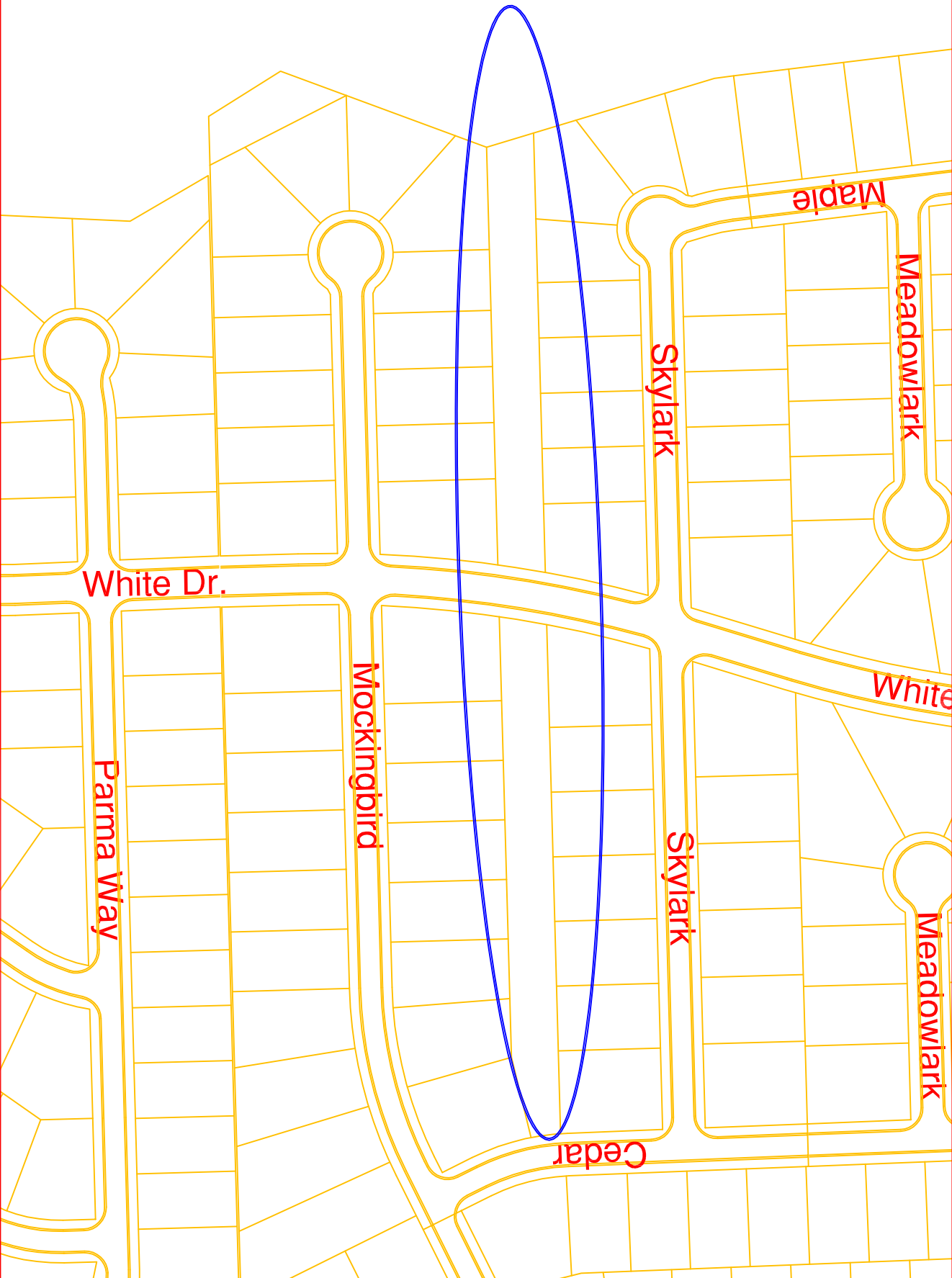


**PROJECT:** PMSW-14-09  
Genesis Creek Estates Channel Improvements

**DESCRIPTION:**  
Storm Sewer/Drainage



# Capital Improvement Plan

2011 *thru* 2015

## City of Gardner, Kansas

**Contact** City Engineer  
**Department** Public Works  
**Type** Improvement  
**Useful Life** 20 years  
**Category** Storm Sewer/Drainage  
**Priority** 3 Important

**Project #** PWSW-17-09  
**Project Name** Small Stormwater Project Program

**Cash or Debt:** Cash

**Total Project Cost** \$125,000

### Description

The purpose of this program is to correct stormwater issues caused by poor yard grading. The improvements may be contracted by the City or in the form of a grant paid to the property owner.

### Justification

Many of Gardner's stormwater problems are caused by the flat terrain and poor drainage patterns within established subdivisions. This program will enable to the City to assist residents in the resolution of the more severe of these issues. Project recommendations will be made with the assistance of a rating and evaluation system that was developed as part of the Stormwater Master Plan.

| <b>Expenditures</b> | <b>2011</b>   | <b>2012</b>   | <b>2013</b>   | <b>2014</b>   | <b>2015</b>   | <b>Total</b>   |
|---------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Construction        | 25,000        | 25,000        | 25,000        | 25,000        | 25,000        | 125,000        |
| <b>Total</b>        | <b>25,000</b> | <b>25,000</b> | <b>25,000</b> | <b>25,000</b> | <b>25,000</b> | <b>125,000</b> |

| <b>Funding Sources</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> |
|------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Stormwater Fund        | 0           | 0           | 0           | 0           | 0           | 0            |
| <b>Total</b>           | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>    | <b>0</b>     |

### Operational Impact/Other

Funding for this project is subject to the creation of a Stormwater Utility.

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**Capital Improvement Plan**  
**City of Gardner, Kansas**

2011 *thru* 2015

**Contact** City Engineer  
**Department** Public Works  
**Type** Improvement  
**Useful Life** 20 years  
**Category** Storm Sewer/Drainage  
**Priority** 3 Important

**Project #** PWSW-15-09  
**Project Name** 175th & Waverly Stormwater Improvements

**Cash or Debt:** Debt

**Total Project Cost** \$2,697,600

**Description**

Install a double 10' x 4' RCB on the east side of Waverly Road north to the existing culvert crossing Waverly Road into Doublegate ditch. This work should be able to be completed within the existing righ of way on Waverly Road; however, further evaluation may be necessary to confirm this assumption.

