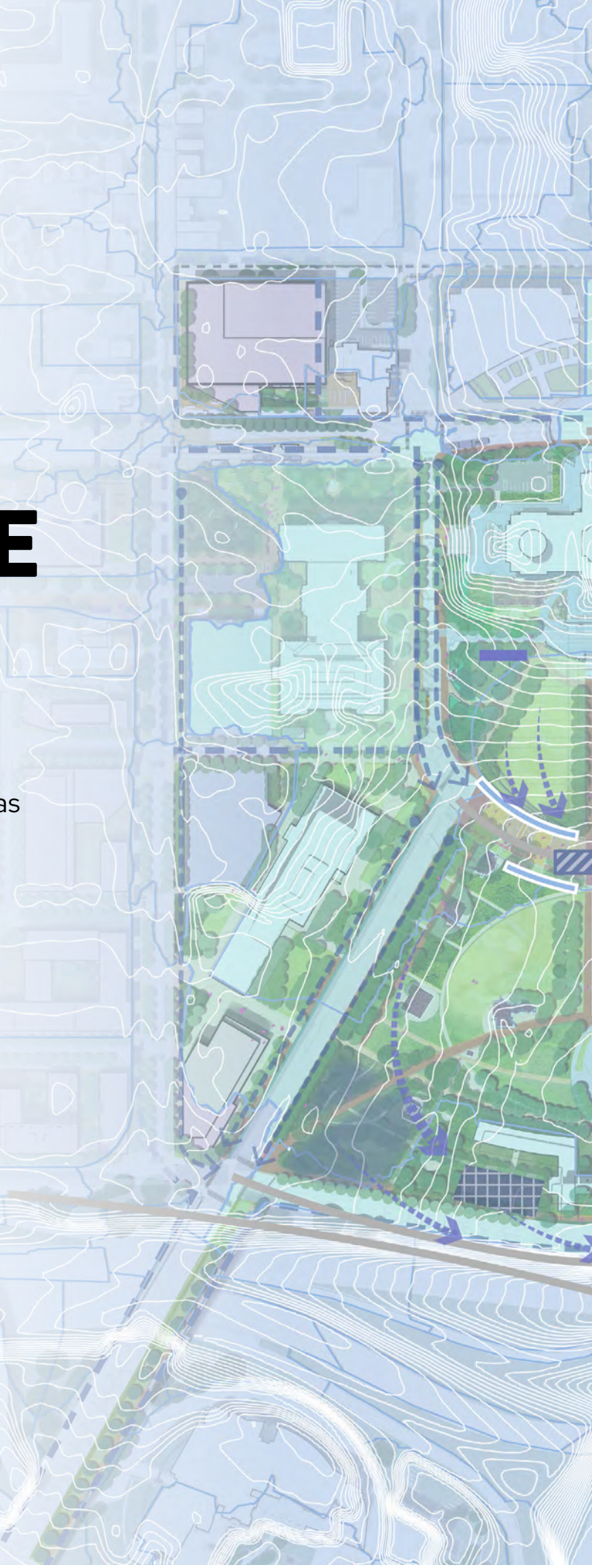
CELEBRATE WATER

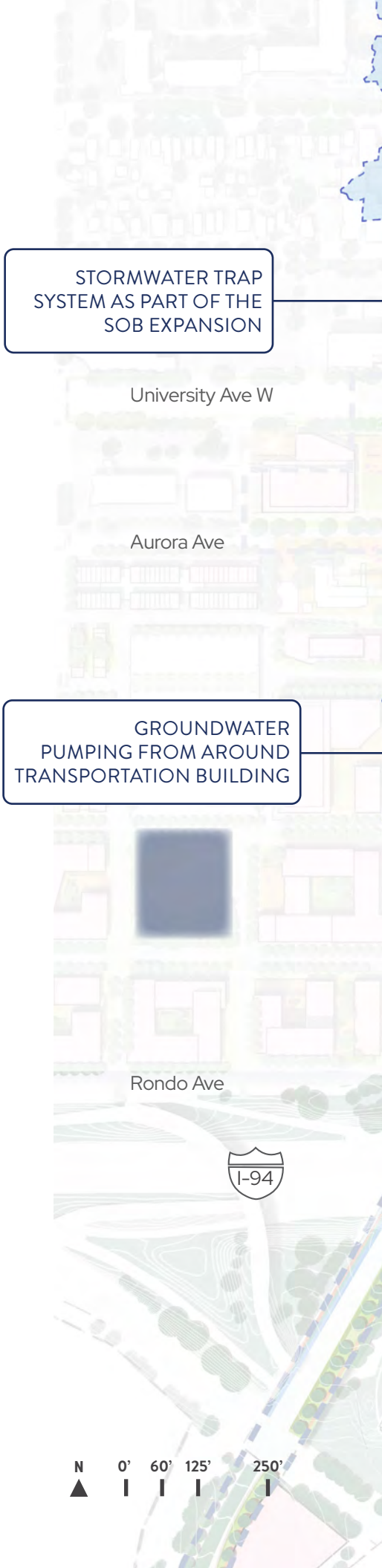
- Stormwater Capture and Treatment
- BMP Footprints and Catchment Areas
- Stormwater Systems
- Conveyance and Catchment Areas
- Precedent Imagery



Celebrate Minnesota's connection to water in all seasons.

STORMWATER CAPTURE AND TREATMENT

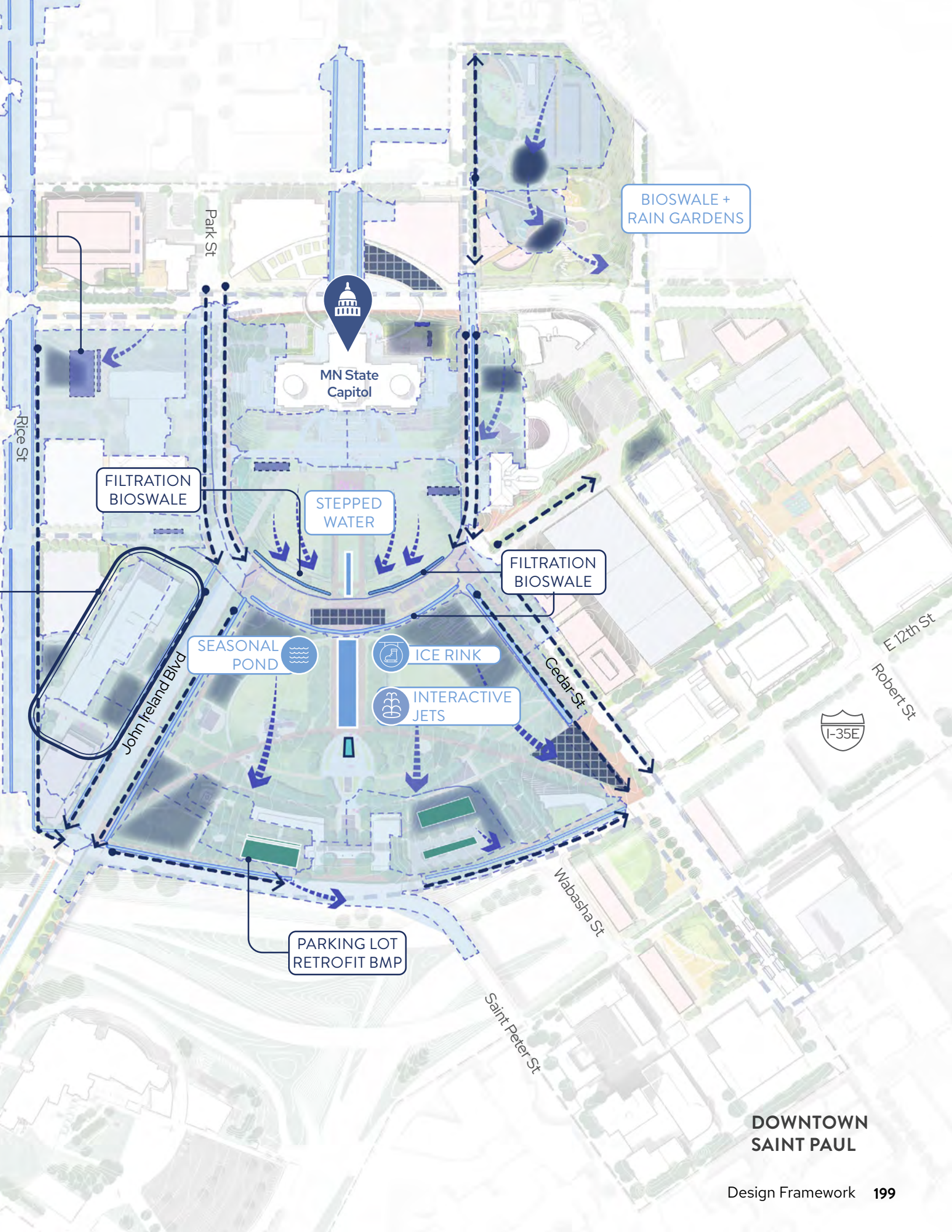
This bold design move involves the incorporation of green stormwater infrastructure into the street rights-of-way within the transportation network surrounding the Capitol Mall, the incorporation of stormwater reuse for the irrigation of landscapes on and around the Capitol Mall, the treatment of runoff from offsite areas within the Mall footprint itself using district-scale stormwater management strategies, and the integration of climate resilient water management practices within the southern portions of the Mall area. Seasonal or climatic considerations should be a primary design parameter for all proposed water features.



