by law, or as soon thereafter as City staff have updated the fees in the billing software.

D. Annual Increase. In addition to the base increase established in subsection A, the monthly storm drainage utility fee shall increase by three percent (3.0%) annually for the next five fiscal years. These adjustments shall take effect on July 1st of each year, beginning July 1, 2027, and continuing through July 1, 2031.

E. This Ordinance replaces and supersedes Resolution 2026-23 regarding storm drain fees. Furthermore, all ordinances, resolutions, and policies of the City, or parts thereof, inconsistent herewith, are hereby repealed, but only to the extent of such inconsistency. This repealer shall not be construed as reviving any law, order, resolution, or ordinance, or part thereof.

F. Should any provision, clause, or paragraph of this ordinance or the application thereof to any person or circumstance be declared by a court of competent jurisdiction to be invalid, in whole or in part, such invalidity shall not affect the other provisions or applications of this ordinance or the Hurricane City Municipal Code to which these amendments apply. The valid part of any provision, clause, or paragraph of this ordinance shall be given independence from the invalid provisions or applications, and to this end the parts, sections, and subsections of this ordinance, together with the regulations contained therein, are hereby declared to be severable.

PASSED AND APPROVED this 2nd day of July 2026.

_____

Clark Fawcett, Mayor

Attest:

_____
Cindy Beteag, Recorder

The foregoing Ordinance was presented at a regular meeting of the Hurricane City Council held at the Hurricane City Office Building on the 2nd day of July 2026. Whereupon a motion to adopt and approve said Ordinance was made by _____ and seconded by _____. A roll call vote was then taken with the following results:

	Yea	Nay	Abstain	Absent
Drew Ellerman	___	___	___	___
Joseph Prete	___	___	___	___
Dave Imlay	___	___	___	___
Lynn Excell	___	___	___	___
Amy Werrett	___	___	___	___

_____
Cindy Beteag