Due to drainage concerns and flooding at the intersection of 175th and Waverly, this intersection will need to be elevated. A concept study will be conducted prior to design of Waverly Road to determine storm sewer requirements, preliminary street grades, and phasing (it may be beneficial to make storm sewer improvements prior to street construction).

**Justification**

The intersection of 175th Street and Waverly Road floods during small storm events. The grading work performed at the southeast corner of 175th St. and Waverly Rd. with the new gas station has improved street flooding; however, water still overtops the road during small storm events. This improvement would prevent overtopping of the road during minor storm events; however, for large storm events (i.e., 100-year design storm) the street would still be overtopped. This is a safety hazard to drivers and also prevents public safety vehicles from travelling this road in an emergency.

This project could also be completed as part of a street improvement project for Waverly Rd.

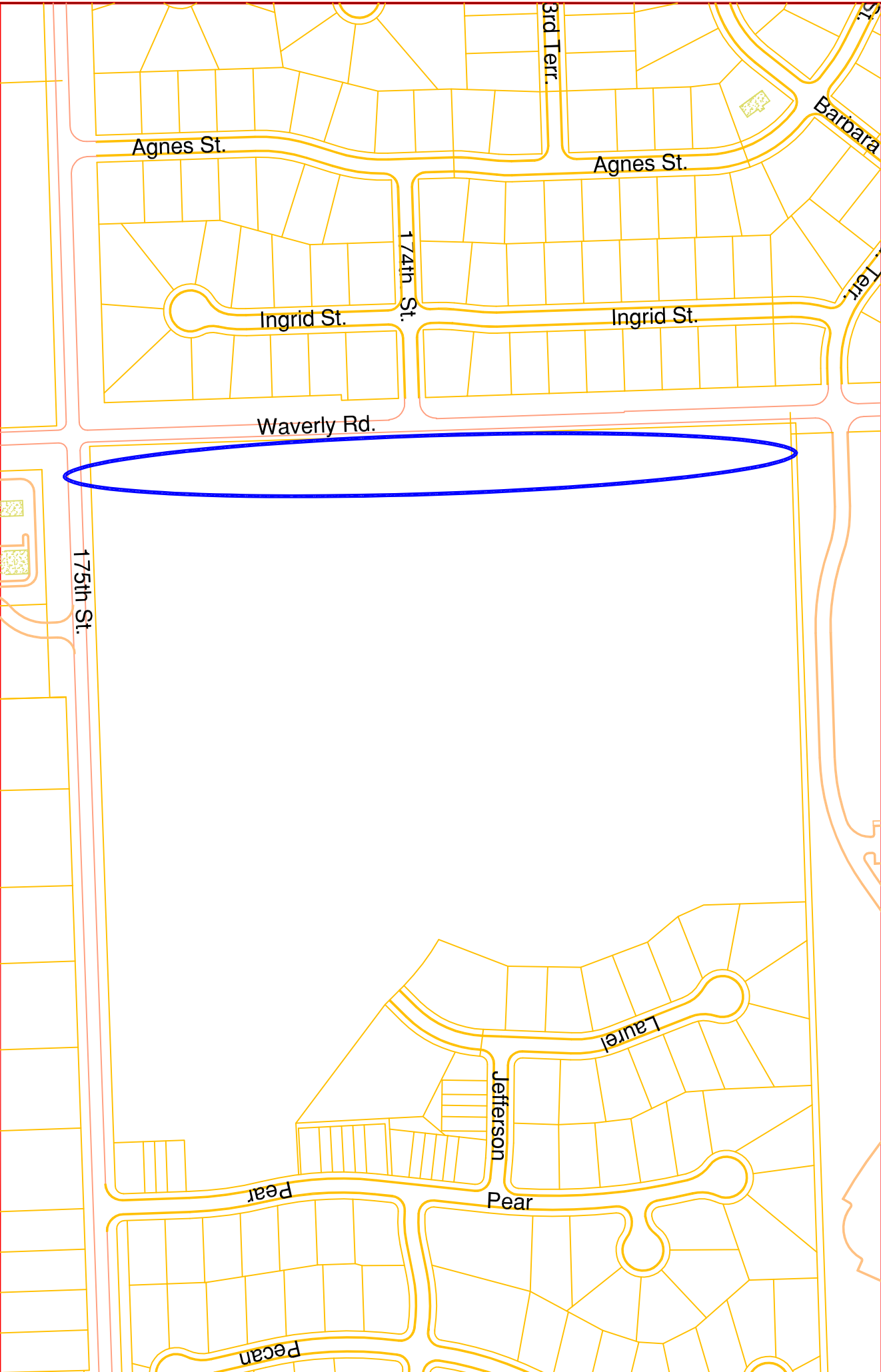
| <b>Expenditures</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> | <b>Future</b> |
|---------------------|-------------|-------------|-------------|-------------|-------------|--------------|---------------|
| Engineering         |             | 60,000      |             |             |             | 60,000       | 2,637,600     |
| <b>Total</b>        |             | 60,000      |             |             |             | 60,000       | <b>Total</b>  |

| <b>Funding Sources</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> | <b>Future</b> |
|------------------------|-------------|-------------|-------------|-------------|-------------|--------------|---------------|
| Stormwater Fund        |             | 0           |             |             |             | 0            | 0             |
| <b>Total</b>           |             | 0           |             |             |             | 0            | <b>Total</b>  |

**Operational Impact/Other**

An interim solution for this location was completed in 2009 by City staff. This solution included installing two storm sewer pipes under 175th St. and regrading the channel on the south side of 175th St. to reduce street flooding at this intersection.

A concept engineering study is proposed in 2014 to develop solutions to both roadway and stormwater issues that exist along Waverly. Half of this \$120,000 is proposed to be funded from the Stormwater Fund.



**PROJECT:** PWSW-15-09  
175th & Waverly Ultimate Stormwater Improvements

**DESCRIPTION:**  
Storm Sewer/Drainage

**Capital Improvement Plan**  
**City of Gardner, Kansas**

2011 *thru* 2015

**Contact** City Engineer  
**Department** Public Works  
**Type** Improvement  
**Useful Life** 20 years  
**Category** Storm Sewer/Drainage  
**Priority** 3 Important

**Project #** PWSW-16-09  
**Project Name** Jamestown Open Channel South of Madison St.

**Cash or Debt:** Cash

**Total Project Cost** \$230,000

**Description**

An open, engineered channel conveys stormwater runoff through the rear yards of 14 single family lots south of Madison Street and 11 lots north of Madison Street. The stormwater is collected from an undeveloped field located south of Jamestown, and then conveyed northerly via an open channel to an enclosed storm sewer system at Lanesfield Street.  
 The recommended solution would be to install two 48-inch HDPEs from the southern boundary of Jamestown to the enclosed system immediately west of Center Street. Depending on the capacity of the downstream storm sewer, a surcharge structure may be required at the connection to the Center Street storm sewer network.

