Watershed Study Solutions Prioritization Matrix

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- Why did we want to create this?
- How did we use data to inform our methodology?
- How can this be used moving forward?

But first… a brief overview and history

- 2016 & 2017 large flood events on West side prompted RESJ analysis of the Stormwater Utility's Citywide Flood Mitigation Program
- Flood reports historically came in on a 'complaint' basis
- Those that were savvy with how the City worked tended to get more attention and were using a lot of city resources
- Many issues were not known and were under reported or not reported at all
- 2 large flood mitigation efforts highlighted the clear discrepancy of the status quo way projects were prioritized/budgeted
- **Wanted a more equitable way to plan and not be reactive to issues**

RACIAL EQUITY AND SOCIAL JUSTICE TOOL

COMPREHENSIVE VERSION

Racial Equity
& Social Justice Initiative

Citywide Flood Mitigation Program RESJ Analysis 2018

Citywide Flood Mitigation Program RESJ Analysis 2018

Citywide Flood Mitigation is a program within the Stormwater Utility Budget used to correct flooding within the City. The findings from this analysis will be used to determine a **proactive and equitable approach to identifying and budgeting for future projects to address flooding.**

Tool to prioritize projects was directly resulting from 2018 RESJ analysis….

- GOAL:
  - Equitable budgeting and ranking of flood solutions
  - Create process that avoids “squeaky wheel gets the grease” model
  - Overall recommendations for equitable Stormwater projects in groups (1st priority quartile, 2nd priority quartile etc)
    - Must make progress towards solutions citywide
    - Can’t just put all funds into a few projects that are extremely expensive

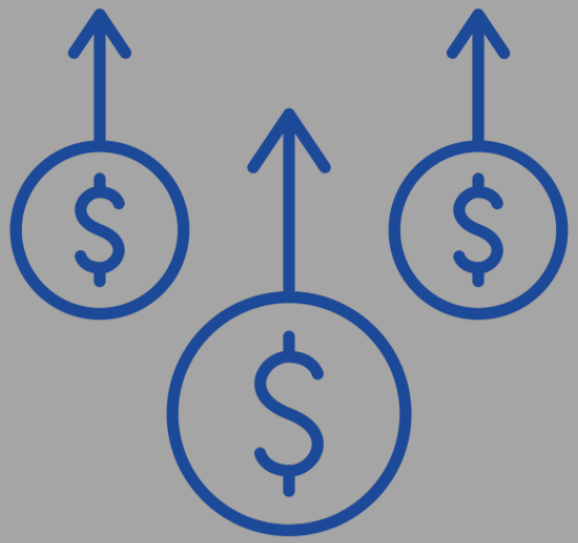
Tool to prioritize projects was directly resulting from 2018 RESJ analysis….

- Challenges
  - Some solutions need to go in a particular order for engineering solutions
  - Need flexibility to make decisions based on budget, changes in situations, or funding opportunities
  - Balancing providing flooding solutions with avoiding gentrification
  - Solutions will impact people who do not flood
  - May need consider sanitary, street, water, and other needs at the same time to make comprehensive projects

Prioritization Factors

Flooding

Evaluates flood reduction impacts for a specific project.



Cost

Looks at comparative costs to SWU budget of all projects.

Feasibility

Potential regulatory or environmental issues in implementing project.

Flooding

Metric	Points
Flood Impacts to Emergency Services	25
Racial Equity and Social Justice	25
Private Property Flood Area Reduction	25
Structures - Structures Removed from Flooding (1% Storm)	12.5
Structures - Decreased Structure Flood Risk	12.5
TOTAL	100

Flooding

Flood Impacts to Emergency Services

Does flooding potentially impact emergency services? Will this project resolve that?

