Attachment #2

Report to the City Council

City of Steamboat Springs, Stormwater Task Force (SWTF)

Purpose and Scope

The purpose of this report is to communicate to the Steamboat Springs City Council the results and recommendations of the Stormwater Task Force regarding the management of stormwater in the City of Steamboat Springs.

Background

In 2012, The City of Steamboat Springs conducted its first comprehensive study to assess the effectiveness of its stormwater system. The Public Works and Planning Departments, through their various divisions, have historically managed the maintenance, assessment, planning, and permitting processes associated with stormwater drainage, floodplain management, and water quality throughout the City limits. The departments currently address these issues on a case by case basis, reacting to problems as they arise, responding to development proposals as they are submitted, and accommodating new state and federal mandates that are enacted. The City continues to stay in compliance with regulatory mandates; however, it may be in a position to improve management issues of stormwater drainage, floodplain management, and water quality through a more comprehensive approach.

To address stormwater management in a more systematic and cost-effective manner, the City conducted a study of the Old Town Area in 2009. The study assessed the Spring, Butcherknife, and Soda Creek basins to address potential flooding in the Old Town area. Recognizing the meaningful direction provided by the Old Town study, a second, citywide study was budgeted and pursued. In 2012, the City contracted with Short Elliot Hendrickson (SEH) to expand the reach of that study to all 10 drainage basins Citywide. The expanded scope of work included efforts to catalog and evaluate the existing storm sewer system and to identify needed improvements with the end goal of identifying the long-term maintenance and capital needs of the city's stormwater program.

In 2013, SEH delivered a Citywide Stormwater Master Plan, showing the existing condition of the City's stormwater infrastructure, and estimating peak runoff rates and volumes. The plan also contained a set of recommendations of solutions to flooding problems identified and provided a set of priorities and cost estimates for three alternative approaches to addressing the City's stormwater needs.

Significant Stormwater Management Issues Identified in the SEH report

The SEH report focused on the current sizing, maintenance and structural integrity of the City's stormwater infrastructure. The report identified the following issues:

- Some aging stormwater infrastructure will need to be replaced in the next 5-10 years.

- Older development and a reliance on FEMA regulations have led to encroachment into existing floodplains. The flood risk is statistically greater for homes, businesses, property and infrastructure within the floodplain and flood prone areas.
- New development places additional burden on the existing stormwater system. Impacts to drainage ways may lead to impacts to downstream properties.
- There is a lack of routine, systematic, scheduled inspection and maintenance of the existing stormwater system. Current maintenance is reactive in nature and performed when problems arise.
- There is a lack of adequate access to major drainage ways, the majority of which lie within private property. The City is not obligated or sanctioned by code to maintain or monitor drainage ways within private property, except under permitting and enforcement of wetland, floodplain and water body setback code enforcement.
- The City lacks a routine monitoring program for unauthorized floodplain or floodway encroachments.
- An unfunded federal mandate exists to protect water quality per the Phase II MS4 stormwater quality permit, enforced by the State via the Colorado Department of Public Health and Environment's Water Quality Control Division.

Creation of a Stormwater Task Force

The SEH study was so comprehensive in scope that its full implementation would require a significant change in the City's management of stormwater and related issues, both from a staffing and funding perspective. In recognition of the magnitude of that potential change, a Task Force was assembled to study the issue further and bring a recommendation to City Council on how to address the issues identified in the report. The Task Force comprises volunteers from the community representing a broad cross section of interests and areas of expertise.[1]

The Task Force was asked to discuss additional considerations beyond the scope of the report:

- A sense of the community's desires vis a vis acceptable approaches to addressing stormwater needs.

[1] The Task Force is defined as a local public body, and as such is covered by the open meeting rules, C.R.S. 24-6-401, et. Seq. In compliance with these rules, the Task Force meeting schedules were announced and open to the public. Minutes were taken and recorded, and are open to public inspection. Any member of the public attending the Task Force Meetings was offered an opportunity to speak.

- A sense of the funding options for increased attention to storm water, including discussion of the use of public dollars via general fund or fee based revenue options for addressing stormwater management.

The Task Force's primary charge was to vet the SEH study and make recommendations for a comprehensive stormwater management plan for the City and community. ***The mission of the Task Force was to provide a recommendation to City Council regarding managing floodplains, stormwater quality and drainage conveyance.*** The Task Force met from March 2013-October 2013 and its findings are detailed in this report. These findings represent the outcome of a consensus-based decision-making model with any disagreements resolved via a simple majority vote.

Stormwater Management Challenges: Current and Future

- The City of Steamboat Springs faces the following stormwater-related challenges that were not directly addressed in the SEH Master Plan. These challenges were identified in the course of the Task Force's discussions about stormwater management:
    - What flood risks does the City face at various locations for various storm size and intensity levels? The priority risk considerations are:
        1. Health and life safety: risk to life and health from a major storm or snowmelt runoff event
        2. Functionality of critical infrastructure: risk to the functioning of infrastructure important to the safe and economic operation of public services (water, electricity, wastewater management, communications, etc.) to the City of Steamboat Springs, which includes resiliency and the ability to recover quickly and cost-effectively after a flood event
        3. Cost acceleration: Not repairing, upgrading or replacing existing stormwater infrastructure soon could reasonably create disproportionately higher costs in the not-too-distant future.
        4. Major property damage: major property damage, public and private.
        5. Minor property damage: minor property damage, public and private
    - What impacts to stormwater quality does the City face that may affect MS4 Permit compliance? To what degree is monitoring and protection of the Yampa River and its tributaries as a fishing/recreation/agricultural water resource important to the community?
    - How should the City address maintenance, repair and/or upgrade of its stormwater system to ensure public safety in the most cost-effective manner?
        - What are the problems that should be addressed and how should they be prioritized?

        - How should these problems be bundled in a way that is most cost efficient?
    - How much responsibility should the City accept for stormwater drainage ways?
    - Whose responsibility is it to address maintenance, repairs, major rehabilitation, or monitoring of floodplain encroachments? And to what degree should the City intervene?
    - What level of service should the City provide in terms of stormwater management?
        - Infrastructure provision and maintenance
        - Flood risk assessment, notification and action
        - Maintenance/improvement of stormwater quality and its effect on water resources
    - To what extent can the Public Works Department handle the urgent and important stormwater problems, based on existing resources and staffing?
    - Are additional funds and/or staffing resources needed for the City to properly address stormwater management?
    - Should a dedicated funding source be identified?

Findings and Recommendations

1. Floodplain Management

- **Revisit the data on the Burgess Creek drainage.**

  Whereas, the SEH report seemed to verify the FEMA Flood Insurance Study hydrologic findings of the other tributary creeks and drainage ways, there was significant variation between the FEMA study and the SEH study in the Burgess Creek hydrology. The FEMA hydrology should be used for regulating the floodplain in all basins, including Burgess Creek, where it is available as it currently is used. The City should look to refine the hydrologic modeling of the Burgess Creek drainage basin.

- **Assess Current Floodplain Regulations.**
    - Existing Floodplain Regulations are based on compliance with FEMA Community Rating System requirements. In studying the subject, the Task Force identified a question that ought to be discussed fully and publicly through the Planning Commission's public process: Is the City's current regulatory framework adequate to protect life, safety and property from flood risk? Any recommendation on an ordinance would go through City Council.

- There have been some concerns generated via this process with the current FEMA map delineations. However, at this time, the Task Force does not recommend use of public funds for any remapping efforts.
- Determine if additional assistance and/or enforcement powers are necessary to take remedial action if a determination can be made that floodplain encroachments or improper repair or maintenance has created a significant flood risk to people and properties with the burden of proof falling to the City.

