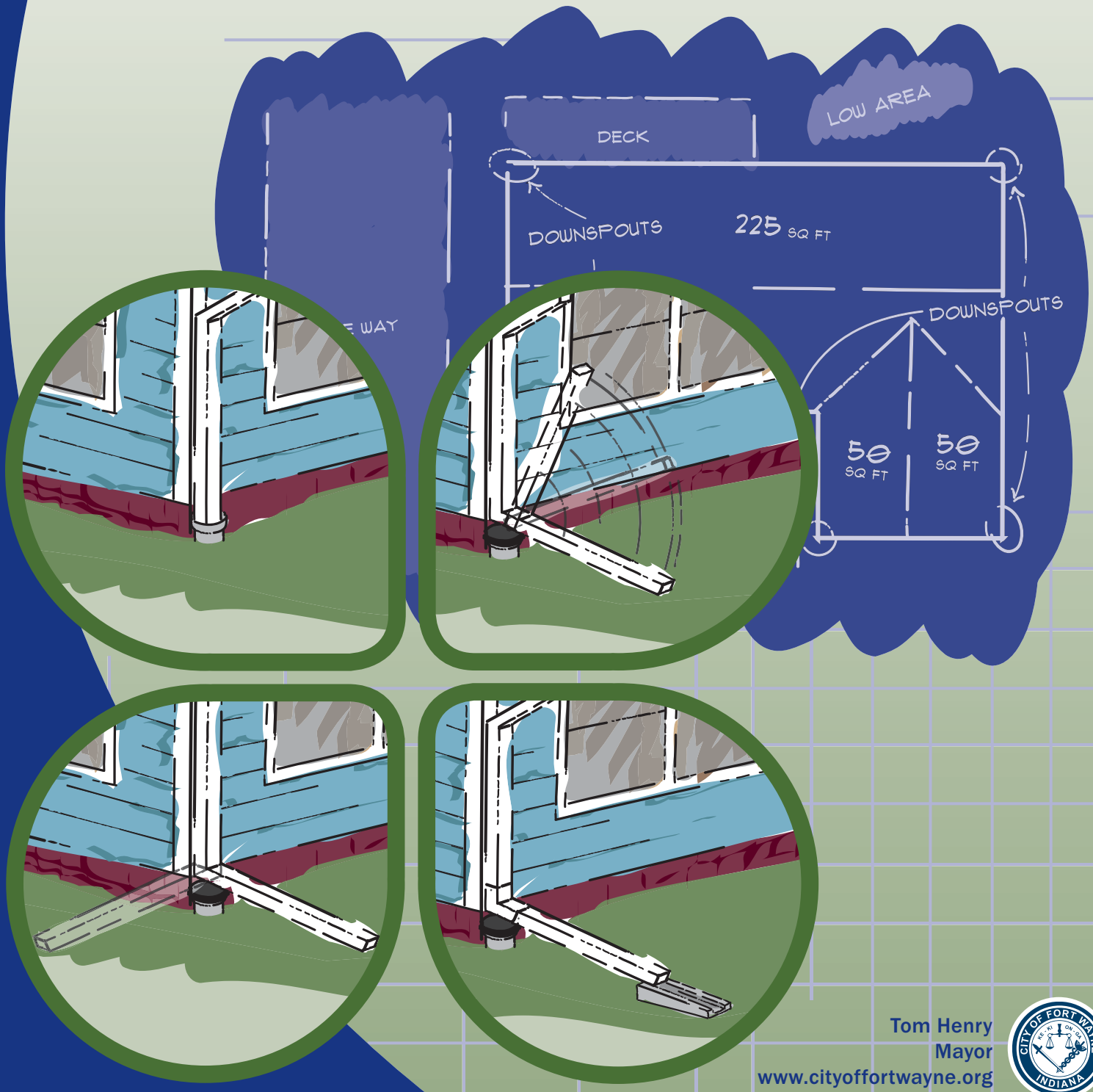
DOWNSPOUT DISCONNECTION

Managing Stormwater on Your Property



Tom Henry
Mayor
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How To Disconnect or Reroute Downspouts

Fort Wayne receives an average of 36.5 inches of rain each year. Much of the rain water that falls enters the storm sewer system and goes directly to a pond, stream or river carrying dirt and pollutants with it. Some is absorbed into the ground. Some goes into the combined sewer system where it can contribute to sewer backups and river water pollution.

