



**PROJECT INFORMATION SUMMARY
CITY OF TOWN AND COUNTRY
STORMWATER PROGRAM**

UPDATED: 10/16/2015

**Current Project
Ranking: TBD through
Site Development**

Project Name: Town Square

Project ID Number: 2015-12

Number of Properties Impacted: 3

Number of Easements Required: 3

Number of Properties Benefited: 6

Opinion of Probable

Construction Cost (OPC): \$798,596.24

Location Benefit Identification (LBI)

Project Points: 61.0

Cost to Benefit Ratio: 13,092

Coordination Required:

- MSD
- Corps of Engineers
- MO DNR
- MODOT
- County Highways
- City Streets
- City Parks
- County Parks
- Municipality: City of Town & Country
- Railroad: _____
- Other: _____

Project Source:

- Citizen Complaint
- Municipality
- Maintenance
- Government Agency

Category of Problem: Description

- A: Frequent structural flooding from creeks or rivers (floodplain)
- B: Frequent structural flooding from overland flow (non-floodplain)
- C: Frequent roadway flooding
- D: Infrequent structural flooding from creeks or rivers (floodplain)
- E: Infrequent structural flooding from overland flow (non-floodplain)
- F: Infrequent roadway flooding
- G: High risk structural erosion
- H: High risk roadway erosion
- I: Yard erosion
- J: Moderate risk structural erosion
- K: Moderate risk roadway erosion
- L: Erosion or flooding of common ground or unmaintained area
- M: Yard flooding
- N: Flooding from inadequate sinkhole
- O: Flooding from inadequate roadway drainage
- P: Maintenance of stormwater system facilities
- Q: Other Anticipation of future development

Attached Supplemental Information:

- Project Scope of Work
- Conceptual Plan Drawing
- Itemized Opinion of Probable Construction Cost (OPC)
- Location Benefit Identification (LBI) Forms
- Existing Condition Photos

Other Notes: _____

MSD/MO American Water Base Map Number(s): 20P4
 Laclede Gas Map Number(s): 175-62
 FEMA FIR Map Number(s): 29189C0188K
 USGS Quadrangle Map Number(s): 3809-F4-TF-024 - Creve Coeur





PROJECT SCOPE OF WORK CITY OF TOWN AND COUNTRY STORMWATER PROGRAM

UPDATED: 10/16/2015

Project Name: Town Square

Project ID Number: 2015-12

Problem: The City of Town and Country recently acquired 13332, 13344, and 13360 Clayton Road. The topography slopes downhill from Clayton Road and creates a half-bowl shape centered at the south portion between 13360 and 13332 Clayton Road, where an MSD stormwater area inlet (20P4-032D) collects runoff from an approximate 18.8-acre watershed consisting of three primary hydrologic units. No upstream stormwater runoff controls are known to exist. In addition, identified issues exist downstream in the stormwater collection and conveyance system. Future development of this area will likely require detention at the south portion of the recently acquired City properties. Assuming proposed improvements will have a disturbed area over one acre and will increase runoff over two cubic feet per second, water quality, channel protection, and flood protection would be required.

Proposed Solution: To achieve water quality, channel protection, and flood protection requirements, a wet pond or extended dry detention basin is recommended. The pond/basin is proposed to be located at the south portion of the project watershed between 13360 and 13332 Clayton Road. Because the normal pool of a wet pond uses available storage volume, this option would require a larger footprint than an extended dry detention basin to achieve the same requirements. For either option, drainage from the northwest portion of the watershed could be over-detained in lieu of providing attenuation for lower portions of the watershed that cannot be effectively routed to the proposed basin. Although the wet pond/extended dry detention basin could be designed to meet water quality volume requirements, MSD may request that some effort be made throughout the development site to treat stormwater runoff through additional post construction best management practices (BMPs).