Factors:

- Flood reduction within watershed and project service area during 4% (25-year) storm event; flood reduction along arterials, collectors, and standard streets;
- Reduces flooding to hospitals and clinics
- Addresses flooded intersections identified by emergency management
- Reduces flooding near pump/lift stations, wells, substation, sewer treatment

Metric	Weighted Scale
Flood Impacts to Emergency Services	25
Racial Equity and Social Justice	25
Private Property Flood Reduction	25
Structures Removed from Flooding	12.5
Decreased Structure Flood Risk	12.5

Overall Project and/or Connected Projects	Sub-project	**Construction Cost ($)**	Emergency Services	RESJ	Reduces Flood Inundation Area	Structures Removed from Flooding	Decreased Structure Flood Risk	**SUM**	**Priority Level**	**Water Quality Project**
WW_1 (UW RESEARCH SW POND EXPANSION)	WW_1 (UW RESEARCH SW POND EXPANSION)	**$ 630,000.00**	**4.1**	**2.22**	**12.1**	**1.3**	**0.9**	**21.0**	**Low**	**Yes**
WW_2 (UW RESEARCH SE POND EXPANSION)	WW_2 (UW RESEARCH SE POND EXPANSION)	**$ 710,000.00**	**0.7**	**4.55**	**10.6**	**0.9**	**0.9**	**18.0**	**Low**	**Yes**

Racial Equity and Social Justice

Are there current impacts to populations of black, indigenous and people of color? What about families living in poverty and facilities that serve vulnerable populations? Does this project reduce flooding in those areas?

Factors:

- Area of flooding during 1% (100-year) storm event in higher areas of families living below poverty, populations of color
- Public/affordable housing, assisted living, child care, schools, libraries, etc.

Metric	Weighted Scale
Flood Impacts to Emergency Services	25
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WW_3 (ODANA AREA PONDS)	WW_3 (ODANA AREA PONDS)	**$ 29,650,000.00**	**2.0**	**10.92**	**9.0**	**10.2**	**0.9**	**33.0**	**Medium**	**Yes**

Private Property Flood Reduction

How much area is flooded during storm events compared to other watersheds? How effective is the proposed project at reducing flooding on in comparison to other proposed projects?

Factors:

- Reduction of watershed flooding between existing and proposed solutions, and reduction of project area flooding between existing and proposed for 1% (100-YEAR), 4% (25-YEAR), 50% (2-YEAR) on private property

Metric	Weighted Scale
Flood Impacts to Emergency Services	25
Racial Equity and Social Justice	25
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Structures Removed from Flooding

How many structures can we remove from the 1% (100-YEAR) storm event with the project?

Factors:

- Number of structures removed pre and post 100 year event using data parameters (>6”, 5’ from structure) within the project service area

Metric	Weighted Scale
Flood Impacts to Emergency Services	25
Racial Equity and Social Justice	25
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Decreased Structure Flood Risk

How does this solution decrease the recurrence of flooded structures within the project service area.

Factors:

- Evaluates number of structures flooded per storm recurrence in comparison to pre and post conditions. Models after Louisiana Watershed Initiative Flood Risk Calculator.

Metric	Weighted Scale
Flood Impacts to Emergency Services	25
Racial Equity and Social Justice	25
Private Property Flood Reduction	25
Structures Removed from Flooding	12.5
Decreased Structure Flood Risk	12.5

