

# City of Saint Paul Memorandum of Understanding Water Reuse

Environment Committee  
December 10, 2013



# Opportunity

- Metro Transit Operations & Maintenance (OMF)
  - 4 acres of roof
  - Currently piped to Mississippi River
  - 2” rainfall = 226,000 gallons
- Saint Paul Saints Stadium
  - 120,000 square feet of irrigated ballfield
  - 1” per week irrigation = 75,000 gallons/week
  - Toilets inside stadium
- Located directly adjacent to each other
- Excellent opportunity to reduce potable water use for irrigation
- Potential marketing opportunity

# Site Plan



# Saint Paul Saints Stadium



# Operations and Maintenance Facility



# Concept

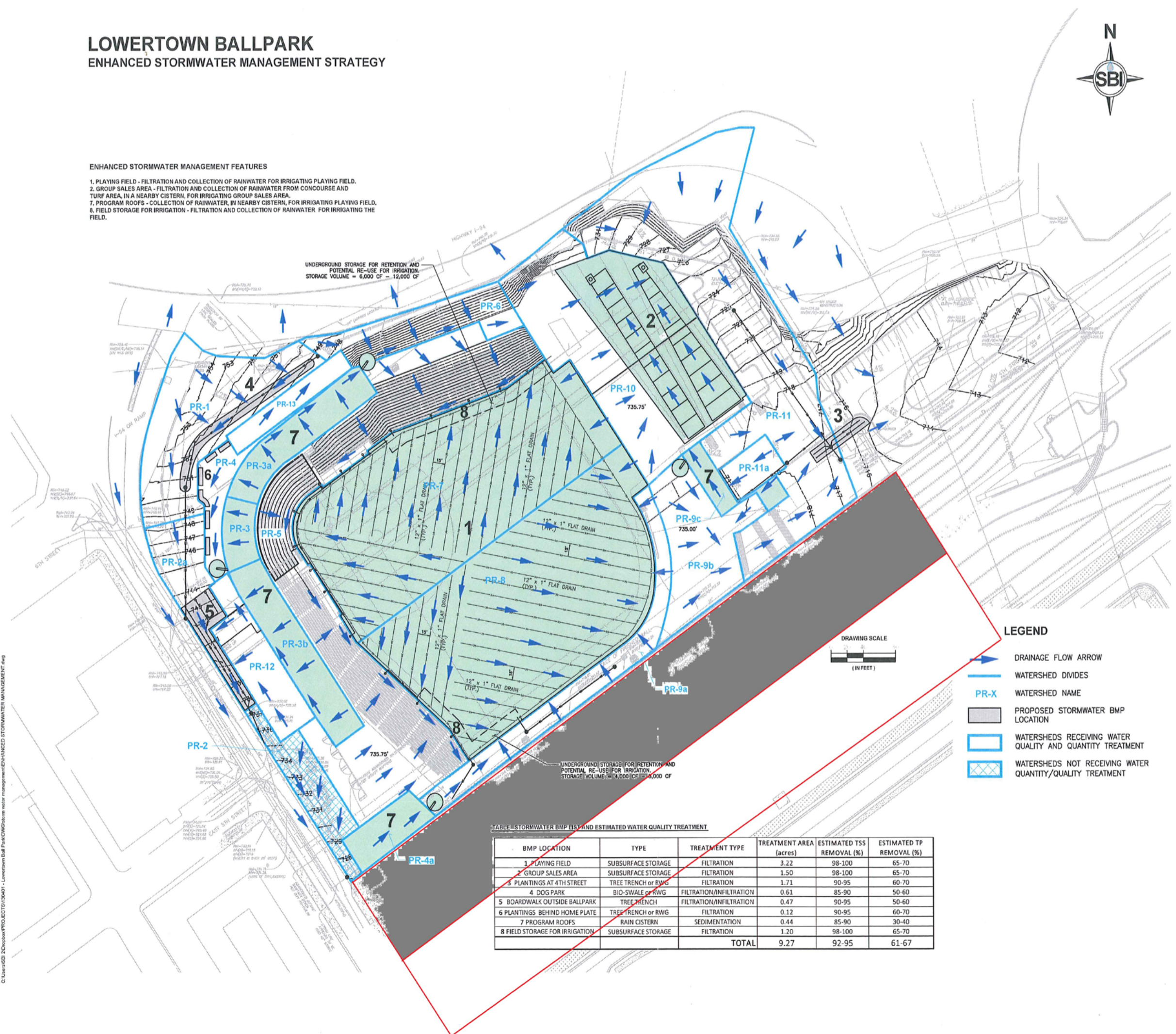
- Harvest rainwater from 2 acres of OMF roof
- Pipe rainwater to north side of OMF
- Deliver rainwater to City of Saint Paul
- City designs and installs rainwater reuse system
  - Ballfield irrigation
  - Non-potable use in bathrooms
- Metropolitan Council provides \$75,000 to City
- Metropolitan Council funds OMF alterations