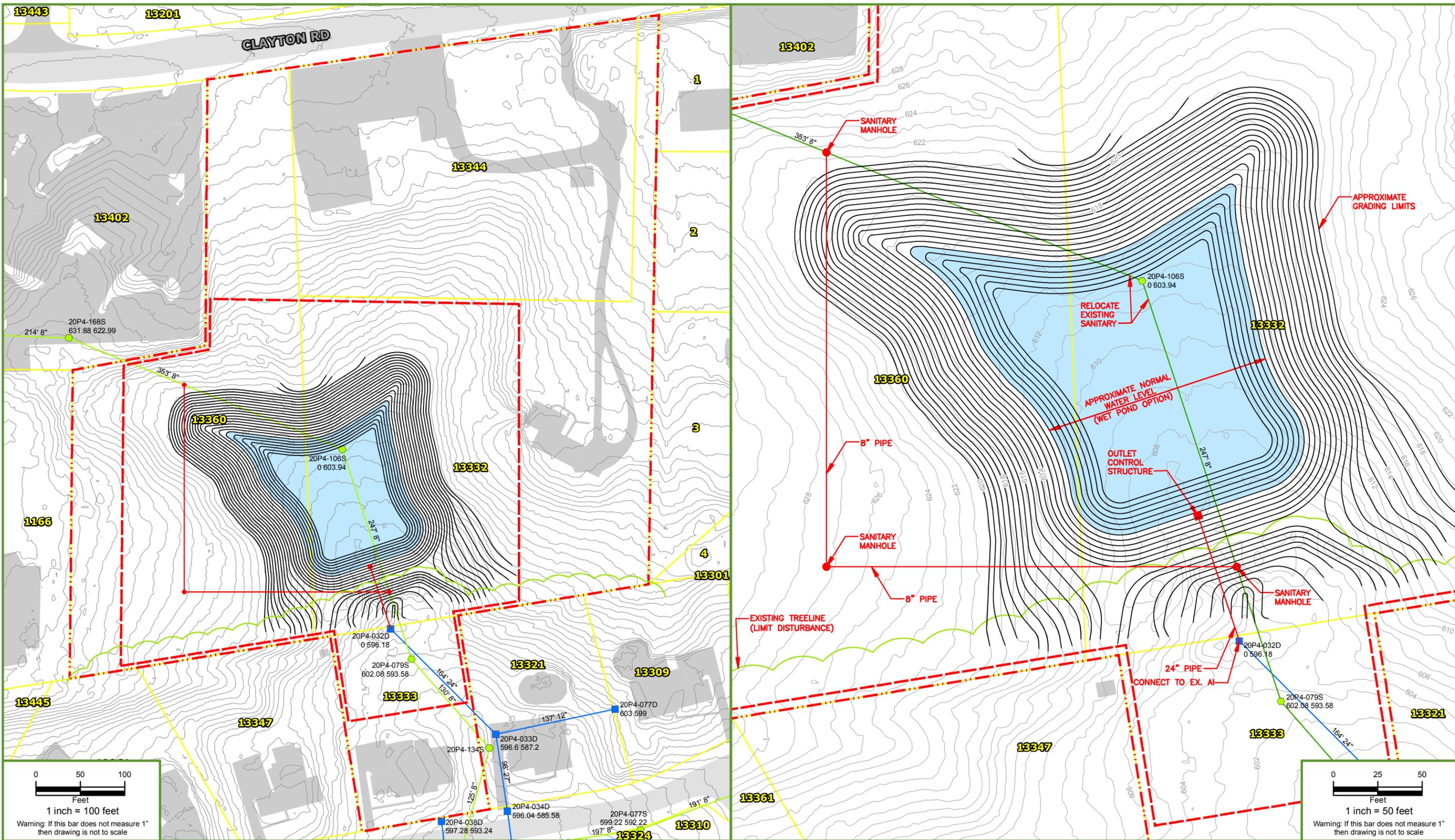
Description of Proposed Alignment: A proposed wet pond or extended dry detention basin is proposed at the southern portion the project watershed between 13360 and 13332 Clayton Road. The proposed basin is located and graded to accept sheet and natural topography stormwater flow from most of the project watershed. Flow could be collected and piped into the basin in the future, depending on development plans, to meet stormwater management requirements. At the southern end of the basin, an outlet control structure would control the normal water level and connect to the existing MSD area inlet (20P4-032D) by approximately 72-feet of 24-inch pipe.

