TOWN OF JOHNSTOWN
PROFESSIONAL SERVICES AGREEMENT

THIS PROFESSIONAL SERVICES AGREEMENT (the "Agreement") is made and entered into this ____day of __________, 2024 (the "Effective Date") by and between the Town of Johnstown, Colorado, a Colorado home-rule municipal corporation (the "Town") and Matrix Design Group, Inc., a Colorado corporation ("Consultant") (collectively, the "Parties").

RECITALS

WHEREAS, the Town desires to engage the services of Consultant and Consultant desires to provide those services more fully described on Exhibit A, attached hereto and incorporated herein by reference ("Services"), to the Town; and

WHEREAS, the Parties wish to memorialize their contractual relationship.

AGREEMENT

NOW, THEREFORE, incorporating the foregoing Recitals herein and in consideration of the mutual promises, agreements, undertakings and covenants set forth herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby mutually agree as follows:

SECTION 1: PARTIES

1.01 Town. The Town is a home-rule municipal corporation located in Johnstown, Colorado.

1.02 Consultant. Consultant is a private, independent business entity who will exercise discretion and judgment of an independent consultant in the performance and exercise of its rights and obligations under this Agreement.

SECTION 2: SERVICES, COMPENSATION AND TERM

2.01 Services. Consultant agrees to perform the Services for the Town.

2.02 Compensation. In consideration of Consultant's performance of the Services contemplated herein, the Town agrees to pay Consultant the compensation set forth on Exhibit A. Consultant shall submit detailed invoices reflecting the portion of the Services completed to the date of the invoice. The Town shall provide payment for Services to Consultant within thirty (30) days of receipt of the invoice. In its discretion, the Town may withhold payment for disputed portions of invoices on the condition that the Town provides written notice to Consultant of the dispute. Upon delivery of notice, the Town and Consultant shall promptly endeavor to resolve such dispute.

2.03 Expenses: Consultant shall not incur any expense or debt on behalf of the Town without the Town's prior written authorization.

2.04 Term. Unless otherwise terminated in accordance with Section 5, the term of this Agreement shall be from the Effective Date through December 31, 2025, and shall not extend beyond that date absent the written approval of the Town.

SECTION 3: OPERATIONS

3.01 Consultant Status. Consultant avers that it has the background, expertise and education to provide the Services. Consultant shall be responsible for the proper performance of the Services in accordance with the terms hereof. Consultant shall obtain the necessary permits, if any, and maintain all required licenses, including but not limited to a Town business license.

3.02 Schedule. Unless otherwise set forth in Exhibit A, Consultant shall provide the Services in accordance with the timeline requested by the Town

3.03 Standard of Care. In providing the Services under this Agreement, Consultant shall perform in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances at the same time and in the same or similar locality. Nothing in this Agreement shall be construed to establish a fiduciary relationship between the Parties. Consultant makes no other representations or warranties, whether expressed or implied, with respect to the Services to be rendered hereunder. Consultant shall exercise usual and customary professional care in its efforts to comply with applicable codes, regulations, laws, rules, ordinances, and such other requirements in effect as of the date of execution of this Agreement.

SECTION 4: INSURANCE AND INDEMNITY PROVISIONS

4.01 Insurance.

A. Consultant understands and agrees that Consultant shall have no right of coverage under any existing or future Town comprehensive or personal injury liability insurance policies. As a material term of this Agreement, Consultant agrees to maintain and keep in force during the term of this Agreement one or more policies of insurance written by one or more responsible insurance carrier(s) authorized to do business in the State of Colorado in the following amounts:

1. Workers' compensation insurance as required by law;

2. Commercial general or business liability insurance with minimum combined single limits of ONE MILLION DOLLARS ($1,000,000.00) each occurrence and TWO MILLION DOLLARS ($2,000,000.00) general aggregate;

3. Automobile liability insurance with minimum combined single limits for bodily injury and property damage of not less than ONE MILLION DOLLARS ($1,000,000) for any one occurrence, with respect to each of

Consultant's owned, hired or non-owned vehicles assigned to or used in performance of the Services. In the event that Consultant's insurance does not cover non-owned automobiles, the requirements of this paragraph shall be met by each employee of Consultant who utilizes an automobile in providing services to Town under this Agreement; and

4. Professional liability insurance with minimum limits of ONE MILLION DOLLARS ($1,000,000.00) each claim and TWO MILLION DOLLARS ($2,000,000.00) general aggregate.

B. Consultant shall procure and maintain the minimum insurance coverages listed herein. All coverages shall be continuously maintained to cover all liability, claims, demands and other obligations assumed by Consultant pursuant to this Agreement. In the case of any claims-made policy, the necessary retroactive dates and extended reporting periods shall be procured to maintain such continuous coverage. The Town shall have the right to request and receive a certified copy of any policy and any endorsement thereto. Except for workers compensation and professional liability insurance, the Town shall be listed as an additional insured party on Consultant's insurance policies.

C. A certificate of insurance shall be completed by Consultant's insurance agent(s) as evidence that policies providing the required coverages, conditions and minimum limits are in full force and effect, and, upon request by the Town, shall be subject to review and approval by the Town. The certificate shall identify this Agreement and shall provide that the coverages afforded under the policies shall not be canceled or terminated until at least thirty (30) days prior written notice has been given to Town. If the words "endeavor to" appear in the portion of the certificate addressing cancellation, those words shall be stricken from the certificate by the agent(s) completing the certificate. The completed certificate of insurance shall be provided to the Town.

4.02 Damage and Indemnity. Consultant assumes full responsibility for damages caused by Consultant's exercise of its activities, or failures to act, under this Agreement. Consultant agrees that it will at all times protect, indemnify and hold harmless the Town, its elected officials and employees, from and against liabilities, losses, or damages (including reasonable attorneys' fees), arising from or related to loss or damage to property or injury to or death to any persons to the extent caused by the negligent or willful actions or failures to act of Consultant or any invitees, guests, employees or subcontractors of Consultant, whether brought by any of such persons or any other person.

SECTION 5: TERMINATION

5.01 Termination. The Town may terminate this Agreement, with or without cause, by providing thirty (30) days prior written notice to Consultant. Notwithstanding the foregoing, if the Town terminates this Agreement for cause and determines that a notice period is not in the best interests of the Town, the Town may terminate this Agreement by providing written notice to Consultant effective immediately.

SECTION 6: INDEPENDENT CONSULTANT

6.01 Independent Consultant. Consultant understands and agrees that Consultant is an independent consultant and not an employee of the Town. The Town shall not provide benefits of any kind to Consultant. The Town shall not be responsible for withholding any portion of Consultant's compensation for the payment of Federal Insurance Contributions Act (FICA) tax, workers' compensation, or other taxes or benefits. CONSULTANT IS NOT ENTITLED TO UNEMPLOYMENT COMPENSATION COVERAGE FROM THE TOWN. CONSULTANT IS OBLIGATED TO PAY FEDERAL AND STATE INCOME TAX ON MONEYS PAID PURSUANT TO THIS AGREEMENT. As long as there is not a conflict of interest with the Town, Consultant may engage in any other lawful business activities during the term of this Agreement.

SECTION 7: NOTICE

7.01 Notices. All notices required under this Agreement shall be in writing and shall be: 1) hand-delivered; 2) sent by registered or certified mail, return receipt requested, postage prepaid, to the addresses of the Parties herein set forth; or 3) sent by electronic mail ("email") return receipt or written acknowledgment requested and received. All notices by hand-delivery shall be effective upon receipt. All notices by mail shall be considered effective seventy-two (72) hours after deposit in the United States mail with the proper address as set forth below. All notices by email shall be effective upon acknowledgment of receipt by the intended recipient. Either party, by notice to be given, may change the address to which future notices shall be sent.

TO THE TOWN:
Town of Johnstown
Attn: Jason Elkins, Public Works Director
450 S. Parish Avenue
P.O. Box 609
Johnstown, CO 80534

TO CONSULTANT:
Matrix Design Group, Inc.
Attn: Dew Beck, Vice President
707 17th Street, Suite 3150
Denver, CO 80202

SECTION 8: MISCELLANEOUS

8.01 Time. Time is of the essence of this Agreement and of each covenant hereof.

8.02 Non-Appropriation of Funds. Pursuant to Section 29-1-110, C.R.S., as amended, financial obligations of the Town payable as set forth herein, after the current fiscal year, are contingent upon funds for that purpose being budgeted, appropriated and otherwise made available. This Agreement shall be terminated effective January 1 of the first fiscal year for which funds are not budgeted and appropriated.

8.03 Laws and Regulations. In the conduct of the Services, Consultant shall comply with all applicable laws, rules and regulations, and the directives or instructions issued by the Town or its designated representatives.

8.04 Assignment; Third Party Rights. Consultant may not assign, delegate or subcontract any part of its rights, duties or obligations under this Agreement. The Parties do not intend to confer any benefit hereunder on any person or entity other than the Parties hereto.

8.05 Amendment. This Agreement may not be amended or modified except by a subsequent written instrument signed by the Parties. Course of performance, no matter how long, shall not constitute an amendment to this Agreement.

8.06 Severability. If any part, term or provision of this Agreement is declared unlawful or unenforceable, the remainder of this Agreement shall remain in full force and effect, except that, in the event any state or federal governmental agency or court determines that the relationship between the Town and Consultant is one of employment rather than independent consultant, this Agreement shall become null and void in its entirety.

8.07 Waiver. No consent or waiver, express or implied, by the Town to or of any breach or default by Consultant in the performance by Consultant of its obligations hereunder shall be deemed or construed to be a consent or waiver to or of any other breach or default by the Town. Failure on the part of the Town to complain of any act or failure to act or to declare Consultant in default, irrespective of how long such failure continues, shall not constitute a waiver by the Town of its rights hereunder.

8.08 Governmental Immunity. The Parties agree that the Town is relying on, and does not waive or intend to waive by any provision of the Agreement, the monetary limitations or any other rights, immunities, and protections provided by the Colorado Governmental Immunity Act, §§ 24-10-101 *et seq.*, C.R.S., as amended from time, or otherwise available to the Town, its elected officials, employees or agents.

8.09 Applicable Law and Venue. This Agreement shall be construed according to the laws of the State of Colorado. Venue for any claim, proceeding or action arising out of this Agreement shall be in Weld County, State of Colorado.

8.10 Mediation. In the event of any dispute arising under this Agreement, except in the case of an action for injunctive relief, the Parties shall submit the matter to mediation prior to commencing legal action and shall share equally in the cost of the mediation.

8.11 Entire Agreement. The provisions of this Agreement represent the entire and integrated agreement between the Town and Consultant and supersede all prior negotiations, representations and agreements, whether written or oral.

8.12 Public Official Personal Liability. Nothing herein shall be construed as creating any personal liability on the part of any elected official, employee or agent of the Town.

8.13 No Presumption. Each Party acknowledges that it has carefully read and reviewed the terms of this Agreement. Each Party acknowledges that the entry into and execution of this Agreement is of its own free and voluntary act and deed, without compulsion. Each Party acknowledges that it has obtained, or has had the opportunity to obtain, the advice of legal counsel of its own choosing in connection with the negotiation and execution of this Agreement and with respect to all matters set forth herein. The Parties agree that this Agreement reflects the joint drafting efforts of all Parties and in the event of any dispute, disagreement or controversy arising from this agreement, the Parties shall be considered joint authors and no provision shall be interpreted against any Party because of authorship.

8.14 Controlling Document. In the event of a conflict between the provisions in this Agreement and Exhibit A, the provisions in this Agreement shall control.

8.15 Headings. The headings in this Agreement are inserted only for the purpose of convenient reference and in no way define, limit or prescribe the scope or intent of this Agreement or any part thereof.

8.16 Counterparts. This Agreement may be executed in counterparts, each of which shall be an original, but all of which, together, shall constitute one and the same instrument.

8.17 Data Security. If Consultant has access to personal identifying information during the term of this Agreement, Consultant shall, pursuant to Section 24-73-101, *et seq.*, C.R.S., destroy all paper and electronic documents containing such personal identifying information within six months of termination of this Agreement, unless otherwise required by law. During the term of this Agreement, Consultant shall implement and maintain reasonable security procedures that are appropriate to the nature of the personal identifying information disclosed or maintained and that are reasonably designed to help protect the information from unauthorized access, use, modification, disclosure or destruction. If Consultant discovers or is informed of a security breach, Consultant shall give the Town notice in the most expedient time and without unreasonable delay, no later than ten (10) calendar days after it is determined a security breach occurred. Consultant shall cooperate with the Town in the event of a security breach that compromises computerized data, if misuse of personal information about a Colorado resident occurred or is likely to occur. Cooperation includes sharing with the Town information relevant to the security breach.

8.18 Right to Injunction. The Parties hereto acknowledge that the Services to be rendered by Consultant and the rights and privileges granted to the Town under the Agreement are of a special, unique, unusual and extraordinary character which gives them a peculiar value, the loss of which may not be reasonably or adequately compensated by damages in any action at law, and the breach by Consultant of any of the provisions of this Agreement may cause the Town irreparable injury and damage. Consultant agrees that the Town, in addition to other relief at law, shall be entitled to injunctive and other equitable relief in the event of, or to prevent, a breach of any provision of this Agreement by Consultant.

[Remainder of page intentionally left blank.]

IN WITNESS WHEREOF, the parties have executed this Agreement on the date first written above.

TOWN OF JOHNSTOWN, COLORADO

ATTEST:

By:______________________________ By:____________________________________
Hannah Hill, Town Clerk Matt LeCerf, Town Manager

MATRIX DESIGN GROUP, INC.

By:_______________________________________
Name: Drew Beck
Title: Vice President

STATE OF COLORADO)
) ss
COUNTY OF _________)

SUBSCRIBED AND SWORN to before me this _________day of __________, 2024, by _________________________as the _______________of Matrix Design Group, Inc.

WITNESS my hand and official seal.

My commission expires:____________________________

____
Notary Public

Matrix

A Statement of Qualifications for

Comprehensive Stormwater Master Plan

February 16, 2024

Prepared for

Town of Johnstown, Colorado

Matrix

Matrix Design Group, Inc.
707 17th Street, Suite 3150
Denver, CO 80202
O 303.572.0200
F 303.572.0202
matrixdesigngroup.com

February 16, 2024

Town of Johnstown
Jason Elkins, PE
450 S. Parish Avenue
Johnstown, CO 80534

RE: Request for Qualifications for Consulting Services to Develop a Comprehensive Stormwater Master Plan for the Town of Johnstown, Colorado

Dear Mr. Elkins and Evaluation Committee Members,

Matrix Design Group, Inc. enthusiastically presents our proposal for this Stormwater Master Plan, promising not just a plan, but a transformative blueprint for Johnstown's resilience and sustainability. Our legacy in stormwater management and community-focused planning ensures a future where flood risks are minimized, water quality is enhanced, and public well-being is elevated.

Our methodology combines cutting-edge hydrologic analysis with robust community engagement, ensuring that solutions are not only technically sound but also aligned with Johnstown's values and needs. Our track record with municipalities mirrors our commitment to delivering practical, phased strategies that adapt to both current challenges and future growth, maximizing return on investment.

Selecting Matrix means partnering with a team that views stormwater not as a challenge, but as an opportunity for enhancing community resilience, environmental stewardship, and quality of life. We are eager to bring our expertise and innovative solutions to Johnstown, making a tangible difference in the lives of its residents and the health of its ecosystems.

Matrix has reviewed the Eligibility section outlined on page 3 of the RFQ and we agree with all requirements. **UEI Numbers:** Matrix Design Group, Inc. GAJJG2JEJMN9; Logan Simpson REB3J4JAMTE5

Primary Point of Contact
Drew Beck, PE, CFM, PMP
drew.beck@matrixdesigngroup.com
matrix@matrixdesigngroup.com
303.572.0200

We look forward to the opportunity to discuss our proposal in further detail. Thank you for considering Matrix for this critical project. We are excited about the prospect of contributing to the Town of Johnstown's resilience and sustainability goals.

Sincerely,

Drew Beck

Drew Beck, PE, CFM, PMP
Officer-in-Charge

Benjamin Liu

Benjamin Liu, PE, CFM
Project Manager

Excellence by Design

Qualifications

Matrix

Qualifications of Firm and of the Project Team

Why Choose Matrix?

Founded in Colorado in 1999, Matrix Design Group, Inc. (Matrix) is an award-winning firm that provides professional water resources engineering, consulting, ecological, environmental, transportation, planning, and program management services for both the public and private sectors. The firm takes its name from its integrated “matrix” structure, which maximizes capacity while supplying a breadth and depth of expertise in each service area. Professional staff members combine advanced technology with proven traditional methods to provide optimal planning and design solutions. This organization means that Matrix can pull from a variety of internal disciplines, as well as external resources, to provide the most holistic and efficient approach possible.

Recognized as an industry leader in water resource analysis and design, Matrix has extensive experience in water resources, stormwater management, stream and channel design, and water/wastewater facilities projects. Our expert staff has a long-established track record of outstanding responsiveness, problem solving, and work product and has been involved in a variety of assignments ranging from watershed management and channel master planning to stormwater master planning and utility design for major cities and districts. Our water resource practice is supported by in-house civil and structural design, GIS, ecological services, economics, and surveying capabilities.

Matrix personnel have developed a reputation for responsiveness, problem-solving and outstanding work product. Our in-house areas of expertise in water resources include:

- Master planning
- Stormwater infrastructure assessment and design
- Infrastructure asset management
- Hydrologic and hydraulic modeling and analysis
- Urban stormwater design
- Stream morphology and channel stability analysis
- Channel design and restoration
- Stream restoration design
- Floodplain mapping
- Water quality analysis, permitting, and BMP design

Matrix brings an integrated in-house team of knowledgeable local engineers, asset managers, and finance experts who have worked together on many stormwater master planning projects. Matrix is an experienced consultant that has completed numerous Mile High Flood District (MHFD) master plans and has a proven track record of providing innovative and comprehensive stormwater and green infrastructure solutions. Our demonstrated past successes from planning projects integrate hydrology, hydraulics, asset management, capital improvement planning, finance development, and green infrastructure elements which will be valuable to the Town of Johnstown (Town).

Our up-to-date knowledge of the relevant municipal and MHFD criteria and programs, hands-on experience, and relationships with stakeholder agencies will ensure that your master planning project will be completed in a timely manner. In order to complete master plans in the most efficient manner while increasing the confidence in the hydrologic and hydraulic (H&H) modeling results and flood risk identification, Matrix utilizes in-house dedicated GIS staff to take advantage of the automated H&H modeling technological advances and mapping resources. Our team will produce clear and accurate maps to communicate issues, alternatives and recommendations to the project team, stakeholders, and the public.

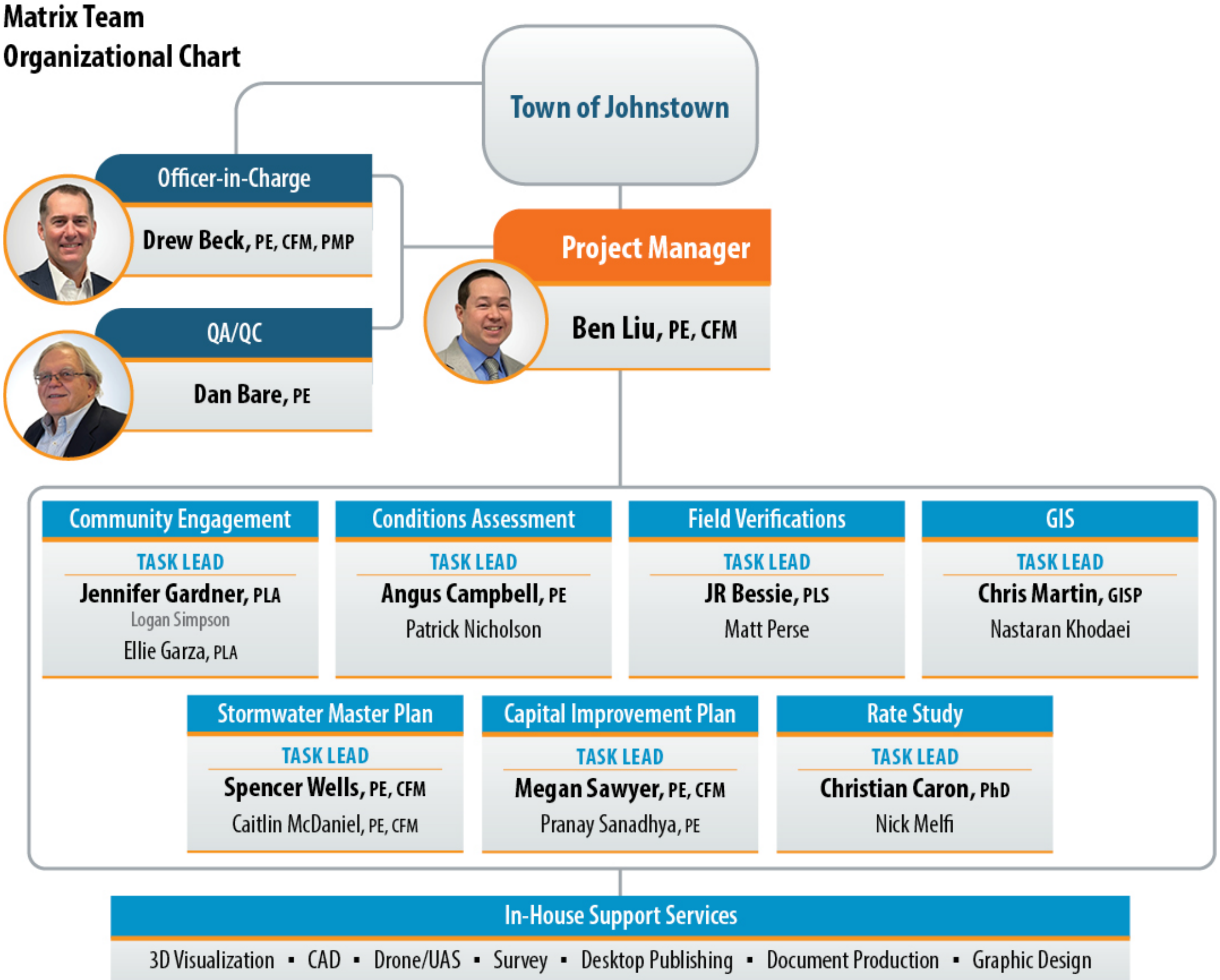
Matrix has helped clients with stormwater related issues for the past 24 years with GIS-based solutions central to our approach. During this time, our GIS Team has amassed an extensive portfolio of successful projects spanning subject areas including stormwater infrastructure master plans, capital improvement projects, MS4 compliance, watershed resiliency, and data collection and analysis. Our experience in applying GIS principles to water resources is enhanced by the services and technologies we can provide.

Matrix is a proud, vetted member of the Esri Partner Network. The global market leader in GIS technology, Esri partners exclusively with companies that exemplify excellence in GIS and location technology. Partners are trusted practitioners of GIS who can help you leverage ArcGIS technology. We support clients through our knowledge and expertise, solutions, implementation services, and dynamic content. Matrix is a GIS leader, and we are excited to offer the benefits of this unique partnership to the Town.

Project Team

The team that Matrix proposes for the Comprehensive Stormwater Master Plan project includes an accomplished core group of water resources and technical specialists who have worked together on numerous watershed and master planning projects. This group of seasoned and diverse subject matter experts ensures a well-coordinated approach that incorporates a wealth of experience and up-to-date knowledge of evolving trends and state-of-the-art methods in hydrology, hydraulics, floodplain mapping, financial modeling, and program development. The following organizational chart details the anticipated roles of each of our technical team members.

Matrix Team Organizational Chart

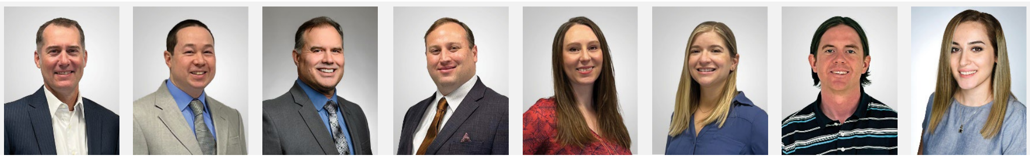


Team Members are employees of Matrix Design Group unless otherwise specified.

Similar Projects of a Regional Nature

Matrix has provided professional engineering, design, survey, and consulting services across the Front Range and throughout Colorado for 24 years. Our firm was founded in Colorado, allowing us a wealth of institutional knowledge about the region, its natural resources, interconnected infrastructure, and interagency relationships, as well as the ability to respond efficiently and effectively to project needs. The following are some of our most recent, relevant projects.

Greeley Comprehensive Drainage Plan Oklahoma and South Basins

Reference	Aaron Stines	970.302.0461	aaron.stines@greeleygov.com
Same Personnel			

This study created a master plan framework for protecting two large drainage basins in the outskirts of Greeley, Colorado, the Oklahoma & South Basins, from expected impacts of future development. Note that the southern part of the Oklahoma Basin falls within the Johnstown Growth Management Area (GMA). Matrix collected and synthesized hydrologic information within the 5-square-mile study area to calculate peak flows and volumes for existing conditions, future fully-developed conditions, and master plan conditions that account for recommended runoff reduction practices. Our team performed geomorphic assessments and created Relative Elevation Models for each of the six major drainageways to help Greeley understand the potential for channel movement over time. Matrix also performed capacity analyses and proposed sizing recommendations for the 13 existing crossing structures.

