

## 8.0 RECOMMENDATIONS, IMPLEMENTATION, AND FUNDING

### 8.1 INTRODUCTION

This chapter summarizes overall recommendations for the Cool Creek watershed and presents implementation and funding issues associated with each category of improvement projects. A detailed discussion of recommended projects is provided in Chapter 7.

### 8.2 RECOMMENDATIONS

#### 8.2.1 Capital Projects

*Bridge/Culvert Improvements - \$1,820,000*

- E. 151<sup>st</sup> Street (Cool Creek)
- E. 171<sup>st</sup> Street (Cool Creek)
- Gurley Street (Anna Kendall Drain)
- Cherry Street (Anna Kendall Drain)
- SR 32/Main Street (J.M. Thompson Drain)
- Thornberry Drive (Highway Run)

*Bridge/Culvert Improvements that may not be needed (see Section 8.3.1 for reasons) - \$900,000*

- US 31 and Adjacent Private Drive (Highway Run)
- Walter Street, Private Drive, Walter Court (Highway Run)

*Neighborhood Projects - \$100,000*

- Carmel Drive (Hot Lick Creek)
- Channel Improvement (Hot Lick Creek)

*Streambank Erosion Projects - \$570,000*

- Highway Run
- H.G. Kenyon Drain
- Cool Creek (5 locations)

*Regional Detention Projects - \$5,100,000*

- 171<sup>st</sup> Street Off-Line Detention Pond
- Grassy Branch Road Off-Line Detention Pond
- Anna Kendall In-Line Detention Pond

## 8.2.2 Land Use and Planning Policies

The following changes are recommended to land use and planning policies with regard to stormwater management:

- *Implement consistent floodplain fill regulations in the watershed.* Hamilton County prohibits fill in the floodplain while Carmel and Westfield currently allow fill, provided certain conditions are met. A consistent policy prohibiting fill within the 100-year floodplain would help prevent flooding and water quality problems.
- *Implement a stream buffer ordinance.* Stream buffer preservation/enhancement, coupled with floodplain regulations, will help prevent flooding problems and improve water quality.
- *Establish additional riparian vegetation along the upper reaches of Cool Creek.* Existing creeks have limited streamside vegetation. Additional vegetation would promote wildlife habitat and filter stormwater runoff.
- *Update stormwater ordinances and design standards to more proactively address water quality.* Best Management Practices, both structural and non-structural, should be implemented to prevent or reduce urban runoff problems associated with existing and future development.
- *Modify detention policies to incorporate channel and water quality protection.* Additional storage and more restrictive release rates for smaller storms will help capture stormwater runoff pollutants and reduce streambank erosion to receiving waters.
- *Identify and protect critical conservation areas* such as wetlands, forested areas, floodplains, and riparian areas.
- *Utilize sound site planning practices* by encouraging natural drainage protection and urban forestry when siting developments.
- *Utilize other structural and non-structural management practices* such as porous pavement, sand filters, infiltration practices, water quality swales, manufactured devices, vegetated filter strips, and bioretention areas.

The estimated cost to update ordinances and standards to incorporate the above recommendations is \$200,000.

## 8.3 IMPLEMENTATION AND FUNDING

The follow is a brief summary of key implementation and funding issues associated with recommended improvements.

### 8.3.1 Bridge/Culvert Improvements *(see Chapter 7 Section 7.4 for project details)*

The optimal time to construct bridge/culvert improvement projects is in conjunction with planned roadway improvement projects so that traffic disruptions are minimized and projects are coordinated with overall infrastructure plans. The bridge/culvert improvements projects are generally located within public right-of-way with minimal land or easement acquisition needs. The Hamilton County Highway Department is responsible for all roads, bridges, and small structures (less than 20 foot span) within Hamilton County that are not state highways and that are not within the corporate limits of a city or town. They are also responsible for bridges which have a span of 20 or more feet on all roads in Hamilton County which are not state highways. Smaller structures within Carmel and Westfield are the responsibility of each community.

Implementation of the 151<sup>st</sup> Street and 171<sup>st</sup> Street bridge improvements should be coordinated with the Hamilton County Highway Department, as these structures fall under their jurisdiction. The Gurley Street and Cherry Street bridge replacement projects involve structures less than 20 feet and would fall under the jurisdiction of Westfield Utilities/Public Works Department. The SR 32/Main Street culvert replacement on the J.M. Thompson Drain would need to be coordinated with INDOT. Most of the bridge/culvert replacement projects will require a “Construction in a Floodway” permit from IDNR.