- **Private/Public Property Responsibility**
  - Owners, not the City, should be the responsible party to undertake improvements, if needed, to reduce flood risk on private property.
  - The City should be a resource for neighborhoods who might desire to form special improvement districts to mitigate flood risk or improve flood prone areas on private properties. The City should communicate with property owners significant changes in FEMA floodplain mapping that could affect their properties.
  - If improvements on City property are determined to reduce flood risk to surrounding properties, the City should consider performing the improvements based on assessment of risk and cost of performing the work.
- **Flood Preparedness**
  - At present, the City provides, at low cost or free of charge, basic flood protection services, e.g., sand bags, hot line information, etc. Frequent or significant users may be required to reimburse the City or take responsibility for flood protection of their property if use of City provided services are deemed excessive.
  - The City ought to conduct *basic* outreach to inform property owners of the flood risk to their properties including giving them a list of the actions they might take to mitigate risk and potential damage.
  - Couple this action with the overall community relations and communications program outlined below.
  - Coordinate with Routt County Emergency Management, Streets Department, Police/Sherriff/CHP, Fire, Utility providers, and extra governmental entities knowledgeable in the field to conduct flood preparedness response planning exercises and implement early warning procedures
  - Evaluate cost benefit of automated stream gage early warning system. Establish a flood hotline or use reverse 911 to communicate heavy stormwater runoff and flood warnings.

2. Water Quality Management

- **Maintain the good water quality that presently exists**

The Yampa River currently has very good water quality. The health of the Yampa River corridor is a vital community concern. The City should continue to support water quality testing in partnership with other participating local entities, monitor the findings of ongoing testing, and take appropriate steps to mitigate sources of pollution if degradation is observed. The current effort is spearheaded by Routt County Environmental Health and the United States Geologic Survey, in partnership with the Upper Yampa River Conservancy District and the City of Steamboat Springs. The Task Force applauds their efforts.

- **Comply with State MS4 permit requirements**,

  Although many of the permit requirements are not rooted in locally-based solutions, a well-run MS4 program can protect water quality. The City should continue to support and fund existing efforts to comply with the permit acknowledging the changing permit conditions

- **Army Corp of Engineers (ACOE) wetland permitting compliance is sufficient for protection of wetland areas within private property.**

  The City should not have another layer of regulation that is more stringent or that parallels the ACOE process. ACOE permitting compliance should be verified by the City for new development or redevelopment proposals.

3. Drainage Infrastructure Management

Upon review of the SEH report, the Task force identified and discussed a number of concerns with the information contained within the report. Some of the items that the Task Force took issue with included missing or inaccurate field data, a one-size-fits-all approach to sizing infrastructure within each of the three alternatives, an overreliance on hydrologic modeling based on generic assumptions to generate conclusions, contingency assumptions, pilot scale assumptions, and lumping all project needs into a singular category irrespective of the magnitude of project scope or responsible party. The Task Force took great strides to discuss and identify ways to combat each of these concerns.

Using the SEH Report as a valuable but unrefined document, the Stormwater Task Force formed a technical sub-committee to further evaluate the report and the associated costs to form an understanding of the report findings and refine the cost basis. The result was the creation of a more robust planning and budgeting tool.

The subcommittee went through each drainage basin cost spreadsheet from the SEH report, formed a hydrologic basis to evaluate the drainage flow volumes through each culvert, and identified each roadway crossing to determine what storm event (5year or 100year) should determine the design capacity. Based on this evaluation, the subcommittee identified 58 “urgent” culverts within the system. City Staff field inspected each of these “urgent” culverts to verify sizing so as to ensure correct information was being used to determine the most immediate needs. The sub-committee then identified eight categories of project conditions or needs:

1. City Maintenance Need (i.e. sediment build up or vegetation restricting culvert)
2. Capacity Replacement (replacement due to undersized capacity)
3. Life-Cycle Replacement (life-cycle replacement based on periodic inspection and prioritization)
4. Major City Projects (any replacement cost over $50,000)
5. Potential Future Development (any replacement likely to occur with development of a parcel in the near future)
6. CDOT/Lincoln Avenue Projects (any replacement under State right of way)
7. Private Property (any replacement outside City held property)
8. Railroad Crossing (any replacement under Union Pacific right of way)

The Task Force defined that categories 1, 2, and 3 represent stormwater maintenance tasks best addressed by City staff resources via the Public Works Streets Division and therefore should be designated as Operational needs. These categories collectively represent $3,476,000 in short and long term needs. The Task Force endorsed a goal of funding the operational needs identified in the refined cost basis within a 15 year time horizon. Without taking inflation into account, this would represent an annual expenditure of $231,000 on stormwater operations. Current annual stormwater expenditure is about $120,000 that covers personnel, equipment, and materials, which is a shortfall of $111,000 per year.

The Task Force defined that categories 4, 6, and 8 represent stormwater needs best addressed via contract based efforts and therefore should be designated as Capital needs. The group acknowledges that the technical committee of the Stormwater Task Force analyzed the SEH report and identified that there are long-term capital costs that are going to need to be addressed. Based on the findings included in the cost basis, there is a minimum long term capital cost of roughly $8 million in today's dollars. The Task Force does not endorse an annualized funding recommendation at this time, but supports a recommendation of increased staffing levels for further asset inventory to prioritize needs, perform more detailed analysis of each replacement project, and refine cost estimates specific to each location.

And finally the Task Force defined that categories 5 and 7 were the responsibility of private land owners and not the City and therefore no Operational or Capital funds should be dedicated to those replacement needs beyond informational or regulatory efforts.

Replacement and Maintenance Program Recommendations

- Increase Street Division stormwater budget by $111,000 annually to facilitate City maintenance needs, capacity replacement of undersized culverts, and for life-cycle replacement of deteriorating culverts.
- Acknowledge that there are significant Capital needs associated with stormwater replacement and at such time as Staff is able to refine the prioritization of needs, adequate funding for these needs should be considered.
- Perform the necessary maintenance, repair, replacement or upgrade of stormwater infrastructure for which the City has the necessary access (i.e. public right of way or City owned property) in a prioritized manner.

- Staff to notify private property owners, public utilities, or private sector organizations of any maintenance, repair, replacement, or upgrade needs or mitigation of flooding impacts to maintain functionality of stormwater infrastructure that exists upon or serves private property.
- Staff to institute a periodic stormwater infrastructure inspection program to identify additional existing or emerging maintenance needs or concerns.
- Staff to communicate with property owners that their property contains a drainage way that is an important component in the effective management of stormwater for the City. Evaluate the drainage ways and recommend to the owner that maintenance, repair or upgrades may be needed.

4. Management and Administration of Program

- Provide additional funding up to one 1.0 FTE (approximate $92,000) to complement existing stormwater programs and implementation of recommendations contained in this report. Evaluate City staff roles and responsibilities to provide for integrated management of stormwater across/among departments.
- Current City staff roles that could be coordinated more effectively:
    - Stormwater Infrastructure Assessment and Project Management
    - Floodplain Management
    - MS4 permit program development, administration and reporting
    - Public outreach and education
    - Coordination with Routt County Emergency Management for flood response preparedness
    - Attendance at regional and local meetings relating to watershed planning and coordination

Community Relations, Communications

- Create a community relations plan that comprehensively addresses and communicates to businesses, government entities and the public the characteristics, benefits and threats posed by stormwater. Get the community involved in the issues of stormwater management.
- Offer guidance and informational material on how to protect health/life safety and property in the event of a flood.
- Communicate on a regular basis the actions taken by the City in response to the recommendations of the Task Force.
- Foster continued volunteer rain gage data gathering efforts

These roles are intended to be funded via existing resources or additional staff per above recommendation.