LEGEND

- Hydrological Movement
- Streetscape Water Treatment
- Underground Storm Chamber
- Green Stormwater Infrastructure
- Water Feature
- Stormwater Reuse
- On-Surface Water Treatment
- Catchment Area
- State-Owned Parking Lot Retrofit BMP
- Underground Storm Chamber (Existing)
- Water Feature (Existing)

Figure 151: Stormwater Capture and Treatment
Source: Capitol Region Watershed District and Barr Engineering
Source: HGA. Minnesota State Capitol Repairs, Restoration & Preservation. 09 May, 2014.


BIOSWALE +
RAIN GARDENS
Park St
MN State
Capitol
Rice St
FILTRATION
BIOSWALE
STEPPED
WATER
FILTRATION
BIOSWALE
SEASONAL
POND
ICE RINK
INTERACTIVE
JETS
John Ireland Blvd
Cedar St
E 12th St
Robert St
I-35E
Wabasha St
Saint Peter St
PARKING LOT
RETROFIT BMP
DOWNTOWN
SAINT PAUL

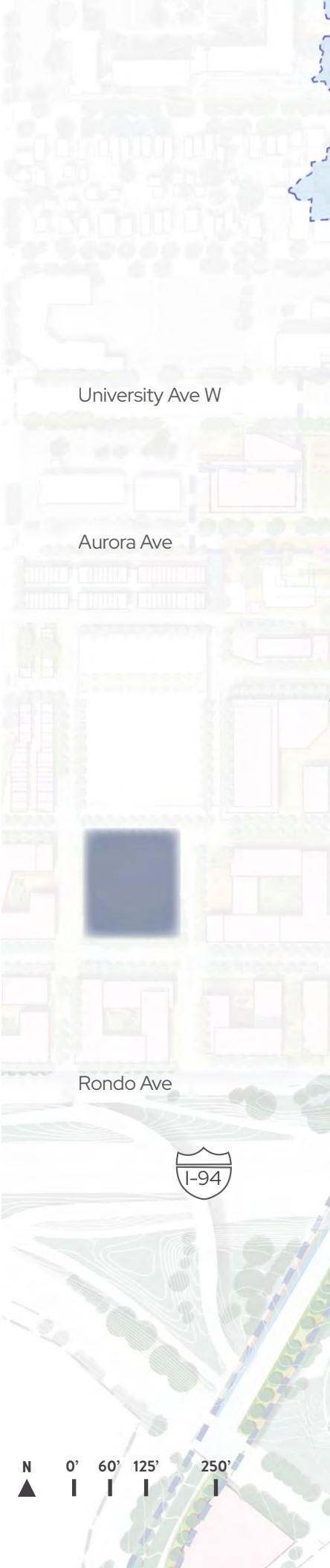
STORMWATER BMP FOOTPRINTS AND CATCHMENT AREAS

The Design Framework integrates a resilient district stormwater management system and green stormwater infrastructure while taking a closer look at the contributing areas.