Catching rain can help protect the quality of rivers, lakes and streams

Collecting rain water runoff from the hard surfaces on your property and routing it appropriately can reduce the demand on the sewer system – especially in areas served by combined sewers where the same pipes carry stormwater and sanitary sewage. Helping rain water soak into the ground close to where it falls can also help protect the quality of rivers, lakes and streams. Managing stormwater on your property may also help reduce standing water and help with other drainage issues.

Why should I disconnect the downspouts?

There are several reasons that downspout disconnection is a good idea. If you or your neighbors have sewer backups or basement flooding, your downspouts could be a contributing cause.

If you live in an area with combined sewers and you experience sewer backups, your downspouts may be contributing because they are tied directly to the combined sewer. Combined sewers carry sanitary waste water in dry weather, but they also carry stormwater when it rains. If your downspouts go into pipes that go into the ground, there is a good chance that the pipes – known as standpipes – connect to a combined sewer. Rain water going directly into combined sewers from downspouts can take up much of the capacity in those sewers. Depending on the depth of your basement, when the combined sewers fill with rain water, you may experience a backup. Disconnecting your downspouts and keeping rain water from entering the combined sewers can reduce the chance of sewer backups for you and your neighbors. In combined sewer areas the City can order you to disconnect your downspouts.

Downspouts going into standpipes may be connected to your footer drains. Sometimes, especially in older homes, the footer drains connect to a sump pit that is emptied by a sump pump. If the electricity goes out or your pump is not big enough, your sump may overflow and flood the basement. Downspouts connected to footer drains can cause basement walls to crack and ground water to seep into the basement. Disconnecting downspouts can reduce the water your footer drains must carry, and the amount of water going to the sump pit, if you have one.

If your downspouts are not connected to a standpipe, they may still cause flooding in your own home or yard or in a neighbor's home or yard if they are misdirected. It is a violation of the Rules and Regulations of Fort Wayne's Stormwater Utility for a property owner to change the stormwater runoff pattern so that neighboring properties or City property are damaged. Therefore it is your responsibility to make sure that the flow from your downspouts does not cause property damage on other properties or create a public nuisance.

What's involved in disconnecting my downspouts?

You can disconnect your downspouts from existing standpipes that go to a sewer and let the water from the downspout flow over landscaped areas or your lawn. Disconnection – when done correctly – can help move water away from building foundations and allow it to soak into the ground. Disconnecting includes cutting the existing downspout, then attaching an elbow and extension, securing those to the existing structure, and adding a splash block to direct water flow away form the house, and plugging the existing standpipe.

If you are planning to build a rain garden on your property, a downspout is an excellent water source for the rain garden. Visit the City's rain garden website at www.catchingrainfw.org to learn more about the rain garden program and how you can get involved.

How do I get started with downspout disconnection?

Begin by preparing a good plan to ensure that the stormwater soaks into the ground without damaging structures and without causing neighborhood drainage problems. This brochure describes a simple process to help you disconnect your downspouts and includes suggestions for rerouting your downspouts to change the direction of rain water flow.