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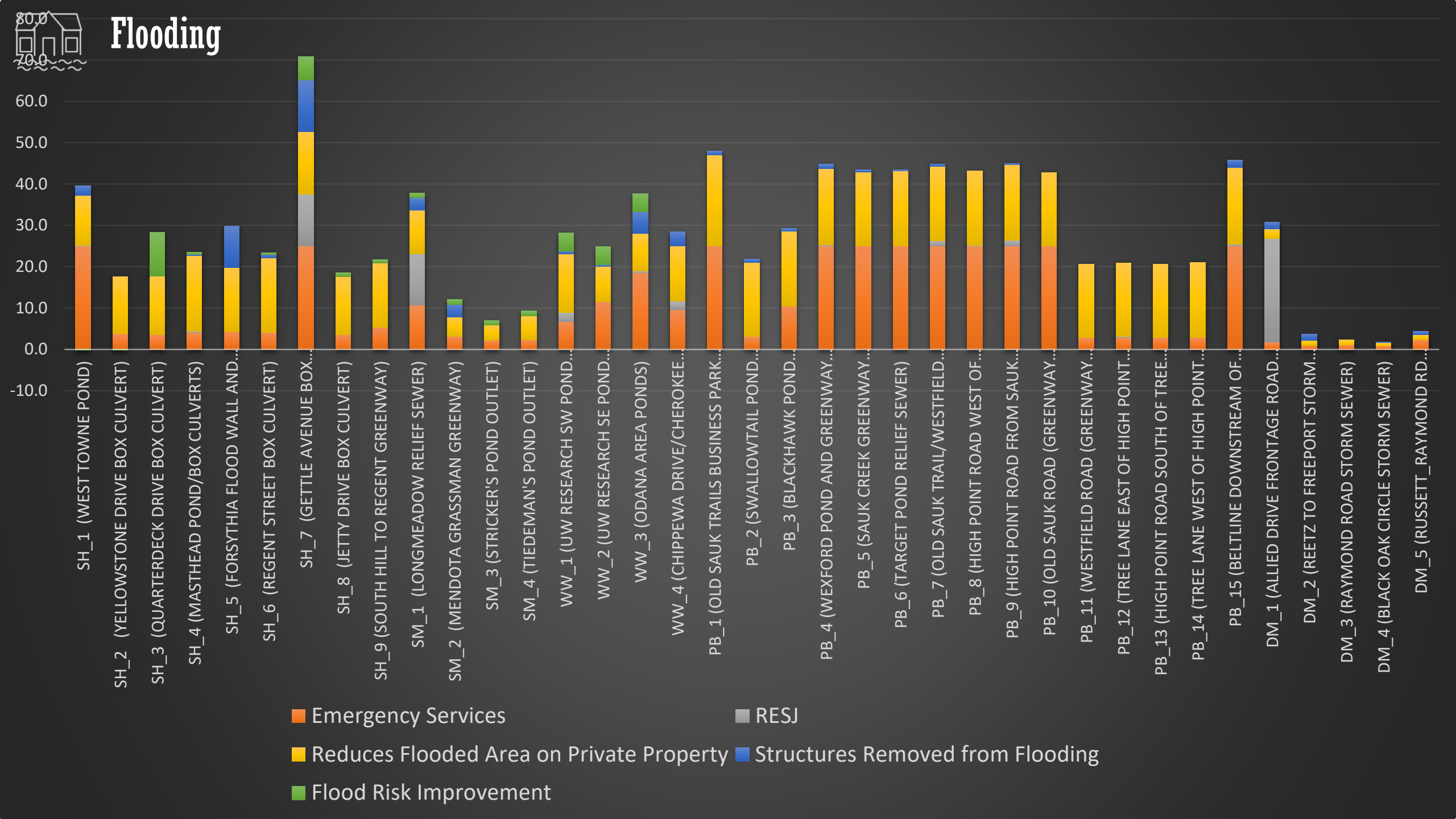
Flooding


80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
-10.0
SH_1 (WEST TOWNE POND)
SH_2 (YELLOWSTONE DRIVE BOX CULVERT)
SH_3 (QUARTERDECK DRIVE BOX CULVERT)
SH_4 (MASTHEAD POND/BOX CULVERTS)
SH_5 (FORSYTHIA FLOOD WALL AND...
SH_6 (REGENT STREET BOX CULVERT)
SH_7 (GETTLE AVENUE BOX...
SH_8 (JETTY DRIVE BOX CULVERT)
SH_9 (SOUTH HILL TO REGENT GREENWAY)
SM_1 (LONGMEADOW RELIEF SEWER)
SM_2 (MENDOTA GRASSMAN GREENWAY)
SM_3 (STRICKER'S POND OUTLET)
SM_4 (TIEDEMAN'S POND OUTLET)
WW_1 (UW RESEARCH SW POND...
WW_2 (UW RESEARCH SE POND...
WW_3 (ODANA AREA PONDS)
WW_4 (CHIPPEWA DRIVE/CHEROKEE...
PB_1 (OLD SAUK TRAILS BUSINESS PARK...
PB_2 (SWALLOWTAIL POND...
PB_3 (BLACKHAWK POND...
PB_4 (WEXFORD POND AND GREENWAY...
PB_5 (SAUK CREEK GREENWAY...
PB_6 (TARGET POND RELIEF SEWER)
PB_7 (OLD SAUK TRAIL/WESTFIELD...
PB_8 (HIGH POINT ROAD WEST OF...
PB_9 (HIGH POINT ROAD FROM SAUK...
PB_10 (OLD SAUK ROAD (GREENWAY...
PB_11 (WESTFIELD ROAD (GREENWAY...
PB_12 (TREE LANE EAST OF HIGH POINT...
PB_13 (HIGH POINT ROAD SOUTH OF TREE...
PB_14 (TREE LANE WEST OF HIGH POINT...
PB_15 (BELTLINE DOWNSTREAM OF...
DM_1 (ALLIED DRIVE FRONTAGE ROAD...
DM_2 (REETZ TO FREEPORT STORM...
DM_3 (RAYMOND ROAD STORM SEWER)
DM_4 (BLACK OAK CIRCLE STORM SEWER)
DM_5 (RUSSETT_RAYMOND RD...
Emergency Services
RESJ
Reduces Flooded Area on Private Property
Structures Removed from Flooding
Flood Risk Improvement