BMP CONCEPT	CATCHMENT AREAS
Green Stormwater Infrastructure	1 2 7 12 15 16 20 21 25 26 27 28 29
Underground Storm Chamber	3 19
Rain Garden + Bioswales	4 6
Filtration Bioswales	8
Stormwater Reuse	5 9 10 11 17 18 22 23 24
State-Owned Parking Lot Retrofit	13 14

Note:

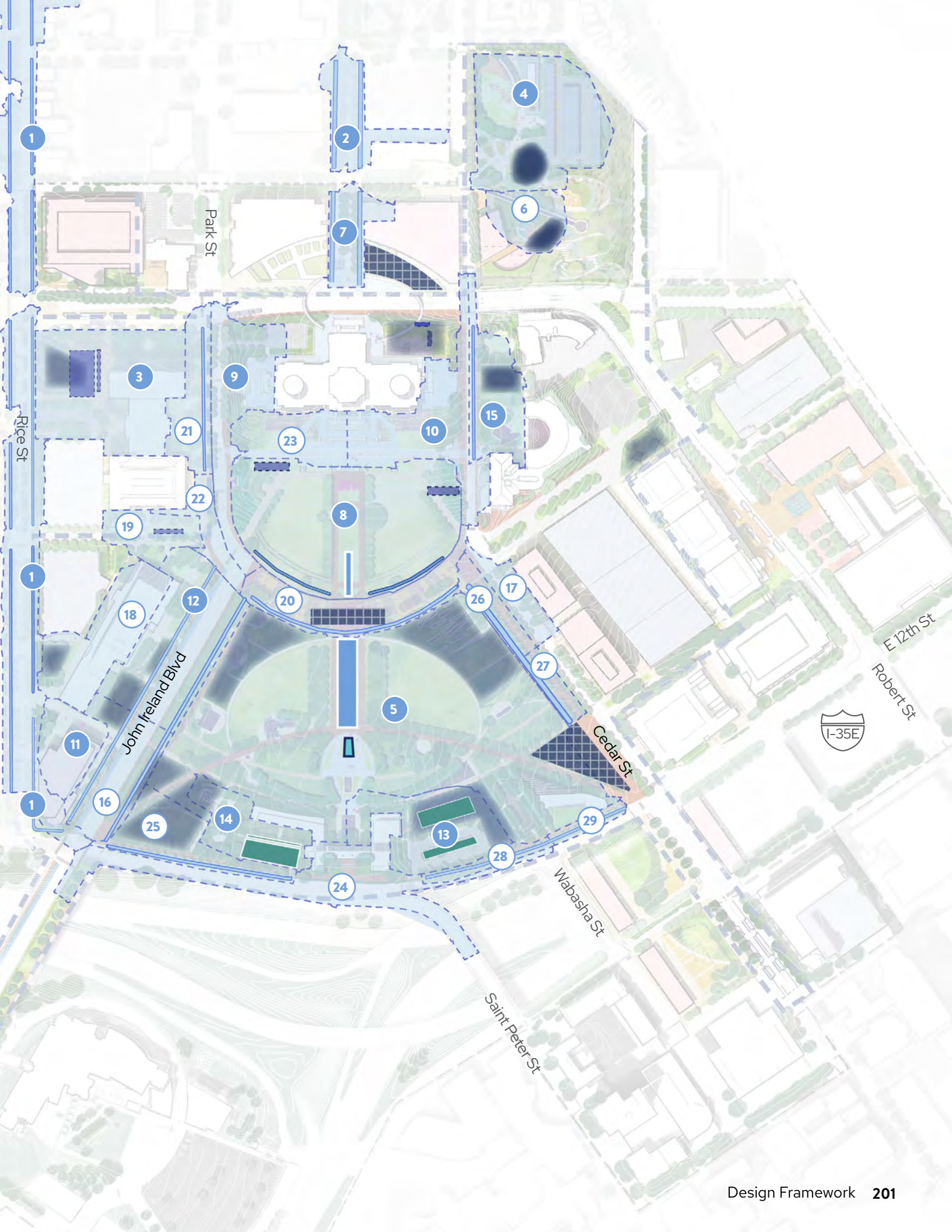
See Estimated BMP Footprints on Proposed Conditions for information on BMP concepts and contributing area descriptions



