STORMWATER REUSE PROJECTS
Current City standard is 1 inch of runoff from impervious surfaces.

Proposed ordinance revision is 1.1 inch of runoff from impervious surfaces.
STORMWATER REUSE/IRRIGATION PROJECTS IN CITY

- Eagle Valley Golf Course (2013)
- Prestwick Golf Course (2013)
- Windwood Park (2013)
- Bielenberg Sports Center
- Views at City Walk (2013)
- Bielenberg Gardens (2014)
- St. Therese (installation 2015)
2013 road reconstruction (2-lane to 4-lane)

Modeling showed reuse at two adjacent golf courses would fulfill the volume and water quality regulations of road project

Achieve Colby Lake’s target TMDL and reduce total phosphorous inputs by 30 lbs/yr

Joint project between Washington County, South Washington Watershed District, City and private golf course

SWWD received grant funding from the Clean Water Fund
EAGLE VALLEY SUBWATERSHED

Runoff from hatched area treated by reuse system (430 acres)
Existing conditions:
- Irrigates 60 of its total 70 acres using well water
- Pumps approximately 30 million gallons of irrigation water annually

Proposed conditions:
- Irrigate 60 acres
- Pump approximately 22.5 million gallons of reuse water from stormwater pond annually
- Reroute water through babbling brook feature when irrigation is not needed
- Provide supplementary water from existing well
TMDL TP Goal for Colby Lake: 30 lbs /yr reduction
Post-project TP loading for Colby Lake: 56 lbs /yr reduction
Volume reduction requirements: 0.97 ac-ft per event
Stormwater reuse project result: 6.1 ac-ft per event
A babbling brook surface water amenity will provide additional interest to the course and some WQ benefits
EAGLE VALLEY GOLF COURSE – WHAT HAPPENED?

- Installation difficulties – end of season
- INFILTRATION
Runoff from hatched area treated by reuse system (130 acres)
**PRESTWICK GOLF COURSE**

- **Existing**
  - Irrigates 75 acres
  - Pumps approximately 35 million gallons of irrigation water annually

- **Proposed**
  - Irrigate 75 acres
  - Pump approximately 17.5 million gallons of irrigation water from pond annually
  - Supplement irrigation needs with 17.5 million gallons of water from well
  - Refill interior amenity ponds if needed with reuse water
Roadway TP reduction requirement: 5 lbs/yr
Anticipated TP reduction result: 43 lbs/yr
Volume reduction requirements: 0.87 ac-ft per event
Reuse reduction results: 3.5 ac-ft per event
Connecting the two interior ponds will create an additional water hazard for golfers and provides additional storage
PRESTWICK GOLF COURSE – WHAT HAPPENED?

- Aesthetics
- INFILTRATION
WINDWOOD SUBWATERSHED

Runoff from hatched area treated by reuse system (300 acres)
Existing conditions:
- Park did not have irrigation
- Carver Lake drainage area - swimming beach
- Nutrient Impairment???? (delisted with new data in 2014)

Proposed conditions:
- Won’t be irrigated when water is not available
- 6.5 acres of park irrigated
- Part of stormwater retrofits with annual roadway rehabilitation program (part of nondegradation plan)
- Estimated TP load reduction of 56 lb/year to Carver Lake
- 23.5 ac-ft used annually
Wrong power on original pump controls - reorder
Difficult irrigation installation
Install of system wasn’t finished in fall 2013
Damage of pump equipment at PW yard in winter of 2013/2014 by plow
Reordered 2014
Irrigation contractor working on Bielenberg Sports Center in 2014 – finishing BSC was priority
CAUTIONARY NOTES

- Regulatory framework is confusing
- Rules are and will be changing

- Stormwater does have contaminants
- System or management plan should be designed to avoid human exposure

- De-icing operations can damage turf
- Monitor chloride levels
- Salt tolerant grass seed mixes
CAUTIONARY NOTES—CHLORIDE ISSUE

Acceptable values for irrigation: <100

Fringe values for irrigation: 100-355
Surface water is not as certain as other sources (weather patterns are changing)
Consider increasing storage capacity and implications of fluctuating water elevation
Pond many need impervious bottom
Supplementary water source may be needed

There are many designers and installers
Wide array of equipment options
Hire an expert!