Matrix defined 17 distinct reaches based on representative characteristics to help focus drainage planning efforts on digestible reaches. We developed multiple alternatives for each reach and included four broad concepts: no action, detention, channel improvements, and low impact development. Working with the City of Greeley to define the relative importance of various criteria, Matrix compiled an alternatives analysis scoring matrix to objectively rank the alternatives.

Drainageway on the western outskirts of Greeley.

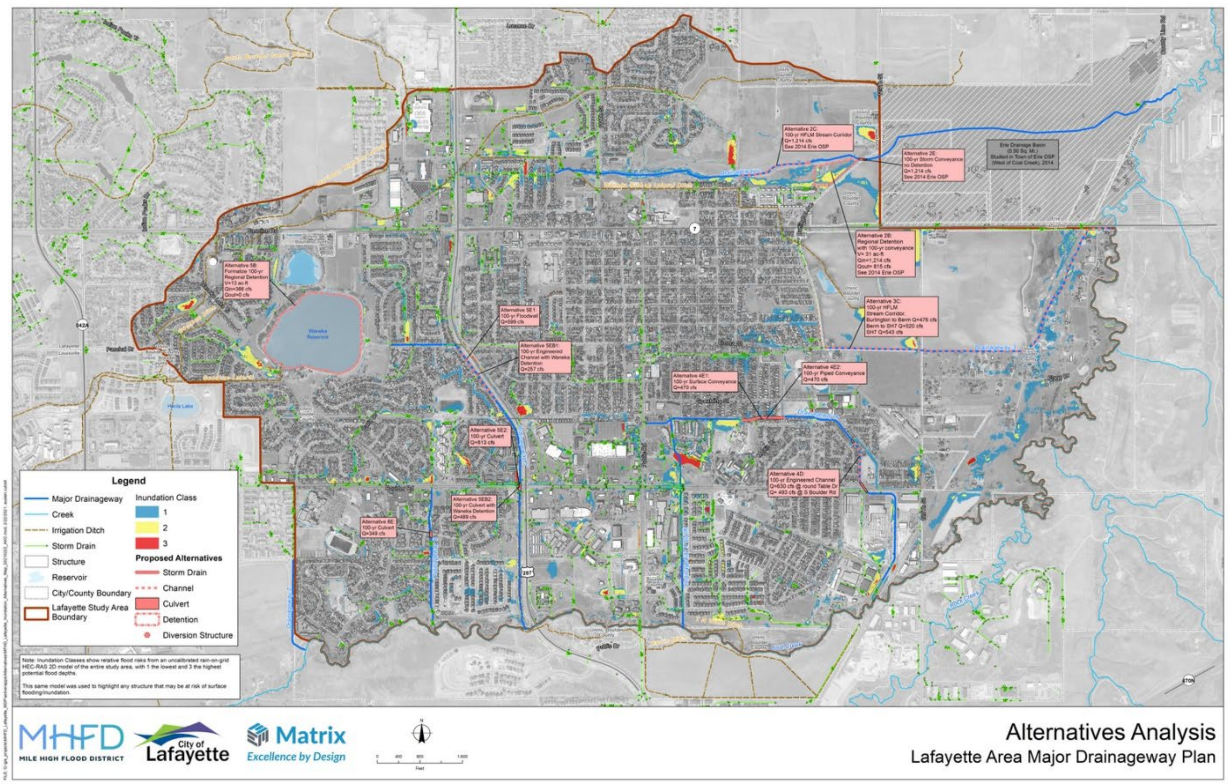
The City of Greeley wanted to explore the green infrastructure option, so Matrix developed a conceptual drainage plan that included a wide suite of low impact development types that would be appropriate for this historically agricultural location and reduce runoff. This included cost estimates to help guide capital planning. Ultimately, the City of Greeley can protect their water quality and preserve floodplains and natural channels to reduce future flood risks through this conceptual drainage plan.

A sample low impact development (LID) guidelines page and alternatives analysis map from this study are provided in the proposal Appendix.

Lafayette Area Master Drainage Plan

Reference	Jim Watt, PE, CFM	303.749.5455	jwatt@mhfd.org
Same Personnel	   		

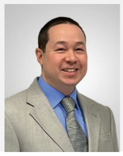
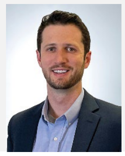
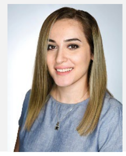
The City of Lafayette is located along Coal Creek but includes seven unnamed tributaries that are major drainageways to Coal Creek. Matrix worked with the MHFD and the City of Lafayette to develop a comprehensive master plan for each of the major drainageways throughout the City. To augment the typical hydrology and hydraulic analysis, Matrix developed a high-level 2D model to better understand flow splits in very flat portions of the watersheds as well as to better inform residents of the flooding risk even though they are located outside regulatory (FEMA) floodplains. This plan ultimately provided a suite of recommendations ranging from a “Do Nothing” approach to culvert upsizing to High Functioning Low Maintenance (HFLM) open channel designs. The City of Lafayette can now utilize the Master Drainage Plan to develop an informed CIP to partner with MHFD on major infrastructure to alleviate localized urban flooding in addition to developing CIP projects for smaller localized systems.



This Lafayette study had many similarities to the Johnstown area of concern. Both study areas comprise a variety of land uses, including a compact, urban Old Town, single-family residential suburban neighborhoods, and agricultural regions on the outskirts. Both areas lack regulatory floodplains along the interior drainageways and have a history of agricultural modifications that blocked or erased natural flood flowpaths. Lafayette is farther along towards realizing full build-out, and Matrix can use what we learned to provide Johnstown with directly applicable concept recommendations.

A sample 2-D flooding hazard map and guidelines page and alternatives screening matrix from this study are provided in the proposal Appendix.

Goldsmith Gulch Major Drainageway Plan & Flood Hazard Area Delineation

Reference	Kurt Bauer, PE, CFM	303.749.5426	kbauer@mhfd.org
Same Personnel	    		

Matrix completed the Goldsmith Gulch Major Drainageway Plan and Flood Hazard Area Delineation (MDP/FHAD) Reports under contract with the Mile High Flood District (MHFD) on behalf of the project sponsors: the City and County of Denver, the City of Greenwood Village, and Southeast Metro Stormwater Authority (SEMSWA). The project provided watershed delineations, updated hydrologic modeling, detailed new hydraulic modeling, potential flood damage assessments, and recommendations for reducing flood hazards and improving the overall health of the drainageway as a valued neighborhood asset and amenity.

Goldsmith Gulch drop structure.

Matrix prepared hydrology for the 7.74-square-mile urban watershed to identify peak flows and volumes, including analysis and modeling of 10 existing publicly owned flood detention facilities. Detailed hydraulic models were created to study 9.6 linear miles of major drainageway. These hydraulic results were converted to inundation mapping, and Matrix used GIS to identify which existing buildings at risk of flood inundation could benefit from future storm infrastructure projects. We also analyzed existing capacities and calculated recommended upgrades for 63 bridge or culvert crossing structures.

Matrix developed mitigation strategies that would reduce flood risks to structures and infrastructure, then collaborated with project sponsors to select and rank the eight most impactful potential capital improvement projects (CIP). Proposed improvements included modifications to existing detention facilities, creating open channels to replace underground culverts, improving flood conveyance, stabilizing the channel, and enhancing regional water quality. The project sponsors especially valued our proposed detention modifications at Bible Park, which would significantly reduce peak flows in Goldsmith Gulch while having minimal impact to the existing park function. The municipalities can use this study to effectively manage their CIP programs to increase flood resiliency.

A sample concept design summary and cost estimate, concept design map, and concept design profile from this study are provided in the proposal Appendix.

Stormwater Enterprise Financial Planning Tool

Reference	Richard Mulledy, PE	719.200.1466	rmulledy@springsgov.com
Same Personnel	  		

Matrix provided professional consulting services to the City of Colorado Springs' Stormwater Enterprise (City) for the development of a comprehensive financial planning tool. City staff needed to have an easy-to-use financial tool that allows for more effective planning for future operational expenditures, such as staffing, debt financing, and capital improvement investments.

To meet this challenge, Matrix developed a quantitative financial tool that contained four (4) integrated modules. Each module was developed in Microsoft Excel and designed in conjunction with City staff to ensure the tool met the usability requirements set forth by the City. Ultimately, the tool developed gives the City the option for additional modules to be built into the existing framework. Rollup modules such as a Statement of Financial Position (Balance Sheet), Income Statement, a Statement of Cash Flows, and a summary dashboard were developed and integrated into the tool to provide the City with real time (monthly or quarterly) business intelligence on Stormwater Enterprise performance.

A sample cost/revenue model and stormwater enterprise fee projection from this study are provided in the proposal Appendix.

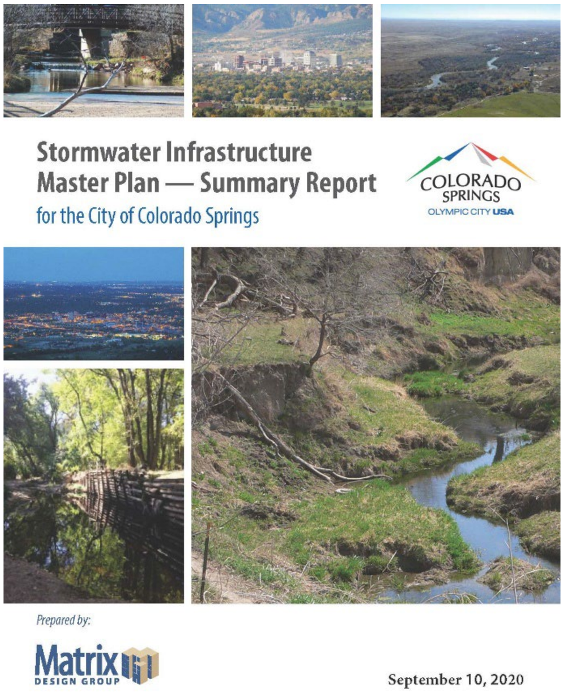
Black Squirrel Creek.

Matrix exceeded our expectations in developing the City's Stormwater Infrastructure Master Plan. They successfully integrated a broad team and demonstrated outstanding problem-solving to deliver this challenging project. I continue to be impressed by their diverse skill sets from infrastructure assessment and design to capital planning and asset management. Their staff are a pleasure to work with and deliver high quality products. The City's Stormwater Enterprise will continue to utilize Matrix as one of our primary consultants.

– Richard Mulledy
City of Colorado Springs
Stormwater Enterprise Program Manager

Colorado Springs Stormwater Infrastructure Master Plan

Reference	Tim Biolchini, PE, PMP	719.385.5612	timothy.biolchini@coloradosprings.gov
Same Personnel	   		



Matrix was tasked with tracking Capital Improvement Plan (CIP) projects from inception through design and construction, including links to the existing City asset management platform to track maintenance and monitoring activities. This complete Capital Planning system is a tremendous tool for the City, allowing the municipality to leverage technological advances to maintain records and create a legacy process to ensure the long-term viability of the City's Stormwater Program. The Stormwater Infrastructure Master Plan (SIMP) methods result in methodical, quantitative, and actionable plans for the City's CIP plan. Furthermore, the SIMP assists the City with long- term compliance and efficiency tools for adhering to its MS4 permit. Broad project goals which were accomplished included:

- Created a comprehensive GIS-based database for stormwater capital projects and stormwater infrastructure.
- Identified and filled gaps in existing stormwater infrastructure.
- Created a stormwater capital projects prioritization framework and budgeting tool.
- Standardized existing and future GIS data.
- Incorporated flexible, consistent costing.
- Created a plan that is modifiable, dynamic and open to communicate with other platforms.
- Established a framework for a Stormwater Channel Assessment Program.
- Developed a BMP inspection tracking system for MS4 compliance.
- Delivered a user-friendly, GIS-based, web application to streamline asset management and project planning.

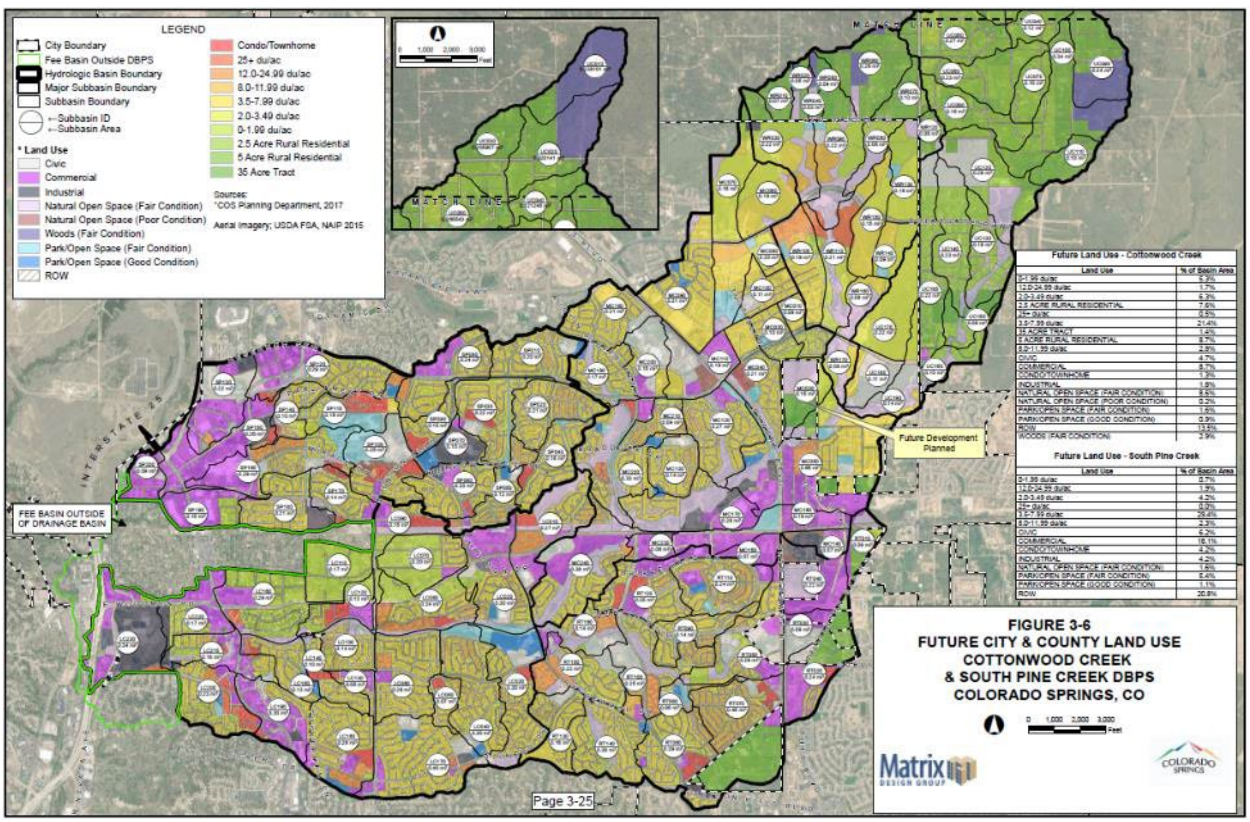
A sample conditions assessment map from this study is provided in the proposal Appendix.

Cottonwood Creek Drainage Basin Planning Study

Reference	Richard Mulledy, PE	719.200.1466	rmulledy@springsgov.com
Same Personnel	  		

Matrix was hired by the City of Colorado Springs to update the Cottonwood Creek Drainage Basin Planning Study (DBPS) due to the watershed's extensive development and numerous stormwater-related issues. With the main stem stretching 12 miles and draining approximately 19 square miles at its confluence with Monument Creek, concerns include increased downstream flows, channel instability, habitat destruction, and water quality issues. The DBPS utilized physically-based modeling techniques, applying four unique hydrologic methods to create a highly accurate model. This involved detailed surveys, regression analysis, impervious cover data analysis, and calibration to accurately represent the watershed's response to rainfall, offering a comprehensive solution to address its challenges.

In the process, Matrix conducted detailed surveys of key cross sections and analyzed impervious cover data collected by the Colorado Springs Stormwater Enterprise. Utilizing GIS technology, we developed discrete grid cell combinations to determine runoff curve numbers (CNs) for existing and future conditions. Additionally, Manning's n values were calculated at multiple locations using flow frequency analysis, guiding the assignment of values throughout the watershed. Calibration involved flow frequency analysis and adjustment of initial abstraction values to ensure the hydrologic model accurately mirrored the watershed's physical response to rainfall. This meticulous approach ensures the accuracy of the model and enhances Matrix's ability to provide effective solutions for managing stormwater in the Cottonwood Creek watershed.



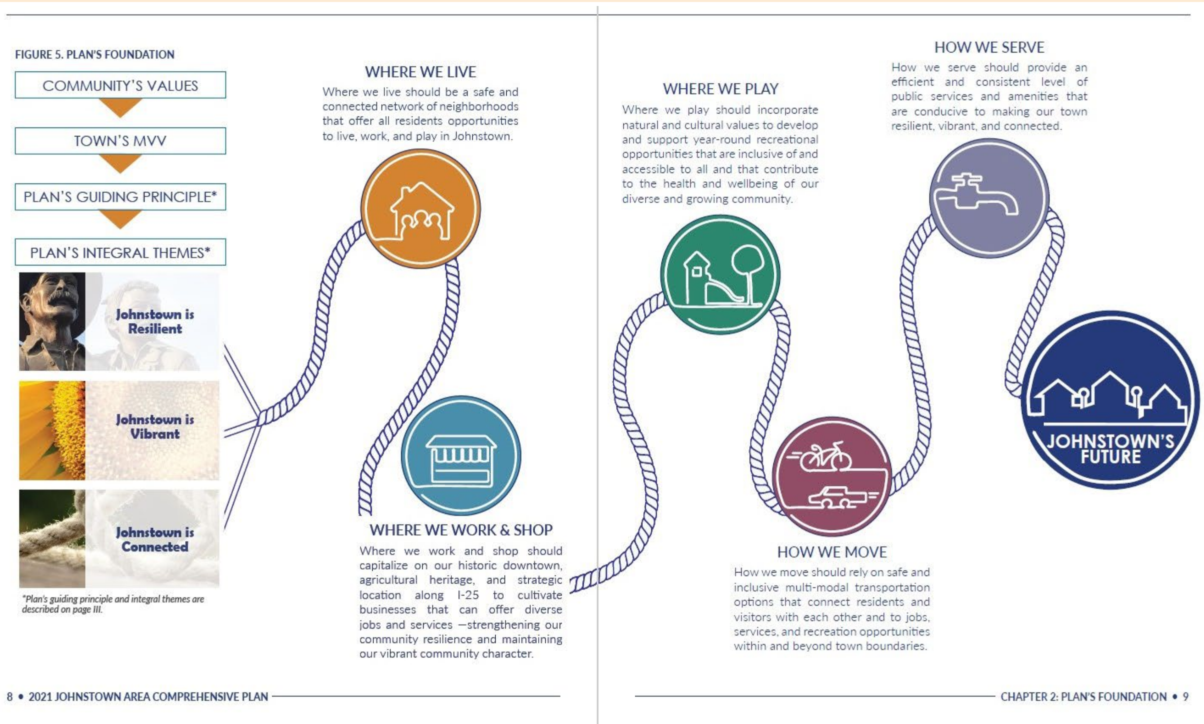
Johnstown Area Comprehensive Plan | Logan Simpson

Reference	Matt LeCerf	970.587.4664	mlecerf@johnstownco.gov
Same Personnel			

As one of the fastest growing municipalities in the Front Range, the Town of Johnstown has seen expansive growth in the last 20 years from approximately 8,900 residents in 2006 – to an estimated 18,000 in 2019. Demographic and economic shifts in the Town have spurred many questions about the town's future growth, connectivity, amenities, emergency preparedness, transportation, and housing. Prior developments within the Town were dominated by residential subdivisions near the Town's traditional core, but recent developments have been dominated by mixed-use, retail and employment projects in the Town's northwest. The updated Plan anticipates and accommodates future growth within the Town's Growth Management Area (GMA) while working to connect and harmonize the traditional and newer areas of the town.

Johnstown has sufficient land to satisfy the high demand for growth, but must balance development pressures with the need to protect green space, existing agricultural land, and natural assets. Additionally, development in the adjacent municipalities of Milliken, Greeley, and Loveland, constrain the Town's growth area and require careful thought about how the community wants to take advantage of opportunities for change. The Comprehensive Plan Update addresses these challenges and opportunities by harnessing the community's values, desires, and character to help guide decision-making and resource allocation over the next 20 years.

Jennifer's role as Project Manager for the Town of Johnstown Comprehensive Plan update, adopted in 2021, underscores her proficiency in community engagement. Her leadership facilitated extensive outreach efforts, ranging from community listening sessions to town hall events, open houses, pop-ups around town, and virtual questionnaires, all amid the challenges posed by the COVID pandemic. As the Community Engagement Task Lead for the Johnstown Stormwater Comprehensive Master Plan, Jennifer's existing relationship with the Town and stakeholders positions her to leverage insights gained from her previous engagement efforts. This background ensures that community input remains at the forefront, benefiting both the Town and stakeholders alike in the development of a comprehensive stormwater management plan.



Project Approach

Matrix understands that Johnstown has been and expects to continue on a rapid growth trajectory. Our team is passionate about stormwater planning, and we would be excited to help the Town prepare a stormwater master plan that comprehensively addresses your existing and future development needs. The current Town limits are not a compact shape, which means that the 13.8 square mile area within Johnstown requires a much larger drainage study to identify and determine flood risks. The 2001 Stormwater Master Plan for the Town of Johnstown (2001 SWMP) analyzed six major basins for a total of 23.7 square miles. Matrix recommends expanding the limits of the study to include all 47.1 square miles of the GMA.

We have performed a preliminary, high-level basin identification exercise analysis to help understand the scope of this project. As shown on the Opportunities and Constraints Map, we mapped the six 2001 SWMP basins, the Big Hollow Gulch Basin (on the western edge of the GMA) studied in 2020, and the Oklahoma Basin (on the northern edge of the GMA) currently being studied by the City of the Greeley on top of the current Town limits and GMA. We then roughly delineated the remaining 15 basins that have not been included in a drainage master plan – most of these are significant basins with visible historic drainage channels, and some are simply unique direct flow areas to the Big Thompson or Little Thompson Rivers that should not be lumped with other basins. ***We recommend that Johnstown establishes a total of 26 drainage basins as the basis for organizing technical analyses, communicating flood risks, and developing regional drainage recommendations.***

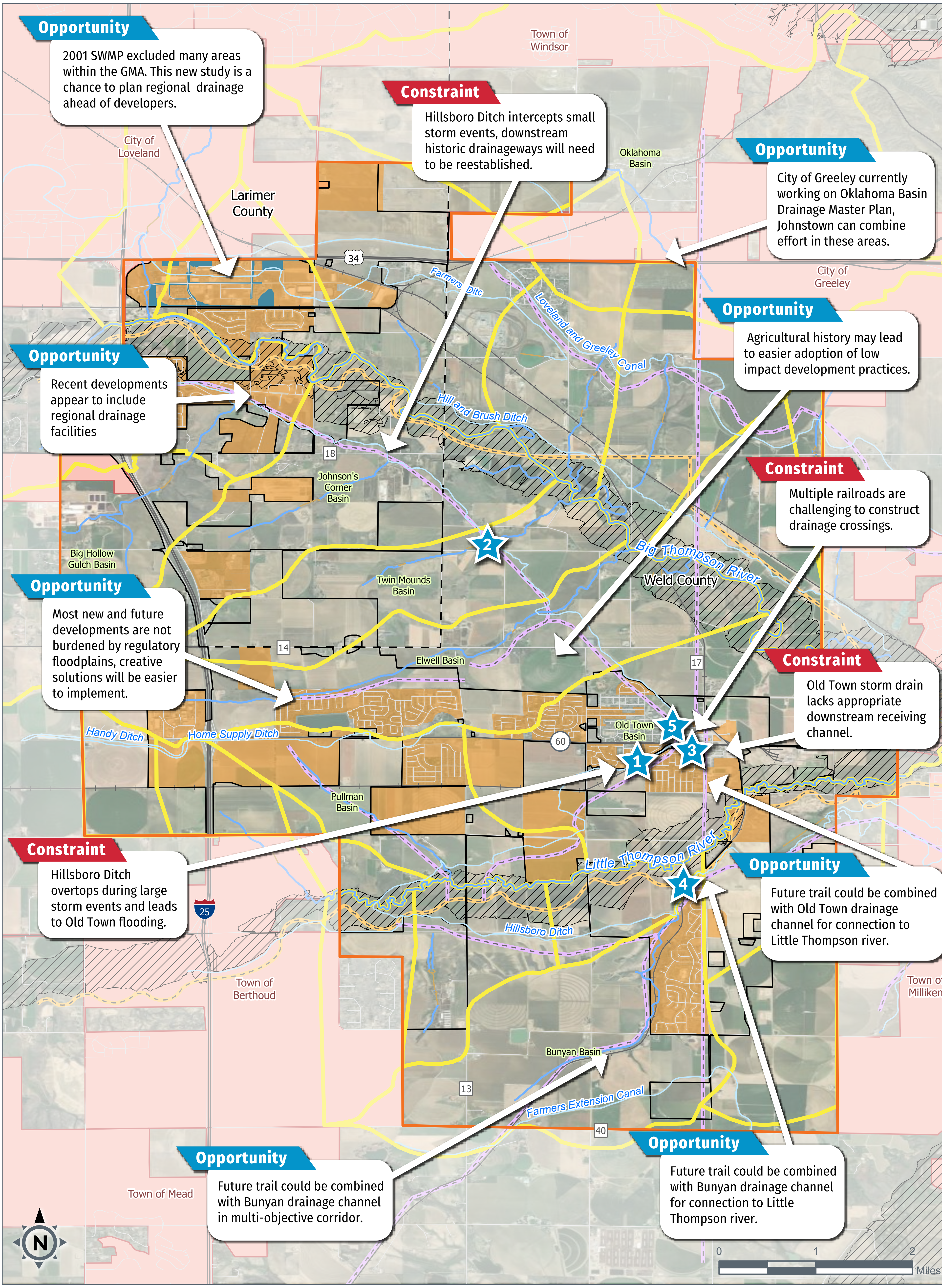
Development patterns that prioritize areas closer to I-25 mean that the upstream portions of many watersheds are being built-out before the downstream sections. This approach could burden downstream properties with additional flooding concerns if not managed carefully. We believe it is important to take an integrated approach to watershed management by looking at the best ultimate condition for the entire basin. Matrix can help Johnstown identify the most appropriate basin-wide improvements and how to equitably share the cost burdens.