Improvements to culverts on Highway Run (US 31, Walter Street, Private Drive, and Walter Court) *may not be needed*. Plans were recently announced for a major retail development (Clay Terrace) along the west side of US 31 from 146<sup>th</sup> Street to south of Highway Run. Plans on the developer’s web site ([www.clayterrace.com](http://www.clayterrace.com)) show that this development will encompass Highway Run and the Walter Street/Walter Court neighborhood. The costs for these culvert improvements remain in the Cool Creek Watershed Plan in the event that development plans change at this location. The other culvert replacement project on Highway Run (Thornberry Drive) is upstream from the proposed Clay Terrace development. Replacement of this culvert would fall under the City of Carmel’s jurisdiction.

In terms of prioritizing the bridge/culvert replacement projects, the Gurley Street, Cherry Street, and SR 32/Main Street projects would have a higher priority as these structures restrict flows and place residential structures at risk to flooding. The US 31 and Walter Street area culvert improvements would also have a high priority for the same reason; however, the development plans in the area lower the priority of this project. Thornberry Drive would be a higher priority as this restrictive culvert also places residential structures at risk of flooding. The 151<sup>st</sup> Street and 171<sup>st</sup> Street bridge improvements are lower priority. While the roadway overtopping at these locations impedes traffic, it does not result in upstream flooding of residential or commercial structures. Alternate transportation routes exist should a flood occur that causes overtopping of these roads.

The recommended bridge/culvert improvement projects would likely be funded from capital budgets for streets and/or local drainage from the appropriate jurisdiction as these structures are a critical component of the transportation and drainage system. It may also be feasible to utilize the regulated drain funding mechanism above 146<sup>th</sup> Street, where Cool Creek, Anna Kendall Drain, and J.M. Thompson Drain are regulated drains.

### **8.3.2 Neighborhood Projects** *(see Chapter 7 Section 7.5 for project details)*

The two projects categorized as neighborhood projects, are both located along Hot Lick Creek in the City of Carmel. The culvert replacement project at Carmel Drive would have a higher implementation priority than the upstream channel improvement. The restrictive culvert at Carmel Drive creates a backwater condition that places upstream structures at risk of flooding. The roadway (Carmel Drive) is also overtopped. The channel improvement project is primarily intended to direct the channel away from a fence along a residential property. There is a pool that is periodically flooded; however it is very low relative to the channel and extensive channel improvements would be needed to correct this problem.

The culvert replacement would be constructed in existing public right-of-way. The channel improvement portion of this neighborhood project is located on private property. Coordination with three property owners would be required and temporary construction easements would be needed. Funding for the culvert replacement would likely come from City of Carmel drainage

funds. The channel improvement could also involve a cost share from the affected property owner.

### **8.3.3 Streambank Erosion Projects** *(see Chapter 7 Section 7.6 for project details)*

Except for the H.G. Kenyon Drain, the streambank erosion projects are located within the City of Carmel (H.G. Kenyon Drain is in Unincorporated Hamilton County). The main implementation and funding impediment for the streambank erosion projects is that they are located on private property. South of 146<sup>th</sup> Street, Cool Creek is not a regulated drain and there are no maintenance easements. Hence, undertaking any of these streambank erosion projects will involve easement acquisition (either construction and/or permanent).

The City of Carmel has been reluctant to spend public funds on private property unless a particular streambank erosion area was causing damage or threatening a public utility or facility. If the property owner elects to repair streambank erosion on their own, technical assistance is available from the Hamilton County Soil and Water Conservation District ([www.co.hamilton.in.us/gov/soil/services.asp](http://www.co.hamilton.in.us/gov/soil/services.asp)). Technical assistance is *strongly encouraged* prior to any streambank restoration effort to ensure the project will be effective and will not create additional problems upstream or downstream. Most streambank projects would also involve a “Construction in a Floodway” permit from IDNR.

The estimated cost of the streambank erosion projects identified in this study ranges from \$5000 to \$300,000. It is probably not feasible for a property owner to undertake any of the larger projects. Funding would have to come from local drainage funds or possibly from grants and loans. Information on Federal funding is available at <http://cfpub.epa.gov/fedfund/>.