Portions of an existing 8-inch MSD sanitary sewer would require relocation. This would consist of three new manholes and approximately 464-feet of new pipe.

Required Easements: 13332 Clayton Road (Temporary Construction Easement)
13332 Clayton Road (Permanent Easement)
13360 Clayton Road (Temporary Construction Easement)
13360 Clayton Road (Permanent Easement)
13333 Kings Glen Drive (Temporary Construction Easement)
13333 Kings Glen Drive (Permanent Easement)

Commentary: Many factors influence detention basin requirements and design alternatives. The proposed solution is based on the best information available at this time in order to give an approximate land footprint and cost to meet requirements and provide an aesthetic on-site stormwater control with downstream benefits.





Project 2015-12
Town Square
 City of Town & Country Stormwater Program



Proposed		Existing	
Strip Map Limits	Proposed Contours	Existing Treeline	Sanitary Manhole
Topo Limits	Normal Water Level	Existing 1 ft Contours	Stormwater Inlet
Proposed Improvements			Stormwater Manhole
			Stormwater Gravity Main
			Transportation
			Impervious
			Parcels

Last Updated: 10/16/15



**OPINION OF PROBABLE CONSTRUCTION COST
CITY OF TOWN AND COUNTRY
STORMWATER PROGRAM**

10/16/2015

Project Name: Town Square

Project ID Number: 2015-12

ITEM NUMBER	PAY ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	EXTENDED PRICE
1	Mobilization	1	Lump Sum	\$14,904.17	\$14,904.17
2	Compaction of Fill	627	Cubic Yards	\$36.00	\$22,572.00
3	Connection to Existing Inlet (12" thru 24" Pipe)	1	Place	\$905.00	\$905.00
4	Excavation Class "A"	154	Cubic Yards	\$170.00	\$26,180.00
5	Excavation Class "B"	772	Cubic Yards	\$32.00	\$24,704.00
6	Excavation Class "C"	14,514	Cubic Yards	\$15.00	\$217,710.00
7	Landscaping Allowance	1	Allowance	\$10,000.00	\$10,000.00
8	Manhole - Standard Construction	34	Linear Feet	\$195.00	\$6,630.00
9	Outlet Structure	1	Lump Sum	\$6,350.00	\$6,350.00
10	Pipe Sewer 08 Inch (Sanitary/Combined)	464	Linear Feet	\$65.00	\$30,160.00
11	Reinforced Concrete Pipe Sewer 24 Inch Class III	72	Linear Feet	\$70.00	\$5,040.00
12	Rock Blanket	200	Square Yards	\$52.00	\$10,400.00
13	Seeding	5,500	Square Yards	\$4.00	\$22,000.00
14	Seeding & Live Staking	1,500	Square Yards	\$38.00	\$57,000.00
15	Protection and Restoration of Site	1	Lump Sum	\$57,154.63	\$57,154.63
SUB-TOTAL - CONSTRUCTION:					\$511,709.80
Estimated Engineering Fee:					\$77,000.00
Estimated Geotechnical Engineering Fee:					\$6,000.00
Estimated Property Survey/Strip Map Preparation Fee:					\$4,695.00
Estimated Property Title/Easement Search Report Fee:					\$1,600.00
Estimated Topographic Survey Fee:					\$8,000.00
Estimated Property Rights Acquisition Document Preparation Fee:					\$1,800.00
Estimated Cost of Easements:					\$3,000.00
Estimated Construction Survey Fee:					\$500.00
SUB-TOTAL:					\$614,304.80
30% Contingency:					\$184,291.44
TOTAL:					\$798,596.24



City of Town & Country Location Benefit Identification

Project Name:	Town Square
Project Id Number:	2015-12
Location Address / Description:	13360 Clayton Road
Total Calculated Benefit Points:	0.9