Agricultural Fields and Construction Project near I-25

Our approach will be to thoroughly understand all relevant existing stormwater master plans, check whether the previous recommendations are still applicable, then incorporate into a single comprehensive plan that can serve all of the Johnstown GMA. Matrix staff visited various locations within the GMA on February 5, 2024 to better understand existing conditions and stormwater infrastructure that has already been constructed. **Critical Issue:** Although the Town has had a SWMP available since 2001, it is evident that much of Johnstown has been developed with little regard for preserving historic, regional drainage flow patterns. Matrix believes that reestablishing and protecting these historic drainageways is usually the best way to ensure resiliency from flood risks that benefits the entire community.

A key aspect of our management approach will be one of routine collaboration. This means confirming that Town staff and Matrix have a common understanding of project goals and the process required to provide the needed deliverables. It also means checking-in routinely as the project progresses and at key milestones will be an essential way to keep the project on track. We also understand that the project is being funded through a FEMA Hazard Mitigation Assistance Program grant and that project work will need to be in compliance with that grant agreement. Matrix often executes projects funded by grants and does extensive work for various federal agencies and, therefore, will readily integrate these requirements into the project.

Johnstown Stormwater Master Plan Opportunities and Constraints Map



Legend

- Artificial Path
- Canal Ditch
- River or Stream
- Drainage Basin
- FEMA Floodplain
- Johnstown Growth Management Area
- Subdivision
- Town of Johnstown
- Border Municipality
- County Boundary
- Road
- Highway
- Railroad
- ***Future Trail:*** Neighborhood Trail
- ***Future Trail:*** River Corridor Trail
- 2001 Johnstown Stormwater Master Plan Priority Projects

Matrix

Hillsboro Ditch near Old Town

We understand that the Hillsboro Ditch in particular has an outsize impact on runoff patterns, acting as an interceptor during small storm events and acting as a flooding source during large storm events. Previously completed storm drain infrastructure, particularly in the Old Town area, requires assessment for compliance with flood reduction and design standards. Matrix can help the Town identify, catalog, and evaluate both formal storm infrastructure such as inlets, storm drains, culverts, bridges, and detention basins, and informal storm infrastructure such as irrigation ditches, berms/swales, stock ponds, and roadway conveyance.

We recognize that Johnstown celebrates its small-town heritage built from agricultural roots, and Matrix will work with the Town to develop concept plan improvements that are appropriate for this area. We understand that most existing formal stormwater guidance was developed in either the Denver area through the Mile High Flood District (MHFD) or in the City of Fort Collins. **Alternative Approach:** As experienced partners in stormwater management for these more urban communities, Matrix can help Johnstown pick which policies and Best Management Practices (BMPs) can be adopted with minimal effort, and which policies and BMPs should be modified or reimagined for the unique needs of the Town. We believe that the Town's agricultural history may lead to easier widespread adoption of low impact development (LID), which refers to systems and practices that use or mimic natural processes that result in the infiltration, evapotranspiration, or use of stormwater in order to protect water quality and associated aquatic habitat. Matrix can help the Town select and promote LID practices such as curbless streets, vegetated swales, and tree filters to reduce runoff and protect waterways.

Innovative Ideas, Critical Issues, Alternative Approaches

It is our understanding that the Town is not currently listed as a Co-permittee for a Phase 2 Municipal Separate Storm Sewer System (MS4) through the Colorado Department of Public Health and Environment (CDPHE). We know that several similar sized and nearby municipalities in northern Colorado, such as the City of Evans, Town of Firestone, Town of LaSalle, and Town of Windsor are already included as Phase 2 communities which indicates that it is likely that the Town of Johnstown could be added to this list in the near future. This impending designation will bring forth various regulatory obligations. However, the implementation of a proactive Stormwater Master Plan presents an opportunity for the Town of Johnstown to establish a solid foundation, preparing it to fulfill MS4 program requirements efficiently when mandated. By adopting this proactive stance, the Town will save valuable time and resources compared to reacting once regulations are imposed. Leveraging our experience in assisting other communities with stormwater capital improvement plans, development standards, and operations plans, our approach prioritizes the Town's long-term needs, ultimately enhancing the quality of life for its residents.

Scope of Services

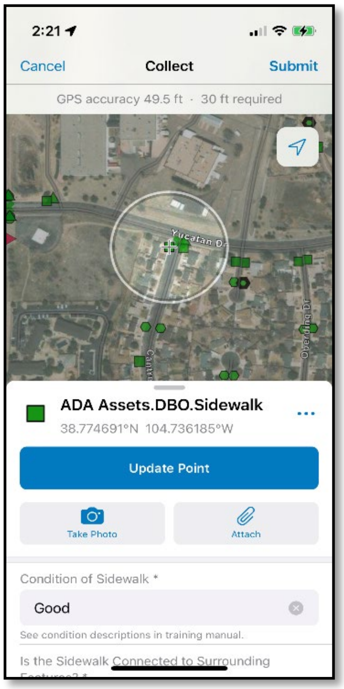
Matrix has reviewed the scope of services outlined in the RFQ and can commit to providing services to complete each of the tasks. There are a variety of means and methods that could be used in those processes, and we do not need to repeat the RFQ scope here. Instead, our proposal below describes critical or novel approaches that will result in the needed technical results efficiently and which will be integrated into the deliverable products of a comprehensive master plan and a framework for a stormwater utility fee structure and initial rates for the various land uses.

Task 1: Project Coordination and Data Gathering

Community and stakeholder engagement will be vital to make sure that this project achieves the long-term goals of the Town. In our experience, the public engagement workshops described in the RFQ scope tend to attract more land developers than individual homeowners. Matrix understands the developer mindset and we welcome their input to create a collaborative relationship that results in stormwater corridors that can also serve as attractive amenities. To reach individual stakeholders that cannot attend the formal workshops, we also propose developing a public-facing website that includes a page to solicit input on stormwater issues that people have identified. We anticipate that the survey would require information on the nature of any flooding, their severity and location, and how frequently it occurs. Matrix will compile the results of the survey and correlate the information with the system assessment for inclusion into the master plan.

Stormwater planning requires a regional approach since runoff does not neatly follow jurisdictional boundaries. Matrix proposes setting up a coordination meeting with each adjacent agency to discuss shared drainage basins and document proposed stormwater planning or construction projects. For example, the Oklahoma Basin starts in the northern reaches of the Johnstown GMA and drains north into the growth management areas of Greeley and Windsor. We know that the City of Greeley is already trying to create an updated stormwater master plan for the entire Oklahoma Basin to get ahead of development pressures, and that the Town of Windsor is exploring the replacement of the Oklahoma mainstem culvert crossing of WCR-17. All parties would benefit from an Oklahoma Basin stormwater master plan, and there may be opportunities to share resources and eliminate duplicate efforts.

Alternative Approach: Matrix will complete the Conditions Assessment as described in the RFQ scope. However, from the perspective of regional drainage functionality we urge the Town to focus on larger structures such as channels, culverts and bridges. Standard inlet and storm drain systems are only designed to convey small storm events, and larger events such as the 100-year storm will result in surface flows, which occur via streets in urban areas. Monitoring and assessing small diameter storm drain may not be the best use of limited funds unless these pipes are specifically protecting a critical location from nuisance flows. As part of our recommended approach of looking at the big picture, Matrix also proposes to perform high-level geomorphic assessments of the natural drainageways within the Johnstown GMA. These assessments help identify whether the channel is stable or likely to shift in the future with increased flows as upstream development occurs. An example of this risk is what occurred in September 2013, where flooding from heavy rainfall created entirely new alignments of the Big Thompson River at multiple locations. Matrix can help Johnstown identify reach stability and plan recommended improvements accordingly.



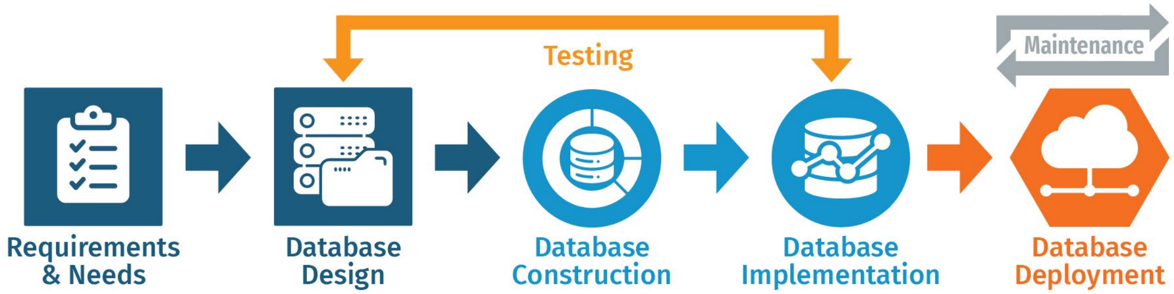
ArcGIS Field Maps

Central to our field verification/data collection approach is our assigned staff. As the GIS Lead and Director of GIS Services at Matrix, Chris Martin, GISP, has 20+ years of experience designing and implementing field data collection processes and analyzing the resulting data. Matrix's stormwater data collection projects have spanned entire counties down to small stream monitoring efforts. Our staff have experience designing, implementing, and providing training for data collection efforts, providing a comprehensive solution to the Town's data collections needs. We are also experts at analyzing the collected data.

Esri is the chosen GIS platform for much of Matrix's data collection and database development projects. ArcGIS Field Maps is the web-based application that has primarily been used in the past because of its efficiency with integrating into the Esri ecosystem. We are adept at connecting high accuracy GPS receivers to any application to ensure accuracy standards are met.

Task 2: GIS Data Review and GIS Dashboard Development

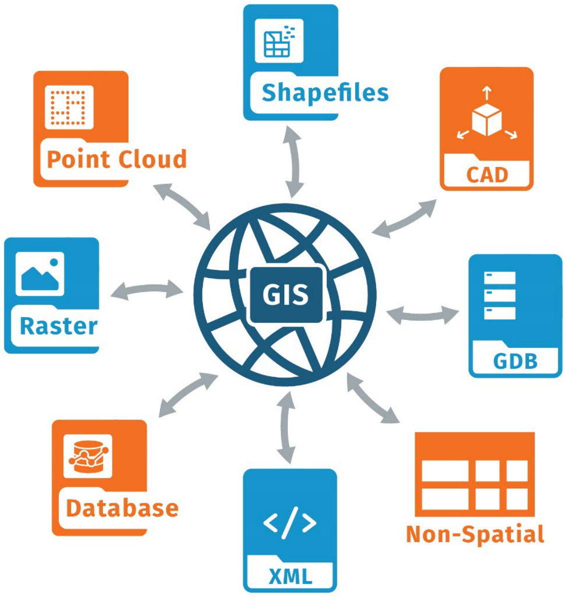
Data management and database development are fundamental to the work performed by the GIS Team and a requirement for the Town to build upon your existing GIS stormwater data. Matrix relies on best-data-management-practices and current Esri data models in the creation, maintenance, and distribution of spatial data. All data are handled and produced with the Town's goals in mind. When developing new datasets, Matrix begins with identifying the requirements and needs of the stormwater data.



Data Interoperability

Critical Issue: Through this process, objects, fields, relationships, and domains are addressed. During database design, data needs meet functionality. The design process is mapped out to ensure that data will be compatible with intended uses and accessible to the Town. Complex data structures require real-world scenario testing to ensure that data use will function as intended. By the time a database is ready to be deployed, scenarios have been rigorously tested and issues have been addressed. Lastly, any comprehensive database requires ongoing maintenance if it is to provide utility to future users at the Town. Matrix provides robust metadata to give context to the Town and clear instruction on how to update datasets. Our data management capabilities also extend to managing existing, complex datasets. Matrix has had experience with maintaining, improving, and analyzing large, enterprise-wide stormwater databases. This project will require the GIS Team to review the structure and records of the database, look for errors and data gaps, propose improvements, and establish protocols to promote efficiency and ease-of-use. We often employ process flowcharting, data validation techniques, and scripting to automate data improvement to the extent possible. Matrix will draw on this experience to assist with the maintenance, growth, and distribution of the Town's stormwater GIS system.

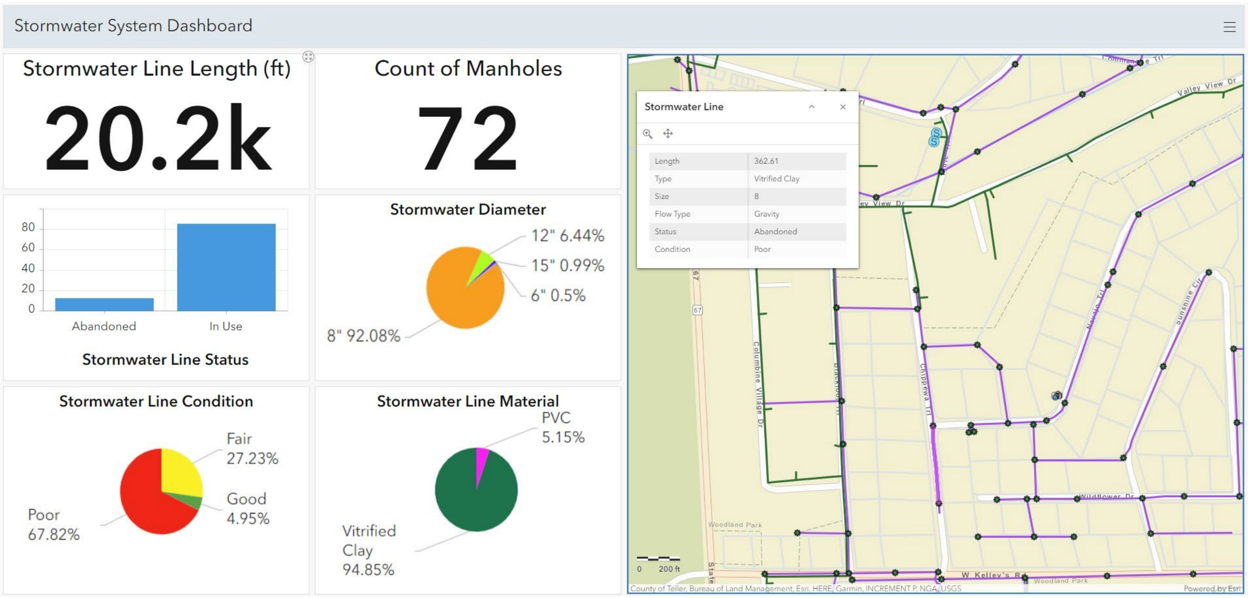
Collaborating closely with our engineering staff, our GIS Team is capable of working with computer-aided design and drafting (CADD) software and handling associated files. The interdisciplinary approach Matrix takes on our projects requires that data are routinely transformed between CADD and GIS formats. Moreover, our team is experienced handling many different data types for many different applications, including non-spatial formats. Thus, we are able to leverage the GIS database as the system of record, allowing diverse datasets to be merged and aggregated in meaningful ways.



ArcGIS Online Dashboards

Gone are the days where GIS professionals are merely expected to produce static maps. The field has evolved to meet the needs of a technologically and data-driven world. Matrix's experienced GIS Team can develop custom tools to provide innovative solutions to the Town. These tools can range from Python scripts to manage and manipulate large stormwater datasets, models to streamline and replicate complex GIS workflows, and ArcGIS Online/Portal dashboards to provide an operational overview of the system. Dashboards have been deployed on past projects to provide visualization for asset management. The application of data filters enhances the functionality of the dashboards and other web-based tools that the Town desires.

Matrix will leverage our custom solutions to streamline and enhance the Town's operations. Dashboards have become a pivotal tool in our GIS asset management toolkit. The Town can utilize dashboards to track maintenance of stormwater infrastructure, analyze condition of assets, document MS4 compliance, or present capital improvement projects to the public. Our team uses Esri's Experience Builder, an ArcGIS Online or Portal tool that allows for tailored online mapping products that can be shared across your organization. In the past, Esri's ModelBuilder has been deployed to assist our stormwater management clients. Further application customization can be achieved by leveraging our experience in JavaScript web development. Our analysts have taken Esri's out-of-the-box applications and modified source code to build tools specific to the project. Matrix will incorporate the Town's stormwater database into a utility network model. Our custom solutions will enhance and build on the Town's existing workflows.



Task 3: Stormwater Master Plan Preparation

Matrix mapped the 2001 SWMP priority projects onto our Opportunities and Constraints Map (shown as numbered red stars) and tried to visit each location. The 2001 SWMP identified 1st Street as a critical storm trunk system to relieve flooding in the Old Town Basin (priority project #3), and our field visit confirmed that there is an existing storm drain system in 1st Street. Quantifying an existing level of service will be a key decision early in the process and helps frame realistic expectations for future levels of service and how this might pair with future development or redevelopment. For example, it is common in many municipalities throughout the Front Range to provide a stormwater system that conveys the 2-year or 5-year storm event in combination with street conveyance for the 100-year storm event. Trunk systems can be identified which provide 100-year capacity and allow for minor systems to connect and deliver the desired level of service. **Critical Issue:** We did not find any evidence of lateral storm drains in cross streets like Estes Avenue or Columbine Avenue to intercept flows upstream of the Hillsboro Ditch (priority project #5). In addition, it was not clear whether the 1st Street storm drain has a suitable downstream conveyance channel that can safely transport runoff from the storm drain outfall to the Little Thompson River. Matrix will further investigate the existing capacity and level of service of existing storm drain then develop new recommendations such as the identification of emergency (overland) overflow paths to supplement piped flows and create greater resilience during future flood events.

The 2001 SWMP suggested that three of the top five stormwater priorities were related to overflows from the Hillsboro Ditch.. Based on our field visit, it appears that some relief structures have been constructed, such as a small detention basin south of Town (priority project #1), but it is likely that this existing relief structure will not be sufficient to protect Johnstown from future flooding. Matrix will investigate the capacity of existing relief structures and develop new recommendations to disconnect the irrigation ditch from severe storm runoff.

Possibly a relief basin adjacent to Hillsboro Ditch

Although Old Town Johnstown and the newly developed areas are not located within regulatory floodplains, we are aware that the Town has experienced flooding issues in 2013, 2018, and 2023. Matrix proposes that our assessment of drainage patterns within the GMA will begin with a rain-on-grid application through HEC-RAS software. This 2-D model combines the generation of runoff rates and volumes with the routing of those flows through farm fields or the urban street network. A big advantage of setting up a 2-D model over a traditional 1-D methods is that we can identify flooding risks throughout the GMA instead of just along established channels. This approach takes advantage of the available digital data. Design storm inputs will be based on standard methods applied within the MHFD. Once the areas of higher flooding potential are identified the next phase of assessment can be based on the existing storm infrastructure in the area, if any, and an estimate of how best to properly drain those areas to avoid flooding insurable structures. Any additional capacity requirements will be based on approximations of system features, such as side ditches, inlets, and storm pipes to reduce surface flooding to acceptable levels.

As previously mentioned, most of the drainageways within the Johnstown GMA are not next to FEMA-mapped floodplains. This could be considered an advantage because the lack of federal permitting requirements makes it easier to develop and implement creative solutions. However, this is also a disadvantage because it may make it difficult for the Town to compel regional drainage improvements that benefit the entire drainage basin instead of just the specific developer. As shown in the Opportunities and Constraints Map, our field visit suggest that some of the new developments appear to be constructing drainage facilities that follow current MHFD recommendations. Matrix intimately understands both the developer and the municipality priorities, and will help bridge these positions by drafting a Stormwater Master Plan that clearly identifies the drainageway corridors that should be protected or established, and clearly points out a suite of practical concept improvements that could be selected for implementation within each reach and basin.

Johnstown Reservoir

Detention storage facilities are typically an effective means for reducing peaks flows on major drainageways. Opportunities for detention storage may be in open space areas or micro-ponds along roadways. While it is unlikely that Johnstown Reservoir could be converted to serve a flood control function, Matrix can help identify other opportunities to create multifunction facilities that act as both storm detention and other community uses such as playing fields, parks or open space, and wildlife habitat. Potential storage facilities will be identified where they may provide a reduction in peak flows upstream of potential flooding areas or where water quality treatment may help implement the Town's likely future MS4 permit requirements.

For software models, Matrix's policy is to use publicly available platforms whenever possible. This provides the most compatibility for future users such as Town staff who may not have access to expensive proprietary hydrology and hydraulics software. For hydrologic calculations, we use the Colorado Urban Hydrograph Procedure (CUHP) distributed by the MHFD and Storm Water Management Model (SWMM) distributed by the U.S. Environmental Protection Agency (EPA). For hydraulic calculations, we use HEC-RAS software distributed by the U.S. Army Corps of Engineers and HY-8 software distributed by the Federal Highway Administration (FHWA). For detention routing, we use the UD-Detention worksheets distributed by the MHFD.

The RFQ scope describes (the standard construction document) phases of 30%, 60%, 90%, and 100%. Matrix proposes to slightly tweak those deliverable milestones to match the most efficient workflow for stormwater master planning. We propose to use technical milestones based on the proven process used for similar MHFD studies, as listed below:

30%
Baseline Hydrology

60%
Alternatives Analysis

90%
Concept Design

100%
Complete Stormwater Master Plan plus computer files

Alternative Approach: Instead of refining the same detailed design over time like in construction documents, planning projects like this one require a team that can efficiently develop and document multiple large models and mapping products. The sequencing proposed above allows your project to efficiently tackle each phase and then "stand on the shoulders" of previous phases, minimizing the amount of reworked models and calculations. Alternatives Analysis should not begin until the Baseline Hydrology has been completed and vetted, and an informed Concept Design cannot begin until the Alternatives Analysis has been completed and vetted. Matrix will structure a Stormwater Master Plan document to include all the above phases, with each phase populated at its respective milestone.

Prior to compiling a draft and final version of the Master Plan, Matrix will review an outline of the document with the Town and define the document's organization and content. Matrix will solicit and incorporate review comments into the document before providing a final version. The Master Plan will provide a prioritized list and schedule for implementing needed projects. A presentation to Town Council will present the key aspects of the plan and a proposed process for implementing a new stormwater utility fee.

Matrix can take a project from conceptual design all the way to final construction documents. This "concept to completion" capability gives us the ultimate vision early in a project's life. Having a great hydrologic or hydraulic solution is only half the answer in stormwater engineering and urban flood management. Matrix's extensive experience in construction design documents gives us an understanding of what can practically be constructed in the field that will perform all the necessary functions. Matrix is familiar with various municipalities' design standards in the Front Range. Our team will leverage this knowledge to think of creative solutions that are also practical, fundable, and constructable.

Our general approach to master storm drainage studies centers around quantifying the overall problem, which is often capacity related, but can be condition driven in some cases. Matrix will meet with Town staff, including operations staff to better understand current system challenges which could be condition driven while also considering potential capacity constraints. In some instances, it may be prudent to extend the life of existing infrastructure through pipelining or a parallel system instead of a complete system replacement. The maintenance requirements of an aging system can include a visual, above-ground inspection and a review of CCTV files. Due to the size of Johnstown we expect to rely on Town staff to convey which portions of the system need attention. Providing a comprehensive assessment would require an extensive effort beyond the project budget. We will compile the known areas in disrepair and assign costs that can be used to develop the stormwater utility fee.