5. Funding

The Task Force researched, evaluated, and discussed a number of forms of funding mechanisms that are available and/or used to fund stormwater programs in other communities. A stormwater utility fee was discussed as a potential funding mechanism to address the costs associated with a stormwater program. However, at this time the Task Force recommends funding the additional requirements of the stormwater program as identified by the Task Force through current revenue streams and prioritization of the budget

Conclusion

The mission of the Task Force was to provide a recommendation to City Council regarding managing floodplains, stormwater quality and drainage conveyance. The group findings spell out a desire to take a more proactive approach to stormwater management within the City of Steamboat Springs by dedicating adequate resources and expertise to the tasks associated with program planning, outreach, and implementation. The group finds:

- Floodplain concerns are mostly a private responsibility except where the floodplain interacts with publicly held property. Policy and regulatory mechanisms may be prudent.
- Stormwater quality is currently very good and should continue to be proactively monitored for signs of degradation. Continued MS4 permit compliance should be evaluated.
- Personnel, equipment, and materials should be allocated to adequately maintain the existing drainage conveyance system in its current state and efforts should be prioritized to plan for future capital needs

Appendix

SWTF Members

- Non-voting (ex-officio)
  - Facilitator: Ben Beall – City Engineer, City of Steamboat Springs
  - Chuck Anderson – Director of Public Works, City of Steamboat Springs
  - Kim Weber – Finance Director, City of Steamboat Springs
- Task Force Members (voting)
  - Sonja Macys – City Council
  - Walter Magill – City Council
  - Richard Buccino – Engineering, Environ. Advocacy, Govt. (Mt Werner Water)
  - Bob Frank – Engineering, Construction (Connell Resources Project Manager)
  - Pat Gleason – Construction, Govt., At-Large Resident
  - Alan Koermer – HOA, Commercial/Lodging
  - Charlie MacArthur – Construction (Native Excavating), HOA
  - Kevin McBride – At-Large Resident (District Manager of the Upper Yampa Conservancy, former Senior Stormwater Engineer for the City of Fort Collins)
  - Dan Meyer – Colorado Department of Water Resources Hydrographer, County Resident
  - Bud Romberg – Former City Council, former Tax Policy Advisory Board member
  - Deb Spaustat – Engineering (Landmark Consultants), At-Large Resident
  - Jonathan Stauffer – Environmental, Ecological Consulting (EcoHydro)
  - Bill Wallace – Engineering (Envision), HOA, At-Large Resident

SWTF Guiding Documents

- Citywide Stormwater Master Plan – Short Elliot Hendrickson, published March 2013
- Old Town Drainage Study and Floodplain Masterplan for Soda, Butcherknife, and Spring Creeks – J3 Engineering Consultants, published April 2009
- Butcherknife Flood Damage Assessment– J3 Engineering Consultants, published October 2011
- Routt County Flood Insurance Study– Federal Emergency Management Agency, published February 2005
- Yampa River Structural Master Plan
- Water-Quality Assessment and Macroinvertebrate Data for the Upper Yampa River Watershed, Colorado, 1975 through 2009 – USGS, published 2012
- Routt County Multi-Hazard Mitigation Plan – Routt County Planning Department, published December 2010
- Upper Yampa Watershed Plan and Assessment: Project Implementation Plan – Upper Yampa River Watershed Group Technical Committee, draft
- Vision 2030, select water excerpts – published 2013 (courtesy of J. Brown, RCCD)
- Steamboat Springs Area Community Plan, select water related excerpts

SWTF Work Plan

Phase I: Information Gathering

- Review Citywide Stormwater Master Plan
- City Financial Structure Overview
- Current Staff Roles and expenditures related to stormwater
    - Infrastructure Maintenance
    - Infrastructure Replacement Planning, Design, and Project Management
    - Colorado Dept. of Health and Environment(CDPHE) MS4 Permit
    - Development Review and Construction Oversight
    - Floodplain Management
    - Waterbodies/Yampa River Management
    - Upper Yampa Watershed Group
- Current Drainage Criteria and Floodplain Standards
- Costs: What is the real price tag?
    - Infrastructure Life Cycle Concerns and Deferred Maintenance
    - What is the CDPHE MS4 Permit and what does it mean for Steamboat?
- What are communities in Colorado doing to address Stormwater issues?

Phase II: Identifying Acceptable Levels of Service

- Infrastructure Standard of Care
    - What is infrastructure: Culverts, Ditches, Bridges, Storm sewers, Channels, Creeks, and Rivers?
    - What resources should the City apply to maintenance of existing infrastructure?
    - What constitutes failure?
- Flooding
    - Are current regulation and criteria sufficient?
    - What is the current risk to the City?
        - Do we have good information to assess the risk?
        - Can/should more be done to protect the community from risks of flooding?
- Stormwater Quality
    - Compliance with our MS4 permit
        - Is that enough?
        - Can/should we do more?
        - New permit terms and conditions.
    - Should a wetland protection program be undertaken by the City?
        - How does creek and river enhancement/restoration fit into the program?

Phase III: Developing Recommendations

- What should the new program look like?
- How should it be implemented and managed?
- How should it be funded?
- Report to City Council

Cost/Resource Summary Recommendations

		Streets: Maintenance/Minor Infrastructure
Task Force/Master Plan Identified Costs	**Total**	**15 Year Goal**
City Maintenance Need[1]	$ 345,410	
Capacity Replacement[2]	$ 856,239	
Life-Cyle Replacement[3]	$ 1,274,780	
Long Term City Capital Costs[4]	$ 8,171,082	
Remedial Costs (Pilot Scale Inventory)[5]		
City Maintenance Need	$ 138,164	
Capacity Replacement	$ 342,495	
Life-Cyle Replacement	$ 509,912	
Long Term City Capital Costs	$ 3,268,433	
Total Operations[6]	$ 3,467,000	$ 231,133.33
Total Capital	$ 8,171,082	
Total Capital w/Pilot Scale Remedial Cost Factor	$ 11,439,514	

*Cost estimates based on unit costs as included in SEH plan (2012 dollars)

"Return to Baseline" Cost (*City Maint. Need + Cap. Replcmnt)[7]	$ 1,682,308

Annual Non-Streets/Capital Expenditure	**Existing**		**Additional**	
Staff	FTE	Budget	FTE	Budget
Engineering	0.5	$ 50,000	1.0	$ 92,000
Water Quality Monitoring		$ 10,000		$ -
Water Quality Education/Outreach		$ 5,000		$ -
Total		**$ 65,000**		**$ 92,000**

Stormwater Program		
Existing Streets Division: Stormwater Expenditure	$ 120,000	
Additional Streets Division Recommendation	$ 111,133	*15YR Goal
Existing Non-Streets Expenditure	$ 65,000	
Additional Non-Streets Expenditure	$ 92,000	
City Capital Expenditure	$ -	TBD
Program Total	**$ 388,133**	

Footnotes:

[1] Costs asscciated with deferred maintenance and regular maintenance needs of existing public stormwater infrastructure

[2] Costs for drainage infrastructure identified as not having the necessary capacity per the City Drainage Criteria (5yr event for local street culvert, 100yr event for arterial and collector culvert)

[3] Replacement costs for infrastructure that reach their effective life and would then be at risk of failure or increase maintenance liability

[4] All projects over $50,000 and/or within CDOT or Union Pacific railroad right of way including capacity and life cycle replacement

[5] All culverts within the system were not inspected and inventoried, only those over 24" in diameter were included in the study, this represents an overal cost increase of 40% for the associated tasks assuming that the uninventoried culverts are in a similar state of repair

[6] All maintenance, capacity, and replacement needs to be performed by Streets Dept, excludes projects over $50,000 and any projects within CDOT and Union Pacific right of way

[7] Cost identified within the study to bring public infrastructure, not including capital projects[4], up to current capacity standard and address maintenance needs