**Justification**

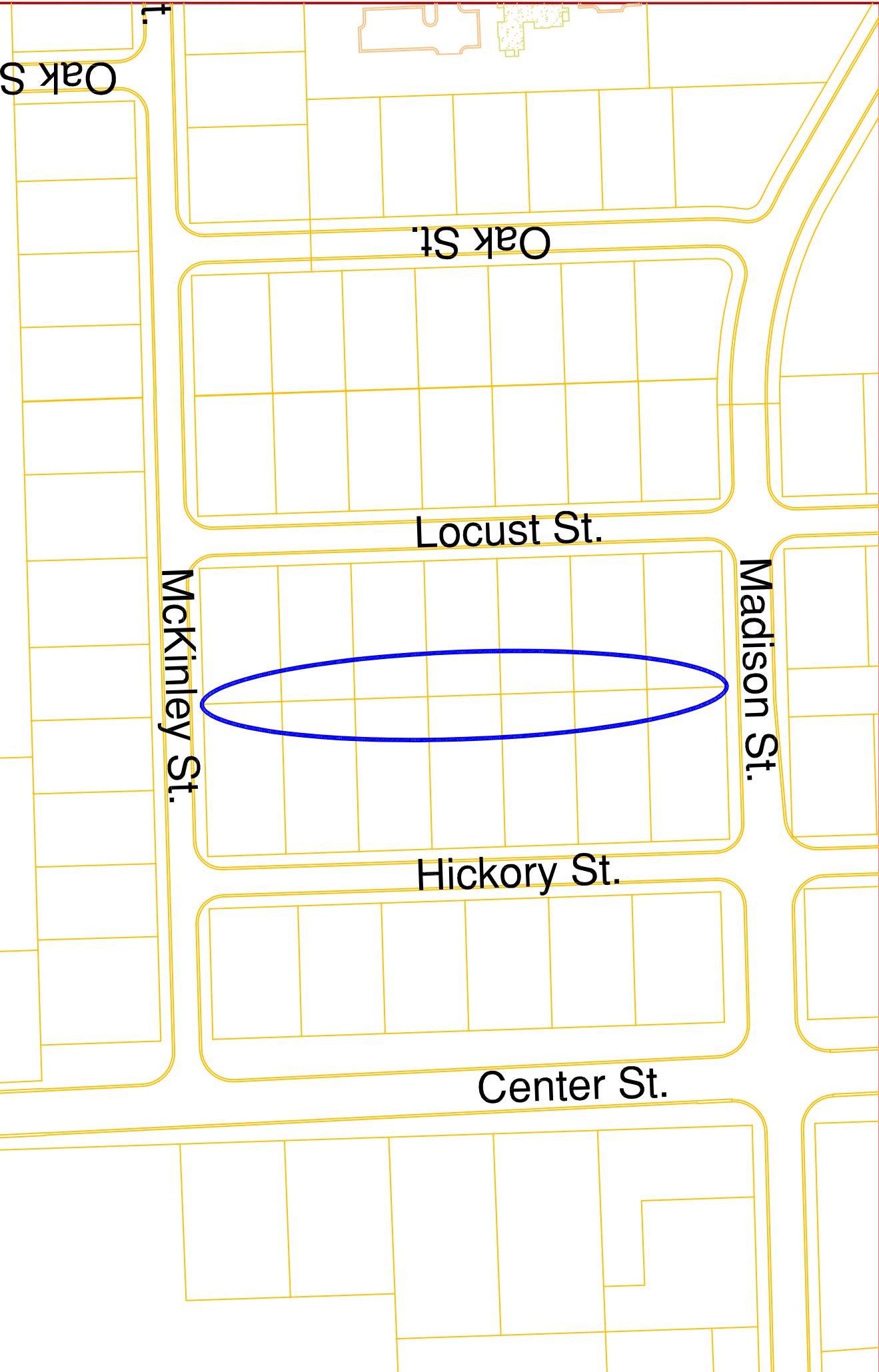
The open channel on the south side of Madison continually silts in. Additionally, the existing stacked stone retaining walls on both sides have voids behind it that are a safety hazard. This is an ongoing maintenance problem. The open channel system is located on private residential lots; however, the residents have been contacting the City for maintenance since there is no HOA to maintain this facility.

| <b>Expenditures</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> |
|---------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Contingency         |             |             | 17,000      |             |             | 17,000       |
| Engineering         |             | 26,000      |             |             |             | 26,000       |
| Construction        |             |             | 170,000     |             |             | 170,000      |
| Inspection          |             |             | 17,000      |             |             | 17,000       |
| <b>Total</b>        |             | 26,000      | 204,000     |             |             | 230,000      |

| <b>Funding Sources</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> |
|------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Stormwater Fund        |             | 0           | 0           |             |             | 0            |
| <b>Total</b>           |             | 0           | 0           |             |             | 0            |

**Operational Impact/Other**

This improvement would reduce safety risks caused by the condition of the retaining walls.  
 Funding for this project is contingent up on the creation of a Stormwater Utility.



**PROJECT:** PWSW-16-09

Jamestown Open Channel South of Madison St.

**DESCRIPTION:**

Storm Sewer/Drainage

**Capital Improvement Plan**  
**City of Gardner, Kansas**

2011 thru 2015

**Contact** City Engineer  
**Department** Public Works  
**Type** Improvement  
**Useful Life** 20 years  
**Category** Storm Sewer/Drainage  
**Priority** 5 Future Consideration

**Project #** PWSW-04-09  
**Project Name** East of Center Street Stormwater Improvements

**Cash or Debt:** Debt

**Total Project Cost** \$2,686,800

**Description**

The drainage way starts near E. Madison St. and flows north toward West 167th St. It starts off as an open concrete channel that receives storm water flow collected from upstream subcatchments, and the concrete channel transitions into a natural channel just south of West 167th St. The total length of the open channel drainage way is approximately 3,600 feet, with five culverts along the drainage way. A previous watershed study defined the drainage area to be 418 acres. In general, the basin has a very mild slope of 1-2 percent, with the average slope for the open channel at 0.6 percent.