Matrix would look closely for opportunities to pair stormwater improvements with other publicly-owned facilities like roads and trails. This is an efficient use of scarce resources since existing Right-of-Ways can sometimes be leveraged, and it greatly simplifies access for maintenance of drainage channels. **Innovative Idea:** We mapped the future trails from the 2008 Transportation Master Plan onto our Opportunities and Constraints Map (shown as pink and orange dashed lines), which shows that future trails are desired along the Pullman, Elwell, Bunyan, and Old Town Drainageways. Matrix will develop additional recommendations to promote, preserve, and develop these trail/drainageway corridors as a regional amenity. Our engineers work together with landscape architects to develop concepts that serve multiple functions such as recreational use, aesthetic attraction, ecological diversity, safe wildlife corridors, and minimal irrigation (typically through native plantings).

Looking north along WCR-17

Task 4: 10-Year Capital Improvement Plan

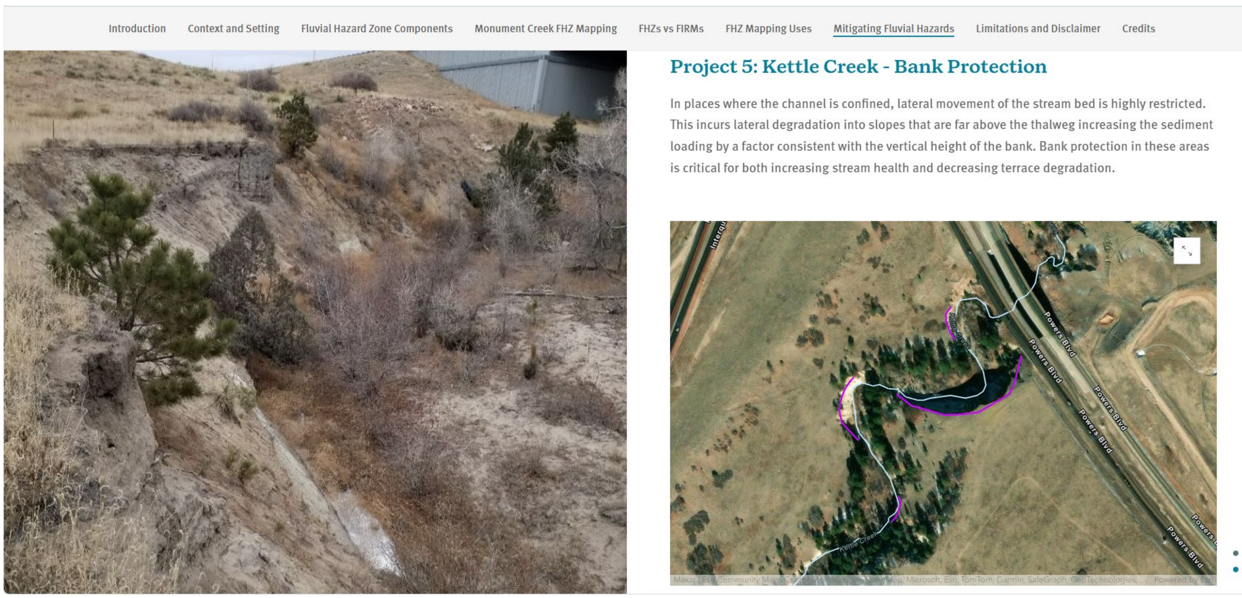
Several key considerations will be important in the development of the plan. A foundational starting point will be the growth projections referenced at every 2-years in the RFP. Our teaming partner, Logan Simpson, developed the comprehensive plan for the Town and will generate these growth and land use progressions which will be key to both the implementation of stormwater improvements as well as to possible revenue generation through a stormwater fee. Funding sources will also be a key consideration as the master plan will identify both capital improvements which may be regional in nature but could also be serving specific development projects. Integrating these different plans alongside the Towns goals will be a focus for us throughout the study.

An important consideration during the CIP development phase includes near-term and long-term maintenance. These commitments will also roll up into the financial analysis required to substantiate a stormwater fee. Our approach will utilize both a bottom-up approach which includes analyzing the total system needs including maintenance and staffing. We will also compare this to a top-down approach by comparing stormwater fee structures to other front range municipalities.

Stakeholder input will drive CIP prioritization. Matrix will lead a discussion concerning the study context statement, core values, and critical issues. The evaluation criteria will then be adjusted as appropriate. A technical scoring approach will be used as a screening tool to limit the total number of projects which are considered high ranking and technical criteria will be based on input from stakeholders and available GIS data which will be used to drive the metrics.

The high-ranking project list will then be prioritized based on the evaluation criteria established by the stakeholders through the use of our spreadsheet tool termed a Decision Matrix. The Decision Matrix displays results as a dynamic prioritized list of projects. Those highest ranked projects will undergo an additional level of evaluation to include design guidelines for project planning and implementation with the stated goal that there has been sufficient due diligence to move directly into project design in the future. Selected projects may undergo further engineering evaluation and field visits to consider additional components. All high-ranking projects will have costs calculated commensurate with the current conceptual level of detail.

Matrix's GIS professionals have a rich history of developing presentation-quality maps and easy-to-use web mapping applications depicting project locations and associated attribute information in a watershed. Matrix will develop high-level mapping products that clearly summarize the recommended stormwater projects in the CIP, allowing City Council members and other City staff to quickly locate and understand the proposed projects.



Monument Creek Conceptual Project Presented in a StoryMap

Innovative Idea: Esri's StoryMaps are an ideal, web-based platform for not only illustrating mapping information but also including videos, photos, charts and graphs, and narrative. StoryMaps provide for an engaging and interactive experience leading to stakeholder buyoff, a powerful tool for grants and other funding mechanisms, and a platform the public can use to discover projects and understand their impact. Additionally, StoryMaps can be harnessed to measure progress. They can be updated throughout the duration of a project to show project lineage and document the great work that is taking place for all stakeholders. An example StoryMap that was produced by Matrix can be seen at the following link Monument Creek Fluvial Hazards.

Task 5: Rate Study

A stormwater fee can be structured in a variety of ways. We understand that the Town desires to establish funding mechanisms for needed capital improvements and for ongoing maintenance of the stormwater system. Key to the formation of a stormwater fee will be the estimation of long-term maintenance costs, including personnel, equipment and routine operations, to ensure that facilities function as intended. In addition, the cost of rehabilitation and repairs should be incorporated into the fee. Costs associated with maintenance require an inventory of facilities, their type, and the specific on-going maintenance requirements. Repair and rehabilitation costs are typically based on a percentage of initial capital costs over the anticipated service life of the facilities. New construction will require a capital improvement cost estimate.

We anticipate that financing the Town's stormwater system will require, at least, a monthly fee with the possibility of the issuance of bonds. The amount of the monthly rate can be determined by what is considered an acceptable rate and what portion of the monthly can be used to support bonding. This consideration will be part of the alternatives assessment to develop a fee recommendation.

Alternative Approach: Another aspect of a rate structure is how the fee is distributed amongst properties. At the simplest end of the spectrum would be a fixed amount to each property. Setting the fee based on acreage could be another approach to fee distribution. These simple methods are easily implemented, and require limited data management, but may not be considered equitable. Another common, yet more detailed, metric is to use the impervious area of each property to provide a more equitable distribution of costs but requires additional access to data and additional administrative costs. Developing a stormwater fee based on imperviousness can be based on a land use designation (with generalized assignments of imperviousness) or on a lot-by-lot calculation of imperviousness. This decision will depend on the degree of public understanding and acceptance, the availability of data, and the level of ongoing maintenance of the database that the Town wants to commit to.

A stormwater fee will likely have a component for ongoing maintenance and a component for system upgrades. During the assessment phase, Matrix will identify needed work for these components and incorporate them into a proposed initial fee. The distribution of monthly bills is also a key aspect of implementing a new utility. As the Town currently provides services and distributes bills for water, sanitary sewer and waste collection, modifying the administrative process to include a stormwater fee should be a relatively straight-forward effort.

Deliverables

- A comprehensive Stormwater Master Plan per the outlined scope of services herein which will include:
  - Existing stormwater infrastructure assessment as a stand-alone document.
    - 30%, 60%, 90% and 100% phase Town-wide growth area Stormwater Master Plan.
    - Each phase submittal (30/60/90/100) shall include an electronic progress copy of the Stormwater Master Plan.
    - Ten (10) hard copies professionally bound of the Stormwater Master Plan at 100% phase.
    - Hydrologic and Hydraulic Models with digital copies of input and output files, analyzing existing and proposed improvements and stormwater systems.
- A comprehensive Stormwater Capital Improvement Plan per the outlined scope of services herein which will include:
  - Recommendations for new and upgraded stormwater infrastructure, inclusive of planning level cost estimates as well as conceptual alignment for planning/ budgeting purposes.
  - Prioritization of capital improvements project based on level of service, risk of flooding, resiliency, water quality/quantity and public support, summarized and presented using a comprehensive matrix with project scorecards included. The CIP shall be presented as a stand-alone document.

- A complete GIS compatible dashboard of existing and future system, with components alpha-numerically identified in a comprehensive manner for incorporation into the Town's existing GIS system.
- A 10-year financial planning model based on the financial analysis/rate study per the outlined scope of services herein.

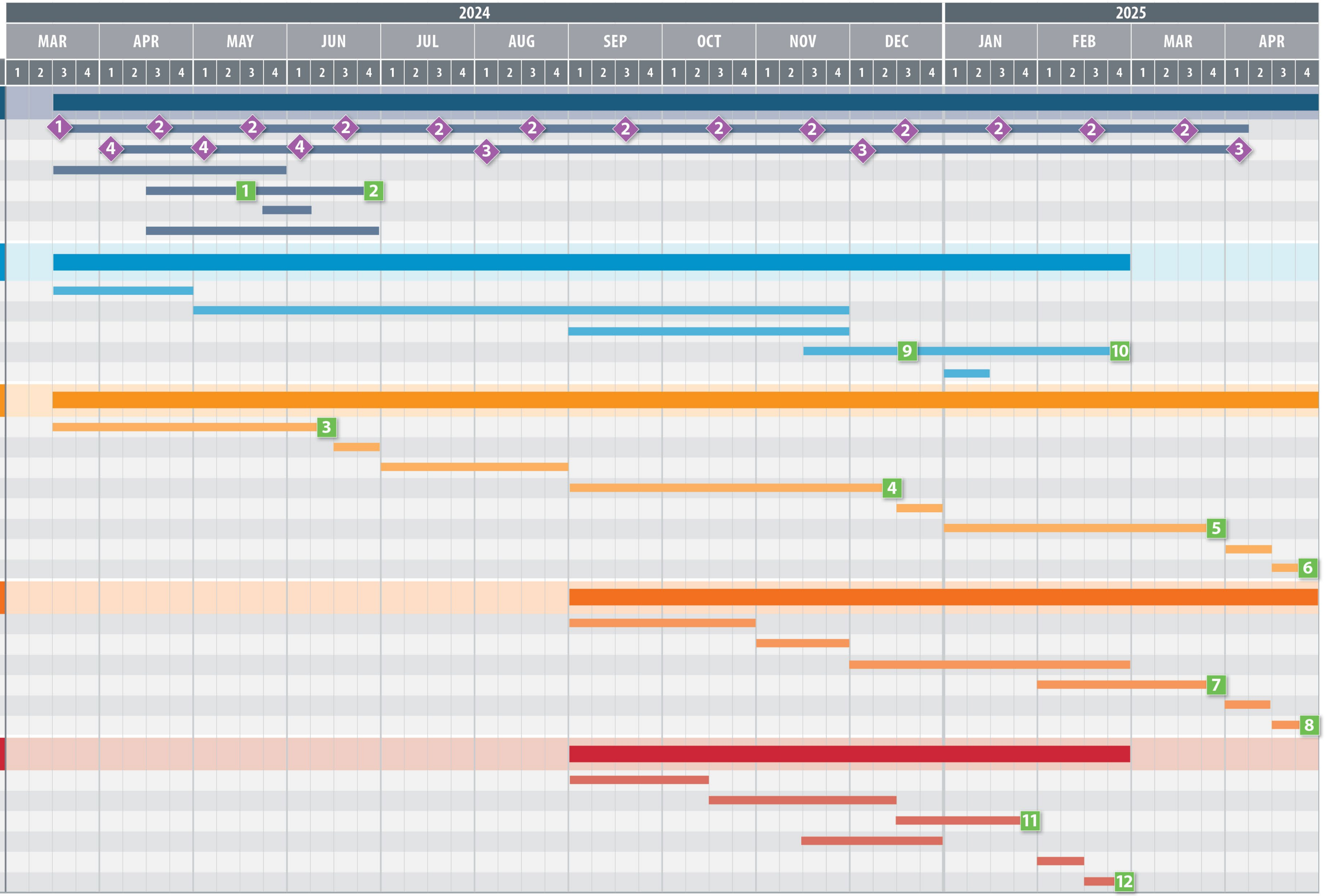
Schedule of Services

Matrix's approach to meet the established schedule will be to create parallel paths for completing tasks such that each can roll up into the overall master plan deliverable. However, we recommend that each sequential phase of the project (baseline hydrology, alternatives analysis, concept design) is fully reviewed and revised before moving on to the next phase to minimize rework. As mentioned previously, we can divide the project geographically using drainage basins, and we have the capacity to dedicate multiple teams working on different basins concurrently as required to meet schedule demands. Matrix has used similar approaches on master planning projects in the past and have learned that active engagement from the project sponsor and any key stakeholders will be critical to ensure timely decision making and drive the project to completion. Please refer to our proposed schedule below.

Critical Issue: We anticipate that obtaining permission to access parcels that border identified drainageways will be a schedule risk due to long lead times. Matrix prefers to walk all of the drainageways within a study area to perform preliminary geomorphic assessments and document on-the-ground conditions. In past project experiences within Weld County, we have encountered landowners who are either non-responsive or even oppositional towards municipal projects. Recognizing the need to be patient when obtaining parcel access, we will use GIS to identify all the parcels that could be impacted by drainageway improvements at the very start of the project so that the property access team can get started right away.

Johnstown SWMP Notional Schedule

TASK AND DESCRIPTION	DURATION
1 Project Coordination and Data Gathering	**54 weeks**
1.1 Kick-Off and Progress Meetings	51 weeks
1.2 Community and Stakeholder Engagement	51 weeks
1.3 Information Gathering	10 weeks
1.4 Conditions Assessment	10 weeks
Town Review	2 weeks
1.5 Field Verifications	10 weeks
2 GIS Data Review and GIS Dashboard Development	**46 weeks**
2.1 Data Gap Analysis	6 weeks
2.2 Database Design and Development	28 weeks
2.3 Utility Network Creation	12 weeks
2.4 Dashboard Development	14 weeks
Town Review	2 weeks
3 Stormwater Master Plan Preparation	**54 weeks**
3.1 Baseline Hydrology	12 weeks
30% Review	2 weeks
3.2 Existing Facility Capacity Analyses	8 weeks
3.3 Alternatives Analysis	14 weeks
60% Review and Selection Plan	2 weeks
3.4 Conceptual Design	12 weeks
90% Review	2 weeks
3.5 100% Document Production	2 weeks
4 10-Year Capital Improvement Plan	**32 weeks**
4.1 Identify System Deficiencies	8 weeks
4.2 Cost Estimates	4 weeks
4.3 Prioritization Matrix and Project Scorecards	12 weeks
4.4 Evaluate Alternative Funding Options	8 weeks
Town Review	2 weeks
4.5 Final CIP Production	2 weeks
5 RATE STUDY	**24 weeks**
5.1 Revenue Analysis	8 weeks
5.2 Operations and Maintenance Analysis	8 weeks
5.3 Statement of Cash Flow	6 weeks
5.4 Capital Financing Study	8 weeks
Town Review	2 weeks
5.5 Final Rate Study Production	2 weeks



Meetings and Presentations:

- 1 Kick-Off
- 2 Progress Meeting
- 3 Community Engagement Workshop
- 4 Stakeholder Workshop

Deliverables:

- 1 Draft Existing Stormwater Infrastructure Assessment
- 2 Final Existing Stormwater Infrastructure Assessment
- 3 Draft Baseline Hydrology Report
- 4 Draft Alternatives Analysis Report
- 5 Draft Conceptual Design Report
- 6 Final Stormwater Master Plan
- 7 Draft Stormwater Capital Improvement Plan
- 8 Final Stormwater Capital Improvement Plan
- 9 Draft GIS Dashboard
- 10 Final GIS Dashboard
- 11 Draft 10-Yr Financial Planning Model
- 12 Final 10-Yr Financial Planning Model

Project Management and Cost Controls

For scheduling and deliverable tracking Matrix uses Smartsheet. This platform allows for an interactive schedule and task list to be created that can be shared in real time with the client and project stakeholders. Tasks are organized consistent with the project scope, and attachments such as design plans, meeting notes, etc. can be made available to all staff involved with the project. This method of schedule tracking has worked very well on the current Cottonwood Creek Channel Rehabilitation and Design Services project.

Matrix uses Unanet Online Time and Billing Software to manage project charges and budget. Our staff enter their time each day into this system which gives our project managers real time project budget information. The project managers can customize the tasks as needed by the project's demands for cost control. Ben has used Unanet software since 2021 and is familiar with the various budget tracking elements inherent to the software. Automatic email notices are generated that inform Ben when project tasks have reach budget milestones (e.g., 50% budget remaining, 20% budget remaining, etc.). In the event scope trends and begins to exceed budget, Ben will communicate immediately with the Town project manager to discuss any issues and agree on a way forward to meet the project objectives.

We recognize that this project is primarily funded through the State of Colorado's Hazard Mitigation Grant Program (HMGP), which has stipulations about procurement, reporting and audit documentation. Matrix typically bills monthly, so we do not expect that any invoice would exceed the $100,000 threshold for requiring advance approval by the State of Colorado (State). We will provide draft quarterly progress reports summarizing project accomplishments that could be forwarded to the State.

Availability to Perform Work

Matrix is committed to the assurance of high-quality deliverables and exceeding our client's expectations. For this Comprehensive Stormwater Master Plan, Matrix projects a 15-month period of performance which is detailed in the **Schedule of Services** section of this proposal. Completing a study of this size takes time to properly execute and review, but our proposed schedule finishes three months ahead of when the State grant expires (August 5, 2025) to provide a time contingency for unforeseen delays. We have reliably served numerous private and governmental agencies in Colorado and around the country under similar consulting roles.

Based on our assessment of current and future staffing requirements, we are confident that we have the resources necessary to complete the requirements of this contract. We have the reach-back capabilities needed to quickly mobilize subject matter experts, support staff, and other resources to address unforeseen challenges, surge needs, or a redirect of efforts as our clients require. Our approach, in which we commit only what we can achieve and achieve all that we commit, ensures that our clients have the support they need when they need it.

The Matrix team regularly reviews staffing and workloads to make sure that all upcoming deliverables are on schedule and that projects are always moving forward. As needed, we can shift personnel if additional effort is required without affecting deliverables. Because only a small portion of Matrix's total staff is proposed for this contract, we have a large pool of talent to draw on if additional assistance is required. To limit conflicts, we incorporate project schedules in our project plan with existing workload and project expectations in mind.

Matrix routinely engages in the development and completion of multiple projects simultaneously. We have staff capabilities to accomplish multiple concurrent projects, the expertise to integrate our staff, and the experience to optimize staff resources. Matrix has a 100% success rate in the completion of our projects, based largely on our approach to developing project teams within our staff. Project teams are based on qualifications and workloads, allowing us to balance the need for knowledgeable and appropriate staff on existing and new projects, as they are initiated.

Team member's anticipated time dedicated to the work during the course of the study is included on their individual resumes.

Other Considerations

While Matrix has all the resources and expertise needed for the City of Johnstown Stormwater Master Plan project, we intentionally partnered with Logan Simpson. Why? Matrix has completed many similar stormwater master plans, and we understand that the greatest challenges are usually not technical in nature, but often tied to properly defining and meeting stakeholder needs. This move isn't just about ticking boxes; it's about recognizing the value of diverse perspectives and connections in delivering the best results for our clients and communities.

Our commitment to diversity, equity, and inclusion isn't just lip service - it's ingrained in our DNA. That's why we've established a dedicated Diversity, Equity, and Inclusion Committee. By investing in this committee, we're not just investing in our team; we're investing in the sustainability of our firm and the communities we serve. Because at Matrix, we understand that true success isn't just measured by numbers on a balance sheet - it's measured by the positive impact we have on the world around us.

RFQ Submission Form and W-9

Matrix

ATTACHMENT A-RFQ SUBMISSION FORM FOR ELECTRONIC SUBMISSION

(Include this form as a PDF with your electronic submission)

Does your offer comply with all the terms and conditions? (YES / NO)
If no, indicate where exceptions can be found in the proposal.

Does your offer meet or exceed all specifications? (YES / NO)
If no, indicate where exceptions can be found in the proposal.

Does your offer intend to comply with the Town's Professional Service Agreement? (YES / NO)
If no, indicate what exceptions you may have to the Agreement template.

Have All Addendums Been Acknowledged? Addendum No. 1 01/03/2024 (YES/NO)
Addendum No. 2 01/17/2024

(Please Note Addendums by Number/Date)

Has a Duly Authorized Agent of the Consultant Signed the Cover Letter? (YES / NO)

Has your UEI been included in your Cover Letter? (YES / NO)

Has a W-9 Form Been Included With the Proposal? (YES / NO)

Does Consultant agree to execute contract documents electronically if the Town so requests?

(YES / NO)

Person authorized to execute contract documents:

Printed Name: Drew Beck, PE, CFM, PMP

Title: Vice President, Director of Water Resources

Email Address: matrix@matrixdesigngroup.com

Date: 02/16/2024

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type.
See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Matrix Design Group, Inc.

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only **one** of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☐ C Corporation ☑ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ ________

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is **not** disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) ________

Exemption from FATCA reporting code (if any) ________

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
2435 Research Parkway, Suite 300

Requester's name and address (optional)

6 City, state, and ZIP code
Colorado Springs, Colorado 80920

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN,* later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–			–				

or

Employer identification number

8	4	–	1	5	1	5	7	6	7

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ▶ Carisa A Cipoletti Date ▶ 02/08/24

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9.*

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

Appendix: Resumes

Matrix

Drew Beck

PE, CFM, PMP

Officer-in-Charge

Drew has more than 20 years of engineering experience with a wide range of engineering abilities, including storm drainage modeling/hydraulic analysis, preparation of drainage reports and construction documents, stormwater management planning, and urban water quality modeling that encompasses best management practices and low-impact development analysis. He also has experience on complex integrated projects requiring multidiscipline solutions on local and regional scales. Paramount in his analysis is understanding the integrated approach that is necessary to solve watershed scale drainage and water quality problems. Drew is Board Chair of the Colorado Association of Stormwater and Floodplain Managers and is in constant contact with his colleagues on the latest in drainage, water quality, and floodplain news.

Percent of Availability

15%

Education

M.S. Hydrology, Colorado School of Mines, 2014

B.S. Civil Engineering, Santa Clara University, 2000

Professional Registrations/Affiliations

Professional Engineer: Arizona #66479, California #66037, Colorado #48153, Guam #2189

NCEES #54800

Certified Floodplain Manager (CFM), #US-09-04545

Project Management Professional (PMP)

Colorado Association of Stormwater and Floodplain Managers (CASFM), Board Chair

American Society of Civil Engineers (ASCE), and Journal Peer Reviewer

RELEVANT EXPERIENCE

City and County of Denver Storm Metrics Study | DENVER, COLORADO

After the success of the water quality scorecard approach, Drew was asked to lead an effort to prioritize over $1.5 billion in Capital Improvement Plan storm drain needs. As Project Manager, Drew led a team to develop a quantifiable and defensible method to prioritize projects that had been identified in the 2014 Storm Drain Master Plan. This multiple-benefit approach incorporated both engineering and non-engineering elements to truly capture the total benefit of drainage-related projects. The final product was a roadmap to assist City personnel in refining a six-year capital plan while providing the City with necessary tools to update the analysis as new/updated data becomes available.

Stormwater Infrastructure Master Plan (SIMP) | COLORADO SPRINGS, COLORADO

Drew was Project Manager for assembling and prioritizing a stormwater infrastructure program for the City of Colorado Springs. The project entailed assembling identified infrastructure needs from multiple sources and differing criteria. Creating an equal cost comparison was essential to the project so the City's annual capital budgeting process can be planned accurately. In addition, an extensive field assessment was completed of more than 160 miles of open channels within the City. The assessments help prioritize previously identified projects for CIP implementation.

Sloan's Lake Major Drainageway Plan/Flood Hazard Area Delineation | DENVER, COLORADO

Drew was Project Manager for the complex Sloan's Lake Major Drainageway Plan/Flood Hazard Area Delineation (MDP/FHAD), which included four stakeholders in addition to the Mile High Flood District (MHFD). The watershed problems and solutions are quite unique in this urban watershed since Sloan's Lake does not have a natural outlet. Master plan improvements aimed to reduce potential flooding impacts and address water quality issues in the lake. Paramount to the process was considering the multipurpose cost efficiencies regarding flood hazard mitigation simultaneously with water quality improvement objectives and recreation benefits/impacts.