LEGEND

- Underground Storm Chamber
- Green Stormwater Infrastructure
- Water Feature
- Stormwater Reuse
- On-Surface Water Treatment
- Catchment Area
- State-Owned Parking Lot Retrofit BMP
- Underground Storm Chamber (Existing)
- Water Feature (Existing)

Figure 152: Stormwater BMP Footprints and Catchment Areas
Source: Capitol Region Watershed District and Barr Engineering
Source: HGA. Minnesota State Capitol Repairs, Restoration & Preservation. 09 May, 2014.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Rice St
John Ireland Blvd
Cedar St
E 12th St
Robert St
I-35E
Wabasha St
Saint Peter St

STORMWATER BMP FOOTPRINTS AND CATCHMENT AREAS

GREEN STORMWATER INFRASTRUCTURE WITHIN THE TRANSPORTATION NETWORK

The newly tree-lined streets around the Capitol Mall will incorporate open-topped planter boxes with climate resilient vegetation and associated subsurface systems to capture, hold, infiltrate, and treat stormwater runoff from adjacent hard surfaces including sidewalks, roadways, and trails. These subsurface systems should include specially-engineered soil media designed to store, filter, and promote infiltration of stormwater runoff. These soil systems provide sufficient volume for healthier root growth for the newly planted street trees to support a better growing evironment. Stormwater entering these systems will be filtered and allowed to infiltrate into the ground, when feasible, reducing the amount of urban pollutants entering the surrounding storm sewer and being discharged to the nearby Mississippi River (Haháwakpa). In situations where the infiltration of stormwater is prohibited by state or local guidance due to site conditions, such as poor or contaminated soils, the filtered stormwater will be conveyed into the surrounding storm sewers in a cleaner condition.

STORMWATER REUSE WITHIN THE CAPITOL MALL IRRIGATION

Currently, the Upper Mall and Lower Mall encompass nearly 20-acres of lawn area and plantings, each of which has different irrigation demands with irrigation systems currently sourced with potable water. As part of this bold

BMP CONCEPT	BASIN #
Integrated green stormwater infrastructure within modified streetscapes along John Ireland Blvd, Cedar Street, Rev. MLK Blvd, Rice Street, and W 12th Street	1 2 3 4 5
Upper Lawn filtration bioswales	7
Bioswale & rain garden at Capitol Complex Lot Q and Cass Gilbert Park	8 9
Parking lot retrofits & neighboring bioswales in southern Mall area	10 11
Underground stormwater filtration & reuse system (Central Mall location)	12
Underground stormwater filtration & reuse system (Southern Mall location)	13
Underground stormwater filtration & reuse systems at SOB site	14 15

move, underground storage tanks for the capture and storing of stormwater runoff from the surrounding area will be installed within the centralized and southern portions of the Capitol Mall. The tanks will be plumbed to connect into the existing irrigation system for the Capitol Mall. Water flowing into these tanks will be filtered to remove pollutants, stored, and then used as a replacement for potable water for a more resilient approach to irrigation of the Capitol Mall.