Replace existing culverts at Madison St. (from 4' x 8' RCB to 12' x 6' RCB), Colleen Dr. (from 2 48" CMPs to 2 8' x 6' RCBs), Westhoff Place (from 3 48" x 60" CMPs to 3 12' x 6' CMPs), and Sylark St. (from 4 66" x 76" CMPs to 4 10' x 8' RCBs). Additionally, improve 800 ft. of channel from Madison St. to Colleen Drive (reshape channel to rectangular channel with 20' bottom width and profile lowered an average of 3 ft.) and improve 1,350 ft. of channel from Colleen Drive to Skylark St. (reshape channel to trapezoid channel with 2:1 side slope and bottom width of 20 ft.). Some land acquisition will be required for the channel work.

**Justification**

Past hydraulic modeling efforts from the Johnson County, Kansas Captain & Kill Creek Watershed Study (March 2006) and feedback from a City-wide stormwater questionnaire showed flooding issues along the drainage way just east of North Center St. Model results showed twelve habitable buildings are at risk of flooding during a 100-year storm event and numerous locations with risks of erosion and ponding as noted in the stormwater master plan's rating table. A flood rating evaluation was also completed using the Johnson County SMAC flood rating table, which resulted in a score of 170 points.

This project is eligible for Johnson County (SMAC) funding.

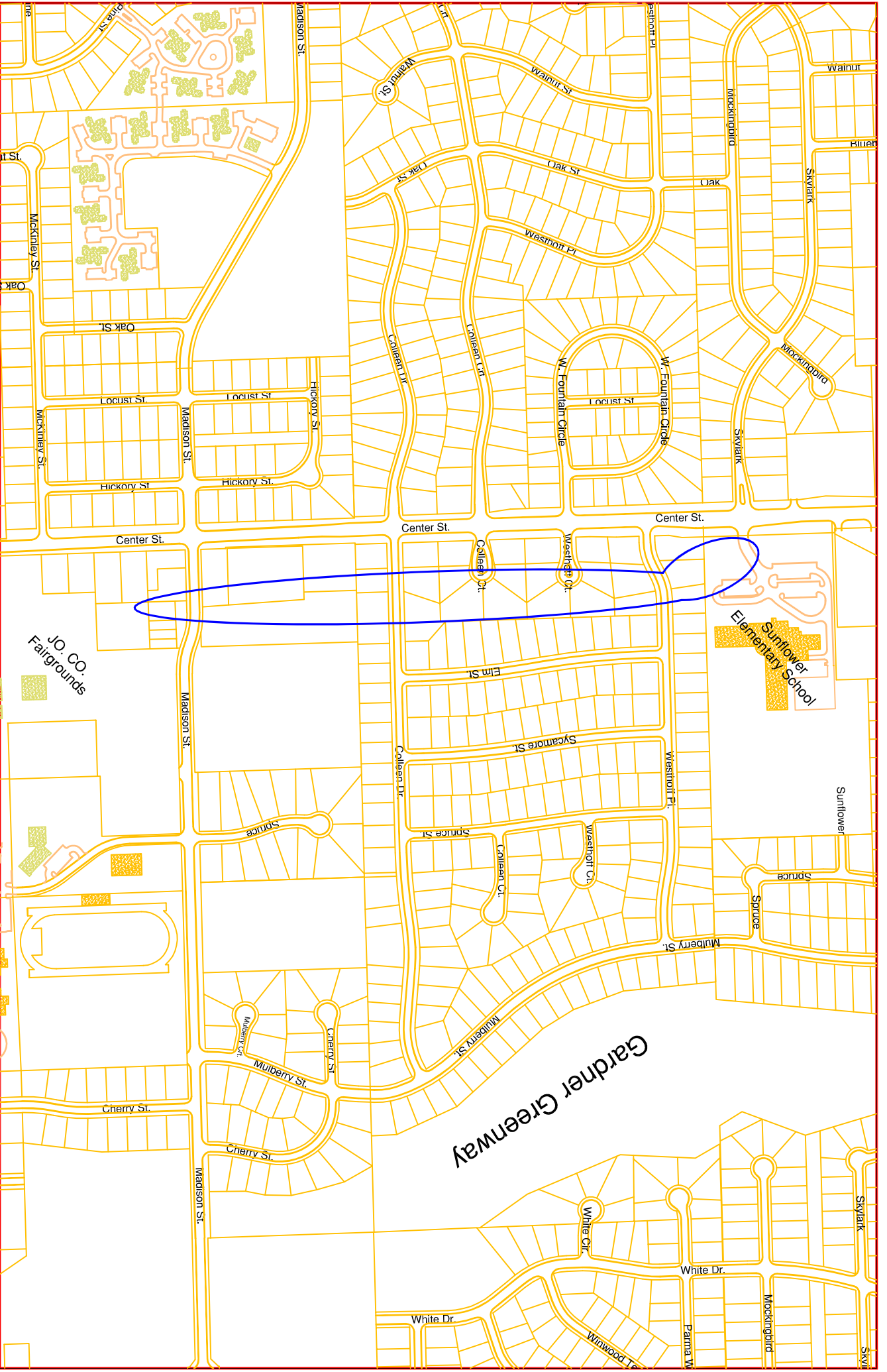
| <b>Expenditures</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> | <b>Future</b> |
|---------------------|-------------|-------------|-------------|-------------|-------------|--------------|---------------|
| Land Acquisition    |             |             |             |             | 99,000      | 99,000       | 2,098,200     |
| Engineering         |             |             | 50,000      |             | 439,600     | 489,600      | Total         |
| <b>Total</b>        |             |             | 50,000      |             | 538,600     | 588,600      |               |

| <b>Funding Sources</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> | <b>Future</b> |
|------------------------|-------------|-------------|-------------|-------------|-------------|--------------|---------------|
| SMAC                   |             |             | 12,500      |             | 403,950     | 416,450      | 1,573,650     |
| Stormwater Fund        |             |             | 0           |             | 0           | 0            | Total         |
| <b>Total</b>           |             |             | 12,500      |             | 403,950     | 416,450      |               |

**Operational Impact/Other**

This improvement will protect public health and safety by reducing residents' risk of flooding and City liability.

City funding for this project is contingent upon the creation of a Stormwater Utility. Otherwise, City funding would need to come from the General Fund.