Denver General Storm Program – Mexico/Oneida and 41st/Osceola | DENVER, COLORADO

Drew was Project Manager and managed multiple subconsultants on the urban drainage final design solutions. The City and County of Denver's on-call contract was utilized to contract with Matrix to solve neighborhood-scale localized drainage issues at two intersections. A combination solution involving additional inlets, curb and gutter replacement, and pipe upsizing successfully mitigated the localized flooding issues. Potential utility conflicts and right-of-way constraints were key considerations, which the team navigated with mitigation solutions.

Matrix

Benjamin Liu

PE, CFM

Project Manager

Ben is a highly experienced water resources engineer with over 15 years of experience delivering a wide spectrum of projects, including land development and various municipal, county, and state clients. His expertise in water resources encompasses a broad range of critical areas, including floodplain management, stream restoration, corridor planning studies, design-build oversight, and the intricacies of hydrology and hydraulics modeling. He brings a wealth of knowledge to the table in the field of drainage infrastructure design, making him an invaluable asset to any project aiming to navigate the complexities of water management and engineering.

Percent of Availability

40%

Education

M.S. Environmental Engineering (Soil and Water Concentration), Cornell University, 2008

B.S. Civil Engineering, Colorado School of Mines, 2001

Professional Registrations/Affiliations

Professional Engineer: Colorado #50470 Arizona #52398,

Certified Floodplain Manager (CFM), #US-07-02737

Technical Skills

HEC-RAS

FLO-2D

SWMM

CUHP

StormCAD

HY-8

ArcGIS

Civil 3D

Inroads

RELEVANT EXPERIENCE

Greeley Comprehensive Drainage Plan Oklahoma and South Basins | GREELEY, COLORADO

Matrix completed a storm drainage master plan for an approximately five-square-mile watershed. As Project Manager, Ben was responsible for project communications, public meetings, data collection and field visits, baseline hydrology and hydraulics, alternatives analysis, and conceptual design. His team analyzed and determined suitability and sizing for Do Nothing, Detention, Channel Improvement, and LID alternatives along approximately nine linear miles of major drainageway. Matrix helped Greeley develop a suite of viable green infrastructure concepts that could reduce the size of standard regional drainage infrastructure through distributed runoff reduction.

Lafayette Area Major Drainage Plan | LAFAYETTE, COLORADO

Ben served as a Project Engineer and technical reviewer. He created 1-D HEC-RAS models to show flood impacts of existing infrastructure and multiple alternatives; and reviewed the 2-D HEC-RAS model to identify hydrologic flow splits and areas at risk of shallow flooding. The resultant plan provided the City with a roadmap of capital projects to improve drainage and resiliency.

Goldsmith Gulch Major Drainageway Plan (MDP) and Flood Hazard Area Delineation (FHAD) | DENVER, COLORADO

This study identified flood risks and developing master plan improvements for eight miles of stream corridor in Denver, Aurora, Greenwood Village, and Arapahoe County. Ben prepared and reviewed HEC-RAS modeling for floodplain mapping, used UD-Detention worksheets and EPA SWMM to analyze potential detention improvements to reduce peak flows, and generated cost estimates of alternatives.

Fairfax Tributaries Outfall Systems Plan | COMMERCE CITY, COLORADO

Ben served as an initial Project Manager and technical reviewer. He helped create the scope and workplan, then led the kick-off meeting for this MHFD watershed planning project. He later stayed involved by reviewing basin delineations and hydrologic models.

National Western Center Campus Placemaking Study | DENVER, COLORADO

Ben was responsible for storm drain design and floodplain modeling of this urban redevelopment project, including an alternatives analysis, preliminary design, and flood modeling of the South Platte River. The multiple landowners, major utility conflicts, and historical significance within and adjacent to the site required innovative designs to achieve the desired flood protection.

The Aurora Highlands North Area A Site Plan | AURORA, COLORADO

Ben was responsible for the overall drainage design for the 205-acre site. This included collaborating with neighboring developments and updating regional CUHP and SWMM models, WQ/EURV and peak shaving detention design, Rational Method hydrology, and open channel hydraulics. Ben reviewed drainage plans and produced a preliminary drainage report.

Matrix

Dan Bare

PE

QA/QC

Percent of Availability

10%

Education

M.S. Civil Engineering, Water Resources
University of Colorado at Denver,1990

B.S. Civil Engineering,
University of Colorado at Denver, 1984

B.S. Engineering Technology,
Louisiana State University, 1976

Professional Registrations/Affiliations

Professional Engineer: Colorado #22205

Colorado Association of Stormwater and Floodplain Managers (CASFM)

Dan has more than 45 years of water resources experience, spanning both the public and private sectors. His extensive career has involved working with various jurisdictions, agencies, and private developers. Serving as the Town Engineer for Castle Rock and lending his expertise as a consultant within multiple esteemed firms, Dan has been instrumental in crafting stormwater master plans, alternatives evaluations, capital programming, basin fee programs, permitting and floodplain management. These projects require meticulous assessments of system deficiencies and capacities, cost estimating and improvement scheduling.

Dan's contributions to the field extend to conducting in-depth analyses of storm drain systems, channel stabilization and floodplain delineation, Dan has demonstrated exceptional leadership by guiding teams in the development of stormwater drainage criteria manuals for the City of Colorado Springs and the Fountain Creek Watershed Flood Control and Greenway District. These manuals establish crucial policies and design guidelines that promote the creation of effective drainage systems, natural channels and incorporating riparian vegetation into stabilization practices. Dan's wealth of experience and unwavering dedication continue to shape the landscape of water resources management.

RELEVANT EXPERIENCE

Cottonwood Creek Drainage Basin Planning Study | COLORADO SPRINGS, COLORADO

Dan was Project Manager and Technical Lead this project involved the development of hydrologic (HEC-HMS) and hydraulic models (HEC-RAS) for the 19.2-square-mile, 85% developed watershed in northeastern Colorado Springs. A hydraulic assessment of major structures and drainageways was completed to identify deficiencies and propose needed improvements.

Stormwater Management Assessment | COLORADO SPRINGS, COLORADO

As Project Manager for the City of Colorado Springs, Dan worked with a consultant team to evaluate stormwater management policies and practices to develop a new Drainage Criteria Manual. An extensive process of stakeholder involvement resulted in broad community support and the manual was later adopted by City Council with favorable support.

Jimmy Camp Creek Drainage Basin Planning Study | COLORADO SPRINGS, COLORADO

Dan worked with the developer's consultant, El Paso County, and the City of Fountain to evaluate alternatives and complete a basin plan that is estimated to reduce overall drainage costs in the basin by 20%. The analysis resulted in the introduction of a new methodology for designing and placing detention storage ponds and adjustments to rainfall and basin parameters resulting in more realistic estimates of rainfall runoff.

Fountain Creek Watershed Flood Control and Greenway District Design Manual | COLORADO

Dan led a team of consultants to create the first Design Manual for the FCWD to apply to its projects and to evaluate projects proposed by others in the watershed. The manual includes the application of new NOAA Atlas 14 rainfall depths and distributions and guidance for assigning runoff parameters for areas affected by wildfires.

Colorado Springs Drainage Basin Fee Program Assessment | COLORADO SPRINGS, COLORADO

Dan led the effort to document and report on the city's drainage basin fee program which was not able to reimburse developers for completed regional projects. The project involved an extensive accounting of the city's records, extensive meetings with developers and city staff and resulted in recommendations to bring the fee basins into balance over a 5-year period.

Matrix

JENNIFER GARDNER, PLA | Community Engagement Task Lead 10% Availability

Since 2000, Jennifer has been dedicated to the planning and design of spaces small and large. Her tireless passion for connecting the natural and built environments has led to an extensive resume of projects spanning both public and private sector. Jennifer is experienced with planning and entitlement, project coordination, public outreach, land use codes and comprehensive plans, landscape design, irrigation design, site design, park and open space design, streetscape design, and construction administration. Much of her project work is focused on sustainable building practices such as efficient stormwater management, taking into consideration both the municipal needs and the desire of the community. Through years of entitlement work, she has gained much insight into the opportunities and challenges that communities face throughout the Rocky Mountain region and is dedicated to building the framework to help each community achieve their ultimate development goals.

EDUCATION

B.S., Landscape Architecture, Colorado State University, 2000 (ASLA Student Merit Award)

PROFESSIONAL REGISTRATIONS/ACCREDITATIONS

Professional Landscape Architect, Colorado #714, Wyoming #LA-0136C, Oregon #LA1009
Colorado ASLA North Area Director
CSU Alumni Advisory Board for Landscape Architecture Department
Member American Society of Landscape Architects

SELECTED PROJECT EXPERIENCE

- Johnstown Area Comprehensive Plan. CO
- Larimer County Comprehensive Plan and Mountain Resilience Plan. CO
- Wellington Comprehensive Plan and Land Use Code Update. CO
- Wellington Waterwise Landscape and Irrigation Standards. CO
- Elbert County Water Master Plan. CO
- Elbert County 1041 Application Review. CO
- Alamosa County 1041 Application Review. CO
- Department of Local Affairs (DOLA) Outreach and Technical Assistance. CO
- Summit County Code Audit for Affordable Housing. CO
- Jefferson County Plan and Regulation Update. CO
- Pagosa Springs Land Use Development Code Update. CO
- Manitou Springs Zoning and Subdivision Rewrite. CO
- Integrating Sustainability Practices into the Land Development Code. Westminster, CO
- Milliken Town Planner. Milliken, CO
- Land Use Code Update. Loveland, CO
- Star South of the River Subarea Plan. Star, ID
- Teton County Land Development Code Update. ID
- Salt Lake City Sustainable Code Review. UT
- Zoning and Subdivision Code Update. North Ogden, UT
- Ogden Unified Development Ordinance. Wasatch Front Range Council. UT
- Millcreek Full Code Update. UT
- Meadowbrook District and Town Center Form Based Codes. Millcreek, UT
- Bozeman Unified Development Code Update. MT

Angus Campbell

PE

Conditions Assessment Task Lead

Angus is a native of Colorado and has extensive knowledge of engineering issues that arise along the Front Range and the concerns of regional stakeholders. Angus has bridge design experience ranging from multi-span vehicular bridges to long-span pedestrian structures. He also has in-depth knowledge of structural walls and drainage structures including flexible and rigid culverts, and potable water storage tanks. Angus is an NHI-certified bridge inspector and team leader and has inspected over 140 structures varying in size and complexity. He regularly provides detailed maintenance recommendations, conditions assessments, cost estimates, and construction administration services for design and inspection projects.

Percent of Availability

25%

Education

M.S. Civil Engineering, Colorado School of Mines, 2018

B.S. Civil Engineering, Colorado School of Mines, 2017

Professional Registrations/Affiliations

Professional Engineer: Colorado #60257

NHI Certified Bridge Inspector

Structural Engineers Association of Colorado (SEAC)

American Society of Civil Engineers (ASCE)

Technical Skills

LEAP Bridge

AASHTOWare

MIDAS Civil

AutoCAD Civil 3D

RISA 3D

RELEVANT EXPERIENCE

Venetucci Boulevard Bridge | FOUNTAIN, COLORADO

Angus played a key role in the design and construction administration for this 123-foot-long design-build vehicular bridge across Fisher's Creek. His efforts on this project included girder, abutment, drilled shaft, deck, and bearing design, as well as girder fabrication quality control.

Silverthorne Outlets Pedestrian Bridge Inspection | SILVERTHORNE, COLORADO

Angus provided the inspection and condition assessment of this single-span pedestrian bridge. His role on this project included detailed inspection and documentation, as well as providing a comprehensive cost estimate and repair recommendations.

True North Pedestrian Bridge | COLORADO SPRINGS, COLORADO

Angus provided structural design and construction administration on all aspects of this iconic pedestrian bridge connecting the Air Force Academy Visitor's Center and Hotel. Acting as a new gateway to the Academy, this 206-foot-long pedestrian bridge couples the Air Force's uniformity with stunning architectural design of a voided central pier.

Sterling Gulch Stormwater Design | STERLING RANCH, COLORADO

Angus led the structural design and construction services for this multi-phase stormwater master plan, which included multiple regional ponds requiring numerous outlet structures, stilling basins, forebays, box culverts, wingwalls, and custom trash racks. Angus provided stakeholder coordination and detailed submittal review to ensure the highest quality final product for the client.

Preble Creek | BROOMFIELD, COLORADO

Angus designed and aided with the construction administration of a 102-foot uniquely shaped outlet structure that integrates seamlessly with the surrounding landscaping. He also provided design and feasibility consulting for two box culverts, one of which crosses under State Highway 7. To accompany the culverts, Angus provided designs for multiple trash racks, headwalls, and wingwalls.

Central Park Boulevard Bridge Phase 2 | DENVER, COLORADO

Angus provided construction administration and design for this 803-foot, seven-span major arterial bridge and the Central Park neighborhood of Denver. The widening of this bridge, originally constructed in 2008, allowed for the necessary movement between the rapidly expanding Northfield and Central Park communities.

Sloans Stormwater Vault Inspection | DENVER, COLORADO

Angus led and managed the inspection and structural remediation of two private underground stormwater vaults. This included providing detailed inspection reports and recommendations, as well as coordinating with multiple stakeholders and helping facilitate the bid process for precast product warranty.

Matrix

JR Bessie
PLS

Field Verifications Task Lead

JR has over 28 years of experience as a land surveyor with extensive experience in both construction and entitlement. JR's experience includes processing/utilizing existing conditions data in support of engineering design projects, which includes the preparation of topographical, control, and cross section surveys. JR also prepares land survey plats, easements/legal descriptions, and other professional land surveying service documents. JR has over 10 years of project management experience, managing projects from initial contact until successful conclusion. JR's responsibilities include directing the overall operations of Surveying Services, managing high profile clients/projects, managing a team of project managers, who are responsible for scheduling and coordination of all field activity, plan review, field support calculations, budget review, and invoicing.

Percent of Availability

20%

Professional Registrations/Affiliations

Professional Land Surveyor: Colorado #38576, Kansas #1556

National Society of Professional Surveyors (NSPS)

Professional Land Surveyors of Colorado

Kansas Society of Land Surveyors

RELEVANT EXPERIENCE

Baseline North Park Metropolitan District | COLORADO

JR and the Matrix Survey Team serves as the Managing Surveyors for these projects, overseeing data acquisition and processing and field coordination. The Baseline Metropolitan District projects incorporate all major elements of modern engineering design, civil development, and construction. Matrix performed the design services on most of these projects. The surveying services provided include engineering design support, survey document preparation for entitlement issues, and construction staking. JR has overseen the field calculations for utilities, boundary corners, roads, sidewalks, and other construction features. He has prepared many exhibits for the platting and re-platting process. All these projects have Storm Water design surveys, construction staking, and grade certifications. The projects range in variety from single-family residential design support and construction to creek redesign support and grade staking. Notable projects are:

- West Sheridan Residential
- Sheridan Parkway Redesign
- W. 160th Avenue and Sheridan Parkway Redesign
- Huron Street Redesign
- Preble Creek Redesign
- Preble Creek Sanitary Extension

Park Vista | COLORADO SPRINGS, COLORADO

JR has overseen the design survey of a large waterway channel for Water Resources to create an improvement design. Matrix team has prepared many exhibits for this process, which included the same deliverable to be presented in a few different horizontal and vertical datums to be shared across many partners. This project has Storm Water design surveys, construction staking, and grade certifications.

Aspen Ranch Residential | FOUNTAIN, COLORADO

Matrix designed the infrastructure to support the 217-lot Aspen Ranch residential development for Colorado Land Acquisition (COLA). Matrix has prepared design plans for several COLA projects, and the Matrix Survey Team supported the majority of them. The Matrix Survey Team provided the initial survey for design for the stormwater plan and detention ponds, after Matrix Survey provided the construction staking and grade verifications.

Dearmin/Swink Community Master Plan | ERIE, COLORADO

This project is a Community Master Plan for future development in the Town of Erie. JR has overseen the preparation of ALTA surveys, zoning and easement documentation, annexation plats, land survey plats, and topographic design support for the various parcels, district, zoning, real property, and stormwater design and construction

Chris Martin
GISP

GIS Task Lead

Chris has 21 years of professional experience in the GIS field and has been with Matrix 18 years. He is a passionate advocate for and a technical leader in GIS applications for storm drainage master plans and water resource planning. His projects have included asset management, field data collection, floodplain modeling, financial analysis, water quality opportunities siting, capital planning, environmental monitoring, implementing drone technology to gather remotely sensed data, GIS data improvement, custom application design, web-based map products for soliciting stakeholder feedback, database development, and production of visually appealing and informative maps.

Percent of Availability

25%

Education

M.S. Geographic Information Science, University of Denver, 2006

B.A. Geography, University of Denver, 2003

B.S. Environmental Science, University of Denver, 2003

Professional Registrations/Affiliations

Geographic Information Systems Professional (GISP), #91306

Technical Skills

GIS Software: Esri ArcGIS Suite

CAD Software: AutoCAD

GPS Units: Trimble's Line of Products

Programming: VB.NET, VBA, HTML, Python, JavaScript, and SQL

Databases: SQL Server, Oracle, MySQL, and Microsoft Access

Reporting Software: Crystal Reports

RELEVANT EXPERIENCE

Mile High Flood District | COLORADO

Chris has supported hydrologic and hydraulic modeling efforts for various projects sponsored by the Mile High Flood District (MHFD). Responsibilities included all GIS data analysis and mapping for Major Drainageway Plans (MDP) and Flood Hazard Area Delineations (FHAD). Chris also served as the GIS Manager for a project which delineated Stream Management Corridors throughout the MHFD using Arc Hydro delineated catchments and streams and the Colorado Water Conservation Board's Fluvial Hazard Zones protocol. Projects to date include:

- Sloan's Lake MDP & FHAD
- Lafayette Area MDP
- Goldsmith Gulch MDP & FHAD
- Fairfax Tributaries Outfall Systems Plan
- Third Creek MDP & FHAD
- Upper Sand Creek FHAD
- Westerly Creek FHAD
- Harvard Gulch and Dry Gulch MDP & FHAD
- Sanderson Gulch MDP and FHAD
- Cherry Creek Stabilization Plan Update & FHAD
- Upper Second Creek MDP & FHAD
- Hidden Lake/Bates Lake MDP
- Pleasant View South Tributary at Quaker Street Alternatives Analysis

Stormwater Infrastructure Master Plan | COLORADO SPRINGS, COLORADO

Chris was responsible for compiling, delineating, and synthesizing hundreds of stormwater improvement projects identified by historic Drainage Basin Planning Studies (DBPS) and Master Development Drainage Plans (MDDP). Associated project costs were updated into today's dollars, and each project was prioritized to develop a capital improvement list. Dynamic project cut sheets were created in Crystal Reports, detailing the costs of each project and other applicable information. Additionally, approximately 258 miles of open channel were field assessed for natural/improved conditions and factored into the project identification/prioritization process. A GIS-based web application was developed to serve as the basis for CIP management for future DBPSs.

Greeley Comprehensive Drainage Plan Oklahoma and South Basins | GREELEY, COLORADO

Matrix is completing a storm drainage master plan for an approximately five-square-mile watershed. Chris is responsible for all GIS deliverables, as the GIS Lead, including during data collection and field visits, and the baseline hydrology and hydraulics, alternatives analysis, and conceptual design phases. His team supported the analysis and assisted with determining suitability and sizing for Do Nothing, Detention, Channel Improvement, and LID alternatives along approximately nine linear miles of major drainageway.

City and County of Denver Storm Drainage Master Plan | DENVER, COLORADO

Chris was the GIS Analyst for the citywide GIS-based master plan. Matrix analyzed 155 square miles of urban development for necessary drainage infrastructure upgrades and improvements. As part of this master planning effort, a GIS-linked cost model was developed to estimate capital costs associated with proposed storm drainage infrastructure improvements. This allowed for accurate and efficient cost estimating as the GIS data were modified, ultimately facilitating the assessment of a variety of storm drainage scenarios.

Matrix

Spencer Wells

PE, CFM

Stormwater Master Plan Task Lead

Percent of Availability

35%

Education

B.S. Civil Engineering, Colorado School of Mines, 2014

Professional Registrations/Affiliations

Professional Engineer: Colorado #56157, California #93021

Certified Floodplain Manager (CFM) #US-22-12411

Association of State Floodplain Managers (ASFPM)

Colorado Association of Stormwater and Floodplain Managers (CASFM)

Spencer has nearly 10 years of experience, specializing in the analysis, design, and modeling of projects centered on stormwater management, hydrology, flood control, and stream design. His portfolio boasts a multitude of successful undertakings, demonstrating his proficiency in working with municipalities to analyze and designing stormwater infrastructure to replace aging systems and increase flood conveyance. This work has not only increased the functionality of stormwater systems by restoring and increasing capacity within the system but can allow for opportunity to provide educational and recreational access for all to enjoy.

Spencer's skill set extends to the effective utilization of diverse software tools, enabling him to tackle intricate modeling tasks with ease. His expertise spans various domains, including hydrology, 1-Dimensional and 2-Dimensional stream hydraulics, floodplain analysis, as well as the design and optimization of culvert and storm drain systems. His multifaceted capabilities make him an invaluable asset in the realm of flood control and stream management projects.

RELEVANT EXPERIENCE

North Dry Gulch Outfall Systems Plan | LAKEWOOD, COLORADO

Spencer served as Design Engineer on a master plan for a two-mile stretch of North Dry Gulch in Lakewood, Colorado. The pre-project condition relied on an undersized storm sewer system that caused frequent flooding of commercial and residential properties along the reach. The master plan incorporated open channel and culvert alternatives along a heavily developed 2-mile reach of North Dry Gulch. Spencer completed a detailed hydrologic analysis of the drainage basin to update flow rates and inform channel sizing, culvert sizing, and floodplain limits.

McMurdo Gulch Watershed Assessment | CASTLE ROCK, COLORADO

Spencer worked with Town of Castle Rock for over five years to analyze and provide recommendations on proactive implementation of channel stabilization measures as the McMurdo Gulch watershed was being developed. He served as part of the team that provided recommendations on channel improvements and completed cost/benefit analysis to assist the Town of Castle Rock in prioritizing areas of concern. After the prioritization was completed, the team designed channel stabilization measures started with high priority areas.

Wood Valley Ditch and Frost Focus Areas | COLORADO

Spencer served as the hydraulic engineer on two feasibility studies on Fountain Creek between Colorado Springs and Pueblo. The goal of these studies was to produce a cost benefit analyses for various proposed projects on Fountain Creek. Spencer led an extensive hydraulic modeling effort to analyze the benefit in sediment load reduction and peak flow reduction by implementing side detention, channel improvements, improve floodplain engagement, and/or enhance wetlands.

Cherry Creek Quebec to Iliff, Mile High Flood District | DENVER, COLORADO

Spencer served as a critical member of a multi-disciplinary team to restore a one-mile reach of Cherry Creek through Denver and Arapahoe Counties in Colorado. Worked on a team to restore the existing degraded channel and implement channel stabilization measures including sculpted concreted drop structures, riffle drop structures, bank protection, and vegetation over a one-mile reach of channel. Pedestrian access was enhanced by providing over two miles of concrete and soft surface trails and two low flow trail crossings. Led the effort to model the creek utilizing both 1D and 2D hydraulic models to inform trail and crossing locations, rock sizing, and vegetation types.

Bale Ditch Diversion, Triview Metropolitan District | SALIDA, COLORADO

Spencer served as the Project Manager for an alternatives analysis and conceptual design for Triview Metropolitan District to replace an existing diversion on the South Arkansas River. Triview Metropolitan District obtained a portion of the water right for Bale Ditch 1 and 2, and now require a new augmentation system to divert, measure, and return flows to the South Arkansas River.

Matrix

Megan Sawyer
PE, CFM

Capital Improvement Plan Task Lead

Megan is a water resources engineer with 10 years of experience including producing master drainage plans, designing stormwater infrastructure for new development, and replacing and retrofitting existing infrastructure for municipal clients. Her focus is on storm sewer and detention facility design, which includes analysis of existing drainage reports, production of drainage and GESC/SWMP plans and reports, hydrologic and hydraulic modeling, production of detailed construction plans, and construction administration. Her skills include AutoCAD Civil 3D, Hydraflow, StormCAD, CUHP, SWMM, HY-8, and HEC-RAS.

Percent of Availability

20%

Education

M.S. Civil Engineering, Water Resources, University of Colorado at Boulder, 2013

B.S. Civil Engineering, Water Resources, University of Colorado at Boulder, 2012

International Certificate of Engineering in Spanish

Professional Registrations/Affiliations

Professional Engineer: Colorado #53256

Certified Floodplain Manager (CFM), #US-14-07979

Technical Skills

AutoCAD Civil 3D

SWMM/CUHP

MHFD Spreadsheets

HEC-RAS

StormCAD

HY-8

Hydraflow

RELEVANT EXPERIENCE

City of Lafayette Major Drainageway Plan | LAFAYETTE, COLORADO

Megan was Project Engineer for the City of Lafayette Major Drainageway Plan which included the City of Lafayette as well as the Mile High Flood District. The watershed problems and solutions were quite unique in this suburban watershed, which is tributary to Coal Creek. Master plan improvements aimed to reduce potential suburban flooding impacts while addressing nuisance flooding in the older parts of the city. Megan applied a unique rain-on-mesh approach to help identify sub-watershed flow splits, as well as identify areas of the City which were at risk of urban flooding even though they were located outside the regulatory floodplain. The resultant plan provided the City with a roadmap of capital projects to improve drainage and resiliency.