Evaluation Category	Problem Type	Benefit Points		
		High	Medium	Low
Erosion	Public Structure			
	Residential Structure			
	Retaining Wall (Public)			
	Street ROW			
	Improved Channel			
	Retaining Wall (Private)			
	Drainage Structure			
	Yard		3	
	Unimproved Channel			1
	Other			
	Erosion Subtotal		4	
Flooding	Public Structure			
	Residential Structure			
	Impassable Traffic			
	Passable Traffic			
	Accessory Structure			
	Yard			1
	Other			
	Flooding Subtotal		1	
Maintenance	Drainage Structure			
	Improved Channel			
	Unimproved Channel			
	Street Gutter			
	Swale / Berm			
	Other			
	Maintenance Subtotal		0	
Drainage	Street		3	
	Yard			1
	Other			
	Drainage Subtotal		4	
Frequency Rating		Degree of Risk		
>1 / year	1	Life / Limb		
1 / year		Health		
1 / 5 years		Property Value		0.1
1 / 10 years				
Frequency Rating Multiplier	1	Degree of Risk Multiplier	0.1	

City of Town & Country Location Benefit Identification

Project Name:	Town Square
Project Id Number:	2015-12
Location Address / Description:	13332 Clayton Road
Total Calculated Benefit Points:	0.9

Evaluation Category	Problem Type	Benefit Points		
		High	Medium	Low
Erosion	Public Structure			
	Residential Structure			
	Retaining Wall (Public)			
	Street ROW			
	Improved Channel			
	Retaining Wall (Private)			
	Drainage Structure			
	Yard		3	
	Unimproved Channel			1
	Other			
	Erosion Subtotal		4	
Flooding	Public Structure			
	Residential Structure			
	Impassable Traffic			
	Passable Traffic			
	Accessory Structure			
	Yard			1
	Other			
	Flooding Subtotal		1	
Maintenance	Drainage Structure			
	Improved Channel			
	Unimproved Channel			
	Street Gutter			
	Swale / Berm			
	Other			
	Maintenance Subtotal		0	
Drainage	Street		3	
	Yard			1
	Other			
	Drainage Subtotal		4	
Frequency Rating		Degree of Risk		
>1 / year	1	Life / Limb		
1 / year		Health		
1 / 5 years		Property Value		0.1
1 / 10 years				
Frequency Rating Multiplier	1	Degree of Risk Multiplier	0.1	

City of Town & Country Location Benefit Identification

Project Name:	Town Square
Project Id Number:	2015-12
Location Address / Description:	13333 Kings Glen Drive
Total Calculated Benefit Points:	0.7

Evaluation Category	Problem Type	Benefit Points		
		High	Medium	Low
Erosion	Public Structure			
	Residential Structure			
	Retaining Wall (Public)			
	Street ROW			
	Improved Channel			
	Retaining Wall (Private)			
	Drainage Structure			
	Yard		3	
	Unimproved Channel			
	Other			
	Erosion Subtotal		3	
Flooding	Public Structure			
	Residential Structure			
	Impassable Traffic			
	Passable Traffic			
	Accessory Structure			
	Yard			
	Other			
	Flooding Subtotal		0	
Maintenance	Drainage Structure			2
	Improved Channel			
	Unimproved Channel			1
	Street Gutter			
	Swale / Berm			
	Other			
Maintenance Subtotal		3		
Drainage	Street			
	Yard			1
	Other			
	Drainage Subtotal		1	
Frequency Rating		Degree of Risk		
>1 / year	1	Life / Limb		
1 / year		Health		
1 / 5 years		Property Value		0.1
1 / 10 years				
Frequency Rating Multiplier	1	Degree of Risk Multiplier		0.1

City of Town & Country Location Benefit Identification

Project Name:	Town Square
Project Id Number:	2015-12
Location Address / Description:	Project 2012-8
Total Calculated Benefit Points:	19.5