# Plan View

## LOWERTOWN BALLPARK ENHANCED STORMWATER MANAGEMENT STRATEGY

### ENHANCED STORMWATER MANAGEMENT FEATURES

1. PLAYING FIELD - FILTRATION AND COLLECTION OF RAINWATER FOR IRRIGATING PLAYING FIELD.
2. GROUP SALES AREA - FILTRATION AND COLLECTION OF RAINWATER FROM CONCOURSE AND TURF AREA, IN A NEARBY CISTERN, FOR IRRIGATING GROUP SALES AREA.
3. PLANTINGS AT 4TH STREET - FILTRATION AND COLLECTION OF RAINWATER, IN NEARBY CISTERN, FOR IRRIGATING PLAYING FIELD.
4. DOG PARK - FILTRATION AND COLLECTION OF RAINWATER, IN NEARBY CISTERN, FOR IRRIGATING PLAYING FIELD.
5. BOARDWALK OUTSIDE BALLPARK - FILTRATION AND COLLECTION OF RAINWATER, IN NEARBY CISTERN, FOR IRRIGATING PLAYING FIELD.
6. PLANTINGS BEHIND HOME PLATE - FILTRATION AND COLLECTION OF RAINWATER, IN NEARBY CISTERN, FOR IRRIGATING PLAYING FIELD.
7. PROGRAM ROOFS - COLLECTION OF RAINWATER, IN NEARBY CISTERN, FOR IRRIGATING PLAYING FIELD.
8. FIELD STORAGE FOR IRRIGATION - FILTRATION AND COLLECTION OF RAINWATER FOR IRRIGATING THE FIELD.



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PROJECT NAME  
**LOWERTOWN  
BALLPARK**

LOCATION  
**ST. PAUL, MN**

ISSUE RECORD		
ISSUE #	DATE	DESCRIPTION
1	08/14/2013	CONSTRUCTION
2		
3		
4		
5		
6		
7		
8		
9		
10		

8/14/2013 11:50:53 AM  
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

ENGINEER'S NAME  
REGISTRATION NO. DATE

SHEET TITLE  
**ENHANCED  
STORMWATER  
MANAGEMENT  
WATERSHEDS &  
DRAINAGE FLOW**

SHEET NO.  
**X.X**  
DRAWN BY: M.J.H. CHECKED BY:  
JOB NO. DATE  
130401

TABLE 1 - STORMWATER BMP SIZES AND ESTIMATED WATER QUALITY TREATMENT

BMP LOCATION	TYPE	TREATMENT TYPE	TREATMENT AREA (acres)	ESTIMATED TSS REMOVAL (%)	ESTIMATED TP REMOVAL (%)
1 PLAYING FIELD	SUBSURFACE STORAGE	FILTRATION	3.22	98-100	65-70
2 GROUP SALES AREA	SUBSURFACE STORAGE	FILTRATION	1.50	98-100	65-70
3 PLANTINGS AT 4TH STREET	TREE TRENCH or RWG	FILTRATION	1.71	90-95	60-70
4 DOG PARK	BIO-SWALE or RWG	FILTRATION/INFILTRATION	0.61	85-90	50-60
5 BOARDWALK OUTSIDE BALLPARK	TREE TRENCH	FILTRATION/INFILTRATION	0.47	90-95	50-60
6 PLANTINGS BEHIND HOME PLATE	TREE TRENCH or RWG	FILTRATION	0.12	90-95	60-70
7 PROGRAM ROOFS	RAIN CISTERN	SEDIMENTATION	0.44	85-90	30-40
8 FIELD STORAGE FOR IRRIGATION	SUBSURFACE STORAGE	FILTRATION	1.20	98-100	65-70
<b>TOTAL</b>			<b>9.27</b>	<b>92-95</b>	<b>61-67</b>

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# Timeline and Challenges

- OMF roof re-construction in late summer 2014
- After completion of stadium reuse system
- After Green Line has begun operations
  
- Working on agreement with City
- Coordinating with Metro Transit
- Scheduling of OMF roof re-construction will be closely coordinated to minimize disruption to Green Line operations



# Benefits to Metropolitan Council

- Showcase rainwater harvesting and reuse system
- Significant reduction in potable water use for irrigation
- Marketing value: *Greening the Green Line*