**PROJECT:** PWSW-04-09  
East of Center Street Stormwater Improvements

**DESCRIPTION:**  
Storm Sewer/Drainage

**Capital Improvement Plan**  
**City of Gardner, Kansas**

2011 *thru* 2015

**Contact** City Engineer  
**Department** Public Works  
**Type** Improvement  
**Useful Life** 20 years  
**Category** Storm Sewer/Drainage  
**Priority** 5 Future Consideration

|                     |  |
|---------------------|--|
| <b>Project #</b>    | <b>PWSW-13-09</b>                                  |
| <b>Project Name</b> | <b>Willow Springs Basins Ultimate Improvements</b> |

Cash or Debt:

**Total Project Cost** \$1,163,000

| Description   |
|---|
| <p>This project includes ultimate improvements to the North and South Basin in Willow Springs subdivision. North Basin improvements include converting this wet basin to a dry basin (regrading basin to 3:1 slopes and 2% slope), installing 1 junction box and 320' of pipe to connect all existing end sections to the control section and the SE corner of the basin, and regrading the basin and creating an overflow location to White Drive for storm events exceeding the detention basin. This would include modifying the existing control structure at the east end of the basin to create a surcharge basin, removing 40' of 30" CMP and end section at the NW corner, removing 35' of 36" pipe and end section at the SE corner, and installing 40' of pipe and end section as primary outlet at the SE corner. Additionally, the berm installed in the interim solution would be regraded to provide more capacity.</p> <p>South Basin improvements include enclosing the current open drainage system through the basin and along the north side of 183rd St. and grading to drain. This includes removing the existing perforated siltation assembly, principal and emergency spillway, filling the detention basin and roadside ditch and grading to 2%, and installing 2 inlets along Cedar Street, 4 area inlets, 4 junction boxes, and 1100' of pipe of which 60' is under 183rd St. and 40' is under Cedar St. Additionally, the downstream pond south of 183rd St. would be converted to a dry bottom detention basin and serve as a regional detention basin. Tasks would include lowering the emergency overflow spillway and protection of the existing channel from erosion and installing multiple stage outlet control structure and 230' of principal spillway through the dam. This basin is located on private property within the County so this pond would need to be acquired for regional detention.</p> <p>Both projects are contingent upon approval by homeowners and land acquisition since grading would be required in their lots for the North Basin and the South Basin is located within residential properties.</p> <p>The ultimate solution for the South Basin will likely qualify for funding by Johnson County (SMAC).</p> |

| Justification   |
|---|
| <p>These projects are necessary to reduce the risk of flooding to structures and streets.</p> <p>The North Basin interim improvements are necessary to reduce the risk of flooding of lots 120 and 121 (which are south of the basin). Model results indicated that the basin does not have adequate capacity to detain the 10-year storm and the emergency overflow swale does not have capacity to carry the 100-year storm. In a 100-year storm, there is a risk that lots 120 and 121 could flood.</p> <p>The South Basin interim improvements are necessary to reduce the risk of flooding of adjacent lots. The basin does not have 100-year design storm capacity. The current design intent is for the overflow to be directed south towards 183rd St.; however, several residents adjacent to the basin have reported annual or more frequent flooding of their yards and foundations.</p> <p>Currently there is no funding for stormwater projects. This project is eligible for Johnson County (SMAC) funding.</p> |

| Expenditures       | 2011 | 2012 | 2013   | 2014    | 2015    | Total     |
|--------------------|------|------|--------|---------|---------|-----------|
| Land Acquisition   |      |      |        | 350,000 |         | 350,000   |
| Contingency        |      |      |        |         | 71,000  | 71,000    |
| Engineering        |      |      | 30,000 | 59,000  |         | 89,000    |
| Construction       |      |      |        |         | 628,000 | 628,000   |
| Utility Relocation |      |      |        |         | 25,000  | 25,000    |
| <b>Total</b>       |      |      | 30,000 | 409,000 | 724,000 | 1,163,000 |

| Funding Sources | 2011 | 2012 | 2013   | 2014    | 2015    | Total   |
|-----------------|------|------|--------|---------|---------|---------|
| SMAC            |      |      | 22,500 | 306,750 | 524,250 | 853,500 |
| Stormwater Fund |      |      | 0      | 0       |         | 0       |
| <b>Total</b>    |      |      | 22,500 | 306,750 | 524,250 | 853,500 |