### **8.3.4 Regional Detention Projects** *(see Chapter 7 Section 7.7 for project details)*

Implementation of the three recommended regional detention projects (two new basins and one retrofit) will be more difficult because of land acquisition and the high capital costs (relative to the other recommended projects). These ponds would provide significant flow reductions for the more frequent storm events, reduce downstream erosion, and improve water quality. All three government entities in the watershed (Hamilton County, Westfield, and Carmel) would benefit from their construction, indicating a joint funding approach may be appropriate. There may also be opportunities for partial grant funding because of the water quality component.

The 171<sup>st</sup> Street and Grassy Branch Road regional “off-line” detention basins are more costly to construct because of land acquisition and earthwork requirements. It may be more feasible to construct these ponds in conjunction with future development in the vicinity of the pond locations. Developers often require large volumes of fill for site grading. Having a nearby spoil area for excavated soil would significantly decrease pond construction costs.

The Anna Kendall Drain regional pond is less costly because the existing storage impoundment is created by an existing embankment. Significant upgrades to the embankment, including installation of an improved outlet structure and a new emergency spillway, will be required to meet dam safety regulations associated with “on-line” ponds. It is recommended the County use its regulated drain maintenance assessment to help generate funds for this project.

### **8.3.5 Ordinance and Standards Updates** (*see Chapter 7 Section 7.8 for project details*)

The recommendations outlined in the land use and planning policies section of this chapter will require updates and/or new ordinances and design standards. These updates will likely be lead by Hamilton County since Carmel and Westfield already rely on County stormwater standards. The County is also leading efforts to coordinate upcoming IDEM Rule 13 requirements to address stormwater quality and impacts to receiving streams. The land use and planning recommendations in this study are directly applicable to Rule 13 implementation.

The estimated cost to update ordinances and standards is \$200,000. This would include conducting stakeholder group meetings, internal staff meetings, design manual development/updating, and presentations/outreach to the development community.

### **8.3.6 General Discussion of Funding Options for Local Communities**

#### *Primary Sources*

Adequate local funding sources for stormwater projects will be required to implement many of the recommendations in this study as well as other stormwater needs. Primary funding sources include tax supported funds, assessments, and user fees. Many Indiana communities use general funds, supported by property taxes, to fund stormwater improvement projects. General obligation, revenue, or special assessment bonds are often issued to finance large capital improvement programs. Repayment is normally through the general fund, special assessment district income and utility revenues. Demand for general funds is very high, as these funds are used for many programs, including police and fire protection. Stormwater often becomes a very low priority. Assessments, such as Barrett Law and Regulated Drains, can be used as a primary funding source for stormwater projects. Hamilton County effectively utilizes regulated drains and regulated subdivisions to construct and maintain drainage infrastructure. The maintenance assessment on the Anna Kendall Drain is an example of an effective method to fund improvements to the drain.

Faced with rising costs for regulatory compliance and a general reluctance to raise taxes, many communities have investigated or implemented user fees to fund drainage, flood control, stormwater runoff quality and other stormwater management activities. User fees are generally based on the volume of stormwater that runs off a property. The most common tool used to determine runoff is the relative amount of impervious area on a given property. Many communities find stormwater fees to be more equitable and stable than property taxes or other types of funding mechanisms. Indiana Counties (including Hamilton County) are also lobbying the State legislature and Governor's office to pass and sign into law enabling legislation that will allow Indiana Counties to establish stormwater user fees.

#### *Secondary Sources*

Secondary sources of funding can be used to supplement primary sources. They can be used for specific development or redevelopment projects, to fund ongoing processes like plan review and inspection, and to fund capital projects in existing developing areas.

Some of the more common secondary sources are:

- System Development Charges
- Special Assessments and Improvement Districts
- Plan Review and Inspection Fees
- In Lieu of Construction Fees
- Impact Fees
- Sales Taxes
- Grants and Loans

#### **8.4 SUMMARY**

Approximately \$8.7 million in improvements are recommended for the Cool Creek watershed, including \$8.5 million for capital projects and \$200,000 to update stormwater ordinances and standards. Implementation of these recommendations will enhance public safety, improve water quality, assist in regulatory compliance, and provide a significant step towards achieving long-term environmental health for the Cool Creek watershed.