Step 1

Observe Your Site

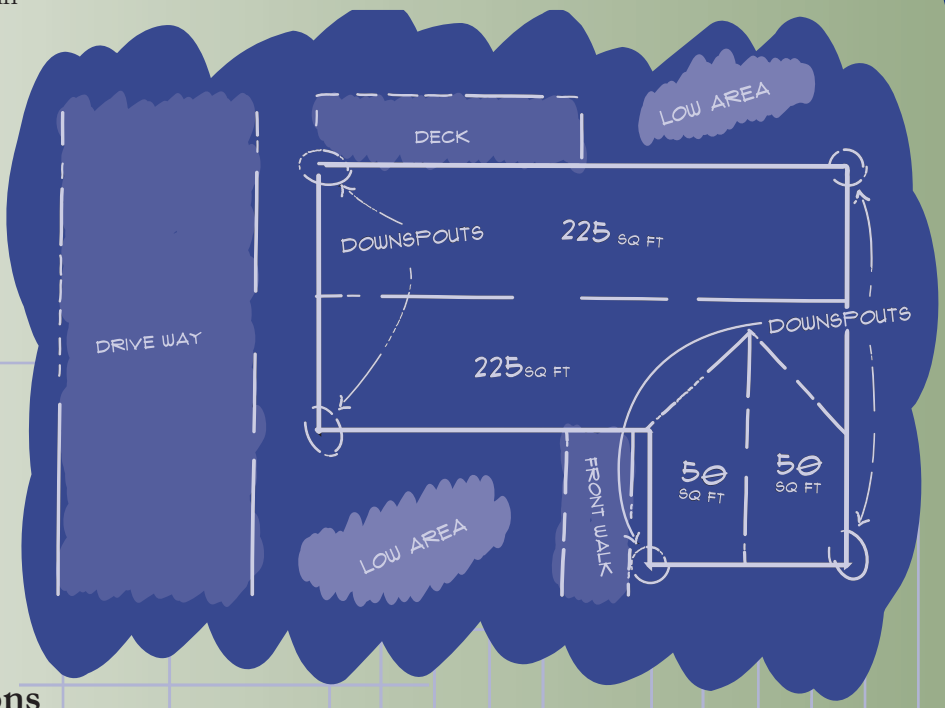
Go outside when it is raining and take a look around. Find out where the runoff from your downspouts is going. Are your downspouts connected to the sewer system through a standpipe or do they drain to the lawn?

Downspouts that go into a pipe in the ground may be connected to a combined or storm sewer. (Note: it is illegal to have downspouts connected to a sanitary sewer.) They may be connected to an underground pipe that goes under your lawn and sidewalk and into the street. The pipe may be connected to a soakage trench sometimes known as a French drain, to a drywell or to some other stormwater drainage system. If your downspouts are connected to a soakage trench or to a storm sewer and the connections are in good working order you may not need to disconnect, but you may want to in order to avoid future maintenance or replacement costs.

Draw what you observe

Make a sketch of your property. You can print an aerial view of your property from www.acimap.us to use as a starting point.

Draw the roofline of your house and mark the downspout locations. Estimate the square footage of your roof. Map out areas in your yard that are lower than (down slope from) the downspouts that you want to disconnect.



Important safety considerations

Property lines: Water from your downspouts must not be discharged in a way that creates a public nuisance. Your downspouts must not discharge onto your neighbor's property or the public sidewalk. Keep the end of your downspout a few feet inside your property line.

Access: Avoid adding a downspout extension that will cross a walkway, patio or driveway. Also avoid allowing water from the downspout or extension to flow onto walkways or driveways as the water can freeze in the winter and create an ice hazard.

Slope: You may need to add or remove soil to make sure that the slope of the ground allows water to flow away from structures and to prevent standing water.

Drainage: Special care is needed when disconnecting downspouts in an area too small for good drainage (see page 3 for guidelines.)

Extensions: Although there are no requirements in Fort Wayne City Code or Indiana State law regarding how far away from your house downspouts can discharge, it is a good idea for a downspout extension to discharge water at least 6 feet from a basement and 2 feet from a crawl space or slab foundation. Downspout extensions and surrounding landscaping must drain water away from structures and prevent the accumulation of stagnant water that could become a mosquito breeding area.

Other concerns: Do not direct water from a downspout to the area over a septic drain field or an underground oil tank unless they have been decommissioned. Do not discharge downspout water within 10 feet of a retaining wall.