Evaluation Category	Problem Type	Benefit Points		
		High	Medium	Low
Erosion	Public Structure			
	Residential Structure			
	Retaining Wall (Public)			
	Street ROW			
	Improved Channel		9	
	Retaining Wall (Private)			
	Drainage Structure			
	Yard		3	
	Unimproved Channel			1
	Other			
	Erosion Subtotal		13	
Flooding	Public Structure			
	Residential Structure			
	Impassable Traffic			
	Passable Traffic			
	Accessory Structure		3	
	Yard			1
	Other			
	Flooding Subtotal		4	
Maintenance	Drainage Structure		6	
	Improved Channel		6	
	Unimproved Channel		3	
	Street Gutter			
	Swale / Berm			
	Other			
	Maintenance Subtotal		15	
Drainage	Street			
	Yard			1
	Other (Channel)	6		
	Drainage Subtotal		7	
Frequency Rating		Degree of Risk		
>1 / year	1	Life / Limb		
1 / year		Health		0.5
1 / 5 years		Property Value		
1 / 10 years				
Frequency Rating Multiplier	1	Degree of Risk Multiplier	0.5	

City of Town & Country Location Benefit Identification

Project Name:	Town Square
Project Id Number:	2015-12
Location Address / Description:	Project 2011-14
Total Calculated Benefit Points:	19.5

Evaluation Category	Problem Type	Benefit Points		
		High	Medium	Low
Erosion	Public Structure			
	Residential Structure			
	Retaining Wall (Public)			
	Street ROW			
	Improved Channel		9	
	Retaining Wall (Private)			
	Drainage Structure			
	Yard		3	
	Unimproved Channel			1
	Other			
	Erosion Subtotal		13	
Flooding	Public Structure			
	Residential Structure			
	Impassable Traffic			
	Passable Traffic			
	Accessory Structure		3	
	Yard			1
	Other			
	Flooding Subtotal		4	
Maintenance	Drainage Structure		6	
	Improved Channel		6	
	Unimproved Channel		3	
	Street Gutter			
	Swale / Berm			
	Other			
	Maintenance Subtotal		15	
Drainage	Street			
	Yard			1
	Other (Channel)	6		
	Drainage Subtotal		7	
Frequency Rating		Degree of Risk		
>1 / year	1	Life / Limb		
1 / year		Health		0.5
1 / 5 years		Property Value		
1 / 10 years				
Frequency Rating Multiplier	1	Degree of Risk Multiplier	0.5	

City of Town & Country Location Benefit Identification

Project Name:	Town Square
Project Id Number:	2015-12
Location Address / Description:	Project 2010-18
Total Calculated Benefit Points:	19.5

Evaluation Category	Problem Type	Benefit Points		
		High	Medium	Low
Erosion	Public Structure			
	Residential Structure			
	Retaining Wall (Public)			
	Street ROW			
	Improved Channel		9	
	Retaining Wall (Private)			
	Drainage Structure			
	Yard		3	
	Unimproved Channel			1
	Other			
	Erosion Subtotal		13	
Flooding	Public Structure			
	Residential Structure			
	Impassable Traffic			
	Passable Traffic			
	Accessory Structure		3	
	Yard			1
	Other			
	Flooding Subtotal		4	
Maintenance	Drainage Structure		6	
	Improved Channel		6	
	Unimproved Channel		3	
	Street Gutter			
	Swale / Berm			
	Other			
	Maintenance Subtotal		15	
Drainage	Street			
	Yard			1
	Other (Channel)	6		
	Drainage Subtotal		7	
Frequency Rating		Degree of Risk		
>1 / year	1	Life / Limb		
1 / year		Health		0.5
1 / 5 years		Property Value		
1 / 10 years				
Frequency Rating Multiplier	1	Degree of Risk Multiplier	0.5	

2015-12



Looking southeast toward proposed detention area



Looking east towards structure at 13332 Clayton Road

2015-12



Looking toward proposed detention area from the east



Looking south toward lowest point in project area