# Capital Improvement Plan

2011 *thru* 2015

**Contact** City Engineer

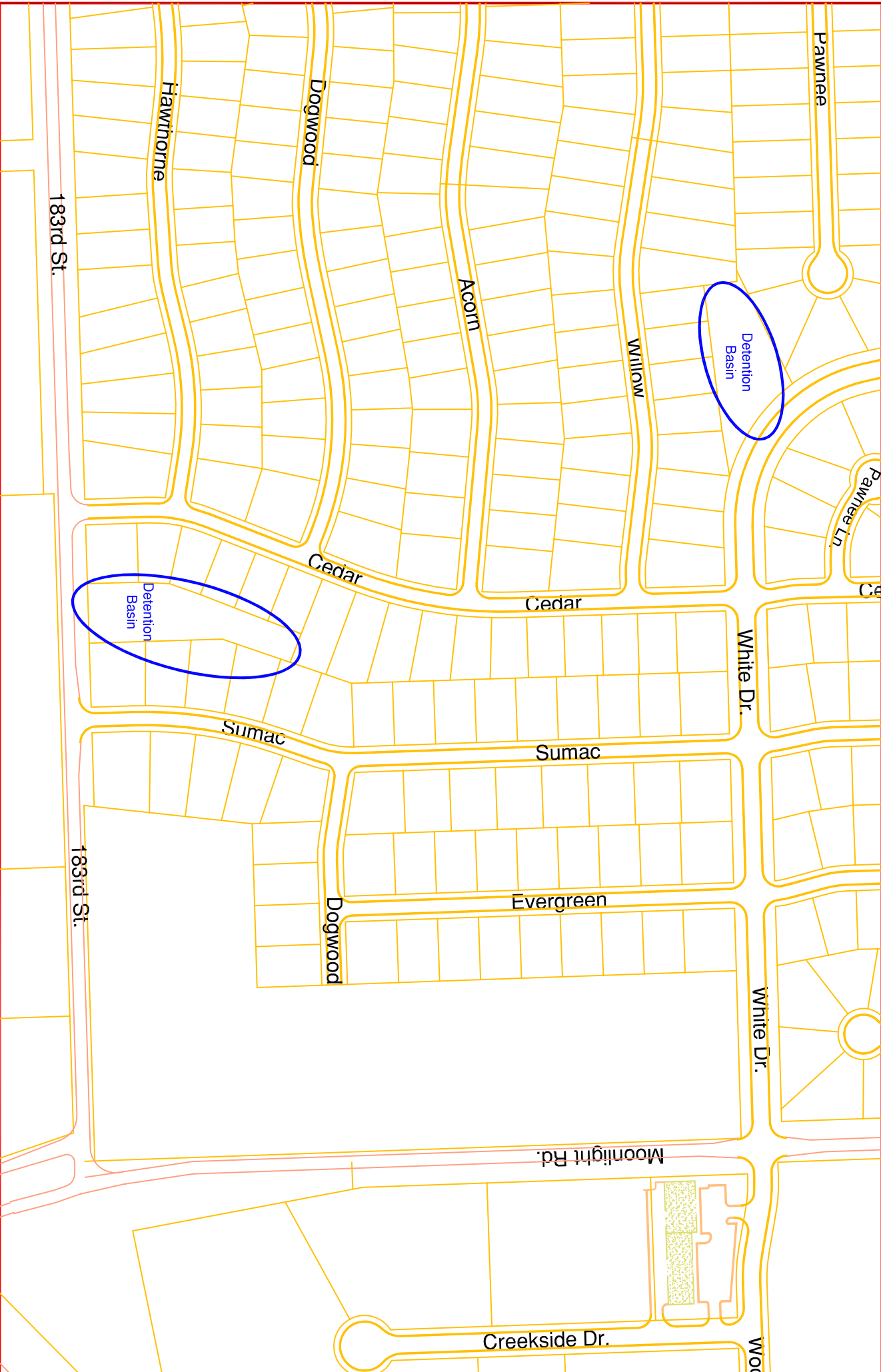
## City of Gardner, Kansas

**Department** Public Works

### Operational Impact/Other

This improvement will protect health and safety by reducing residents' risk of flooding and City liability. This improvement will also reduce the need for City staff to monitor flooding in this area and post and maintain warning signs.

An interim solution for the Willow Springs basins was completed in 2009.



**PROJECT:** PWSW-13-09  
Willow Springs Basins Ultimate Improvements

**DESCRIPTION:**  
Storm Sewer/Drainage

**Capital Improvement Plan**  
**City of Gardner, Kansas**

2011 *thru* 2015

**Contact** City Engineer  
**Department** Public Works  
**Type** Maintenance  
**Useful Life** 20 years  
**Category** Storm Sewer/Drainage  
**Priority** 5 Future Consideration

**Project #** PWSW-01-10  
**Project Name** 183rd Street and Maple Street Detention Basin

**Cash or Debt:** Cash

**Total Project Cost** \$17,375

**Description**

A wet and a dry detention basin are both located approximately 200 feet west of the intersection of 183rd and Maple Streets. The discharge from both basins flows to a cross road CMP under 183rd Street. The recommended solution is to eliminate the detention basin berm and grade the upstream area to achieve positive drainage to the cross road pipe under 183rd Street.

**Justification**

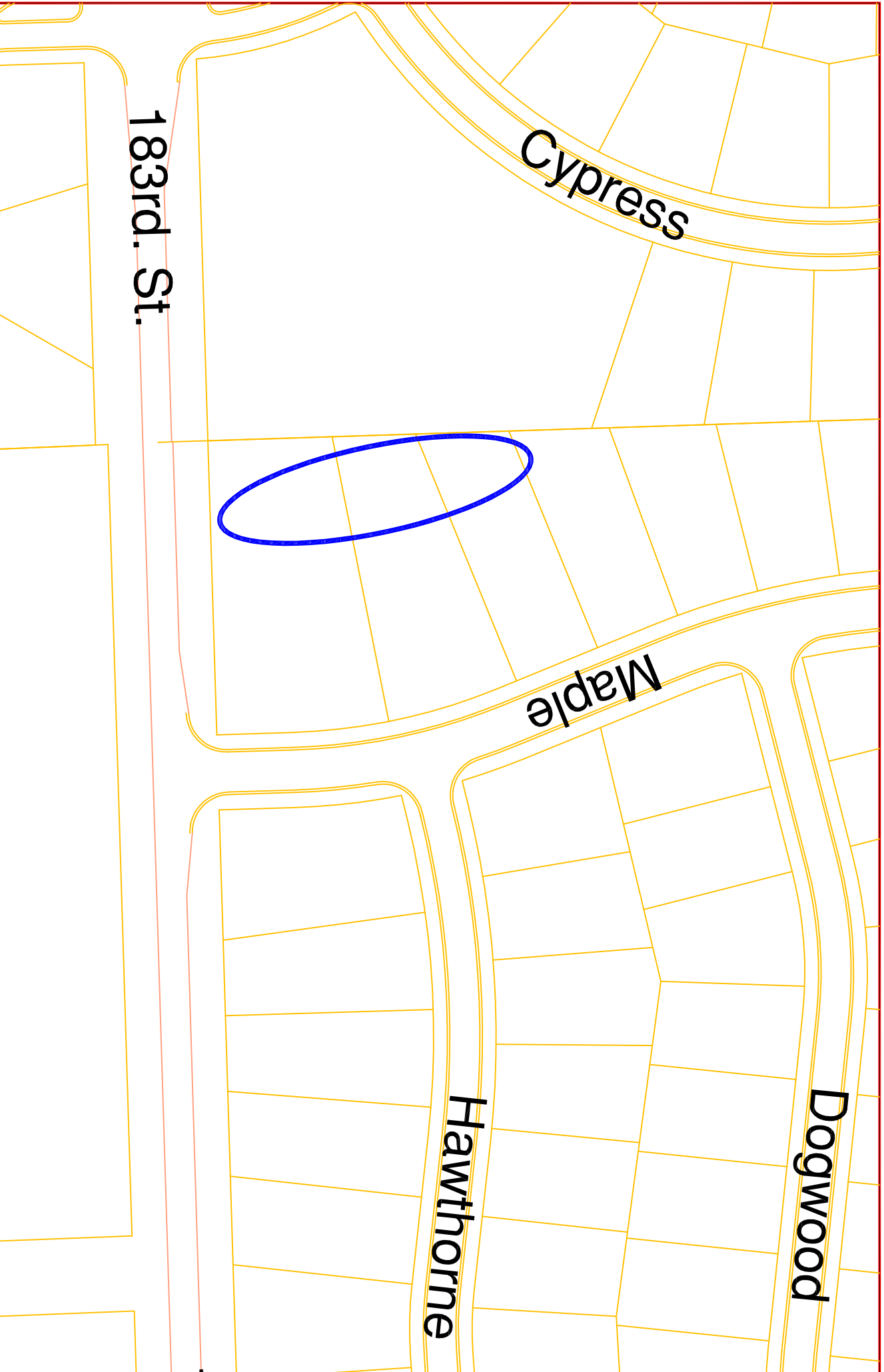
The dry detention basin is poorly drained and offers little detention benefit.

| <b>Expenditures</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b>   | <b>Total</b>  |
|---------------------|-------------|-------------|-------------|-------------|---------------|---------------|
| Contingency         |             |             |             |             | 2,000         | 2,000         |
| Construction        |             |             |             |             | 15,375        | 15,375        |
| <b>Total</b>        |             |             |             |             | <b>17,375</b> | <b>17,375</b> |

| <b>Funding Sources</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> |
|------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Stormwater Fund        |             |             |             |             | 0           | 0            |
| <b>Total</b>           |             |             |             |             | <b>0</b>    | <b>0</b>     |

**Operational Impact/Other**

This would improve a drainage issue and reduce resident complaints.