Technical Subcommittee Spreadsheets

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10/02/2013

WALTON CREEK BASIN

		Existing					*Future*		*100-Year or 5 Year Replacement Cost Projection*					*Stormwater Task Force Review*							
CULID	**Street Designation**	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**Existing 100 yr Flow (cfs)**	**Future 100 yr Flow (cfs)**	**Future 5 yr Flow (cfs)**	**Item** **5 yr**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**City Maintenance Need**	**Capacity Replacement**	**Life-Cyle Replacement**	**Major City Projects**	**Potential Future Development**	**CDOT / Lincoln Ave**	**Private Property**	**Railroad Crossing**
4425		CMP	18											$1,000							
1564		CMP	18											$2,500							
3009		HDPE												$2,000							
3008		CMP	18											$2,000							
1581														$500							
3143	100 yr	CMP	36	2	103	74	76	33	36" RCP	120	LF	$173	$20,760	$1,000		$20,760					
3145	5 yr	CMP	24	1	19	74	76	33	30" RCP	66	LF	$144	$9,504	$1,000	$9,504						
5034														$1,000							
5024	100 yr	CMP	24	1	19	166	173	84	54" RCP	46	LF	$259	$11,914	$1,000	$11,914						
1597		CMP	18											$2,500							
3109	5 yr	CMP	48	1	103	75	77	54	48" RCP	60	LF	$230	$13,800	$1,000		$13,800					
3106	5 yr	CMP	36	1	51	75	77	24	36" RCP	56	LF	$173	$9,688	$1,000		$9,688					
3105	5 yr	CMP	36	1	51	47	53	26	36" RCP	57	LF	$173	$9,861	$1,000		$8,352					
3608	5 yr	CMP	24	4	74	224	241	110	Twin 36" RCP	60	LF	$346	$20,760	$0						$20,760	
3128	100 yr	CMP	48	1	103	300	316	147	72" RCP	57	LF	$491	$27,987	$2,000	$27,987						
5098	5 yr	CMP	60	1	180	300	315	147	60" RCP	103	LF	$286	$29,458	$3,000		$29,458					
6001														$1,000							
2998	100 yr	CMP	84	1	418	298	312	136	84" RCP	60	LF	$533	$31,980	$1,000		$31,980					
1667	5 yr	CMP	72	1	284	298	312	136	72" RCP	362	LF	$491	$177,742	$1,000			$177,742				
3146	5 yr	CMP	60	2	361	316	330	146	60" RCP	120	LF	$286	$34,320	$3,000		$34,320					
5028														$3,000							
1695	5 yr	CMP	24	1	19	28	28	12	24" RCP	57	LF	$115	$6,555	$1,000		$6,555					
1691														$2,000							
1694														$2,000							
1615																				$2,500	
1715														$500							
3148																					
3148	5 yr	CMP	48	1	103	28	32	14	48" RCP	60	LF	$230	$13,800	$1,000		$13,800					
1475	5 yr	CMP	36	1	51	28	32	14	24" RCP	59	LF	$115	$6,785	$0						$6,785	
4270	5 yr	CMP	42	1	75	28	32	14	42" RCP	60	LF	$201	$12,060	$1,000		$12,060					
1478	5 yr	CMP	42	1	75	28	32	14	42" RCP	60	LF	$201	$12,060	$0						$12,060	
3132	100 yr	CMP	36	2	103	28	32	14	36" RCP	120	LF	$173	$20,760	$1,000		$20,760					
3130	5 yr	CMP	36	2	103	44	50	23	36" RCP	120	LF	$173	$20,760	$1,000		$20,760					
3138	100 yr	CMP	36	2	103	53	59	28	36" RCP	120	LF	$173	$20,760	$1,000		$20,760					
									SUBTOTAL				$511,314	$42,000	$49,405	$243,053	$177,742	$0	$0	$42,105	$0
									Utility Coordination/ Relocation		5%		$25,566	$2,100	$2,470	$12,153	$8,887	$0	$0	$0	$0
									Contingencies		25%		$127,829	$10,500	$12,351	$60,763	$44,436	$0	$0	$0	$0
									Engineering Design Services		15%		$76,697	$0	$0	$0	$26,661	$0	$0	$0	$0
									Legal and Administrative Services		5%		$25,566	$0	$0	$0	$8,887	$0	$0	$0	$0
									Construction Administration and Management		10%		$51,131	$0	$0	$0	$17,774	$0	$0	$0	$0
									SEH TOTAL ALTERNATIVE COST				$818,102								
									Stormwater Task Force Totals				**$761,288**	**$54,600**	**$64,227**	**$315,969**	**$284,387**	**$0**	**$0**	**$42,105**	**$0**

60 Size Field Verified

60 Estimated Length for Costing

CRITICAL ITEM REQUIRES ADDITIONAL REVIEW

FLOW CAPACITY SUFFICIENT FOR 100 YEAR FLOWS

FLOW CAPACITY SUFFICIENT FOR 5 YEAR FLOWS

IDENTIFIED FOR IMMEDIATE MAINTENANCE BY SEH

10/02/2013

BURGESS CREEK BASIN

		Existing							Future		100-Year or 5 Year Replacement Cost Projection					Stormwater Task Force Review							
CULID	Street Designation	Pipe Type	Size (inches)	Quantity	Full Flow Capacity (cfs)	PCSWMM 100 yr Flow (cfs)	FEMA 100 yr Flow (cfs)	FEMA 10 yr Flow (cfs)	PCSWMM 100 yr Flow (cfs)	PCSWMM 5 yr Flow (cfs)	Item	Quantity	Unit	Unit Cost	Total Cost	City Maintenance Need	Capacity Replacement	Life-Cyle Replacement	Major City Projects	Potential Future Development	CDOT / Lincoln Ave	Private Property	Railroad Crossing
											5 YR												
1299	100 yr	CMP	68	1	0		285	260		119	66" RCP	46	LF	$315	$14,490		$14,490						
1305	5 YR	CMP	54	2	0		291	260		132	48" RCP	86	LF	$230	$19,780							$19,780	
1336	5 YR	CMP	42	2	150		296	260		128	48" RCP	46	LF	$230	$10,580							$10,580	
3053	100 yr	CMP	48	1	103		298	260		127	66" RCP	83	LF	$315	$26,145	$5,000	$26,145						
5015	5 YR	RCP	54	1	178		304	290		138	54" RCP	94	LF	$259	$24,346	$4,500				$24,346			
1354	5 YR	CMP	42	3	0		304	290		141	54" RCP	38	LF	$259	$9,842							$9,842	
5022	100 YR	RCBC	8448	2	485		305	290		141	DBLE 66" RCP	80	LF	$630	$50,400	$1,000			$50,400				
1391	5 YR	CMP	78	1	347		362	290		265	78" RCP	131	LF	$859	$112,529							$112,529	
5021	5 YR	BRIDGE		0			362	290		265	BRIDGE	20	LF	$460									
6010																$1,000							
3036	5 YR	CMP	48	2	206		376	290		283	66" RCP	68	LF	$315	$21,420	$3,500	$21,420						
5017	5 YR	BRIDGE		0			376	290		283	BRIDGE												
1394	5 YR	CMP	60	1	75		379	290		283	66" RCP	96	LF	$315	$30,240	$500				$30,240			
5150	100 YR	CMP	60	1	180		379	290		283	66" RCP	54	LF	$315	$17,010	$3,500	$17,010						
5018		BRIDGE		0			379	290		283	BRIDGE												
1519	5 YR	CMP	9666	1	418		381	290		312	78" RCP	90	LF	$859	$77,310	$1,000			$77,310				
5025		BRIDGE		0			381	290		312	BRIDGE	20	LF	$859		$800							
1546	5 YR	CMP	9666	1	418		384	290		418	78" RCP	89	LF	$859	$76,451	$500			$76,451				
1558	5 YR	CMP	60	3	541		384	290		421	TRPLE 60" RCP	90	LF	$945	$85,050	$1,000		$85,050					
3007	100 YR	CMP	72	1	284		400	290		418	TRPLE 48" RCP	126	LF	$690	$86,940	$3,000			$86,940				
5020																$1,000							
4215																$500							
4480		CMP	24													$2,000							
3124	100 YR	CMP	18	1	9	27			40	21	30" RCP	43	LF	$144	$6,192	$1,000	$6,192						
4168	5 YR	CMP	24	1	19	68			77	35	30" RCP	51	LF	$144	$7,344	$1,000	$7,344						
3117	5 YR	CMP	24	1	19	18			29	12	24" RCP	64	LF	$115	$7,360	$1,000		$7,360					
1441	5 YR	CMP	18	1	9	18			29	12	24" RCP	101	LF	$115	$11,615							$11,615	
3125	5 YR	CMP	30	1	33	38			62	28	30" RCP	66	LF	$144	$9,504	$1,000		$9,504					
3780	5 YR	CMP	48	1	103	84			124	60	48" RCP	43	LF	$230	$9,890							$9,890	
4626	100 YR	CMP	48	1	103	146			210	95	54" RCP	81	LF	$259	$20,979	$1,000	$20,979						
4627	5 YR	CMP	30	1	33	26			35	20	30" RCP	65	LF	$144	$9,360	$1,000		$9,360					
3177	5 YR	CMP	24	1	19	26			35	20	24" RCP	181	LF	$115	$20,815							$20,815	
5036																							
6009																							
3038	5 YR	CMP	72	1	284	11			14	7	72" RCP	163	LF	$491	$80,033	$1,000			$80,033				
3014	5 YR	CMP	30	3	98	41			57	30	DBLE 36" RCP	48	LF	$346	$16,608							$16,608	
2990	100 YR	CMP	24	1	19	19			25	13	24" RCP	106	LF	$115	$12,190	$1,000		$12,190					
1555		CMP	48													$500							
1581	5 YR	CMP	48	3	310		400	290	957	421	TRPLE 48" RCP	111	LF	$690	$76,590			$28,749					