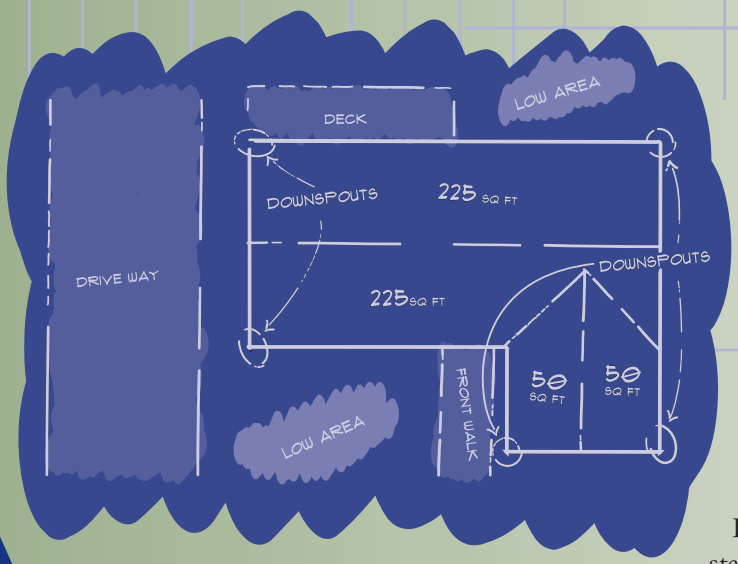
Begin by preparing a good plan

Step 2 Design Your Disconnection

Using the drawing you made in Step 1, mark the downspouts that will be disconnected or rerouted and decide where you want the water from those downspouts to go. Mark where you may need to add extensions or elbows to get around plants or other obstructions. You may need to think about places where you can move downspouts, change the pitch in the gutter or remove walkways or other impervious areas as part of the downspout disconnection or redirection. Mark these items on your drawing.

Before disconnecting downspouts, make sure you have enough landscaped area for rain to soak safely into the ground. A good rule of thumb is to have a landscaped area at least 30% as large as the drainage area that will be directed to it. For example, if your roof area is 550 square feet and you have 5 downspouts, each downspout will carry runoff from approximately 110 square feet. You will need about 33 square feet of landscaping to collect the water from one downspout (see illustration below).

ROOF AREA	SIZING FACTOR	LANDSCAPED AREA SIZE
110 SQ. FT.	X 30%	= 33 SQ. FT



Tools

Remember: Safety is the first consideration. You will need heavy work gloves and safety goggles.

- Hacksaw
- Drill
- Needle-nose pliers or crimpers
- Tape measure and pencil
- Screwdriver or nut driver

Materials

Make a list of the parts and materials needed. These might include:

- Plug or cap for standpipe
- Downspout extension
- Sheet metal screws
- Downspout elbow
- Bracket (for securing downspout to house)
- Splash block

You may have more than one option for directing or redirecting each downspout. Consider combining elbows, extensions and splash blocks to send water to the side or front, or to get around obstacles and route water away from the house. Although it takes more work, downspouts can be relocated to another spot along the gutter to get water to a safer drainage location.

Downspout elbows and extensions come in a few standard shapes, sizes, colors and materials to fit your gutters. Ask at a hardware or home store to find out if the materials you choose can be painted to match your house paint color or blend into your landscaping.

Some downspouts are only attached to the gutter at the top and to the standpipe at the bottom, so you may need to secure the downspout to your house. Use a bracket or strap to keep it in place when you disconnect.

Use durable, gutter-grade materials such as aluminum, steel, copper, vinyl and plastic. Black ABS SCH 40 plastic is a durable option found in most hardware stores. Materials such as corrugated black plastic (ADS), roll-out hose, PVC pipe or open-trough materials have limited durability.

The existing sewer standpipe will need to be sealed as part of your project. This can be done with a rubber cap secured by a hose clamp or with a wing-nut test plug. Most standpipes are between three and five inches in diameter. Measure the INSIDE diameter of yours before shopping for the supplies you'll need.

Other suggestions

1. Consider installing a hinged downspout elbow and enclosed extension that you can flip up against the house for lawn mowing. The extension should be enclosed, not an open trough.

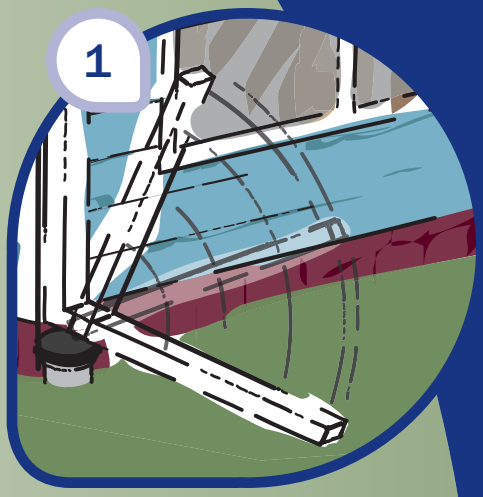
2. Think about creating a space to direct flow from the downspout by removing paved surfaces such as concrete walkways, patios or unused driveway area.