Greeley Comprehensive Drainage Plan Oklahoma and South Basins | GREELEY, COLORADO

Matrix completed a storm drainage master plan for an approximately five-square-mile watershed. Megan assisted with the baseline hydrology and hydraulics and alternatives analysis. The analysis included determining suitability and sizing for Do Nothing, Detention, Channel Improvement, and LID alternatives along approximately nine linear miles of major drainageway. Megan assisted with QA/QC and further evaluation of the selected alternative, which included developing a suite of viable green infrastructure concepts that could reduce the size and maintenance needs of standard regional drainage infrastructure through distributed runoff reduction.

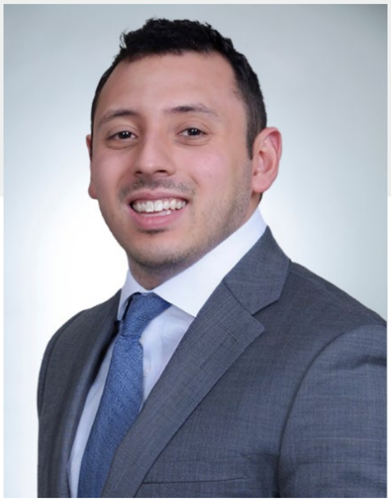
Sterling Ranch Master Drainage Plan Update | DOUGLAS COUNTY, COLORADO

Megan has worked on various drainage aspects of Sterling Ranch Development. This includes the Sterling Gulch Detention Alternatives Analysis and Sterling Ranch Master Drainage Plan Update, which included identifying 4,013 tributary acres, hydrologic calculations, conveyance paths, water quality and detention requirements, and master drainage plan detention alternatives.

She was the lead designer for the Peak Shaving Facility within Sterling Gulch; Waterton Pond on the Unnamed Tributary; and conveyance under Moore Road for the East Tributary and associated EURV Pond. This included over-detention analysis for Sterling Gulch using SWMM hydrographs. Megan also assisted with the hydrology and detention alternatives for the East Willow Creek CLOMR. This included evaluating the effects of offline detention alternatives on the required culvert crossing size for Waterton Road. She is currently working on hydrology and detention alternatives for the 847 acres tributary to Rampart Gulch, Unnamed Tributary 3, and Highline Canal – West, and designs for the detention and conveyance facilities for Unnamed Tributary 3 and East Willow Creek.

- Heron Pond Water Quality Facility Water Quality Calculations and Conceptual Design
- Pleasant View South Tributary at Quaker Street Alternatives Analysis
- Coal Creek at Superior Town Center - Element Pond
- Greeley Woodbriar Park Stormwater and Park Improvements
- Otero Tributary and Holly Street Headwalls
- Nobles Inlet Alternatives and Design
- Quince Street Flood Conditions Alternatives Analysis and Construction Drawings

Matrix



Christian Caron

PhD

Rate Study Task Lead

Dr. Caron is the Senior Research Analyst in Matrix's Government Consulting Services group. He holds a PhD in Political Science from UNC Chapel Hill, where he specialized in state and local government, public policy, and econometrics. He has authored numerous peer-reviewed studies in distinguished scholarly journals and economic and housing analyses on behalf of government clients. His experience spans multiple regions throughout the country, providing him with an intricate understanding of fiscal and land use policy. A quantitative social scientist by training, he is careful to ensure that his analyses and recommendations are grounded in high-quality empirical data.

Percent of Availability

20%

Education

Ph.D. Political Science, University of North Carolina at Chapel Hill

B.A. Political Science, University of Connecticut

Professional Registrations/Affiliations

National Association for Business Economics (NABE)

National Housing Conference

RELEVANT EXPERIENCE

Westminster Housing Needs Assessment | WESTMINSTER, COLORADO

As project manager and lead researcher, Dr. Caron is finalizing a study that quantifies demand for various housing types in Westminster; identifies the city's land use, zoning, and regulatory challenges; and proposes solutions. The report features a demographic and economic profile, commute pattern analysis, and projections of housing need by price point and type.

PuebloPlex Construction Economic Impact Analysis | PUEBLO COUNTY, COLORADO

Dr. Caron served as lead economic analyst for a planning project based in Pueblo County, Colorado. His primary task was to estimate the jobs and income that 2.5 million square feet of new industrial and manufacturing development would generate over a thirty-year period. His findings helped build stakeholder support for the proposed development.

Housing Inventory and Affordability Analyses | ARIZONA

Dr. Caron completed four separate housing analyses on behalf of Surprise, Peoria, Tempe, and Scottsdale, Arizona. Each report features a demographic and economic profile, a housing stock and market analysis, and a supply-demand gap analysis that estimates the housing deficit or surplus at various affordability tiers. To further contextualize the findings, each study compares the city of interest to several "peer" communities. The results culminated in a series of implementable recommendations for each city.

South Puget Sound Housing Study | TACOMA, WASHINGTON

Dr. Caron recently completed a study evaluating the off-base housing market surrounding Joint Base Lewis-McChord. After presenting a demographic overview of the region's military population that leverages American Community Survey microdata, the study analyzes the region's rental and for-sale inventories and markets, highlights low-crime neighborhoods with sufficient attainable housing, and identifies existing and future gaps in the inventory. In collaboration with Matrix's Planning team, he developed recommendations related to zoning and other aspects of housing policy.

Affordable Housing Opportunities for Florida's Military Installations | FLORIDA

Dr. Caron served as the lead researcher on a project evaluating housing policy in Florida's defense communities. The purpose of the study was to recommend reforms to improve affordability and availability. The research process entailed conducting an analysis of local Florida housing markets, with the goal of identifying the regions where the crisis was most acute; coordinating with local officials to obtain information about the current state of policy; and investigating best practices.

Florida Defense Support Task Force 2024 Economic Impact Analysis | FLORIDA

In his capacity as Economic Analysis, Simulation, and Modeling Task Lead, Dr. Caron estimated the economic impacts of Florida's defense industry for this recently completed effort. After collecting the necessary data, he produced statewide and county-level estimates of direct, indirect, and induced impacts using IMPLAN. In an effort to provide the most comprehensive picture possible, the models account for the effects of spousal employment and other often overlooked factors. He worked with the project team to compile the results into a report and factbook.

Matrix

Ellie Garza
PLA

Community Engagement

Ellie is a professional landscape architect with over eight years of consulting experience in the State of Colorado. Her background in open space and river corridor planning allows her to effectively manage a team of experts, stakeholders, and general public in plan development and facilitate a successful master plan effort. She has supported and led the successful completion of multiple projects focused on park and open space assessment and planning, ecological restoration, and park and trail design.

Her designs and planning efforts offer resilient solutions using sustainable materials and practices, while meeting and exceeding client goals. Her project focus has considered efforts towards creating outdoor spaces that preserve and enhance our natural environment, while augmenting the quality of life of the surrounding community.

Percent of Availability

15%

Education

B.L.A. Landscape Architecture, minor in Urban and Regional Planning, Texas A&M University, 2014

Professional Registrations/Affiliations

Professional Landscape Architect: Colorado #1305

FAA Part 107 Certified Remote Pilot, Small Unmanned Aircraft System (sUAS), #4076098

American Society of Landscape Architects (ASLA)

RELEVANT EXPERIENCE

Chatfield Storage Reallocation Project, Offsite Mitigation – Sandstone Ranch | DOUGLAS COUNTY, COLORADO

The Chatfield Storage Reallocation Project incurred impacts to existing federally regulated natural resources from the reservoir expansion to accommodate additional space for water storage. To mitigate these impacts, Ellie was a member of the ecological consultant team that provided ecological guidance and mitigation property monitoring for the project. Included in these ecological consulting services were vegetation mapping and surveys, ecological functional unit calculations for offsite mitigation, documenting baseline conditions, creating a management and monitoring plan for the protected areas of offsite properties, and annual monitoring to ensure baseline conditions have not changed due to maintenance practices. Ellie's role included conducting annual monitoring on offsite properties.

South Platte River Visioning and Implementation Plan | ADAMS COUNTY, COLORADO

As part of a large team made up of engineers, landscape architects, and ecologists, Ellie aided in a conditions assessment of the South Platte River and the riparian corridor in Adams County. The team worked with a large stakeholder group including the County, municipalities, and Mile High Flood District to assess the current hydrologic, geomorphic, and ecological conditions along 17 miles of the river corridor. Ellie's role included conducting vegetation assessments to support the project efforts.

Open Space Management Plan and Landscape Typology Implementation | ERIE, COLORADO

In support of the Town of Erie's Open Space Management Plan, Ellie was a member of the ecological consultant team that developed site-specific capital improvement plans to promote the implementation of the planning effort. Ellie supported this effort by developing GIS figures and associated information write-ups that exemplified the maintenance and management activities that need to be implemented in order to maintain, enhance, preserve, or restore the ecological quality and function of identified project sites within the Town's open space portfolio.

Big Thompson River Corridor Master and Maintenance Plan | LOVELAND, COLORADO

Ellie was a lead landscape architect for the Big Thompson River Corridor Master Plan and successive maintenance plan. The overall vision for the master plan was to promote a fully connected corridor including a network of interconnected greenways, parks, open space, and natural areas that provides the public with opportunities for recreation and interaction with the river and nature, while at the same time providing a healthy river and riparian ecosystem for aquatic and terrestrial wildlife and reducing flood hazards.

Matrix

Patrick Nicholson

Conditions Assessment

Patrick is a GIS Analyst with three years of professional experience in the GIS field. His experience includes the application of geospatial science within the fields of environmental science and natural resource management. He is committed to practicing sound stewardship of our natural resources to produce beneficial social and environmental outcomes while incorporating GIS science and technology. He has experience providing GIS solutions in the private sector and in both state and local government roles in Colorado. Patrick's expertise encompasses spatial analysis, cartographic design, and data depiction and interpretation.

Some of the GIS support he has provided includes stream and watershed assessments, geologic hazard mitigation, utilizing geoprocessing tools in the creation of GIS products, web maps, StoryMaps, and utilizing mobile GIS for use in the operations and maintenance of stormwater infrastructure and environmental field data collection. He has developed map products involving water quality control measures, floodplain analysis, water rights mater plans, debris flow probability modeling, post-flood analysis, wetland delineations, and post-fire stream and watershed assessments. Patrick is passionate about utilizing the power of GIS to address the complex challenges relating to the field of water resources.

Percent of Availability

30%

Education

M.A. Applied Geography and Geospatial Science, University of Colorado Denver, expected completion 2024

B.S. Land Use (Environment & Resources), Metropolitan State University of Denver, 2014

Professional Registrations/Affiliations

Geographic Information Systems Certificate – University of Colorado Denver, expected completion 2024

RELEVANT EXPERIENCE

City of Golden Public Works Stormwater Mapping | GOLDEN, COLORADO

Patrick maintained GIS data for asset management of the City's stormwater distribution system to meet MS4 compliance. He utilized the asset management software Cartegraph OMS and Esri GIS software for stormwater infrastructure operations and maintenance, mobile GIS deployment, and for writing task-based automations. Mobile GIS was utilized in unison with GPS devices in the field to accurately map components of the City's stormwater infrastructure. Construction drawings and as-builts were converted from paper documents to digital format through georeferencing to incorporate this data into the City's GIS database.

East Troublesome Fire Post-Fire Assessment | GRAND COUNTY, COLORADO

Patrick has offered GIS support in the ongoing post-fire assessment occurring in response to the East Troublesome Fire. Desktop GIS analyses were used to identify characteristics of streams such as entrenchment ratios, slope, width to depth ratios, sinuosity values, and soil erodibility. Pre- and post-fire stream typing was calculated along with watershed restoration assessments, and these were used along with field collected data to calculate bank erosion hazard indices and near bank stress values. Field data collection was performed using mobile GIS applications developed by Patrick. The results will be used to inform decisions about post-fire stream and watershed management practices, contributing to increased stream and watershed health.

Colorado Springs Geomorphology Mitigation Study | COLORADO SPRINGS, COLORADO

This study looks at how land use changes in Colorado Springs have impacted streams within the Fountain Creek Watershed. Continued development in the watershed has led to the degradation of stream health, necessitating this study. Using GIS, Pat has ranked reaches within the study area based on bank erosion rates and bank instability. Mobile GIS was deployed for field data collection and a custom Python script was used to process the field collected data, allowing for the prioritization of streams based on bank erosion rates and hazards. The results of this GIS analysis were published to a custom data viewer configured in Esri's Experience Builder application.

Matrix

Matt Perse

Field Verifications

Matt has 12 years of experience and brings a comprehensive background in survey project management to the table, positioning him as an invaluable asset for meeting the requirements and objectives outlined in your RFP. His extensive expertise in planning, organizing, and executing survey projects from inception to completion ensures the delivery of high-quality, reliable project outcomes within stipulated timelines and budget constraints.

Matt's proficiency in industry-leading surveying software is a cornerstone of his technical skillset. His adeptness with AutoCAD allows for the production of highly accurate survey drawings, while his experience with Trimble Business Center facilitates superior field data management. Additionally, his capability in utilizing ArcGIS ensures advanced mapping and geographic analysis, supporting the precision and quality control required for outstanding project outcomes.

A critical component of Matt's expertise lies in his data analysis skills. He possesses the ability to process, analyze, and interpret survey data meticulously, producing detailed reports, maps, and other deliverables that not only adhere to but exceed industry standards and client expectations. This analytical prowess ensures that all data-driven aspects of the project are handled with the utmost accuracy and professionalism.

Percent of Availability

20%

Education

United States Marine Corps

Engineering and Land Survey School

RELEVANT EXPERIENCE

Broadway Station & I-25 Construction | DENVER, COLORADO

As the Survey Project Manager for the Broadway Station & I-25 roadway design/redesign project, Matt oversees all aspects of modern engineering design, civil development, and construction. This comprehensive project encompasses a wide array of elements, necessitating precise surveying services including engineering design support and construction staking. Matt's responsibilities have involved conducting meticulous calculations for utilities, roads, curb and gutter, along with overseeing the design of two major bridges for a new entrance ramp to I-25, ensuring the project progresses smoothly and meets all requirements.

Amazon Warehouse Construction | BROOMFIELD, COLORADO

In his role as Survey Project Manager, Matt spearheaded the construction of a new 200,864 square foot Amazon warehouse situated on a 53.60-acre site in Broomfield. His responsibilities encompassed a range of surveying services crucial to the project's success, including establishing a Control Network, defining the site's overall boundary, setting the building grid layout, helical pier layout for the foundation, and conducting 26,000 linear feet of curb and gutter staking. Matt's meticulous attention to detail and expert management ensured the precise execution of these critical tasks, contributing to the seamless realization of the warehouse project.

Colorado Pathways | COLORADO

As Survey Project Manager for the Xcel Energy Colorado Pathways Project, Matt played a pivotal role in overseeing the development of a comprehensive nearly 600-mile transmission line network in eastern Colorado. His duties included establishing a robust control network, defining boundaries for all parcels traversed by the line, and creating a 150-foot permanent easement for the line, complete with detailed easement descriptions for each parcel involved. Matt's expertise and meticulous approach ensured the precise delineation and documentation necessary for the successful implementation of this extensive transmission line infrastructure project.

Nastaran Khodaei

GIS

Nastaran is a seasoned GIS Analyst and Planner, with more than seven years of expertise in the field. Her comprehensive background in civil engineering and urban planning, combined with her mastery of GIS technology and sustainability practices, positions her as a capable problem solver for environmental challenges. Throughout her academic and professional journey, Nastaran has held diverse roles as a planner, project manager, researcher, and GIS analyst. Her portfolio encompasses a wide spectrum of projects, including general plans, land use plans, visioning initiatives, community engagement plans, spatial analysis, and database management. Jane's professional repertoire also extends to projects involving remote sensing of the environment, green infrastructure resiliency, stormwater management, and the design and enhancement of public transportation accessibility.

Nastaran has contributed her expertise in GIS and planning to a wide range of projects, including compatibility use studies, joint land use studies, and floodplain and stream management initiatives. She has played a crucial role in leveraging mapping tools for several Matrix's projects, drawing upon her extensive knowledge and experience in urban and regional planning as well as environmental planning. Nastaran's skills have proven invaluable in facilitating effective decision-making and project management across various domains.

Percent of Availability

30%

Education

M.S. Civil Engineering, University of Colorado, Boulder, 2021

M.S. Urban and Regional Planning, Allameh Tabataba'i University, Tehran, Iran, 2015

B.S. Urban Studies (Planning and Design), University of Mazandaran, Babolsar, Iran, 2012

Professional Registrations/Affiliations

American Planning Association (APA)

Graduate Global Engineering, Certification, University of Colorado Boulder, 2020

Technical Skills

GIS Software: Esri ArcGIS Suite

CAD Software: AutoCAD

GPS Units: Trimble's Line of Products

Programming: VB.NET, VBA, HTML, Python, JavaScript, and SQL

Databases: SQL Server, Oracle, MySQL, and Microsoft Access

Reporting Software: Crystal Reports

RELEVANT EXPERIENCE

Urban Heat Islands | DENVER, COLORADO

As the Research and GIS Analyst, Nastaran conducted an urban heat islands and air and surface temperature change analysis using GIS and remote sensing methods. The study explored Land Surface Temperature (LST) trends, timelines, and Surface Urban Heat Islands (SUHI) during extreme heat events using high-resolution Landsat imagery, which is particularly appropriate for local or small-scale studies. For this project, Nastaran monitored LST time series and analyzed extreme events. The result of this project shows LST and SUHI maps featuring focal neighborhoods of Denver during extreme heat events happening in industrial, commercial, and high residential land uses.

Goldsmith Gulch Major Drainageway Plan (MDP) and Flood Hazard Area Delineation (FHAD) | DENVER, COLORADO

The purpose of this project is to identify flood risks and develop a master plan improvement of stream corridor for eight miles. Nastaran provided GIS support to prepare flood hazard area delineation and concept design of potential improvements.

West Traverse Mountain Compatible Area Study | UTAH

Nastaran provided GIS analysis for the West Traverse Mountain Study. Her role included providing land use and zoning maps, creating large format maps for public meetings, and drafting maps for the final general plan report. She also helped build and update metadata for datasets during the course of the project.

Comprehensive Drainage Master Plan | GREELEY, COLORADO

The Greeley Drainage Master Plan envisions the use of a combination of improvements to convey stormwater safely and efficiently. For this study, Nastaran provided interactive conceptual design alternative maps for the channels and improvement of the stream corridor to reduce future conditions runoff within the major drainageways.

Jefferson County Open Space Invasive Weed Survey | COLORADO

The invasive weed project objective is to survey and identify types of invasive species surveying two targeted areas using drone imagery. Nastaran helped process and calibrate data to create Ortho mosaic, NDVI, and NDRE maps. Nastaran also worked on supervised classification using GIS and deep learning methods and tools to classify grass, trees, and bare and developed land.

Matrix

Caitlin McDaniel
PE, CFM

Stormwater Master Plan

Caitlin has seven years of water resources engineering experience, during which she has primarily focused on hydraulic and hydrologic modeling for floodplain management. Caitlin has successfully completed numerous FEMA map revisions throughout the United States and has also supported master planning efforts within the Denver Metropolitan area. In addition to her modeling expertise, Caitlin also has substantial geographic information system (GIS) experience in data-processing and map production.

Percent of Availability

35%

Education

M.S. Water Resources Engineering, University of Wisconsin, Madison

M.S. Water Resources Management, University of Wisconsin, Madison

B.S. Civil Engineering, Valparaiso University

Professional Registrations/Affiliations

Professional Engineer, Colorado #58293

Certified Floodplain Manager (CFM), #US-21-11903

Colorado Association of Stormwater and Floodplain Managers (CASFM)

RELEVANT EXPERIENCE

Crooked Run Master Drainage Plan & Flood Hazard Area Delineation Study | ADAMS COUNTY AND AURORA, COLORADO

Caitlin acted as a supporting project engineer on the Crooked Run Master Drainage Plan (MDP) and Flood Hazard Area Delineation (FHAD) baseline hydrology analysis for the Mile High Flood District (MHFD). Specifically, Caitlin assisted in developing the CUHP-SWMM model for the watershed, which quantified the current flooding concerns within the site. Additionally, she presented preliminary results to stakeholder and collected feedback to tailor the alternative improvement plans to be analyzed for the proposed conditions analysis of the study.

Coal Creek Drainageway A-1 Conditional Letter of Map Revision | LOUISVILLE, COLORADO

Caitlin served as the Lead Hydraulic Modeler for the Coal Creek Drainageway A-1 Conditional Letter of Map Revision (CLOMR), which will replace the undersized culvert crossing for Coal Creek Drainageway A-1 at Garfield Avenue in the City of Louisville, Colorado. To assess the current flooding conditions and establish the split flow hydrology resulting from the undersized culvert, a two-dimensional hydraulic model was developed using HEC-RAS. A one-dimensional model was then developed to map the existing and proposed floodplains, ultimately highlighting the flood reduction associated with the capital improvement project. In addition to her engineering responsibilities, Caitlin also led the subsequent mapping efforts associated with the revision.

Parklands Master Plan | AURORA, COLORADO

As the Project Engineer, Caitlin prepared master planning documents on behalf of a local developer who planned to convert approximately 2,000 acres of land in Aurora, Colorado within the Coal Creek watershed to primarily single-family residential use. A hydrologic model was created to assess and mitigate the impacts associated with the development within the watershed. Using the results of the hydrologic analysis, Caitlin subsequently assisted in the design of the stormwater infrastructure to be constructed as a part of the development.

Pike Solar Two-Dimensional Scour Analysis | EL PASO COUNTY, COLORADO

As the Lead Water Resources Engineer, Caitlin developed a two-dimensional rain-on-grid hydrologic and hydraulic model using HEC-RAS to determine scour potential throughout a 175-MW solar project site located in eastern El Paso County, Colorado. Results from the hydraulic analysis were used to inform the layout of the solar panel farm and subsequently manage erosion concerns associated with the project.

Fairfax Tributaries Outfall Systems Plan | COMMERCE CITY, COLORADO

Caitlin served as the supporting Project Engineer for hydrology on the Fairfax Tributaries Outfall Systems Plan. A coupled runoff-routing model was developed using CUHP-SWMM for the project area to identify shortcomings of the current system and propose future improvement projects within the contributing jurisdictional areas. Caitlin specifically developed the EPA SWMM hydrologic routing model, which analyses the existing closed conduits, regional detention facilities, engineered channels, and overflow conveyance paths of the system.

Matrix

Pranay Sanadhya
PE

Capital Improvement Plan

Percent of Availability

30%

Education

M.S. Hydrologic Science and Engineering/Civil Engineering, Colorado State University, 2010

B.S. Civil Engineering, Pune University, 2006

Professional Registrations/Affiliations

Professional Engineer: Colorado #58236

Pranay is a collaborative civil engineer with 10-plus years of progressive experience in environmental and water supply planning and management projects with an emphasis on computer applications. Pranay has worked with various water providers and municipalities in Colorado, including the City of Fort Collins, Northern Water, Denver Water, Aurora Water, Castle Pines North Municipal District, and Colorado Springs Utilities, on environmental impact statements, water availability studies, and water master plans. In the process, Pranay worked with their finance departments to learn about their capital expenditure (CAPEX) and operating (OPEX) budgets for planning and prioritizing projects and developing effective capital improvement plans (CIPs). Pranay has a track record of providing quality client service with on-time and on-budget project deliverables.

RELEVANT EXPERIENCE

Colorado Springs Stormwater Program | COLORADO SPRINGS, COLORADO

Pranay performed a review of existing best management practices for new and recent developments in Colorado Springs and was involved in the preparation of the City's response to the U.S. Environmental Protection Agency's concerns over its stormwater program. Pranay efficiently communicated with the City's stormwater engineers and engineering inspector and used the City's web applications, like Subdivision Document Viewer, SpringsView, and Design Plan Index, for the review.

Fairfax Tributaries Outfall Systems Plan | COMMERCE CITY, COLORADO

Pranay is currently working as a Project Manager on this Outfall Systems Plan (OSP) project for MHFD. He is involved with hydrologic modeling and analysis to identify existing drainage and flooding issues in the project area. The drainageways are identified to be undersized piped systems, resulting in surface flooding during large storm events. Pranay is currently working on developing multiple alternatives to mitigate drainage issues and improve flooding risks.

Strategic Renewable Water Implementation Program | CASTLE PINES, COLORADO

Pranay prepared a MODSIM model for the Castle Pines North Municipal District in Colorado to support a renewable water implementation program. He applied the model to investigate water supply alternatives that would maximize the use of renewable water to meet future demands. The preferred alternatives were also evaluated based on cost-effectiveness, regulatory requirements, and useful life for prioritization purposes in a 5-year CIP.