SUBTOTAL		$951,013	$37,300	$113,580	$152,213	$371,134	$54,586	$0	$211,659	$0
Utility Coordination/ Relocation	5%	$47,551	$1,865	$5,679	$7,611	$18,557	$0	$0	$0	$0
Contingencies	25%	$237,753	$9,325	$28,395	$38,053	$92,784	$0	$0	$0	$0
Engineering Design Services	15%	$142,652	$0	$0	$0	$55,670	$0	$0	$0	$0
Legal and Administrative Services	5%	$47,551	$0	$0	$0	$18,557	$0	$0	$0	$0
Construction Administration and Management	10%	$95,101	$0	$0	$0	$37,113	$0	$0	$0	$0
SEH TOTAL ALTERNATIVE COST		$1,521,621								
Stormwater Task Force Totals		**$1,254,080**	**$48,490**	**$147,654**	**$197,877**	**$593,814**	**$54,586**	**$0**	**$211,659**	**$0**

60 Size Field Verified

60 Estimated Length for Costing

CRITICAL ITEM REQUIRES ADDITIONAL REVIEW

FLOW CAPACITY SUFFICIENT FOR 100 YEAR FLOWS

FLOW CAPACITY SUFFICIENT FOR 5 YEAR FLOWS

IDENTIFIED FOR IMMEDIATE MAINTENANCE BY SEH

10/02/2013

PINE GROVE/MOUNT WERNER BASIN

		Existing					*Future*	*100-Year or 5 Year Replacement Cost Projection*					*Stormwater Task Force Review*							
CULID	**Street Designation**	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**Existing 100 yr Flow (cfs)**	**Future 5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**City Maintenance Need**	**Capacity Replacement**	**Life-Cyle Replacement**	**Major City Projects**	**Potential Future Development**	**CDOT / Lincoln Ave**	**Private Property**	**Railroad Crossing**
								5 yr												
3703	5 yr	CMP	15	1	5	24	12	18" RCP	82	LF	$86	$7,052	$1,000		$7,052.00					
3214	100 yr	CMP	48	1	103	77	34	42" RCP	278	LF	$201	$55,878	$1,000					$55,878		
3254	100 yr	CMP	24	1	19	118	61	48" RCP	223	LF	$230	$51,290	$1,000					$51,290		
3004	100 yr	CMP	24	3	56	83	82	48" RCP	80	LF	$230	$18,400	$1,000				$18,400			
2975	100 yr	CMP	24	1	19	95	70	42" RCP	123	LF	$201	$24,723	$1,000	$24,723						
3378	100 yr	CMP	42	1	75	295	163	78" RCP	490	LF	$533	$261,170	$1,000					$261,170		
3044	100 yr	CMP	30	1	33	31	23	36" RCP	47	LF	$173	$8,131	$1,000		$8,131					
3041	100 yr	CMP	30	1	33	63	35	42" RCP	104	LF	$201	$20,904	$1,000	$20,904						
3594	5 yr	CMP	36	2	103	147	96	54" RCP	80	LF	$259	$20,720	$3,000		$20,720					
3045	100 yr	CMP	24	1	19	169	85	54" RCP	108	LF	$259	$27,972	$1,000	$27,972						
3854	5 yr	CMP	24	1	19	15	8	24" RCP	60	LF	$115	$6,900	$1,000		$6,900					
3583	5 yr	CMP	18	3	27	78	39	30" RCP	75	LF	$144	$10,800	$1,000	$10,800						
3040	100 yr	CMP	42	1	75	78	39	42" RCP	68	LF	$201	$13,668	$1,000		$13,668					
1214	5 yr	CMP	36	1	51	78	39	36" RCP	42	LF	$173	$7,266	$1,000	$7,266						
2964	100 yr	CMP	24 (unknown)	1	19	328	182	78" RCP	180	LF	$533	$95,940	$2,000			$95,940				
3755	5 yr	CMP	48	3	310	393	227	Dble 48" RCP	61	LF	$460	$28,060	$7,000		$28,060					
4629	5 yr	CMP	48	1	103	421	236	Twin 48" RCP	905	LF	$460	$416,300	$2,500			$416,300				
1488	100 yr	CMP	24	0	19	40	25	30" RCP	338	LF	$144	$48,672	$1,000					$48,672		
											SUBTOTAL	$1,123,846	$28,500	$91,665	$84,531	$512,240	$18,400	$417,010	$0	$0
											Utility Coordination/ Relocation	5% $56,192	$1,425	$4,583	$4,227	$25,612	$0	$20,851	$0	$0
											Contingencies	25% $280,962	$7,125	$22,916	$21,133	$128,060	$0	$104,253	$0	$0
											Engineering Design Services	15% $168,577	$0	$0	$0	$76,836	$0	$62,552	$0	$0
											Legal and Administrative Services	5% $56,192	$0	$0	$0	$25,612	$0	$20,851	$0	$0
											Construction Administration and Management	10% $112,385	$0	$0	$0	$51,224	$0	$41,701	$0	$0
											SEH TOTAL ALTERNATIVE COST	$1,798,154								
											Stormwater Task Force Totals		**$1,771,305**	**$37,050**	**$119,165**	**$109,890**	**$819,584**	**$18,400**	**$667,216**	**$0**	**$0**