Cost

Metric	Points
Stormwater utility project costs compared across projects	100

Factors:

- Other funding sources (Federal, State, Grants, etc)
- Includes project construction, design and permitting

NOTE: Stormwater Utility Budget is funded by rate payers; have to be aware of how project costs impact of rate increases

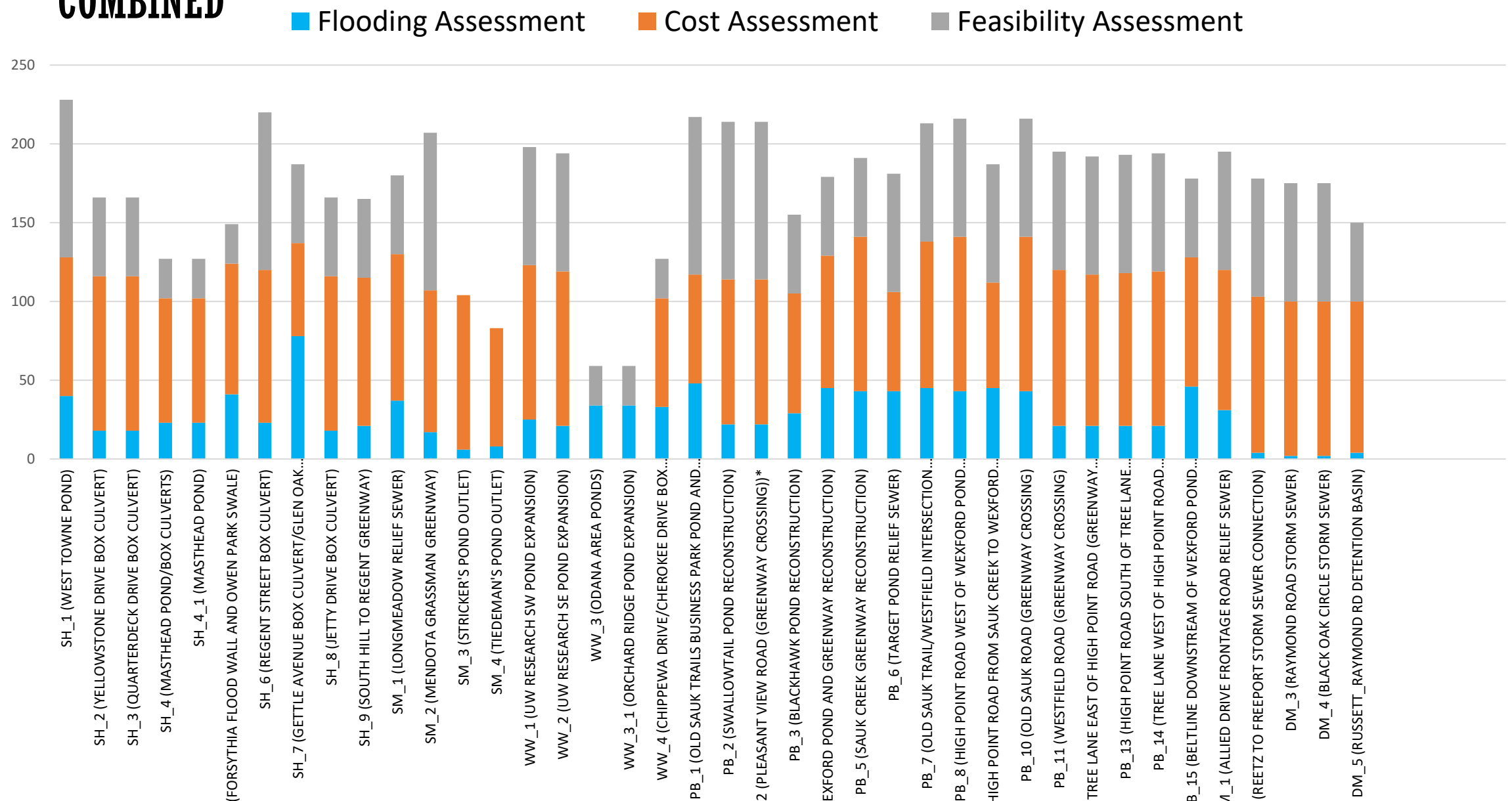
Feasibility

Metric	Points
Opinion of Probable Feasibility	100

Factors:

- Can not be built prior to downstream solution
- Deed/Grant restrictions (e.g. DNR ADLP funding on parkland, Landmark status, other restrictions or concerns)
- Land Acquisition/Easement required
- FEMA Restrictions
- Constructability
- Environmental Concerns (state/federal permitting), wetlands, tree impacts
- Public support based on engagement

COMBINED


Flooding Assessment
Cost Assessment
Feasibility Assessment
250
200
150
100
50
0
