Lower Bound Cost Estimate

Alternative #	Alternative Description	Cost of Pipe[1] Berkley & Adams (Madison Street)	Cost of Pipe[1] McKinley	Cost of Pipe[1] Total A	Cost to Upgrade Pump[2] Berkley & Adams	Cost to Upgrade Pump[2] McKinley	Cost to Upgrade Pump[2] Total B	Compensatory Storage Cost[3] Berkley & Adams	Compensatory Storage Cost[3] McKinley	Compensatory Storage Cost[3] Total C	Estimated Common Costs[4] D	Grand Total A+B+C+D	Incremental Cost[5]
1	11 ac-ft of storage created in West Lobe of York Commons Park	---	---	---	---	---	---	---	---	---		---	---
1B	11 ac-ft of storage created in West Lobe of York Commons Park and Madison School Storage (5 ac-ft)	---	---	---	---	---	---	---	---	---		---	---
1C	11 ac-ft of storage created in West Lobe of York Commons Park and Madison School Storage (5 ac-ft) and Pump Station Upgrades	$ 4,180,000	$ 2,332,750	$ 6,512,750	$ 3,100,000	$ 2,860,000	$ 5,960,000	$ 1,240,000	$ 1,144,000	$ 2,384,000	$ 4,000,000	$ 18,856,750	$ 2,401,750
1D	11 ac-ft of storage created in West Lobe of York Commons Park and Pump Station Upgrades	$ 5,280,000	$ 2,332,750	$ 7,612,750	$ 3,780,000	$ 2,860,000	$ 6,640,000	$ 1,512,000	$ 1,144,000	$ 2,656,000	$ 4,000,000	$ 20,908,750	$ 3,061,750
2	23 ac-ft of storage created in York Commons Park (11 west, 12 east)	---	---	---	---	---	---	---	---	---		---	---
2B	23 ac-ft of storage created in York Commons Park and Madison School Storage (5 ac-ft)	---	---	---	---	---	---	---	---	---		---	---
2C	23 ac-ft of storage created in York Commons Park and Madison School Storage (5 ac-ft) and Pump Station Upgrades	$ 3,740,000	$ 2,107,000	$ 5,847,000	$ 2,420,000	$ 2,300,000	$ 4,720,000	$ 968,000	$ 920,000	$ 1,888,000	$ 4,000,000	$ 16,455,000	---
2D	23 ac-ft of storage created in York Commons Park and Pump Station Upgrades	$ 4,180,000	$ 2,107,000	$ 6,287,000	$ 3,100,000	$ 2,300,000	$ 5,400,000	$ 1,240,000	$ 920,000	$ 2,160,000	$ 4,000,000	$ 17,847,000	---

[1]Pipe cost differential accounts for increase in pipe size only – pavement removal, trench backfill, and earth excavation are assumed to be equal and would have to be done anyway.

[2]Increase in pump capacity (assume an average cost of $20,000/cfs to upsize pump facilities, based on recent pump station cost estimates). This would be just the incremental cost of upgrading the facilities, (wet well, electrical, site work etc.) as the pump capacity is expanded.

[3]Compensatory storage (assumes the additional pumping would be required over a 2-hour duration, which is the critical duration storm event). The required compensatory storage volume is assumed to be at a **1:1** ratio with the additional volume over that 2-hour window. Cost would be limited to the earth excavation ($30/cubic yard) since any site restoration would already be required anyway.

[4]Estimated base costs associated with each piping route (i.e. Madison Street and McKinley Avenue) which includes pavement removal, trench backfill, earth excavation, roadway resurfacing, utility relocation, etc.

[5]Incremental Cost equals Grand Total for Alternate #1 minus Grand Total for Alternate 2.