Halligan-Seaman Water Management Environmental Impact Statement | FORT COLLINS, COLORADO

Pranay served as Project Engineer for this Halligan-Seaman Water Management project designed to investigate Environmental Impact Statement (EIS) alternatives for the City of Fort Collins. He used GIS tools such as Spatial Analyst for hydraulics-related analysis of proposed pipeline alignments for the EIS alternatives and assisted in cost estimation of the alternatives and their prioritization in the CIP.

Aurora Integrated Water Master Plan | AURORA, COLORADO

Pranay was responsible for updating the transmission and distribution and the non-potable water master plans for the project. He was involved in evaluating historical irrigation and reuse demands for the City of Aurora's reuse water system. He used a GIS database to create spatial and attributes-based queries for analysis purposes.

Arkansas Valley Conduit Environmental Impact Statement | ARKANSAS VALLEY, COLORADO

Pranay performed water quality modeling (salinity, selenium) and hydrologic analysis for the Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract Environmental Impact Statement using the Geographic Information System-based decision support system GeoDSS, for the U.S. Bureau of Reclamation. He developed hydrologic and water quality input datasets for the modeling work and was responsible for GIS-related work involved in the project.

Matrix

Nick Melfi

Rate Study

Nick is an Army veteran with a distinguished active-duty career leading diverse teams and managing large, complex projects, and he continues to serve in the Army Reserve. Nick served in multiple echelons of leadership in the 82nd Airborne Division, the 4th Infantry Division, and the Infantry School. He most recently served as a Company Commander at Fort Carson, Colorado, where he led the top performing team in his unit.

While an instructor at Fort Benning, he earned his MBA from Emory University with a concentration in finance. His academic performance earned him the Art Dietz Faculty Award for Excellence in Finance.

Percent of Availability

20%

Education

MBA Emory University

B.S. Mathematics and Economics, American University

B.A. Political Science, American University

Professional Registrations/Affiliations

DoD Secret Clearance

RELEVANT EXPERIENCE

Florida Defense Economic Impact Study | FLORIDA

Nick co-led the effort for the 2024 update to the Florida Defense Support Task Force's Defense Economic Impact Study. For this project, he and his fellow researcher compiled data on direct defense spending from multiple sources and conducted the analysis to determine the total direct, indirect, and induced impacts on Florida's economy.

Fire and Emergency Services Asset Management Plan | NATIONWIDE

Nick spearheads the effort to develop an asset management plan for fire and emergency services (F&ES) within the U.S. Air Force, for the Air Force Installation and Mission Support Center (AFIMSC). He has analyzed thousands of budgetary and expenditure data points to identify patterns and streamline allocation and approval processes for F&ES leadership. His work resulted in actionable recommendations that will significantly increase efficiencies for the AFIMSC and the Air Force.

South Mississippi Defense Strategy | MISSISSIPPI

Nick supported numerous engagements for the South Mississippi Defense Strategy Mission Attraction Study, in which he interviewed numerous installation, local government, and industry stakeholders to identify actionable steps the state can take to protect and grow its military missions. Additionally, Nick conducted economic analysis of proposed actions to determine which would be most impactful.

Growing the Military Mission in Virgina | VIRGINIA

Nick supported numerous engagements for the latest Strategy to Action initiative, in which he facilitied discussions between and recorded feedback from installation and community stakeholders for use in developing actionable steps to protect and grow the Commonwealth's military missions.

Company Commander | FORT CARSON, COLORADO

In the Army, Nick led 105 soldiers and was responsible for their training, development, and administration; their welfare and the welfare of their families; and more than $65 million worth of equipment. Nick meticulously designed their training glidepath while harnessing invaluable contributions from his teammates, which resulted in his company earning recognition as the top performer in multiple culminating assessments.

Battle Captain | BAGHDAD, IRAQ

Nick led a team of operations soldiers, intelligence analysts, and communications specialists to provide timely and accurate information to senior Iraqi Army leadership so they could protect against physical threats to Baghdad. He facilitated interagency and international efforts to identify and integrate best practices to counter explosive threats across Iraq and to communicate these procedures throughout the entire security enterprise.

Matrix

Appendix: Work Samples

Matrix

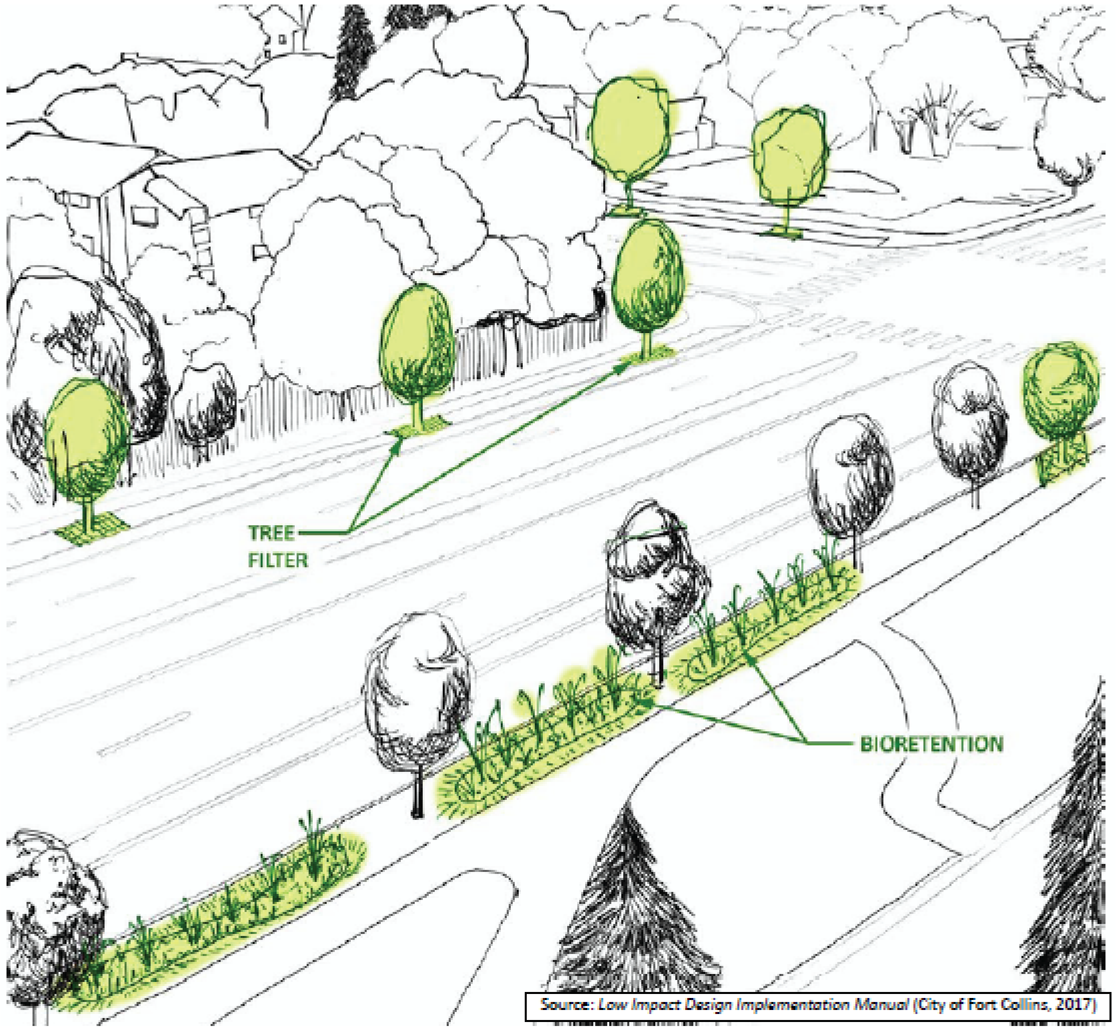


Figure 4-2 LID Street Right of Way Example

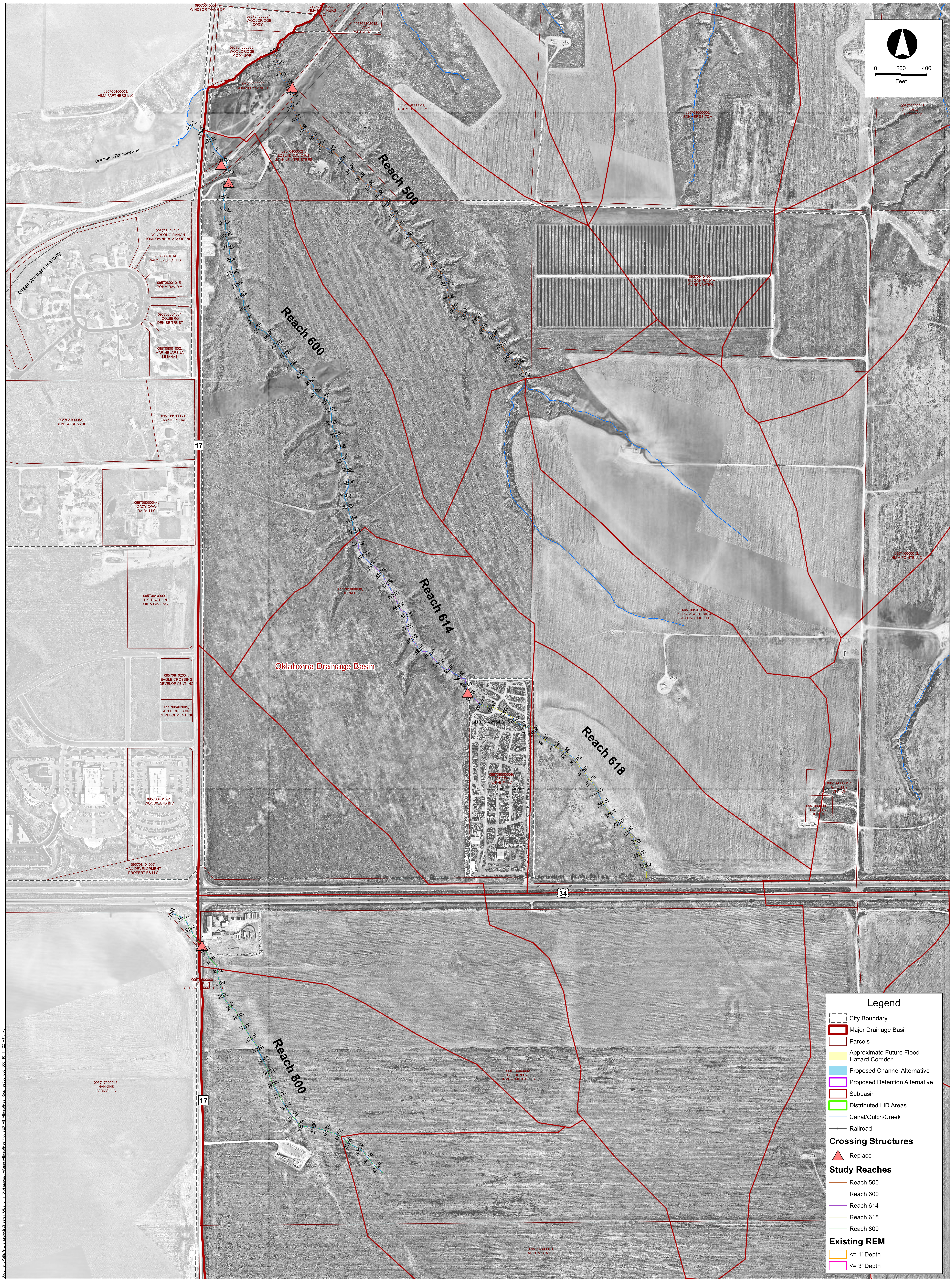
The following LID elements are regionally accepted and recommended for use within the Oklahoma and South Basins:

- **Vegetated buffer:** Areas of natural or established vegetation used to improve stormwater runoff quality by slowing down runoff velocity, promoting infiltration, and catching sediment.
- **Vegetated swale:** Ditches or channels that are densely planted with trees, shrubs, or grasses. It's designed to gather any runoff from impervious surfaces, slowing the velocity of the flow as well as filtering sediment that passes through.
- **Curb cut / no-curb:** Openings in a curb that allows stormwater runoff from impervious surfaces, like roads, to enter areas with infiltration.
- **Trench drain:** A gutter like drainage system that is placed into the ground and covered with a grate. They are used to control any excess surface water and direct it to a more desirable location.
- **Bioretention:** A treatment method, which also goes by the name rain garden or porous landscape design, that uses soil and vegetation to remove sedimentation and contaminants and reduce the volume of stormwater runoff.
- **Rain barrel:** Involves storing rain that lands on a roof in a barrel, decreasing runoff and conserving water to later be used for lawns, gardens, or indoor plants.
- **Green roof:** Involves partially or completely covering a roof with vegetation. This can decrease imperviousness and storm runoff.
- **Green alley:** Alleys that use sustainable materials, such as permeable pavement. This allows stormwater filtering to reduce runoff and improve water quality.
- **Permeable pavement:** Porous, or open space material used in the pavement mix that allows stormwater to flow though, decreasing runoff and improving water quality.
- **Greenway corridor:** Corridor of undeveloped land, used for recreational use as well as environmental protection. Helps protect important habitants as well as improving water quality.
- **Sand filter:** A type of filtration basin featuring a clean sand bed, used to treat stormwater.
- **Tree filter:** A concrete box that is placed around a tree root, allowing the soil and roots to filter stormwater and reduce runoff.
- **Retention ponds/ constructed wetland ponds:** A permanent pond that is designed for additional storage capacity for storm events. It helps treat stormwater though sedimentation and biological processes.

<u>LID Guidelines</u>

1. Each development should employ several and varying LID elements to increase water quality improvement potential and community appeal.
2. Operations and maintenance should be an essential element of the planning and design phase.
3. Performance and maintenance criteria should allow for some LID elements to look less "manicured", such as by allowing areas to remain unmowed or allowing standing dead vegetation material to remain overwinter, to allow for important ecosystem processes to take place and to support the cultural acceptance of this landscape appeal.
4. Point sources of stormwater found within a development, such as at rain gutter outlets or storm drain inlets, should be focused on to capitalize on this water source.
5. Utilize a mix of Colorado and North American native plant species that will tolerate both periodic flooding and drought. Nonnative plants generally will not survive without irrigation. See Figure 4-3 for an example.
6. Establish minimal distance from adjacent structures, provide a barrier, or amend in situ soils where soils with moderate to high swelling potential are present.

Matrix example of developing LID guidance for specific watershed



Interactive Figures (Select from Below)

Option 1: Do Nothing

Option 2: Detention

Option 3: Channel Improvements Only

Option 4: LID

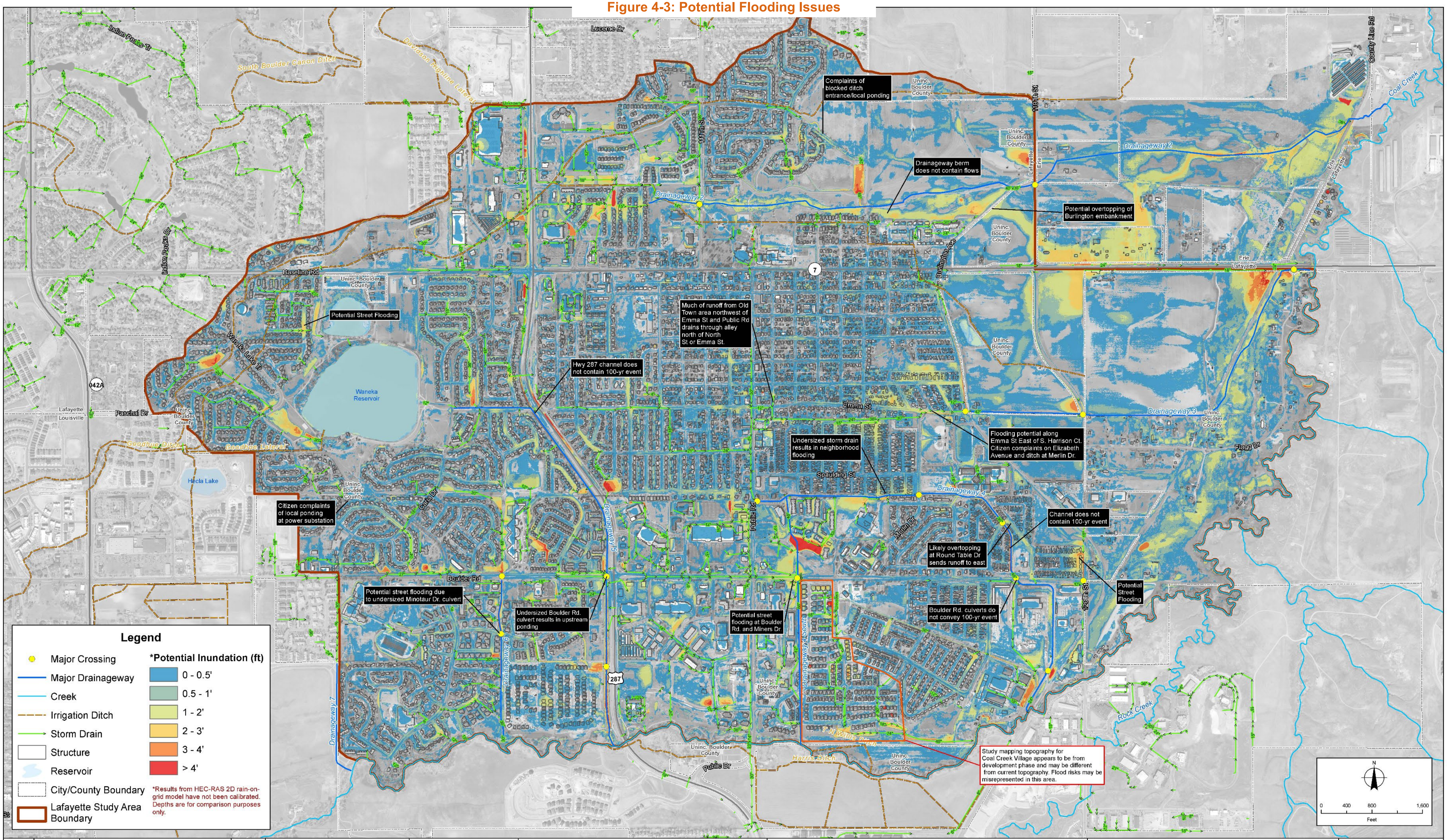
Figure E-3: Major Drainageway 500-800 Alternatives Map (December 2022) Oklahoma & South Drainage Basins

City of Greeley

Matrix

Matrix example of alternatives analysis interactive map in undeveloped area

Figure 4-3: Potential Flooding Issues



No.	DATE	DESCRIPTION	APPR.

Matrix
Excellence by Design

designed by:
drawn by: AC
checked by: DB
project no.: 19.155.041
date: 07/27/2021

MHFD MILE HIGH FLOOD DISTRICT

City of Lafayette

MAJOR DRAINAGEWAY PLAN
LAFAYETTE AREA

POTENTIAL FLOODING ISSUES

FIGURE 4-3

Matrix example of using 2-D model to identify local flooding hazards over large area

Table 5-6: Alternative Screening Matrix

		Constructability	Maintenance	Implementation with Planned Improvements	Regional Trail Connectivity	Multi-Use Facility	Water Quality	Public Safety	Habitat and Environment	Aesthetics	Compliance UDFCD Criteria	Agency Acceptance	Public Acceptance	TOTAL WEIGHTED AVERAGE
		Weighting												Score
Drainageway	Options	*20%*	*5%*	*10%*	*5%*	*5%*	*5%*	*10%*	*5%*	*5%*	*10%*	*10%*	*10%*	*100%*
Drainageway 2	Do Nothing	3	2	2	3	3	2	2	2	2	1	1	3	2.20
	Alt 2B: Detention	This study's recommendations are consistent with the 2014 Erie OSP Recommended Plan and are shown on the Alternatives Map for clarity												0.00
	Alt 2C: HFLM													0.00
	Alt 2E: 100-year Culvert													0.00
Drainageway 3	Do Nothing	3	1	1	1	1	2	2	1	1	1	2	2	1.75
	Alt 3C: HFLM	2	3	3	3	3	2	2	3	3	3	2	2	2.45
	Alt 3D: 100-yr Engineered Channel	3	1	2	1	1	1	1	1	1	2	2	2	1.80
	Alt 3 E: 100-yr Culvert	3	1	2	1	1	1	1	1	1	2	2	2	1.80
Drainageway 4	Do Nothing	3	1	1	1	2	1	1	1	1	1	2	2	1.65
	Alt 4B: Restore Diversion	3	3	3	1	2	2	2	2	2	2	2	2	2.30
	Alt 4E1: Engineered Channel	2	2	2	1	2	2	2	2	2	2	2	2	1.95
	Alt 4E2: 100-yr Culvert	3	1	2	1	1	1	1	1	1	2	2	2	1.80
	Alt 4D: Engineered Channel	2	2	2	1	2	2	2	2	2	2	2	3	2.05
Drainageway 4S	Do Nothing	3	1	2	1	1	1	2	1	1	1	2	2	1.80
	Alt 4A: Maintenance only	3	3	3	1	1	2	2	1	2	2	2	2	2.20
Drainageway 5	Do Nothing	3	1	1	1	1	1	1	1	1	1	2	2	1.60
	Alt 5B: Detention	3	2	3	2	3	3	1	3	3	3	2	3	2.60
	Alt 5E1: Floodwall	1	1	1	1	1	1	2	1	1	1	1	1	1.10
	Alt 5E1B1: Engineered Channel w Detention	2	2	2	1	1	1	2	1	2	2	2	2	1.80
	Alt 5E2: 100-yr Culvert	1	1	1	1	1	1	1	1	1	2	2	2	1.30
Drainageway 6	Do Nothing	3	1	1	1	2	1	1	1	1	1	2	2	1.65
	Alt 6E: 100-year Culvert	2	2	3	3	2	1	2	1	1	2	2	3	2.10

Scoring:
1 - minimal opportunity
2 - average opportunity
3 - high opportunity

yellow highlighting indicates recommended alternatives

Matrix example of weighted screening matrix used to rank alternatives

Reach GG-6 – Yosemite Street to West Tributary Confluence

Reach GG-6 of Goldsmith Gulch is 0.5 miles in length from Yosemite Street to the confluence with the West Tributary and is entirely within Greenwood Village. Existing Goldsmith Gulch Reach GG-6 is a relatively wide and more natural greenbelt that generally contains the 100-year flood. Recommended solutions for this reach cost $1,260,000 in capital projects and $39,000 in annual operations and maintenance.

Two pedestrian crossings near the Inn at Greenwood Village retirement community are recommended to be upgraded to larger foot bridges.

The low-flow channel between S. Yosemite Street and E. Berry Avenue is experiencing degradation causing steep vertical banks. An existing utility manhole within the low flow channel also causes split flows. Realignment of 100 LF of low flow channel is recommended to avoid the utility manhole, and 2 small drop structures are recommended to stabilize the channel slope. 400 LF of low flow channel bank protection should be added to prevent lateral erosion (station 301+00 to 305+00).

The existing roadway crossing culvert at E. Berry Avenue does not have full 100-year capacity, however, the resulting roadway overtopping is less than 0.5-inches. A culvert replacement at this location is recommended primarily to reduce flood hazards to an existing residential building. Proposed improvements replace the E. Berry Avenue culvert with twin 11.5' x 6' CBC, 61 LF. The resulting lower flood elevations through this reach removes the structure from the Special Flood Hazard Area.

Bank erosion is also evident near the existing drop structure south of E. Berry Ave. 250 LF of low flow channel bank protection is recommended at this location (Station 307+50 to 310+00).

Orchard Hills detention facility spillway is recommended to be enhanced to make the structure more appealing. The existing spillway consists of a concrete wall, a pedestrian trail that loops around the pond, and exposed riprap on the downstream side of the spillway. The riprap is recommended to be buried, topped with 6 inches of topsoil, and seeded with native grasses and other vegetation. Because the spillway serves as the pond's only volume control mechanism, caution should be taken to assure that a concentrated flow path on the spillway is created so that the topsoil and vegetation is not washed away frequently.