SH_1 (WEST TOWNE POND)
SH_2 (YELLOWSTONE DRIVE BOX CULVERT)
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SH_4_1 (MASTHEAD POND)
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WW_2 (UW RESEARCH SE POND EXPANSION)
WW_3 (ODANA AREA PONDS)
WW_3_1 (ORCHARD RIDGE POND EXPANSION)
WW_4 (CHIPPEWA DRIVE/CHEROKEE DRIVE BOX...
PB_1 (OLD SAUK TRAILS BUSINESS PARK POND AND...
PB_2 (SWALLOWTAIL POND RECONSTRUCTION)
PB_2_2 (PLEASANT VIEW ROAD (GREENWAY CROSSING))*
PB_3 (BLACKHAWK POND RECONSTRUCTION)
PB_4 (WEXFORD POND AND GREENWAY RECONSTRUCTION)
PB_5 (SAUK CREEK GREENWAY RECONSTRUCTION)
PB_6 (TARGET POND RELIEF SEWER)
PB_7 (OLD SAUK TRAIL/WESTFIELD INTERSECTION...
PB_8 (HIGH POINT ROAD WEST OF WEXFORD POND...
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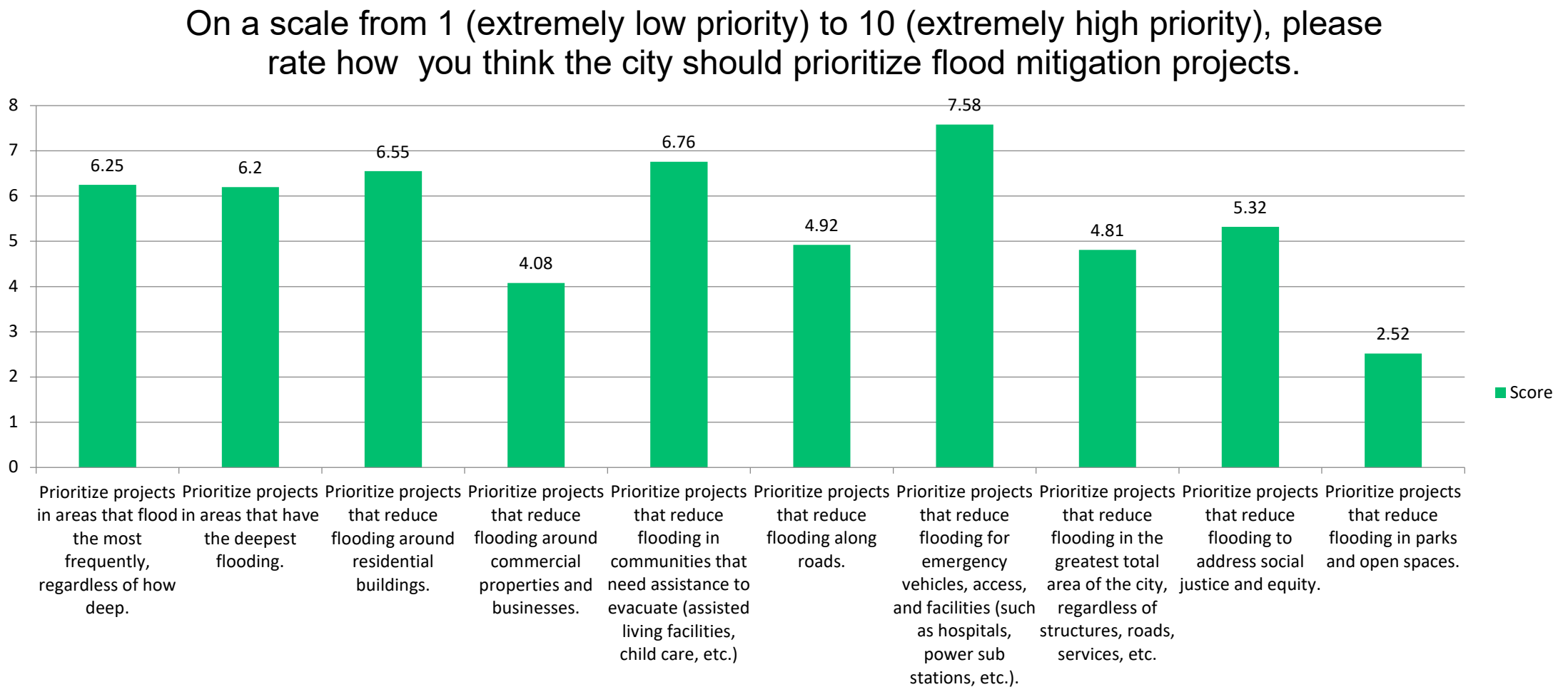
DM_4 (BLACK OAK CIRCLE STORM SEWER)
DM_5 (RUSSETT_RAYMOND RD DETENTION BASIN)