INTEGRATING CLIMATE RESILIENT PRACTICES WITHIN THE SOUTHERN MALL

As the priorities for the southern mall transition away from surface parking and toward additional green space, climate resilient stormwater practices will be woven into these reimagined landscapes. Stormwater bioinfiltration basins and native vegetation will be artistically incorporated and utilized to capture stormwater runoff from the remaining hard surfaces, filtering the water to remove pollutants and allowing it to infiltrate when possible. In situations where the infiltration of stormwater is prohibited by state or local guidance due to site conditions, biofiltration practices will be utilized. As remaining parking areas in the southern mall area are reconstructed, there are opportunities to incorporate green stormwater management practices either directly adjacent to or within the parking areas itself using linear bioinfiltration or filtration basins and tree trenches to treat runoff, soften the hardscape of the parking areas, and provide additional tree canopy.

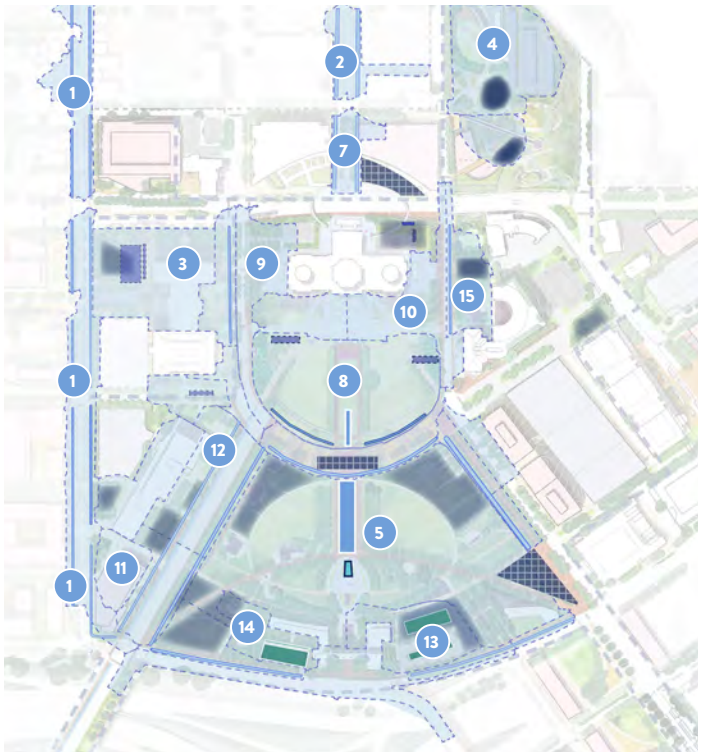

Figure 153: Stormwater Catchment Areas Key Map

BMP FOOTPRINT (SF)	VOLUME (CF)	CONTRIBUTING AREA (SF)	CONTRIBUTING AREA DESCRIPTION
86,974		1,095,272	Adjacent roadways, sidewalks, and other neighboring areas
4,105		237,707	Southern portion of Upper Mall areas
19,514		177,733	New solar canopy over bus parking, regraded Lot Q parking lot, and contributing park areas
22,221		134,784	Lower Mall areas surrounding the Veterans Service Building, Lot I and Lot J parking lots
10,736		909,781	Areas surrounding Capitol Building, Upper Mall, adjacent Capitol Complex properties, roadways, and surrounding streetscape areas
22,947		1,896,855	Areas tributary to Central Mall reuse system, plus Lower Mall, neighboring roadways, and surrounding streetscape areas
2,275		181,546	Portions of State Office Building expansion, adjacent site, and parking lot areas