60 Size Field Verified

60 Estimated Length for Costing

CRITICAL ITEM REQUIRES ADDITIONAL REVIEW

FLOW CAPACITY SUFFICIENT FOR 100 YEAR FLOWS

FLOW CAPACITY SUFFICIENT FOR 5 YEAR FLOWS

IDENTIFIED FOR IMMEDIATE MAINTENANCE BY SEH

10/02/2013

FISH CREEK BASIN

		Existing					*Future*	*100-Year or 5 Year Replacement Cost Projection*					*Stormwater Task Forc Review*							
CULID	**Street Designation**	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**Existing UDFCD 100 yr Flow (cfs)**	**Future UDFCD 5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**City Maintenance Need**	**Capacity Replacement**	**Life-Cyle Replacement**	**Major City Projects**	**Potential Future Development**	**CDOT / Lincoln Ave**	**Private Property**	**Railroad Crossing**
								5 yr												
3354	5 yr	CMP	24	1	19	50	9	24" RCP	46	LF	$115	$5,290	$0		$0				$5,290	
3353	5 yr	CMP	24	1	19	50	9	24" RCP	41	LF	$115	$4,715	$0		$0				$4,715	
3371	5 yr	RCP	54	1	178	120	34	54" RCP	60	LF	$259	$15,540	$0		$0				$15,540	
2935	100 yr	CMP	60	1	180	149	48	60" RCP	72	LF	$286	$20,592	$1,000		$20,592					
2936	5 yr	CMP	60	1	180	149	48	60" RCP	52	LF	$286	$14,872	$1,000		$14,872					
2934	5 yr	CMP	60	1	180	160	83	60" RCP	55	LF	$286	$15,730	$1,000		$15,730					
983	100 yr	RCBC	10'x 9'	3	1985	1526	580											????		
5012		Bridge	0	0	0	1529	583													
5013		Bridge	0	0	0	1529	583													
5014		Bridge	0	0	0	1529	583													
								SUBTOTAL				$76,739	$3,000	$0	$51,194	$0	$0	$0	$25,545	$0
								Utility Coordination/ Relocation			5%	$3,837	$150	$0	$2,560	$0	$0	$0	$0	$0
								Contingencies			25%	$19,185	$750	$0	$12,799	$0	$0	$0	$0	$0
								Engineering Design Services			15%	$11,511	$0	$0	$0	$0	$0	$0	$0	$0
								Legal and Administrative Services			5%	$3,837	$0	$0	$0	$0	$0	$0	$0	$0
								Construction Administration and Management			10%	$7,673.90	$0	$0	$0	$0	$0	$0	$0	$0
								SEH TOTAL ALTERNATIVE COST				$122,782								
								Stormwater Task Force Totals				**$95,997**	**$3,900**	**$0**	**$66,552**	**$0**	**$0**	**$0**	**$25,545**	**$0**

60 Size Field Verified

60 Estimated Length for Costing

CRITICAL ITEM REQUIRES ADDITIONAL REVIEW

FLOW CAPACITY SUFFICIENT FOR 100 YEAR FLOWS

FLOW CAPACITY SUFFICIENT FOR 5 YEAR FLOWS

IDENTIFIED FOR IMMEDIATE MAINTENANCE BY SEH

10/02/2013

FOX CREEK BASIN

		Existing					*Future*	*100-Year or 5 Year Replacement Cost Projection*					*Stormwater Task Force Review*							
CULID	**Street Designation**	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**Existing 100 yr Flow (cfs)**	**Future 5 yr Flow (cfs)**	**Item** **5 yr**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**City Maintenance Need**	**Capacity Replacement**	**Life-Cyle Replacement**	**Major City Projects**	**Potential Future Development**	**CDOT / Lincoln Ave**	**Private Property**	**Railroad Crossing**
2902													$2,500							
5131																				
5132													$1,500							
2894	100 yr	CMP	18	1	9	31	17	30" RCP	133	LF	$144	$19,152	$1,000	$19,152						
2904	100 yr	CMP	18	1	9	41	23	30" RCP	71	LF	$144	$10,224	$1,500	$10,224						
4490	100 yr	CMP	36	1	51	7	3	36" rcp	60	LF	$173	$10,380	$1,000		$10,380					
4489	100 yr	CMP	24	1	19	9	4	24" RCP	60	LF	$115	$6,900	$1,000		$6,900					
5129	100 yr	CMP	36	1	51	31	16	36" RCP	60	LF	$173	$10,380	$1,000		$10,380					
2931	100 yr	CMP	36	1	51	40	20	30" RCP	52	LF	$144	$7,488	$1,000		$ 7,488					
338	5 yr	CMP	36	1	51	41	20	36" RCP	60	LF	$173	$10,380	$0				$0		$10,080	
4249	5 yr	CMP	30	1	33	73	37	30" RCP	70	LF	$144	$10,080	$1,000		$10,080					
4250	5 yr	CMP	30	1	33	73	37	30" RCP	90	LF	$144	$12,960	$0						$12,960	
2922	100 yr	CMP	30	1	33	73	37	42" RCP	58	LF	$201	$11,658	$1,000	$11,658						
869	5 yr	CMP	0	0	0	237	114	Twin 36" RCP	38	LF	$346	$13,148	$0						$13,148	
5066	100 yr	CMP	360	1		336	155					$100,000	$1,000			$100,000				
5130	5 yr	CMP	72	1	284	426	199	72" RCP	49	LF	$491	$24,059	$1,000		$24,059					
5072	100 yr	CMP	36	1	51	418	196	72" RCP	216	LF	$491	$106,056	$1,500			$106,056				
3203	100 yr	CMP	36	1	51	488	272	Twin 66" RCP	246	LF	$630	$154,980	$1,000					$154,980		
3201	100 yr	CMP	36	1	51	488	272	Twin 66" RCP	17	LF	$630	$10,710	$1,000					$10,710		
3202	100 yr	CMP	36	1	51	488	272	Twin 66" RCP	204	LF	$630	$128,520	$1,000					$128,520		
5076	100 yr	CMP	36	1	51	488	272	Twin 66" RCP	40	LF	$630	$25,200	$1,000			$25,200				
5075	100 yr	ECMP	60	1	180	574	315	Twin 66" RCP	237	LF	$630	$149,310	$1,000			$149,310				
5071													$1,500							
5070													$1,500							
4278													$2,500							
5121													$1,000							
5117													$1,500							
3206	100 yr	CMP	24	1	19	11	11	24" RCP	137	LF	$115	$15,755	$3,500					$15,755		
3207	100 yr	CMP	24	1	19	20	15	24" RCP	160	LF	$115	$18,400	$1,000					$18,400		
3208	100 yr	CMP	24	1	19	8	6	24" RCP	160	LF	$115	$18,400	$1,000					$18,400		
3209	100 yr	CMP	24	1	19	8	6	24" RCP	160	LF	$115	$18,400	$1,000					$18,400		
3210	100 yr	CMP	24	1	19	8	6	24" RCP	135	LF	$115	$15,525	$1,000					$15,525		
5103													$2,500							
3212	100 yr	CMP	36	1	51	70	50	48" RCP	151	LF	$230	$34,730	$2,000				$34,730			
4109	100 yr	CMP	24	1	19	19	15	24" RCP	145	LF	$115	$16,675	$1,000					$16,675		
878	5 yr	CMP	18	1	9	67	38	30" RCP	73	LF	$144	$10,512	$0						$10,512	
5038	5 yr	HDPE	18	1	11	31	22	24" RCP	91	LF	$115	$10,465	$0						$10,465	
5113	CDOT	CMP	24	1	19	8	6	24" RCP	41	LF	$115	$4,715	$1,000					$4,715		
								SUBTOTAL				$985,162	$43,000	$41,034	$69,287	$380,566	$34,730	$402,080	$57,165	$0
								Utility Coordination/ Relocation			5%	$49,258	$2,150	$2,052	$3,464	$19,028	$0	$20,104	$0	$0
								Contingencies			25%	$246,291	$10,750	$10,259	$17,322	$95,142	$0	$100,520	$0	$0
								Engineering Design Services			15%	$147,774	$0	$0	$0	$57,085	$0	$60,312	$0	$0
								Legal and Administrative Services			5%	$49,258	$0	$0	$0	$19,028	$0	$20,104	$0	$0
								Construction Administration and Management			10%	$98,516	$0	$0	$0	$38,057	$0	$40,208	$0	$0
								SEH TOTAL ALTERNATIVE COST				$1,576,259								
								Stormwater Task Force Totals				**$1,543,446**	**$55,900**	**$53,344**	**$90,073**	**$608,906**	**$34,730**	**$643,328**	**$57,165**	**$0**