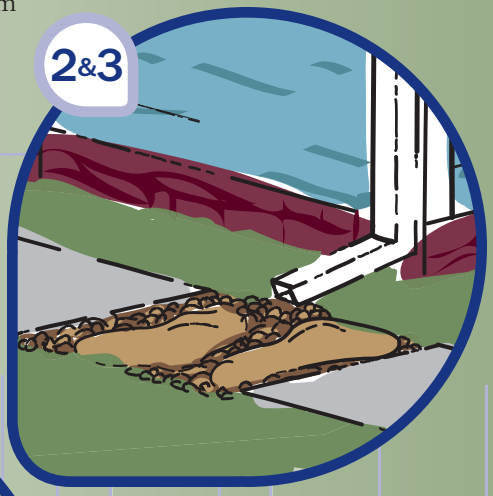
3. Replace pavement or concrete with pavers or gravel where appropriate to increase infiltration.

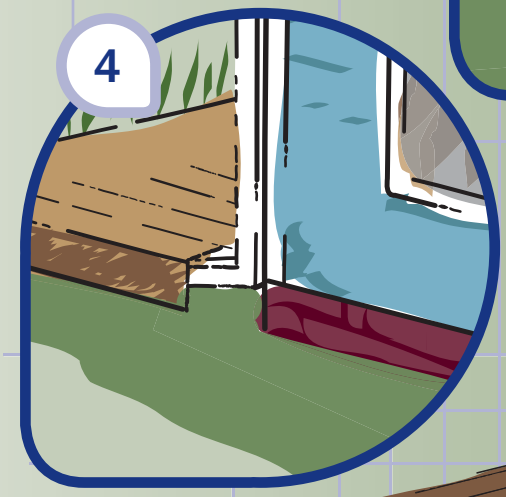
4. Extend downspouts underneath a deck or raised patio to get runoff away from your foundation and to a landscaped area.

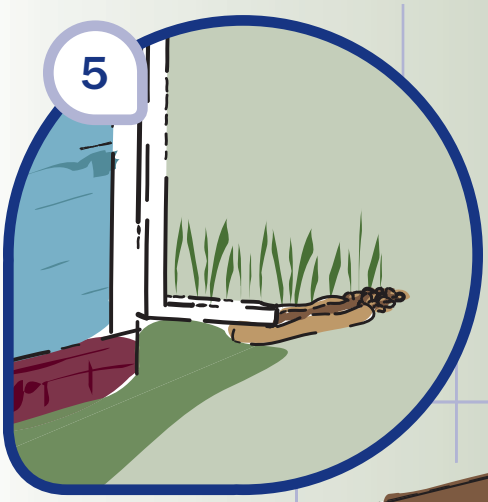
5. Use plastic or concrete splash blocks, rocks, flagstone or boulders at the end of the downspout to control erosion, help direct and diffuse runoff and add visual interest.

6. Incorporate other stormwater management techniques into your downspout disconnection or redirection project such as a rain garden, soakage trench or rainwater harvesting system. See the resources section for more information.