Upper Bound Cost Estimate

Alternative #	Alternative Description	Cost of Pipe[1] Berkley & Adams (Madison Street)	Cost of Pipe[1] McKinley	Cost of Pipe[1] Total A	Cost to Upgrade Pump[2] Berkley & Adams	Cost to Upgrade Pump[2] McKinley	Cost to Upgrade Pump[2] Total B	Compensatory Storage Cost[3] Berkley & Adams	Compensatory Storage Cost[3] McKinley	Compensatory Storage Cost[3] Total C	Estimated Common Costs[4] D	Additional Land Acquisition Cost[5] E	Grand Total A+B+C+D+E	Incremental Cost[6]
1	11 ac-ft of storage created in West Lobe of York Commons Park	---	---	---	---	---	---	---	---	---		---	---	---
1B	11 ac-ft of storage created in West Lobe of York Commons Park and Madison School Storage (5 ac-ft)	---	---	---	---	---	---	---	---	---		---	---	---
1C	11 ac-ft of storage created in West Lobe of York Commons Park and Madison School Storage (5 ac-ft) and Pump Station Upgrades	$ 4,180,000	$ 2,332,750	$ 6,512,750	$ 3,100,000	$ 2,860,000	$ 5,960,000	$ 1,860,000	$ 1,716,000	$ 3,576,000	$ 4,000,000	$ 3,250,000	$ 23,298,750	$ 5,899,750
1D	11 ac-ft of storage created in West Lobe of York Commons Park and Pump Station Upgrades	$ 5,280,000	$ 2,332,750	$ 7,612,750	$ 3,780,000	$ 2,860,000	$ 6,640,000	$ 2,268,000	$ 1,716,000	$ 3,984,000	$ 4,000,000	$ 3,250,000	$ 25,486,750	$ 6,559,750
2	23 ac-ft of storage created in York Commons Park (11 west, 12 east)	---	---	---	---	---	---	---	---	---		---	---	---
2B	23 ac-ft of storage created in York Commons Park and Madison School Storage (5 ac-ft)	---	---	---	---	---	---	---	---	---		---	---	---
2C	23 ac-ft of storage created in York Commons Park and Madison School Storage (5 ac-ft) and Pump Station Upgrades	$ 3,740,000	$ 2,107,000	$ 5,847,000	$ 2,420,000	$ 2,300,000	$ 4,720,000	$ 1,452,000	$ 1,380,000	$ 2,832,000	$ 4,000,000	---	$ 17,399,000	---
2D	23 ac-ft of storage created in York Commons Park and Pump Station Upgrades	$ 4,180,000	$ 2,107,000	$ 6,287,000	$ 3,100,000	$ 2,300,000	$ 5,400,000	$ 1,860,000	$ 1,380,000	$ 3,240,000	$ 4,000,000	---	$ 18,927,000	---

[1]Pipe cost differential accounts for increase in pipe size only – pavement removal, trench backfill, and earth excavation are assumed to be equal and would have to be done anyway.

[2]Increase in pump capacity (assume an average cost of $20,000/cfs to upsize pump facilities, based on recent pump station cost estimates). This would be just the incremental cost of upgrading the facilities, (wet well, electrical, site work etc.) as the pump capacity is expanded.

[3]Compensatory storage (assumes the additional pumping would be required over a 2-hour duration, which is the critical duration storm event). The required compensatory storage volume is assumed to be at a **1:5** ratio with the additional volume over that 2-hour window. Cost would be limited to earth excavation ($30/cubic yard) and the additional cost of land acquisition.

[4]Estimated base costs associated with each piping route (i.e. Madison Street and McKinley Avenue) which includes pavement removal, trench backfill, earth excavation, roadway resurfacing, utility relocation, etc.

[5]Assumes the additional land required to provide the incremental compensatory storage can be no more expensive than the cost to acquire cheapest residential lots ($250,000 per lot) to provide that volume.

[6]Incremental Cost equals Grand Total for Alternate #1 minus Grand Total for Alternate 2.

LEGEND:

= Storage at York Commons Park
= Storage at York Commons Park and Madison School Storage
= Storage at York Commons Park, Madison School Storage, and Pump Station Upgrades
= Storage at York Commons Park and Pump Station Upgrades
= Incremental Cost Total for specific alternative