Cypress

Maple

Dogwood

Hawthorne

183rd. St.



**PROJECT:** PWSW-01-10  
183rd & Maple Detention Basin Improvements

**DESCRIPTION:**  
Storm Sewer/Drainage

**Capital Improvement Plan**  
**City of Gardner, Kansas**

2011 *thru* 2015

**Contact** City Engineer  
**Department** Public Works  
**Type** Improvement  
**Useful Life** 20 years  
**Category** Storm Sewer/Drainage  
**Priority** 5 Future Consideration

**Project #** PWSW-03-09  
**Project Name** Moonlight and Woodson Storm Sewer

**Cash or Debt:** Cash

**Total Project Cost** \$26,000

**Description**

Construct 50 lineal feet of 48" CMP storm sewer to connect to existing storm sewer on east side of Moonlight Road south of Woodson.

**Justification**

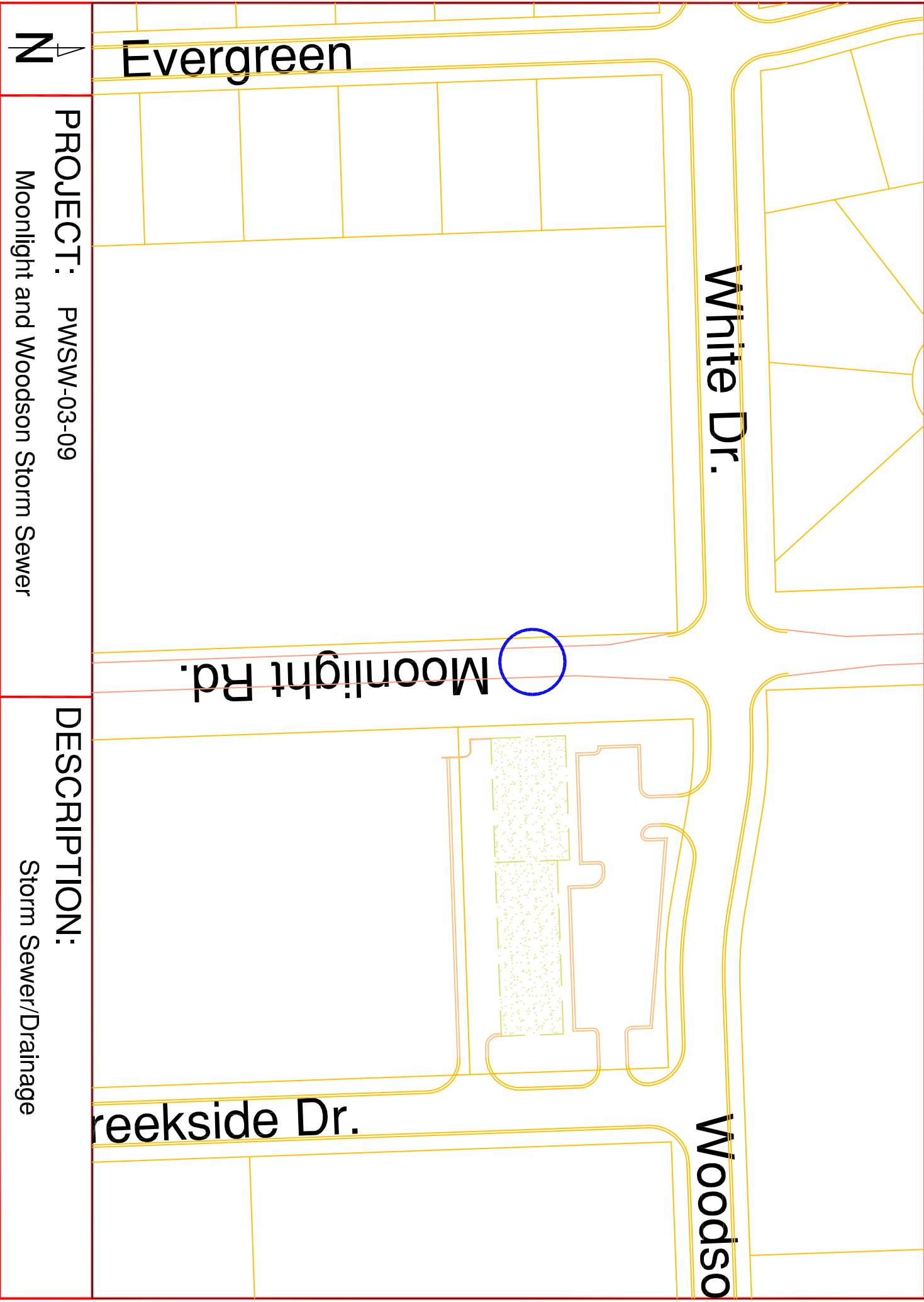
The existing storm sewer under Moonlight Road conveys stormwater westerly to an open channel. The storm sewer pipe is directed at a building (Heartland Plumbing) at the SE corner of Moonlight Rd. and Woodson Lane. A severely eroded open channel conveys runoff from the existing pipe southerly to an existing enclosed storm sewer under the parking lot of the building. An electric transformer is threatened by the erosion and may fall into the ditch if improvements are not made.

| <b>Expenditures</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b>   | <b>Total</b>  |
|---------------------|-------------|-------------|-------------|-------------|---------------|---------------|
| Contingency         |             |             |             |             | 2,500         | 2,500         |
| Engineering         |             |             |             |             | 2,000         | 2,000         |
| Construction        |             |             |             |             | 14,000        | 14,000        |
| Utility Relocation  |             |             |             |             | 7,500         | 7,500         |
| <b>Total</b>        |             |             |             |             | <b>26,000</b> | <b>26,000</b> |

| <b>Funding Sources</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> |
|------------------------|-------------|-------------|-------------|-------------|-------------|--------------|
| Stormwater Fund        |             |             |             |             | 0           | 0            |
| <b>Total</b>           |             |             |             |             | <b>0</b>    | <b>0</b>     |

**Operational Impact/Other**

City staff performed an interim improvement in 2009, therefore, this project can be delayed.