Other Evaluations: Citywide Online Survey



2023 Capital Budget

- **Project Prioritization Factors**
  - Flood Assessment (including RESJ)
  - Cost Assessment
  - Feasibility Assessment
- **Advances Goals**
  - Comp Plan
  - NHDPs
  - Climate Forward
  - Yahara Clean 3.0
  - WPDES permit requirements

2023 CIP

- ✓ As more studies finish up this list will be reprioritized.
- ✓ We are setting projects up for grant opportunities by getting them designed earlier.

- Already in pipeline 2022:
  - Mendota Grassman/Hickory Hollow Greenway Construction
  - Hawks Landing North Pond Construction
  - West Towne Pond design
  - Lower Badger Mill Creek Ponds
  - Eastwood/Atwood Flood Mitigation
- Projects 2023-2028:
  - 2023: Schroeder Rd Flood Mitigation*
  - 2023: Regent Street Box Culvert
  - 2023-2025: Pheasant Branch – Old Sauk Business Trails Pond and Greenway*
  - 2024: Marty Farm (land)
  - 2024: West Towne Pond Construction*
  - 2027: Marty Farm Regional Pond
  - 2027-2028: Mineral Point Rd at Tree Lane and Tree Lane Relief Storm Sewer

*Requires additional grant or other funding for construction

How can this be used moving forward?

- Update and reprioritize projects as new information is available
- Determine if solutions are economically viable or if have to look for alternatives
  - Property acquisitions, private property modifications
- Will inform any future Project Prioritization Tools or other tools to make holistic project decisions where multiple agencies are impacted

- NOTE: this is a **guide** that is used to make informed decisions and judgment is always required

Questions?