STORMWATER SYSTEMS

PRECEDENT IMAGERY

Figure 155. Partners Healthcare Administrative Campus, Los Angeles, CA

Source: https://landezine-award.com/partners-healthcare-administrative-campus/

Figure 157. Town Branch Commons, Lexington, KY

Source: *https://www.scapestudio.com/projects/town-branch-commons/*

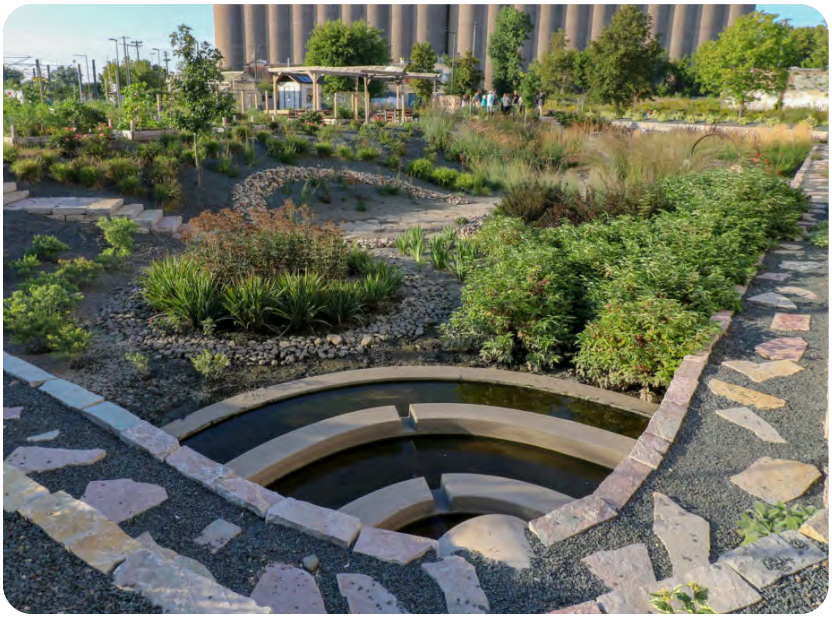

Figure 154. Edison High School, Minneapolis, MN

Source: https://www.mwmo.org/projects/towerside-district-stormwater-system/

Figure 156. Allianz Field District, Saint Paul, MN

Source: https://www.capitolregionwd.org/projects/minnesota-united-fc-soccer-stadium/

Figure 158. Edison High School Green Campus

Source: https://www.mwmo.org/projects/towerside-district-stormwater-system/

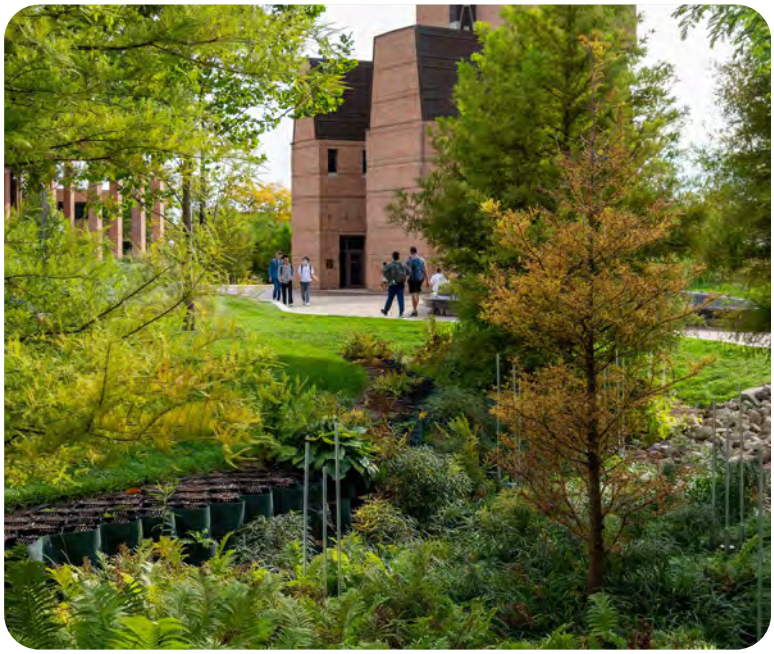

Figure 161. University of Michigan, MI

Source:n/a who saved this photo?

Figure 159. Marion Street and University Ave

Source: https://www.capitolregionwd.org/projects/green-line-infrastructure/

Figure 160. Maplewood Mall, Maplewood, MN

Source:https://rwmwd.org/projects/maplewood-mall-retrofit/