60 Size Field Verified

60 Estimated Length for Costing

CRITICAL ITEM REQUIRES ADDITIONAL REVIEW

FLOW CAPACITY SUFFICIENT FOR 100 YEAR FLOWS

FLOW CAPACITY SUFFICIENT FOR 5 YEAR FLOWS

IDENTIFIED FOR IMMEDIATE MAINTENANCE BY SEH

10/02/2013

SPRING CREEK BASIN

		Existing					*100-Year or 5 Year Replacement Cost Projection*					*Stormwater Task Force Review*							
CULID	**Street Designation**	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**Existing 100 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**City Maintenance Need**	**Capacity Replacement**	**Life-Cyle Replacement**	**Major City Projects**	**Potential Future Development**	**CDOT / Lincoln Ave**	**Private Property**	**Railroad Crossing**
298	100 yr	CMP	54	3			TRIPLE 54" RCP	210	LF	$259	$54,390	$1,500							
6006		BRIDGE										$1,000							
5040		DECK										SEND LETTER TO OWNER							
2938		CBC	8'x4' RCBC	2			Twin 10'x5' RCBC	70	LF	$2,528	$176,960				$176,960				
	100 yr	CBC	9'x5' RCBC	1			12'x6' RCBC	560	LF	$1,615	$904,400						$904,400		
5009	100 yr	CMP	24									$2,000			??				
										SUBTOTAL	$1,135,750	$2,500	$0	$0	$176,960	$0	$904,400	$0	$0
										Utility Coordination/ Relocation	5% $56,788	$125	$0	$0	$8,848	$0	$45,220	$0	$0
										Contingencies	25% $283,938	$625	$0	$0	$44,240	$0	$226,100	$0	$0
										Engineering Design Services	15% $170,363	$0	$0	$0	$26,544	$0	$135,660	$0	$0
										Legal and Administrative Services	5% $56,788	$0	$0	$0	$8,848	$0	$45,220	$0	$0
										Construction Administration and Management	10% $113,575	$0	$0	$0	$17,696	$0	$90,440	$0	$0
										J3 TOTAL ALTERNATIVE COST	$1,817,200								
										Stormwater Task Force Totals	**$1,733,426**	**$3,250**	**$0**	**$0**	**$283,136**	**$0**	**$1,447,040**	**$0**	**$0**

CRITICAL ITEM REQUIRES ADDITIONAL REVIEW

FLOW CAPACITY SUFFICIENT FOR 100 YEAR FLOWS

FLOW CAPACITY SUFFICIENT FOR 5 YEAR FLOWS

IDENTIFIED FOR IMMEDIATE MAINTENANCE BY SEH

10/02/2013

BUTCHERKNIFE CREEK BASIN

		Existing					*100-Year or 5 Year Replacement Cost Projection*					*Stormwater Task Force Review*							
CULID	**Street Designation**	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**Existing 100 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**City Maintenance Need**	**Capacity Replacement**	**Life-Cyle Replacement**	**Major City Projects**	**Potential Future Development**	**CDOT / Lincoln Ave**	**Private Property**	**Railroad Crossing**
Spruce	100 yr	ECMP	60				TRIPLE 36" RCP	300	LF	$145	$43,500		$43,500						
4114	100 yr	RCBC	8'x3'				8'x4' RCBC	30	LF	$725	$21,750		$21,750						
5047	PRIVATE	OBSTRUCTION										SEND LETTER TO OWNER							
Short		BRIDGE	10'x4'				Twin 6'x3' RCBC	70	LF	$475	$33,250	TO BE REPLACED 2013	$33,250						
6008	PRIVATE	CHANNEL																	
	100 yr	CHANNEL									$200,000				$200,000				
2747		ECMP	54				8'x3.5' Arch w/ 36" HDPE	95	LF	$1,316	$125,000			$125,000					
Oak/Pine Alley	5 yr	BRIDGE	8'x4'				TRIPLE 36" RCP	60	LF	$145	$8,700	SEND LETTER TO OWNER	$8,700						
4606	PRIVATE	CHANNEL																	
2761	100 yr	ECMP	60																
2759	100 yr	CMP	48																
2758	100 yr	Masonry	48				8'x4' RCBC	675	LF	$725	$489,375				$489,375				
2757	100 yr	CMP	54																
2756	100 yr	CMP	54	1								$13,000							
2887/2888	100 yr	CMP	48	2								TO BE REPLACED 2013							
6007																			
							Storm Lateral - 5th St				$180,920				$180,920				
										SUBTOTAL	$1,102,495	$13,000	$107,200	$125,000	$870,295	$0	$0	$0	
										Utility Coordination/ Relocation	5% $55,125	$650	$5,360	$6,250	$43,515				
										Contingencies	25% $275,624	$3,250	$26,800	$31,250	$217,574				
										Engineering Design Services	15% $165,374				$130,544				
										Legal and Administrative Services	5% $55,125				$43,515				
										Construction Administration and Management	10% $110,250				$87,030				
										J3 TOTAL ALTERNATIVE COST	$1,763,992								
										Stormwater Task Force Totals	**$1,711,232**	**$16,900**	**$139,360**	**$162,500**	**$1,392,472**				

CRITICAL ITEM REQUIRES ADDITIONAL REVIEW

FLOW CAPACITY SUFFICIENT FOR 100 YEAR FLOWS

FLOW CAPACITY SUFFICIENT FOR 5 YEAR FLOWS

IDENTIFIED FOR IMMEDIATE MAINTENANCE BY SEH

10/02/2013

SODA CREEK BASIN

		Existing					*100-Year or 5 Year Replacement Cost Projection*					*Stormwater Task Force Review*						
CULID	**Street Designation**	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**Existing 100 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**City Maintenance Need**	**Capacity Replacement**	**Life-Cyle Replacement**	**Major City Projects**	**Potential Future Development**	**CDOT / Lincoln Ave**	**Private Property**
							Storm Lateral 3				$ 246,650				$ 246,650			
							Storm Lateral 4				$ 406,355				$ 406,355			
5061												$5,000						
5053	PRIVATE											SEND LETTER TO OWNER						
5055	PRIVATE											SEND LETTER TO OWNER						
5052												$8,000						
5057												$1,000						
5051												$12,500						
							SUBTOTAL				$653,005	$26,500	$0	$0	$653,005	$0	$0	$0
							Utility Coordination/ Relocation			5%	$32,650	$1,325	$0	$0	$32,650	$0	$0	$0
							Contingencies			25%	$163,251	$6,625	$0	$0	$163,251	$0	$0	$0
							Engineering Design Services			15%	$97,951	$0	$0	$0	$97,951	$0	$0	$0
							Legal and Administrative Services			5%	$32,650	$0	$0	$0	$32,650	$0	$0	$0
							Construction Administration and Management			10%	$65,301	$0	$0	$0	$65,301	$0	$0	$0
							J3 TOTAL ALTERNATIVE COST				$1,044,808							
							Stormwater Task Force Totals				**$1,079,258**	**$34,450**	**$0**	**$0**	**$1,044,808**			