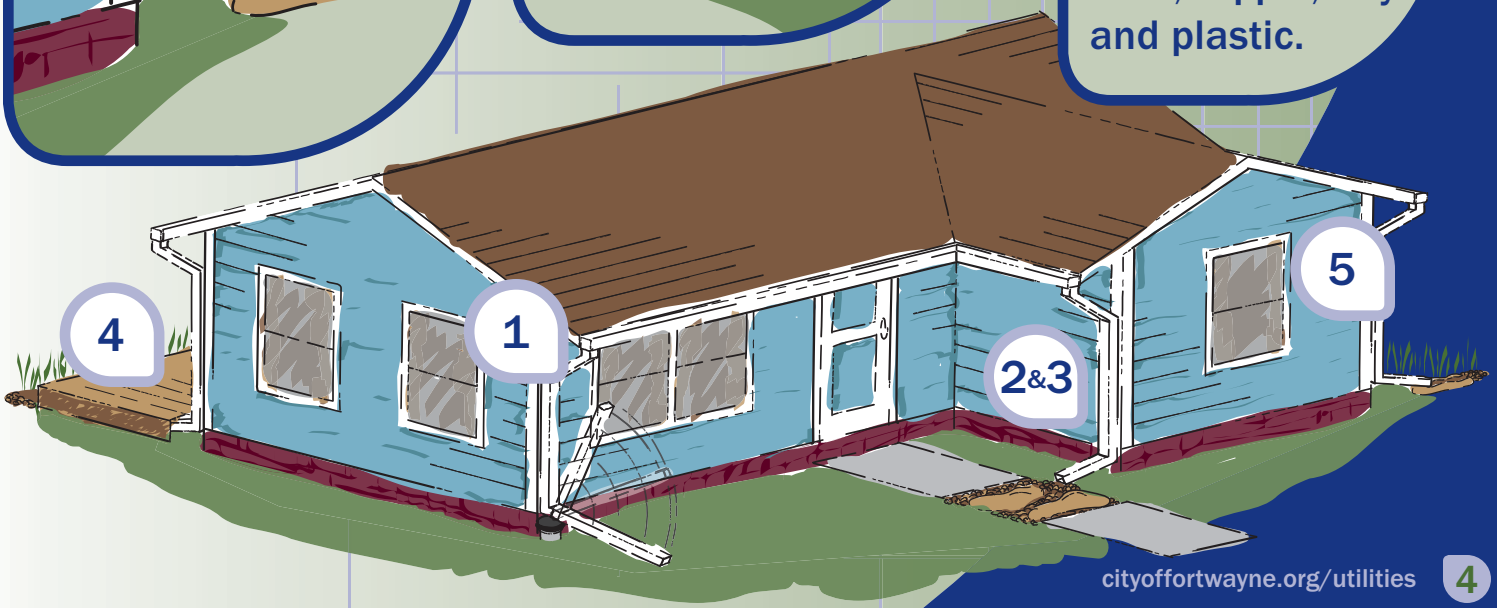








Use durable, gutter-grade materials such as aluminum, steel, copper, vinyl and plastic.

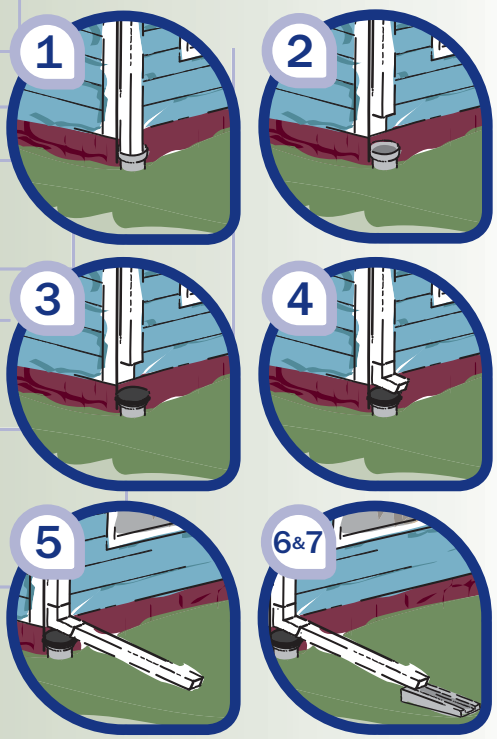


Step 3

Disconnect or Redirect

All disconnections should meet the safety considerations found on page 2 and the water should flow away from all structures. If your downspouts are not connected to a standpipe and already discharge onto the ground, you will find suggestions below for changing the direction of flow.