CLICK HERE TO VIEW REACH GG-6 MAP

CLICK HERE TO VIEW REACH GG-6 PROFILE

Table 7-9 Cost Estimates for Reach GG-6

DESCRIPTION			QUANTITY	UNIT	UNIT COST	TOTAL COST
Concrete Box Culverts						
Box Culvert Pipe						
Individual Box Span (ft)	Box Height (ft)	No. of Barrels	Length (ft)			
12	6	1	61	L.F.	$1,959.71	$119,542.00
11	6	1	61	L.F.	$1,816.31	$110,795.00
Headwall and Toewalls						
Individual Box Span (ft)	No. of Barrels	Total Span (ft)				
12	1	14.00	2	EA	$1,968.75	$3,938.00
11	1	13.00	2	EA	$1,843.73	$3,687.00
Wingwalls (includes wingwalls on either side of channel and concrete apron)						
Individual Box Span (ft)	Box Rise (ft)	No. of Barrels				
12	6	1	2	EA	$20,371.18	$40,742.40
11	6	1	2	EA	$19,997.26	$39,994.50
Hydraulic Structures						
Sloping Drop Structures						
Height (ft)	Bottom Width (ft)	Yn (ft)				
1.5	5	2.5	2	EA	$47,116.42	$94,233.00
Channel Improvements						
Excavation, Low Range			46	C.Y.	$18.00	$828.00
Soil Riprap, Type L			288	C.Y.	$100.00	$28,800.00
Soil Riprap, Type L			180	C.Y.	$100.00	$18,000.00
Removals						
Removal of culvert pipe (D>84")			60	L.F.	$126.00	$7,610.00
Special Items (User Defined)						
Orchard Hills Pond spillway bury existing riprap	<----User Defined Items		943	CY	$200.00	$188,600.00
Pedestrian Bridge	<----User Defined Items		96	S.F.	$180.00	$17,280.00
Pedestrian Bridge	<----User Defined Items		360	S.F.	$180.00	$64,800.00

Master Plan Capital Improvement Cost Summary

Capital Improvement Costs			
Pipe Culverts and Storm Drains			$0.00
Concrete Box Culverts			$318,699.00
Hydraulic Structures			$94,233.00
Channel Improvements			$47,628.00
Detention/Water Quality Facilities			$0.00
Removals			$7,610.00
Landscaping and Maintenance Improvements			$0.00
Special Items (User Defined)			$270,680.00
Subtotal Capital Improvement Costs			**$738,850.00**
Additional Capital Improvement Costs			
Dewatering		L.S.	$0.00
Mobilization	5%		$36,943.00
Traffic Control		L.S.	$0.00
Utility Coordination/Relocation		L.S.	$0.00
Stormwater Management/Erosion Control	5%		$36,943.00
Subtotal Additional Capital Improvement Costs			**$73,886.00**
Land Acquisition Costs			
ROW/Easements			$0.00
Subtotal Land Acquisition Costs			**$0.00**
Other Costs (percentage of Capital Improvement Costs)			
Engineering	15%		$121,910.00
Legal/Administrative	5%		$40,637.00
Contract Admin/Construction Management	10%		$81,274.00
Contingency	25%		$203,184.00
Subtotal Other Costs			**$447,005.00**
Total Capital Improvement Costs			**$1,259,741.00**

Master Plan Operation and Maintenance Cost Summary

Description	Quantity	Unit	Unit Cost	Total Annual Cost
Culvert Maintenance (e.g. sediment & debris removal, erosion at entrance/exit, structural repairs	272	L.F.	$2.00	$544.00
Hydraulic Structure Maintenance (e.g. debris removal, erosion, structural repairs, etc.)	8	EA	$837.00	$6,696.00
Channel Maintenance (e.g. sediment & debris removal, erosion, tree & weed removal, etc.)	2550	L.F.	$3.00	$7,650.00
Detention/WQ Maintenance (e.g. sediment & debris removal, mucking out, tree & weed removal,	0.9	ACRE	$2,512.00	$2,261.00
Mowing (e.g. channels, ponds, etc.)	4.7	ACRE	$84.00	$1,184.00
Trail Maintenance (e.g. structural repairs, crusher fines, etc.)	2550	L.F.	$8.00	$20,400.00
Total Annual Operation and Maintenance Cost				**$38,735.00**

Matrix example of one page concept design summary and cost estimate

Instructions to print an area smaller than the full page to scale:
1. Using the "Snapshot" tool, select the desired area to print.
2. Click File –> Print
3. Select your printer from the printer dropdown menu.
4. Select the desired paper size using the printer "Properties" menu.
5. Choose the "Selected Graphic" option under "Print Range"
6. Select 'None" from the "Page Scaling" dropdown menu.
7. Unselect "Choose Paper Source by PDF Page Size".
8. Click "OK" to print selection.

NOTES:
A. This drawing is for master planning purposes and represents preliminary and conceptual engineering. Alternatives to this outfall system will be considered by local agencies and the Mile High Flood District provided the alternative offers an equivalent intent of the plan, including hydraulic capacity, water quality, stream stability and natural waterway features. The alternative must comply with all requirements of the local jurisdiction and the Mile High Flood District. In addition, there may be State and Federal requirements that will need to be considered and met. This drawing does not provide a final design and shall not be used for construction purposes.

B. Local Cities, Towns, and Counties manage and regulate all land use change, development and redevelopment activities within and adjacent to the 100-year floodplains in order to prevent, to a maximum extent possible, future flood damages to buildings and structures from the 100-year flood and to minimize damages from larger floods. The recommendations of this plan provide a set of options subscribed to by Cities, Towns and Counties in carrying out their floodplain management and regulatory responsibilities and obligations.

C. Many activities that occur in or affect ditches, drainages, creeks, ponds or wetlands require a Section 404 Permit Authorization from the US Army Corps of Engineers. During preliminary design, and prior to final design or starting work, contact the Corps' Denver Regulatory Office at 303-979-4120 for appropriate permit authority to avoid compromising and delaying the completion of the project.

MILE HIGH FLOOD DISTRICT · DENVER PUBLIC WORKS · Southeast Metro Stormwater Authority · Matrix Excellence by Design

Figure G-3: Concept Design - October 2022

Goldsmith Gulch Major Drainageway Plan and Flood Hazard Area Delineation

CONCEPTUAL DESIGN PROFILE
GOLDSMITH GULCH

MAJOR DRAINAGEWAY PLAN

FEBRUARY 2023

FIGURE H-1

LEGEND

- EXISTING CHANNEL THALWEG
- 100-YEAR WATER SURFACE ELEVATION
- PROPOSED CHANNEL THALWEG
- EXISTING CULVERT
- EXISTING ROADWAY/FOOT BRIDGE
- PROPOSED CULVERT
- PROPOSED ROADWAY/FOOT BRIDGE
- PROPOSED DROP STRUCTURE

SCALE

0 200' 400'
HORIZONTAL SCALE: 1" = 200'

0 10' 20'
VERTICAL SCALE: 1" = 10'

TOPOGRAPHIC MAPPING METHOD:	LIDAR
TOPOGRAPHIC MAPPING BY:	USGS
TOPOGRAPHIC MAPPING DATE:	2014
HORIZONTAL DATUM:	NAD 83
VERTICAL DATUM:	NAVD 88
CONTOUR INTERVAL:	1 FOOT

THIS DRAWING IS FOR MASTER PLANNING PURPOSES AND REPRESENTS PRELIMINARY AND CONCEPTUAL ENGINEERING. ALTERNATIVES TO THIS OUTFALL SYSTEM WILL BE CONSIDERED BY LOCAL AGENCIES AND MILE HIGH FLOOD DISTRICT PROVIDED THE ALTERNATIVE OFFERS AN EQUIVALENT INTENT OF THE PLAN, INCLUDING HYDRAULIC CAPACITY, WATER QUALITY, STREAM STABILITY AND NATURAL WATERWAY FEATURES. THE ALTERNATIVE MUST COMPLY WITH ALL REQUIREMENTS OF THE LOCAL JURISDICTION AND MILE HIGH FLOOD DISTRICT. IN ADDITION, THERE MAY BE STATE AND FEDERAL REQUIREMENTS THAT WILL NEED TO BE CONSIDERED AND MET. THIS DRAWING DOES NOT PROVIDE A FINAL DESIGN AND SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.

LOCAL CITIES, TOWNS, AND COUNTIES MANAGE AND REGULATE ALL LAND USE CHANGE, DEVELOPMENT AND REDEVELOPMENT ACTIVITIES WITHIN AND ADJACENT TO THE 100-YEAR FLOODPLAINS IN ORDER TO PREVENT, TO A MAXIMUM EXTENT POSSIBLE, FUTURE FLOOD DAMAGES TO BUILDINGS AND STRUCTURES FROM THE 100-YEAR FLOOD AND TO MINIMIZE DAMAGES FROM LARGER FLOODS. THE RECOMMENDATIONS OF THIS PLAN PROVIDE A SET OF OPTIONS SUBSCRIBED TO BY CITIES, TOWNS AND COUNTIES IN CARRYING OUT THEIR FLOODPLAIN MANAGEMENT AND REGULATORY RESPONSIBILITIES AND OBLIGATIONS.

MANY ACTIVITIES THAT OCCUR IN OR AFFECT DITCHES, DRAINAGES, CREEKS, PONDS OR WETLANDS REQUIRE A SECTION 404 PERMIT AUTHORIZATION FROM THE US ARMY CORPS OF ENGINEERS. DURING PRELIMINARY DESIGN, AND PRIOR TO FINAL DESIGN OR STARTING WORK, CONTACT THE CORPS' DENVER REGULATORY OFFICE AT 303-979-4120 FOR APPROPRIATE PERMIT AUTHORITY TO AVOID COMPROMISING AND DELAYING THE COMPLETION OF THE PROJECT.

INSTRUCTION TO PRINT AN AREA SMALLER THAN THE FULL PAGE TO SCALE:

1. USING THE "SNAPSHOT" TOOL, SELECT THE DESIRED AREA TO PRINT.
2. CLICK FILE>PRINT...
3. SELECT YOUR PRINTER FROM THE PRINTER DROPDOWN MENU.
4. SET THE DESIRED PAPER SIZE USING THE PRINTER "PROPERTIES" MENU.
5. CHOOSE THE "SELECTED GRAPHIC" OPTION UNDER "PRINT RANGE".
6. SELECT 'NONE' FROM THE "PAGE SCALING" DROPDOWN MENU.
7. UNSELECT "CHOOSE PAPER SOURCE BY PDF SIZE".
8. CLICK "OK" TO PRINT SELECTION.

GOLDSMITH GULCH MDP

Matrix
Excellence by Design
707 17TH STREET, SUITE 3150
DENVER, CO 80202
PHONE: (303) 572-0200

\\poseidon\Projects\18.155.035 (Goldsmith Gulch)\Dwg\Conceptual Plan
GG Conceptual Design Profile

CONCEPTUAL DESIGN PROFILE

FEBRUARY 2023

FIG. H-1

City of Colorado Springs Stormwater Enterprise

Cost / Revenue Module

Sources of Funds/Revenues	Growth Rate Assumptions	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Residential Fees		$ 18,222,683	$ 22,072,055	$ 23,976,564	$ 24,865,453	$ 25,085,669	$ 25,307,855	$ 25,532,030	$ 25,758,212	$ 25,986,419	$ 26,216,669
Development Review Fees		$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000
Erosion Control Permits		$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000	$ 300,000
Reimbursement from Other Funds		$ 68,876	$ 68,876	$ 68,876	$ 68,876	$ 68,876	$ 68,876	$ 68,876	$ 68,876	$ 68,876	$ 68,876
Miscellaneous (interest earnings, sale of assets, CSU reimb)		$ 33,100	$ 33,100	$ 33,100	$ 33,100	$ 33,100	$ 33,100	$ 33,100	$ 33,100	$ 33,100	$ 33,100
Total		**$ 18,874,659**	**$ 22,724,031**	**$ 24,628,540**	**$ 25,517,429**	**$ 25,737,645**	**$ 25,959,831**	**$ 26,184,006**	**$ 26,410,188**	**$ 26,638,395**	**$ 26,868,645**

Operational Expenditures	Assumptions	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Salary/Benefits	3.5%	$ 3,214,564	$ 3,327,073	$ 3,443,521	$ 3,564,044	$ 3,688,786	$ 3,817,893	$ 3,951,519	$ 4,089,823	$ 4,232,966	$ 4,381,120
Operating	3.5%	$ 2,199,253	$ 2,276,227	$ 2,355,895	$ 2,438,352	$ 2,523,694	$ 2,612,023	$ 2,703,444	$ 2,798,065	$ 2,895,997	$ 2,997,357
O&M Contract/Service Level Agreement	3.5%	$ 3,340,842	$ 3,457,771	$ 3,578,793	$ 3,704,051	$ 3,833,693	$ 3,967,872	$ 4,106,748	$ 4,250,484	$ 4,399,251	$ 4,553,225
SW Locates	3.5%	$ 255,375	$ 264,313	$ 273,564	$ 283,139	$ 293,049	$ 303,305	$ 313,921	$ 324,908	$ 336,280	$ 348,050
Capital Outlay (vehicles, equipment, furniture)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-total		**$ 9,012,055**	**$ 9,325,385**	**$ 9,651,774**	**$ 9,989,586**	**$ 10,339,221**	**$ 10,701,094**	**$ 11,075,632**	**$ 11,463,279**	**$ 11,864,494**	**$ 12,279,751**

Injunctive Relief Expenditures	Assumptions	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Injunctive Relief (classes & software)	5.0%	$ 123,500	$ 113,400	$ 119,070	$ 125,024	$ 131,275	$ 137,838	$ 144,730	$ 151,967	$ 159,565	$ 167,543
EX CM Verif		$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ -	$ -	$ -
Ex CM Repair		$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000	$ 250,000
New CM		$ 940,000	$ 940,000	$ 940,000	$ 940,000	$ 1,253,333	$ 1,253,333	$ 2,253,333	$ 2,253,333	$ 2,253,333	$ 2,253,333
3rd-Party Audits		$ -	$ 154,400	$ 76,000	$ 76,000	$ 76,000	$ -	$ -	$ -	$ -	$ -
Mitigation											
Studies		$ 200,000	$ 200,000	$ 100,000	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Projects		$ -	$ -	$ -	$ 3,500,000	$ 3,500,000	$ 3,500,000	$ -	$ -	$ -	$ -
Sub-total		**$ 1,565,521**	**$ 1,709,822**	**$ 1,535,070**	**$ 4,941,024**	**$ 5,260,608**	**$ 5,191,172**	**$ 2,698,064**	**$ 2,655,300**	**$ 2,662,899**	**$ 2,670,877**

Debt Service	Assumptions	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Project #1		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Project #2		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Project #3		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Project #4		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Project #5		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Project #6		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-total		**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Net Cash Flow (Surplus Capital Budget)		**$ 8,297,083**	**$ 11,688,823**	**$ 13,441,697**	**$ 10,586,820**	**$ 10,137,815**	**$ 10,067,565**	**$ 12,410,310**	**$ 12,291,609**	**$ 12,111,002**	**$ 11,918,017**
Net Cash Flow (with Bonding)		**$ 8,297,083**	**$ 11,688,823**	**$ 13,441,697**	**$ 10,586,820**	**$ 10,137,815**	**$ 10,067,565**	**$ 12,410,310**	**$ 12,291,609**	**$ 12,111,002**	**$ 11,918,017**

Matrix example excerpt from stormwater enterprise cost/revenue model

STORMWATER ENTERPRISE

City of Colorado Springs Stormwater Enterprise
Fee Projections - Proposed Fee Increases (Scenario 3)

SWENT Projections	Assumption	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Non-residential Acres		21,284	21,710	22,144	22,587	23,039	23,500	23,970	24,449	24,938	25,437
Residential Units		147,212	148,979	150,766	152,575	154,406	156,259	158,134	160,032	161,952	163,896
Non-residential Fee ($/acre/month) (Jan-Jun)		$30.0	$38.0	$43.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0
Non-residential Fee ($/acre/month) (Jul-Dec)		$38.0	$43.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0
Residential Fee (Jan-Jun)		$5.0	$7.0	$7.5	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0
Residential Fee (Jul-Dec)		$7.0	$7.5	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0
Non-residential Fee (&/acre/month) (Full Yr Avg)		$34.0	$40.5	$44.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0
Residential Fee (Full Yr Avg)		$6.0	$7.3	$7.8	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0
Non-residential Revenue		$ 8,683,998	$ 10,551,058	$ 11,692,136	$ 12,197,023	$ 12,440,964	$ 12,689,783	$ 12,943,579	$ 13,202,450	$ 13,466,499	$ 13,735,829
Residential Revenue		$ 10,599,264	$ 12,961,133	$ 14,021,265	$ 14,647,246	$ 14,823,013	$ 15,000,889	$ 15,180,900	$ 15,363,071	$ 15,547,428	$ 15,733,997
Gross Collections		$ 19,283,262	$ 23,512,191	$ 25,713,400	$ 26,844,269	$ 27,263,977	$ 27,690,672	$ 28,124,479	$ 28,565,521	$ 29,013,927	$ 29,469,826
Net Collections (Adjusted for Frictional Loss)	**94.5%**	**$ 18,222,683**	**$ 22,219,021**	**$ 24,299,163**	**$ 25,367,835**	**$ 25,764,458**	**$ 26,167,685**	**$ 26,577,632**	**$ 26,994,417**	**$ 27,418,161**	**$ 27,848,986**

Matrix Projections	Assumption	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Non-residential Acres		21,284	21,451	21,620	21,789	21,960	22,132	22,306	22,481	22,657	22,835
Residential Units		147,212	148,636	150,074	151,526	152,992	154,473	155,967	157,476	159,000	160,538
Non-residential Fee ($/acre/month) (Jan-Jun)		$30.0	$38.0	$43.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0
Non-residential Fee ($/acre/month) (Jul-Dec)		$38.0	$43.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0
Residential Fee (Jan-Jun)		$5.0	$7.0	$7.5	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0
Residential Fee (Jul-Dec)		$7.0	$7.5	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0
Non-residential Fee (&/acre/month) (Full Yr Avg)		$34.0	$40.5	$44.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0	$45.0
Residential Fee (Full Yr Avg)		$6.0	$7.3	$7.8	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0	$8.0
Non-residential Revenue		$ 8,683,998	$ 10,425,314	$ 11,415,110	$ 11,766,118	$ 11,858,411	$ 11,951,428	$ 12,045,174	$ 12,139,656	$ 12,234,879	$ 12,330,849
Residential Revenue		$ 10,599,264	$ 12,931,358	$ 13,956,916	$ 14,546,530	$ 14,687,270	$ 14,829,371	$ 14,972,847	$ 15,117,711	$ 15,263,977	$ 15,411,658
Gross Collections		$ 19,283,262	$ 23,356,671	$ 25,372,026	$ 26,312,649	$ 26,545,681	$ 26,780,799	$ 27,018,021	$ 27,257,367	$ 27,498,856	$ 27,742,507
Net Collections (Adjusted for Frictional Loss)	**94.5%**	**$ 18,222,683**	**$ 22,072,055**	**$ 23,976,564**	**$ 24,865,453**	**$ 25,085,669**	**$ 25,307,855**	**$ 25,532,030**	**$ 25,758,212**	**$ 25,986,419**	**$ 26,216,669**
Delta		**$0**	**($146,966)**	**($322,599)**	**($502,382)**	**($678,790)**	**($859,830)**	**($1,045,602)**	**($1,236,205)**	**($1,431,742)**	**($1,632,317)**
Cumulative Delta		**$0**	**($146,966)**	**($469,565)**	**($971,947)**	**($1,650,736)**	**($2,510,567)**	**($3,556,169)**	**($4,792,374)**	**($6,224,116)**	**($7,856,433)**

Growth Rate Assumptions	SWENT	Matrix	Delta
Non-Residential Growth	2.0%	0.78%	-1.22%
Residential Growth	1.2%	0.97%	-0.23%

Matrix example excerpt from stormwater enterprise fee projection model

COLORADO SPRINGS

Matrix DESIGN GROUP
AN EMPLOYEE-OWNED COMPANY

SIMP Project Overview and SCAP – Open Channel Field Inspection/Assessment
Middle Tributary

Stormwater Infrastructure Master Plan
City of Colorado Springs, Colorado

0 400 800 1,600
Feet
1 inch = 400 feet

N

Aerial Imagery: Colorado Springs, 2016
Date Printed: 3/19/2019

FILE: G:\gis_projects\CS_SIMP\active\apps\Basin_Maps\Basin_MiddleTributary_20x31.mxd, 3/19/2019, chris_martin

Matrix example of conditions assessment visual documentation

Matrix

Matrix

Anniston, AL
Denver, CO
Phoenix, AZ
Texarkana, TX
Atlanta, GA
Lone Tree, CO
San Antonio, TX
Washington, DC
Colorado Springs, CO
Niceville, FL
Tamuning, GU

Matrix
Excellence by Design

Professional Fees

PROJECT:
Town of Johnstown Stormwater Master Plan

			Matrix Design Group												Logan Simpson		
			VP	Sr. Assoc	Assoc	Prof IX	Prof VIII	Prof VII	Prof VI	Prof V	Prof IV	Prof III	Prof II	Prof I	Sr Planner	Planner	Admin I
ITEM	**DESCRIPTION**	**ITEM COST**	$235	$200	$190	$170	$160	$150	$140	$130	$120	$110	$100	$90	$175	$110	$90
1	**Project Coordination and Data Gathering**																
1.1	Meetings	$17,470	20		40				20					20	2	2	
1.2	Community and stakeholder engagement	$20,200	4		10			10		16					16	90	12
1.3	Information gathering	$15,280	4	4	16			16	16	16	16				4	4	8
1.4	Conditions Assessment	$15,440	4	4	10		10	20		20	20	20					
1.5	Field verifications	$15,970	2		10		10	20	20			20	40				
	SUBTOTAL	**$84,360**	**34**	**8**	**86**	**0**	**20**	**66**	**56**	**52**	**36**	**40**	**40**	**20**	**22**	**96**	**20**
2	**GIS Data Review and Dashboard Development**																
2.1	Data gap analysis	$29,420	8	10	40	10		16	16	40	20		40				
2.2	Database design and development	$39,380	8	10	40	10	10	20	20	40	80		40				
2.3	Utility network	$31,780	8	10	10				20	40	80	40	40				
2.4	Dashboard	$22,270	2	10	20			40		40	40						
	SUBTOTAL	**$122,850**	**26**	**40**	**110**	**20**	**10**	**76**	**56**	**160**	**220**	**40**	**120**	**0**	**0**	**0**	**0**
3	**Stormwater Master Plan**																
3.1	Baseline hydrology	$28,940	4	20	40			40	40		40						
3.2	Existing facility capacity analysis	$29,940	4	20	40	20		40	40		20						
3.3	Alternatives analysis	$36,240	4	20	40	10	10	40		40	40	40					
3.4	Conceptual design	$38,540	4	20	40			40	40	40	40	40					
	SUBTOTAL	**$133,660**	**16**	**80**	**160**	**30**	**10**	**160**	**120**	**80**	**140**	**80**	**0**	**0**	**0**	**0**	**0**
4	**10-Year CIP**																
4.1	System deficiencies	$26,340	4	20	40			20	60		20						
4.2	Cost estimates	$18,640	4	4	10				20	20	80						
4.3	Prioritization and Scorecards	$19,250	10	10	20	10	10	20	20				20				
4.4	Alternative funding options	$7,840	4	10	10			20									
4.5	Final CIP	$31,340	4	10	40			40	40		40	40					
	SUBTOTAL	**$103,410**	**26**	**54**	**120**	**10**	**10**	**100**	**140**	**20**	**140**	**40**	**20**	**0**	**0**	**0**	**0**
5	**Rate Study**																
5.1	Revenue analysis	$5,830	2	2	4			20			10						
5.2	O&M analysis	$7,070	2	4	10			10			20						
5.3	Cash flow	$4,630	2	2	4			20									
5.4	Capital financing	$5,030	2	4	4			20									
5.5	Final rate study	$10,070	2	4	10			30			20						
	SUBTOTAL	**$32,630**	**10**	**16**	**32**	**0**	**0**	**100**	**0**	**0**	**50**	**0**	**0**	**0**	**0**	**0**	**0**

DIRECT LABOR: (T&M)	**$476,910**															
TOTAL HOURS	**3,238**	**112**	**198**	**508**	**60**	**50**	**502**	**372**	**312**	**586**	**200**	**180**	**20**	**22**	**96**	**20**
DISTRIBUTION		3%	6%	16%	2%	2%	16%	11%	10%	18%	6%	6%	1%	1%	3%	1%
INDIVIDUAL COSTS		$26,320	$39,600	$96,520	$10,200	$8,000	$75,300	$52,080	$40,560	$70,320	$22,000	$18,000	$1,800	$3,850	$10,560	$1,800
			PLOTS	REPROD	MILEAGE	DELIVERY										
DIRECT COST SUBTOTAL	**$2,300**		$300	$1,000	$1,000	$0										
GRAND TOTAL:	**$479,140**															

Fee Schedule

2024 Matrix Design Group Standard Hourly Rates

Classification	Hourly Rate
Principal	$275.00
Executive Vice President	$255.00
Senior Vice President	$245.00
Vice President	$235.00
Associate Vice President	$225.00
Executive Associate	$210.00
Senior Associate	$200.00
Associate	$190.00
Professional X	$180.00
Professional IX	$170.00
Professional VIII	$160.00
Professional VII	$150.00
Professional VI	$140.00
Professional V	$130.00
Professional IV	$120.00
Professional III	$110.00
Professional II	$100.00
Professional I	$90.00
Staff VII	$150.00
Staff VI	$140.00
Staff V	$120.00
Staff IV	$100.00
Staff III	$85.00
Staff II	$75.00
Staff I	$65.00
1-Person Survey Crew	$160.00
2-Person Survey Crew	$205.00
3-Person Survey Crew	$250.00

2024 Logan Simpson Standard Hourly Rates

Classification	Hourly Rate
Principal Planner	$280.00
Senior Planner	$175.00
Associate Planner	$150.00
Planner	$110.00
GIS Analyst	$110.00
Administrative Support I	$90.00

If applicable, mileage will be charged at the Federal government allowable rate.
All other direct expenses attributable to the Project will be charged to Client at cost plus 10%.
Standard Hourly Rates are subject to adjustment annually.