CRITICAL ITEM REQUIRES ADDITIONAL REVIEW

FLOW CAPACITY SUFFICIENT FOR 100 YEAR FLOWS

FLOW CAPACITY SUFFICIENT FOR 5 YEAR FLOWS

IDENTIFIED FOR IMMEDIATE MAINTENANCE BY SEH

10/02/2013

COPPER RIDGE BASIN

		Existing					*Future*		*100-Year or 5 Year Replacement Cost Projection*					*Stormwater Task Force Review*							
CULID	**Street Designation**	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**100 yr Flow (cfs)**	**100 yr Flow (cfs)**	**5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**City Maintenance Need**	**Capacity Replacement**	**Life-Cyle Replacement**	**Major City Projects**	**Potential Future Development**	**CDOT / Lincoln Ave**	**Private Property**	**Railroad Crossing**
									5 yr												
86		CMP											$5,000	$1,500	$5,000						
3329	5 yr	CMP	42	1	75	51	53	12	42 " RCP	59	LF	$201	$11,859	$1,000		$11,859					
3328	5 yr	CMP	36	1	51	51	53	11	36" RCP	100	LF	$173	$17,300	$1,000		$17,300					
3540	5 yr	CMP	60	1	180	145	179	88	60" RCP	60	LF	$286	$17,160	$2,500		$17,160					
3543	5 yr	CMP	72	1	284	196	233	105	72" RCP	60	LF	$491	$29,460	$1,000		$29,460					
5058														$3,000							
3549														$800							
3548	5 yr	CMP	30	1	33	227	265	113	Twin 36" RCP	70	LF	$346	$24,220	$1,000	$32,200						
3758	5 yr	CMP	12	1	5	115	212	101	42" RCP	60	LF	$201	$12,060	$800						$12,060	
3020	100 yr	CMP	24	1	19	164	255	118	Twin 48" RCP	122	LF	$460	$56,120	$800	$56,120						
5001	100 yr	CMP	48	1	103	227	265	113	Twin 48" RCP	69	LF	$460	$31,740	$3,000	$31,740						
5079	100 yr	CMP	36	1	51	264	307	122	66" RCP	110	LF	$315	$34,650	$1,000	$34,650						
5078	100 yr	RCP	60	1	232	190	279	132	60" RCP	257	LF	$286	$73,502	$1,000					$73,502		
5086	100 yr	RCBC	7836	1	245	190	279	132	60" RCP	115	LF	$286	$32,890	$1,000					$32,890		
3860														$2,000							
5085		BRIDGE			0	400	552	178	BRIDGE												
3860	5 yr	CMP	60	1	180	400	552	178	60" RCP	80	LF	$286	$22,880	$1,500		$22,880					
2952	5 yr	CMP	48	1	103	400	552	178	60" RCP	77	LF	$286	$22,022	$1,000	$22,022						
3880	5 yr	CMP	48	2	206	433	575	188	60" RCP	81	LF	$286	$23,166	$1,000		$23,166					
3884	5 yr	CMP	48	2	206	507	591	240	60" RCP	70	LF	$286	$20,020	$1,000						$20,020	
5081	5 yr	CMP	48	1	103	574	644	241	60" RCP	60	LF	$286	$17,160	$1,000	$17,160						
4354	100 yr	CMP	24	1	19	90	118	66	48" RCP	90	LF	$230	$20,700	$1,000					$20,700		
3893	100 yr	CMP	36	1	51	48	67	36	36" RCP	119	LF	$173	$20,587	$1,000					$20,587		
3891	100 yr	CMP	24	1	19	48	67	36	42" RCP	70	LF	$201	$14,070	$1,000	$14,070						
2951	100 yr	CMP	24	1	19	23	23	10	24" RCP	70	LF	$115	$8,050	$1,000		$8,050					
3892	100 yr	CMP	30	1	33	58	69	33	36" RCP	87	LF	$173	$15,051	$1,000					$15,051		
3529														$2,500							
5087	5 yr	CMP	24	1	19	118	122	78	42" RCP	235	LF	$201	$47,235	$1,000						$47,235	
5088	100 yr	CMP	48	1	103	118	155	78	48" RCP	106	LF	$230	$24,380	$3,500					$24,380		
5089														$3,000							
2949	5 yr	CMP	15	1	5	15	15	8	24" RCP	58	LF	$115	$6,670	$1,000		$6,670					
									SUBTOTAL				$607,952	$42,900	$212,962	$136,545	$0	$0	$187,110	$79,315	$0
									Utility Coordination/ Relocation	5%			$30,398	$2,145	$10,648	$6,827	$0	**$0**	$9,356	$0	$0
									Contingencies	25%			$151,988	$10,725	$53,241	$34,136	$0	$0	$46,778	$0	$0
									Engineering Design Services	15%			$91,193	$0	$0	$0	$0	$0	$28,067	$0	$0
									Legal and Administrative Services	5%			$30,398	$0	$0	$0	$0	$0	$9,356	$0	$0
									Construction Administration and Management	10%			$60,795	$0	$0	$0	$0	$0	$18,711	$0	$0
									SEH TOTAL ALTERNATIVE COST				**$972,723**								
									Stormwater Task Force Totals				**$888,820**	**$55,770**	**$276,851**	**$177,509**	**$0**	**$0**	**$299,376**	**$79,315**	**$0**

60 Size Field Verified

60 Estimated Length for Costing

CRITICAL ITEM REQUIRES ADDITIONAL REVIEW

FLOW CAPACITY SUFFICIENT FOR 100 YEAR FLOWS

FLOW CAPACITY SUFFICIENT FOR 5 YEAR FLOWS

IDENTIFIED FOR IMMEDIATE MAINTENANCE BY SEH

10/02/2013

EMERALD MOUNTAIN BASIN

		Existing					*Future*		*100-Year or 5 Year Proposed Cost Projection*					*Stormwater Task Force Review*							
CULID	**Street Designation**	**Pipe Type**	**Size (inches)**	**Quantity**	**Full Flow Capacity (cfs)**	**100 yr Flow (cfs)**	**100 yr Flow (cfs)**	**5 yr Flow (cfs)**	**Item**	**Quantity**	**Unit**	**Unit Cost**	**Total Cost**	**City Maintenance Need**	**Capacity Replacement**	**Life-Cyle Replacement**	**Major City Projects**	**Potential Future Development**	**CDOT / Lincoln Ave**	**Private Property**	**Railroad Crossing**
									5 yr												
5151	100 yr	CSP	24	1	19	41	41	22	30" RCP	214	LF	$144	$30,816	$2,500							$30,816
5141														$1,500							
5138														$500							
2839		CMP	15/24	1					24"CMP					$0							
2840	5 yr	CMP	36	2	103	49	49	25	36" RCP	57	LF	$173	$9,861	$1,500	$9,861						
2845	5 yr	CMP	36	2	103	49	49	25	36" RCP	120	LF	$173	$20,760	$2,000		$20,760					
2848	5 yr	CMP	24	1	19	43	43	22	24" RCP	55	LF	$115	$6,325	$1,000		$6,325					
3085	5 yr	CMP	48	2	206	127	141	66	48" RCP	120	LF	$230	$27,600	$1,000		$27,600					
5140	5 yr	CMP	60	1	180	127	141	66	60" RCP	60	LF	$286	$17,160	$2,000		$17,160					
2850	5 yr	CMP	24	1	19	152	165	75	42" RCP	40	LF	$201	$8,040	$1,000	$8,040						
2852	5 yr	CMP	54	1	139	152	165	75	54" RCP	55	LF	$259	$14,245	$1,500	$14,245						
2853	5 yr	CMP	30	1	33	152	165	75	42" RCP	53	LF	$201	$10,653	$1,500	$10,653						
3100	100 yr	CMP	24	1	19	20	33	17	30" RCP	48	LF	$144	$6,912	$1,000		$6,912					
5003	100 yr	CMP	24	1	19	234	267	108	Twin 48" RCP	87	LF	$460	$40,020	$3,500		$40,020					
5143																					
5144	5 yr	CMP	48	1	103	234	267	108	48" RCP	38	LF	$230	$8,740	$1,500						$8,740	
5146																					
5002	RR 100 yr	CMP	30	1	33	312	345	137	72" RCP	48	LF	$491	$23,568	$5,000							$23,568
											SUBTOTAL		$224,700	$27,000	$42,799	$118,777	$0	$0	$0	$8,740	$54,384
											Utility Coordination/ Relocation	5%	$11,235	$1,350	$2,140	$5,939	$0	**$0**	$0	$0	$2,719
											Contingencies	25%	$56,175	$6,750	$10,700	$29,694	$0	$0	$0	$0	$13,596
											Engineering Design Services	15%	$33,705	$0	$0	$0	$0	$0	$0	$0	$8,158
											Legal and Administrative Services	5%	$11,235	$0	$0	$0	$0	$0	$0	$0	$2,719
											Construction Administration and Management	10%	$22,470	$0	$0	$0	$0	$0	$0	$0	$5,438
											SEH TOTAL ALTERNATIVE COST		$359,520								
											Stormwater Task Force Totals		**$340,903**	**$35,100**	**$55,639**	**$154,410**	**$0**	**$0**	**$0**	**$8,740**	**$87,014**

60 Size Field Verified

60 Estimated Length for Costing

CRITICAL ITEM REQUIRES ADDITIONAL REVIEW

FLOW CAPACITY SUFFICIENT FOR 100 YEAR FLOWS

FLOW CAPACITY SUFFICIENT FOR 5 YEAR FLOWS

IDENTIFIED FOR IMMEDIATE MAINTENANCE BY SEH