To Disconnect



1. Measure the existing downspout going up from the top of the standpipe and make a mark about 9 inches above the top of the standpipe. This is where you will make a cut. You may need to cut the downspout higher depending on the length of the extension.
2. Cut the existing downspout with a hacksaw at the mark. Remove the cut piece from the standpipe.
3. Plug or cap the standpipe using an in-pipe test plug or an over-the-pipe cap secured with a hose clamp.
4. Attach the elbow. Be sure to attach the elbow over the existing downspout. Do not insert the elbow into the downspout or it will leak. If the elbow does not fit over the downspout use needle-nose pliers or crimpers to crimp the end of the cut downspout so that it slides inside the elbow.
5. Measure and cut the downspout extension to the desired length. Attach the extension to the elbow by slipping the extension over the elbow. Do not install the elbow over the extension or it will leak. The length of the extension will depend on the site conditions and where you want the downspout to drain.
   - It is recommended that downspouts drain a minimum of 6-feet from basement walls and at least 2-feet from crawl spaces and concrete slabs.
   - The end of the downspout must be inside your property line. Remember it is against the law to drain your water so that it creates a drainage problem for a neighbor.
6. Secure the pieces of downspout with sheet metal screws at each joint where the downspout, elbow and extension connect. It helps to pre-drill holes for the screws.
7. Using a splash block or other diffusion device at the end of the extension is optional, but it will help to prevent soil erosion.

To Redirect

If your downspouts are already disconnected, you may want to change the way the water from your downspout flows or allow it to discharge farther away from the house foundation. Redirecting the flow may be necessary to avoid discharging water onto a neighboring property or to route water to a rain garden or other landscape feature. To redirect the flow, follow the suggestions earlier in this brochure for planning your project. Sketch your property and outline where the water goes now and where you would like for it to go.

Once you know where you want the water to go, you can purchase a different elbow configuration that will send the water in the direction you want. You can remove the existing end of the downspout and attach the new elbow as described above. Other options for redirecting the water include adding a plastic downspout extension. By bending these corrugated plastic devices and making them shorter or longer, you can direct the water to the exact location you want it to go. If you are not planning to route the water over a long distance, a resin or concrete splash block may be all you need.

If you are directing rain water to a rain garden or other landscape feature, consider building a rocky creek bed effect using river rock. Dig a shallow channel from the place where the downspout discharges to the location where you want the water to go. Line the channel with landscaping fabric then place rock along the sides and bottom of the channel. Remember that you will need a downhill slope in the channel to keep the water moving. This may require that you dig the trench deeper as you go farther from the downspout discharge.

Step 4

Maintenance

Proper maintenance of your gutters, downspouts and landscaping can help to reduce drainage problems. Fort Wayne City Code 152.04(D)(4) requires that gutters and downspouts be maintained in good repair and free of obstructions.

Gutters:

- Clean at least twice a year and more often if you have overhanging trees.
- Make sure gutters are pitched or slanted to direct water to downspouts.
- Caulk leaks and holes in gutters with a sealer made specifically for gutters.
- Make sure roof flashing directs water into the gutters.
- Look for low spots or sagging areas along the gutter line and repair with spikes or put new hangers in place as needed.

Downspouts:

- Check and clear elbows and bends in downspouts to prevent clogging. One way to do this is by inserting a garden hose into the lower end of the downspout and directing water up into the downspout.
- Each elbow or section of the downspout should funnel into the one below it. All parts should be securely fastened together with sheet metal screws.

Landscaping:

- The ground should slope away from all structures.
- Don't build up soil, mulch or woodpiles against siding.
- Avoid draining water onto impermeable plastic weed blocking material or cloth that may have been placed under your landscaping. The water will not soak in.

Info

Resources

Employees at hardware or home and garden stores are great resources and can provide suggestions for tools and equipment that may be helpful as you disconnect or redirect your downspouts.

Some helpful websites:

www.catchingrainfw.org – information about Fort Wayne's rain garden program.

www.cleanriverspdx.org – the City of Portland, Oregon's site includes brochures on disconnecting downspouts and using rain gardens and soakage trenches for managing rain water runoff.

www.ehow.com/how_115826_redirect-rainwater-downspout.html – lots of ideas for getting water from your downspouts to go where you want it to go.

v3.mmsd.com/DownspoutDisconnect.aspx – website of the Milwaukee Metropolitan Sewerage District that includes step-by-step photos showing how to disconnect downspouts.

www.toronto.ca/water/protecting_quality/downspout.htm

www.LARainwaterHarvesting.org – The City of Los Angeles' rain water harvesting program including a "Homeowner's How-To Guide" for disconnecting downspouts.

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LAYOUT AND ILLUSTRATIONS BY SCOTT NITZA
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