N

Evergreen

White Dr.

Moonlight Rd.

Woodso

Creekside Dr.

PROJECT: PWSW-03-09  
Moonlight and Woodson Storm Sewer

DESCRIPTION:  
Storm Sewer/Drainage

**Capital Improvement Plan**  
**City of Gardner, Kansas**

2011 *thru* 2015

**Contact** City Engineer  
**Department** Public Works  
**Type** Improvement  
**Useful Life** 20 years  
**Category** Storm Sewer/Drainage  
**Priority** 4 Less Important

**Project #** PWSW-11-09  
**Project Name** Parma Subdivision Stormwater Improvements

**Cash or Debt:** Debt

**Total Project Cost** \$1,178,600

**Description**

This project includes installation of area inlets every 4 lots and storm sewer pipe ranging from 15-inch to 36-inch in the rear yards of Parma. Costs are provided for the entire subdivision, but could be broken down into 7 different projects. Costs are based on grading and restoration, utility relocation, installation of 48 area inlets, 2200 lineal feet of 15" pipe, 980 lineal feet of 18" pipe, 785 lineal feet of 24" pipe, 950 lineal feet of 30" pipe, and 160 lineal feet of 36" pipe. This project is contingent upon the property owners granting easements to the City.

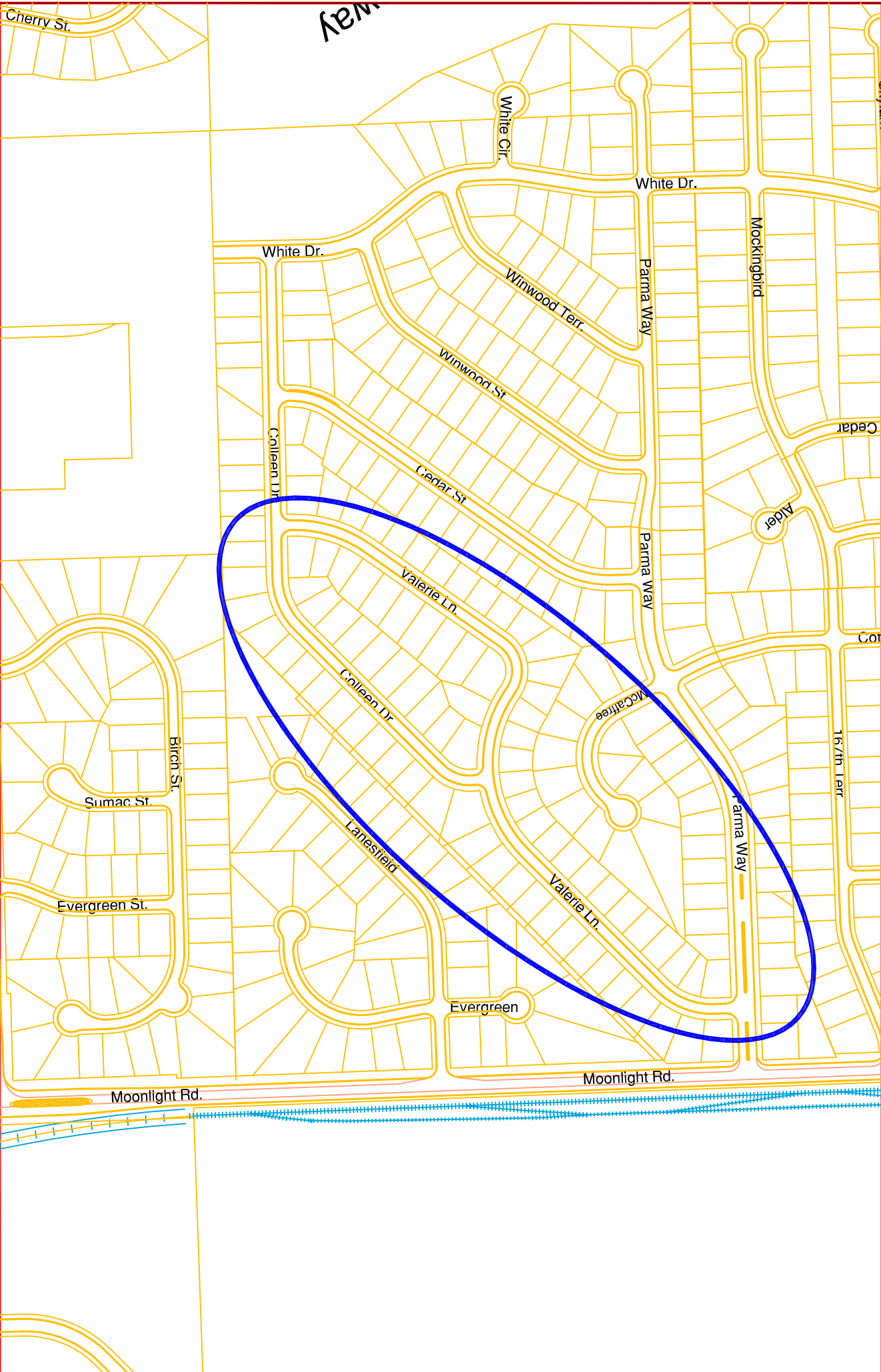
**Justification**

Parma subdivision is one of the oldest subdivisions in the City and was designed to drain stormwater in backyards with little or no storm sewer pipe. During large storm events, backyards are flooded and pond water. It is likely that this project would be broken down into 7 projects and priority would be based on severity of flooding.

| <b>Expenditures</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> | <b>Future</b> |
|---------------------|-------------|-------------|-------------|-------------|-------------|--------------|---------------|
| Engineering         |             |             |             |             | 110,000     | 110,000      | 1,068,600     |
| <b>Total</b>        |             |             |             |             | 110,000     | 110,000      | <b>Total</b>  |

| <b>Funding Sources</b> | <b>2011</b> | <b>2012</b> | <b>2013</b> | <b>2014</b> | <b>2015</b> | <b>Total</b> | <b>Future</b> |
|------------------------|-------------|-------------|-------------|-------------|-------------|--------------|---------------|
| Stormwater Fund        |             |             |             |             | 0           | 0            | 0             |
| <b>Total</b>           |             |             |             |             | 0           | 0            | <b>Total</b>  |

**Operational Impact/Other**



**PROJECT:** PWSW-11-09  
Parma Subdivision Stormwater Improvements

**DESCRIPTION:**  
Storm Sewer/Drainage